



MEMBER OF  
**FRANKISCHE GROUP**

# HAUPTKATALOG MAIN CATALOG



# FIPPROTECT

Kabelschutz für Automobile  
*Cable protection for automotive*

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##### 3D-BAUTEILBIBLIOTHEK

**CAD-Daten** und **3D Modelle** unserer Kabelschutz-  
produkte finden Sie ab sofort bei traceparts:



##### DESIGN LIBRARY

You can now find **CAD data** and **3D models**  
of our cable protection products at traceparts:



# FIPPROTECT

# Technik Technology

## Materialübersicht Wellrohre / *Material overview corrugated tubing*

| Material<br><i>Material</i> | Bezeichnung<br><i>Name</i> | Einsatztemperatur<br><i>Operating temperature</i> | Temperaturklasse<br><i>Temperature class</i> | Temperaturklasse*<br><i>Temperature class*</i> | Temperaturbeständigkeit 3.000 Std*<br><i>Temperature resistance 3,000 h*</i> |
|-----------------------------|----------------------------|---------------------------------------------------|----------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------|
| PE                          | FFTYL                      | 80 °C                                             | T1                                           | A                                              | 85 °C                                                                        |
| PA12                        | FFPA12                     | 100 °C                                            | T2                                           | B                                              | 100 °C                                                                       |
| PP                          | FFPYL                      | 105 °C                                            | T2                                           | B                                              | 100 °C                                                                       |
| PA6                         | FFMYD                      | 120 °C                                            | T2                                           | B                                              | 100 °C                                                                       |
| PP-MOD                      | FFPYL-MOD-BS               | 135 °C                                            | T3                                           | C                                              | 125 °C                                                                       |
| TPE                         | FFTPE                      | 150 °C                                            | T4                                           | D                                              | 150 °C                                                                       |
| PA6 MOD                     | FFMYD-MOD                  | 150 °C                                            | T4                                           | D                                              | 150 °C                                                                       |
| TPE-MOD                     | FFTPE-MOD                  | 175 °C                                            | T5                                           | E                                              | 175 °C                                                                       |
| Arnitel-C                   | FF-TPE-C                   | 175 °C                                            | T5                                           | E                                              | 175 °C                                                                       |
| ETFE                        | FFETFE                     | 200 °C                                            | T6                                           | F                                              | 200 °C                                                                       |
| MFA                         | FFMFA                      | 240 °C                                            | T7                                           | G                                              | 225 °C                                                                       |
| PFA-CL                      | FFPFA-CL                   | 240 °C                                            | T7                                           | G                                              | 225 °C                                                                       |
| PFA                         | FFPFA                      | 260 °C                                            | T8                                           | H                                              | 250 °C                                                                       |
| PFA-CS                      | FFPFA-CS                   | 260 °C                                            | T9                                           |                                                | 275 °C                                                                       |
| HF-CL                       | FFHT                       | 300 °C                                            | T10                                          |                                                | 300 °C                                                                       |

\*Temperaturklassen nach LV 312-3 / *Temperature classes according to LV 312-3*

## Materialübersicht Zubehör / *Material overview accessories*

| Material<br><i>Material</i> | Bezeichnung<br><i>Name</i> | Einsatztemperatur<br><i>Operating temperature</i> | Temperaturklasse<br><i>Temperature class</i> | Temperaturklasse*<br><i>Temperature class*</i> | Temperaturbeständigkeit 3.000 Std*<br><i>Temperature resistance 3,000 h*</i> |
|-----------------------------|----------------------------|---------------------------------------------------|----------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------|
| POM                         | FFPOM                      | 100 °C                                            | T2                                           | B                                              | 100 °C                                                                       |
| PP                          | FFPYL                      | 105 °C                                            | T2                                           | B                                              | 100 °C                                                                       |
| PA66                        | FFPA66                     | 135 °C                                            | T3                                           | C                                              | 125 °C                                                                       |
| PA66 + BS**                 | FFPA66-BS                  | 135 °C                                            | T3                                           | C                                              | 125 °C                                                                       |
| PA66 + GF15                 | FFPA66                     | 135 °C                                            | T3                                           | C                                              | 125 °C                                                                       |
| PA66 + GF30                 | FFPA66                     | 135 °C                                            | T3                                           | C                                              | 125 °C                                                                       |
| PA46                        | PA46                       | 150 °C                                            | T4                                           | D                                              | 150 °C                                                                       |
| TPE                         | FFTPE                      | 150 °C                                            | T4                                           | D                                              | 150 °C                                                                       |

\*Temperaturklassen nach LV 312-3 / *Temperature classes according to LV 312-3*

\*\* Brandschutz / *Fire Protection*



# Technik Technology

## Anwendungen / Applications



Abriebschutz  
*Abrasion protection*



Schlagschutz  
*Impact protection*



Zubehör  
*Accessories*



Hitzeschutz/  
Hochtemperatur  
*Heat protection/  
high temperature*



Kabelführung  
*Cable routing*



Verschleißbar  
*Sealable*



Automotive  
*Automotive*



Lärmschutz  
*Noise protection*

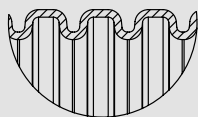


E-Mobilität  
*E-mobility*

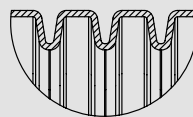


Truck  
*Truck*

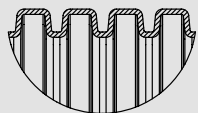
## Wellrohrprofile / Corrugated tubing profiles



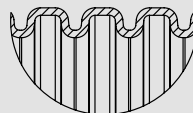
Standard  
*Standard*



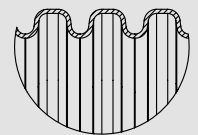
Softflex  
*Softflex*



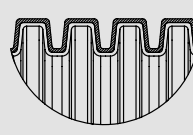
Marderschutz  
*Rodent protection*



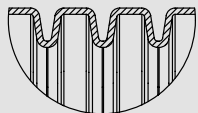
Lock-flex  
*Lock-flex*



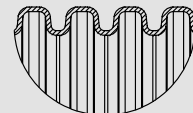
Hochtemperatur  
*High-temperature*



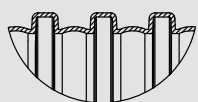
Monoflex, Monoflex truck  
und Co-flex  
*Monoflex, Monoflex  
truck and Co-flex*



Hohe Welle  
*High-corrugation*



Ovales Profil  
*Oval profile*



Softwave  
*Softwave*

**FÜLLGRAD**

**FILLING DEGREE**

Soweit nichts anderes angegeben, beträgt der Füllgrad 80 %.  
*Unless otherwise specified, the maximum usage  
of inside diameter is 80 %.*

Die angegebenen Werte beziehen sich auf interne Tests und befreien nicht von der Eigenprüfung bezogen auf die Endanwendung.

The given values are based on internal test and do not release from the self-test based on the end-use.

## Produktübersicht Wellrohre / Product overview corrugated tubing

| Produkt<br>Product                                                                                       | °C          |  |  |  |  |  |  |  |  | Seite<br>Page |
|----------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|
| Wellrohr Profil Standard<br>Standard profile corrugated tubing                                           | 85 – 200°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 18            |
| Wellrohr Profil Hohe Welle<br>High-corrugation profile corrugated tubing                                 | 85 – 250°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   |                                                                                     | 19            |
| Wellrohr Profil Softflex<br>Softflex profile corrugated tubing                                           | 85 – 100°C  |                                                                                   | ✗                                                                                 | ✗                                                                                  |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   |                                                                                     | 20            |
| Wellrohr Profil Softwave<br>Softwave profile corrugated tubing                                           | 85 – 200°C  | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   |                                                                                     | ✗                                                                                   | 21            |
| Wellrohr mit glatter Innenhaut<br>Corrugated tubing with smooth inner layer                              | 85 – 125°C  | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 22            |
| Wellrohr Profil Monoflex<br>Monoflex profile corrugated tubing                                           | 85 – 200°C  | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   |                                                                                     | 26            |
| Wellrohr Profil Monoflex truck<br>Monoflex truck profile corrugated tubing                               | 85 – 200°C  | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     | ✗                                                                                   | ✗                                                                                   |                                                                                     | ✗                                                                                   | 27            |
| Wellrohr Profil Lockflex<br>Lockflex profile corrugated tubing                                           | 85 – 175°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   |                                                                                     | 28            |
| Wellrohr Profil Co-flex<br>Co-flex profile corrugated tubing                                             | 100 – 200°C | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 29            |
| Wellrohr Profil Standard Hochtemperatur<br>High-temperature standard profile corrugated tubing           | 200 – 330°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   |                                                                                     | 32            |
| Wellrohr Profil Hohe Welle Hochtemperatur<br>High-temperature high-corrugation profile corrugated tubing | 200 – 330°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   |                                                                                     | 33            |
| Wellrohr Profil Softwave Hochtemperatur<br>High-temperature Softwave profile corrugated tubing           | 200 – 330°C | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 34            |
| Wellrohr Profil Lockflex Hochtemperatur<br>High-temperature Lockflex profile corrugated tubing           | 175 – 260°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   |                                                                                     | 35            |
| Wellrohr ovaless Profil<br>Oval profile corrugated tubing                                                | 85 – 200°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | 38            |
| Wellrohr mit Gewinde<br>Threaded corrugated tubing                                                       | 100 – 125°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | 39            |
| Wellrohr mit sequentiellen Abflussmöglichkeiten<br>Corrugated tubing with sequential perforations        | 100 – 150°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 40            |
| Wellrohr mit individuellem Anforderungsprofil<br>Corrugated tubing with individual requirement profile   | 85 – 200°C  | ✗                                                                                 | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     | ✗                                                                                   |                                                                                     | 41            |
| Wellrohr Coca Kabelkanal<br>Coca cable tray corrugated tubing                                            | 125°C       |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 42            |
| Wellrohr Profil Marderschutz<br>Anti-rodent-bite corrugated tubing                                       | 100 – 300°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 43            |
| Wellrohr Light protect<br>Light protect corrugated tubing                                                | 100 – 125°C |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 44            |
| Wellrohr mit Aussparung<br>Corrugated tubing with recess                                                 | 85 – 200°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 45            |
| Wellrohr mit integriertem Abstandhalter<br>Corrugated tubing with integrated spacer                      | 85 – 200°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 46            |
| Wellrohr mit Durchmessersprüngen<br>Corrugated tubing with diameter changes                              | 85 – 200°C  |                                                                                   | ✗                                                                                 |                                                                                    |                                                                                     |                                                                                     | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 47            |

Die angegebenen Werte beziehen sich auf interne Tests und befreien  
nicht von der Eigenprüfung bezogen auf die Endanwendung.

The given values are based on internal test and do not release  
from the self-test based on the end-use.

## Produktübersicht Schutzschläuche / Product overview protection sleeves

| Produkt<br>Product  | °C             |  |  |  |  |  |  |  | Seite<br>Page |
|---------------------|----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|
| FAP                 | 200°C / 650°C* |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   |                                                                                     |                                                                                     | ✗                                                                                   | 50            |
| FAP Printed         | 200°C / 650°C* |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   |                                                                                     |                                                                                     | ✗                                                                                   | 51            |
| FAP Sewn            | 200°C / 650°C* |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   |                                                                                     |                                                                                     | ✗                                                                                   | 52            |
| FAP W               | 250°C / 650°C* |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   |                                                                                     |                                                                                     | ✗                                                                                   | 53            |
| FAP Cap             | 200°C / 650°C* |                                                                                   |                                                                                   | ✗                                                                                 |                                                                                   |                                                                                     | ✗                                                                                   | ✗                                                                                   | 54            |
| FAP Lock            | 150°C / 480°C* |                                                                                   |                                                                                   | ✗                                                                                 |                                                                                   |                                                                                     | ✗                                                                                   | ✗                                                                                   | 55            |
| G0S                 | 210°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 60            |
| G0B                 | 155°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 61            |
| G0E                 | 210°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 62            |
| G0S Alu             | 210°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 63            |
| G0T Knitted         | 250°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 64            |
| G0TS Braided        | 250°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 65            |
| FSPH                | 210°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 66            |
| MTP                 | 350°C          |                                                                                   | ✗                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ✗                                                                                   | 68            |
| HTP                 | 400°C          |                                                                                   | ✗                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     | ✗                                                                                   | 69            |
| GGU                 | 160°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 73            |
| GGD                 | 160°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 74            |
| FS 2 Million        | 160°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 75            |
| FS 2 Million Pad    | 160°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     | ✗                                                                                   | ✗                                                                                   | 76            |
| FIP A Lock          | 150°C          | ✗                                                                                 | ✗                                                                                 |                                                                                   | ✗                                                                                 | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 78            |
| GA Basic            | 180°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 82            |
| GA Flex             | 160°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 83            |
| GX0                 | 180°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 84            |
| GX0 Pro             | 180°C          |                                                                                   | ✗                                                                                 |                                                                                   | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 85            |
| GA1/GA2             | 180°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 86 / 87       |
| GA1 Soft / GA2 Soft | 180°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 88 / 89       |
| GA3                 | 180°C          | ✗                                                                                 | ✗                                                                                 |                                                                                   | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 90            |
| GA6                 | 130°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 91            |
| GA11                | 180°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 92            |
| GA Crash Pad        | 180°C          |                                                                                   |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 93            |
| GGA Pro             | 180°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 94            |
| Crashtex            | 150°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   |                                                                                     | ✗                                                                                   | 95            |
| Crashtex Lock       | 150°C          | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 | ✗                                                                                   | ✗                                                                                   | ✗                                                                                   | 96            |
| GN1 / GN1 Violet    | 350°C / 250°C  |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   | ✗                                                                                   |                                                                                     |                                                                                     | 97            |
| Bacid Pro           | 200°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   | ✗                                                                                   |                                                                                     | ✗                                                                                   | 100           |
| Emitec              | 220°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   | ✗                                                                                   |                                                                                     | ✗                                                                                   | 101           |
| Isocorr S           | 200°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 | ✗                                                                                 |                                                                                     |                                                                                     | ✗                                                                                   | 102           |
| GN1 Double          | 350°C          |                                                                                   | ✗                                                                                 | ✗                                                                                 |                                                                                   | ✗                                                                                   |                                                                                     | ✗                                                                                   | 103           |

\* Strahlungstemperaturen / Radiation temperature

## **Wer wir sind** Individuell wie unsere Kunden

FRÄNKISCHE Industrial Pipes ist weltweiter Entwicklungspartner von OEMs und Tier 1. Mit weltweit über 280.000 qm Produktionsfläche für Wellrohre und einer über 100 Mann starken Entwicklungsmannschaft bringen wir unsere Lösungen in Serienreife zum Kunden.

100% ige Zuverlässigkeit steht für uns an erster Stelle. Daher werden unsere Produkte von unabhängigen Prüfinstituten getestet. Da wir wissen, dass permanente Erreichbarkeit aufgrund der immer kürzer werdenden Entwicklungszeiten sowie individuell abgestimmte Logistikkonzepte Grundvoraussetzungen sind, werden wir als internationaler Partner Ihren Ansprüchen mit Produktionsstätten in Deutschland, Rumänien, der Tschechischen Republik, Marokko, China, USA und Mexiko gerecht.

Wir lösen mit unseren Schutzsystemen am liebsten solche Aufgabenstellungen, an denen andere wahrscheinlich scheitern. Aufgaben, bei denen man in technischer Hinsicht an die Grenzen des Machbaren gehen muss. Aufgaben, bei denen in punkto Zuverlässigkeit mehr als 100 % verlangt werden. Aufgaben, bei denen unsere Art der partnerschaftlichen Zusammenarbeit ganz entscheidend dazu beiträgt, extrem komplexe Technik wirtschaftlich und wertvoll zu machen.

Nutzen Sie unsere jahrzehntelange Erfahrung als Entwicklungspartner.

## **Who we are** *As individual as our customers*

*FRÄNKISCHE Industrial Pipes is the global development partner of OEMs and tier 1 manufacturers. We produce corrugated tubing on a shop floor of over 280,000 sqm worldwide. A team of over 100 people provides our customers with solutions which are ready for series production.*

*100 % reliability is our first priority – that is why our products are tested by independent testing institutes. Since we know that permanent availability due to ever decreasing development times, and individually tailored logistics are basic requirements, we meet our clients' requirements as an international partner with production facilities in Germany, Romania, the Czech Republic, Morocco, China, the US and Mexico.*

*We are proud to provide solutions with our protection systems which others probably cannot. Tasks taking us to the technical limit. Tasks requiring more than 100 % reliability. Tasks where our way of cooperative collaboration significantly contributes to making extremely complex technology efficient and valuable.*

*Take advantage of our decades of experience as a development partner.*



WO WIR SIND

WHERE WE ARE

## Unsere Standorte

### ■ AFRIKA

Casablanca, Marokko

### ■ AMERIKA

Rochester Hills, USA\* / Silao, Mexiko

### ■ ASIEN

Anting/Shanghai, China / Changshu, China  
Pune, Indien\*

### ■ EUROPA

Königsberg i. Bay., Deutschland (Hauptsitz)  
Cluj, Rumänien / Okříšky, Tschechien

## Our locations

### ■ AFRICA

Casablanca, Morocco

### ■ AMERICA

Rochester Hills, USA\* / Silao, Mexico

### ■ ASIA

Anting/Shanghai, China / Changshu, China  
Pune, India\*

### ■ EUROPE

Königsberg, Germany (headquarters)  
Cluj, Romania / Okříšky, Czech Republic

Unsere Leidenschaft?

## Wir sind Material Spezialisten

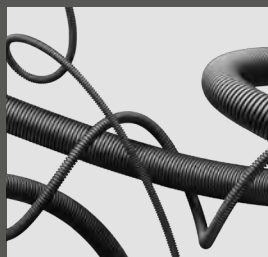
und arbeiten mit unzähligen Technologien: Wir kombinieren sie sogar miteinander, um neue Anwendungsmöglichkeiten zu schaffen, die bisher mit Kunststoff nicht möglich waren.

*Our Passion?*

## *We are material specialists*

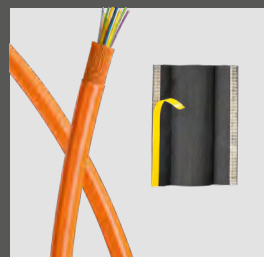
*and we work with countless technologies: we even combine them with each other to create new application possibilities that were not possible with plastic before.*

### Unsere Technologien / *Our technologies*



Extrudieren  
*Extrusion*

Beschichten  
*Coating*



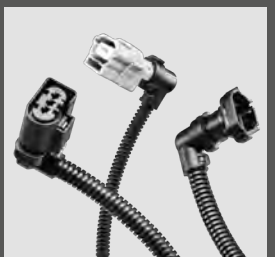
Nähen, Lochen,  
Kleben  
*Sewing, punching,  
gluing*

Blasformen  
*Blow molding*

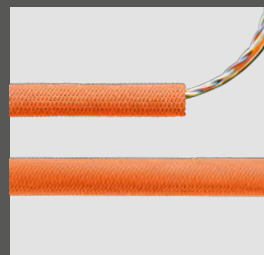


Stricken  
*Knitting*

Imprägnieren  
*Impregnation*



Konfektionieren  
*Assembling*



Spritzgießen  
*Injection molding*

# Was wir können

## Vielfalt trifft Technik

Unser Spezialgebiet ist es, aus extrudierbaren Kunststoffen und mono- wie multifilen Garnen unterschiedliche Kunststoffrohre sowie Schläuche in verschiedenen Ausprägungen zu formen. Was uns so besonders macht, ist gerade unser Wissen darüber, was man mit Well- und Glattrohrsystemen (mit bis zu 5 Schichten) bzw. mit Geflecht- und Strickschläuchen in der praktischen Anwendung alles machen kann. Zu unseren Technologien gehören außerdem noch Blasformen, Stricken, Thermoverformung und Montage.

Unser hauseigener Anlagen- und Werkzeugbau, die Betriebsmittelkonstruktion, Verfahrenstechnik und Prozessstechnologie sorgen dafür, dass wir stets eine Nase Länge voraus sind. Bei uns fließen unterschiedliche Spezifika letztlich in einem einzigen Produkt zusammen. Hier werden dann genau diejenigen Anforderungen erfüllt, die für diese eine Aufgabenstellung eine optimale, weil individuell angepasste, Lösung darstellt.

Wenn man so arbeitet wie wir, gibt es eigentlich keine Standardlösungen. Doch manchmal lässt sich aus einer individuellen Lösung ein Standardprodukt ableiten, das man vervielfältigen und einem breiteren Publikum anbieten kann. Solche Produkte finden Sie in diesem Katalog. Dass die Lösungen, die man mit diesen Produkten gestalten kann, auch hoch individuell sind, liegt auf der Hand. Die meisten Erfahrungen diesbezüglich haben wir in folgenden Branchen gesammelt:

Automobil- und Zulieferindustrie, Nutzfahrzeugindustrie, Haushaltsgeräteindustrie, Maschinen- und Anlagenbau, Medizin- und Sanitärtechnik, Gebäudetechnik, erneuerbare Energien. Wäre doch schade, so viel individuelles Wissen nicht generell zu nutzen.

# What we do

## Diversity meets technology

*Manufacturing tubing designs made of extrudable plastic and monofile/multifile yarns and hoses in different geometries are our specialty. What makes us so special is that we are familiar with the possible applications of corrugated and smooth tubing systems (with up to 5 layers) or braided and knitted hoses. Our technologies also include blow molding, knitting, thermoforming and assembling.*

*Our in-house machine & tooling design, process engineering and process technology make sure that we are always one step ahead of our competitors. We incorporate various specifications to form one individual product. This then exactly meets the requirements which represent the ideal and individually tailored solution of this task. There are no standard solutions if you work like we do.*

*However, sometimes a standard product can be derived from an individual solution which can then be reproduced and offered to a larger number of customers. This catalogue includes such products. It is obvious that the solutions provided by these products are highly individual, too. Most of our experience in this regard comes from the following industries:*

*automotive and auto components industry, utility vehicles industry, home appliance industry, machinery engineering, medical and sanitary technology, building technology, renewable energies. It would be a pity if we did not use that specific knowledge in a more general way.*



# Nachhaltigkeit im Fokus

Unsere Unternehmensphilosophie beruht auf dem Prinzip der Nachhaltigkeit. Als weltweit tätiger Anbieter von Kabelschutzsystemen und medienführenden Systemen für die Automobil- und Industriebranche ist es unser Ziel, eine ausgewogene Balance zwischen Wachstum, sozialer Verantwortung und ökologischer Nachhaltigkeit zu schaffen.

Wir streben danach, Stabilität zu gewährleisten, die Zukunft unseres Unternehmens zu sichern und zur nachhaltigen Entwicklung von Wirtschaft und Gesellschaft beizutragen.

Nachhaltigkeit umfasst für uns drei Dimensionen:

- **Wirtschaftliche Nachhaltigkeit:** Unser Ziel ist es, das Unternehmen langfristig und nachhaltig zu führen. Ein gesundes Unternehmenswachstum ist für uns von zentraler Bedeutung.
- **Ökologische Nachhaltigkeit:** Wir setzen uns dafür ein, natürliche Ressourcen zu schonen. Unsere Produkte helfen Umweltbelastungen zu reduzieren und zum Schutz der Umwelt beizutragen.
- **Soziale Nachhaltigkeit:** Wir legen Wert darauf, soziale Aspekte in unsere Geschäftspraktiken zu integrieren. Fairness gegenüber unseren Mitarbeitern und der Gesellschaft im Allgemeinen ist für uns von hoher Bedeutung.

Mit unserer Vision streben wir nicht nur nach unternehmerischem Erfolg, sondern möchten auch einen positiven Beitrag für eine nachhaltige Zukunft leisten.

## Focus on sustainability

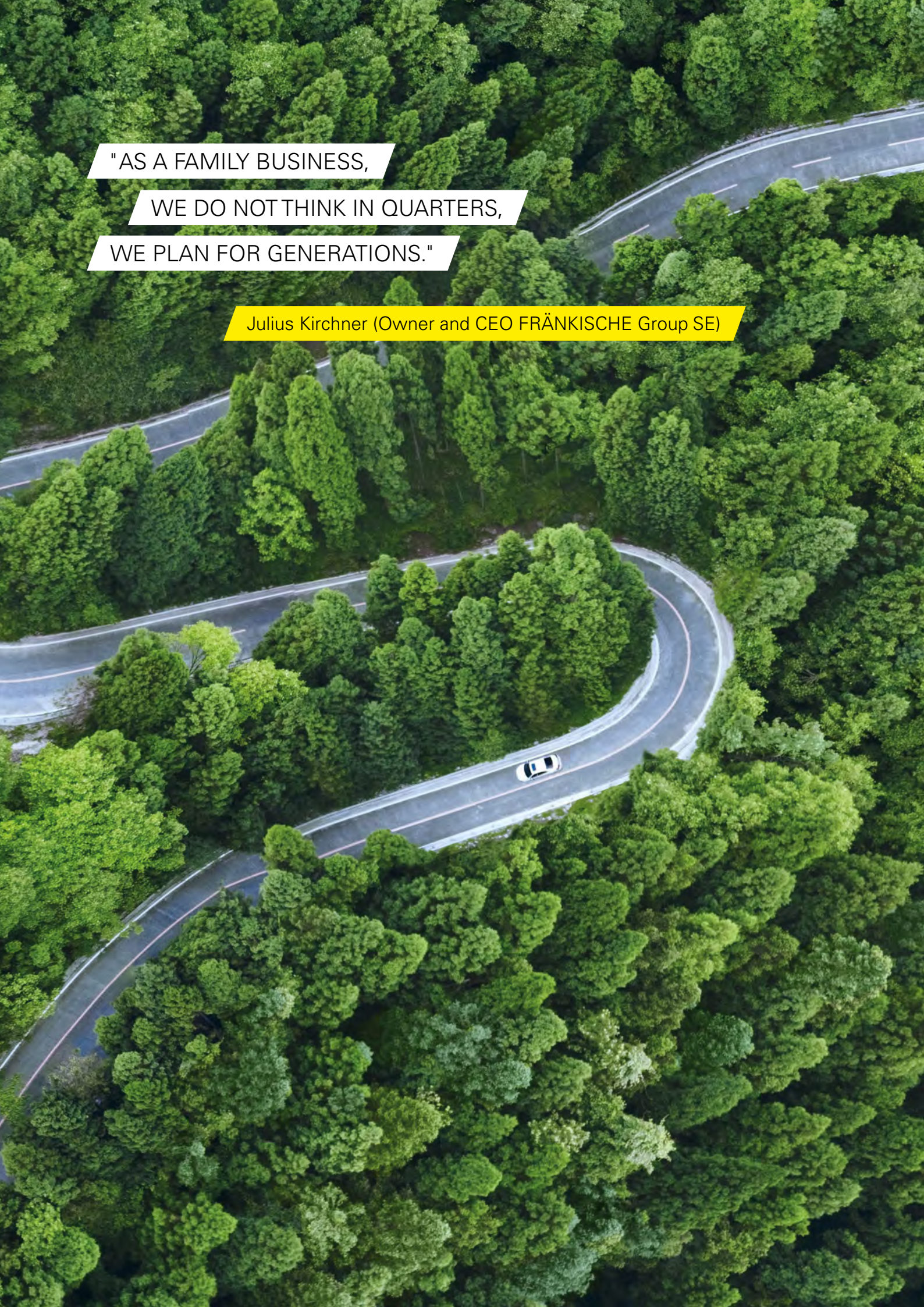
*Our corporate philosophy is based on the principle of sustainability. As a global supplier of cable protection systems and media-conducting systems for the automotive and industrial sectors, our aim is to strike a balance between growth, social responsibility and environmental sustainability. We strive to ensure stability, secure the future of our company and contribute to the sustainable development of the economy and society.*

*For us, sustainability encompasses three dimensions:*

- **Economic sustainability:** *our aim is to manage the company sustainably over the long term. Healthy corporate growth is of central importance to us.*
- **Ecological sustainability:** *We are committed to conserving natural resources. Our products help to reduce environmental pollution and contribute to the protection of the environment.*
- **Social sustainability:** *We attach great importance to integrating social aspects into our business practices. Fairness towards our employees and society in general is of great importance to us.*

*With our vision, we not only strive for entrepreneurial success, but also want to make a positive contribution to a sustainable future.*



An aerial photograph of a winding asphalt road that snakes through a dense, lush green forest. The road has white lane markings and a red curb on one side. A small white car is visible on the road, traveling away from the viewer. The forest is composed of many tall, leafy trees, creating a vibrant green canopy.

"AS A FAMILY BUSINESS,

WE DO NOT THINK IN QUARTERS,

WE PLAN FOR GENERATIONS."

Julius Kirchner (Owner and CEO FRÄNKISCHE Group SE)



## SDG "Sustainable Development"



## SDG "Environmental Responsibility"



## SDG "Social Responsibility"





FRÄNKISCHE Industrial Pipes orientiert sich an Standards wie dem UN Global Compact und anderen internationalen Abkommen zur Förderung verantwortungsbewusster Unternehmensführung und globaler Gerechtigkeit. Es trägt zu verschiedenen Zielen für nachhaltige Entwicklung bei, um Stabilität zu gewährleisten, die Zukunft zu sichern und zur nachhaltigen Entwicklung von Wirtschaft und Gesellschaft beizutragen.

Diese Standards und Leitlinien sind für uns verbindlich und dienen als Leitfaden für unser Handeln im Bereich der Nachhaltigkeit. Sie helfen uns dabei, unsere Ziele stetig zu verfolgen und sicherzustellen, dass wir unseren Beitrag zur nachhaltigen Entwicklung von Wirtschaft und Gesellschaft kontinuierlich verbessern. Durch die Einhaltung dieser Standards können wir sicherstellen, dass wir auch in Zukunft stabil wachsen und gleichzeitig unsere soziale und ökologische Verantwortung wahrnehmen können. Unsere Nachhaltigkeitsstrategie ist somit fest in unserer Unternehmenskultur verankert und bildet die Grundlage für unser langfristiges Engagement im Bereich der Nachhaltigkeit.

Unsere Nachhaltigkeitsstrategie umfasst verschiedene Maßnahmen, die sicherstellen, dass wir kontinuierlich den ökologischen Fußabdruck unseres Unternehmens reduzieren. Dazu gehören beispielsweise die Nutzung erneuerbarer Energien, die Reduzierung von Abfall und die Förderung von Umweltschutzprojekten. So können wir langfristig erfolgreich sein und gleichzeitig einen positiven Beitrag zur Gesellschaft leisten.

*FRÄNKISCHE Industrial Pipes is guided by standards such as the UN Global Compact and other international agreements to promote responsible corporate governance and global justice. It contributes to various sustainable development goals to ensure stability, secure the future and contribute to the sustainable development of the economy and society.*

*These standards and guidelines are binding for us and serve as a guide for our actions in the area of sustainability. They help us to constantly pursue our goals and ensure that we continuously improve our contribution to the sustainable development of the economy and society. By adhering to these standards, we can ensure that we can continue to grow steadily in the future and at the same time fulfill our social and environmental responsibilities. Our sustainability strategy is therefore firmly anchored in our corporate culture and forms the basis for our long-term commitment to sustainability.*

*Our sustainability strategy includes various measures to ensure that we continuously reduce our company's environmental footprint. These include, for example, the use of renewable energy, the reduction of waste and the promotion of environmental protection projects. In this way, we can be successful in the long term and make a positive contribution to society at the same time.*

Detaillierte Informationen finden Sie in unserem **Nachhaltigkeitsbericht**:

You can find detailed information in our **sustainability report**:



Kategorie 1.1 / Chapter 1.1

# Standardwellrohre

## *Standard corrugated tubing*

### Produktübersicht / Product overview

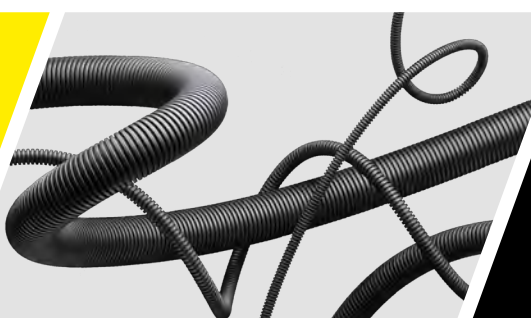
| Produkt<br>Product                                                                 | Temperaturklasse*<br>Temperature class* | Flexibilität<br>Flexibility | Mech. Beständigkeit<br>Mech. resistance | Seite<br>Page |
|------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|-----------------------------------------|---------------|
| Wellrohr Profil Standard<br><i>Standard profile corrugated tubing</i>              | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 18            |
| Wellrohr Profil Hohe Welle<br><i>High-corrugation profile corrugated tubing</i>    | T1 – T8                                 | ■ ■ ■                       | ■ ■ ■                                   | 19            |
| Wellrohr Profil Softflex<br><i>Softflex profile corrugated tubing</i>              | T1 – T2                                 | ■ ■ ■                       | ■ ■ ■                                   | 20            |
| Wellrohr Profil Softwave<br><i>Softwave profile corrugated tubing</i>              | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 21            |
| Wellrohr mit glatter Innenhaut<br><i>Corrugated tubing with smooth inner layer</i> | T1 – T3                                 | ■ ■ ■                       | ■ ■ ■                                   | 22            |

\* Materialübersicht siehe S. 4 / Material survey see page 4



## Empfohlene Anwendungsbereiche / Recommended areas of application

| Produkt<br>Product                                                          |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Wellrohr Profil Standard<br>Standard profile corrugated tubing              |                                                                                   | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr Profil Hohe Welle<br>High-corrugation profile corrugated tubing    |                                                                                   | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     |
| Wellrohr Profil Softflex<br>Softflex profile corrugated tubing              |                                                                                   | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     |
| Wellrohr Profil Softwave<br>Softwave profile corrugated tubing              | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     |                                                                                     | x                                                                                   |                                                                                     | x                                                                                   |
| Wellrohr mit glatter Innenhaut<br>Corrugated tubing with smooth inner layer | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |



## Kategorie 1.1 / Chapter 1.1

## Wellrohr Profil Standard

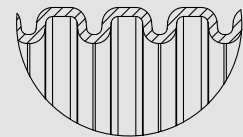
### Standard profile corrugated tubing

- zuverlässiger Schutz der Kabel
- sichere und flexible Kabelführung und -bündelung
- sehr hohe mechanische Festigkeit bei geringer Wandstärke
- gute Flexibilität auch bei engen Biegeradien
- breite Durchmesserpalette
- reliable cable protection
- safe and flexible cable routing and bundling
- very high mechanical strength and minimum wall thickness
- good flexibility even at small bending radii
- wide range of diameters

Entwicklung von  
**FRÄNKISCHE**  
Development of



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 3   | 3,0       | 5,1       |
| 4,5 | 4,8       | 7,1       |
| 5   | 5,0       | 7,1       |
| 6   | 6,0       | 8,6       |
| 7,5 | 6,9       | 9,9       |
| 8,5 | 8,5       | 11,4      |
| 10  | 10,1      | 12,6      |
| 11  | 10,8      | 13,6      |
| 12  | 12,0      | 15,6      |
| 13  | 12,9      | 15,8      |
| 14  | 14,5      | 18,4      |
| 16  | 15,2      | 18,7      |
| 17  | 16,8      | 21,0      |
| 19  | 19,4      | 24,0      |
| 22  | 21,8      | 25,5      |
| 23  | 23,7      | 28,0      |
| 26  | 26,1      | 31,0      |
| 29  | 29,3      | 33,9      |
| 33  | 33,1      | 38,2      |
| 37  | 33,8      | 41,6      |
| 50  | 45,2      | 53,2      |



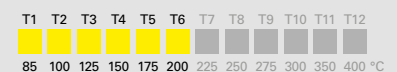
Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4



## Kategorie 1.1 / Chapter 1.1

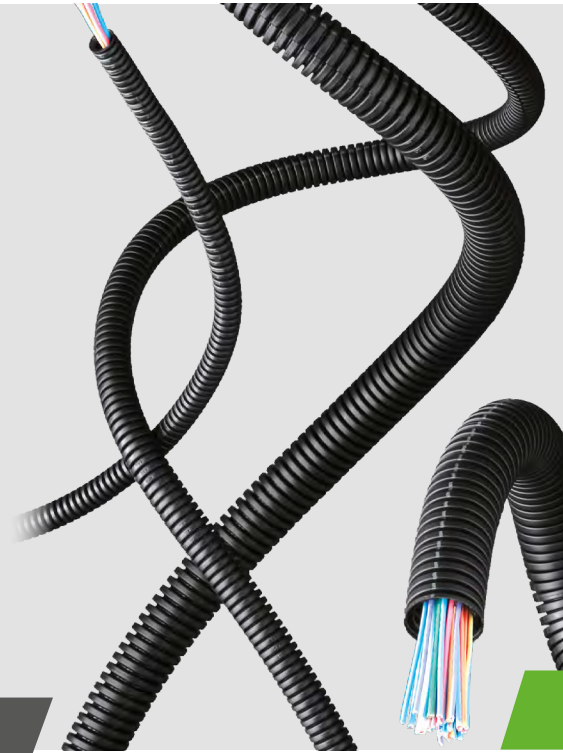
**Wellrohr Profil Hohe Welle**

für sehr enge Biegeradien

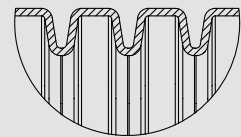
**High corrugation profile corrugated tubing**

for very small bending radii

- zuverlässiger Schutz der Kabel
- sichere und flexible Kabelführung und -bündelung
- sehr hohe mechanische Festigkeit bei geringer Wandstärke
- höchste Flexibilität auch bei engen Biegeradien
- auch als geschlitzte Variante erhältlich
- kein Austreten der Kabel
- reliable cable protection
- safe and flexible cable routing and bundling
- very high mechanical strength and minimum wall thickness
- good flexibility even at small bending radii
- also available as slit version
- cables are secure

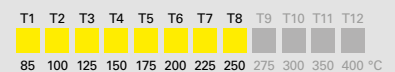


| NW   | Ø-I in mm | Ø-A in mm |
|------|-----------|-----------|
| 4,5  | 4,8       | 7,1       |
| 5    | 5,0       | 7,1       |
| 6 S  | 6,0       | 9,6       |
| 8,5  | 8,5       | 12,9      |
| 9 S  | 5,0       | 13,5      |
| 11   | 11,1      | 15,7      |
| 11 S | 11,0      | 16,4      |
| 13 S | 13,4      | 18,5      |
| 15   | 15,0      | 21,2      |
| 16 S | 16,6      | 21,6      |
| 19   | 19,1      | 25,7      |
| 19 S | 19,3      | 24,0      |
| 23 S | 23,4      | 28,7      |
| 26   | 25,9      | 31,0      |
| 26 S | 24,9      | 31,6      |
| 29   | 29,3      | 33,9      |
| 34   | 34,1      | 39,5      |



- Flexibilität  
Flexibility
- Mechanische Beständigkeit  
Mechanical resistance
- FMVSS 302
- Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.1 / Chapter 1.1

**Wellrohr Profil Softflex**

zur Geräuschdämmung

**Softflex profile corrugated tubing**

for noise damping

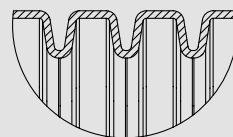
Entwicklung von  
**FRÄNKISCHE**  
Development of

- Mehrschichtrohr aus TPE und PP
- sichere und flexible Kabelführung und -bündelung
- zuverlässiger Schutz der Kabel
- integrierte Geräuschdämmung
- enge Biegeradien möglich
- multilayer corrugated tubing made of TPE and PP
- safe and flexible cable routing and bundling
- reliable cable protection
- integrated noise damping
- small bending radii possible



| NW   | Ø-I in mm | Ø-A in mm |
|------|-----------|-----------|
| 4,5* | 4,7       | 7,1       |
| 6*   | 6,0       | 9,6       |
| 9*   | 8,5       | 12,9      |
| 11   | 11,1      | 15,7      |
| 13 S | 13,4      | 18,5      |
| 15   | 15,0      | 21,2      |
| 19 S | 19,3      | 24,0      |
| 23   | 23,4      | 28,7      |
| 26 S | 24,9      | 31,6      |

\* Profil OEM Frankreich / Special profile French OEMs

Flexibilität  
FlexibilityMechanische Beständigkeit  
Mechanical resistance

FMVSS 302

Halogenfrei  
Halogen-freeTemperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\* Materialübersicht siehe S. 4 / Material survey see page 4

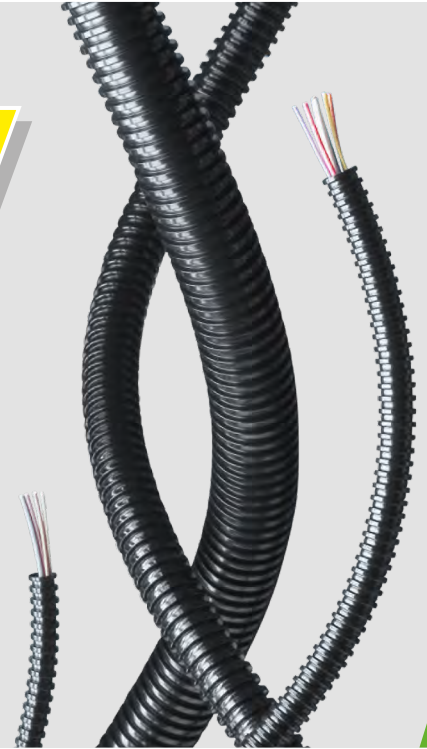
## Kategorie 1.1 / Chapter 1.1

**Wellrohr Profil Softwave**

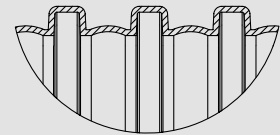
bei starken Vibrationen

**Softwave profile corrugated tubing***for strong vibrations*Entwicklung von  
**FRÄNKISCHE**  
Development of

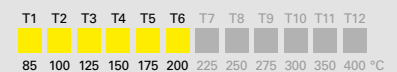
- zuverlässiger Schutz der Kabel und anliegenden Bauteile vor Abrieb
- kein Durchscheuern der Kabel
- hohe Auflagefläche der breiten Wellenberge und -täler (innen und außen)
- hält auch starken Vibrationen Stand
- Tapen kann entfallen
- enge Biegeradien möglich
- *protects cables and adjacent components against abrasion*
- *no chaffing of cables under extreme high-vibration conditions*
- *large surface area (inside and outside)*
- *even withstands strong vibrations*
- *cable tape wrapping not necessary*
- *small bending radii possible*



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 4,5 | 4,7       | 7,1       |
| 7,5 | 6,6       | 9,9       |
| 8,5 | 8,4       | 11,4      |
| 10  | 9,5       | 12,7      |
| 13  | 12,3      | 15,8      |
| 17  | 16,0      | 20,9      |
| 22  | 21,2      | 25,3      |
| 23  | 23,0      | 28,1      |
| 26  | 25,7      | 31,2      |
| 29  | 29,2      | 34,1      |



- Flexibilität  
*Flexibility*
- Mechanische Beständigkeit  
*Mechanical resistance*
- FMVSS 302
- Halogenfrei  
*Halogen-free*

Temperaturbeständigkeit\*  
*Temperature resistance\**\*Materialübersicht siehe S. 4 / *Material survey see page 4*



## Kategorie 1.1 / Chapter 1.1

**Wellrohr mit glatter Innenhaut**

für schnelles Einziehen

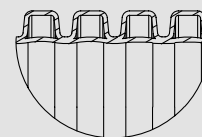
**Corrugated tubing with smooth inner layer**  
for quick draw-in

- zuverlässiger Schutz der Kabel in Bereichen mit hohen Vibrationen
  - dank der gewellten Oberfläche perfekt zu fixierende Anbindungsmöglichkeiten
  - sichere und flexible Kabelführung und -bündelung
  - hohe Flexibilität bei gleichzeitig hoher mechanischer Festigkeit
  - ermöglicht einen schnellen Kabeleinzug
- reliable protection of cables in high-vibration environments
  - thanks to the corrugated surface, connection options can be perfectly fixed
  - safe and flexible cable routing and bundling
  - provides both superior flexibility and high mechanical strength
  - easy insertion of cables

Entwicklung von  
**FRÄNKISCHE**  
Development of

| NW | Ø-I in mm | Ø-A in mm |
|----|-----------|-----------|
| 17 | 15,6      | 21,1      |
| 22 | 20,2      | 25,5      |
| 26 | 24,5      | 31,2      |
| 29 | 27,5      | 34,5      |

Endgültige Maße und Toleranzen werden nach 0-Serienfertigung festgelegt.  
Final dimensions and tolerances are determined after pilot production.



- Flexibilität  
Flexibility
- Mechanische Beständigkeit  
Mechanical resistance
- FMVSS 302
- Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

# Notizen / Notes

Kategorie 1.2 / Chapter 1.2

# Verschleißbare Wellrohre

## Sealable corrugated tubing

### Produktübersicht / Product overview

| Produkt<br>Product                                                         | Temperaturklasse*<br>Temperature class* | Flexibilität<br>Flexibility | Mech. Beständigkeit<br>Mech. resistance | Seite<br>Page |
|----------------------------------------------------------------------------|-----------------------------------------|-----------------------------|-----------------------------------------|---------------|
| Wellrohr Profil Monoflex<br>Monoflex profile corrugated tubing             | T1 – T6                                 | ■■■                         | ■■■                                     | 26            |
| Wellrohr Profil Monoflex truck<br>Monoflex truck profile corrugated tubing | T1 – T6                                 | ■■■                         | ■■■                                     | 27            |
| Wellrohr Profil Lockflex<br>Lockflex profile corrugated tubing             | T1 – T5                                 | ■■■                         | ■■■                                     | 28            |
| Wellrohr Profil Co-flex<br>Co-flex profile corrugated tubing               | T2 – T6                                 | ■■■                         | ■■■                                     | 29            |

\* Materialübersicht siehe S. 4 / Material survey see page 4



## Empfohlene Anwendungsbereiche / Recommended areas of application

| Produkt<br>Product                                                                |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Wellrohr Profil Monoflex<br><i>Monoflex profile corrugated tubing</i>             | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     |
| Wellrohr Profil Monoflex truck<br><i>Monoflex truck profile corrugated tubing</i> | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     | x                                                                                   |
| Wellrohr Profil Lockflex<br><i>Lockflex profile corrugated tubing</i>             |                                                                                   | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     |
| Wellrohr Profil Co-flex<br><i>Co-flex profile corrugated tubing</i>               | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                   |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |





## Kategorie 1.2 / Chapter 1.2

**Wellrohr Profil Monoflex**

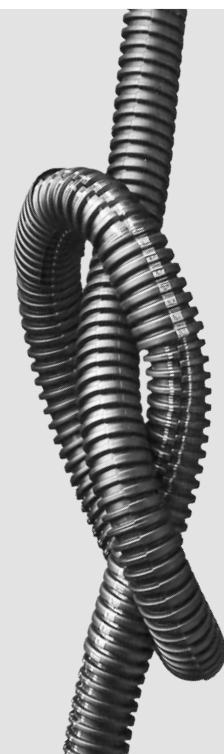
(partiell) zu verschließen, zur nachträglichen Montage

**Monoflex profile corrugated tubing**

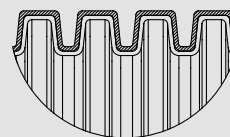
to be (partially) closed, for subsequent assembly

Entwicklung von  
**FRÄNKISCHE**  
Development of

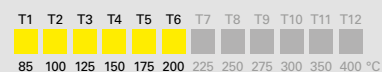
- durchgehend oder partiell (Monoflex cap) wiederverschließbares Wellrohr
- als geschlossene oder geschlitzte Variante erhältlich
- zuverlässiger Schutz der Kabel und Leitungen bei engsten Biegeradien
- leichte Montage, auch zur Nachinstallation geeignet
- kein Austreten der Kabel möglich
- Tapen der Kabel kann entfallen
- continuous or partially (Monoflex cap) resealable corrugated tubing
- available as unslit or slit tubing
- reliable protection for wires and cables even at very small bending radii
- easy installation, also suitable for retrofit installations
- no leakage of the cables possible
- cable tape wrapping not necessary



| NW                      |         | Ø-I in mm | Ø-A in mm |
|-------------------------|---------|-----------|-----------|
| Grundrohr<br>Basic tube | 4,5 / 7 | 4,8       | 7,1       |
|                         | 6 / 10  | 6,1       | 9,2       |
|                         | 9 / 13  | 9,0       | 12,1      |
|                         | 11 / 16 | 11,2      | 15,3      |
|                         | 13 / 18 | 13,0      | 17,9      |
|                         | 16 / 21 | 16,2      | 20,8      |
|                         | 19 / 24 | 18,8      | 23,6      |
|                         | 20 / 25 | 19,5      | 23,8      |
|                         | 23 / 28 | 23,0      | 28,3      |
|                         | 26 / 32 | 25,5      | 31,2      |
|                         | 29 / 36 | 28,3      | 35,2      |
|                         | 31 / 41 | 31,0      | 40,3      |
| Clip<br>Cap             | 6 / 10  | –         | 9,7       |
|                         | 9 / 13  | –         | 13,3      |
|                         | 11 / 16 | –         | 15,9      |
|                         | 13 / 18 | –         | 18,6      |
|                         | 16 / 21 | –         | 21,5      |
|                         | 19 / 24 | –         | 23,4      |
|                         | 20 / 25 | –         | 25,3      |
|                         | 23 / 28 | –         | 28,9      |
|                         | 26 / 32 | –         | 31,5      |
|                         | 29 / 36 | –         | 35,3      |
|                         | 31 / 41 | –         | 41,4      |

Flexibilität  
FlexibilityMechanische Beständigkeit  
Mechanical resistance

FMVSS 302

Halogenfrei  
Halogen-freeTemperaturbeständigkeit\*  
Temperature resistance\*

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.2 / Chapter 1.2

**Wellrohr Profil Monoflex truck**

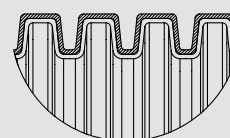
verschleißbar, zur nachträglichen Montage

**Monoflex truck profile corrugated tubing***to be closed, for subsequent assembly*Entwicklung von  
**FRÄNKISCHE**  
Development of

- zweiteilig durchgehend verschleißbares Wellrohr
- zuverlässiger Schutz der Kabel und Leitungen bei engsten Biegeradien und hoher mechanischer Belastung
- auch zur Nachinstallation geeignet
- kein Austreten der Kabel möglich
- optimierte Auflagefläche innen
- Taped Kabel kann entfallen
- Befüllungsgrad nahezu 100 %
- two-piece completely lockable corrugated tubing
- reliable protection for wires and cables even at very small bending radii and high mechanical stress
- also suitable for retrofit installations
- no leakage of the cables possible
- optimized inner surface
- cable tape wrapping not necessary
- maximum usage of inside diameter approx. 100 %



| NW      | Ø-I in mm | Ø-A in mm |
|---------|-----------|-----------|
| 6 / 10  | 6,2       | 10,2      |
| 7 / 11  | 7,3       | 11,6      |
| 9 / 13  | 9,1       | 13,3      |
| 11 / 16 | 11,0      | 16,2      |
| 13 / 18 | 13,0      | 18,8      |
| 16 / 21 | 15,8      | 21,6      |
| 19 / 24 | 18,1      | 24,3      |
| 20 / 25 | 19,8      | 25,6      |
| 23 / 28 | 23,0      | 29,6      |
| 25 / 31 | 24,4      | 31,2      |
| 27 / 34 | 27,6      | 34,6      |
| 31 / 41 | 32,6      | 42,3      |
| 43 / 54 | 43,1      | 54,4      |



Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

FMVSS 302

Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Wellrohr Profil Lockflex

mit überlappender Schlitzung, zur nachträglichen Montage

### Lockflex profile corrugated tubing

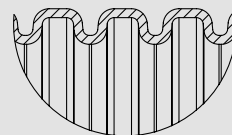
with overlapping slot, for retrofitting

Entwicklung von  
**FRÄNKISCHE**  
Development of

- Wellrohr mit geschlitztem, selbst-schließendem Sonderprofil
- zuverlässiger Schutz der Kabel und Leitungen bei engsten Biegeradien
- leichte Montage durch überlappendes Sonderprofil, auch zur Nachinstallation geeignet
- kein Austreten der Kabel möglich
- Tapen der Kabel kann entfallen
- slit, self-closing special profile tube
- reliable protection for wires and cables even at very small bending radii
- easy installation thanks to overlapping special convolute design, also suitable for retrofit installations
- no leakage of the cables possible
- cable tape wrapping not necessary



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 4,5 | 4,7       | 7,1       |
| 7,5 | 6,6       | 10,1      |
| 8,5 | 8,7       | 11,5      |
| 10  | 9,8       | 13,0      |
| 13  | 12,9      | 15,8      |
| 14  | 14,2      | 18,4      |
| 17  | 16,8      | 21,0      |
| 19  | 19,0      | 24,0      |



Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.2 / Chapter 1.2

**Wellrohr Profil Co-flex**

zweiteiliges Wellrohr, zur nachträglichen Montage

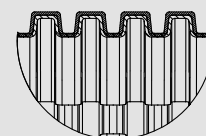
**Co-flex profile corrugated tubing***two-piece corrugated tubing, for retrofitting*Entwicklung von  
**FRÄNKISCHE**  
Development of

- zweiteilig sicher verschließbares Wellrohrsystem
- zuverlässiger Schutz der Kabel und Leitungen bei engsten Biegeradien und hoher mechanischer Belastung (statisch+dynamisch)
- leichte Montage durch breite Schlitzung, auch zur Nachinstallation geeignet
- kein Austreten der Kabel möglich
- Tapen der Kabel kann entfallen
- Füllgrad nahezu 100 %
- two-piece securely lockable tubing system
- reliable protection for wires and cables even at very small bending radii and high mechanical stress (static+dynamic)
- easy installation thanks to broad slits, also suitable for retrofit installations
- no leakage of the cables possible
- cable tape wrapping not necessary
- maximum usage of inside diameter approx. 100 %

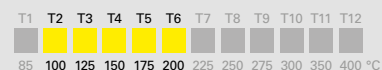


| NW      | Ø-I in mm | Ø-A in mm |
|---------|-----------|-----------|
| 6 / 10  | 6,3       | 10,0      |
| 9 / 13  | 9,0       | 13,6      |
| 11 / 16 | 11,0      | 16,1      |
| 13 / 18 | 12,8      | 18,6      |
| 16 / 21 | 16,0      | 21,5      |
| 19 / 24 | 18,3      | 24,2      |
| 20 / 25 | 19,5      | 25,3      |
| 23 / 28 | 23,0      | 29,4      |
| 26 / 32 | 24,8      | 32,0      |
| 29 / 36 | 27,3      | 35,5      |
| 31 / 40 | 31,0      | 41,5      |
| 43 / 54 | 42,6      | 53,8      |
| 65 / 80 | 67,5      | 79,8      |

Maße im Zusammenbau / Measurements – assembled

Flexibilität  
FlexibilityMechanische Beständigkeit  
Mechanical resistance

FMVSS 302

Halogenfrei  
Halogen-freeTemperaturbeständigkeit\*  
Temperature resistance\*

\*Materialübersicht siehe S. 4 / Material survey see page 4



Kategorie 1.3 / Chapter 1.3

# Hochtemperaturwellrohre

## *High-temperature corrugated tubing*

### Produktübersicht / Product overview

| Produkt<br>Product                                                                                              | Temperaturklasse*<br>Temperature class* | Flexibilität<br>Flexibility | Mech. Beständigkeit<br>Mech. resistance | Seite<br>Page |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|-----------------------------------------|---------------|
| Wellrohr Profil Standard Hochtemperatur<br><i>High-temperature standard profile corrugated tubing</i>           | T6 – T10                                | ■ ■ ■                       | ■ ■ ■                                   | 32            |
| Wellrohr Profil Hohe Welle Hochtemperatur<br><i>High-temperature high-corrugation profile corrugated tubing</i> | T6 – T10                                | ■ ■ ■                       | ■ ■ ■                                   | 33            |
| Wellrohr Profil Softwave Hochtemperatur<br><i>High-temperature Softwave profile corrugated tubing</i>           | T6 – T10                                | ■ ■ ■                       | ■ ■ ■                                   | 34            |
| Wellrohr Profil Lockflex Hochtemperatur<br><i>High-temperature Lockflex profile corrugated tubing</i>           | T5, T6, T8                              | ■ ■ ■                       | ■ ■ ■                                   | 35            |

\* Materialübersicht siehe S. 4 / Material survey see page 4



## Empfohlene Anwendungsbereiche / Recommended areas of application

| Produkt<br>Product                                                                                              |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Wellrohr Profil Standard Hochtemperatur<br><i>High-temperature standard profile corrugated tubing</i>           |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     |
| Wellrohr Profil Hohe Welle Hochtemperatur<br><i>High-temperature high-corrugation profile corrugated tubing</i> |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |                                                                                     |
| Wellrohr Profil Softwave Hochtemperatur<br><i>High-temperature Softwave profile corrugated tubing</i>           | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr Profil Lockflex Hochtemperatur<br><i>High-temperature Lockflex profile corrugated tubing</i>           |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |                                                                                     |



## Kategorie 1.3 / Chapter 1.3

## Wellrohr Profil Standard Hochtemperatur

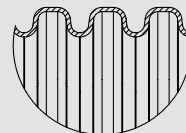
### High-temperature standard profile corrugated tubing

- zuverlässiger Schutz der Kabel und Leitungen
- auch bei hohen Temperaturen (200 °C bis 330 °C) und aggressiven Medien
- sehr hohe mechanische Festigkeit bei geringer Wandstärke
- gute Flexibilität auch bei engen Biegeradien
- reliable protection for wires and cables
- even at high temperatures (200 °C to 330 °C) and aggressive fluid environments
- very high mechanical strength and minimum wall thickness
- good flexibility even at small bending radii

Entwicklung von  
**FRÄNKISCHE**  
Development of



| NW   | Ø-I in mm | Ø-A in mm |
|------|-----------|-----------|
| 3    | 3,0       | 5,1       |
| 4,5  | 4,5       | 7,0       |
| 6    | 5,5       | 8,0       |
| 6 S  | 6,3       | 9,6       |
| 7    | 7,0       | 9,8       |
| 8    | 7,7       | 10,7      |
| 9    | 9,4       | 13,5      |
| 10   | 9,9       | 13,0      |
| 11   | 11,0      | 16,4      |
| 13   | 12,5      | 16,0      |
| 13 S | 13,2      | 17,4      |
| 14   | 13,9      | 17,8      |
| 15   | 14,9      | 18,8      |
| 16   | 15,7      | 19,8      |
| 16 S | 16,6      | 20,9      |
| 17   | 16,8      | 21,1      |
| 19   | 18,8      | 23,3      |
| 19 S | 19,3      | 24,0      |
| 21   | 20,3      | 25,0      |
| 22   | 21,7      | 25,3      |
| 23   | 23,8      | 28,8      |
| 26   | 26,6      | 32,0      |
| 29   | 28,2      | 33,0      |
| 33   | 33,0      | 38,8      |



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance

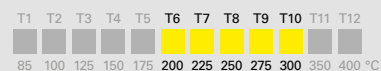


FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.3 / Chapter 1.3

**Wellrohr Profil Hohe Welle Hochtemperatur**

für sehr enge Biegeradien

**High-temperature high corrugation profile corrugated tubing**

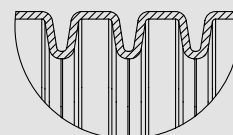
for very small bending radii

- zuverlässiger Schutz der Kabel
- sichere und flexible Kabelführung und -bündelung
- auch bei hohen Temperaturen (200 °C bis 330 °C)
- sehr hohe mechanische Festigkeit bei geringer Wandstärke
- höchste Flexibilität auch bei engen Biegeradien
- auch als geschlitzte Variante erhältlich
- kein Austreten der Kabel
- reliable cable protection
- safe and flexible cable routing and bundling
- even at high temperatures (200 °C to 330 °C)
- very high mechanical strength and minimum wall thickness
- good flexibility even at small bending radii
- also available as slit version
- cables are secure

Entwicklung von  
**FRÄNKISCHE**  
Development of

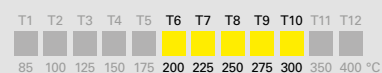


| NW   | Ø-I in mm | Ø-A in mm |
|------|-----------|-----------|
| 4,5  | 4,8       | 7,1       |
| 5    | 5,0       | 7,1       |
| 6 S  | 6,0       | 9,6       |
| 8,5  | 8,5       | 12,9      |
| 9 S  | 9,4       | 13,5      |
| 11   | 11,1      | 15,7      |
| 11 S | 11,0      | 16,4      |
| 13 S | 13,4      | 18,5      |
| 15   | 15,0      | 21,2      |
| 16 S | 16,6      | 21,6      |
| 19   | 19,1      | 25,7      |
| 19 S | 19,3      | 24,0      |
| 23 S | 23,4      | 28,7      |
| 26   | 25,9      | 31,0      |
| 26 S | 24,9      | 31,6      |
| 29   | 29,3      | 33,9      |
| 34   | 34,1      | 39,5      |



- Flexibilität  
Flexibility
- Mechanische Beständigkeit  
Mechanical resistance
- FMVSS 302
- Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4



## Kategorie 1.3 / Chapter 1.3

**Wellrohr Profil Softwave Hochtemperatur**

bei starken Vibrationen

**High-temperature Softwave profile corrugated tubing**

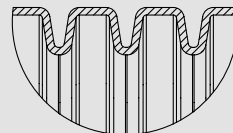
for strong vibrations

- zuverlässiger Schutz der Kabel und anliegenden Bauteile vor Abrieb
- auch bei hohen Temperaturen (200 °C bis 330 °C) und ohne Verlust der mechanischen Festigkeit
- kein Durchscheuern der Kabel
- hohe Auflagefläche der breiten Wellenberge und -täler (innen und außen)
- hält auch starken Vibrationen Stand
- Tapen kann entfallen
- enge Biegeradien möglich
- protects cables and adjacent components against abrasion
- even at high temperatures (200 °C to 330 °C) and without any loss of mechanical strength
- no chaffing of cables under extreme high-vibration conditions
- large surface area (inside and outside)
- even withstands strong vibrations
- cable tape wrapping not necessary
- small bending radii possible

Entwicklung von  
**FRÄNKISCHE**  
Development of



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 4,5 | 4,7       | 7,1       |
| 7,5 | 6,6       | 9,9       |
| 8,5 | 8,4       | 11,4      |
| 10  | 9,5       | 12,7      |
| 13  | 12,3      | 15,8      |
| 17  | 16,0      | 20,9      |
| 22  | 21,2      | 25,3      |
| 23  | 23,0      | 28,1      |
| 26  | 25,7      | 31,2      |
| 29  | 29,2      | 34,1      |



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance

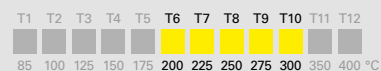


FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.3 / Chapter 1.3

**Wellrohr Profil Lockflex Hochtemperatur**

mit überlappender Schlitzung, zur nachträglichen Montage

**High-temperature Lockflex profile corrugated tubing**

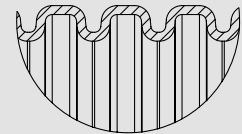
with overlapping slot, for retrofitting

- Wellrohr mit geschlitztem, selbst-schließendem Sonderprofil
- zuverlässiger Schutz der Kabel und Leitungen und auch automatisierten Kabelsatzfertigungen
- temperaturbeständig bis max. 260 °C
- auch zur Nachinstallation und für enge Biegeradien geeignet
- kein Austreten der Kabel möglich
- Tapen der Kabel kann entfallen
- slit, self-closing special profile tube
- reliable protection for wires and cables and automated cable harness assembly
- temperature-resistant up to 260 °C
- also suitable for retrofit installations and even at very small bending radii
- no leakage of the cables possible
- cable tape wrapping not necessary

Entwicklung von  
**FRÄNKISCHE**  
Development of



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 4,5 | 4,7       | 7,1       |
| 7,5 | 6,6       | 10,1      |
| 8,5 | 8,7       | 11,5      |
| 10  | 9,8       | 13,0      |
| 13  | 12,9      | 15,8      |
| 14  | 14,5      | 18,4      |
| 17  | 16,8      | 21,0      |
| 19  | 19,0      | 24,0      |



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

|    |     |     |     |     |     |     |     |     |     |     |        |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

Kategorie 1.4 / Chapter 1.4

# Spezialwellrohre

## Special corrugated tubing

### Produktübersicht / Product overview

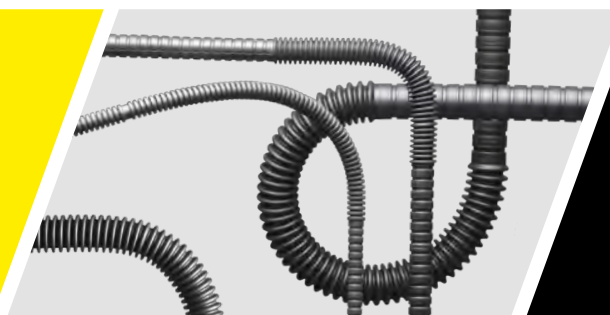
| Produkt<br>Product                                                                                     | Temperaturklasse*<br>Temperature class* | Flexibilität<br>Flexibility | Mech. Beständigkeit<br>Mech. resistance | Seite<br>Page |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|-----------------------------------------|---------------|
| Wellrohr ovales Profil<br>Oval profile corrugated tubing                                               | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 38            |
| Wellrohr mit Gewinde<br>Threaded corrugated tubing                                                     | T2 – T3                                 | ■ ■ ■                       | ■ ■ ■                                   | 39            |
| Wellrohr mit sequentiellen Abflussmöglichkeiten<br>Corrugated tubing with sequential perforations      | T2 – T4                                 | ■ ■ ■                       | ■ ■ ■                                   | 40            |
| Wellrohr mit individuellem Anforderungsprofil<br>Corrugated tubing with individual requirement profile | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 41            |
| Wellrohr Coca Kabelkanal<br>Coca cable tray corrugated tubing                                          | T3                                      | ■ ■ ■                       | ■ ■ ■                                   | 42            |
| Wellrohr Profil Marderschutz<br>Anti-rodent-bite corrugated tubing                                     | T2 – T10                                | ■ ■ ■                       | ■ ■ ■                                   | 43            |
| Wellrohr Light protect<br>Light protect corrugated tubing                                              | T2 – T3                                 | ■ ■ ■                       | ■ ■ ■                                   | 44            |
| Wellrohr mit Aussparung<br>Corrugated tubing with recess                                               | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 45            |
| Wellrohr mit integriertem Abstandhalter<br>Corrugated tubing with integrated spacer                    | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 46            |
| Wellrohr mit Durchmessersprüngen<br>Corrugated tubing with diameter changes                            | T1 – T6                                 | ■ ■ ■                       | ■ ■ ■                                   | 47            |

\* Materialübersicht siehe S. 4 / Material survey see page 4



Empfohlene Anwendungsbereiche / *Recommended areas of application*

| Produkt<br>Product                                                                                            |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Wellrohr ovales Profil<br><i>Oval profile corrugated tubing</i>                                               |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |
| Wellrohr mit Gewinde<br><i>Threaded corrugated tubing</i>                                                     |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   |
| Wellrohr mit sequentiellen Abflussmöglichkeiten<br><i>Corrugated tubing with sequential perforations</i>      |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr mit individuellem Anforderungsprofil<br><i>Corrugated tubing with individual requirement profile</i> | x                                                                                 | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     | x                                                                                   |                                                                                     |
| Wellrohr Coca Kabelkanal<br><i>Coca cable tray corrugated tubing</i>                                          |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr Profil Marderschutz<br><i>Anti-rodent-bite corrugated tubing</i>                                     |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr Light protect<br><i>Light protect corrugated tubing</i>                                              |                                                                                   |                                                                                   | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr mit Aussparung<br><i>Corrugated tubing with recess</i>                                               |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr mit integriertem Abstandhalter<br><i>Corrugated tubing with integrated spacer</i>                    |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |
| Wellrohr mit Durchmessersprüngen<br><i>Corrugated tubing with diameter changes</i>                            |                                                                                   | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   | x                                                                                   | x                                                                                   |



## Kategorie 1.4 / Chapter 1.4

**Wellrohr ovales Profil**

für begrenzte Bauräume

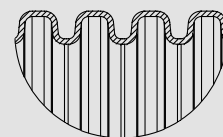
**Oval profile corrugated tubing**

for limited installation spaces

- zuverlässiger Schutz der Kabel bei beengten Platzverhältnissen
- temperaturbeständig bis max. 200°C
- hohe mechanische Festigkeit bei geringer Wandstärke
- gute Flexibilität auch bei engen Biegeradien
- jede Stücklänge ohne zusätzliche Werkzeugkosten realisierbar
- reliable cable protection suitable for installation in tight space
- temperature-resistant up to 200°C
- high mechanical strength and minimum wall thickness
- good flexibility even at small bending radii
- any length is possible without additional tooling costs



| NW      | Ø-I in mm   | Ø-A in mm   |
|---------|-------------|-------------|
| 8 x 54  | 8,0 / 52,0  | 12,5 / 56,5 |
| 10 x 18 | 10,0 / 18,0 | 13,8 / 21,7 |
| 10 x 25 | 9,6 / 24,8  | 14,2 / 29,0 |
| 18 x 43 | 18,0 / 43,1 | 23,0 / 48,0 |
| 18 x 48 | 17,5 / 46,0 | 22,5 / 52,0 |
| 20 x 34 | 20,0 / 34,5 | 24,8 / 39,3 |
| 20 x 48 | 20,0 / 48,0 | 25,0 / 53,0 |
| 40 x 77 | 39,3 / 76,9 | 49,9 / 87,1 |
| 40 x 82 | 40,0 / 82,0 | 49,5 / 92,0 |



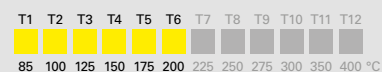
Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4



## Kategorie 1.4 / Chapter 1.4

**Wellrohr mit Gewinde**

zur Einsparung von Zubehörteilen

**Threaded corrugated tubing**

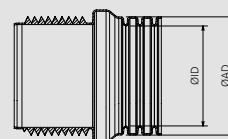
for saving accessories

Entwicklung von  
**FRÄNKISCHE**  
Development of

- zuverlässiger Schutz der Kabel mit integriertem Gewinde
- temperaturbeständig bis max. 135°C
- Einsparung von Zubehörteilen, Gewicht und Montageprozesse
- passgenau zu allen handelsüblichen Gegenmuttern (M, NPT)
- spritzwassergeschützt
- enge Biegeradien ohne Verlust der mechanischen Festigkeit möglich
- reliable cable protection with integrated thread
- temperature-resistant up to 135°C
- allows reducing the number of accessories and weight and assembly steps
- perfectly matches all commercially available locknuts (M, NPT)
- splash water protected
- small bending radii possible without any loss of mechanical strength



| NW               | Ø-I in mm | Ø-A in mm |
|------------------|-----------|-----------|
| 7,5 (M 10 x 1,0) | 6,6       | 10,0      |
| 8,5 (M 12 x 1,5) | 9,8       | 12,8      |
| 12 (M 16 x 1,5)  | 12,3      | 15,7      |
| 17 (M 20 x 1,5)  | 16,6      | 21,2      |
| 22 (M 25 x 1,5)  | 23,1      | 28,4      |
| 26 (M 32 x 1,5)  | 28,9      | 34,5      |
| 37 (M 40 x 1,5)  | 34,0      | 42,2      |
| 50 (M 50 x 1,5)  | 45,6      | 53,8      |



Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4

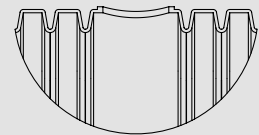
## Wellrohr mit sequentiellen Abflussmöglichkeiten

### Corrugated tubing with sequential perforations

- zuverlässiger Schutz der Kabel
- mit integriertem Schmutz-, Wasser und Kondenswasserabfluss
- temperaturbeständig bis max. 150°C
- enge Biegeradien möglich
- hohe mechanische Festigkeit bei geringer Wandstärke
- breite Durchmesserpalette
- reliable cable protection
- allows drainage of wastewater, water and condensation water
- temperature-resistant up to 150°C
- small bending radii possible
- high mechanical strength and minimum wall thickness
- wide range of diameters



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 7,5 | 6,9       | 9,9       |
| 10  | 10,1      | 12,6      |
| 13  | 12,9      | 15,8      |
| 17  | 16,8      | 21,0      |



Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Wellrohr mit individuellem Anforderungsprofil

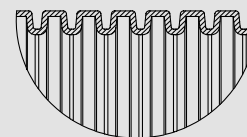
### Corrugated tubing with individual requirement profile

- zuverlässiger Schutz der Kabel
- individuelles Anforderungsprofil:  
rund, oval, Glatt- oder Wellbereiche,  
individuelle Aussparungen
- je nach Anforderung sehr flexible  
und starre Bereiche möglich
- schnelle Montage
- ersetzt häufig aufwendige Kabelkanäle
- hohe Flexibilität auch bei engen  
Biegeradien
- breite Durchmesserpalette
- reliable cable protection
- individual requirements profile:  
round, oval, smooth or corrugated  
sections, individual recesses
- depending on requirements  
very flexible and rigid ranges  
possible
- fast assembly
- often replaces complex cable trays
- good flexibility even at small  
bending radii
- wide range of diameters

Entwicklung von  
**FRÄNKISCHE**  
Development of



| NW                                               |      | Ø-I in mm | Ø-A in mm |
|--------------------------------------------------|------|-----------|-----------|
| Standardprofil<br>standard profile               | 6 S  | 6,3       | 9,6       |
|                                                  | 9 S  | 9,4       | 13,5      |
|                                                  | 11 S | 11,0      | 16,4      |
|                                                  | 13   | 12,5      | 16,0      |
|                                                  | 16   | 15,7      | 19,8      |
|                                                  | 17   | 16,8      | 21,5      |
|                                                  | 19   | 18,8      | 23,3      |
| hochflexibler Bereich<br>highly-flexible section | 9 S  | 10,4      | 14,4      |
|                                                  | 11 S | 12,7      | 17,6      |
|                                                  | 13   | 13,9      | 19,6      |
| starrer Bereich<br>rigid section                 | 6 S  | 6,8       | 7,8       |
|                                                  | 9 S  | 10,0      | 12,1      |
|                                                  | 11 S | 13,0      | 14,6      |
|                                                  | 13   | 14,6      | 16,6      |



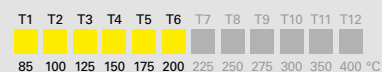
Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.4 / Chapter 1.4

## Wellrohr Coca Kabelkanal

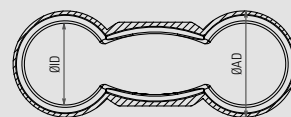
### Coca cable tray corrugated tubing

Entwicklung von  
**FRÄNKISCHE**  
Development of

- ovales Wellrohr mit gezielt verschleißbarem Sonderprofil
- zuverlässiger Schutz der Kabel auch bei mechanischer Belastung
- auch zur Nachinstallation geeignet
- frei wählbare Verschlussmöglichkeiten
- flexibler Einsatz auch bei eingeschränkten Bauräumen geeignet
- Tapen der Kabel kann entfallen
- ersetzt häufig aufwendige Kabelkanäle
- oval corrugated tube with a lockable special profile
- reliable cable protection even under mechanical load
- also suitable for retrofit installations
- freely selectable sealing options
- flexible use also suitable for confined spaces
- cable tape wrapping not necessary
- often replaces complex cable trays



| NW      | Ø-I in mm | Ø-A in mm |
|---------|-----------|-----------|
| 16 x 51 | 16,0      | 21,0      |



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.4 / Chapter 1.4

## Wellrohr Profil Marderschutz

### Anti-rodent-bite corrugated tubing

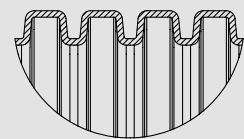
Entwicklung von  
**FRÄNKISCHE**  
Development of

- zuverlässiger Schutz der Kabel und Leitungen vor Marderangriffen
- temperaturbeständig bis max. 300°C
- kein weiteres Zubehör notwendig
- höchste mechanische Festigkeit
- gute Flexibilität auch bei engen Biegeradien
- durch anerkanntes Institut getestet
- reliable protection for wires and cables against rodent attacks
- temperature-resistant up to 300°C
- additional accessories not necessary
- highest mechanical strength
- good flexibility even at small bending radii
- tested by a renowned institute



| NW   | Ø-I in mm | Ø-A in mm |
|------|-----------|-----------|
| 4,5  | 4,3       | 7,1       |
| 7,5  | 6,3       | 9,6       |
| 9 S  | 9,2       | 13,25     |
| 11 S | 11,1      | 16,4      |
| 13 S | 13,3      | 18,4      |
| 16 S | 15,9      | 21,15     |

Varianten für die nachträgliche Installation finden Sie auf den Seite 26 – 29.  
For retrofit installation options see page 26 – 29.



Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

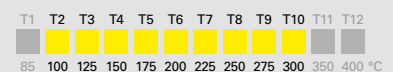


FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4



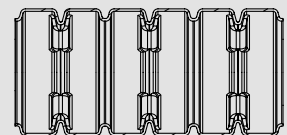
## Wellrohr Light protect

### Light protect corrugated tubing

- zuverlässige Bündelung und Führung von Lichtwellenleitern
  - integrierte Biegeradiusbegrenzung schützt die darin geführten Lichtwellenleiter
  - hohe mechanische Festigkeit bei geringer Wandstärke
  - passendes Montagewerkzeug und Zubehörprogramm erhältlich
- reliable way to bundle and route optical fibers
  - integrated bending radius restriction prevents the optical fibers in it
  - high mechanical strength and minimum wall thickness
  - suitable assembly tools and range of matching accessories available



| NW | Ø-I in mm | Ø-A in mm |
|----|-----------|-----------|
| 3  | 3,0       | 5,1       |



Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.4 / Chapter 1.4

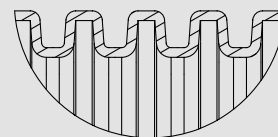
## Wellrohr mit Aussparung

### Corrugated tubing with recess

- Wellrohre mit individuellen Aussparungen für gezielte Austritte einzelner Leitungen
- temperaturbeständig bis max. 200°C
- geringe Werkzeugkosten für unterschiedliche Längenvarianten
- breite Durchmesserpalette
- passendes Zubehör
- corrugated tubing with individual recesses as outlets for cables and wires
- temperature-resistant up to 200°C
- only little tooling costs for different lengths
- a wide range of diameters
- matching accessories



| NW   | Ø-I in mm | Ø-A in mm |
|------|-----------|-----------|
| 6    | 6,0       | 8,6       |
| 7,5  | 6,9       | 9,9       |
| 9 S  | 9,4       | 13,5      |
| 10   | 10,1      | 12,6      |
| 11   | 10,8      | 13,6      |
| 13   | 12,9      | 15,8      |
| 13 S | 13,4      | 18,5      |
| 16   | 15,2      | 18,7      |
| 17   | 16,8      | 21,0      |
| 19 S | 19,3      | 24,0      |
| 22   | 21,8      | 25,5      |
| 23 S | 23,4      | 28,7      |
| 26   | 26,1      | 31,0      |
| 29   | 29,3      | 33,9      |
| 32   | 33,1      | 38,2      |



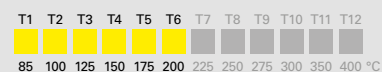
Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*



\*Materialübersicht siehe S. 4 / Material survey see page 4

## Kategorie 1.4 / Chapter 1.4

## Wellrohr mit integriertem Abstandhalter

### Corrugated tubing with integrated spacer

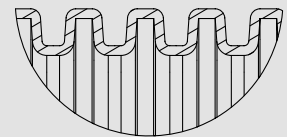
Entwicklung von  
**FRÄNKISCHE**  
Development of

- zuverlässiger Schutz der Kabel
- ermöglicht einen definierten Abstand zu benachbarten Bauteilen
- temperaturbeständig bis max. 200°C
- für enge Bauräume und Biegeradien geeignet
- hohe mechanische Festigkeit bei geringer Wandstärke
- breite Durchmesserpalette
- reliable cable protection
- enables a defined distance to neighboring components
- withstands temperatures of up to 200°C
- also suitable for small bending radii and confined space
- high mechanical strength and minimum wall thickness
- wide range of diameters



| NW  | Ø-I in mm | Ø-A in mm |
|-----|-----------|-----------|
| 7,5 | 6,9       | 9,9       |
| 10  | 10,1      | 12,6      |
| 13  | 12,9      | 15,8      |
| 17  | 16,8      | 21,0      |

Endgültige Maße und Toleranzen werden nach 0-Serienfertigung festgelegt.  
Final measurements and tolerances are determined after pilot production.



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

## Wellrohr mit Durchmessersprüngen

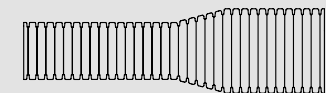
### Corrugated tubing with diameter changes

- Wellrohr mit Nennweitesprüngen und Geometrieänderungen
- zuverlässiger Schutz der Kabel in komplexen Verbausituationen
- individuelle Anpassung an Platz- und Anschlussverhältnisse
- schnelle Montage mit geringeren Verbindungsstellen
- äußerst flexibel, für hohe mechanische Belastungen geeignet
- passgenaue Zubehörteile erhältlich
- *corrugated tubing with nominal diameter changes*
- *reliable cable protection in complex installation situations*
- *individual adaptation to space and connection conditions*
- *quick installation with fewer connection points*
- *extremely flexible and suitable for high mechanical loads*
- *tailor-made accessories available*

Entwicklung von  
**FRÄNKISCHE**  
Development of



| NW      | Ø-I in mm   | Ø-A in mm |
|---------|-------------|-----------|
| 17 / 26 | 16,3 / 25,6 | 21 / 31,1 |



-  Flexibilität  
Flexibility
-  Mechanische Beständigkeit  
Mechanical resistance
-  FMVSS 302
-  Halogenfrei  
Halogen-free

Temperaturbeständigkeit\*  
Temperature resistance\*

| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

\*Materialübersicht siehe S. 4 / Material survey see page 4

Kategorie 2.1 / Chapter 2.1

# Hitzereflektierende Schutzprodukte

## *Heat reflecting protection products*

### Produktübersicht / Product overview

| Produkt<br>Product | Temperaturklasse<br>Temperature class | Flexibilität<br>Flexibility | Mech. Beständigkeit<br>Mech. resistance | Seite<br>Page |
|--------------------|---------------------------------------|-----------------------------|-----------------------------------------|---------------|
| FAP                | T6                                    | ■ ■ ■                       | ■ ■ ■                                   | 50            |
| FAP Printed        | T6                                    | ■ ■ ■                       | ■ ■ ■                                   | 51            |
| FAP Sewn           | T6                                    | ■ ■ ■                       | ■ ■ ■                                   | 52            |
| FAP W              | T8                                    | ■ ■ ■                       | ■ ■ ■                                   | 53            |
| FAP Cap            | T6                                    | ■ ■ ■                       | ■ ■ ■                                   | 54            |
| FAP Lock           | T4                                    | ■ ■ ■                       | ■ ■ ■                                   | 55            |
| GOS Alu            | T6                                    | ■ ■ ■ ■                     | ■ ■ ■                                   | 56            |





Empfohlene Anwendungsbereiche / *Recommended areas of application*

| Produkt<br>Product |  | °C |  |  |  |  |  |  |
|--------------------|-----------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| FAP                |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |
| FAP Printed        |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |
| FAP Sewn           |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |
| FAP W              |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |
| FAP Cap            |                                                                                   | x  |                                                                                   | x                                                                                 |                                                                                    |                                                                                     | x                                                                                   | x                                                                                   |
| FAP Lock           |                                                                                   | x  |                                                                                   | x                                                                                 |                                                                                    |                                                                                     | x                                                                                   | x                                                                                   |
| GOS Alu            |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |



## Kategorie 2.1 / Chapter 2.1

## FAP

# Glasseidengewebes Schlauch mit Aluminiumummantelung

## *Glass fiber fabric hose with aluminium wrapping*

 Erfindung von  
**FRÄNKISCHE**  
 Invention of

- zuverlässiger Schutz der Kabel, auch bei sehr hohen Temperaturen
- temperaturbeständig bis 200°C
- Reflektion von Strahlungswärme bis 650°C
- sehr hohes Temperaturdelta (Außen/Innen)
- reliable cable protection even at very high temperatures
- temperature-resistant up to 200°C
- good heat reflection capacity up to 650°C
- very high temperature delta (outside/inside)



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 300 05 000                | 5,0       |
| 10 | 30 300 10 000                | 10,0      |
| 12 | 30 300 12 00                 | 12,0      |
| 13 | 30 300 13 000                | 13,0      |
| 14 | 30 300 14 000                | 14,0      |
| 16 | 30 300 16 000                | 16,0      |
| 19 | 30 300 19 000                | 19,0      |
| 22 | 30 300 22 000                | 22,0      |
| 25 | 30 300 25 000                | 25,0      |
| 26 | 30 300 26 000                | 26,0      |
| 32 | 30 300 32 000                | 32,0      |
| 38 | 30 300 38 000                | 38,0      |
| 45 | 30 300 45 000                | 45,0      |
| 50 | 30 300 50 000                | 50,0      |
| 51 | 30 300 51 000                | 51,0      |



- 1 Glasseide  
Glass fiber
- 2 Aluminium  
Aluminium

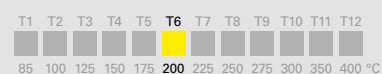

 Flexibilität  
 Flexibility

 Mechanische Beständigkeit  
 Mechanical resistance


FMVSS 302


 Korrosions-, verrottungs-  
und UV-beständig  
 Corrosion, rotting and  
UV-resistant

 100% recyclebar  
 100% recyclable

 Temperaturbeständigkeit  
 Temperature resistance


## Kategorie 2.1 / Chapter 2.1

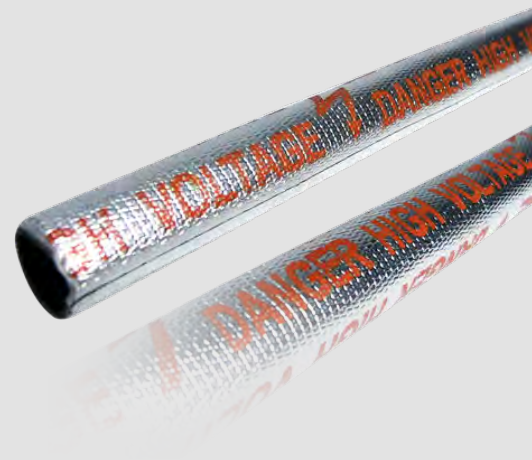
## FAP Printed

Glasseidengewebes Schlauch  
mit Aluminiumummantelung, bedruckt

*Glass fiber fabric hose  
with aluminium wrapping, printed*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz der Kabel,  
auch bei sehr hohen Temperaturen
- temperaturbeständig bis 200°C
- Reflektion von Strahlungswärme  
bis 650°C
- mit individueller Bedruckung
- sehr hohes Temperaturdelta  
(Außen/Innen)
- reliable cable protection even  
at very high temperatures
- temperature-resistant up to 200°C
- good heat reflection capacity  
up to 650°C
- with individual printing
- very high temperature delta  
(outside/inside)



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 10 | 30 303 10 000                | 10,0      |
| 13 | 30 303 13 000                | 13,0      |
| 14 | 30 303 14 000                | 14,0      |
| 16 | 30 303 16 000                | 16,0      |
| 17 | 30 303 17 000                | 17,0      |
| 19 | 30 303 19 000                | 19,0      |
| 22 | 30 303 22 000                | 22,0      |
| 25 | 30 303 25 000                | 25,0      |
| 26 | 30 303 26 000                | 26,0      |
| 32 | 30 303 32 000                | 32,0      |
| 38 | 30 303 38 000                | 38,0      |
| 45 | 30 303 45 000                | 45,0      |
| 50 | 30 303 50 000                | 50,0      |
| 51 | 30 303 51 000                | 51,0      |



- 1 Glasseide  
Glass fiber
- 2 Aluminiumfolie  
Aluminium foil
- 3 Silikon-  
Bedruckung  
Silicone  
printing



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

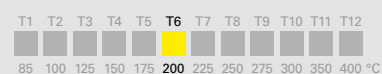


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.1 / Chapter 2.1

## FAP Sewn

Glasseidengewebes Schlauch  
mit Aluminiumummantelung, genäht

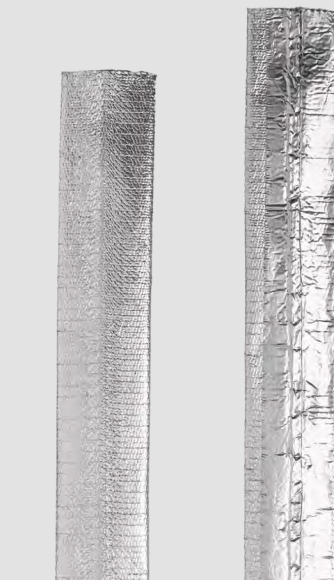
*Glass fiber fabric hose  
with aluminium wrapping, sewn*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz der Kabel,  
auch bei sehr hohen Temperaturen
- temperaturbeständig bis 200°C
- Reflektion von Strahlungswärme  
bis 650°C
- sehr hohes Temperaturdelta  
(Außen/Innen)
- erhöhte mechanische Eigenschaften
- reliable cable protection even  
at very high temperatures
- temperature-resistant up to 200°C
- good heat reflection capacity  
up to 650°C
- very high temperature delta  
(outside/inside)
- increased mechanical properties



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 19 | 30 304 19 000                | 19,0      |
| 22 | 30 304 22 000                | 22,0      |



Flexibilität  
Flexibility

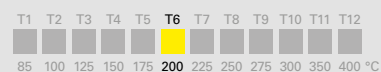
Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

✓ 100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.1 / Chapter 2.1

## FAP W

Glasseidengewebes Schlauch  
mit Aluminiumummantelung, bedruckt

*Glass fiber fabric hose  
with aluminium wrapping, printed*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz der Kabel,  
auch bei sehr hohen Temperaturen
- temperaturbeständig bis 250°C
- Reflektion von Strahlungswärme  
bis 650°C
- formstabil
- sehr hohes Temperaturdelta  
(Außen/Innen)
- reliable cable protection even  
at very high temperatures
- temperature-resistant up to 250°C
- good heat reflection capacity  
up to 650°C
- dimensionally stable
- very high temperature delta  
(outside/inside)



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 10 | 30 330 10 000                | 10,0      |
| 16 | 30 330 16 000                | 16,0      |
| 18 | 30 330 18 000                | 18,0      |
| 34 | 30 330 34 000                | 34,0      |
| 40 | 30 330 40 000                | 40,0      |



- 1 Glasseide  
Glass fiber
- 2 Aluminium  
Aluminium

Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

✓ 100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





## Kategorie 2.1 / Chapter 2.1

## FAP Cap

Glasseidengewebematte  
mit Aluminiumbeschichtung, Druckknöpfen/genäht

*Glass fiber fabric pad  
with aluminium coating, press buttons/sewn*

- nachträglich montierbarer zuverlässiger Schutz der Kabel, auch bei sehr hohen Temperaturen
- temperaturbeständig bis 200°C
- Reflektion von Strahlungswärme bis 650°C
- kann mit verschiedenen Materialzusammensetzungen gefertigt werden
- retrofit reliable cable protection even at very high temperatures
- temperature-resistant up to 200°C
- easy and fast assembly
- good heat reflection capacity up to 650°C
- can be manufactured with different material compositions



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| xx | 30 320 xx xxx                | xx        |

FAP Cap wird kundenspezifisch in gewünschter Geometrie und Stärke oder anderen Materialzusammensetzungen gefertigt. Auch mit Bedruckung lieferbar.

FAP Cap is custom-made in desired geometry and thickness or other material compositions. Also available with printing.



1 Glasseide  
Glass fiber

2 Aluminiumfolie  
Aluminium foil



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

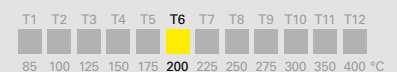


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.1 / Chapter 2.1

## FAP Lock

Glasseidenschlauch  
mit Aluminiumbeschichtung

*Glass fiber fabric hose  
with aluminium coating*

- nachträglich montierbarer zuverlässiger Schutz der Kabel
- temperaturbeständig -40 bis 150°C
- Reflektion von Strahlungswärme bis 480°C
- gute chemische Beständigkeit
- retrofit reliable cable protection
- temperature-resistant -40 up to 150°C
- good heat reflection capacity up to 480°C
- good chemical resistance



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 06 | 30 370 06 000                | 6,0       |
| 08 | 30 370 08 000                | 8,0       |
| 10 | 30 370 10 000                | 10,0      |
| 13 | 30 370 13 000                | 13,0      |
| 16 | 30 370 16 000                | 16,0      |
| 19 | 30 370 19 000                | 19,0      |
| 25 | 30 370 25 000                | 25,0      |
| 29 | 30 370 29 000                | 29,0      |
| 32 | 30 370 32 000                | 32,0      |
| 38 | 30 370 38 000                | 38,0      |



1 Glasseide  
Glass fiber

2 Aluminiumfolie  
Aluminium foil



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



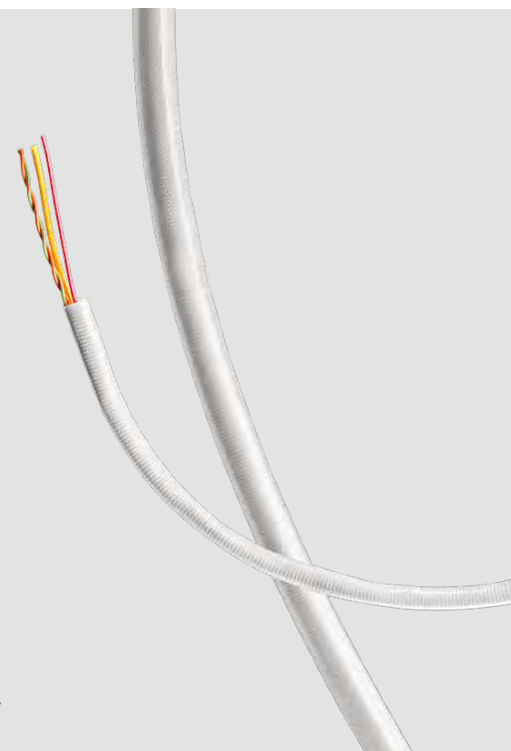
## Kategorie 2.1 / Chapter 2.1

**GOS Alu**

Glasseidenschlauch  
mit Silikonummantelung und Aluminiumpartikel

*Glass fiber hose  
with silicone wrapping and aluminium particles*

- thermischer und elektrischer Schutz der Kabel
- temperaturbeständig –50 bis 210°C
- gute chemische Beständigkeit
- schwer entflammbar
- Reflektion von Strahlungswärme
- enge Biegeradien möglich
- Enden silikonierbar
- thermal and electrical cable protection
- temperature-resistant –50 up to 210°C
- good chemical resistance
- flame retardant
- good heat reflection capacity
- small bending radii possible
- ends siliconeable



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 04 | 30 205 04 000                | 4,0       |
| 05 | 30 205 05 000                | 5,0       |
| 06 | 30 205 06 000                | 6,0       |
| 07 | 30 205 07 000                | 7,0       |
| 08 | 30 205 08 000                | 8,0       |
| 09 | 30 205 09 000                | 9,0       |
| 10 | 30 205 10 000                | 10,0      |
| 11 | 30 205 11 000                | 11,0      |
| 12 | 30 205 12 000                | 12,0      |
| 13 | 30 205 13 000                | 13,0      |
| 14 | 30 205 14 000                | 14,0      |
| 15 | 30 205 15 000                | 15,0      |
| 16 | 30 205 16 000                | 16,0      |
| 17 | 30 205 17 000                | 17,0      |
| 20 | 30 205 20 000                | 20,0      |
| 22 | 30 205 22 000                | 22,0      |
| 24 | 30 205 24 000                | 24,0      |
| 26 | 30 205 26 000                | 26,0      |
| 28 | 30 205 28 000                | 28,0      |



- 1 Glasseide  
Glass fiber
- 2 Silikon,  
Aluminium  
Silicone,  
aluminium



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

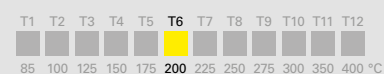


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



# Notizen / Notes

Kategorie 2.2 / Chapter 2.2

# Hitzeschutzprodukte

## *Heat protection products*

### Produktübersicht / Product overview

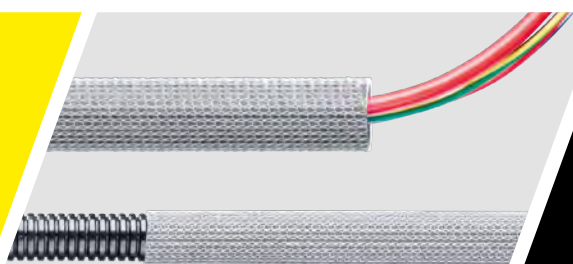
| Produkt<br><i>Product</i> | Temperaturklasse<br><i>Temperature class</i> | Flexibilität<br><i>Flexibility</i> | Mech. Beständigkeit<br><i>Mech. resistance</i> | Seite<br><i>Page</i> |
|---------------------------|----------------------------------------------|------------------------------------|------------------------------------------------|----------------------|
| G0S                       | T6                                           | ■■■■                               | ■ ■ ■                                          | 60                   |
| G0B                       | T4                                           | ■■■■                               | ■ ■ ■                                          | 61                   |
| G0E                       | T6                                           | ■■■■                               | ■ ■ ■                                          | 62                   |
| G0S Alu                   | T6                                           | ■■■■                               | ■ ■ ■                                          | 63                   |
| G0T Knitted               | T8                                           | ■■■■                               | ■ ■ ■                                          | 64                   |
| G0TS Braided              | T8                                           | ■■■■                               | ■ ■ ■                                          | 65                   |
| FSPH                      | T6                                           | ■■■■                               | ■■ ■                                           | 66                   |
| GN1 / GN1 Violet          | T11 / T8                                     | ■■ ■ ■                             | ■■ ■ ■                                         | 67                   |
| MTP                       | T10                                          | ■ ■ ■                              | ■ ■ ■                                          | 68                   |
| HTP                       | T12                                          | ■ ■ ■                              | ■ ■ ■                                          | 69                   |





Empfohlene Anwendungsbereiche / *Recommended areas of application*

| Produkt<br>Product |  | °C |  |  |  |  |  |  |
|--------------------|-----------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| G0S                |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| G0B                |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| G0E                |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| G0S Alu            |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| G0T Knitted        |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| G0TS Braided       |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| FSPH               | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| GN1 / GN1 Violet   |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    | x                                                                                   |                                                                                     | x                                                                                   |
| MTP                |                                                                                   | x  | x                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |
| HTP                |                                                                                   | x  | x                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | x                                                                                   |



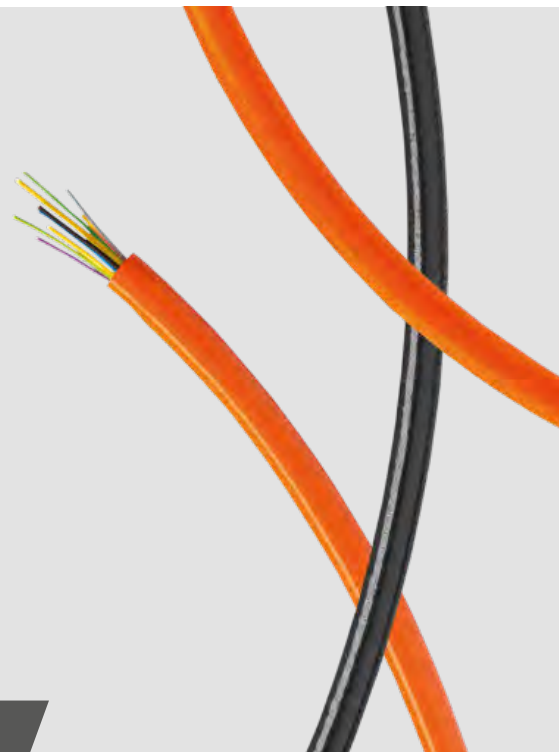
## Kategorie 2.2 / Chapter 2.2

## G0S

# **Glasseidenschlauch mit Silikonummantelung**

## *Glass fiber hose with silicone wrapping*

- zuverlässiger Schutz sensibler Verkabelungen, Wellrohre oder medienführender Leitungssysteme
  - temperaturbeständig –40 bis 210°C
  - gute chemische Beständigkeit
  - schwer entflammbar
  - enge Biegeradien möglich
  - Enden silikonierbar
- reliable protection of sensitive cabling, corrugated tubing or fluid systems
  - temperature-resistant –40 up to 210°C
  - good chemical resistance
  - flame retardant
  - small bending radii possible
  - ends siliconeable



| NW | FIP Art. Nr. / FIP part no. |                  | Ø-l in mm |
|----|-----------------------------|------------------|-----------|
|    | schwarz<br>black            | orange<br>orange |           |
| 03 | 30 202 03 000               | 30 201 03 000    | 3,0       |
| 04 | 30 202 04 000               | 30 201 04 000    | 4,0       |
| 05 | 30 202 05 000               | 30 201 05 000    | 5,0       |
| 06 | 30 202 06 000               | 30 201 06 000    | 6,0       |
| 07 | 30 202 07 000               | 30 201 07 000    | 7,0       |
| 08 | 30 202 08 000               | 30 201 08 000    | 8,0       |
| 09 | 30 202 09 000               | 30 201 09 000    | 9,0       |
| 10 | 30 202 10 000               | 30 201 10 000    | 10,0      |
| 11 | 30 202 11 000               | 30 201 11 000    | 11,0      |
| 12 | 30 202 12 000               | 30 201 12 000    | 12,0      |
| 13 | 30 202 13 000               | 30 201 13 000    | 13,0      |
| 14 | 30 202 14 000               | 30 201 14 000    | 14,0      |
| 15 | 30 202 15 000               | 30 201 15 000    | 15,0      |
| 16 | 30 202 16 000               | 30 201 16 000    | 16,0      |
| 17 | 30 202 17 000               | 30 201 17 000    | 17,0      |
| 20 | 30 202 20 000               | 30 201 20 000    | 20,0      |
| 22 | 30 202 22 000               | 30 201 22 000    | 22,0      |
| 24 | 30 202 24 000               | 30 201 24 000    | 24,0      |
| 26 | 30 202 26 000               | 30 201 26 000    | 26,0      |
| 28 | 30 202 28 000               | 30 201 28 000    | 28,0      |



- 1 Glasseide  
Glass fiber
- 2 Silikon  
Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

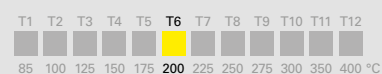


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.2 / Chapter 2.2

**G0B****Glasseidenschlauch  
mit Silikonummantelung*****Glass fiber hose  
with silicone wrapping***

- zuverlässiger Schutz sensibler Verkabelungen, Wellrohre oder medienführender Leitungssysteme
- temperaturbeständig -50 bis 155°C
- gute chemische Beständigkeit
- schwer entflammbar
- enge Biegeradien möglich
- Enden silikonierbar
- reliable protection of sensitive cabling, corrugated tubing or fluid systems
- temperature-resistant -50 up to 155°C
- good chemical resistance
- flame retardant
- small bending radii possible
- ends siliconeable



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 03 | 30 200 03 000                | 3,0       |
| 04 | 30 200 04 000                | 4,0       |
| 05 | 30 200 05 000                | 5,0       |
| 06 | 30 200 06 000                | 6,0       |
| 07 | 30 200 07 000                | 7,0       |
| 08 | 30 200 08 000                | 8,0       |
| 09 | 30 200 09 000                | 9,0       |
| 10 | 30 200 10 000                | 10,0      |
| 11 | 30 200 11 000                | 11,0      |
| 12 | 30 200 12 000                | 12,0      |
| 13 | 30 200 13 000                | 13,0      |
| 14 | 30 200 14 000                | 14,0      |
| 15 | 30 200 15 000                | 15,0      |
| 17 | 30 200 17 000                | 17,0      |
| 20 | 30 200 20 000                | 20,0      |
| 22 | 30 200 22 000                | 22,0      |
| 24 | 30 200 24 000                | 24,0      |
| 26 | 30 200 26 000                | 26,0      |
| 28 | 30 200 28 000                | 28,0      |



- 1 Glasseide  
Glass fiber
- 2 Silikon  
Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

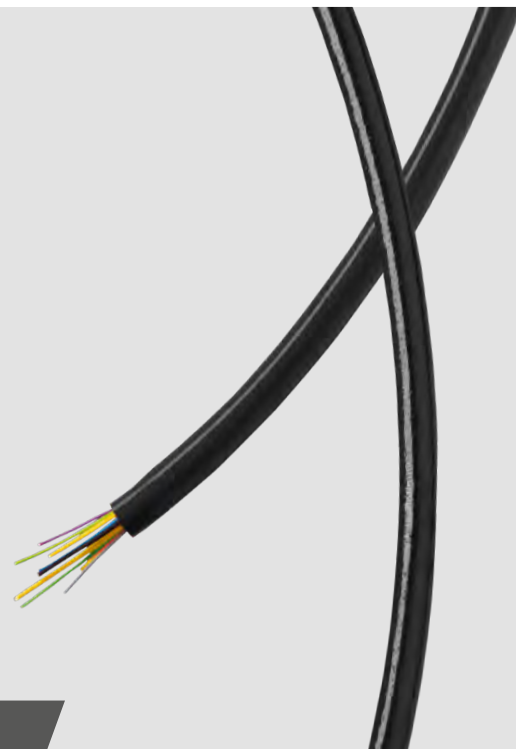
Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.2 / Chapter 2.2

**G0E****Glasseidenschlauch  
mit Silikonummantelung*****Glass fiber hose  
with silicone wrapping***

- zuverlässiger Schutz sensibler Verkabelungen, Wellrohre oder medienführender Leitungssysteme
- temperaturbeständig –50 bis 210°C
- gute chemische Beständigkeit
- schwer entflammbar
- enge Biegeradien möglich
- Enden silikonierbar
- reliable protection of sensitive cabling, corrugated tubing or fluid systems
- temperature-resistant –50 up to 210°C
- good chemical resistance
- flame retardant
- small bending radii possible
- ends siliconeable



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 03 | 30 203 03 000                | 3,0       |
| 04 | 30 203 04 000                | 4,0       |
| 05 | 30 203 05 000                | 5,0       |
| 06 | 30 203 06 000                | 6,0       |
| 07 | 30 203 07 000                | 7,0       |
| 08 | 30 203 08 000                | 8,0       |
| 09 | 30 203 09 000                | 9,0       |
| 10 | 30 203 10 000                | 10,0      |
| 11 | 30 203 11 000                | 11,0      |
| 12 | 30 203 12 000                | 12,0      |
| 13 | 30 203 13 000                | 13,0      |
| 14 | 30 203 14 000                | 14,0      |
| 15 | 30 203 15 000                | 15,0      |
| 16 | 30 203 16 000                | 16,0      |
| 17 | 30 203 17 000                | 17,0      |
| 20 | 30 203 20 000                | 20,0      |
| 22 | 30 203 22 000                | 22,0      |
| 24 | 30 203 24 000                | 24,0      |
| 26 | 30 203 26 000                | 26,0      |
| 28 | 30 203 28 000                | 28,0      |



- 1 Glasseide  
Glass fiber
- 2 Silikon  
Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

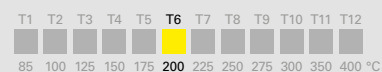


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



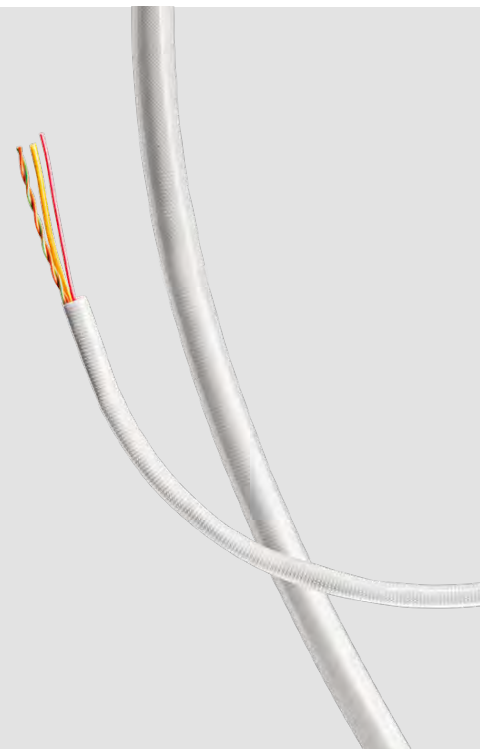
## Kategorie 2.2 / Chapter 2.2

**G0S Alu**

Glasseidenschlauch  
mit Silikonummantelung und Aluminiumpartikel

*Glass fiber hose  
with silicone wrapping and aluminium particles*

- thermischer und elektrischer Schutz der Kabel
- temperaturbeständig –50 bis 210°C
- gute chemische Beständigkeit
- schwer entflammbar
- Reflektion von Strahlungswärme
- enge Biegeradien möglich
- Enden silikonierbar
- *thermal and electrical cable protection*
- *temperature-resistant –50 up to 210°C*
- *good chemical resistance*
- *flame retardant*
- *good heat reflection capacity*
- *small bending radii possible*
- *ends siliconeable*



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 04 | 30 205 04 000                | 4,0       |
| 05 | 30 205 05 000                | 5,0       |
| 06 | 30 205 06 000                | 6,0       |
| 07 | 30 205 07 000                | 7,0       |
| 08 | 30 205 08 000                | 8,0       |
| 09 | 30 205 09 000                | 9,0       |
| 10 | 30 205 10 000                | 10,0      |
| 11 | 30 205 11 000                | 11,0      |
| 12 | 30 205 12 000                | 12,0      |
| 13 | 30 205 13 000                | 13,0      |
| 14 | 30 205 14 000                | 14,0      |
| 15 | 30 205 15 000                | 15,0      |
| 16 | 30 205 16 000                | 16,0      |
| 17 | 30 205 17 000                | 17,0      |
| 20 | 30 205 20 000                | 20,0      |
| 22 | 30 205 22 000                | 22,0      |
| 24 | 30 205 24 000                | 24,0      |
| 26 | 30 205 26 000                | 26,0      |
| 28 | 30 205 28 000                | 28,0      |



- 1 Glasseide  
Glass fiber
- 2 Silikon,  
Aluminium  
Silicone,  
aluminium



Flexibilität  
*Flexibility*



Mechanische Beständigkeit  
*Mechanical resistance*



FMVSS 302

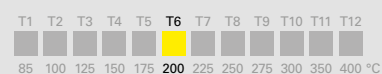


Korrosions-, verrottungs-  
und UV-beständig  
*Corrosion, rotting and  
UV-resistant*



100% recyclebar  
*100% recyclable*

Temperaturbeständigkeit  
*Temperature resistance*



## Kategorie 2.2 / Chapter 2.2

## G0T Knitted

Glasseidenstrickschlauch  
mit Silikon-/Graphitummantelung

*Glass fiber knitted hose  
with silicone/graphite wrapping*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- thermischer und elektrischer Schutz der Kabel
- temperaturbeständig –50 bis 250°C
- gute chemische Beständigkeit
- gewichtsoptimiert
- talkumiert (optional)
- enge Biegeradien möglich
- Enden silikonierbar
- schwer entflammbar
- thermal and electrical cable protection
- temperature-resistant –50 up to 250°C
- good chemical resistance
- weight optimized
- with talkum (optional)
- small bending radii possible
- ends siliconeable
- flame retardant



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 04 | 30 206 04 000                | 4,0       |
| 05 | 30 206 05 000                | 5,0       |
| 06 | 30 206 06 000                | 6,0       |
| 07 | 30 206 07 000                | 7,0       |
| 08 | 30 206 08 000                | 8,0       |
| 09 | 30 206 09 000                | 9,0       |
| 10 | 30 206 10 000                | 10,0      |
| 11 | 30 206 11 000                | 11,0      |
| 12 | 30 206 12 000                | 12,0      |
| 13 | 30 206 13 000                | 13,0      |
| 14 | 30 206 14 000                | 14,0      |
| 15 | 30 206 15 000                | 15,0      |
| 16 | 30 206 16 000                | 16,0      |
| 17 | 30 206 17 000                | 17,0      |
| 19 | 30 206 19 001                | 19,0      |
| 20 | 30 206 20 000                | 20,0      |
| 22 | 30 206 22 000                | 22,0      |
| 24 | 30 206 24 000                | 24,0      |
| 26 | 30 206 26 000                | 26,0      |
| 28 | 30 206 28 000                | 28,0      |
| 29 | 30 206 29 000                | 29,0      |



- 1 Glasseide  
Glass fiber
- 2 Silikon mit Graphitanteil  
Silicone with graphite



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

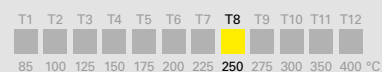


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





## Kategorie 2.2 / Chapter 2.2

**GOTS Braided**

Glasseidengeflechtschlauch  
mit Silikon-/Graphitummantelung

*Glass fiber braided hose  
with silicone/graphite wrapping*

- thermischer und elektrischer Schutz der Kabel
- temperaturbeständig –55 bis 250°C
- gute chemische Beständigkeit
- gewichtsoptimiert
- talkumiert (optional)
- enge Biegeradien möglich
- Enden silikonierbar
- schwer entflammbar
- thermal and electrical cable protection
- temperature-resistant –55 up to 250°C
- good chemical resistance
- weight optimized
- with talkum (optional)
- small bending radii possible
- ends siliconeable
- flame retardant



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 04 | 30 208 04 000                | 4,0       |
| 05 | 30 208 05 000                | 5,0       |
| 06 | 30 208 06 000                | 6,0       |
| 07 | 30 208 07 000                | 7,0       |
| 08 | 30 208 08 000                | 8,0       |
| 09 | 30 208 09 000                | 9,0       |
| 10 | 30 208 10 000                | 10,0      |
| 11 | 30 208 11 000                | 11,0      |
| 12 | 30 208 12 000                | 12,0      |
| 13 | 30 208 13 000                | 13,0      |
| 14 | 30 208 14 000                | 14,0      |
| 15 | 30 208 15 000                | 15,0      |
| 16 | 30 208 16 000                | 16,0      |
| 17 | 30 208 17 000                | 17,0      |
| 18 | 30 208 18 000                | 18,0      |
| 19 | 30 208 19 000                | 19,0      |
| 20 | 30 208 20 000                | 20,0      |
| 22 | 30 208 22 000                | 22,0      |
| 24 | 30 208 24 000                | 24,0      |
| 26 | 30 208 26 000                | 26,0      |
| 29 | 30 208 29 000                | 29,0      |



1 Glasseide  
Glass fiber

2 Silikon mit Graphitanteil  
Silicone with graphite

Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

FMVSS 302

Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance

T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12

85 100 125 150 175 200 225 250 275 300 350 400 °C

## Kategorie 2.2 / Chapter 2.2

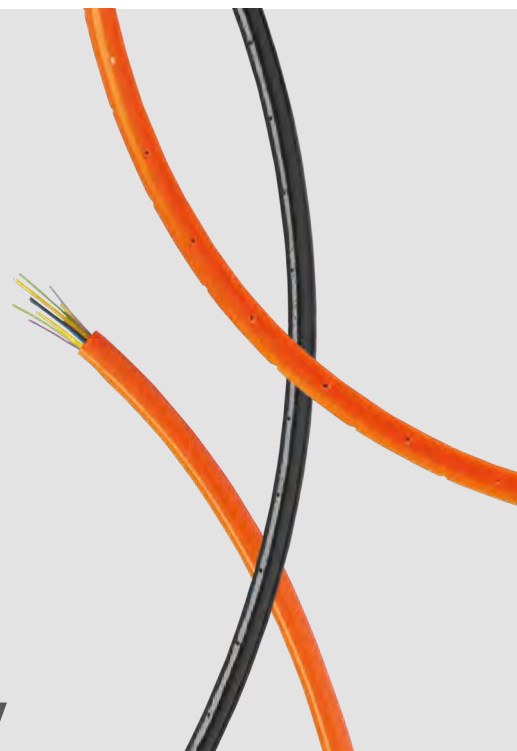
## FSPH

Polyesterstrickschlauch, mono-/multifil  
mit Silikonbeschichtung

*Polyester knitted hose, mono-/multifile  
with silicone coating*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz sensibler Verkabelungen, Wellrohre oder medienführender Leitungssysteme
- temperaturbeständig bis 210°C
- sehr hohe Abriebfestigkeit (Abriebklasse E nach LV 312-3)
- enge Biegeradien möglich
- glasfaserfrei
- auch als perforierte Version erhältlich
- Enden silikonierbar
- reliable protection of sensitive cabling, corrugated tubing or fluid systems
- temperature-resistant up to 210°C
- very high abrasion resistance (abrasion class E according to LV 312-3)
- small bending radii possible
- free of glass fibre
- also available in perforated design
- ends siliconeable



| NW | FIP Art. Nr. / FIP part no. |               |               |               | Ø-I<br>in mm |
|----|-----------------------------|---------------|---------------|---------------|--------------|
|    | orange/orange               | schwarz/black | transparent   | silber/silver |              |
| 05 | 30 207 05 000               | 30 210 05 000 | 30 212 05 000 | 30 213 05 000 | 5,0          |
| 07 | 30 207 07 000               | 30 210 07 000 | 30 212 07 000 | 30 213 07 000 | 7,0          |
| 08 | 30 207 08 000               | 30 210 08 000 | 30 212 08 000 | 30 213 08 000 | 8,0          |
| 09 | 30 207 09 000               | 30 210 09 000 | 30 212 09 000 | 30 213 09 000 | 9,0          |
| 10 | 30 207 10 000               | 30 210 10 000 | 30 212 10 000 | 30 213 10 000 | 10,0         |
| 11 | 30 207 11 000               | 30 210 11 000 | 30 212 11 000 | 30 213 11 000 | 11,0         |
| 12 | 30 207 12 000               | 30 210 12 000 | 30 212 12 000 | 30 213 12 000 | 12,0         |
| 13 | 30 207 13 000               | 30 210 13 000 | 30 212 13 000 | 30 213 13 000 | 13,0         |
| 14 | 30 207 14 000               | 30 210 14 000 | 30 212 14 000 | 30 213 14 000 | 14,0         |
| 15 | 30 207 15 000               | 30 210 15 000 | 30 212 15 000 | 30 213 15 000 | 15,0         |
| 16 | 30 207 16 000               | 30 210 16 000 | 30 212 16 000 | 30 213 16 000 | 16,0         |
| 17 | 30 207 17 000               | 30 210 17 000 | 30 212 17 000 | 30 213 17 000 | 17,0         |
| 18 | 30 207 18 000               | 30 210 18 000 | 30 212 18 000 | 30 213 18 000 | 18,0         |
| 19 | 30 207 19 000               | 30 210 19 000 | 30 212 19 000 | 30 213 19 000 | 19,0         |
| 20 | 30 207 20 000               | 30 210 20 000 | 30 212 20 000 | 30 213 20 000 | 20,0         |
| 21 | 30 207 21 000               | 30 210 21 000 | 30 212 21 000 | 30 213 21 000 | 21,0         |
| 22 | 30 207 22 000               | 30 210 22 000 | 30 212 22 000 | 30 213 22 000 | 22,0         |
| 24 | 30 207 24 000               | 30 210 24 000 | 30 212 24 000 | 30 213 24 000 | 24,0         |
| 26 | 30 207 26 000               | 30 210 26 000 | 30 212 26 000 | 30 213 26 000 | 26,0         |

| perforiert / perforated |               |  |  |  |      |
|-------------------------|---------------|--|--|--|------|
| 12                      | 30 211 12 000 |  |  |  | 12,0 |
| 13                      | 30 211 13 000 |  |  |  | 13,0 |
| 14                      | 30 311 14 000 |  |  |  | 14,0 |
| 15                      | 30 211 15 000 |  |  |  | 15,0 |
| 16                      | 30 211 16 000 |  |  |  | 16,0 |
| 17                      | 30 211 17 000 |  |  |  | 17,0 |
| 18                      | 30 211 18 000 |  |  |  | 18,0 |
| 19                      | 30 211 19 000 |  |  |  | 19,0 |
| 20                      | 30 211 20 000 |  |  |  | 20,0 |
| 21                      | 30 211 21 000 |  |  |  | 21,0 |



- 1 Polyester Polyester
- 2 Silikon Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

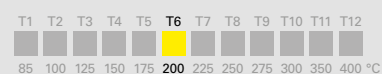


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



Weitere Nennweiten und technische Details auf Anfrage.  
Other dimensions and technical data available on request.

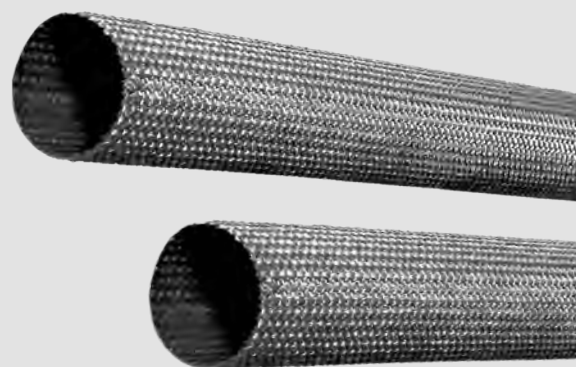
## Kategorie 2.2 / Chapter 2.2

**GN1 / GN1 Violet**

Glasseidengeflechtschlauch  
mit Silikonimprägnierung

*Glass fiber braided hose  
with silicone impregnation*

- zuverlässiger Schutz auch bei hohen Temperaturen bis 350°C (GN1 Violet bis 250°C)
- gute chemische Beständigkeit
- gewichtsoptimiert
- sauberer Abschnitt ohne Grat
- auch als Crash- und Marderschutz für B+ Leitungen geeignet
- reliable protection even at high temperatures up to 350°C (GN1 Violet up to 250°C)
- good chemical resistance
- weight optimized
- clean cutting without burrs
- also suitable for protection against rodent bites and as crash protection for B+ wires



| NW | FIP Art. Nr. / FIP part no. |                   | Ø-l in mm |
|----|-----------------------------|-------------------|-----------|
|    | grau<br>grey                | violett<br>violet |           |
| 05 | 30 701 05 000               | 30 705 05 000     | 5,0       |
| 06 | 30 701 06 000               | 30 705 06 000     | 6,0       |
| 07 | 30 701 07 000               | 30 705 07 000     | 7,0       |
| 08 | 30 701 08 000               | 30 705 08 000     | 8,0       |
| 09 | 30 701 09 000               | 30 705 09 000     | 9,0       |
| 10 | 30 701 10 000               | 30 705 10 000     | 10,0      |
| 11 | 30 701 11 000               | 30 705 11 000     | 11,0      |
| 12 | 30 701 12 000               | 30 705 12 000     | 12,0      |
| 13 | 30 701 13 000               | 30 705 13 000     | 13,0      |
| 14 | 30 701 14 000               | 30 705 14 000     | 14,0      |
| 15 | 30 701 15 000               | 30 705 15 000     | 15,0      |
| 16 | 30 701 16 000               | 30 705 16 000     | 16,0      |
| 17 | 30 701 17 000               | 30 705 17 000     | 17,0      |
| 18 | 30 701 18 000               | 30 705 18 000     | 18,0      |
| 19 | 30 701 19 000               | 30 705 19 000     | 19,0      |
| 20 | 30 701 20 000               | 30 705 20 000     | 20,0      |
| 22 | 30 701 22 000               | 30 705 22 000     | 22,0      |
| 23 | 30 701 23 000               | 30 705 23 000     | 23,0      |
| 24 | 30 701 24 000               | 30 705 24 000     | 24,0      |
| 25 | 30 701 25 000               | 30 705 25 000     | 25,0      |
| 26 | 30 701 26 000               | 30 705 26 000     | 26,0      |
| 27 | 30 701 27 000               | 30 705 27 000     | 27,0      |
| 28 | 30 701 28 000               | 30 705 28 000     | 28,0      |
| 29 | 30 701 29 000               | 30 705 29 000     | 29,0      |
| 30 | 30 701 30 000               | 30 705 30 000     | 30,0      |



1 Glasseide mit Silikonimprägnierung  
Glass fiber with silicone impregnation



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

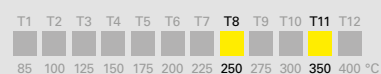


Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.2 / Chapter 2.2

## MTP

# **Glasseidengeflechtschlauch mit V2A-Bestrickung und Silikonimprägnierung**

## ***Glass fiber braided hose with V2A knitting and silicone impregnation***

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz gebündelter Verkabelungen oder Wellrohre bei sehr hohen Temperaturen
- temperaturbeständig bis 350°C
- gute chemische Beständigkeit
- gute Temperaturableitung
- reliable protection of bundling cables or corrugated tubing at very high temperatures
- temperature-resistant up to 350°C
- good chemical resistance
- good heat conduction



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 451 05 000                | 5,5       |
| 07 | 30 451 07 000                | 6,8       |
| 08 | 30 451 08 000                | 8,3       |
| 09 | 30 451 09 000                | 9,0       |
| 11 | 30 451 11 000                | 11,0      |
| 13 | 30 451 13 000                | 12,5      |
| 14 | 30 451 14 000                | 14,0      |
| 15 | 30 451 15 000                | 14,7      |
| 17 | 30 451 17 000                | 17,0      |
| 20 | 30 451 20 000                | 19,0      |
| 22 | 30 451 22 000                | 22,7      |
| 24 | 30 451 24 000                | 22,7      |
| 26 | 30 451 26 000                | 25,8      |
| 28 | 30 451 28 000                | 27,0      |
| 30 | 30 451 30 000                | 31,0      |



- 1 Glasseide  
Glass fiber
- 2 V2A
- 3 Silikon  
Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.2 / Chapter 2.2

**HTP****Glasseidengeflechtschlauch  
mit Monel-Bestrickung und Silikonimprägnierung*****Glass fiber braided hose  
with monel knitting and silicone impregnation***Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz sensibler Leitungssätze bei sehr hohen Temperaturen
- temperaturbeständig bis 400°C
- gute chemische Beständigkeit
- gute Temperaturableitung
- reliable protection of sensitive harnesses at very high temperatures
- temperature-resistant up to 400°C
- good chemical resistance
- good heat conduction



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 450 05 000                | 5,5       |
| 07 | 30 450 07 000                | 6,8       |
| 08 | 30 450 08 000                | 8,3       |
| 09 | 30 450 09 000                | 9,0       |
| 11 | 30 450 11 000                | 11,0      |
| 13 | 30 450 13 000                | 12,5      |
| 14 | 30 450 14 000                | 14,0      |
| 15 | 30 450 15 000                | 14,7      |
| 17 | 30 450 17 000                | 17,0      |
| 20 | 30 450 20 000                | 19,0      |
| 22 | 30 450 22 000                | 22,7      |
| 24 | 30 450 24 000                | 22,7      |
| 26 | 30 450 26 000                | 25,8      |
| 28 | 30 450 28 000                | 27,0      |
| 30 | 30 450 30 000                | 31,0      |



- 1 Glasseide  
Glass fiber
- 2 Monel
- 3 Silikon  
Silicone

Flexibilität  
FlexibilityMechanische Beständigkeit  
Mechanical resistance

FMVSS 302

Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant100% recyclebar  
100% recyclableTemperaturbeständigkeit  
Temperature resistance

Kategorie 2.3 / Chapter 2.3

# Abriebschutzprodukte

## *Abrasion protection products*

### Produktübersicht / Product overview

| Produkt<br>Product | Temperaturklasse<br>Temperature class | Flexibilität<br>Flexibility | Mech. Beständigkeit<br>Mech. resistance | Abrieb<br>Abrasion | Seite<br>Page |
|--------------------|---------------------------------------|-----------------------------|-----------------------------------------|--------------------|---------------|
| FSPH               | T6                                    | ///                         | ///                                     | ///                | 72            |
| GGU                | T4                                    | ///                         | ///                                     | ///                | 73            |
| GGD                | T4                                    | ///                         | ///                                     | ///                | 74            |
| FS 2 Million       | T4                                    | ///                         | ///                                     | ///                | 75            |
| FS 2 Million Pad   | T4                                    | ///                         | ///                                     | ///                | 76            |
| GA6                | T3                                    | ///                         | ///                                     | ///                | 77            |
| FIP A Lock         | T4                                    | ///                         | ///                                     | ///                | 78            |





Empfohlene Anwendungsbereiche / *Recommended areas of application*

| Produkt<br>Product |  | °C |  |  |  |  |  |  |
|--------------------|-----------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| FSPH               | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| GGU                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| GGD                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| FS 2 Million       | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| FS 2 Million Pad   | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     | x                                                                                   | x                                                                                   |
| GA6                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| FIP A Lock         | x                                                                                 | x  | x                                                                                 |                                                                                   | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   |



## Kategorie 2.3 / Chapter 2.3

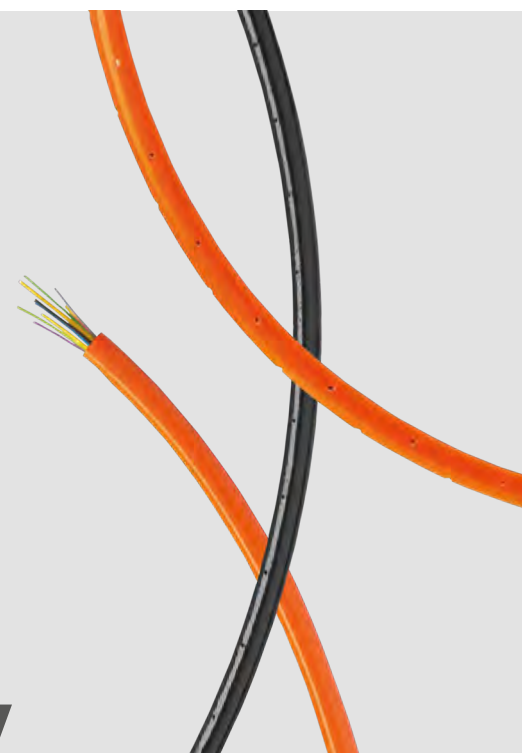
## FSPH

Polyesterstrickschlauch, mono-/multifil  
mit Silikonbeschichtung

*Polyester knitted hose, mono-/multifile  
with silicone coating*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz sensibler Verkabelungen, Wellrohre oder medienführender Leitungssysteme
- temperaturbeständig bis 210°C
- sehr hohe Abriebfestigkeit (Abriebklasse E nach LV 312-3)
- enge Biegeradien möglich
- glasfaserfrei
- auch als perforierte Version erhältlich
- Enden silikonierbar
- reliable protection of sensitive cabling, corrugated tubing or fluid systems
- temperature-resistant up to 210°C
- very high abrasion resistance (abrasion class E according to LV 312-3)
- small bending radii possible
- free of glass fibre
- also available in perforated design
- ends siliconeable



| NW | FIP Art. Nr. / FIP part no. |               |               |               | Ø-I<br>in mm |
|----|-----------------------------|---------------|---------------|---------------|--------------|
|    | orange/orange               | schwarz/black | transparent   | silber/silver |              |
| 05 | 30 207 05 000               | 30 210 05 000 | 30 212 05 000 | 30 213 05 000 | 5,0          |
| 07 | 30 207 07 000               | 30 210 07 000 | 30 212 07 000 | 30 213 07 000 | 7,0          |
| 08 | 30 207 08 000               | 30 210 08 000 | 30 212 08 000 | 30 213 08 000 | 8,0          |
| 09 | 30 207 09 000               | 30 210 09 000 | 30 212 09 000 | 30 213 09 000 | 9,0          |
| 10 | 30 207 10 000               | 30 210 10 000 | 30 212 10 000 | 30 213 10 000 | 10,0         |
| 11 | 30 207 11 000               | 30 210 11 000 | 30 212 11 000 | 30 213 11 000 | 11,0         |
| 12 | 30 207 12 000               | 30 210 12 000 | 30 212 12 000 | 30 213 12 000 | 12,0         |
| 13 | 30 207 13 000               | 30 210 13 000 | 30 212 13 000 | 30 213 13 000 | 13,0         |
| 14 | 30 207 14 000               | 30 210 14 000 | 30 212 14 000 | 30 213 14 000 | 14,0         |
| 15 | 30 207 15 000               | 30 210 15 000 | 30 212 15 000 | 30 213 15 000 | 15,0         |
| 16 | 30 207 16 000               | 30 210 16 000 | 30 212 16 000 | 30 213 16 000 | 16,0         |
| 17 | 30 207 17 000               | 30 210 17 000 | 30 212 17 000 | 30 213 17 000 | 17,0         |
| 18 | 30 207 18 000               | 30 210 18 000 | 30 212 18 000 | 30 213 18 000 | 18,0         |
| 19 | 30 207 19 000               | 30 210 19 000 | 30 212 19 000 | 30 213 19 000 | 19,0         |
| 20 | 30 207 20 000               | 30 210 20 000 | 30 212 20 000 | 30 213 20 000 | 20,0         |
| 21 | 30 207 21 000               | 30 210 21 000 | 30 212 21 000 | 30 213 21 000 | 21,0         |
| 22 | 30 207 22 000               | 30 210 22 000 | 30 212 22 000 | 30 213 22 000 | 22,0         |
| 24 | 30 207 24 000               | 30 210 24 000 | 30 212 24 000 | 30 213 24 000 | 24,0         |
| 26 | 30 207 26 000               | 30 210 26 000 | 30 212 26 000 | 30 213 26 000 | 26,0         |

| perforiert / perforated |               |  |  |  |      |
|-------------------------|---------------|--|--|--|------|
| 12                      | 30 211 12 000 |  |  |  | 12,0 |
| 13                      | 30 211 13 000 |  |  |  | 13,0 |
| 14                      | 30 311 14 000 |  |  |  | 14,0 |
| 15                      | 30 211 15 000 |  |  |  | 15,0 |
| 16                      | 30 211 16 000 |  |  |  | 16,0 |
| 17                      | 30 211 17 000 |  |  |  | 17,0 |
| 18                      | 30 211 18 000 |  |  |  | 18,0 |
| 19                      | 30 211 19 000 |  |  |  | 19,0 |
| 20                      | 30 211 20 000 |  |  |  | 20,0 |
| 21                      | 30 211 21 000 |  |  |  | 21,0 |



- 1 Polyester Polyester
- 2 Silikon Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



Abrieb  
Abrasion



FMVSS 302

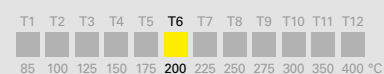


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



Weitere Nennweiten und technische Details auf Anfrage.  
Other dimensions and technical data available on request.

## Kategorie 2.3 / Chapter 2.3

## GGU

Polyesterstrickschlauch, multifil  
mit Spezialimprägnierung

*Polyester knitted hose, multifile  
with special impregnation*

- zuverlässiger Schutz der Leitungen  
vor mechanischen Einflüssen und  
Abrieb
- temperaturbeständig bis max. 160 °C
- stichfest, kalt zu schneiden, ohne Grat
- gute chemische Beständigkeit
- reliable cable protection against  
mechanical influences and abrasion
- temperature-resistant up to 160 °C
- puncture-resistant, can be cut cold,  
without burrs
- very good chemical resistance



| NW | FIP Art. Nr. / FIP part no. |               |                  | Ø-l<br>in mm |
|----|-----------------------------|---------------|------------------|--------------|
|    | orange<br>orange            | grau<br>grey  | schwarz<br>black |              |
| 05 | 30 107 05 000               | 30 106 05 000 | 30 100 05 000    | 5,0          |
| 06 | 30 107 06 000               | 30 106 06 000 | 30 100 06 000    | 6,0          |
| 07 | 30 107 07 000               | 30 106 07 000 | 30 100 07 000    | 7,0          |
| 08 | 30 107 08 000               | 30 106 08 000 | 30 100 08 000    | 8,0          |
| 09 | 30 107 09 000               | 30 106 09 000 | 30 100 09 000    | 9,0          |
| 10 | 30 107 10 000               | 30 106 10 000 | 30 100 10 000    | 10,0         |
| 11 | 30 107 11 000               | 30 106 11 000 | 30 100 11 000    | 11,0         |
| 12 | 30 107 12 000               | 30 106 12 000 | 30 100 12 000    | 12,0         |
| 13 | 30 107 13 000               | 30 106 13 000 | 30 100 13 000    | 13,0         |
| 14 | 30 107 14 000               | 30 106 14 000 | 30 100 14 000    | 14,0         |
| 15 | 30 107 15 000               | 30 106 15 000 | 30 100 15 000    | 15,0         |
| 16 | 30 107 16 000               | 30 106 16 000 | 30 100 16 000    | 16,0         |
| 17 | 30 107 17 000               | 30 106 17 000 | 30 100 17 000    | 17,0         |
| 18 | 30 107 18 000               | 30 106 18 000 | 30 100 18 000    | 18,0         |
| 20 | 30 107 20 000               | 30 106 20 000 | 30 100 20 000    | 20,0         |
| 21 | 30 107 21 000               | 30 106 21 000 | 30 100 21 000    | 21,0         |
| 22 | 30 107 22 000               | 30 106 22 000 | 30 100 22 000    | 22,0         |
| 23 | 30 107 23 000               | 30 106 23 000 | 30 100 23 000    | 23,0         |
| 24 | 30 107 24 000               | 30 106 24 000 | 30 100 24 000    | 24,0         |
| 25 | 30 107 25 000               | 30 106 25 000 | 30 100 25 000    | 25,0         |
| 26 | 30 107 26 000               | 30 106 26 000 | 30 100 26 000    | 26,0         |
| 27 | 30 107 27 000               | 30 106 27 000 | 30 100 27 000    | 27,0         |
| 28 | 30 107 28 000               | 30 106 28 000 | 30 100 28 000    | 28,0         |
| 29 | 30 107 29 000               | 30 106 29 000 | 30 100 29 000    | 29,0         |
| 30 | 30 107 30 000               | 30 106 30 000 | 30 100 30 000    | 30,0         |
| 50 | 30 107 50 000               | 30 106 50 000 | 30 100 50 000    | 50,0         |
| 60 | 30 107 60 000               | 30 106 60 000 | 30 100 60 000    | 60,0         |



1 Polyester mit  
Imprägnierung  
Polyester with  
impregnation



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



Abrieb  
Abrasion



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.3 / Chapter 2.3

## GGD

Polyester-/Polyamidstrickschlauch, mono-/multifil  
mit Spezialimprägnierung

*Polyester/Polyamid knitted hose, mono-/multifile  
with special impregnation*

- zuverlässiger Schutz der Leitungen  
vor mechanischen Einflüssen und  
Abrieb
- temperaturbeständig bis max. 160 °C
- stichfest, kalt zu schneiden, ohne  
Grat
- gute chemische Beständigkeit
- auch in orange erhältlich
- reliable cable protection against  
mechanical influences and abrasion
- temperature-resistant up to 160 °C
- puncture-resistant, can be cut cold,  
without burrs
- very good chemical resistance
- also available in orange



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 103 05 000                | 5,0       |
| 06 | 30 103 06 000                | 6,0       |
| 07 | 30 103 07 000                | 7,0       |
| 08 | 30 103 08 000                | 8,0       |
| 09 | 30 103 09 000                | 9,0       |
| 10 | 30 103 10 000                | 10,0      |
| 11 | 30 103 11 000                | 11,0      |
| 12 | 30 103 12 000                | 12,0      |
| 13 | 30 103 13 000                | 13,0      |
| 14 | 30 103 14 000                | 14,0      |
| 15 | 30 103 15 000                | 15,0      |
| 16 | 30 103 16 000                | 16,0      |
| 17 | 30 103 17 000                | 17,0      |
| 18 | 30 103 18 000                | 18,0      |
| 20 | 30 103 20 000                | 20,0      |
| 21 | 30 103 21 000                | 21,0      |
| 22 | 30 103 22 000                | 22,0      |
| 23 | 30 103 23 000                | 23,0      |
| 24 | 30 103 24 000                | 24,0      |
| 25 | 30 103 25 000                | 25,0      |
| 26 | 30 103 26 000                | 26,0      |
| 27 | 30 103 27 000                | 27,0      |
| 28 | 30 103 28 000                | 28,0      |
| 29 | 30 103 29 000                | 29,0      |
| 30 | 30 103 30 000                | 30,0      |
| 50 | 30 103 50 000                | 50,0      |



1 Polyester mit  
Imprägnierung  
Polyester with  
impregnation



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



Abrieb  
Abrasion



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.3 / Chapter 2.3

## FS 2 Million

Polyester-/Polyamidstrickschlauch, mono-/multifil  
mit Spezialbeschichtung

*Polyester-/Polyamid knitted hose, mono-/multifile  
with special coating*

- mono-/multifiler Kabelschutz mit sehr hohem Abriebschutz
- temperaturbeständig bis 160 °C
- übertrifft den max. Abriebschutz nach LV-312-3 um ein Vielfaches
- enge Biegeradien möglich
- stichfest, kalt zu schneiden, ohne Grat
- mono-/multifiler cable protection with very high abrasion protection
- temperature-resistant up to 160 °C
- exceeds the maximum abrasion protection according to LV-312-3 by a multiple
- small bending radii possible
- puncture-resistant, can be cut cold, without burrs



| NW | FIP Art. Nr. / FIP part no. |                  |               |               |                | Ø-l<br>in mm |
|----|-----------------------------|------------------|---------------|---------------|----------------|--------------|
|    | schwarz<br>black            | orange<br>orange | rot<br>red    | weiß<br>white | braun<br>brown |              |
| 05 | 30 123 05 000               | 30 124 05 000    | 30 125 05 000 | 30 126 05 000 | 30 127 05 000  | 5,0          |
| 06 | 30 123 06 000               | 30 124 06 000    | 30 125 06 000 | 30 126 06 000 | 30 127 06 000  | 6,0          |
| 07 | 30 123 07 000               | 30 124 07 000    | 30 125 07 000 | 30 126 07 000 | 30 127 07 000  | 7,0          |
| 08 | 30 123 08 000               | 30 124 08 000    | 30 125 08 000 | 30 126 08 000 | 30 127 08 000  | 8,0          |
| 09 | 30 123 09 000               | 30 124 09 000    | 30 125 09 000 | 30 126 09 000 | 30 127 09 000  | 9,0          |
| 10 | 30 123 10 000               | 30 124 10 000    | 30 125 10 000 | 30 126 10 000 | 30 127 10 000  | 10,0         |
| 11 | 30 123 11 000               | 30 124 11 000    | 30 125 11 000 | 30 126 11 000 | 30 127 11 000  | 11,0         |
| 12 | 30 123 12 000               | 30 124 12 000    | 30 125 12 000 | 30 126 12 000 | 30 127 12 000  | 12,0         |
| 13 | 30 123 13 000               | 30 124 13 000    | 30 125 13 000 | 30 126 13 000 | 30 127 13 000  | 13,0         |
| 14 | 30 123 14 000               | 30 124 14 000    | 30 125 14 000 | 30 126 14 000 | 30 127 14 000  | 14,0         |
| 15 | 30 123 15 000               | 30 124 15 000    | 30 125 15 000 | 30 126 15 000 | 30 127 15 000  | 15,0         |
| 16 | 30 123 16 000               | 30 124 16 000    | 30 125 16 000 | 30 126 16 000 | 30 127 16 000  | 16,0         |
| 17 | 30 123 17 000               | 30 124 17 000    | 30 125 17 000 | 30 126 17 000 | 30 127 17 000  | 17,0         |
| 18 | 30 123 18 000               | 30 124 18 000    | 30 125 18 000 | 30 126 18 000 | 30 127 18 000  | 18,0         |
| 19 | 30 123 19 000               | 30 124 19 000    | 30 125 19 000 | 30 126 19 000 | 30 127 19 000  | 19,0         |
| 20 | 30 123 20 000               | 30 124 20 000    | 30 125 20 000 | 30 126 20 000 | 30 127 20 000  | 20,0         |
| 21 | 30 123 21 000               | 30 124 21 000    | 30 125 21 000 | 30 126 21 000 | 30 127 21 000  | 21,0         |
| 22 | 30 123 22 000               | 30 124 22 000    | 30 125 22 000 | 30 126 22 000 | 30 127 22 000  | 22,0         |
| 23 | 30 123 23 000               | 30 124 23 000    | 30 125 23 000 | 30 126 23 000 | 30 127 23 000  | 23,0         |
| 24 | 30 123 24 000               | 30 124 24 000    | 30 125 24 000 | 30 126 24 000 | 30 127 24 000  | 24,0         |
| 25 | 30 123 25 000               | 30 124 25 000    | 30 125 25 000 | 30 126 25 000 | 30 127 25 000  | 25,0         |
| 26 | 30 123 26 000               | 30 124 26 000    | 30 125 26 000 | 30 126 26 000 | 30 127 26 000  | 26,0         |
| 27 | 30 123 27 000               | 30 124 27 000    | 30 125 27 000 | 30 126 27 000 | 30 127 27 000  | 27,0         |
| 28 | 30 123 28 000               | 30 124 28 000    | 30 125 28 000 | 30 126 28 000 | 30 127 28 000  | 28,0         |
| 29 | 30 123 29 000               | 30 124 29 000    | 30 125 29 000 | 30 126 29 000 | 30 127 29 000  | 29,0         |
| 30 | 30 123 30 000               | 30 124 30 000    | 30 125 30 000 | 30 126 30 000 | 30 123 30 000  | 30,0         |
| 50 | 30 123 50 000               | 30 124 50 000    | 30 125 50 000 | 30 126 50 000 | 30 126 50 000  | 50,0         |



1 PA6 / PET

2 Spezial-  
beschichtung  
Special coating



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



Abrieb  
Abrasion



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



Kategorie 2.3 / Chapter 2.3

FS 2 Million Pad

Polyester-/Polyamidstrickmatte, mono-/multifil  
mit Spezialbeschichtung

*Polyester-/Polyamid knitted pad, mono-/multifile  
with special coating*

- mono-/multifile Schutzmatte mit sehr hohem Abriebschutz zur nachträglichen Installation
  - temperaturbeständig bis 160°C
  - inklusive Montagehilfe
  - übertrifft den max. Abriebschutz nach LV-312-3 um ein Vielfaches
  - stichfest, kalt zu schneiden, ohne Grat
- *mono-/multifile protection pad with very high abrasion protection for retrofit installation*
  - *temperature-resistant up to 160 °C*
  - *including mounting aid*
  - *exceeds the maximum abrasion protection according to LV-312-3 by a multiple*
  - *puncture-resistant, can be cut cold, without burrs*



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| xx |                              | xx        |

Alle Geometrien und weitere Farben auf Anfrage.  
All dimensions and further colors available on request.



- 1 PA6 / PET
- 2 Spezial-  
beschichtung  
Special coating

Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

Abrieb  
Abrasion

FMVSS 302

Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





## Kategorie 2.3 / Chapter 2.3

## GA6

# **Glasseiden-/Aramidgeflechtschlauch mit Aramidbestrickung und PUR-Ummantelung**

## *Glass fiber aramid braided hose with aramid knitting and PUR wrapping*

- zuverlässiger Schutz der Kabel auch für Hochvoltanwendungen
  - temperaturbeständig bis 130°C
  - maximaler Schlagschutz bei extremer Abriebbeständigkeit
  - Ummantelung schützt vor Schmutz und Feuchtigkeit
  - kalt zu schneiden, ohne Grat
  - gute chemische Beständigkeit
- reliable cable protection developed also for high-voltage applications
  - temperature-resistant up to 130°C
  - maximum impact protection in case of extreme abrasion resistance
  - wrapping protects against dirt and moisture
  - can be cut cold, without burrs
  - good chemical resistance



| NW | FIP Art. Nr. / FIP part no. |                  |               | Ø-I<br>in mm |
|----|-----------------------------|------------------|---------------|--------------|
|    | orange<br>orange            | schwarz<br>black | blau<br>blue  |              |
| 07 | 30 412 07 000               | 30 413 07 000    | 30 414 07 000 | 7,0          |
| 09 | 30 412 09 000               | 30 413 09 000    | 30 414 09 000 | 9,0          |
| 11 | 30 412 11 000               | 30 413 11 000    | 30 414 11 000 | 11,0         |
| 13 | 30 412 13 000               | 30 413 13 000    | 30 414 13 000 | 13,0         |
| 15 | 30 412 15 000               | 30 413 15 000    | 30 414 15 000 | 15,0         |
| 17 | 30 412 17 000               | 30 413 17 000    | 30 414 17 000 | 17,0         |
| 20 | 30 412 20 000               | 30 413 20 000    | 30 414 20 000 | 20,0         |
| 24 | 30 412 24 000               | 30 413 24 000    | 30 414 24 000 | 24,0         |



- 1 Glasseide und Aramidfaser  
Glass fiber and aramid fiber
- 2 Aramid  
Aramid
- 3 PUR

Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

Abrieb  
Abrasion

FMVSS 302

Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



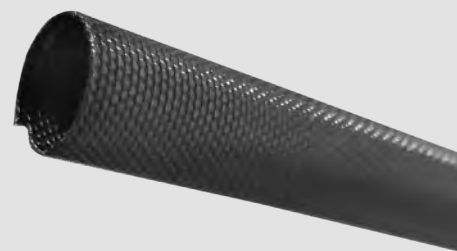
## Kategorie 2.3 / Chapter 2.3

## FIP A Lock

Polyestergewebes Schlauch, selbstschließend

*Polyester fabric hose, self-closing*

- hoher mechanischer Schutz der Leitungen
- temperaturbeständig –40°C bis +150°C
- zur nachträglichen Montage geeignet
- hohe Abriebbeständigkeit
- gewichtsoptimiert (geringe Wanddicken)
- high mechanical protection of the cables
- temperature-resistant –40 up to 150°C
- suitable for retrofit installation
- high abrasion resistance
- weight optimized (low wall thickness)



| NW | FIP Art. Nr. / FIP part no. |                  | Ø-I min.<br>in mm | Ø-I max.<br>in mm |
|----|-----------------------------|------------------|-------------------|-------------------|
|    | schwarz<br>black            | orange<br>orange |                   |                   |
| 05 | 30 170 05 000               | 30 171 05 000    | 4,0               | 6,0               |
| 08 | 30 170 08 000               | 30 171 08 000    | 6,0               | 9,0               |
| 10 | 30 170 10 000               | 30 171 10 000    | 9,0               | 11,0              |
| 13 | 30 170 13 000               | 30 171 13 000    | 11,0              | 15,0              |
| 16 | 30 170 16 000               | 30 171 16 000    | 15,0              | 18,0              |
| 19 | 30 170 19 000               | 30 171 19 000    | 18,0              | 23,0              |
| 25 | 30 170 25 000               | 30 171 25 000    | 23,0              | 28,0              |
| 29 | 30 170 29 000               | 30 171 29 000    | 28,0              | 34,0              |
| 32 | 30 170 32 000               | 30 171 32 000    | 30,0              | 36,0              |
| 38 | 30 170 38 000               | 30 171 38 000    | 34,0              | 42,0              |



1 PET

Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

Abrieb  
Abrasion

FMVSS 302

Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



# Notizen / Notes

Kategorie 2.4 / Chapter 2.4

# Crashschutzprodukte

## *Crash protection products*

### Produktübersicht / Product overview

| Produkt<br><i>Product</i> | Temperaturklasse<br><i>Temperature class</i> | Flexibilität<br><i>Flexibility</i> | Erhöhte mechanische Festigkeit (LV)<br><i>Increased mechanical strength (LV)</i> | Seite<br><i>Page</i> |
|---------------------------|----------------------------------------------|------------------------------------|----------------------------------------------------------------------------------|----------------------|
| GA Basic                  | T5                                           | ■■■■                               | ■■■                                                                              | 82                   |
| GA Flex                   | T4                                           | ■■■■                               | ■■■                                                                              | 83                   |
| GX0                       | T5                                           | ■■■■                               | ■■■                                                                              | 84                   |
| GX0 Pro                   | T5                                           | ■■■■                               | ■■■                                                                              | 85                   |
| GA1                       | T5                                           | ■■■                                | ■■■                                                                              | 86                   |
| GA2                       | T5                                           | ■■■                                | ■■■                                                                              | 87                   |
| GA1 Soft                  | T5                                           | ■■■                                | ■■■                                                                              | 88                   |
| GA2 Soft                  | T5                                           | ■■■                                | ■■■                                                                              | 89                   |
| GA3                       | T5                                           | ■■■                                | ■■■                                                                              | 90                   |
| GA6                       | T3                                           | ■■■                                | ■■■                                                                              | 91                   |
| GA11                      | T5                                           | ■■■                                | ■■■                                                                              | 92                   |
| GA Crash Pad              | T5                                           | ■■■                                | ■■■                                                                              | 93                   |
| GGA Pro                   | T5                                           | ■■■■                               | ■■■                                                                              | 94                   |
| Crashtex                  | T4                                           | ■■■■                               | ■■■                                                                              | 95                   |
| Crashtex Lock             | T4                                           | ■■■■                               | ■■■                                                                              | 96                   |
| GN1 / GN 1 Violet         | T11 / T8                                     | ■■■                                | ■■■                                                                              | 97                   |



Empfohlene Anwendungsbereiche / *Recommended areas of application*

| Produkt<br>Product |  | °C |  |  |  |  |  |  |
|--------------------|-----------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| GA Basic           |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA Flex            |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GX0                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GX0 Pro            |                                                                                   | x  | x                                                                                 |                                                                                   | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA1                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA2                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA1 Soft           | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA2 Soft           | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA3                | x                                                                                 | x  | x                                                                                 |                                                                                   | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA6                | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA11               |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| GA Crash Pad       |                                                                                   | x  |                                                                                   | x                                                                                 | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   |
| GGA Pro            |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| Crashtex           | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   |                                                                                     | x                                                                                   |
| Crashtex Lock      | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   |
| GN1 / GN1 Violet   |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    | x                                                                                   |                                                                                     |                                                                                     |



## Kategorie 2.4 / Chapter 2.4

## GA Basic

## Aramidgeflechtschlauch

## Aramid braided hose

- zuverlässiger Schutz sensibler Verkabelungen vor Schlägen
- temperaturbeständig bis 180°C
- extrem flexibel, für engste Bauraum- und Verlegesituationen geeignet
- aus nicht schmelzendem Paraaramid
- aufdehnbar und reißfest
- enge Biegeradien möglich
- reliable protection of sensitive cabling against impacts
- temperature-resistant up to 180°C
- extremely flexible, ideally suited for installation in confined space
- made of non-melting paraaramid
- stretchable and tear-proof
- small bending radii possible



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 09 | 30 400 09 000                | 9,0       |
| 11 | 30 400 11 000                | 11,0      |
| 13 | 30 400 13 000                | 13,0      |
| 14 | 30 400 14 000                | 14,0      |
| 15 | 30 400 15 000                | 15,0      |
| 17 | 30 400 17 000                | 17,0      |
| 19 | 30 400 19 000                | 19,0      |
| 20 | 30 400 20 000                | 20,0      |
| 21 | 30 400 21 000                | 21,0      |
| 25 | 30 400 25 000                | 25,0      |



1 Glasseide  
Glass fiber



Flexibilität  
Flexibility



Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





## Kategorie 2.4 / Chapter 2.4

## GA Flex

Aramidgeflechtschlauch, stauchbar

*Aramid braided hose, compressible*

- zuverlässiger Schutz sensibler Verkabelungen vor Schlägen
- temperaturbeständig bis 160°C
- extrem flexibel, für engste Bauraum- und Verlegesituationen geeignet
- aufdehnbar und reißfest
- enge Biegeradien möglich
- reliable protection of sensitive cabling against impacts
- temperature-resistant up to 160°C
- extremely flexible, ideally suited for installation in confined space
- stretchable and tear-proof
- small bending radii possible

Erfindung von  
**FRÄNKISCHE**  
Invention of

| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 10 | 30 435 10 000                | 10,0      |
| 12 | 30 435 12 000                | 12,0      |
| 14 | 30 435 14 000                | 14,0      |
| 16 | 30 435 16 000                | 16,0      |
| 18 | 30 435 18 000                | 18,0      |
| 20 | 30 435 20 000                | 20,0      |
| 22 | 30 435 22 000                | 22,0      |
| 24 | 30 435 24 000                | 24,0      |

1 Aramid  
AramidFlexibilität  
FlexibilityErhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)

FMVSS 302

Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant100% recyclebar  
100% recyclableTemperaturbeständigkeit  
Temperature resistance

## Kategorie 2.4 / Chapter 2.4

## GX0

Aramidstrickschlauch, umkehrgestrickt  
mit Spezialimprägnierung

*Aramid knitted hose, reversely knitted  
with special impregnation*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz der Kabel bei hohen Schlagschutzanwendungen
- temperaturbeständig bis 180°C
- schnelle und einfache Montage (glatte Innenoberfläche)
- gute Schnittfestigkeit
- kein Glasanteil
- gewichtsoptimiert
- enge Biegeradien möglich
- *reliable cable protection at high impact protection applications*
- *temperature-resistant up to 180°C*
- *quick and easy assembly (smooth inner surface)*
- *good cut resistance*
- *no glass*
- *weight optimized*
- *small bending radii possible*



| NW | FIP Art. Nr. / FIP part no. |                  |               |                   | Ø-l<br>in mm |
|----|-----------------------------|------------------|---------------|-------------------|--------------|
|    | orange<br>orange            | schwarz<br>black | rot<br>red    | violett<br>violet |              |
| 09 | 30 401 09 000               | 30 402 09 000    | 30 403 09 000 | 30 500 09 000     | 9,0          |
| 11 | 30 401 11 000               | 30 402 11 000    | 30 403 11 000 | 30 500 11 000     | 11,0         |
| 13 | 30 401 13 000               | 30 402 13 000    | 30 403 13 000 | 30 500 13 000     | 13,0         |
| 14 | 30 401 14 000               | 30 402 14 000    | 30 403 14 000 | 30 500 14 000     | 14,0         |
| 16 | 30 401 16 000               | 30 402 16 000    | 30 403 16 000 | 30 500 16 000     | 16,0         |
| 17 | 30 401 17 000               | 30 402 17 000    | 30 403 17 000 | 30 500 17 000     | 17,0         |
| 20 | 30 401 20 000               | 30 402 20 000    | 30 403 20 000 | 30 500 20 000     | 20,0         |
| 22 | 30 401 22 000               | 30 402 22 000    | 30 403 22 000 | 30 500 22 000     | 22,0         |
| 46 | 30 401 46 000               | 30 402 46 000    | 30 403 46 000 | 30 500 46 000     | 46,0         |



1 Aramid  
Aramid



Flexibilität  
*Flexibility*



Erhöhte mechanische  
Festigkeit (LV)  
*Increased mechanical  
strength (LV)*



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
*Corrosion, rotting and  
UV-resistant*



100% recyclebar  
*100% recyclable*

Temperaturbeständigkeit  
*Temperature resistance*



## Kategorie 2.4 / Chapter 2.4

## GX0 Pro

Aramidstrickschlauch, umkehrgestrickt  
mit Silikonbeschichtung

*Aramid knitted hose, reversely knitted  
with silicone coating*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- zuverlässiger Schutz der Kabel bei hohen Schlagschutzanwendungen
  - temperaturbeständig bis 180°C
  - schnelle und einfache Montage (glatte Innenoberfläche)
  - gute Schnittfestigkeit
  - kein Glasanteil
  - gewichtsoptimiert
  - geschlossene Oberfläche
  - enge Biegeradien möglich
- reliable cable protection at high impact protection applications
  - temperature-resistant up to 180°C
  - quick and easy assembly (smooth inner surface)
  - good cut resistance
  - no glass
  - weight optimized
  - closed surface
  - small bending radii possible



| NW | FIP Art. Nr. / FIP part no. |                  | Ø-l in mm |
|----|-----------------------------|------------------|-----------|
|    | schwarz<br>black            | orange<br>orange |           |
| 08 | 30 440 08 000               | 30 441 08 000    | 8,0       |
| 09 | 30 440 09 000               | 30 441 09 000    | 9,0       |
| 10 | 30 440 10 000               | 30 441 10 000    | 10,0      |
| 11 | 30 440 11 000               | 30 441 11 000    | 11,0      |
| 12 | 30 440 12 000               | 30 441 12 000    | 12,0      |
| 13 | 30 440 13 000               | 30 441 13 000    | 13,0      |
| 14 | 30 440 14 000               | 30 441 14 000    | 14,0      |
| 15 | 30 440 15 000               | 30 441 15 000    | 15,0      |
| 16 | 30 440 16 000               | 30 441 16 000    | 16,0      |
| 17 | 30 440 17 000               | 30 441 17 000    | 17,0      |
| 18 | 30 440 18 000               | 30 441 18 000    | 18,0      |
| 19 | 30 440 19 000               | 30 441 19 000    | 19,0      |
| 20 | 30 440 20 000               | 30 441 20 000    | 20,0      |
| 21 | 30 440 21 000               | 30 441 21 000    | 21,0      |
| 22 | 30 440 22 000               | 30 441 22 000    | 22,0      |
| 23 | 30 440 23 000               | 30 441 23 000    | 23,0      |
| 24 | 30 440 24 000               | 30 441 24 000    | 24,0      |
| 25 | 30 440 25 000               | 30 441 25 000    | 25,0      |
| 26 | 30 440 26 000               | 30 441 26 000    | 26,0      |



- 1 Aramid  
Aramid
- 2 Silikon  
Silicone



Flexibilität  
Flexibility



Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.4 / Chapter 2.4

## GA1

# **Glasseiden-Aramidgeflechtschlauch mit Aramidbestrickung und Spezialimprägnierung**

## *Glass fiber aramid braided hose with aramid knitting and special impregnation*

Erfindung von  
**FRÄNKISCHE**  
Invention of

- hoher mechanischer Schutz der Kabel bei höchster Schlagbeanspruchung
- temperaturbeständig bis 180°C
- auch für Hochvoltanwendungen
- verhindert im Schadensfall Leitungskurzschluss
- enge Biegeradien möglich
- sauberer Abschnitt ohne Grat
- *high mechanical cable protection at highest impact stress*
- *temperature-resistant up to 180°C*
- *also for high-voltage applications*
- *prevents short circuits in case of damage*
- *small bending radii possible*
- *clean section without burrs*



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 404 05 000                | 5,0       |
| 07 | 30 404 07 000                | 7,0       |
| 09 | 30 404 09 001                | 9,0       |
| 11 | 30 404 11 000                | 11,0      |
| 12 | 30 404 12 000                | 12,0      |
| 13 | 30 404 13 000                | 13,0      |
| 14 | 30 404 14 000                | 14,0      |
| 15 | 30 404 15 000                | 15,0      |
| 17 | 30 404 17 000                | 17,0      |
| 19 | 30 404 19 000                | 19,0      |
| 20 | 30 404 20 000                | 20,0      |
| 22 | 30 404 22 000                | 22,0      |
| 24 | 30 404 24 000                | 24,0      |



- 1 Aramid  
Aramid
- 2 Aramid  
Aramid



Flexibilität  
*Flexibility*



Erhöhte mechanische  
Festigkeit (LV)  
*Increased mechanical  
strength (LV)*



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
*Corrosion, rotting and  
UV-resistant*



100% recyclebar  
*100% recyclable*

Temperaturbeständigkeit  
*Temperature resistance*



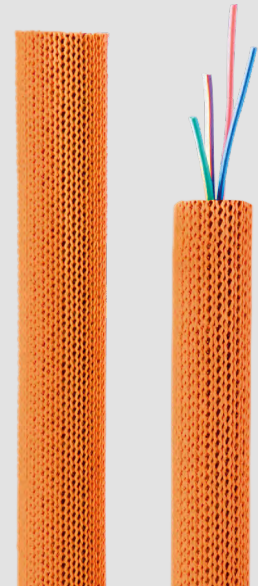
## Kategorie 2.4 / Chapter 2.4

## GA2

**Glasseiden-Aramidgeflechtschlauch  
mit Aramidbestrickung und Spezialimprägnierung**
***Glass fiber aramid braided hose  
with aramid knitting and special impregnation***

 Erfindung von  
**FRÄNKISCHE**  
 Invention of

- hoher mechanischer Schutz der Kabel bei höchster Schlagbeanspruchung
- temperaturbeständig bis 180°C
- auch für Hochvoltanwendungen
- verhindert im Schadensfall Leitungskurzschluss
- enge Biegeradien möglich
- sauberer Abschnitt ohne Grat
- high mechanical cable protection at highest impact stress
- temperature-resistant up to 180°C
- also for high-voltage applications
- prevents short circuits in case of damage
- small bending radii possible
- clean section without burrs



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 405 05 000                | 5,0       |
| 07 | 30 405 07 000                | 7,0       |
| 09 | 30 405 09 000                | 9,0       |
| 11 | 30 405 11 000                | 11,0      |
| 12 | 30 405 12 000                | 12,0      |
| 13 | 30 405 13 000                | 13,0      |
| 14 | 30 405 14 000                | 14,0      |
| 15 | 30 405 15 000                | 15,0      |
| 17 | 30 405 17 000                | 17,0      |
| 19 | 30 405 19 000                | 19,0      |
| 20 | 30 405 20 000                | 20,0      |
| 22 | 30 405 22 000                | 22,0      |
| 24 | 30 405 24 000                | 24,0      |



- 1 Aramid  
Aramid
- 2 Aramid  
Aramid


 Flexibilität  
 Flexibility


 Erhöhte mechanische  
 Festigkeit (LV)  
 Increased mechanical  
 strength (LV)


 FMVSS 302


 Korrosions-, verrottungs-  
 und UV-beständig  
 Corrosion, rotting and  
 UV-resistant


 100% recyclebar  
 100% recyclable

 Temperaturbeständigkeit  
 Temperature resistance


## Kategorie 2.4 / Chapter 2.4

## GA1 Soft

Glasseiden-Aramidgeflechtschlauch, flexibel  
mit Aramidbestrickung und Spezialimprägnierung

*Glass fiber aramid braided hose, flexible  
with aramid knitting and special impregnation*

- zuverlässiger Schutz der Kabel
- temperaturbeständig bis 180°C
- höchste Schlagschutzklasse
- auch für Hochvoltanwendungen
- verhindert im Schadensfall Leitungskurzschluss
- enge Biegeradien möglich
- sauberer Abschnitt ohne Grat
- reliable cable protection
- temperature-resistant up to 180°C
- highest impact stress class
- also for high-voltage applications
- prevents short circuits in case of damage
- small bending radii possible
- clean section without burrs



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 411 05 000                | 5,0       |
| 07 | 30 411 07 000                | 7,0       |
| 09 | 30 411 09 001                | 9,0       |
| 11 | 30 411 11 000                | 11,0      |
| 12 | 30 411 12 000                | 12,0      |
| 13 | 30 411 13 000                | 13,0      |
| 14 | 30 411 14 000                | 14,0      |
| 15 | 30 411 15 000                | 15,0      |
| 17 | 30 411 17 000                | 17,0      |
| 19 | 30 411 19 000                | 19,0      |
| 20 | 30 411 20 000                | 20,0      |
| 22 | 30 411 22 000                | 22,0      |
| 24 | 30 411 24 000                | 24,0      |



- 1 Aramid  
Aramid
- 2 Aramid  
Aramid



Flexibilität  
Flexibility



Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





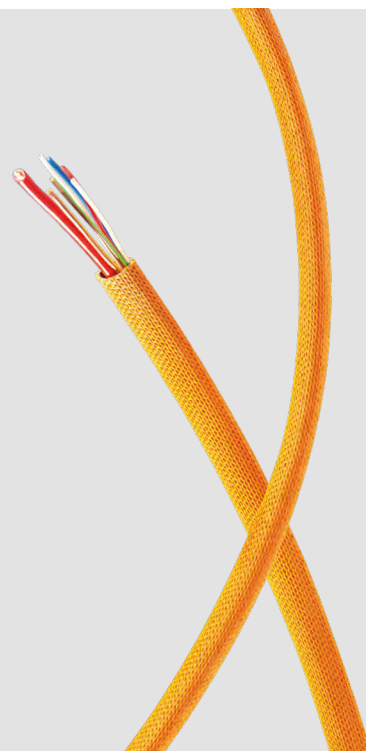
## Kategorie 2.4 / Chapter 2.4

## GA2 Soft

Glasseiden-Aramidgeflechtschlauch, flexibel  
mit Aramidbestrickung und Spezialimprägnierung

*Glass fiber aramid braided hose, flexible  
with aramid knitting and special impregnation*

- zuverlässiger Schutz der Kabel
- temperaturbeständig bis 180°C
- höchste Schlagschutzklasse
- auch für Hochvoltanwendungen
- verhindert im Schadensfall Leitungskurzschluss
- enge Biegeradien möglich
- sauberer Abschnitt ohne Grat
- reliable cable protection
- temperature-resistant up to 180°C
- highest impact stress class
- also for high-voltage applications
- prevents short circuits in case of damage
- small bending radii possible
- clean section without burrs



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 410 05 000                | 5,0       |
| 07 | 30 410 07 000                | 7,0       |
| 09 | 30 410 09 000                | 9,0       |
| 11 | 30 410 11 000                | 11,0      |
| 12 | 30 410 12 000                | 12,0      |
| 13 | 30 410 13 000                | 13,0      |
| 14 | 30 410 14 000                | 14,0      |
| 15 | 30 410 15 000                | 15,0      |
| 17 | 30 410 17 000                | 17,0      |
| 19 | 30 410 19 000                | 19,0      |
| 20 | 30 410 20 000                | 20,0      |
| 22 | 30 410 22 000                | 22,0      |
| 24 | 30 410 24 000                | 24,0      |



- 1 Aramid  
Aramid
- 2 Aramid  
Aramid



Flexibilität  
Flexibility



Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.4 / Chapter 2.4

## GA3

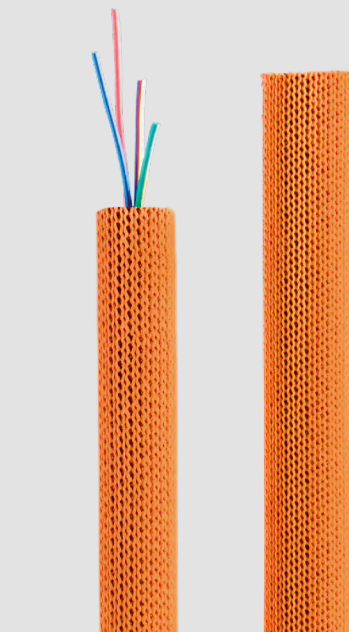
### Glasseiden-Aramidgeflechtschlauch mit Aramidbeflechtung und Silikonimprägnierung

#### *Glass fiber aramid braided hose with aramid braiding and silicone impregnation*

- zuverlässiger Schutz der Kabel
- temperaturbeständig bis 180°C
- höchste Schlagschutzklasse nach LV-312-3
- auch für Hochvoltanwendungen
- verhindert im Schadensfall Leitungskurzschluss
- sauberer Abschnitt ohne Grat
- reliable cable protection
- temperature-resistant up to 180°C
- highest impact stress class acc. to LV-312-3
- also for high-voltage applications
- prevents short circuits in case of damage
- clean section without burrs



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 14 | 30 406 14 000                | 14,0      |
| 17 | 30 406 17 000                | 17,0      |



- 1 Glasseide  
Glass fiber
- 2 Aramidfaser  
Aramid fiber
- 3 Aramid, Silikonharz  
Aramid silicone resin



Flexibilität  
Flexibility



Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.4 / Chapter 2.4

## GA6

Glasseiden-Aramidgeflechtschlauch, flexibel  
mit Aramidbestrickung und Spezialimprägnierung

*Glass fiber aramid braided hose, flexible  
with aramid knitting and special impregnation*

- zuverlässiger Schutz der Kabel
- temperaturbeständig bis 130°C
- höchste Schlagschutzklasse
- auch für Hochvoltanwendungen
- verhindert im Schadensfall Leitungskurzschluss
- enge Biegeradien möglich
- sauberer Abschnitt ohne Grat
- reliable cable protection
- temperature-resistant up to 130°C
- highest impact stress class
- also for high-voltage applications
- prevents short circuits in case of damage
- small bending radii possible
- clean section without burrs



| NW | FIP Art. Nr. / FIP part no. |                  |               | Ø-l<br>in mm |
|----|-----------------------------|------------------|---------------|--------------|
|    | orange<br>orange            | schwarz<br>black | blau<br>blue  |              |
| 07 | 30 412 07 000               | 30 413 07 000    | 30 414 07 000 | 7,0          |
| 09 | 30 412 09 000               | 30 413 09 000    | 30 414 09 000 | 9,0          |
| 13 | 30 412 13 000               | 30 413 13 000    | 30 414 13 000 | 13,0         |
| 15 | 30 412 15 000               | 30 413 15 000    | 30 414 15 000 | 15,0         |
| 17 | 30 412 17 000               | 30 413 17 000    | 30 414 17 000 | 17,0         |
| 20 | 30 412 20 000               | 30 413 20 000    | 30 414 20 000 | 20,0         |
| 24 | 30 412 24 000               | 30 413 24 000    | 30 414 24 000 | 24,0         |



- 1 Glasseide und Aramidfaser  
Glass fiber and aramid fiber
- 2 Aramid  
Aramid
- 3 PUR

Flexibilität  
Flexibility

Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)

Abrieb  
Abrasion

FMVSS 302

Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.4 / Chapter 2.4

## GA11

# **Glasseidengeflechtschlauch mit Aramidbestrickung und Silikonimprägnierung**

## *Glass fiber braided hose with aramid knitting and silicone impregnation*

- hoher mechanischer Schutz der Kabel bei Schlagbeanspruchung
- temperaturbeständig bis 180°C
- verhindert im Schadensfall Leitungskurzschluss
- kann kalt geschnitten werden
- enge Biegeradien möglich
- dickwandig
- sauberer Abschnitt ohne Grat
- *high mechanical cable protection at impact stress*
- *temperature-resistant up to 180°C*
- *prevents short circuits in case of damage*
- *can be cut cold*
- *small bending radii possible*
- *thick-walled*
- *clean section without burrs*



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 430 05 000                | 5,0       |
| 07 | 30 430 07 000                | 7,0       |
| 10 | 30 430 10 000                | 10,0      |
| 13 | 30 430 13 000                | 13,0      |
| 17 | 30 430 17 000                | 17,0      |



- 1 E-Glasseide  
E-glass fiber
- 2 Aramidfaser, PU  
Aramid fiber, PU
- 3 Silikonharz  
Silicone resin

Flexibilität  
Flexibility

Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)

✓ FMVSS 302

✓ Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

✓ 100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



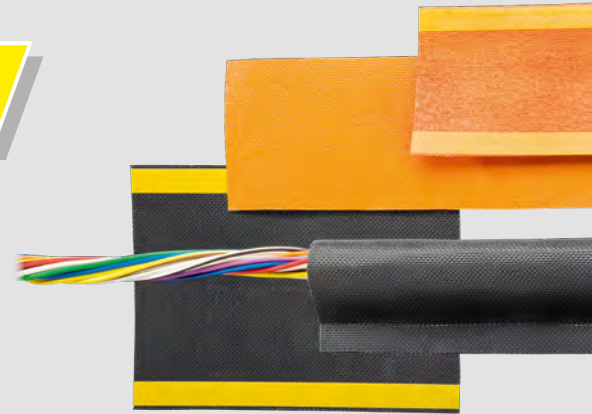
## Kategorie 2.4 / Chapter 2.4

**GA Crash Pad**

Aramidgewebematte  
mit Spezialimprägnierung

*Aramid fabric pad  
with special impregnation*

Erfindung von  
**FRÄNKISCHE**  
Invention of



- partiell und nachträglich montierbarer Schutz der Kabel bei hohen Schlag-  
schutz- oder Hochvoltanwendungen
- temperaturbeständig bis 180°C
- kundenspezifische Anfertigung
- einfache Montage dank Klebestreifen zur Vorfixierung
- sauberer Abschnitt ohne Grat
- *partial and retrofit cable protection in high impact protection or high-voltage applications*
- *temperature-resistant up to 180°C*
- *customized production*
- *easy installation with adhesive strips for pre-fixing*
- *clean section without burrs*



| NW | FIP Art. Nr. / FIP part no. |                  | Ø-l in mm |
|----|-----------------------------|------------------|-----------|
|    | orange<br>orange            | schwarz<br>black |           |
| xx | 30 421 xx xxx               | 30 420 xx xxx    | xx        |

Alle Geometrien auf Anfrage.  
All dimensions available on request.



Flexibilität  
Flexibility

Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.4 / Chapter 2.4

## GGA Pro

Aramid-Glasseidengeflechtschlauch  
mit Silikonimprägnierung

*Aramid glass fiber braided hose  
with silicone impregnation*

- zuverlässiger Schutz der Kabel  
bei hohen Schlagschutzanwendungen
  - temperaturbeständig bis 180°C
  - gute Schnittfestigkeit
  - sauberer Abschnitt ohne Grat
  - gewichtsoptimiert
  - geschlossene Oberfläche
  - enge Biegeradien möglich
- reliable cable protection at  
high impact protection applications
  - temperature-resistant up to 180°C
  - good cut resistance
  - clean section without burrs
  - weight optimized
  - closed surface
  - small bending radii possible



| NW | FIP Art. Nr. / FIP part no. |                  | Ø-l in mm |
|----|-----------------------------|------------------|-----------|
|    | schwarz<br>black            | orange<br>orange |           |
| 08 | 30 480 08 000               | 30 481 08 000    | 8,0       |
| 09 | 30 480 09 000               | 30 481 09 000    | 9,0       |
| 10 | 30 480 10 000               | 30 481 10 000    | 10,0      |
| 11 | 30 480 11 000               | 30 481 11 000    | 11,0      |
| 12 | 30 480 12 000               | 30 481 12 000    | 12,0      |
| 13 | 30 480 13 000               | 30 481 13 000    | 13,0      |
| 14 | 30 480 14 000               | 30 481 14 000    | 14,0      |
| 15 | 30 480 15 000               | 30 481 15 000    | 15,0      |
| 16 | 30 480 16 000               | 30 481 16 000    | 16,0      |
| 17 | 30 480 17 000               | 30 481 17 000    | 17,0      |
| 18 | 30 480 18 000               | 30 481 18 000    | 18,0      |
| 19 | 30 480 19 000               | 30 481 19 000    | 19,0      |
| 20 | 30 480 20 000               | 30 481 20 000    | 20,0      |
| 21 | 30 480 21 000               | 30 481 21 000    | 21,0      |
| 22 | 30 480 22 000               | 30 481 22 000    | 22,0      |
| 23 | 30 480 23 000               | 30 481 23 000    | 23,0      |
| 24 | 30 480 24 000               | 30 481 24 000    | 24,0      |
| 25 | 30 480 25 000               | 30 481 25 000    | 25,0      |
| 26 | 30 480 26 000               | 30 481 26 000    | 26,0      |



- 1 Aramid,  
Glasseeide  
Aramid,  
glass fiber
- 2 Silikon  
Silicone

Flexibilität  
Flexibility

Erhöhte mechanische  
Festigkeit (LV)  
Increased mechanical  
strength (LV)

FMVSS 302

Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





## Kategorie 2.4 / Chapter 2.4

## Crashtex

## Polyestergewebes Schlauch

## Polyester fabric hose

- hoher mechanischer Schutz der Leitungen auch bei starker Schlagbeanspruchung
  - temperaturbeständig -40°C bis +150°C
  - gewichtsoptimiert
  - hohe Abriebbeständigkeit
  - gute Schnittfestigkeit, kann kalt geschnitten werden
- high mechanical protection of the cables even under heavy stress
  - temperature-resistant -40 up to +150°C
  - weight-optimized
  - abrasion resistant
  - high abrasion resistance
  - good cut resistance, can be cut cold



| NW | FIP Art. Nr. / FIP part no. |                  |               |                   | Ø-l<br>in mm |
|----|-----------------------------|------------------|---------------|-------------------|--------------|
|    | schwarz<br>black            | orange<br>orange | rot<br>red    | violett<br>violet |              |
| 06 | 30 550 06 000               | 30 551 06 000    | 30 554 06 000 | 30 555 06 000     | 6,00         |
| 07 | 30 550 07 000               | 30 551 07 000    | 30 554 07 000 | 30 555 07 000     | 7,00         |
| 08 | 30 550 08 000               | 30 551 08 000    | 30 554 08 000 | 30 555 08 000     | 8,00         |
| 09 | 30 550 09 000               | 30 551 09 000    | 30 554 09 000 | 30 555 09 000     | 9,00         |
| 10 | 30 550 10 000               | 30 551 10 000    | 30 554 10 000 | 30 555 10 000     | 10,00        |
| 11 | 30 550 11 000               | 30 551 11 000    | 30 554 11 000 | 30 555 11 000     | 11,00        |
| 12 | 30 550 12 000               | 30 551 12 000    | 30 554 12 000 | 30 555 12 000     | 12,00        |
| 13 | 30 550 13 000               | 30 551 13 000    | 30 554 13 000 | 30 555 13 000     | 13,00        |
| 14 | 30 550 14 000               | 30 551 14 000    | 30 554 14 000 | 30 555 14 000     | 14,00        |
| 15 | 30 550 15 000               | 30 551 15 000    | 30 554 15 000 | 30 555 15 000     | 15,00        |
| 16 | 30 550 16 000               | 30 551 16 000    | 30 554 16 000 | 30 555 16 000     | 16,00        |
| 17 | 30 550 17 000               | 30 551 17 000    | 30 554 17 000 | 30 555 17 000     | 17,00        |
| 19 | 30 550 19 000               | 30 551 19 000    | 30 554 19 000 | 30 555 19 000     | 19,00        |
| 20 | 30 550 20 000               | 30 551 20 000    | 30 555 20 000 | 30 555 20 000     | 20,00        |
| 22 | 30 550 22 000               | 30 551 22 000    | 30 554 22 000 | 30 555 22 000     | 22,00        |
| 24 | 30 550 24 000               | 30 551 24 000    | 30 554 24 000 | 30 555 24 000     | 24,00        |
| 30 | 30 550 30 000               | 30 551 30 000    | 30 554 30 000 | 30 555 30 000     | 30,00        |



1 Polyester mit Imprägnierung  
Polyester with impregnation

- Flexibilität  
Flexibility
- Erhöhte mechanische Festigkeit (LV)  
Increased mechanical strength (LV)
- Abrieb  
Abrasion
- FMVSS 302
- Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant
- 100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance

|    |     |     |     |     |     |     |     |     |     |     |        |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| T1 | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 | T11 | T12    |
| 85 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 350 | 400 °C |

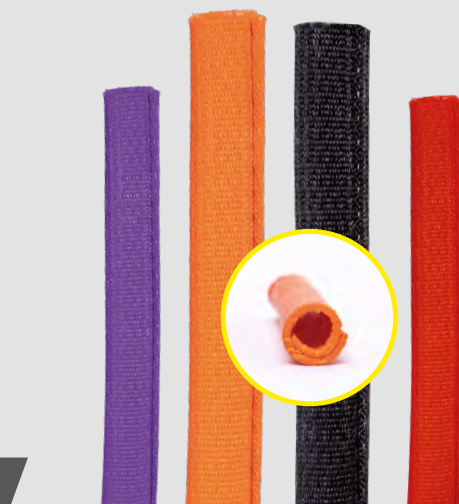
## Kategorie 2.4 / Chapter 2.4

## Crashtex Lock

Polyestergewebes Schlauch, selbstschließend

*Polyester fabric hose, self-closing*

- hoher mechanischer Schutz der Leitungen auch bei starker Schlagbeanspruchung
  - temperaturbeständig -40°C bis +150°C
  - zur nachträglichen Montage für vorkonfektionierte Leitungen und automatisierte Montagelinien
  - hohe Abriebbeständigkeit
  - gute Schnittfestigkeit, kann kalt geschnitten werden
  - gewichtsoptimiert
- high mechanical protection of the cables even under heavy stress
  - temperature-resistant -40 up to +150°C
  - for retrofit installation of pre-assembled cables and automated assembly lines
  - high abrasion resistance
  - good cut resistance, can be cut cold
  - weight optimized



| NW | FIP Art. Nr. / FIP part no. |                  |               |                   | Ø-I<br>in mm |
|----|-----------------------------|------------------|---------------|-------------------|--------------|
|    | schwarz<br>black            | orange<br>orange | rot<br>red    | violett<br>violet |              |
| 10 | 30 570 10 000               | 30 571 10 000    | 30 573 10 000 | 30 575 10 000     | 10,00        |
| 13 | 30 570 13 000               | 30 571 13 000    | 30 573 13 000 | 30 575 13 000     | 13,00        |
| 16 | 30 570 16 000               | 30 571 16 000    | 30 573 16 000 | 30 575 16 000     | 16,00        |
| 19 | 30 570 19 000               | 30 571 19 000    | 30 573 19 000 | 30 575 19 000     | 19,00        |
| 22 | 30 570 22 000               | 30 571 22 000    | 30 573 22 000 | 30 575 22 000     | 22,00        |



1 Polyester mit Imprägnierung  
Polyester with impregnation



Flexibilität  
Flexibility



Erhöhte mechanische Festigkeit (LV)  
Increased mechanical strength (LV)



Abrieb  
Abrasion



FMVSS 302



Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



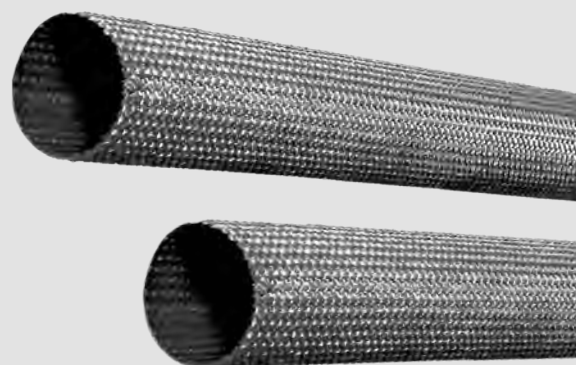
## Kategorie 2.4 / Chapter 2.4

**GN1 / GN1 Violet**

**Glasseidengeflechtschlauch  
mit Silikonimprägnierung**

**Glass fiber braided hose  
with silicone impregnation**

- zuverlässiger Schutz auch bei hohen Temperaturen bis 350°C (GN1 Violet bis 250°C)
- gute chemische Beständigkeit
- gewichtsoptimiert
- sauberer Abschnitt ohne Grat
- auch als Crash- und Marderschutz für B+ Leitungen geeignet
- reliable protection even at high temperatures up to 350°C (GN1 Violet up to 250°C)
- good chemical resistance
- weight optimized
- clean cutting without burrs
- also suitable for protection against rodent bites and as crash protection for B+ wires



| NW | FIP Art. Nr. / FIP part no. |                   | Ø-l in mm |
|----|-----------------------------|-------------------|-----------|
|    | grau<br>grey                | violett<br>violet |           |
| 05 | 30 701 05 000               | 30 705 05 000     | 5,0       |
| 06 | 30 701 06 000               | 30 705 06 000     | 6,0       |
| 07 | 30 701 07 000               | 30 705 07 000     | 7,0       |
| 08 | 30 701 08 000               | 30 705 08 000     | 8,0       |
| 09 | 30 701 09 000               | 30 705 09 000     | 9,0       |
| 10 | 30 701 10 000               | 30 705 10 000     | 10,0      |
| 11 | 30 701 11 000               | 30 705 11 000     | 11,0      |
| 12 | 30 701 12 000               | 30 705 12 000     | 12,0      |
| 13 | 30 701 13 000               | 30 705 13 000     | 13,0      |
| 14 | 30 701 14 000               | 30 705 14 000     | 14,0      |
| 15 | 30 701 15 000               | 30 705 15 000     | 15,0      |
| 16 | 30 701 16 000               | 30 705 16 000     | 16,0      |
| 17 | 30 701 17 000               | 30 705 17 000     | 17,0      |
| 18 | 30 701 18 000               | 30 705 18 000     | 18,0      |
| 19 | 30 701 19 000               | 30 705 19 000     | 19,0      |
| 20 | 30 701 20 000               | 30 705 20 000     | 20,0      |
| 22 | 30 701 22 000               | 30 705 22 000     | 22,0      |
| 23 | 30 701 23 000               | 30 705 23 000     | 23,0      |
| 24 | 30 701 24 000               | 30 705 24 000     | 24,0      |
| 25 | 30 701 25 000               | 30 705 25 000     | 25,0      |
| 26 | 30 701 26 000               | 30 705 26 000     | 26,0      |
| 27 | 30 701 27 000               | 30 705 27 000     | 27,0      |
| 28 | 30 701 28 000               | 30 705 28 000     | 28,0      |
| 29 | 30 701 29 000               | 30 705 29 000     | 29,0      |
| 30 | 30 701 30 000               | 30 705 30 000     | 30,0      |



**1** Glasseide mit Silikonimprägnierung  
Glass fiber with silicone impregnation



Flexibilität  
Flexibility



Erhöhte mechanische Festigkeit (LV)  
Increased mechanical strength (LV)



FMVSS 302



Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



Kategorie 2.5 / Chapter 2.5

# Spezialschutzprodukte

## *Special protection products*

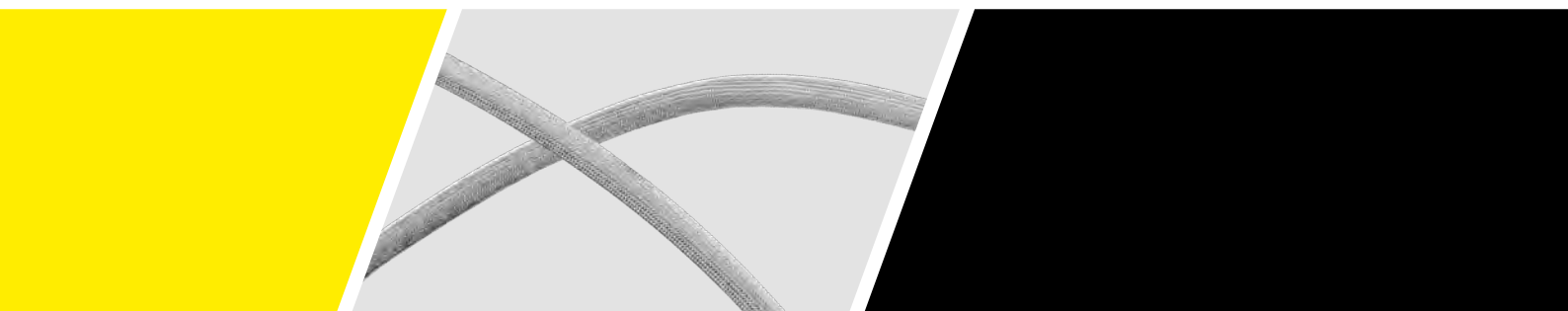
### Produktübersicht / Product overview

| Produkt<br><i>Product</i> | Temperaturklasse<br><i>Temperature class</i> | Flexibilität<br><i>Flexibility</i> | Mech. Beständigkeit<br><i>Mech. resistance</i> | Seite<br><i>Page</i> |
|---------------------------|----------------------------------------------|------------------------------------|------------------------------------------------|----------------------|
| Bacid Pro                 | T6                                           | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 100                  |
| Emitec                    | T6                                           | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 101                  |
| Isocorr S                 | T6                                           | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 102                  |
| GN1 Double                | T11                                          | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 103                  |
| Crashtex Lock             | T4                                           | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 104                  |
| FAP Lock                  | T4                                           | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 105                  |
| FIP A Lock                | T4                                           | ■ ■ ■ ■                            | ■ ■ ■ ■                                        | 106                  |



Empfohlene Anwendungsbereiche / *Recommended areas of application*

| Produkt<br>Product |  | °C |  |  |  |  |  |  |
|--------------------|-----------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Bacid Pro          |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    | x                                                                                   |                                                                                     | x                                                                                   |
| Emitec             |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    | x                                                                                   |                                                                                     | x                                                                                   |
| Isocorr S          |                                                                                   | x  | x                                                                                 | x                                                                                 | x                                                                                  |                                                                                     |                                                                                     | x                                                                                   |
| GN1 Double         |                                                                                   | x  | x                                                                                 | x                                                                                 |                                                                                    | x                                                                                   |                                                                                     | x                                                                                   |
| Crashtex Lock      | x                                                                                 | x  | x                                                                                 | x                                                                                 | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   |
| FAP Lock           |                                                                                   | x  |                                                                                   | x                                                                                 |                                                                                    |                                                                                     | x                                                                                   | x                                                                                   |
| FIP A Lock         | x                                                                                 | x  | x                                                                                 |                                                                                   | x                                                                                  | x                                                                                   | x                                                                                   | x                                                                                   |



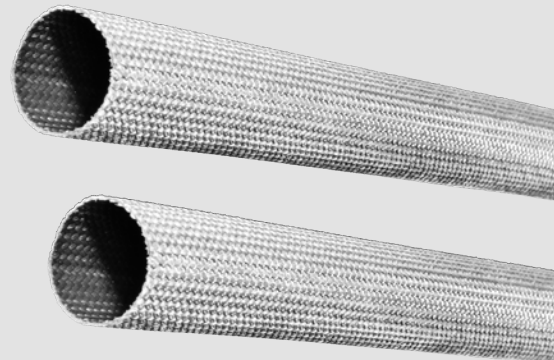
## Kategorie 2.5 / Chapter 2.5

## Bacid Pro

Glasseidengeflechtschlauch, batteriesäurebeständig  
mit Spezialimprägnierung

*Glass fiber braided hose, battery acid resistant  
with special impregnation*

- hoher mechanischer Schutz sensibler Verkabelungen
- temperaturbeständig bis 200°C
- beständig gegen Batteriesäure
- kann kalt geschnitten werden
- gewichtsoptimiert (geringe Wanddicken)
- high mechanical protection of sensitive cabling
- temperature-resistant up to 200°C
- resistant against battery acid
- can be cut cold
- weight optimized (low wall thickness)



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 710 05 000                | 5,0       |
| 06 | 30 710 06 000                | 6,0       |
| 07 | 30 710 07 000                | 7,0       |
| 08 | 30 710 08 000                | 8,0       |
| 09 | 30 710 09 000                | 9,0       |
| 10 | 30 710 10 000                | 10,0      |
| 11 | 30 710 11 000                | 11,0      |
| 12 | 30 710 12 000                | 12,0      |
| 13 | 30 710 13 000                | 13,0      |
| 14 | 30 710 14 000                | 14,0      |
| 15 | 30 710 15 000                | 15,0      |
| 16 | 30 710 16 000                | 16,0      |
| 17 | 30 710 17 000                | 17,0      |
| 18 | 30 710 18 000                | 18,0      |
| 20 | 30 710 20 000                | 20,0      |
| 22 | 30 710 22 000                | 22,0      |
| 23 | 30 710 23 000                | 23,0      |
| 24 | 30 710 24 000                | 24,0      |
| 25 | 30 710 25 000                | 25,0      |
| 26 | 30 710 26 000                | 26,0      |
| 27 | 30 710 27 000                | 27,0      |
| 28 | 30 710 28 000                | 28,0      |
| 29 | 30 710 29 000                | 29,0      |
| 30 | 30 710 30 000                | 30,0      |



- 1 Glasseide  
Glass fiber
- 2 Spezial-  
beschichtung  
Special coating



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

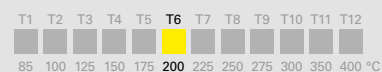


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance





## Kategorie 2.5 / Chapter 2.5

## Emitec

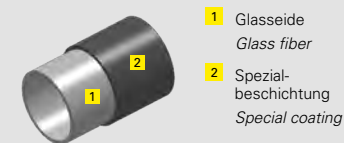
Glasseidengeflechtschlauch, emissionsarm  
mit Spezialimprägnierung

*Glass fiber braided hose, low in emissions  
with special impregnation*

- hoher mechanischer Schutz sensibler Verkabelungen
- temperaturbeständig bis 220°C
- emissionsarm
- garantiert saubere Schnittkanten
- gewichtsoptimiert (geringe Wanddicken)
- high mechanical protection of sensitive cabling
- temperature-resistant up to 220°C
- low in emissions
- enables clean cutting edges
- weight optimized (low wall thickness)



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 720 05 000                | 5,0       |
| 06 | 30 720 06 000                | 6,0       |
| 07 | 30 720 07 000                | 7,0       |
| 08 | 30 720 08 000                | 8,0       |
| 09 | 30 720 09 000                | 9,0       |
| 10 | 30 720 10 000                | 10,0      |
| 11 | 30 720 11 000                | 11,0      |
| 12 | 30 720 12 000                | 12,0      |
| 13 | 30 720 13 000                | 13,0      |
| 14 | 30 720 14 000                | 14,0      |
| 15 | 30 720 15 000                | 15,0      |
| 16 | 30 720 16 000                | 16,0      |
| 17 | 30 720 17 000                | 17,0      |
| 18 | 30 720 18 000                | 18,0      |
| 20 | 30 720 20 000                | 20,0      |
| 22 | 30 720 22 000                | 22,0      |
| 23 | 30 720 23 000                | 23,0      |
| 24 | 30 720 24 000                | 24,0      |
| 25 | 30 720 25 000                | 25,0      |
| 26 | 30 720 26 000                | 26,0      |
| 27 | 30 720 27 000                | 27,0      |
| 28 | 30 720 28 000                | 28,0      |
| 29 | 30 720 29 000                | 29,0      |
| 30 | 30 720 30 000                | 30,0      |



Flexibilität  
Flexibility

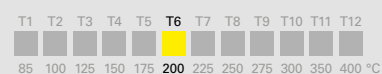
Mechanische Beständigkeit  
Mechanical resistance

✓ FMVSS 302

✓ Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

✓ 100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.5 / Chapter 2.5

## Isocorr S

Polyesterumstricktes Wellrohr, monofil  
mit Silikonbeschichtung

*Corrugated tubing with polyester knitted hose, monofil  
with silicone coating*

- sehr hoher mechanischer Schutz sensibler Verkabelungen vor Abrieb
  - temperaturbeständig bis 200°C
  - gute Temperaturableitung
  - hält hohen Auszugskräften stand
  - einfache Demontage
  - hohe Stabilität
  - ideale Anschlussmöglichkeiten, zubehörkompatibel
- high mechanical protection of sensitive cabling against abrasion
  - temperature-resistant up to 200°C
  - good heat conduction
  - withstands high tensile forces
  - easy removal
  - high stability
  - allows ideal connections, compatible with accessories



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 06 | 30 462 06 000                | 3,0       |
| 08 | 30 462 08 000                | 4,5       |
| 10 | 30 462 10 000                | 6,0       |
| 11 | 30 462 11 000                | 6,7       |
| 13 | 30 462 13 000                | 9,8       |
| 16 | 30 462 16 000                | 12,7      |



- 1 Wellrohr  
Corrugated tube
- 2 Glasseide  
Glass fiber
- 3 Silikon  
Silicone



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302

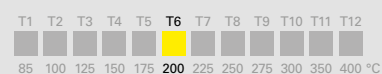


Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



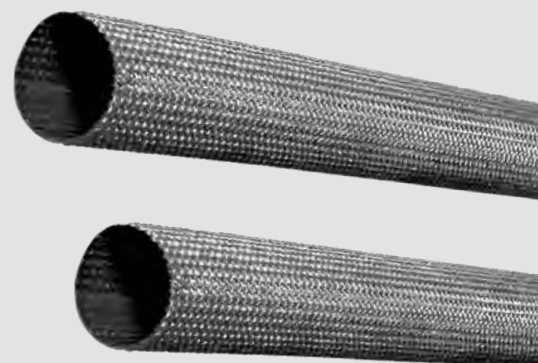
## Kategorie 2.5 / Chapter 2.5

**GN1 Double**

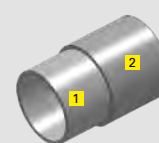
Glasseidengeflechtschlauch, zweilagig  
mit doppelter Silikonimprägnierung

*Glass fiber braided hose, two-layer  
with double silicone impregnation*

- extrem hoher mechanischer Schutz sensibler Verkabelungen
- temperaturbeständig bis 350°C
- emissionsarm
- sauberer Abschnitt ohne Grat
- high mechanical protection of sensitive cabling
- temperature-resistant up to 350°C
- low in emissions
- clean cutting without burrs



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 05 | 30 703 05 000                | 5,0       |
| 06 | 30 703 06 000                | 6,0       |
| 07 | 30 703 07 000                | 7,0       |
| 08 | 30 703 08 000                | 8,0       |
| 09 | 30 703 09 000                | 9,0       |
| 10 | 30 703 10 000                | 10,0      |
| 11 | 30 703 11 000                | 11,0      |
| 12 | 30 703 12 000                | 12,0      |
| 13 | 30 703 13 000                | 13,0      |
| 14 | 30 703 14 000                | 14,0      |
| 15 | 30 703 15 000                | 15,0      |
| 16 | 30 703 16 000                | 16,0      |
| 17 | 30 703 17 000                | 17,0      |
| 18 | 30 703 18 000                | 18,0      |
| 20 | 30 703 20 000                | 20,0      |
| 22 | 30 703 22 000                | 22,0      |
| 23 | 30 703 23 000                | 23,0      |
| 24 | 30 703 24 000                | 24,0      |
| 25 | 30 703 25 000                | 25,0      |
| 26 | 30 703 26 000                | 26,0      |



- 1 Glasseide  
Glass fiber
- 2 Glasseide  
Glass fiber



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.5 / Chapter 2.5

## Crashtex Lock

Polyestergewebes Schlauch, selbstschließend

*Polyester fabric hose, self-closing*

- hoher mechanischer Schutz der Leitungen auch bei starker Schlagbeanspruchung
  - temperaturbeständig -40°C bis +150°C
  - zur nachträglichen Montage für vorkonfektionierte Leitungen und automatisierte Montagelinien
  - hohe Abriebbeständigkeit
  - gute Schnittfestigkeit, kann kalt geschnitten werden
  - gewichtsoptimiert
- high mechanical protection of the cables even under heavy stress
  - temperature-resistant -40 up to +150°C
  - for retrofit installation of pre-assembled cables and automated assembly lines
  - high abrasion resistance
  - good cut resistance, can be cut cold
  - weight optimized



| NW | FIP Art. Nr. / FIP part no. |                  |               |                   | Ø-l<br>in mm |
|----|-----------------------------|------------------|---------------|-------------------|--------------|
|    | schwarz<br>black            | orange<br>orange | rot<br>red    | violett<br>violet |              |
| 10 | 30 570 10 000               | 30 571 10 000    | 30 573 10 000 | 30 575 10 000     | 10,00        |
| 13 | 30 570 13 000               | 30 571 13 000    | 30 573 13 000 | 30 575 13 000     | 13,00        |
| 16 | 30 570 16 000               | 30 571 16 000    | 30 573 16 000 | 30 575 16 000     | 16,00        |
| 19 | 30 570 19 000               | 30 571 19 000    | 30 573 19 000 | 30 575 19 000     | 19,00        |
| 22 | 30 570 22 000               | 30 571 22 000    | 30 573 22 000 | 30 575 22 000     | 22,00        |

Verschiedene Farben möglich. Sondergrößen und Verpackungseinheiten auf Anfrage.  
Different colors available. Special sizes and packaging units on request.



1 Polyester mit Imprägnierung  
Polyester with impregnation

Flexibilität  
Flexibility

Mechanische Beständigkeit  
Mechanical resistance

Abrieb  
Abrasion

FMVSS 302

Korrosions-, verrottungs- und UV-beständig  
Corrosion, rotting and UV-resistant

100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



## Kategorie 2.5 / Chapter 2.5

## FAP Lock

Glasseidenschlauch  
mit Aluminiumbeschichtung

*Glass fiber fabric hose  
with aluminium coating*

- nachträglich montierbarer zuverlässiger Schutz der Kabel
- temperaturbeständig -40 bis 150°C
- Reflektion von Strahlungswärme bis 480°C
- gute chemische Beständigkeit
- retrofit reliable cable protection
- temperature-resistant -40 up to 150°C
- good heat reflection capacity up to 480°C
- good chemical resistance



| NW | FIP Art. Nr.<br>FIP part no. | Ø-l in mm |
|----|------------------------------|-----------|
| 06 | 30 370 06 000                | 6,0       |
| 08 | 30 370 08 000                | 8,0       |
| 10 | 30 370 10 000                | 10,0      |
| 13 | 30 370 13 000                | 13,0      |
| 16 | 30 370 16 000                | 16,0      |
| 19 | 30 370 19 000                | 19,0      |
| 25 | 30 370 25 000                | 25,0      |
| 29 | 30 370 29 000                | 29,0      |
| 32 | 30 370 32 000                | 32,0      |
| 38 | 30 370 38 000                | 38,0      |



1 Glasseide  
Glass fiber

2 Aluminiumfolie  
Aluminium foil



Flexibilität  
Flexibility



Mechanische Beständigkeit  
Mechanical resistance



FMVSS 302



Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant



100% recyclebar  
100% recyclable

Temperaturbeständigkeit  
Temperature resistance



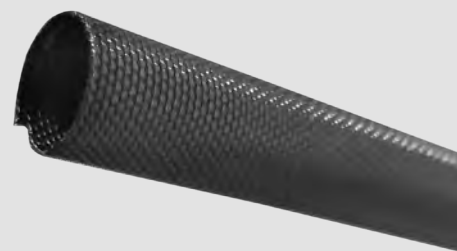
## Kategorie 2.5 / Chapter 2.5

## FIP A Lock

Polyestergewebes Schlauch, selbstschließend

*Polyester fabric hose, self-closing*

- hoher mechanischer Schutz der Leitungen
- temperaturbeständig –40°C bis +150°C
- zur nachträglichen Montage geeignet
- hohe Abriebbeständigkeit
- gewichtsoptimiert (geringe Wanddicken)
- high mechanical protection of the cables
- temperature-resistant –40 up to 150°C
- suitable for retrofit installation
- high abrasion resistance
- weight optimized (low wall thickness)



| NW | FIP Art. Nr. / FIP part no. |                  | Ø-I min.<br>in mm | Ø-I max.<br>in mm |
|----|-----------------------------|------------------|-------------------|-------------------|
|    | schwarz<br>black            | orange<br>orange |                   |                   |
| 05 | 30 170 05 000               | 30 171 05 000    | 4,0               | 6,0               |
| 08 | 30 170 08 000               | 30 171 08 000    | 6,0               | 9,0               |
| 10 | 30 170 10 000               | 30 171 10 000    | 9,0               | 11,0              |
| 13 | 30 170 13 000               | 30 171 13 000    | 11,0              | 15,0              |
| 16 | 30 170 16 000               | 30 171 16 000    | 15,0              | 18,0              |
| 19 | 30 170 19 000               | 30 171 19 000    | 18,0              | 23,0              |
| 25 | 30 170 25 000               | 30 171 25 000    | 23,0              | 28,0              |
| 29 | 30 170 29 000               | 30 171 29 000    | 28,0              | 34,0              |
| 32 | 30 170 32 000               | 30 171 32 000    | 30,0              | 36,0              |
| 38 | 30 170 38 000               | 30 171 38 000    | 34,0              | 42,0              |



1 PET

 Flexibilität  
Flexibility

 Mechanische Beständigkeit  
Mechanical resistance

 Abrieb  
Abrasion

FMVSS 302

 Korrosions-, verrottungs-  
und UV-beständig  
Corrosion, rotting and  
UV-resistant

 100% recyclebar  
100% recyclable
Temperaturbeständigkeit  
Temperature resistance



# Notizen / Notes

Kategorie 3.1 / Chapter 3.1

# Stecker- und Schutzkappen

## *Protective and blind caps*

### Produktübersicht / Product overview

| Produkt<br>Product                                            | Temperaturklasse*<br>Temperature class* | Seite<br>Page |
|---------------------------------------------------------------|-----------------------------------------|---------------|
| Steckerkappe Aptiv / Protection cap Aptiv                     | T3 – T4                                 | 112 – 115     |
| Steckerkappe Bosch / Protection cap Bosch                     | T3                                      | 116 – 117     |
| Steckerkappe Hirschmann / Protection cap Hirschmann           | T3 – T4                                 | 118 – 120     |
| Steckerkappe Kostal / Protection cap Kostal                   | T3 – T4                                 | 121 – 122     |
| Steckerkappe Molex / Protection cap Molex                     | T3                                      | 123           |
| Steckerkappe Pirna / Protection cap Pirna                     | T3                                      | 124           |
| Steckerkappe Sumitomo / Protection cap Sumitomo               | T3                                      | 125           |
| Steckerkappe TE connectivity / Protection cap TE connectivity | T3 – T4                                 | 126 – 139     |
| Steckerkappe Yazaki / Protection cap Yazaki                   | T3 – T4                                 | 140 – 141     |
| Schutzkappe Hirschmann / Blind cap Hirschmann                 | T3                                      | 142           |
| Schutzkappe TE connectivity / Blind cap TE connectivity       | T2 – T4                                 | 142 – 143     |
| Schutzkappe Yazaki / Blind cap Yazaki                         | T3 – T4                                 | 143           |

\*Materialübersicht siehe S. 4 / Material survey see page 4



## Kategorie 3.1 / Chapter 3.1

## Steckerkappen

Passgenaue Schutzkappen für Stecker verschiedener Hersteller

### Protection caps

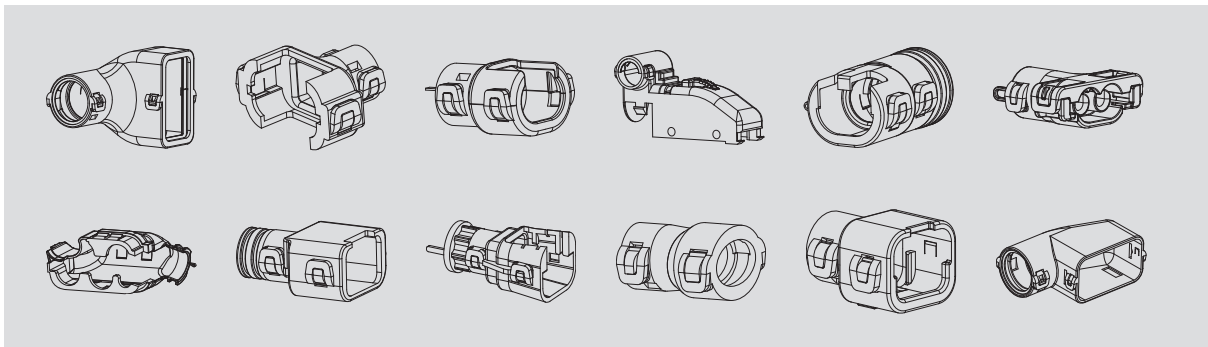
Custom-fit- outside gripping protective cap suitable for connectors from different manufacturers



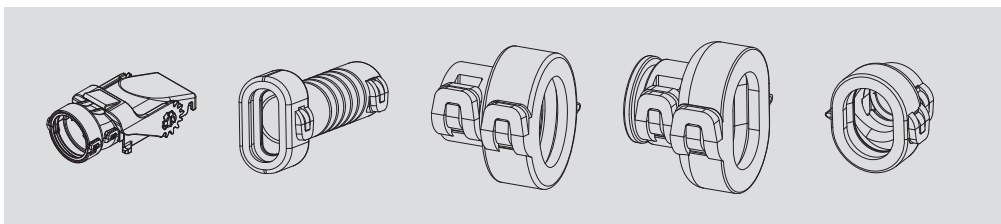
- hohe mechanische und chemische Belastbarkeit
- beidseitige Montage möglich
- Schutz von offenen Leitungen sowie Kontaktklammern
- Verschluss mehrfach zerstörungsfrei lösbar
- Befestigungsmöglichkeit für Kabelbinder
- einfache Montage dank Vorverrastung für Wellrohre
- selbstverlöschend nach UL 94 HB/V-2 FMVSS
- high mechanical strength and chemical resistance
- installation on both sides possible
- protection of open wires and contact clips
- fastening can be opened several times without causing damage
- mounting possibility for cable ties
- easy installation thanks to corrugated tubing being snapped in beforehand
- self-extinguishing according to UL 94 HB/V-2 FMVSS

## Übersicht Steckerkappen / Overview protection caps

### Steckerkappen für Aptiv / Protection caps for Aptiv

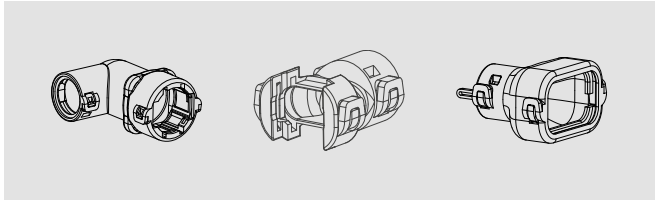


### Steckerkappen für Bosch / Protection caps for Bosch

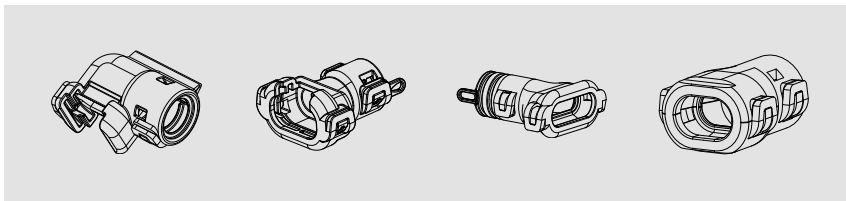


## Übersicht Steckerkappen / Overview protection caps

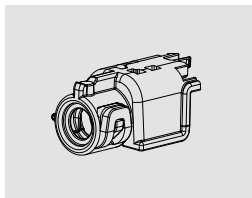
### Steckerkappe für Hirschmann / Protection caps for Hirschmann



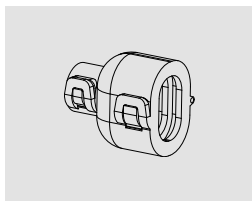
### Steckerkappen für Kostal / Protection caps for Kostal



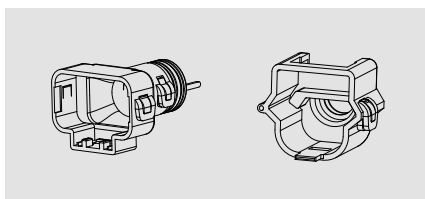
### Steckerkappen für Molex / Protection caps for Molex



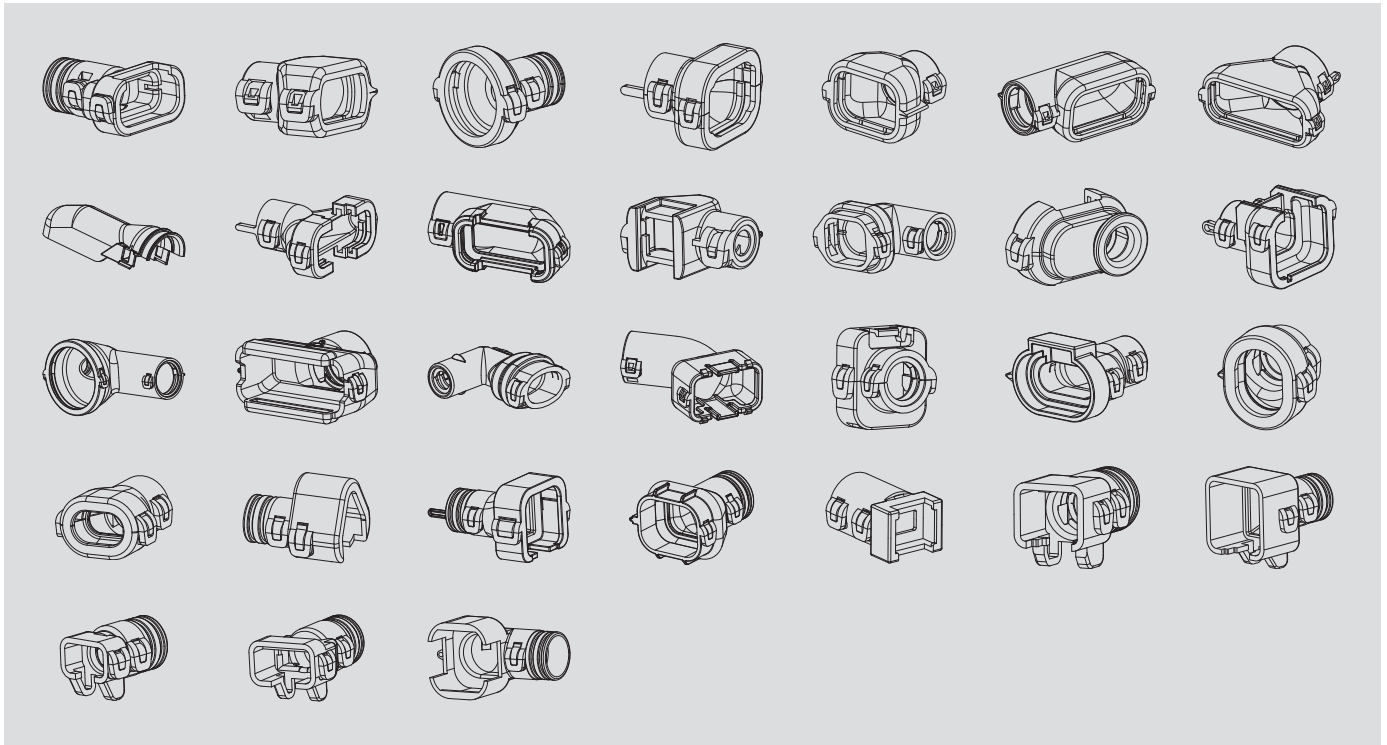
### Steckerkappen für Pirna / Protection caps for Pirna



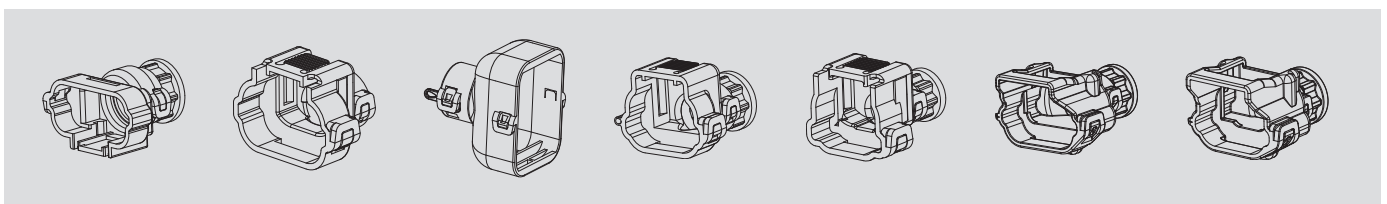
### Steckerkappen für Sumitomo / Protection caps for Sumitomo



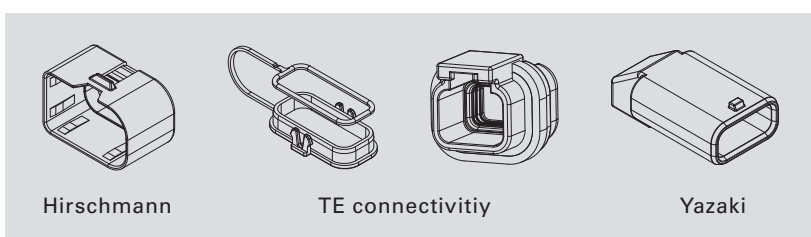
## Steckerkappen für TE connectivity / *Protection caps for TE connectivity*



## Steckerkappen für Yazaki / *Protection caps for Yazaki*



## Übersicht Schutzkappen / *Overview blind caps*



## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Aptiv

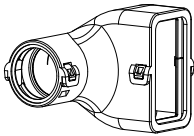
Passgenaue außengreifende Schutzkappe für Stecker des Herstellers Aptiv

## Protection cap Aptiv

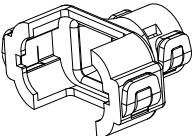
Custom-fit outside gripping protective cap suitable for connectors manufactured by Aptiv



## 2.8 CTCS SP

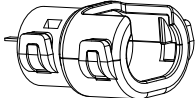
| Steckerkappe<br>Protection cap                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>2.8 CTCS SP<br> | PA66                 | 492 90 952                   | 90°             | quer<br>crosswise           | 21                                 | 3-reihig<br>3-row |                                     |

## Apex 2.8

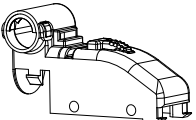
| Steckerkappe<br>Protection cap                                                                           | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing                |
|----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|----------------------------------------------------|
| Aptiv<br>Apex 2.8<br> | PA66                 | 492 90 007                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5 R                                              |
|                                                                                                          | PA66*                | 492 90 082                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5 R                                              |
|                                                                                                          | PA66*                | 492 90 089                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                                              |
|                                                                                                          | PA66                 | 492 90 130                   | 180°            | gerade<br>straight          | 10                                 | 2-reihig<br>2-row | 10                                                 |
|                                                                                                          | PA66                 | 492 90 131                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                          | PA66                 | 492 90 132                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                          | PA66*                | 492 90 257                   | 180°            | gerade<br>straight          | 14                                 | 2-reihig<br>2-row | 10 R                                               |
|                                                                                                          | PA66*                | 492 90 394                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 10 R                                               |
|                                                                                                          | PA66                 | 492 90 704                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | besonders für 492 90 705<br>special for 492 90 705 |
|                                                                                                          | PA46                 | 492 90 733                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5 R                                              |

\* PA66 Brandschutz / Fire Protection

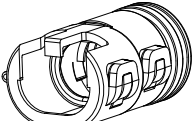
## GT150

| Steckerkappe<br>Protection cap                                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>GT150<br><br> | PA66                 | 492 90 191                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                         |                      | 492 90 657                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                         |                      | 492 90 736                   | 90°             | längs<br>lengthwise         | 06                                 | 1-reihig<br>1-row | 10                                  |

## GT 150/280

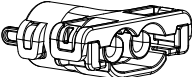
| Steckerkappe<br>Protection cap                                                                                | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
| Aptiv<br>GT 150/280<br><br> | PA66<br>+ GF15       | 492 90 272                   | 90°             | quer<br>crosswise           | 14                                 | gemischt<br>mix  | 10                                  |

## Metri Pack 150

| Steckerkappe<br>Protection cap                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>Metri Pack 150<br><br> | PA66*                | 492 90 016                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                    | PA66*                | 492 90 075                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 10                                  |

\* PA66 Brandschutz / Fire Protection

## Metri-Pack 280

| Steckerkappe<br>Protection cap                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>Metri-Pack 280<br><br> | PA66                 | 492 90 405                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | ID 10,2 R                           |
|                                                                                                                    |                      | 492 90 461                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | ID 10,2 R                           |
|                                                                                                                    |                      | 492 90 550                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |



## Kategorie 3.1 / Chapter 3.1

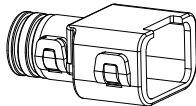
## Steckerkappe Aktiv

### Protection cap Aktiv

#### Powerpack Apex 950

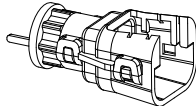
| Steckerkappe<br>Protection cap                                                                                   | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
| Aktiv<br>Powerpack Apex 950<br> | PA66                 | 492 90 262                   | 90°             | längs<br>lengthwise         | 05                                 | gemischt<br>mix  | ID 21                               |

#### Weather-Pack

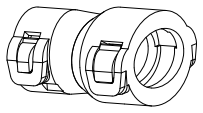
| Steckerkappe<br>Protection cap                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aktiv<br>Weather-Pack<br> | PA66*                | 492 90 043                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                               |

\* PA66 Brandschutz / Fire Protection

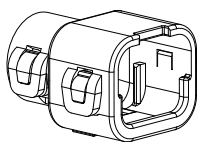
#### GTS SensoMate (GTS2 1.5)

| Steckerkappe<br>Protection cap                                                                                | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aktiv<br>GTS SensoMate<br> | PA46                 | 492 90 134                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 6 FHW<br>rastbar / lockable         |
|                                                                                                               |                      | 492 90 135                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 6 FHW<br>rastbar / lockable         |

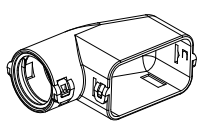
## HDK (HPCS) 2.8

| Steckerkappe<br>Protection cap                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>HDK (HPCS) 2.8<br> | PA66                 | 492 90 326                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |

## SICMA Mini 1.5

| Steckerkappe<br>Protection cap                                                                                | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>SICMA Mini 1.5<br> | PA66                 | 492 90 197                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |

## SICMA

| Steckerkappe<br>Protection cap                                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Aptiv<br>SICMA<br> | PA66                 | 492 90 1031                  | 90°             | längs<br>lengthwise         | 24                                 | 3-reihig<br>3-row | 17                                  |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Bosch

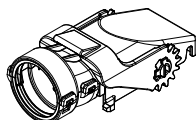
Passgenaue Schutzkappe für Stecker des Herstellers Bosch

## Protection cap Bosch

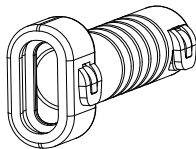
Custom-fit protective cap suitable for connectors manufactured by Bosch



## 196P EMS

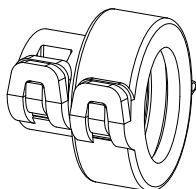
| Steckerkappe<br>Protection cap                                                                          | Material<br>Material                 | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
| Bosch<br>196P EMS<br> | PA66<br>+ GF30<br><br>PA66<br>+ GF15 | 492 90 779                   | 90°             | längs<br>lengthwise         | 91                                 | gemischt<br>mix  | 26                                  |

## Kompakt

| Steckerkappe<br>Protection cap                                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Bosch<br>Kompakt<br> | PA66                 | 492 90 036                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5 R                               |
|                                                                                                         | PA66*                | 492 90 083                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5 R                               |
|                                                                                                         | PA66                 | 492 90 163                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                         | PA66                 | 492 90 166                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                         | PA66                 | 492 90 173                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5, 7,5                            |
|                                                                                                         | PA66                 | 492 90 178                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5                                 |

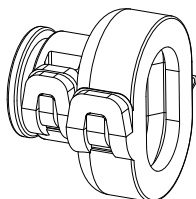
\* PA66 Brandschutz / Fire Protection

## Kompakt 1.1a

| Steckerkappe<br>Protection cap                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Bosch<br>Kompakt 1.1a<br> | PA66*                | 492 90 087                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                               |
|                                                                                                            | PA66                 | 492 90 164                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                            | PA66                 | 492 90 172                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                            | PA66                 | 492 90 795                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                            | PA66                 | 492 90 814                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                 |

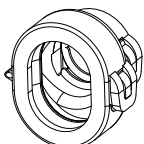
\* PA66 Brandschutz / Fire Protection

## Kompakt 4

| Steckerkappe<br>Protection cap                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing                            |
|-----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|----------------------------------------------------------------|
| Bosch<br>Kompakt 4<br> | PA66*                | 492 90 087                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                                                          |
|                                                                                                           | PA66                 | 492 90 164                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 4,5                                                            |
|                                                                                                           | PA66                 | 492 90 167                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5 (besonders für 492 90 168)<br>4,5 (special for 492 90 168) |
|                                                                                                           | PA66                 | 492 90 172                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                            |
|                                                                                                           | PA66                 | 492 90 795                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                                            |
|                                                                                                           | PA66                 | 492 90 814                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                            |

\* PA66 Brandschutz / Fire Protection

## Kompakt 6P

| Steckerkappe<br>Protection cap                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Bosch<br>Kompakt 6P<br> | PA66                 | 492 90 171                   | 180°            | gerade<br>straight          | 06                                 | 2-reihig<br>2-row | 7,5                                 |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Hirschmann

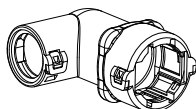
Passgenaue Schutzkappe für Stecker des Herstellers Hirschmann

## Protection cap Hirschmann

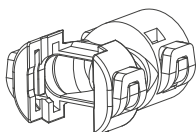
Custom-fit protective cap suitable for connectors manufactured by Hirschmann

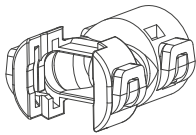


### HPS40

| Steckerkappe<br>Protection cap                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Hirschmann<br>HPS40<br> | PA66                 | 492 90 924                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 13/18                               |

### Sealstar (MLK 1.2)

| Steckerkappe<br>Protection cap                                                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Hirschmann<br>Sealstar (MLK 1.2)<br> | PA66                 | 492 90 023                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 5,5                                 |
|                                                                                                                         |                      | 492 90 026                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                         |                      | 492 90 045                   | 90°             | quer<br>crosswise           | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 046                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                         |                      | 492 90 047                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 048                   | 90°             | quer<br>crosswise           | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 049                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 050                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 052                   | 90°             | längs<br>lengthwise         | 16                                 | 2-reihig<br>2-row | 13                                  |
|                                                                                                                         |                      | 492 90 060                   | 90°             | längs<br>lengthwise         | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 061                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                         |                      | 492 90 062                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                 |

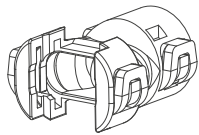
| Steckerkappe<br>Protection cap                                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing                |
|---------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|----------------------------------------------------|
| Hirschmann<br>Sealstar (MLK 1.2)<br><br> | PA66                 | 492 90 063                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA66                 | 492 90 064                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA66                 | 492 90 065                   | 180°            | gerade<br>straight          | 05                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                           | PA66                 | 492 90 091                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA66                 | 492 90 092                   | 180°            | gerade<br>straight          | 08                                 | 1-reihig<br>1-row | 10                                                 |
|                                                                                                                           | PA66                 | 492 90 179                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA66                 | 492 90 180                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 5,5                                                |
|                                                                                                                           | PA66                 | 492 90 325                   | 90°             | längs<br>lengthwise         | 08                                 | 1-reihig<br>1-row | 8,5                                                |
|                                                                                                                           | PA46                 | 492 90 449                   | 90°             | quer<br>crosswise           | 05                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                           | PA66                 | 492 90 507                   | 90°             | längs<br>lengthwise         | 08                                 | 2-reihig<br>2-row | 10                                                 |
|                                                                                                                           | PA66                 | 492 90 509                   | 90°             | quer<br>crosswise           | 16                                 | 2-reihig<br>2-row | 13                                                 |
|                                                                                                                           | PA66                 | 492 90 535                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA66                 | 492 90 741                   | 90°             | längs<br>lengthwise         | 02                                 | 2-reihig<br>2-row | 7,5                                                |
|                                                                                                                           | PA66                 | 492 90 767                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | ID 5,4                                             |
|                                                                                                                           | PA66                 | 492 90 768                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | 8,5 FHW                                            |
|                                                                                                                           | PA66                 | 492 90 791                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                           | PA66                 | 492 90 792                   | 150°            | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                           | PA66                 | 492 90 798                   | 90°             | längs<br>lengthwise         | 06                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                           | PA66                 | 492 90 804                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA66                 | 492 90 805                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                           | PA66                 | 492 90 811                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                           | PA66                 | 492 90 812                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                           | PA46                 | 492 90 845                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                           | PA46                 | 492 90 847                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA46                 | 492 90 851                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                           | PA46                 | 492 90 853                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 4,5                                                |

## Kategorie 3.1 / Chapter 3.1

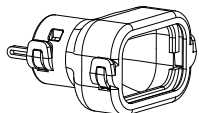
## Steckerkappe Hirschmann

### Protection cap Hirschmann

#### Sealstar (MLK 1.2)

| Steckerkappe<br>Protection cap                                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Hirschmann<br>Sealstar (MLK 1.2)<br><br> | PA66                 | 492 90 867                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                           | PA66                 | 492 90 868                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                           | PA66                 | 492 90 879                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | 8,5 FHW                             |
|                                                                                                                           | PA66                 | 492 90 888                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                           | PA46                 | 492 90 890                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5                                 |

#### Sealstar 2.8 (SLK 2.8)

| Steckerkappe<br>Protection cap                                                                                                  | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Hirschmann<br>Sealstar 2.8 (SLK 2.8)<br><br> | PA46                 | 492 90 377                   | 180°            | gerade<br>straight          | 08                                 | 2-reihig<br>2-row | 10                                  |

#### MLK / MCON 1.2 vs. MLK 2.8

| Hersteller / Steckerfamilie<br>Manufacturer / Plug family | Pole 1.2<br>Poles 1.2 | Pole 2.8<br>Poles 2.8 |
|-----------------------------------------------------------|-----------------------|-----------------------|
| Hirschmann<br>Sealstar (MLK)                              | 2-fach<br>2-way       | –                     |
|                                                           | 3-fach<br>3-way       | 2-fach<br>2-way       |
|                                                           | 4-fach<br>4-way       | 3-fach<br>3-way       |
|                                                           | 5-fach<br>5-way       | 4-fach<br>4-way       |
|                                                           | 2x8-fach<br>2x8-way   | 2x7-fach<br>2x7-way   |



## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Kostal

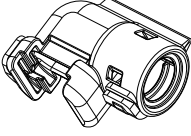
Passgenaue Schutzkappe für Stecker des Herstellers Kostal

**Protection cap Kostal**

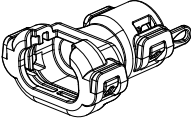
Custom-fit protective cap suitable for connectors manufactured by Kostal



## S140

| Steckerkappe<br>Protection cap                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Kostal<br>S140<br> | PA66                 | 492 90 741                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                      |                      | 492 90 800                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                      |                      | 492 90 974                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                      |                      | 492 90 975                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                      |                      | 492 90 976                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                      |                      | 492 90 977                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                      |                      | 492 90 978                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                      |                      | 492 90 979                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 7,5                                 |

## S150

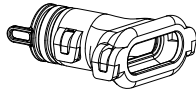
| Steckerkappe<br>Protection cap                                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Kostal<br>S150<br> | PA66                 | 492 90 815                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                       |                      | 492 90 816                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                       |                      | 492 90 826                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                       |                      | 492 90 827                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5                                 |

## Kategorie 3.1 / Chapter 3.1

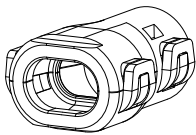
## Steckerkappe Kostal

### Protection cap Kostal

## SLK 2.8 SWS

| Steckerkappe<br>Protection cap                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Kostal<br>SLK 2.8 SWS<br> | PA46                 | 492 90 598                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5 FSW R                           |

## SLK 2.8

| Steckerkappe<br>Protection cap                                                                           | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Kostal<br>SLK 2.8<br> | PA46                 | 492 90 156                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5 FSW R                           |
|                                                                                                          | PA66                 | 492 90 188                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                          | PA66                 | 492 90 196                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                          | PA66                 | 492 90 199                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                          | PA46                 | 492 90 238                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 6                                   |
|                                                                                                          | PA66                 | 492 90 386                   | 90°             | quer<br>crosswise           | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                          | PA46                 | 492 90 467                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 8,5 R                               |
|                                                                                                          | PA46                 | 492 90 499                   | 90°             | quer<br>crosswise           | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                          | PA66                 | 492 90 905                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 8,5 FHW                             |
|                                                                                                          | PA66                 | 492 90 1059                  | 60°             | quer<br>crosswise           | 04                                 | 2-reihig<br>2-row | 10                                  |
|                                                                                                          | PA66                 | 492 90 1089                  | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 10                                  |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Molex

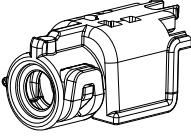
Passgenaue Schutzkappe für Stecker des Herstellers Molex

### Protection cap Molex

Custom-fit protective cap suitable for connectors manufactured by Molex



#### MX150

| Steckerkappe<br>Protection cap                                                                           | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Molex<br>MX150<br><br> | PA66                 | 492 90 793                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                          |                      | 492 90 797                   | 180°            | gerade<br>straight          | 08                                 | 2-reihig<br>2-row | 7,5                                 |
|                                                                                                          |                      | 492 90 838                   | 180°            | gerade<br>straight          | 05                                 | 1-reihig<br>1-row | 7,5                                 |

Kategorie 3.1 / Chapter 3.1

Steckerkappe Pirna

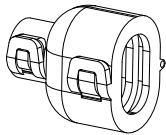
Passgenaue Schutzkappe für Stecker des Herstellers Pirna

Protection cap Pirna

Custom-fit protective cap suitable for connectors manufactured by Pirna



1.5 series

| Steckerkappe<br>Protection cap                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| <br>Pirna<br>1.5 series | PA66                 | 492 90 138                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                           |                      | 492 90 140                   | 90°             | rund<br>round               | 04                                 | 2-reihig<br>2-row | 4,5                                 |
|                                                                                                           |                      | 492 90 769                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 7,5                                 |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Sumitomo

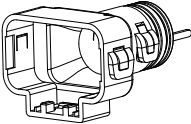
Passgenaue Schutzkappe für Stecker des Herstellers Sumitomo

### Protection cap Sumitomo

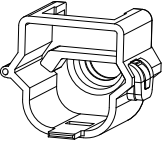
Custom-fit protective cap suitable for connectors manufactured by Sumitomo



#### DL Sealed

| Steckerkappe<br>Protection cap                                                                                  | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Sumitomo<br>DL Sealed<br><br> | PA66                 | 492 90 270                   | 180°            | gerade<br>straight          | 08                                 | 2-reihig<br>2-row | 10 R                                |
|                                                                                                                 |                      | 492 90 407                   | 90°             | quer<br>crosswise           | 08                                 | 2-reihig<br>2-row | 10                                  |

#### RS

| Steckerkappe<br>Protection cap                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Sumitomo<br>RS<br><br> | PA66                 | 492 90 332                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                           |                      | 492 90 333                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                               |
|                                                                                                           |                      | 492 90 591                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5                                 |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe TE Connectivity

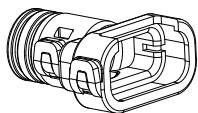
Passgenaue Schutzkappe für Stecker des Herstellers TE Connectivity

## Protection cap TE Connectivity

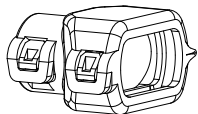
Custom-fit protective cap suitable for connectors manufactured by TE Connectivity



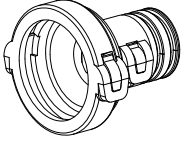
## GET.64

| Steckerkappe<br>Protection cap                                                                                  | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>GET.64<br> | PA66                 | 492 90 190                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 7,5 R                               |
|                                                                                                                 |                      | 492 90 273                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 6 R                                 |

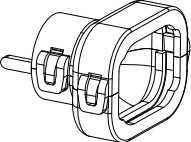
## HDSCS (A) Female, Male

| Steckerkappe<br>Protection cap                                                                                                   | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (A) Female, Male<br> | PA66                 | 492 90 556                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                                  |                      |                              |                 |                             | 03                                 | 1-reihig<br>1-row |                                     |
|                                                                                                                                  |                      | 492 90 935                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                                  |                      |                              |                 |                             | 03                                 | 1-reihig<br>1-row |                                     |
|                                                                                                                                  |                      | 492 90 1062                  | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                                  |                      |                              |                 |                             | 03                                 | 1-reihig<br>1-row |                                     |

## HDSCS (B) Female, Male

| Steckerkappe<br>Protection cap                                                                                                                 | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (B) Female, Male<br>Circular DIN<br> | PA46                 | 492 90 185                   | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 7,5 R                               |
|                                                                                                                                                |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                                | PA66                 | 492 90 633                   | 90°             | rund<br>round               | 04                                 | 2-reihig<br>2-row | 7,5                                 |
|                                                                                                                                                |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                                |                      | 492 90 671                   | 90°             | rund<br>round               | 04                                 | 2-reihig<br>2-row | 13                                  |
|                                                                                                                                                |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                                |                      | 492 90 969                   | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 10                                  |
|                                                                                                                                                |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                                |                      | 492 90 1029                  | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 13                                  |
|                                                                                                                                                |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                                |                      | 492 90 1086                  | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 7,5                                 |
|                                                                                                                                                |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |

## HDSCS (C) Male

| Steckerkappe<br>Protection cap                                                                                           | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (C) Male<br> | PA66                 | 492 90 240                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                          |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                          |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                          |                      | 492 90 241                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                          |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                          |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                          |                      | 492 90 479                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                          |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                          |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |

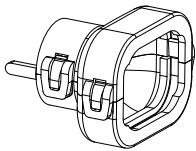


## Kategorie 3.1 / Chapter 3.1

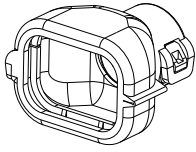
## Steckerkappe TE Connectivity

### Protection cap TE Connectivity

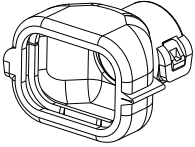
#### HDSCS (C) Male

| Steckerkappe<br>Protection cap                                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (C) Male<br><br> | PA66                 | 492 90 594                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                            |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                            |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                            |                      | 492 90 702                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                            |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                            |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |

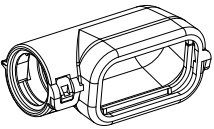
#### HDSCS (C) Female Male

| Steckerkappe<br>Protection cap                                                                                                      | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (C) Female Male<br><br> | PA66                 | 492 90 947                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                                     |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                     |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                                     |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                     |                      | 492 90 948                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                                     |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                     |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                                     |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                     |                      | 492 90 949                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                                     |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                     |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                                     |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |

## HDSCS (C) Female Male

| Steckerkappe<br>Protection cap                                                                                                | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (C) Female Male<br> | PA66                 | 492 90 971                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 13                                  |
|                                                                                                                               |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                               |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      | 492 90 972                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 13                                  |
|                                                                                                                               |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                               |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      | 492 90 973                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 13                                  |
|                                                                                                                               |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                               |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      | 492 90 983                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                               |                      |                              |                 |                             | 06                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                               |                      |                              |                 |                             | 07                                 | gemischt<br>mix   |                                     |
|                                                                                                                               |                      |                              |                 |                             | 08                                 | 2-reihig<br>2-row |                                     |

## HDSCS (D) Female Male

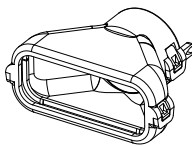
| Steckerkappe<br>Protection cap                                                                                                  | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (D) Female Male<br> | PA66                 | 492 90 991                   | 90°             | längs<br>lengthwise         | 04                                 | 2-reihig<br>2-row | 13                                  |
|                                                                                                                                 |                      |                              |                 |                             | 08                                 |                   |                                     |
|                                                                                                                                 |                      |                              |                 |                             | 10                                 |                   |                                     |
|                                                                                                                                 |                      |                              |                 |                             | 12                                 |                   |                                     |
|                                                                                                                                 |                      | 492 90 1037                  | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 13                                  |
|                                                                                                                                 |                      |                              |                 |                             | 08                                 |                   |                                     |
|                                                                                                                                 |                      |                              |                 |                             | 10                                 |                   |                                     |
|                                                                                                                                 |                      |                              |                 |                             | 12                                 |                   |                                     |

## Kategorie 3.1 / Chapter 3.1

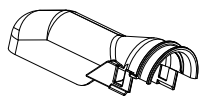
## Steckerkappe TE Connectivity

### Protection cap TE Connectivity

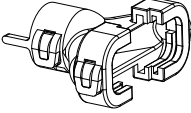
#### HDSCS (E) Female Male

| Steckerkappe<br>Protection cap                                                                                                    | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>HDSCS (E) Female Male<br><br> | PA66                 | 492 90 992                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 17                                  |
|                                                                                                                                   |                      |                              |                 |                             | 06                                 | gemischt<br>mix   |                                     |
|                                                                                                                                   |                      |                              |                 |                             | 08                                 | gemischt<br>mix   |                                     |
|                                                                                                                                   |                      |                              |                 |                             | 12                                 | 2-reihig<br>2-row |                                     |
|                                                                                                                                   |                      | 492 90 1038                  | 90°             | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 17                                  |
|                                                                                                                                   |                      |                              |                 |                             | 06                                 | gemischt<br>mix   |                                     |
|                                                                                                                                   |                      |                              |                 |                             | 08                                 | gemischt<br>mix   |                                     |
|                                                                                                                                   |                      |                              |                 |                             | 12                                 | 2-reihig<br>2-row |                                     |

#### Leavyseal

| Steckerkappe<br>Protection cap                                                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
| TE Connectivity<br>Leavyseal<br><br> | PA66<br>+ GF15       | 492 90 433                   | 90°             | längs<br>lengthwise         | 62                                 | gemischt<br>mix  | 26                                  |
|                                                                                                                         |                      | 492 90 466                   | 90°             | längs<br>lengthwise         | 62                                 | gemischt<br>mix  | 26                                  |
|                                                                                                                         |                      | 492 90 710                   | 90°             | längs<br>lengthwise         | 62                                 | gemischt<br>mix  | 26                                  |

## MCON 1.2

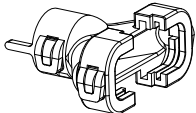
| Steckerkappe<br>Protection cap                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>MCON 1.2<br><br> | PA66                 | 492 90 023                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 5,5                                 |
|                                                                                                                      |                      | 492 90 026                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                      |                      | 492 90 045                   | 90°             | quer<br>crosswise           | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 046                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                      |                      | 492 90 047                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 048                   | 90°             | quer<br>crosswise           | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 049                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 050                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 052                   | 90°             | längs<br>lengthwise         | 16                                 | 2-reihig<br>2-row | 13                                  |
|                                                                                                                      |                      | 492 90 060                   | 90°             | längs<br>lengthwise         | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 061                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 062                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 063                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                      |                      | 492 90 064                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                      |                      | 492 90 065                   | 180°            | gerade<br>straight          | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 091                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                      |                      | 492 90 092                   | 180°            | gerade<br>straight          | 08                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                      |                      | 492 90 179                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                      |                      | 492 90 180                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 5,5                                 |
|                                                                                                                      |                      | 492 90 325                   | 90°             | längs<br>lengthwise         | 08                                 | 1-reihig<br>1-row | 8,5                                 |
|                                                                                                                      | PA46                 | 492 90 445                   | 90°             | längs<br>lengthwise         | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      | PA46                 | 492 90 449                   | 90°             | quer<br>crosswise           | 05                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      | PA66                 | 492 90 507                   | 90°             | längs<br>lengthwise         | 08                                 | 2-reihig<br>2-row | 10                                  |
|                                                                                                                      |                      | 492 90 509                   | 90°             | quer<br>crosswise           | 16                                 | 2-reihig<br>2-row | 13                                  |

## Kategorie 3.1 / Chapter 3.1

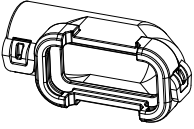
## Steckerkappe TE Connectivity

### Protection cap TE Connectivity

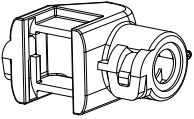
## MCON 1.2

| Steckerkappe<br>Protection cap                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing                |
|----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|----------------------------------------------------|
| TE Connectivity<br>MCON 1.2<br><br> | PA66                 | 492 90 535                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                      | PA66                 | 492 90 741                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                      | PA66                 | 492 90 767                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | ID 5,4                                             |
|                                                                                                                      | PA66                 | 492 90 768                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | 8,5 FHW                                            |
|                                                                                                                      | PA66                 | 492 90 791                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                      | PA66                 | 492 90 792                   | 150°            | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                      | PA66                 | 492 90 798                   | 90°             | längs<br>lengthwise         | 06                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                      | PA66                 | 492 90 804                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                      | PA66                 | 492 90 805                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                      | PA66                 | 492 90 811                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                      | PA66                 | 492 90 812                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | besonders für 492 90 168<br>special for 492 90 168 |
|                                                                                                                      | PA46                 | 492 90 845                   | 90°             | quer<br>crosswise           | 03                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                      | PA46                 | 492 90 847                   | 90°             | längs<br>lengthwise         | 03                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                      | PA46                 | 492 90 851                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                      | PA46                 | 492 90 853                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                      | PA66                 | 492 90 867                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                      | PA66                 | 492 90 868                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 7,5                                                |
|                                                                                                                      | PA66                 | 492 90 879                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | 8,5 FHW                                            |
|                                                                                                                      | PA66                 | 492 90 888                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                                |
|                                                                                                                      | PA46                 | 492 90 890                   | 90°             | längs<br>lengthwise         | 04                                 | 1-reihig<br>1-row | 7,5                                                |

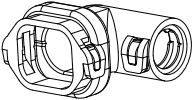
## MCON 1.2 (4.5 pitch)

| Steckerkappe<br>Protection cap                                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>MCON 1.2 (4.5 pitch)<br> | PA66                 | 492 90 585                   | 90°             | längs<br>lengthwise         | 10                                 | 2-reihig<br>2-row | 10                                  |

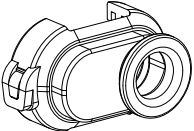
## MCON 1.2 (side latch)

| Steckerkappe<br>Protection cap                                                                                                  | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>MCON 1.2 (side latch)<br> | PA66                 | 492 90 828                   | 90°             | quer<br>crosswise           | 02                                 | 1-reihig<br>1-row | 4,5                                 |

## SFCS

| Steckerkappe<br>Protection cap                                                                                 | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>SFCS<br> | PA66                 | 492 90 420                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 6 FHW                               |

## AMP

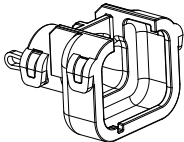
| Steckerkappe<br>Protection cap                                                                                | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>AMP<br> | PA66                 | 492 90 170                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | ID 7,4                              |

## Kategorie 3.1 / Chapter 3.1

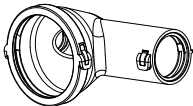
## Steckerkappe TE Connectivity

### Protection cap TE Connectivity

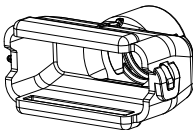
## AMPSEAL 16

| Steckerkappe<br>Protection cap                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>AMPSEAL 16<br> | PA66                 | 492 90 491                   | 180°            | gerade<br>straight          | 06                                 | 2-reihig<br>2-row | 7,5                                 |

## MCP 1.5K

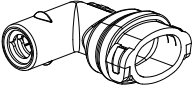
| Steckerkappe<br>Protection cap                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
| TE Connectivity<br>MCP 1.5K<br> | PA66                 | 492 90 414                   | 90°             | rund<br>round               | 14                                 | gemischt<br>mix  | 17, 10                              |
|                                                                                                                    |                      | 492 90 986                   | 90°             | rund<br>round               | 14                                 | gemischt<br>mix  | 17, 17                              |

## MCP 1.5/2.8

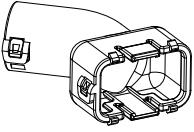
| Steckerkappe<br>Protection cap                                                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>MCP 1.5/2.8<br> | PA66                 | 492 90 794                   | 180°            | gerade<br>straight          | 12                                 | 2-reihig<br>2-row | 10                                  |



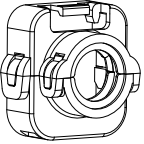
## MCP 2.8

| Steckerkappe<br>Protection cap                                                                                  | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>MCP 2.8<br> | PA66                 | 492 90 300                   | 90°             | längs<br>lengthwise         | 02                                 | 1-reihig<br>1-row | 4,5                                 |
|                                                                                                                 |                      | 492 90 829                   | 90°             | quer<br>crosswise           | 01                                 | 1-reihig<br>1-row | 4,5                                 |

## MCP 6.3/4.8K

| Steckerkappe<br>Protection cap                                                                                         | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>MCP 6.3/4 8K<br> | PA66                 | 492 90 585                   | 45°             | längs<br>lengthwise         | 07                                 | 2-reihig<br>2-row | 13/18                               |
|                                                                                                                        | PA66<br>orange       | 492 90 925                   | 45°             | längs<br>lengthwise         | 07                                 | 2-reihig<br>2-row | 13/18                               |

## MQS

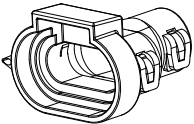
| Steckerkappe<br>Protection cap                                                                                | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
| TE Connectivity<br>MQS<br> | PA66                 | 492 90 189                   | 180°            | gerade<br>straight          | 03                                 | gemischt<br>mix  | 7,5                                 |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe TE Connectivity

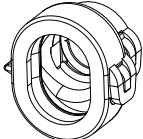
### Protection cap TE Connectivity

#### Superseal 1.5

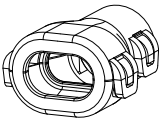
| Steckerkappe<br>Protection cap                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Hirschmann<br>Superseal 1.5<br><br> | PA66*                | 492 90 044                   | 180°            | gerade<br>straight          | 01                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      | PA66                 | 492 90 097                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      | PA66                 | 492 90 098                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      | PA66                 | 492 90 099                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      | PA66                 | 492 90 139                   | 180°            | gerade<br>straight          | 05                                 | 1-reihig<br>1-row | 10                                  |

\* PA66 Brandschutz / Fire Protection

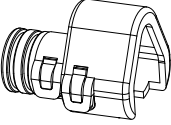
#### Timer (MTII)

| Steckerkappe<br>Protection cap                                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>Timer (MTII)<br><br> | PA66                 | 492 90 171                   | 180°            | gerade<br>straight          | 06                                 | 2-reihig<br>2-row | 7,5                                 |

#### Timer (Splash Proof)

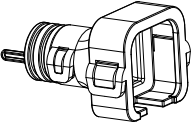
| Steckerkappe<br>Protection cap                                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity<br>Timer (Splash Proof)<br><br> | PA66                 | 492 90 200                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |

## Deutsch DT04/06-3 (short cap)

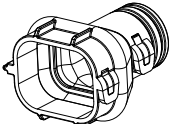
| Steckerkappe<br>Protection cap                                                                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series    | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|---------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DT04/06-3 (short cap)<br> | PA66*                | 492 90 086                   | 180°            | gerade<br>straight          | 03                                 | Dreieck<br>triangle | 7,5 R                               |

\* PA66 Brandschutz / Fire Protection

## Deutsch DT04-6 (short cap)

| Steckerkappe<br>Protection cap                                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DT04-6 (short cap)<br> | PA66                 | 492 90 544                   | 180°            | gerade<br>straight          | 06                                 | 2-reihig<br>2-row | 7,5 R                               |

## Deutsch DT04-8 (long cap)

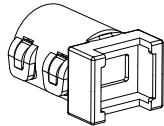
| Steckerkappe<br>Protection cap                                                                                                      | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DT04-8 (long cap)<br> | PA66                 | 492 90 450                   | 180°            | gerade<br>straight          | 08                                 | 2-reihig<br>2-row | 10 R                                |

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe TE Connectivity

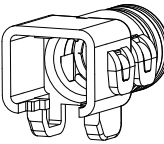
### Protection cap TE Connectivity

## Deutsch DT06-2 (short cap)

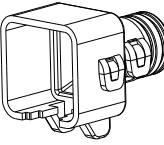
| Steckerkappe<br>Protection cap                                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DT06-2 (short cap)<br> | PA66*                | 492 90 073                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 10                                  |
|                                                                                                                                    |                      | 492 90 088                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5                                 |

\* PA66 Brandschutz / Fire Protection

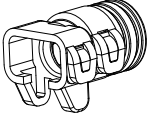
## Deutsch DT06-2 (standard)

| Steckerkappe<br>Protection cap                                                                                                      | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DT06-2 (standard)<br> | PA66                 | 492 90 194                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                               |

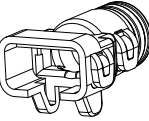
## Deutsch DT06-6 (standard)

| Steckerkappe<br>Protection cap                                                                                                      | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DT06-6 (standard)<br> | PA66                 | 492 90 198                   | 180°            | gerade<br>straight          | 06                                 | 2-reihig<br>2-row | 7,5 R                               |

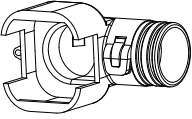
## Deutsch DTM06-2 (standard)

| Steckerkappe<br>Protection cap                                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DTM06-2 (standard)<br> | PA66                 | 492 90 195                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 7,5 R                               |

## Deutsch DTM06-3 (standard)

| Steckerkappe<br>Protection cap                                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DTM06-3 (standard)<br> | PA66                 | 492 90 187                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 7,5 R                               |

## Deutsch DTP06-4 (short cap)

| Steckerkappe<br>Protection cap                                                                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| TE Connectivity Deutsch<br>DTP06-4 (short cap)<br> | PA66*                | 492 90 084                   | 90°             | quer<br>crosswise           | 04                                 | 2-reihig<br>2-row | 10 R                                |
|                                                                                                                                       |                      | 492 90 085                   | 180°            | gerade<br>straight          | 04                                 | 2-reihig<br>2-row | 13                                  |

\* PA66 Brandschutz / Fire Protection

## Kategorie 3.1 / Chapter 3.1

## Steckerkappe Yazaki

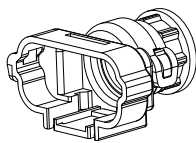
Passgenaue Schutzkappe für Stecker des Herstellers Yazaki



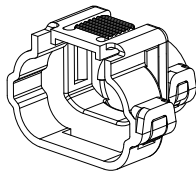
## Protection cap Yazaki

Custom-fit protective cap suitable for connectors manufactured by Yazaki

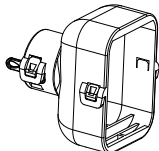
## RH (Type 1)

| Steckerkappe<br>Protection cap                                                                              | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>RH (Type 1)<br> | PA66                 | 492 90 143                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 8,5 FHW, 9S<br>rastbar / lockable   |

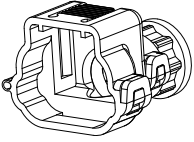
## RH (Type 1, Code A)

| Steckerkappe<br>Protection cap                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>RH (Type 1, Code A)<br> | PA66                 | 492 90 012                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 6 FHW rastbar / lockable            |
|                                                                                                                      |                      | 492 90 035                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5 rastbar / lockable              |
|                                                                                                                      |                      | 492 90 113                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 10 rastbar / lockable               |
|                                                                                                                      |                      | 492 90 201                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 7,5                                 |
|                                                                                                                      |                      | 492 90 243                   | 180°            | gerade<br>straight          | 12                                 | 2-reihig<br>2-row | 10 rastbar / lockable               |

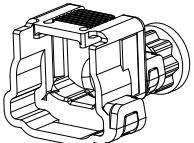
## Hybrid Connectors series

| Steckerkappe<br>Protection cap                                                                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>Hybrid Connectors series<br> | PA66                 | 492 90 931                   | 180°            | gerade<br>straight          | 24                                 | 2-reihig<br>2-row | 13                                  |

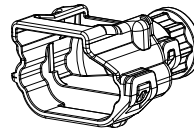
## RH (Type 1, Code B)

| Steckerkappe<br>Protection cap                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>RH (Type 1, Code B)<br> | PA66                 | 492 90 122                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5 FHW rastbar / lockable          |
|                                                                                                                    |                      | 492 90 244                   | 180°            | gerade<br>straight          | 12                                 | 2-reihig<br>2-row | 10 FHW rastbar / lockable           |
|                                                                                                                    |                      | 492 90 245                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 6 FHW                               |

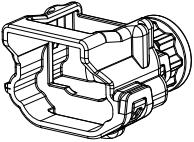
## RH (Type 1, Code C)

| Steckerkappe<br>Protection cap                                                                                      | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|---------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>RH (Type 1, Code C)<br> | PA66                 | 492 90 114                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5 rastbar / lockable              |

## RH (Type 2, Code A)

| Steckerkappe<br>Protection cap                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>RH (Type 2, Code A)<br> | PA46                 | 492 90 755                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5 rastbar / lockable              |
|                                                                                                                      |                      | 492 90 772                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 6 FHW rastbar / lockable            |
|                                                                                                                      |                      | 492 90 773                   | 180°            | gerade<br>straight          | 06                                 | 1-reihig<br>1-row | 8,5 FHW, 9S rastbar / lockable      |
|                                                                                                                      |                      | 492 90 775                   | 180°            | gerade<br>straight          | 04                                 | 1-reihig<br>1-row | 6 FHW                               |

## RH (Type 2, Code B)

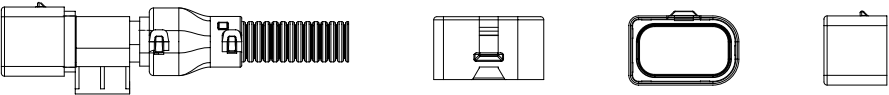
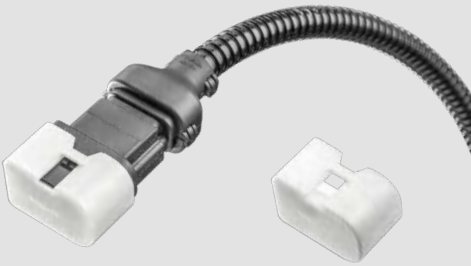
| Steckerkappe<br>Protection cap                                                                                       | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Winkel<br>Angle | Orientierung<br>Orientation | Anzahl der Pole<br>Number of poles | Reihen<br>Series  | NW Wellrohr<br>NW corrugated tubing |
|----------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------|-----------------------------|------------------------------------|-------------------|-------------------------------------|
| Yazaki<br>RH (Type 2, Code B)<br> | PA46                 | 492 90 771                   | 180°            | gerade<br>straight          | 02                                 | 1-reihig<br>1-row | 4,5 rastbar / lockable              |
|                                                                                                                      |                      | 492 90 774                   | 180°            | gerade<br>straight          | 03                                 | 1-reihig<br>1-row | 6 FHW                               |



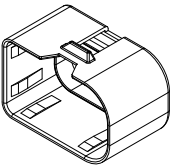
Kategorie 3.2 / Chapter 3.2

Schutzkappe  
Blind cap

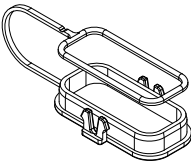
- Staub- und Lackierschutzkappe passend für Stecker unterschiedlicher Hersteller
  - spielend einfach zu montieren und demontieren
  - hohe mechanische und chemische Beständigkeit
  - farbliche Kennzeichnung
- protective dust and varnish cap suitable for connectors from different manufacturers
  - easy to install and disassemble
  - high mechanical strength and chemical resistance
  - color coding



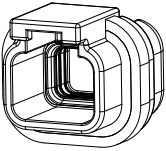
Hirschmann

| Steckerkappe<br>Protection cap                                                                    | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Anzahl der Pole<br>Number of poles | Reihen<br>Series  |
|---------------------------------------------------------------------------------------------------|----------------------|------------------------------|------------------------------------|-------------------|
| Hirschmann<br> | PA66                 | 492 90 378                   | 08                                 | 2-reihig<br>2-row |

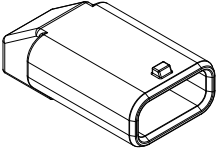
TE Connectivity (AMP) MCP 1.5K/2.8

| Steckerkappe<br>Protection cap                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Anzahl der Pole<br>Number of poles | Reihen<br>Series  |
|--------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|------------------------------------|-------------------|
| TE Connectivity (AMP)<br> | PP                   | 492 90 796                   | 12                                 | 2-reihig<br>2-row |

## TE Connectivity (Deutsch) DTM06-2 (standard)

| Steckerkappe<br>Protection cap                                                                                 | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Anzahl der Pole<br>Number of poles | Reihen<br>Series  |
|----------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|------------------------------------|-------------------|
| TE Connectivity (Deutsch)<br> | PA66 + GF15,<br>TPE  | 492 90 447                   | 02                                 | 1-reihig<br>1-row |

## Yazaki

| Steckerkappe<br>Protection cap                                                               | Plug family<br>Steckerfamilie | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Anzahl der Pole<br>Number of poles | Reihen<br>Series  |
|----------------------------------------------------------------------------------------------|-------------------------------|----------------------|------------------------------|------------------------------------|-------------------|
| Yazaki<br> | RH (Type 1, all Codes, male)  | PA66, TPE            | 492 90 009                   | 04                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, all Codes)        | PA66                 | 492 90 010                   | 03                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, Code A)           |                      | 492 90 011                   | 02                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, all Codes)        |                      | 492 90 127                   | 06                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, all Codes)        |                      | 492 90 361                   | 02                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, all Codes)        |                      | 492 90 411                   | 04                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, all Codes)        |                      | 492 90 520                   | 03                                 | 1-reihig<br>1-row |
|                                                                                              | RH (Type 1, all Codes)        |                      | 492 90 945                   | 02                                 | 1-reihig<br>1-row |

# Notizen / Notes

Kategorie 3.3 / Chapter 3.3

# Verteiler

## Manifolds

### Produktübersicht / Product overview

| Produkt<br>Product                                  | Temperaturklasse*<br>Temperature class* | Seite<br>Page |
|-----------------------------------------------------|-----------------------------------------|---------------|
| Verteiler T-slim fix / <i>T-slim-fix manifold</i>   | T3                                      | 146 – 147     |
| Verteiler T-snap-lock / <i>T-snap-lock manifold</i> | T3                                      | 148 – 150     |
| Verteiler FMC-T / <i>TMC-T manifold</i>             | T3                                      | 151           |
| Verteiler Y-slim fix / <i>Y-slim-fix manifold</i>   | T3                                      | 152 – 153     |
| Verteiler Y-snap-lock / <i>Y-snap-lock manifold</i> | T3                                      | 154           |
| Verteiler FMC-Y / <i>FMC-Y manifold</i>             | T3                                      | 155           |
| Verteiler A-slim fix / <i>A-slim-fix manifold</i>   | T3                                      | 156           |
| Verteiler A-snap-lock / <i>A-snap-lock manifold</i> | T3                                      | 157           |
| Verteiler FMC-A / <i>FMC-A manifold</i>             | T3                                      | 158           |
| Y-Verteiler / <i>Y-manifold</i>                     | T3 – T4                                 | 159           |
| M-Verteiler / <i>M-manifold</i>                     | T3                                      | 160           |
| Plus-Verteiler / <i>Plus-manifold</i>               | T3                                      | 161           |

\* Materialübersicht siehe S. 4 / Material survey see page 4

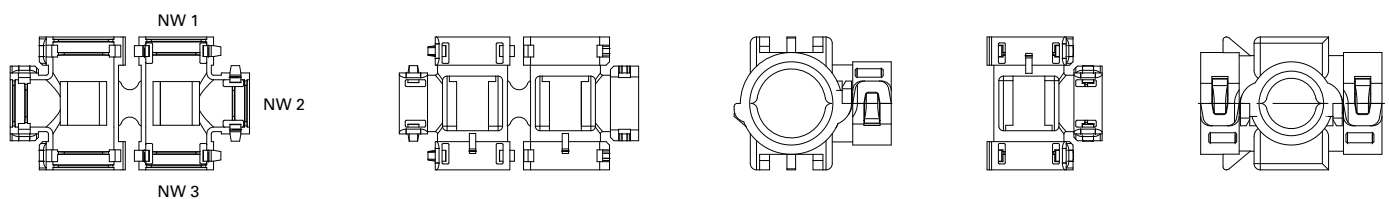
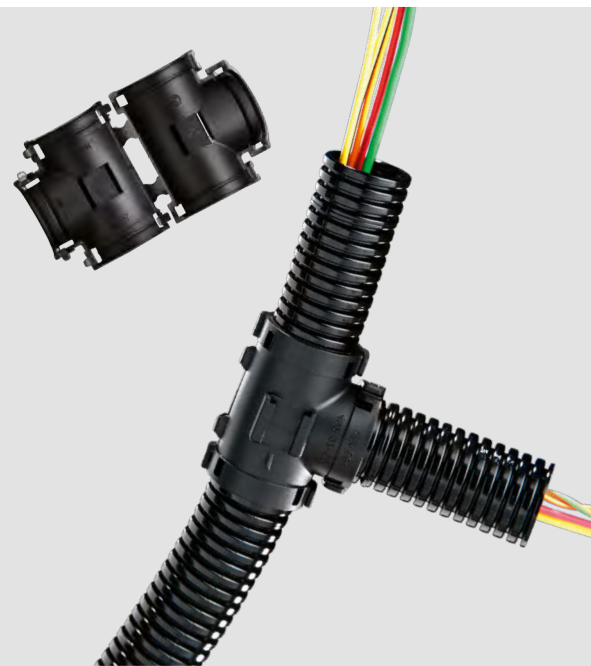


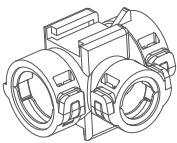
## Kategorie 3.3 / Chapter 3.3

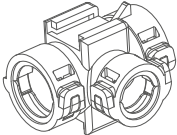
## Verteiler T-slim-fix

### T-slim-fix manifold

- Verbindung von Wellrohren im Abgang von 90°
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Rastnasen
  - auch als Komplettsystem geeignet
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- connection of corrugated tubes at 90 degree angles
  - can be sealed reliably (click system)
  - connection using snap-lock mating
  - can be designed as complete system
  - self-extinguishing according to UL 94 HB/V-2 FMVSS



| Details<br>Product details                                                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                        |                      |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler T-slim-fix<br>T-slim-fix manifold<br><br> | PA66                 | 492 27 232                   | 4,5                                 | 4,5  | 4,5  |
|                                                                                                                                        |                      | 492 27 233                   | 7,5                                 | 4,5  | 4,5  |
|                                                                                                                                        |                      | 492 27 234                   | 7,5                                 | 4,5  | 7,5  |
|                                                                                                                                        |                      | 492 27 235                   | 7,5                                 | 7,5  | 4,5  |
|                                                                                                                                        |                      | 492 27 236                   | 7,5                                 | 7,5  | 7,5  |
|                                                                                                                                        |                      | 492 27 344                   | 7,5                                 | 7,5  | 8,5  |
|                                                                                                                                        |                      | 492 27 345                   | 8,5                                 | 7,5  | 8,5  |
|                                                                                                                                        |                      | 492 27 250                   | 8,5                                 | 8,5  | 8,5  |
|                                                                                                                                        |                      | 492 27 251                   | 10                                  | 4,5  | 4,5  |
|                                                                                                                                        |                      | 492 27 252                   | 10                                  | 4,5  | 7,5  |
|                                                                                                                                        |                      | 492 27 237                   | 10                                  | 4,5  | 10   |
|                                                                                                                                        |                      | 492 27 238                   | 10                                  | 7,5  | 4,5  |
|                                                                                                                                        |                      | 492 27 239                   | 10                                  | 7,5  | 7,5  |
|                                                                                                                                        |                      | 492 27 240                   | 10                                  | 7,5  | 10   |
|                                                                                                                                        |                      | 492 27 253                   | 10                                  | 8,5  | 8,5  |
|                                                                                                                                        |                      | 492 27 241                   | 10                                  | 8,5  | 10   |
|                                                                                                                                        |                      | 492 27 334                   | 10                                  | 10   | 4,5  |
|                                                                                                                                        |                      | 492 27 254                   | 10                                  | 10   | 7,5  |
|                                                                                                                                        |                      | 492 27 255                   | 10                                  | 10   | 8,5  |
|                                                                                                                                        |                      | 492 27 256                   | 10                                  | 10   | 10   |
|                                                                                                                                        |                      | 492 27 335                   | 10                                  | 13   | 10   |
|                                                                                                                                        |                      | 492 27 257                   | 13                                  | 4,5  | 7,5  |
|                                                                                                                                        |                      | 492 27 228                   | 13                                  | 4,5  | 10   |
|                                                                                                                                        |                      | 492 27 242                   | 13                                  | 4,5  | 13   |

| Details<br>Product details                                                                                                              | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                         |                      |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler T-slim-fix<br><i>T-slim-fix manifold</i><br> | PA66                 | 492 27 258                   | 13                                  | 7,5  | 7,5  |
|                                                                                                                                         |                      | 492 27 243                   | 13                                  | 7,5  | 10   |
|                                                                                                                                         |                      | 492 27 244                   | 13                                  | 7,5  | 13   |
|                                                                                                                                         |                      | 492 27 259                   | 13                                  | 8,5  | 8,5  |
|                                                                                                                                         |                      | 492 27 260                   | 13                                  | 8,5  | 10   |
|                                                                                                                                         |                      | 492 27 261                   | 13                                  | 8,5  | 13   |
|                                                                                                                                         |                      | 492 27 262                   | 13                                  | 10   | 4,5  |
|                                                                                                                                         |                      | 492 27 245                   | 13                                  | 10   | 7,5  |
|                                                                                                                                         |                      | 492 27 246                   | 13                                  | 10   | 10   |
|                                                                                                                                         |                      | 492 27 263                   | 13                                  | 10   | 13   |
|                                                                                                                                         |                      | 492 27 264                   | 13                                  | 13   | 7,5  |
|                                                                                                                                         |                      | 492 27 265                   | 13                                  | 13   | 10   |
|                                                                                                                                         |                      | 492 27 266                   | 13                                  | 13   | 13   |
|                                                                                                                                         |                      | 492 27 269                   | 17                                  | 7,5  | 13   |
|                                                                                                                                         |                      | 492 27 249                   | 17                                  | 7,5  | 17   |
|                                                                                                                                         |                      | 492 27 223                   | 17                                  | 8,5  | 17   |
|                                                                                                                                         |                      | 492 27 273                   | 17                                  | 10   | 17   |
|                                                                                                                                         |                      | 492 27 336                   | 17                                  | 13   | 4,5  |
|                                                                                                                                         |                      | 492 27 275                   | 17                                  | 13   | 10   |
|                                                                                                                                         |                      | 492 27 276                   | 17                                  | 13   | 13   |
|                                                                                                                                         |                      | 492 27 277                   | 17                                  | 13   | 17   |
|                                                                                                                                         |                      | 492 27 279                   | 17                                  | 17   | 10   |
|                                                                                                                                         |                      | 492 27 280                   | 17                                  | 17   | 13   |
|                                                                                                                                         |                      | 492 27 227                   | 17                                  | 17   | 17   |
|                                                                                                                                         |                      | 492 27 230                   | 19                                  | 19   | 19   |
|                                                                                                                                         |                      | 492 27 282                   | 22                                  | 7,5  | 17   |
|                                                                                                                                         |                      | 492 27 225                   | 22                                  | 7,5  | 22   |
|                                                                                                                                         |                      | 492 27 226                   | 22                                  | 8,5  | 22   |
|                                                                                                                                         |                      | 492 27 283                   | 22                                  | 10   | 10   |
|                                                                                                                                         |                      | 492 27 285                   | 22                                  | 10   | 17   |
|                                                                                                                                         |                      | 492 27 224                   | 22                                  | 10   | 22   |
|                                                                                                                                         |                      | 492 27 288                   | 22                                  | 13   | 17   |
|                                                                                                                                         |                      | 492 27 289                   | 22                                  | 13   | 22   |
|                                                                                                                                         |                      | 492 27 291                   | 22                                  | 17   | 13   |
|                                                                                                                                         |                      | 492 27 292                   | 22                                  | 17   | 17   |
|                                                                                                                                         |                      | 492 27 293                   | 22                                  | 17   | 22   |
|                                                                                                                                         |                      | 492 27 296                   | 22                                  | 22   | 17   |
|                                                                                                                                         |                      | 492 27 231                   | 22                                  | 22   | 22   |
|                                                                                                                                         |                      | 492 27 337                   | 22                                  | 26   | 22   |
|                                                                                                                                         |                      | 492 27 343                   | 23                                  | 22   | 22   |
|                                                                                                                                         |                      | 492 27 302                   | 26                                  | 10   | 26   |
|                                                                                                                                         |                      | 492 27 305                   | 26                                  | 13   | 26   |
|                                                                                                                                         |                      | 492 27 307                   | 26                                  | 17   | 26   |
|                                                                                                                                         |                      | 492 27 311                   | 26                                  | 26   | 26   |
|                                                                                                                                         |                      | 492 27 341                   | 29                                  | 17   | 17   |
|                                                                                                                                         |                      | 492 27 342                   | 29                                  | 17   | 29   |

## Kategorie 3.3 / Chapter 3.3

## Verteiler T-snap-lock

### T-snap-lock manifold

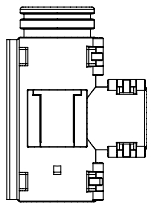
- Verbindung von Wellrohren sowie Aufnahme von Kabelbindern und Fixpunkten im Abgang von 90°
  - Verbindung mittels Filmscharnier, aneinanderreihbar
  - sicher verschließbar (Klick-System)
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
  - robust, hohe mechanische und chemische Beständigkeit
- connection of corrugated tubes as well as holding cable ties and fixed points at 90 degree angles
  - connection using film hinge, can be strung together
  - can be sealed reliably (click system)
  - self-extinguishing according to UL 94 HB/V-2 FMVSS
  - robust, high mechanical and chemical resistance



#### Typ A / Type A

Schiene für Fixpunkt, längs

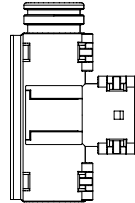
*Rail for fixed points, lengthwise*



#### Typ B / Type B

Schiene für Fixpunkt, quer

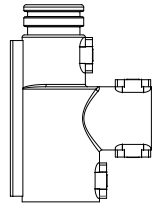
*Rail for fixed point, crosswise*



#### Typ C / Type C

Ohne Schiene für Fixpunkt, optimierter Verschluss

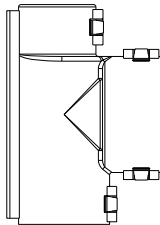
*Without rail for fixed point, optimized snap lock*



#### Typ D / Type D

Ohne Reihbarkeit und Schiene für Fixpunkt, optimierter Verschluss

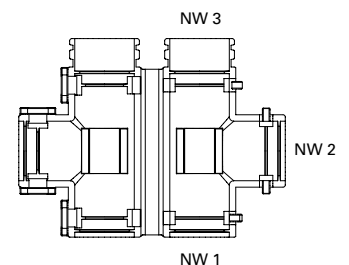
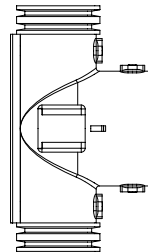
*Cannot be strung together, without rail for fixed point, optimized snap lock*



#### Typ E / Type E

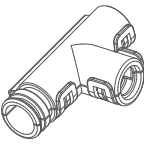
Schiene für Fixpunkt, quer

*Rail for fixed point, crosswise*



| Details<br>Product details                    | Material<br>Material | Typ<br>Type | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|-----------------------------------------------|----------------------|-------------|------------------------------|-------------------------------------|------|------|
|                                               |                      |             |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler T-snap-lock<br>T-snap-lock manifold | PA66                 | C           | 492 15 040                   | 4,5                                 | 4,5  | 4,5  |
|                                               |                      | C           | 492 17 070                   | 7,5                                 | 4,5  | 4,5  |
|                                               |                      | B           | 492 16 071                   | 7,5                                 | 4,5  | 7,5  |
|                                               |                      | A           | 492 16 245                   | 7,5                                 | 7,5  | 4,5  |
|                                               |                      | B           | 492 15 070                   | 7,5                                 | 7,5  | 7,5  |
|                                               |                      | C           | 492 25 070                   | 7,5                                 | 7,5  | 7,5  |
|                                               |                      | C           | 492 25 071                   | 7,5                                 | 10   | 7,5  |
|                                               |                      | B           | 492 16 231                   | 10                                  | 4,5  | 7,5  |
|                                               |                      | A           | 492 16 100                   | 10                                  | 4,5  | 10   |
|                                               |                      | B           | 492 16 242                   | 10                                  | 7,5  | 4,5  |
|                                               |                      | A           | 492 17 100                   | 10                                  | 7,5  | 7,5  |
|                                               |                      | C           | 492 27 100                   | 10                                  | 7,5  | 7,5  |
|                                               |                      | A           | 492 16 101                   | 10                                  | 7,5  | 10   |
|                                               |                      | A           | 492 16 230                   | 10                                  | 8,5  | 10   |

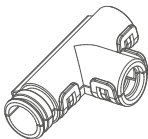


| Details<br>Product details                                                                                                                | Material<br>Material | Typ<br>Type | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                           |                      |             |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler T-snap-lock<br><i>T-snap-lock manifold</i><br> | PA66                 | B           | 492 16 238                   | 10                                  | 10   | 4,5  |
|                                                                                                                                           |                      | B           | 492 46 016                   | 10                                  | 10   | 4,5  |
|                                                                                                                                           |                      | B           | 492 16 103                   | 10                                  | 10   | 7,5  |
|                                                                                                                                           |                      | A           | 492 15 100                   | 10                                  | 10   | 10   |
|                                                                                                                                           |                      | A           | 492 17 130                   | 13                                  | 4,5  | 10   |
|                                                                                                                                           |                      | C           | 492 27 130                   | 13                                  | 4,5  | 10   |
|                                                                                                                                           |                      | B           | 492 16 246                   | 13                                  | 4,5  | 13   |
|                                                                                                                                           |                      | A           | 492 26 128                   | 13                                  | 4,5  | 13   |
|                                                                                                                                           |                      | C           | 492 26 129                   | 13                                  | 7,5  | 10   |
|                                                                                                                                           |                      | A           | 492 16 130                   | 13                                  | 7,5  | 13   |
|                                                                                                                                           |                      | C           | 492 26 130                   | 13                                  | 7,5  | 13   |
|                                                                                                                                           |                      | A           | 492 17 131                   | 13                                  | 8,5  | 10   |
|                                                                                                                                           |                      | B           | 492 16 239                   | 13                                  | 10   | 4,5  |
|                                                                                                                                           |                      | B           | 492 16 240                   | 13                                  | 10   | 7,5  |
|                                                                                                                                           |                      | A           | 492 17 132                   | 13                                  | 10   | 10   |
|                                                                                                                                           |                      | B           | 492 16 132                   | 13                                  | 10   | 13   |
|                                                                                                                                           |                      | A           | 492 16 133                   | 13                                  | 13   | 7,5  |
|                                                                                                                                           |                      | C           | 492 26 133                   | 13                                  | 13   | 7,5  |
|                                                                                                                                           |                      | A           | 492 16 134                   | 13                                  | 13   | 10   |
|                                                                                                                                           |                      | B           | 492 16 243                   | 13                                  | 13   | 10   |
|                                                                                                                                           |                      | A           | 492 15 130                   | 13                                  | 13   | 13   |
|                                                                                                                                           |                      | D           | 492 26 168                   | 13                                  | 17   | 10   |
|                                                                                                                                           |                      | F           | 492 17 266                   | 13                                  | 17   | 22   |
|                                                                                                                                           |                      | E           | 492 90 413                   | 13                                  | 22   | 13   |
|                                                                                                                                           |                      | A           | 492 16 247                   | 13                                  | 22   | 22   |
|                                                                                                                                           |                      | B           | 492 16 232                   | 17                                  | 4,5  | 17   |
|                                                                                                                                           |                      | A           | 492 17 170                   | 17                                  | 7,5  | 13   |
|                                                                                                                                           |                      | C           | 492 26 169                   | 17                                  | 7,5  | 13   |
|                                                                                                                                           |                      | A           | 492 16 170                   | 17                                  | 7,5  | 17   |
|                                                                                                                                           |                      | C           | 492 26 170                   | 17                                  | 7,5  | 17   |
|                                                                                                                                           |                      | B           | 492 16 244                   | 17                                  | 7,5  | 17   |
|                                                                                                                                           |                      | C           | 492 27 222                   | 17                                  | 8,5  | 17   |
|                                                                                                                                           |                      | C           | 492 16 229                   | 17                                  | 8,5  | 17   |
|                                                                                                                                           |                      | A           | 492 17 171                   | 17                                  | 10   | 13   |
|                                                                                                                                           |                      | A           | 492 16 172                   | 17                                  | 10   | 17   |
|                                                                                                                                           |                      | C           | 492 26 172                   | 17                                  | 10   | 17   |
|                                                                                                                                           |                      | C           | 492 26 099                   | 17                                  | 13   | 10   |
|                                                                                                                                           |                      | A           | 492 17 172                   | 17                                  | 13   | 13   |
|                                                                                                                                           |                      | C           | 492 27 172                   | 17                                  | 13   | 13   |
|                                                                                                                                           |                      | C           | 492 26 227                   | 17                                  | 13   | 17   |
|                                                                                                                                           |                      | A           | 492 16 173                   | 17                                  | 17   | 7,5  |
|                                                                                                                                           |                      | C           | 492 26 173                   | 17                                  | 17   | 7,5  |
|                                                                                                                                           |                      | A           | 492 16 174                   | 17                                  | 17   | 13   |
|                                                                                                                                           |                      | C           | 492 09 099                   | 17                                  | 17   | 13   |
|                                                                                                                                           |                      | A           | 492 15 170                   | 17                                  | 17   | 17   |
|                                                                                                                                           |                      | C           | 492 26 221                   | 17                                  | 17   | 17   |
|                                                                                                                                           |                      | C           | 492 26 232                   | 17                                  | 22   | 10   |
|                                                                                                                                           |                      | C           | 492 26 233                   | 17                                  | 22   | 13   |
|                                                                                                                                           |                      | B           | 492 16 241                   | 17                                  | 22   | 17   |
|                                                                                                                                           |                      | A           | 492 16 220                   | 22                                  | 4,5  | 22   |
|                                                                                                                                           |                      | C           | 492 27 218                   | 22                                  | 7,5  | 17   |
|                                                                                                                                           |                      | A           | 492 16 221                   | 22                                  | 7,5  | 22   |

## Kategorie 3.3 / Chapter 3.3

## Verteiler T-snap-lock

### T-snap-lock manifold

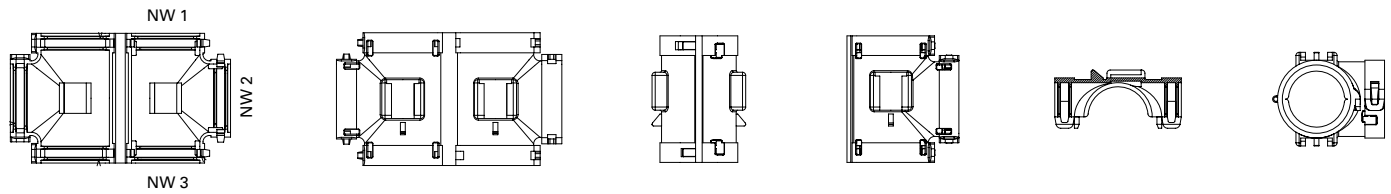
| Details<br>Product details                                                                                                                | Material<br>Material | Typ<br>Type | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                           |                      |             |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler T-snap-lock<br><i>T-snap-lock manifold</i><br> | PA66                 | C           | 492 27 219                   | 22                                  | 7,5  | 22   |
|                                                                                                                                           |                      | B           | 492 16 233                   | 22                                  | 8,5  | 22   |
|                                                                                                                                           |                      | A           | 492 16 222                   | 22                                  | 10   | 22   |
|                                                                                                                                           |                      | A           | 492 17 265                   | 22                                  | 13   | 13   |
|                                                                                                                                           |                      | A           | 492 17 220                   | 22                                  | 13   | 17   |
|                                                                                                                                           |                      | C           | 492 27 220                   | 22                                  | 13   | 17   |
|                                                                                                                                           |                      | A           | 492 16 223                   | 22                                  | 13   | 22   |
|                                                                                                                                           |                      | A           | 492 17 221                   | 22                                  | 17   | 13   |
|                                                                                                                                           |                      | C           | 429 27 221                   | 22                                  | 17   | 17   |
|                                                                                                                                           |                      | C           | 492 09 098                   | 22                                  | 17   | 22   |
|                                                                                                                                           |                      | A           | 492 16 224                   | 22                                  | 22   | 10   |
|                                                                                                                                           |                      | B           | 492 16 234                   | 22                                  | 22   | 13   |
|                                                                                                                                           |                      | C           | 492 16 225                   | 22                                  | 22   | 17   |
|                                                                                                                                           |                      | A           | 492 15 220                   | 22                                  | 22   | 22   |
|                                                                                                                                           |                      | A           | 492 17 268                   | 22                                  | 22   | 22   |
|                                                                                                                                           |                      | C           | 492 25 220                   | 22                                  | 22   | 22   |
|                                                                                                                                           |                      | B           | 492 16 235                   | 26                                  | 4,5  | 22   |
|                                                                                                                                           |                      | B           | 492 16 236                   | 26                                  | 4,5  | 26   |
|                                                                                                                                           |                      | A           | 492 16 237                   | 26                                  | 10   | 26   |
|                                                                                                                                           |                      | A           | 492 17 263                   | 26                                  | 17   | 22   |
|                                                                                                                                           |                      | B           | 492 16 228                   | 26                                  | 17   | 22   |
|                                                                                                                                           |                      | A           | 492 26 226                   | 26                                  | 17   | 26   |
|                                                                                                                                           |                      | A           | 492 17 264                   | 26                                  | 22   | 22   |
|                                                                                                                                           |                      | C           | 492 16 260                   | 26                                  | 26   | 22   |
|                                                                                                                                           |                      | A           | 492 17 267                   | 29                                  | 17   | 26   |

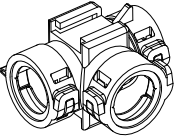
## Kategorie 3.3 / Chapter 3.3

## Verteiler FMC-T

### FMC-T manifold

- Verbindung von Wellrohren im Abgang von 90°
  - Befestigungsmöglichkeit für Kabelbinder
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Filmscharnier
  - auch als Komplettsystem geeignet
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
  - robust, hohe mechanische und chemische Beständigkeit
- connection of corrugated tubes at 90 degree angles
  - mounting possibility for cable ties
  - outside-gripping
  - can be sealed reliably (click system)
  - connection using film hinge
  - can be designed as complete system
  - self-extinguishing according to UL 94 HB/V-2 FMVSS
  - robust, high mechanical and chemical resistance



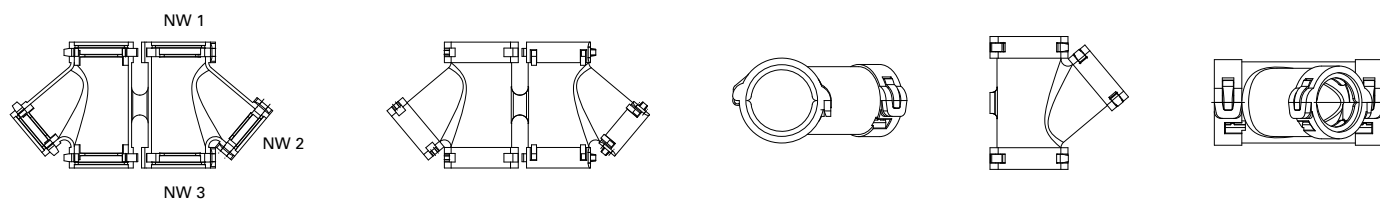
| Details<br>Product details                                                                                                   | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                              |                      |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler FMC-T<br>FMC-T manifold<br><br> | PA66                 | 492 30 023                   | 7,5                                 | 4,5  | 4,5  |
|                                                                                                                              |                      | 492 30 026                   | 10                                  | 4,5  | 7,5  |
|                                                                                                                              |                      | 492 30 013                   | 10                                  | 4,5  | 10   |
|                                                                                                                              |                      | 492 30 014                   | 10                                  | 7,5  | 4,5  |
|                                                                                                                              |                      | 492 30 015                   | 10                                  | 7,5  | 7,5  |
|                                                                                                                              |                      | 492 30 016                   | 10                                  | 10   | 4,5  |
|                                                                                                                              |                      | 492 30 007                   | 13                                  | 7,5  | 7,5  |
|                                                                                                                              |                      | 492 30 030                   | 13                                  | 7,5  | 10   |
|                                                                                                                              |                      | 492 30 027                   | 13                                  | 7,5  | 13   |
|                                                                                                                              |                      | 492 30 001                   | 13                                  | 10   | 13   |
|                                                                                                                              |                      | 492 30 028                   | 13                                  | 13   | 4,5  |
|                                                                                                                              |                      | 492 30 020                   | 13                                  | 13   | 10   |
|                                                                                                                              |                      | 492 30 012                   | 17                                  | 7,5  | 17   |
|                                                                                                                              |                      | 492 30 002                   | 17                                  | 13   | 4,5  |
|                                                                                                                              |                      | 492 30 004                   | 17                                  | 17   | 13   |
|                                                                                                                              |                      | 492 30 003                   | 17                                  | 17   | 17   |
|                                                                                                                              |                      | 492 30 010                   | 22                                  | 7,5  | 22   |
|                                                                                                                              |                      | 492 30 006                   | 22                                  | 13   | 17   |
|                                                                                                                              |                      | 492 30 005                   | 22                                  | 17   | 13   |
|                                                                                                                              |                      | 492 30 029                   | 26                                  | 13   | 22   |
|                                                                                                                              |                      | 492 30 061                   | 26                                  | 26   | 26   |
|                                                                                                                              |                      | 492 30 062                   | 29                                  | 29   | 29   |

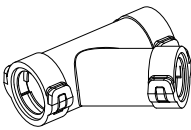
## Kategorie 3.3 / Chapter 3.3

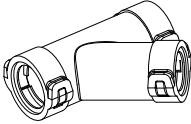
## Verteiler Y-slim-fix

### Y-slim-fix manifold

- Verbindung von Wellrohren im Abgang von 45°
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Rastnasen
  - auch als Komplettsystem geeignet
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- connection of corrugated tubes at 45 degree angles
  - can be sealed reliably (click system)
  - connection using snap-lock mating
  - can be designed as complete system
  - self-extinguishing according to UL 94 HB/V-2 FMVSS



| Details<br>Product details                                                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                        |                      |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler Y-slim-fix<br>Y-slim-fix manifold<br><br> | PA66                 | 492 63 118                   | 4,5                                 | 4,5  | 4,5  |
|                                                                                                                                        |                      | 492 63 129                   | 7,5                                 | 4,5  | 4,5  |
|                                                                                                                                        |                      | 492 63 130                   | 7,5                                 | 4,5  | 7,5  |
|                                                                                                                                        |                      | 492 63 131                   | 7,5                                 | 7,5  | 7,5  |
|                                                                                                                                        |                      | 492 63 122                   | 8,5                                 | 8,5  | 8,5  |
|                                                                                                                                        |                      | 492 63 132                   | 10                                  | 7,5  | 10   |
|                                                                                                                                        |                      | 492 63 095                   | 10                                  | 8,5  | 8,5  |
|                                                                                                                                        |                      | 492 63 096                   | 10                                  | 8,5  | 10   |
|                                                                                                                                        |                      | 492 63 145                   | 10                                  | 10   | 7,5  |
|                                                                                                                                        |                      | 492 63 097                   | 10                                  | 10   | 10   |
|                                                                                                                                        |                      | 492 63 099                   | 13                                  | 7,5  | 10   |
|                                                                                                                                        |                      | 492 63 101                   | 13                                  | 8,5  | 10   |
|                                                                                                                                        |                      | 492 63 098                   | 10                                  | 10   | 13   |
|                                                                                                                                        |                      | 492 63 127                   | 13                                  | 10   | 13   |
|                                                                                                                                        |                      | 492 63 103                   | 13                                  | 13   | 13   |
|                                                                                                                                        |                      | 492 63 111                   | 17                                  | 8,5  | 13   |
|                                                                                                                                        |                      | 492 63 104                   | 17                                  | 10   | 13   |
|                                                                                                                                        |                      | 492 63 105                   | 17                                  | 10   | 17   |
|                                                                                                                                        |                      | 492 63 106                   | 17                                  | 13   | 10   |
|                                                                                                                                        |                      | 492 63 108                   | 17                                  | 13   | 13   |
|                                                                                                                                        |                      | 492 63 109                   | 17                                  | 13   | 17   |
|                                                                                                                                        |                      | 492 63 151                   | 17                                  | 17   | 7,5  |

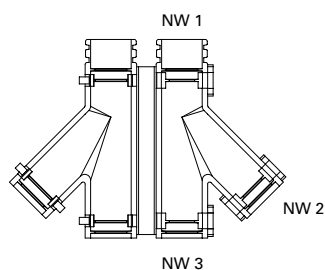
| Details<br>Product details                                                                                                              | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                         |                      |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler Y-slim-fix<br><i>Y-slim-fix manifold</i><br> | PA66                 | 492 63 110                   | 17                                  | 17   | 10   |
|                                                                                                                                         |                      | 492 63 119                   | 17                                  | 17   | 17   |
|                                                                                                                                         |                      | 492 63 112                   | 22                                  | 7,5  | 22   |
|                                                                                                                                         |                      | 492 63 113                   | 22                                  | 10   | 17   |
|                                                                                                                                         |                      | 492 63 114                   | 22                                  | 10   | 22   |
|                                                                                                                                         |                      | 492 63 115                   | 22                                  | 13   | 17   |
|                                                                                                                                         |                      | 492 63 116                   | 22                                  | 13   | 22   |
|                                                                                                                                         |                      | 492 63 117                   | 22                                  | 17   | 17   |
|                                                                                                                                         |                      | 492 63 120                   | 22                                  | 22   | 22   |
|                                                                                                                                         |                      | 492 63 146                   | 23                                  | 17   | 17   |
|                                                                                                                                         |                      | 492 63 134                   | 26                                  | 10   | 26   |
|                                                                                                                                         |                      | 492 63 125                   | 26                                  | 22   | 17   |
|                                                                                                                                         |                      | 492 63 135                   | 29                                  | 13   | 26   |

## Kategorie 3.3 / Chapter 3.3

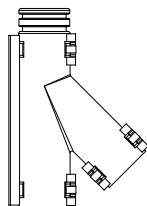
## Verteiler Y-snap-lock

### Y-snap-lock manifold

- Verbindung von Wellrohren sowie Aufnahme von Kabelbindern und Fixpunkten im Abgang von 45°
  - Verbindung mittels Filmscharnier, aneinanderreihbar
  - sicher verschließbar (Klick-System)
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
  - robust, hohe mechanische und chemische Beständigkeit
- connection of corrugated tubes as well as holding cable ties and fixed points at 45 degree angles
  - connection using film hinge, can be strung together
  - can be sealed reliably (click system)
  - self-extinguishing according to UL 94 HB/V-2 FMVSS
  - robust, high mechanical and chemical resistance

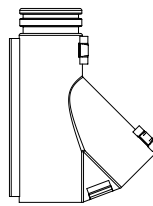


Typ A / Type A



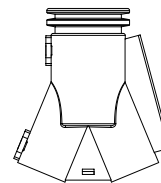
standard  
standard

Typ B / Type B

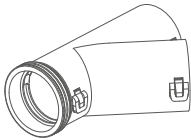


optimierter Verschluss  
optimized snap-lock

Typ C / Type C



Abzweig beidseitig 22,5°  
branch both way 22,5°

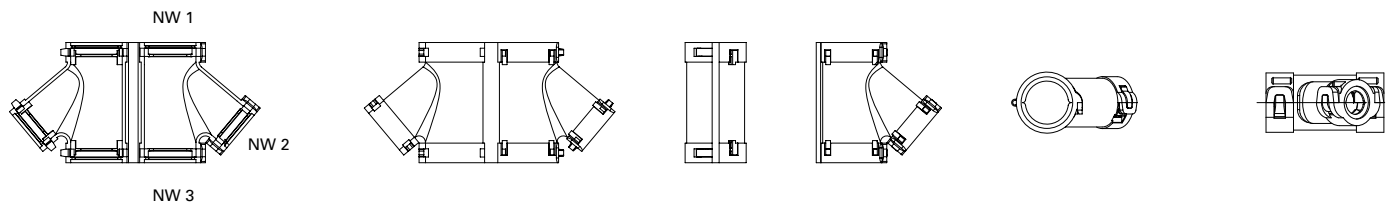
| Details<br>Product details                                                                                                               | Material<br>Material | Typ<br>Type | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                                          |                      |             |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler Y-snap-lock<br>Y-snap-lock manifold<br><br> | PA66                 | A           | 492 67 070                   | 7,5                                 | 4,5  | 4,5  |
|                                                                                                                                          |                      | A           | 492 63 094 / 492 65 070      | 7,5                                 | 7,5  | 7,5  |
|                                                                                                                                          |                      | B           | 492 65 099                   | 10                                  | 7,5  | 10   |
|                                                                                                                                          |                      | A           | 492 65 100                   | 10                                  | 10   | 10   |
|                                                                                                                                          |                      | C           | 492 64 070                   | 13                                  | 7,5  | 7,5  |
|                                                                                                                                          |                      | A           | 492 61 131                   | 13                                  | 10   | 10   |
|                                                                                                                                          |                      | A           | 492 61 130                   | 13                                  | 13   | 10   |
|                                                                                                                                          |                      | A           | 492 65 173                   | 17                                  | 7,5  | 17   |
|                                                                                                                                          |                      | A           | 492 67 171                   | 17                                  | 10   | 10   |
|                                                                                                                                          |                      | A           | 492 61 171                   | 17                                  | 10   | 10   |
|                                                                                                                                          |                      | A           | 492 62 170                   | 17                                  | 13   | 10   |
|                                                                                                                                          |                      | Ä           | 492 61 170                   | 17                                  | 13   | 13   |
|                                                                                                                                          |                      | A           | 492 66 170                   | 17                                  | 13   | 17   |
|                                                                                                                                          |                      | A           | 492 65 224                   | 22                                  | 17   | 13   |
|                                                                                                                                          |                      | A           | 492 61 221                   | 22                                  | 22   | 10   |
|                                                                                                                                          |                      | A           | 492 61 220                   | 22                                  | 22   | 17   |
|                                                                                                                                          |                      | A           | 492 63 107 / 492 65 220      | 22                                  | 22   | 22   |
|                                                                                                                                          |                      | A           | 492 63 156                   | 37                                  | 17   | 37   |

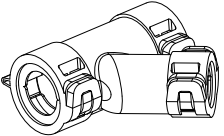
## Kategorie 3.3 / Chapter 3.3

## Verteiler FMC-Y

### FMC-Y manifold

- Verbindung zweier Wellrohre mit integriertem Abgang
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Rastnasen
  - Befestigungsmöglichkeit für Kabelbinder
  - außengreifend
  - Verschluss mehrfach zerstörungsfrei lösbar
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- connection of two corrugated tubes with integrated outlet
  - can be sealed reliably (click system)
  - connection using snap-lock mating
  - mounting possibility for cable ties
  - outside-gripping
  - fastening can be opened several times without causing
  - self-extinguishing according to UL 94 HB/V-2 FMVSS



| Details<br>Product details                                                                                                   | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                              |                      |                              | NW 1                                | NW 2 | NW 3 |
| Verteiler FMC-Y<br>FMC-Y manifold<br><br> | PA66                 | 492 70 003                   | 7,5                                 | 4,5  | 7,5  |
|                                                                                                                              |                      | 492 70 001                   | 13                                  | 7,5  | 10   |
|                                                                                                                              |                      | 492 70 013                   | 14                                  | 7,5  | 13   |

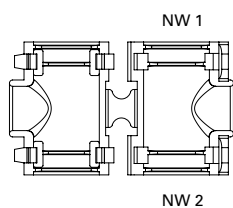


## Kategorie 3.3 / Chapter 3.3

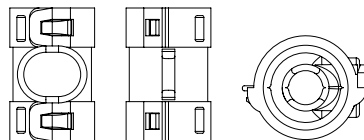
## Verteiler A-slim-fix

### A-slim-fix manifold

- Verbindung zweier Wellrohre mit integriertem Abgang
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Rastnasen
  - Befestigungsmöglichkeit für Kabelbinder
  - außengreifend
  - Verschluss mehrfach zerstörungsfrei lösbar
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- connection of two corrugated tubes with integrated outlet
  - can be sealed reliably (click system)
  - connection using snap-lock mating
  - mounting possibility for cable ties
  - outside-gripping
  - fastening can be opened several times without causing damage
  - self-extinguishing according to UL 94 HB/V-2 FMVSS

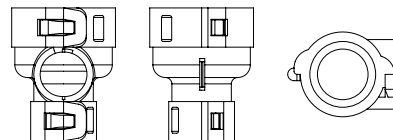


Typ A / Type A

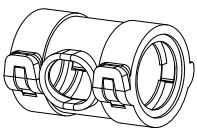


gleiche Nennweite / same nominal width

Typ B / Type B



reduzierte Nennweite / reduced nominal width

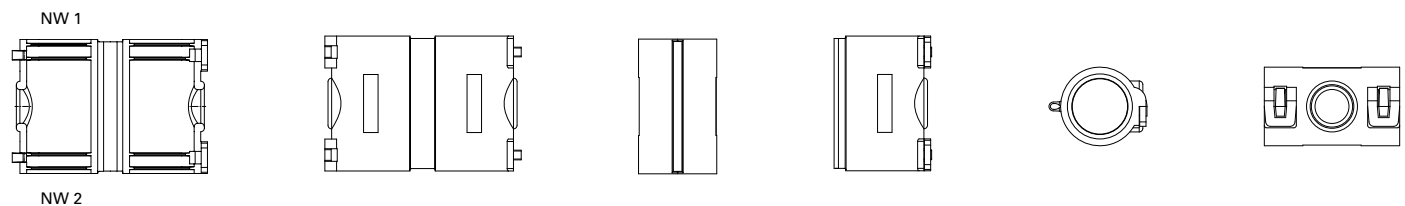
| Details<br>Product details                                                                                                             | Material<br>Material | Typ<br>Type | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|------------------------------|-------------------------------------|------|
|                                                                                                                                        |                      |             |                              | NW 1                                | NW 2 |
| Verteiler A-slim-fix<br>A-slim-fix manifold<br><br> | PA66                 | B           | 492 75 306                   | 7,5                                 | 4,5  |
|                                                                                                                                        |                      | A           | 492 75 300                   | 7,5                                 | 7,5  |
|                                                                                                                                        |                      | A           | 492 75 070                   | 7,5                                 | 7,5  |
|                                                                                                                                        |                      | B           | 492 75 133                   | 10                                  | 7,5  |
|                                                                                                                                        |                      | B           | 492 90 133                   | 10                                  | 7,5  |
|                                                                                                                                        |                      | B           | 492 90 304                   | 10                                  | 4,5  |
|                                                                                                                                        |                      | B           | 492 75 304                   | 10                                  | 4,5  |
|                                                                                                                                        |                      | A           | 492 75 153                   | 10                                  | 7,5  |
|                                                                                                                                        |                      | B           | 492 75 133                   | 10                                  | 7,5  |
|                                                                                                                                        |                      | A           | 492 75 100                   | 10                                  | 10   |
|                                                                                                                                        |                      | A           | 492 90 155                   | 10                                  | 10   |
|                                                                                                                                        |                      | A           | 492 75 305                   | 13                                  | 13   |
|                                                                                                                                        |                      | A           | 492 75 130                   | 13                                  | 13   |
|                                                                                                                                        |                      | A           | 492 75 301                   | 17                                  | 17   |
|                                                                                                                                        |                      | A           | 492 75 302                   | 19                                  | 19   |
|                                                                                                                                        |                      | A           | 492 75 303                   | 22                                  | 22   |

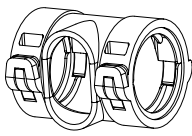
## Kategorie 3.3 / Chapter 3.3

## Verteiler A-snap-lock

### A-snap-lock manifold

- Verbindung zweier Wellrohre mit integriertem Abgang
  - Verbindung mittels Filmscharnier, aneinanderreihbar
  - sicher verschließbar (Klick-System)
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
  - robust, hohe mechanische und chemische Beständigkeit
- connection of two corrugated tubes with integrated outlet
  - connection using film hinge, can be strung together
  - can be sealed reliably (click system)
  - self-extinguishing according to UL 94 HB/V-2 FMVSS
  - robust, high mechanical and chemical resistance

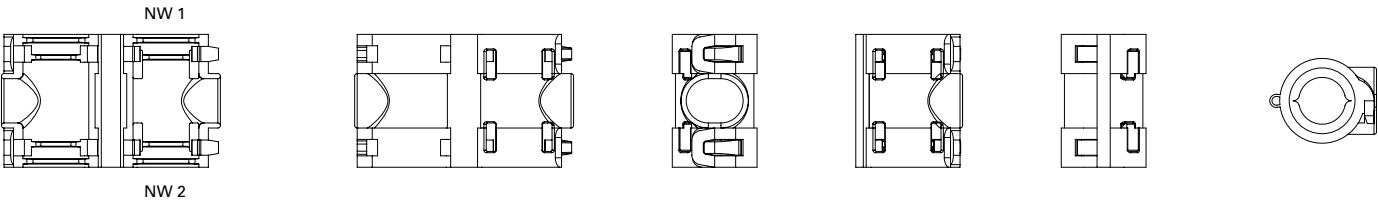


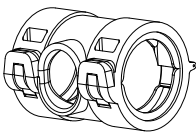
| Details<br>Product details                                                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|
|                                                                                                                                          |                      |                              | NW 1                                | NW 2 |
| Verteiler A-snap-lock<br>A-snap-lock manifold<br><br> | PA66                 | 492 75 170                   | 17                                  | 17   |
|                                                                                                                                          |                      | 492 75 172                   | 17                                  | 17   |
|                                                                                                                                          |                      | 492 75 304                   | 10                                  | 4,5  |
|                                                                                                                                          |                      | 492 75 305                   | 13                                  | 13   |

# Verteiler FMC-A

## FMC-A manifold

- Verbindung zweier Wellrohre mit integriertem Abgang
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Filmscharnier
  - außengreifend
  - Verschluss mehrfach zerstörungsfrei lösbar
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- connection of two corrugated tubes with integrated outlet
  - can be sealed reliably (click system)
  - connection using film hinge
  - outside-gripping
  - fastening can be opened several times without causing damage
  - self-extinguishing according to UL 94 HB/V-2 FMVSS



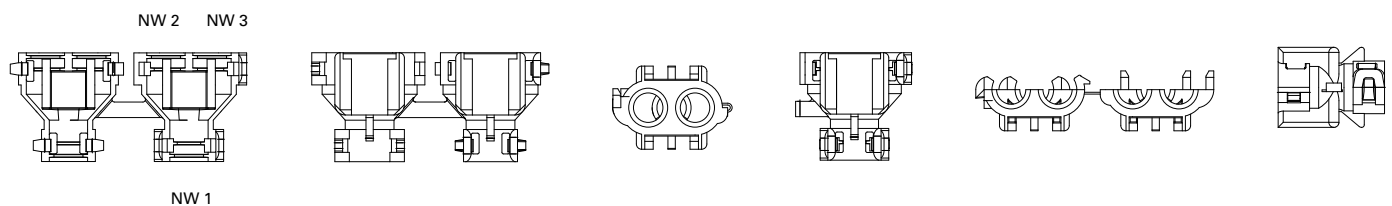
| Details<br>Product details                                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|
|                                                                                                                          |                      |                              | NW 1                                | NW 2 |
| Verteiler FMC-A<br>FMC-A manifold<br> | PA66                 | 492 77 005                   | 10                                  | 10   |

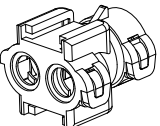
## Kategorie 3.3 / Chapter 3.3

## Y-Verteiler

### Y-manifold

- Aufnahme von Wellrohren mit zwei zielgerichteten Abgängen
- sicher verschließbar (Klick-System)
- außengreifend
- selbstverlöschend nach UL 94 HB/V-2 FMVSS
- intake of ingoing corrugated tubing with two targeted outlets
- can be sealed reliably (click system)
- outside-gripping
- self-extinguishing according to UL 94 HB/V-2 FMVSS

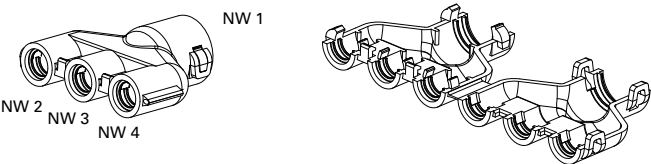


| Details<br>Product details                                                                                       | Material<br>Material | Farbe<br>Color  | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |
|------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|------------------------------|-------------------------------------|------|------|
|                                                                                                                  |                      |                 |                              | NW 1                                | NW 2 | NW 3 |
| Y-Verteiler<br>Y-manifold<br> | PA46                 | natur / natural | 492 86 175                   | 4,5                                 | 4,5  | 4,5  |
|                                                                                                                  | PA66                 | schwarz / black | 492 86 173                   | 4,5                                 | 4,5  | 4,5  |
|                                                                                                                  | PA66                 | schwarz / black | 492 86 176                   | 7,5                                 | 4,5  | 4,5  |

# M-Verteiler

## M-manifold

- Aufnahme eines Wellrohres mit zielgerichtetem Abgang von drei Wellrohren
  - sicher verschließbar (Klick-System)
  - außengreifend
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- intake of one ingoing corrugated tubing with three selectively directed outgoing conduits
  - can be sealed reliably (click system)
  - outside-gripping
  - self-extinguishing according to UL 94 HB/V-2 FMVSS



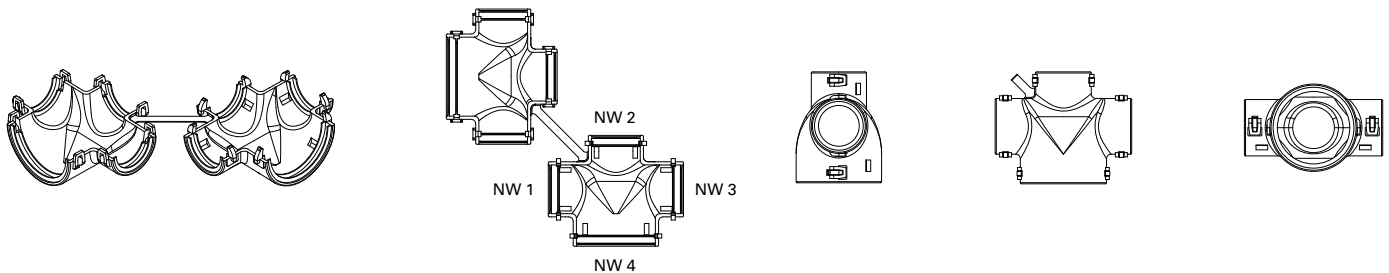
| Details<br>Product details            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |      |      |      |
|---------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|------|
|                                       |                      |                              | NW 1                                | NW 2 | NW 3 | NW 4 |
| <div>M-Verteiler<br/>M-manifold</div> | PA66                 | 492 68 101                   | 7,5                                 | 4,5  | 4,5  | 4,5  |
|                                       |                      | 492 68 103                   | 10                                  | 4,5  | 4,5  | 4,5  |
|                                       |                      | 492 68 100                   | 10                                  | 6    | 6    | 4,5  |
|                                       |                      | 492 68 102                   | 10                                  | 7,5  | 7,5  | 4,5  |

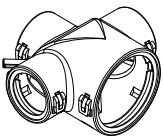
## Kategorie 3.3 / Chapter 3.3

## Plus-Verteiler

### Plus-Manifold

- Verbindung von Wellrohren im Abgang von 90°
  - sicher verschließbar (Klick-System)
  - Verbindung mittels Rastnasen
  - auch als Komplettsystem geeignet
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- connection of corrugated tubes at 90 degree angles
  - can be sealed reliably (click system)
  - connection using snap-lock mating
  - can be designed as complete system
  - self-extinguishing according to UL 94 HB/V-2 FMVSS



| Details<br>Product details                                                                                             | Material<br>Material | FIP Art. Nr.<br>FIP cat. no. | NW Wellrohr<br>NW corrugated tubing |      |      |      |
|------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|------|------|------|
|                                                                                                                        |                      |                              | NW 1                                | NW 2 | NW 3 | NW 4 |
| Plus-Verteiler<br>Plus Manifold<br> | PA66                 | 492 86 171                   | 17                                  | 17   | 17   | 29   |

# Notizen / Notes

Kategorie 4 / Chapter 4

# Zubehör

## Accessories

### Produktübersicht / Product overview

| Produkt<br>Product                            | Temperaturklasse*<br>Temperature class* | Seite<br>Page |
|-----------------------------------------------|-----------------------------------------|---------------|
| Winkel / Elbow                                | T3                                      | 164           |
| Rastbarer Winkel / Snap-in elbow              | T3                                      | 165           |
| Einlegereduzierung / Reducer inserts          | T3                                      | 166 – 167     |
| Wellrohrhalter FWH / Corrugated tube clip FWH | T3                                      | 168           |
| P-Clip / P-clip                               | T3 – T4                                 | 169           |
| Clip / Clip                                   | T2 – T4                                 | 170 – 173     |
| Verschlussclip FVC / FVC connector            | T3                                      | 174           |
| Einzugswerkzeug / Insert tool                 | T3                                      | 175           |

\* Materialübersicht siehe S. 4 / Material survey see page 4

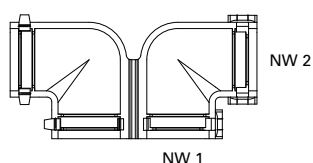
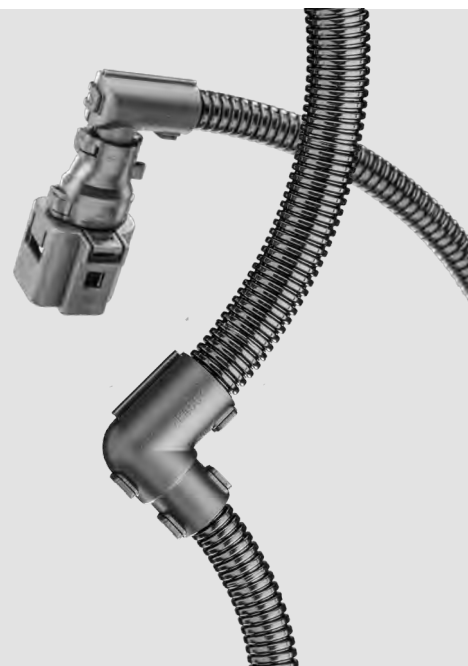




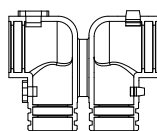
## Kategorie 4 / Chapter 4

## Winkel Elbow

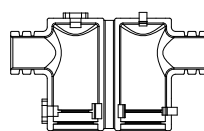
- zuverlässige und stabile 90° Wellrohr-  
verbindung und -führung
- außengreifend
- schnelle Montage (Vorverrastung)
- auf Wellrohrdurchmesser abgestimmt
- selbstverlöschend nach  
UL 94 HB/V-2 FMVSS
- *reliable and stable 90° corrugated tube  
connection*
- *outside-gripping*
- *fast assembly (pre-locking mechanism)*
- *tuned to corrugated tube diameters*
- *self-extinguishing according  
to UL 94 HB/V-2 FMVSS*



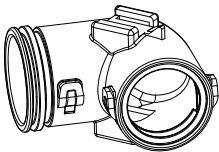
Typ A / Type A



Typ B / Type B



Typ C / Type C

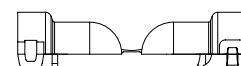
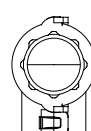
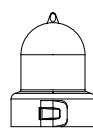
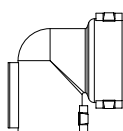
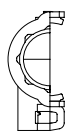
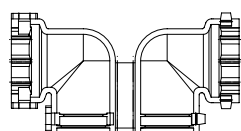
| Details<br>Product details                                                                                 | Material<br>Material | Typ<br>Type | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |        |
|------------------------------------------------------------------------------------------------------------|----------------------|-------------|------------------------------|-------------------------------------|--------|
|                                                                                                            |                      |             |                              | NW1                                 | NW 2   |
| Winkel<br>Elbow<br><br> | PA66                 | A           | 492 90 416                   | 7,5                                 | 7,5    |
|                                                                                                            | PA66                 | C           | 492 90 096                   | 7,5                                 | 7,5    |
|                                                                                                            | PA66                 | B           | 492 90 077                   | 7,5                                 | 10     |
|                                                                                                            | PA66                 | B           | 492 90 254                   | 8,5                                 | 13     |
|                                                                                                            | PA66                 | A           | 492 90 412                   | 10                                  | 10     |
|                                                                                                            | PA66                 | C           | 492 90 157                   | 10                                  | ID 9,8 |
|                                                                                                            | PA66                 | B           | 492 90 072                   | 10                                  | 13     |
|                                                                                                            | PA66                 | C           | 492 80 129                   | 13                                  | 10     |
|                                                                                                            | PA66                 | A           | 492 80 128                   | 13                                  | 13     |
|                                                                                                            | PA46                 | A           | 492 90 463                   | 13                                  | 13     |
|                                                                                                            | PA66                 | A           | 492 90 093                   | 13                                  | 13     |
|                                                                                                            | PA66                 | A           | 492 80 226                   | 13                                  | 13     |
|                                                                                                            | PA66                 | A           | 492 90 093                   | 13                                  | 13     |
|                                                                                                            | PA66                 | B           | 492 90 094                   | 13                                  | 13     |
|                                                                                                            | PA66                 | B           | 492 90 554                   | 13                                  | 13     |
|                                                                                                            | PA66                 | A           | 492 80 127                   | 15                                  | 15     |
|                                                                                                            | PA46                 | A           | 492 90 462                   | 15                                  | 15     |
|                                                                                                            | PA66                 | A           | 492 80 169                   | 17                                  | 13     |
|                                                                                                            | PA66                 | A           | 492 80 171                   | 17                                  | 17     |
|                                                                                                            | PA66                 | B           | 492 90 559                   | 17                                  | 17     |
|                                                                                                            | PA66                 | A           | 492 80 219                   | 22                                  | 17     |
|                                                                                                            | PA66                 | A           | 492 80 220                   | 22                                  | 22     |
|                                                                                                            | PA66                 | A           | 492 80 221                   | 22                                  | 26     |
|                                                                                                            | PA66                 | A           | 492 80 222                   | 26                                  | 26     |

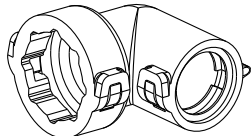
## Kategorie 4 / Chapter 4

## Rastbarer Winkel

### Snap-in elbow

- zuverlässige und stabile Wellrohrverbindung und -führung
  - in 45°-Stufen einstellbar
  - kompatibel mit allen rastbaren Steckerkappen
  - außengreifend
  - schnelle Montage (Vorverrastung)
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
- reliable and stable corrugated tube connection
  - can be set in 45 degree steps
  - outside-gripping
  - fast assembly (pre-locking mechanism)
  - self-extinguishing according to UL 94 HB/V-2 FMVSS

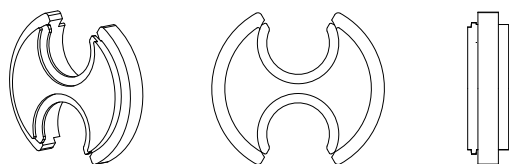
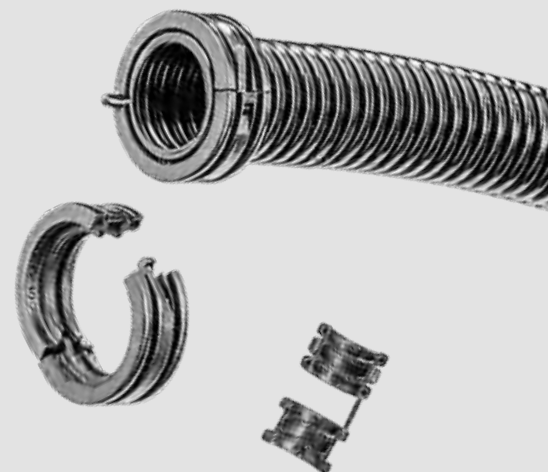


| Details<br>Product details                                                                                               | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |     |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|-----|
|                                                                                                                          |                      |                              | Standard                            | FHW |
| Rastbarer Winkel<br>Snap-in elbow<br> | PA66                 | 492 90 005                   | 10                                  | 9   |
|                                                                                                                          |                      | 492 90 025                   | 4,5                                 | 4,5 |

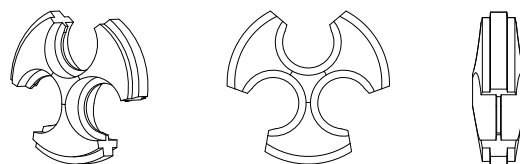
## Kategorie 4 / Chapter 4

## Einlegereduzierung Reducer inserts

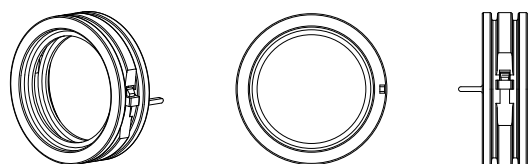
- einteiliges Zubehör zur Reduzierung auf eine kleinere Nennweite
  - passend zu snap-lock, slim-fix und FMC Verteiler
  - hohe mechanische und chemische Festigkeit
  - schnelle Montage dank Vorverrastung
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
  - Verschluss mehrfach zerstörungsfrei lösbar
- *one-piece accessory for reduction to a smaller nominal width*
  - *suitable for snap-lock, slim-fix and FMC manifolds*
  - *high mechanical and chemical resistance*
  - *quick assembly thanks to pre-locking*
  - *self-extinguishing according to UL 94 HB/V-2 FMVSS*
  - *fastening can be opened several times without causing damage*



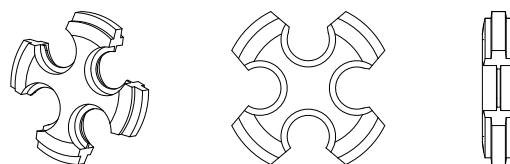
Version A



Version B



Version C



Version D

| Details<br>Product details            | Material<br>Material | Version | FIP Art. Nr.<br>FIP part no. | passend zu / suitable to |              |                            |                |      |                |      |                |      |                |
|---------------------------------------|----------------------|---------|------------------------------|--------------------------|--------------|----------------------------|----------------|------|----------------|------|----------------|------|----------------|
|                                       |                      |         |                              | Zubehör<br>Accessories   |              | Wellrohr / Corrugated tube |                |      |                |      |                |      |                |
|                                       |                      |         |                              | NW 1                     | Ø-A<br>in mm | NW 2                       | Ø-I 2<br>in mm | NW 3 | Ø-I 3<br>in mm | NW 4 | Ø-I 4<br>in mm | NW 5 | Ø-I 5<br>in mm |
| Einlegereduzierung<br>Reducer inserts | PA66                 | C       | 492 90 053                   | 7,5                      | 10,2         | 4,5                        | 7,2            |      |                |      |                |      |                |
|                                       |                      | C       | 492 90 054                   | 10                       | 13,3         | 4,5                        | 7,2            |      |                |      |                |      |                |
|                                       |                      | C       | 492 90 103                   | 13                       | 16,0         | 10                         | 13,3           |      |                |      |                |      |                |
|                                       |                      | A*      | 492 90 071                   | 17                       | 21,2         | 7,5                        | 10,1           | 7,5  | 10,1           |      |                |      |                |
|                                       |                      | A       | 492 90 389                   | 17                       | 21,2         | 7,5                        | 10,1           | 7,5  | 10,1           |      |                |      |                |
|                                       |                      | C       | 492 90 102                   | 17                       | 21,4         | 13                         | 16,3           |      |                |      |                |      |                |
|                                       |                      | A       | 492 90 070                   | 22                       | 25,6         | 7,5                        | 10,1           | 10   | 13,0           |      |                |      |                |
|                                       |                      | B       | 492 90 081                   | 22                       | 25,6         | 7,5                        | 10,1           | 7,5  | 10,1           | 7,5  | 10,1           |      |                |
|                                       |                      | B       | 492 90 397                   | 22                       | 25,6         | 10                         | 13,0           | 7,5  | 10,1           |      |                |      |                |
|                                       |                      | C       | 429 90 136                   | ID 22,2                  | OD 28,3      | ID 17                      | OD 20          |      |                |      |                |      |                |
|                                       |                      | C       | 492 90 439                   | 22                       | 25,8         | 17                         | 18,6           |      |                |      |                |      |                |
|                                       |                      | B       | 492 90 398                   | 26                       | 31,5         | 7,5                        | 10,1           |      |                |      |                |      |                |
|                                       |                      | B       | 492 90 399                   | 26                       | 31,5         | 7,5                        | 10,1           | 7,5  | 10,1           |      |                |      |                |
|                                       |                      | B       | 492 90 400                   | 26                       | 31,5         | 7,5                        | 10,1           | 7,5  | 10,1           | 7,5  | 10,1           |      |                |
|                                       |                      | D       | 492 90 125                   | 26                       | 31,5         | 7,5                        | 10,1           | 7,5  | 10,1           | 7,5  | 10,1           | 7,5  | 10,1           |
|                                       |                      | C       | 492 90 437                   | 26                       | 31,1         | 10                         | 13,4           |      |                |      |                |      |                |
|                                       |                      | C       | 492 90 438                   | 26                       | 31,1         | 22                         | 25,8           |      |                |      |                |      |                |
|                                       |                      | B       | 492 90 423                   | 29                       | 34,6         | 10                         | 13,4           | 10   | 13,4           | 10   | 13,4           |      |                |
|                                       |                      | C       | 492 90 434                   | 29                       | 34,0         | 13                         | 16,3           |      |                |      |                |      |                |
|                                       |                      | C       | 492 90 419                   | 29                       | 34,0         | 26                         | 31,5           |      |                |      |                |      |                |

\* nur mit angepasstem Zubehörteil einsetzbar / only usable with aligned accessories

## Kategorie 4 / Chapter 4

## Wellrohrhalter FWH

### Corrugated tube clip FWH

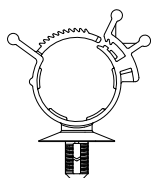
- sichere Befestigung von Wellrohren jeder Nennweite
- einfache Montage durch leichtes Eindrücken
- selbstverlöschend nach UL 94 HB/V-2 FMVSS
- secure fastening of corrugated tubing of any nominal diameter
- easy mounting by applying little pressure
- self-extinguishing according to UL 94 HB/V-2 FMVSS



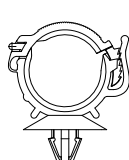
Version A



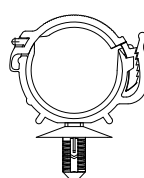
Version B



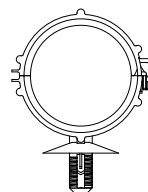
Version C



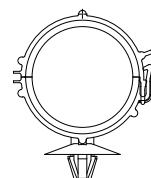
Version D



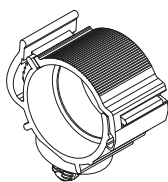
Version E



Version F



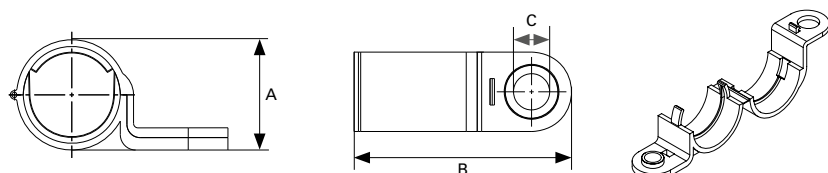
Version G

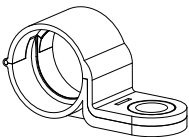
| Details<br>Product details                                                                                                            | Material<br>Material | Version | FIP Art. Nr.<br>FIP part no. | passend zu Profil Standard<br>suitable profile standard | passend zu Profil FHW<br>suitable profile FHW |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|------------------------------|---------------------------------------------------------|-----------------------------------------------|
| Wellrohrhalter FWH<br>Corrugated tube clip FWH<br> | PA66                 | A       | 495 02 050                   | 4,5                                                     | 4,5                                           |
|                                                                                                                                       |                      | A       | 495 02 070                   | 7,5                                                     | 6                                             |
|                                                                                                                                       |                      | B       | 495 02 080                   | 8,5 + 11                                                | –                                             |
|                                                                                                                                       |                      | A       | 495 02 100                   | 10                                                      | 8,5                                           |
|                                                                                                                                       |                      | A       | 495 02 130                   | 12                                                      | 11                                            |
|                                                                                                                                       |                      | C       | 495 02 140                   | 13                                                      | 13 S                                          |
|                                                                                                                                       |                      | D       | 495 02 170                   | 17                                                      | 15                                            |
|                                                                                                                                       |                      | C       | 495 02 054                   | 17                                                      | 15 FHW                                        |
|                                                                                                                                       |                      | D       | 495 02 220                   | 22                                                      | 19 S                                          |
|                                                                                                                                       |                      | E       | 495 02 221                   | 22                                                      | 19 S                                          |
|                                                                                                                                       |                      | F       | 495 02 230                   | 23                                                      | 23 S                                          |
|                                                                                                                                       |                      | G       | 495 02 231                   | 23                                                      | 23 S                                          |
|                                                                                                                                       |                      | D       | 495 02 260                   | 26                                                      | 26 S                                          |

## Kategorie 4 / Chapter 4

**P-Clip*****P-clip***

- Clip mit Metalleinleger
- zur Fixierung von Wellrohren mit handelsüblichen Schrauben an benachbarten Bauteile
- clip with metal insert
- for fixing corrugated pipes with standard screws to neighboring components



| Details<br>Product details                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Nennweite / Nominal width |                         | A<br>in mm | B<br>in mm | C in mm<br>geeignet für M6/M8<br>suitable for M6/M8 |
|----------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|---------------------------|-------------------------|------------|------------|-----------------------------------------------------|
|                                                                                                                |                      |                              | Standard                  | Coflex + Monoflex truck |            |            |                                                     |
| P-Clip<br><i>P-clip</i><br> | PA46                 | 492 90 347                   | 7,5                       | 6 / 10                  | 13,3       | 37,6       | 8,2                                                 |
|                                                                                                                | PA66                 | 492 90 330                   | 10                        | 9 / 13                  | 16,4       | 40,7       | 8,2                                                 |
|                                                                                                                | PA46                 | 492 90 331                   | 17                        | 16 / 21                 | 25,0       | 49,3       | 8,2                                                 |
|                                                                                                                | PA66                 | 492 90 349                   | 20                        | 19 / 24                 | 21,6       | 51,9       | 8,2                                                 |
|                                                                                                                | PA66                 | 492 90 206                   | 22                        | 20 / 25                 | 30,2       | 51,2       | 6,8                                                 |
|                                                                                                                | PA66                 | 492 90 350                   | 23                        | 23 / 28                 | 32,9       | 57,2       | 8,2                                                 |
|                                                                                                                | PA66                 | 492 90 631                   | 26                        | 25 / 31                 | 34,5       | 58,8       | 8,2                                                 |

## Kategorie 4 / Chapter 4

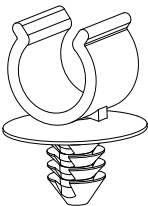
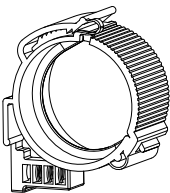
## Clip

### Clip

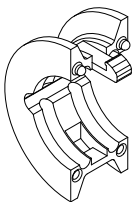
- Halteclip für Zubehörteile
- Karosserietülle
- selbstverlöschend nach UL 94 HB/V-2 FMVSS
- fastening clips for accessories
- car body grommet
- self-extinguishing according to UL 94 HB/V-2 FMVSS



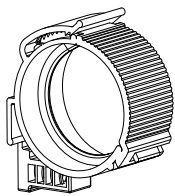
### Holding clip

| Details<br>Product details                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | POM                  | 492 90 018                   | 10                                  |
|  | PA66                 | 492 90 153                   | 29                                  |

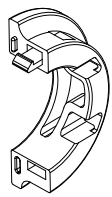
### Holding clip two shells

| Details<br>Product details                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | PA66                 | 492 90 022                   | 8,5                                 |

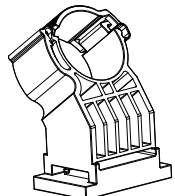
## Holding clip Monoflex

| Details<br>Product details                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | PA66                 | 492 90 126                   | 29                                  |

## Fixing clip

| Details<br>Product details                                                         | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | PP                   | 492 90 141                   | ID 28,4                             |

## Hose holder

| Details<br>Product details                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|-------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | PA66                 | 492 90 182                   | 19                                  |

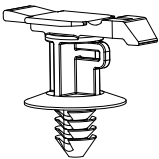
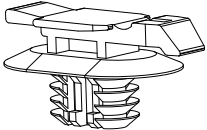
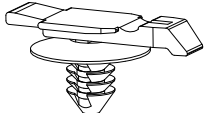
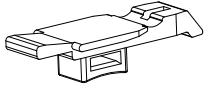
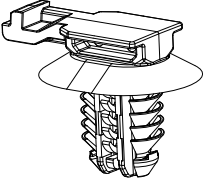


## Kategorie 4 / Chapter 4

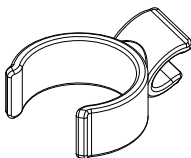
# Clip

## Clip

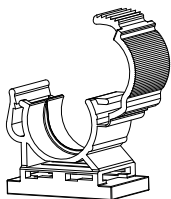
## Fixing clip for accessories

| Details<br>Product details                                                          | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Fixierung<br>Fixation    |
|-------------------------------------------------------------------------------------|----------------------|------------------------------|--------------------------|
|    | PA66                 | 492 90 352                   | rund<br>round            |
|  | PA66                 | 492 90 375                   | Kabelbinder<br>cable tie |
|  | PA66                 | 492 90 021                   | rund<br>round            |
|  | PA66                 | 492 90 316                   | oval                     |
|  | PA66                 | 492 90 1088                  | oval                     |

## Clip

| Details<br>Product details                                                        | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|-----------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | PA66 + GF30          | 492 90 207                   | 19                                  |

## Clip / Corrugated tube holder

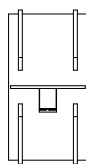
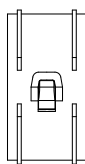
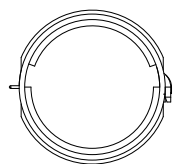
| Details<br>Product details                                                         | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
|  | PA66                 | 492 90 329                   | 17                                  |

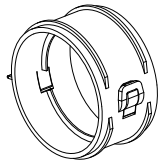
## Kategorie 4 / Chapter 4

## Verschlussclip FVC

### FVC connector

- sicherer und schneller Verschluss von geschlitzten Wellrohren
  - einfache Montage (Klick-System)
  - außengreifend
  - Verbindung mittels Filmscharnier
  - selbstverlöschend nach UL 94 HB/V-2 FMVSS
  - sehr robust
  - hohe mechanische Belastbarkeit
- safe and quick closure of slitted corrugated tubes
  - easy assembly (click system)
  - outside-gripping
  - connection using film hinge
  - self-extinguishing according to UL 94 HB/V-2 FMVSS
  - highly durable
  - high mechanical strength



| Details<br>Product details                                                                                                     | Material<br>Material | FIP Art. Nr.<br>FIP part no. | NW Wellrohr<br>NW corrugated tubing |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------------|
| Verschlussclip FVC<br>FVC connector<br><br> | PA66                 | 495 32 040                   | 4,5                                 |
|                                                                                                                                |                      | 495 32 070                   | 7,5                                 |
|                                                                                                                                |                      | 495 32 080                   | 8,5                                 |
|                                                                                                                                |                      | 495 32 100                   | 10                                  |
|                                                                                                                                |                      | 495 32 130                   | 13                                  |
|                                                                                                                                |                      | 495 32 170                   | 17                                  |
|                                                                                                                                |                      | 495 32 190                   | 19                                  |
|                                                                                                                                |                      | 495 32 220                   | 22                                  |
|                                                                                                                                |                      | 495 32 260                   | 26                                  |
|                                                                                                                                |                      | 495 32 280                   | 28*                                 |

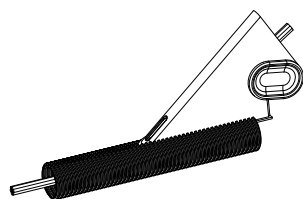
\* nur für FJP-Wellrohr / only for FJP tube

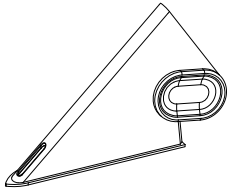
## Kategorie 4 / Chapter 4

## Einzugswerkzeug

### Insert tool

- Einzugswerkzeug für geschlitzte Wellrohre
- ermöglicht den kinderleichten Einzug von Kabeln
- zuverlässiger Schutz der Kabel
- verringerte Montagezeit
- als Ausführung mit Loch oder Griff erhältlich
- insert tool for slitted corrugated tubing
- enables the very easy implementation of cables
- reliable cable protection
- reduced assembly time
- available with hole or grip



| Details<br>Product details                                                                                            | Ausführung<br>Version                                            | Material<br>Material | FIP Art. Nr.<br>FIP part no. | Nennweite<br>Nominal width |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------|------------------------------|----------------------------|
| Einzugswerkzeug<br>Insert tool<br> | Einzugswerkzeug klein<br>Insert tool small                       | PA66                 | 490 90 005                   | 4,5 – 7,5                  |
|                                                                                                                       | Einzugswerkzeug groß<br>Insert tool large                        | PA66                 | 490 90 003                   | 8,5 – 34                   |
|                                                                                                                       | Einzugswerkzeug klein, mit Griff<br>Insert tool small, with grip | PA66<br>GF15         | 490 91 401                   | 4,5 – 7,5                  |
|                                                                                                                       | Einzugswerkzeug groß, mit Griff<br>Insert tool large, with grip  |                      | 490 91 400                   | 8,5 – 34                   |
|                                                                                                                       | Einzugswerkzeug klein, mit Loch<br>Insert tool small, with hole  | PA66                 | 490 90 004                   | 4,5 – 7,5                  |
|                                                                                                                       | Einzugswerkzeug groß, mit Loch<br>Insert tool large, with hole   |                      | 490 90 002                   | 8,5 – 34                   |

**FRÄNKISCHE Industrial Pipes (FIP)** is a global partner to the automotive and commercial vehicle industry, and is close to its customers' with sites in Africa, Asia, Europe and North America. The company's main headquarters is in Königsberg, Germany.

FRÄNKISCHE Industrial Pipes counts leading manufacturers and renowned suppliers from the industry among its customers. The company was founded in 2008 and has enjoyed success thanks to innovative, customer-oriented solutions for fluid management, protective components as well as thermal management.

A strong focus today is on e-mobility with thermal management. FIP's key competences also include industrial cable protection, and media-conducting systems that are used wherever liquids or gases are distributed under specific and stringent requirements. Other key competencies include the design, prototype construction, and mass production of customerspecific components, utilizing the company's own expertise in plastic technology and automation.



MEMBER OF  
**FRÄNKISCHE GROUP**

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