

# FLEXIBLE HEAT TRACE



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# THE HYDRA<sup>®</sup> HEAT TRACE SYSTEM



The HYDRA heat trace system offers a totally coordinated solution for all fields of application. Easily adaptable and technically perfect. No troublesome assembling of individual components. No risk of incompatibility between components. All the parts of the HYDRA system solution are based on a standardised, proven method of connection. The flexible heat trace system is not only superior to rigid

pipework in terms of its easier handling, but is also significantly more cost-effective. According to information supplied by operators, the savings compared to conventional heat trace systems can be expected 40 – 50 % lower. There is potential for further savings in the feed lines. Pre-insulated systems can cut installation time by up to 60 %.

# HEAT TRACE HOSE

## HEAT TRACE HOSE

### Advantages

#### Application



#### Less work, more efficiency

The flexible heat trace hose heats the pipe below the insulation to a maximum temperature of 200 °C, using steam or hot water. Higher temperatures are possible with superheated steam. The large corrugated surface ensures optimum heat transfer. The easy-to-bend annular corrugated hose enables easy and trouble-free installation. The hose can be installed in the smallest of bending radii (20 – 35 mm).

#### Application

Steam, hot and cold water. The system, particularly the self-mountable screw couplings, are not suitable for thermal oil. Generally speaking, heat traces are useful wherever constant temperatures have to be maintained. Can also be used as an empty conduit or temporary emergency piping.

#### Application examples

- Heating of product lines
- Heating of manifolds, fittings and pump housings
- Engine cooling
- Vessel heating
- Heating for emergency showers
- Pipe bridges
- Cooling
- Feed lines with pre-insulated annular corrugated hose from main supply to heat trace system
- Emergency piping

#### Advantages

- High heat exchange performance thanks to corrugated surface
- Cost savings thanks to very easy and quick installation
- No measuring of the pipeline, no isometry necessary
- No buckling, no cross-section reduction
- High compressive strength
- Easy installation of the connections by easy-to-use hand tools
- No welding necessary, can also be used in potentially explosive areas
- Endlessly extendable
- Weight reduction
- Huge material savings
- DN 12 – DN 25
- Non-corrosive stainless steel

# HEAT TRACE HOSE

Technical data and dimensions

## Detailed view

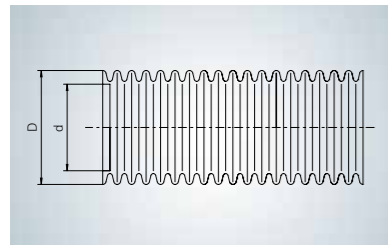


## Heat trace hose

Ring-annular corrugated stainless steel hose fabricated from butt-welded pipe, with wide corrugations. It is temperature and corrosion resistant, flame resistant and diffusion-tight as well as resistant to aging.

The stainless steel hose is available by the metre complete with loose screw couplings of stainless steel or brass. The hose can be conveniently shortened or extended on site.

The elements are connected by means of loose screw couplings. The hose is fixed to the pipe by means of quick-fix clips and tape, or directly with metal tape. It is fixed to walls etc. by means of quick-fix clips.



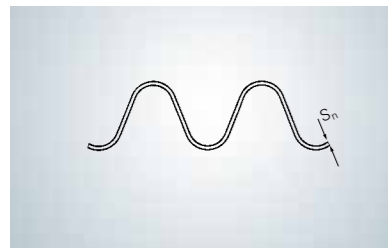
## Order text

HYDRA annularly corrugated hose made of stainless steel 1.4404 (316L)

Type RS 341S00

DN .....

Length (m) .....



| DN | Hose Diameter |      | Tolerances | Order number <sup>1)</sup> | Minimum bending radius <sup>3)</sup> | Permissible operating pressure at 20 °C <sup>2)</sup> | Hose wall thickness | Hose surface | Weight |
|----|---------------|------|------------|----------------------------|--------------------------------------|---|---------------------|--------------|--------|
|    | d             | D    |            |                            |                                      |   |                     |              |        |
|    | mm            | mm   |            |                            |                                      |   |                     |              |        |
| 12 | 12.5          | 16.5 | ±0.2       | 378 243                    | 20                                   | 20  | 0.15                | 0.085        | 0.102  |
| 16 | 16.3          | 21.4 | ±0.3       | 378 244                    | 25                                   | 20  | 0.18                | 0.107        | 0.153  |
| 20 | 20.7          | 26.5 | ±0.3       | 378 245                    | 30                                   | 20  | 0.30                | 0.132        | 0.311  |
| 25 | 25.8          | 31.7 | ±0.4       | 378 246                    | 35                                   | 20  | 0.30                | 0.164        | 0.388  |

1) in manufactured lengths of up to 300 m, delivery is in loose rings for smaller quantities and on wooden drums for larger quantities.

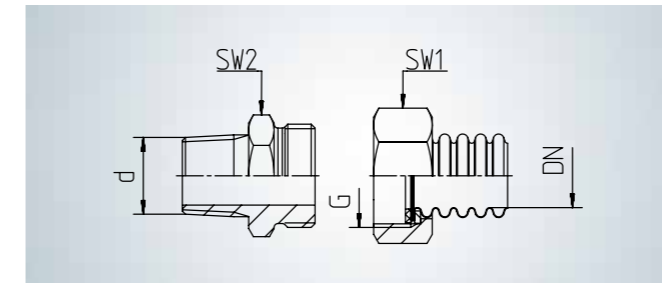
2) Reduction factors for high operating temperatures

3) Alternating flexural stress during installation: as per DIN EN ISO 10380 flexural test at least 10 alternating flexural stress at R<sub>min</sub>

| Reduction factors |        |
|-------------------|--------|
| t °C              | 1.4404 |
| 50                | 0.90   |
| 100               | 0.73   |
| 150               | 0.67   |
| 200               | 0.61   |

# CONNECTION TYPES

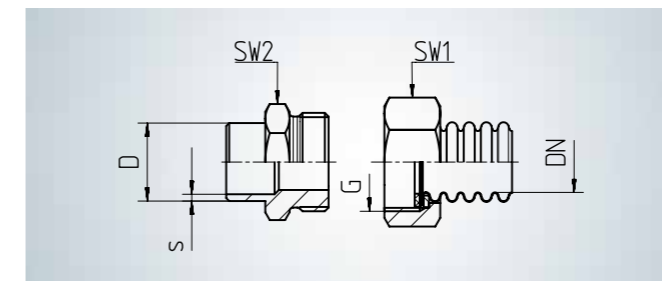
Connection fittings for the closing connection between the trace heating hose and the connection provided by the customer or at the building site



## Screw coupling with external thread provided by the customer, set consisting of:

- Male connector with external thread / 1 item
- Closable clamping washer, captive / 1 item
- Union nut / 1 item
- Gasket: graphite / 1 item

| DN | Order number<br>Stainless steel<br>1.4301 (304) | Union nut |      | Screw-in part |                      |
|----|---|-----------|------|---------------|----------------------|
|    |   | G         | WAF1 | WAF2          | External thread<br>d |
|    |   | Inch      | mm   | mm            | mm                   |
| 12 | 340 287   | ½         | 24   | 22            | R ½                  |
| 16 | 340 210   | ¾         | 30   | 27            | R ½                  |
| 20 | 340 211   | 1         | 41   | 36            | R ¾                  |
| 25 | 340 212   | 1 ¼       | 46   | 46            | R 1                  |



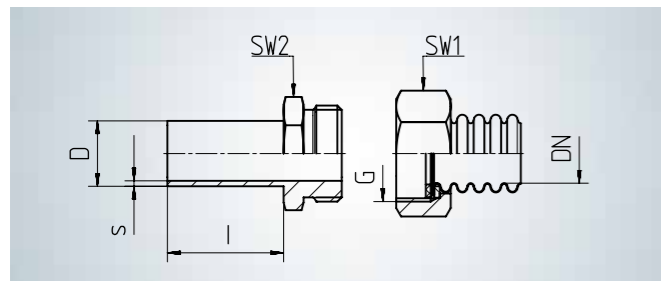
## Screw coupling with welding end provided by the customer, set consisting of:

- Male connector with ISO welding end/ 1 item
- Closable clamping washer, captive / 1 item
- Union nut / 1 item
- Gasket: graphite / 1 item

| DN | Order number<br>Stainless steel<br>1.4301 (304) | Union nut |      | Screw-in part |                      |
|----|---|-----------|------|---------------|----------------------|
|    |   | G         | WAF1 | WAF2          | Welding end<br>D x S |
|    |   | Inch      | mm   | mm            | mm                   |
| 12 | 340 289   | ½         | 24   | 22            | r17.2 x 1.8          |
| 16 | 340 213   | ¾         | 30   | 27            | r21.3 x 2.0          |
| 20 | 340 215   | 1         | 41   | 36            | r26.9 x 2.3          |
| 25 | 340 216   | 1 ¼       | 46   | 46            | r33.7 x 2.6          |

# CONNECTION TYPES

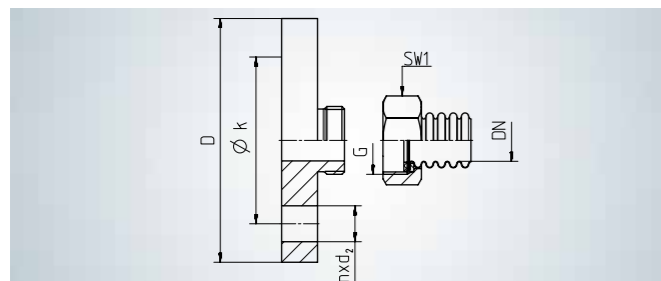
Connection fittings for the closing connection between the trace heating hose and the connection provided by the customer or at the building site



**Screw coupling with precision socket piece provided by the customer for cutting ring and Swagelok screw coupling, set consisting of:**

- Male connector with precision socket piece / 1 item
- Closable clamping washer, captive / 1 item
- Union nut / 1 item
- Gasket: graphite / 1 item

| DN | Order number<br>Stainless steel<br>1.4301 (304) | Union nut |            | Precision socket |                 |
|----|---|-----------|------------|------------------|-----------------|
|    |   | G<br>Inch | WAF1<br>mm | WAF2<br>mm       | D x s x l<br>mm |
| 12 | 461 807   | ½         | 24         | 22               | 12 x 1.5 x 32   |
|    | 393 001   |           |            |                  | 15 x 2.0 x 32   |
| 16 | 393 000   | ¾         | 30         | 27               | 18 x 1.5 x 32   |
| 20 | 393 002   | 1         | 41         | 36               | 22 x 2.0 x 36   |
| 25 | 393 003   | 1 ¼       | 46         | 46               | 28 x 2.0 x 40   |



**Screw coupling with flange provided by the customer, set consisting of:**

- Male connector with threaded flange consisting of 1.4301 / 1 item
- Closable clamping washer, captive / 1 item
- Union nut / 1 item
- Gasket: graphite / 1 item

## Flange as per DIN EN 1092-1

| DN    | Order number<br>Stainless steel<br>1.4301 (304) | Union nut |            | Screw-in part with flange<br>Functional dimensions as per DIN EN 1092-1 PN 40 |                    |    |
|-------|---|-----------|------------|---|--------------------|----|
|       |   | G<br>Inch | WAF1<br>mm | D   | n x d <sub>2</sub> | k  |
| 16    | 340 203   | ¾         | 30         | 95  | r4 x 14            | 65 |
| 20    | 340 204   | 1         | 41         | 105   | r4 x 14            | 75 |
| 25    | 340 206   | 1 ¼       | 46         | 115   | r4 x 14            | 85 |
| 16/25 | 469 728*  | ¾         | 30         | 115   | r4 x 14            | 85 |

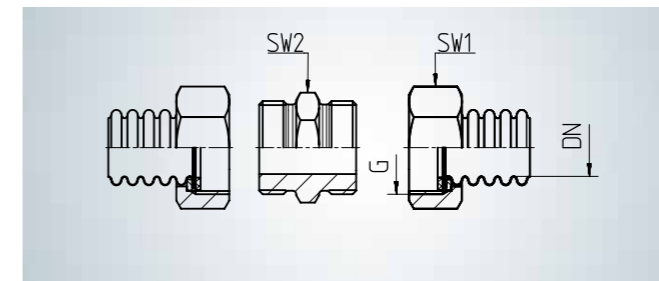
\*Special variant consisting of 1.4541 (321)

## Flange as per ANSI B16.5

| DN | Order number | Screw-in part with flange<br>Functional dimensions as per ANSI B16.5<br>150 lbs |      |      |                    |      |
|----|--------------|---|------|------|--------------------|------|
|    |              | G   | WAF1 | D    | n x d <sub>2</sub> | k    |
| 16 | 1330402      | ¾   | 30   | 88.9 | r4 x 15.7          | 60.5 |
| 20 | 1330406      | 1   | 41   | 98.6 | r4 x 15.7          | 69.9 |
| 25 | 1330407      | 1 ¼   | 46   | 108  | r4 x 15.7          | 79.2 |

# CONNECTION TYPES

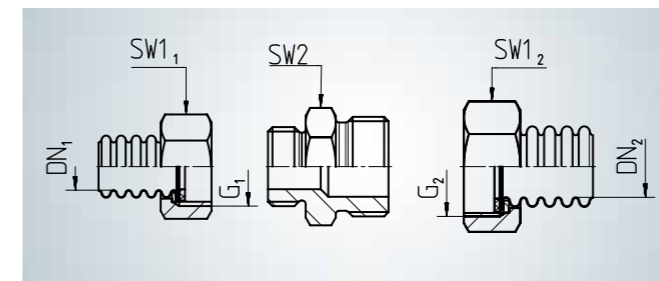
Connection fittings for joining or extending two hose sections



**Connection fitting, set consisting of:**

- Double nipple / 1 item
- Closable clamping washers, captive / 2 items
- Union nut / 2 items
- Gaskets: graphite / 2 items

| DN | Order number<br>Stainless steel<br>1.4301 (304) | Union nut |            | Double nipple |           |
|----|---|-----------|------------|---------------|-----------|
|    |   | G<br>Inch | WAF1<br>mm | WAF2<br>mm    | G<br>Inch |
| 12 | 340 286   | ½         | 24         | 22            | ½         |
| 16 | 340 207   | ¾         | 30         | 27            | ¾         |
| 20 | 340 208   | 1         | 41         | 36            | 1         |
| 25 | 340 209   | 1 ¼       | 46         | 46            | 1 ¼       |



**Connection fitting reduction, set consisting of:**

- Reduction double nipple / 1 item
- Closable clamping washers in DN 1 and DN 2 / 2 items
- Union nut in DN 1 and DN 2 / 2 items
- Gaskets: graphite in DN 1 and DN 2 / 2 items

| DN 1 / DN 2 | Order number<br>Stainless steel<br>1.4301 (304) | Union nut              |                        |                        |                        | Double nipple |
|-------------|---|------------------------|------------------------|------------------------|------------------------|---------------|
|             |   | G <sub>1</sub><br>Inch | G <sub>2</sub><br>Inch | SW1 <sub>1</sub><br>mm | SW1 <sub>2</sub><br>mm | SW 2<br>mm    |
| 12/16       | 426 120   | ½                      | ¾                      | 24                     | 30                     | 22            |
| 20/25       | 426 122   | 1                      | 1 ¼                    | 41                     | 46                     | 27            |
| 16/25       | 1170920   | ¾                      | 1 ¼                    | 30                     | 46                     | 36            |
| 16/20       | 1253973   | ¾                      | 1                      | 30                     | 41                     | 46            |

# EASY AND QUICK INSTALLATION

Trace heating hoses with quick-fix clip



## Installation examples with the quick-fix clip (SMC)

Registered design protected:

### 1. Self-locking stainless steel hose clamp (see left)

- Select hose clamp according to diameter of pipe.
- Fix hose clamp directly to stainless steel pipe with quick-fix clip. For C-steel pipes put chloride-free insulation (glass fibre) underneath to prevent galvanic corrosion.
- Insert hose clamp into quick-fix clip, place around pipe and push end of strap through locking head. Pull in the strap manually. Insert protruding end of strap sideways into the pliers, tighten the strap and cut off the excess by turning the pliers 90°, taking care to avoid leaving a sharp edge.
- Clip in hose – ready!

### 2. Retrofitting of trace heating for product vessels with various diameters e.g. 500 - 10 000 mm (see page 4)

- Tightening strap with turnbuckle for tightening vessels.
- Put a quick-fix clip with inner sleeve underneath.
- Tighten tightening strap with turnbuckle.
- Cut off a piece of strap approx. 10 cm longer than required.
- Loosen the turnbuckle.
- Push end of strap through slot in turnbuckle from above, then bend back a section approx. 3 cm long below the main part of the strap.
- Insert the strap into the quick-fix clip and bend it around the vessel.
- Push the free end into the other side of the turnbuckle and mount it with the two locking hooks.
- Tighten the strap with a screwdriver.
- Clip in hose – ready!

This combination is reusable and can be tightened by means of the turnbuckle.

### 3. Heating of pump housings, fittings and manifolds

- SMC quick-fix clips, DN 25, with holes for fixing to walls with 5 mm countersunk screws.



# CONNECTOR INSTALLATION



1. Cut hose to the desired length in the groove of the corrugation using a pipe cutter.



2. Slip the union nut over hose



3. Open the clamping jaw after pulling back the striking pin. Place the corrugated hose with the second groove of the corrugation into the clamping jaw.



4. Close the clamping jaw. Compress the ridge into a rim by powerfully moving the striking pin.



5. Press the burr inwards with the help of the rimming rod.



6. Insert the clamping ring into the first groove of the corrugation and compress to form a closed ring. Push back union nut, insert the seal, place the male connector in position and tighten with two hexagon spanners.\*

\* Stainless steel threads should be coated with a lubricant (e.g. Molykote)

# ORDER OVERVIEW OF MOUNTING ACCESSORIES

## Tools for trace heating hoses



### Cutter for annular corrugated hose

- For cutting the hose to the required length in the groove of the corrugation

| DN    | Order number |
|-------|--------------|
| 12-25 | 346 685      |



### Rimming tool

- For compressing two corrugations of the annular corrugated hose when attaching an end fitting

| DN | Order number |
|----|--------------|
| 12 | 319 603      |
| 16 | 319 604      |
| 20 | 319 605      |
| 25 | 319 606      |



### Pliers

- For fastening the hose clamp

| DN | Order number |
|----|--------------|
| -  | 392 977      |

## Consumables for trace heating hoses



### Graphite gaskets

- Material: Graphite with metal insert
- Supplied in packages of 100 items

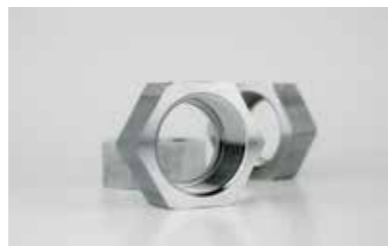
| DN | Order number |
|----|--------------|
| 12 | 925 381      |
| 16 | 925 382      |
| 20 | 925 383      |
| 25 | 925 384      |



### Clamping washers

- Material: stainless steel 1.4301 (304)
- Supplied in packages of 50 pieces

| DN | Order number |
|----|--------------|
| 12 | 925 372      |
| 16 | 925 374      |
| 20 | 925 375      |
| 25 | 925 376      |



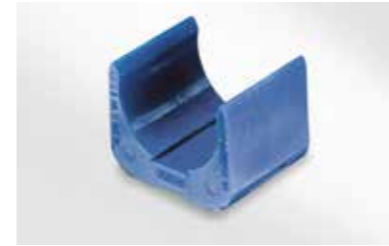
### Union nut

- Material: stainless steel 1.4301 (304)
- Suitable for all male connectors of the corresponding DN

| DN | G     | Order number |
|----|-------|--------------|
| 12 | 1/2   | 319 429      |
| 16 | 3/4   | 084 431      |
| 20 | 1     | 319 431      |
| 25 | 1 1/4 | 317 846      |

# ORDER OVERVIEW OF MOUNTING ACCESSORIES

## Consumables for trace heating hoses



### Quick-fix clip

- For preliminary installation and as a spacer between the corrugated hose and the pipe/vessel
- Material: Ultrason PES (polyether-sulfone), resistant up to 200 °C
- Packaging unit: 50 items
- DN 25 with additional 5 mm hole for fixing to walls

| DN | Order number |
|----|--------------|
| 12 | 358 194      |
| 16 | 358 193      |
| 20 | 358 192      |
| 25 | 358 191      |



### Hose clamp for pliers

- For pipe fastening
- Material: stainless steel 1.4301 (304)
- Packaging unit: 50 items

| Pipe DN | Length mm | Order number |
|---------|-----------|--------------|
| 40      | 259       | 392 971      |
| 65      | 362       | 392 973      |
| 125     | 521       | 392 974      |
| 150     | 679       | 392 975      |
| 200     | 838       | 392 976      |



### Tightening strap in conjunction with turnbuckle

- For fastening the hoses to pipe and vessel
- Material: stainless steel 1.4301 (304)
- 10 mm wide
- Packaging unit: 20 m length
- Recommended tightening torque: max. 3 Nm

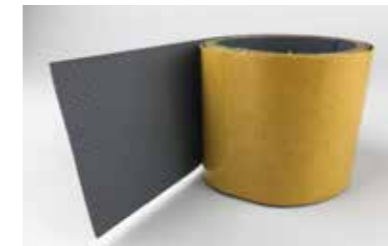
| Order number |
|--------------|
| 348 865      |



### Glass fabric tape

- Serves as a base for C-steel pipes to prevent galvanic corrosion
- TEM 170/8/8 Fibreglass tape
- 80 mm x 100 m on a roll

| Order number |
|--------------|
| 1297322      |



### Fibreglass tape PTFE

- Serves as a base for C-steel pipes to prevent galvanic corrosion
- Self-adhering for easier assembly
- DISSTEX 420-PTFE resistant up to 270 °C
- 50 mm x 50 m on a roll

| Order number |
|--------------|
| 1297345      |



### Turnbuckle

- For tightening strap
- Material: stainless steel 1.4301 (304)
- Packaging unit: 50 items

| Order number |
|--------------|
| 348 871      |

# PRE-INSULATED FEED LINE

## HYDRA® PRE-INSULATED FEED LINE

Inexpensive and simple solution for connection to the main supply

### Application



### The pre-insulated feed hose: simply clever.

The installation of the feed line from the steam or hot water main supply to the location of the heat trace system often causes difficulties. Frequently, pipes must be welded, bent or reworked to guarantee a reliable connection. A pre-insulated hose represents a cost-effective alternative that requires no subsequent insulation.

The HYDRA flexible metal hose is supplied in lengths of 100 m on non-returnable wooden drums and is therefore very easily cut to length without wastage and unnecessary joins. The advantage of the pre-insulated solution lies in the fact that the entire installation can be carried out in one operation.

### FAK-7



The feed line can be easily fixed to trays, brackets and sections with hose clamps. The pre-insulated feed line has been designed and proven for connecting directly to the HYDRA heat trace system with the same method of connection. The nominal diameters DN 16 and 25 can also be reduced to DN 12 or 20 by using connection fittings. (Standard DN 25)

### Termination set

#### FAK-7 Order number. 427252

for waterproof sealing of hose ends by means of a roll of a self-vulcanising silicone rubber band and RTV sealing compound. There is adequate material to install approximately 2-4 water-tight connections.

### FAK-8 I



### Self-sealing joint set

#### FAK-8 I Order number. 449142

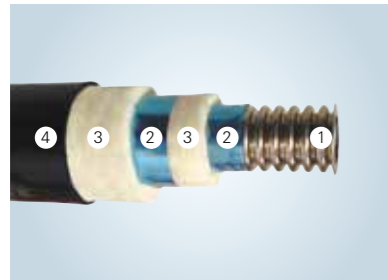
for weatherproof sealing, with insulating material and rubber mat for joins or repairs to the outer jacket of the line.



# HYDRA® PRE-INSULATED FEED LINE

Technical data and dimensions

## Design work



Design of the insulation may vary

## HYDRA pre-insulated feed line

- (1) HYDRA annularly corrugated hose type RS 341S00
- (2) Heat-reflecting aluminium foil
- (3) non-hygroscopic fibreglass insulation
- (4) Polymer outer jacket  
(max. permissible temperature of the polymer outer jacket 90 °C permanently, 105 °C temporarily. Minimum installation temperature -40 °C)

## Advantages

- Faster installation as compared to conventional rigid copper/stainless steel pipes
- Flexible routing with 250 mm bending radius
- Larger nominal diameters than with rigid pipes are possible
- No need to coordinate the workflow with the insulation contractor
- No manual, follow-up insulation work
- Temperature range: -40 °C outside to +200 °C inside
- Considerable cost savings
- No additional planning of anchor points necessary
- Reduction and connection fittings suitable for DN 12 and DN 20

## Order text

HYDRA pre-insulated feed line

Type RS 341S00 - ATPVC

DN .....

Length (m) ..... (divisible by 100 m)

- Length 100 m on non-returnable wooden drum
- Special lengths on request

| DN | Hose            |                  | Order number <sup>1)</sup> | Minimum bending radius | Permissible operating pressure at 20 °C | Weight    |
|----|-----------------|------------------|----------------------------|------------------------|---|-----------|
|    | Inside diameter | Outside diameter |                            |                        |   |           |
|    | d               | D                |                            |                        |   |           |
|    | mm              | mm               | -                          | r <sub>min</sub><br>mm | -<br>bar                                | -<br>kg/m |
| 16 | 16.3            | approx. 46       | 426 859                    | 250                    | 20                                      | 0.97      |
| 25 | 25.8            | approx. 57       | 426 860                    | 250                    | 20                                      | 1.65      |

<sup>1)</sup> Delivery on non-returnable wooden drum each with 100 m/drum

# SEALING THE PRE-INSULATED FEED LINE

## End seal FAK-7



1. Remove approx. 6 cm of the insulation in 3 stages



2. Fit the required screw coupling (see connection assembly page 11)



3. Generously apply silicone adhesive to the end of the insulation (at least 5 cm). Wrap the end with the black silicone adhesive tape with an overlap of 50%. Start here with a minimum of 5 cm above the cut insulation on the black jacket. First remove the transparent protective paper from the silicone adhesive tape just before affixing.

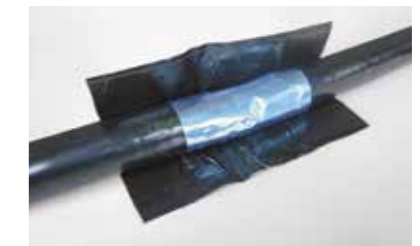
## Sealing the join fitting FAK-8 I



1. Remove approx. 6 cm of the insulation. Fit the connection subassembly page 11)



2. First wrap the heat-reflecting foil with 25% overlap around the hose and fitting. Then wrap the fibreglass tape around the hose and fitting (50% overlap). Finally, wrap the heat-reflecting foil once again 25% overlap.



3. Trim a correspondingly large piece of the rubber mat. Wrap the rubber mat over the bandage and firmly press on all sides in order to preserve a watertight seal. It should protrude laterally at least 2.5 cm over the existing insulation as well as overlap at least 2.5 cm after wrapping once.

# ORDER OVERVIEW OF MOUNTING ACCESSORIES

## Consumables: pre-insulated feed hose



### Connection set FAK-7 B for DN 16 and DN 25

- Self-vulcanising silicone rubber band
- RTV sealing compounds for 2 – 4 ends

| Order number |
|--------------|
| 427 252      |



### Self-sealing join set FAK-8 I

- 200 x 350 mm self-adhering rubber mat
- Glass-fibre insulation material
- Heat-reflecting aluminium foil

| Order number |
|--------------|
| 449 142      |

# PARTS OVERVIEW

## Minimum requirement (hose + connectors + installation tools)

| Brochure page | Designation   | Nominal diameter   |                     |                    |                     |
|---------------|---|--------------------|---------------------|--------------------|---------------------|
|               |   | 12                 | 16                  | 20                 | 25                  |
| P. 6          | HYDRA Heat trace hose 1.4404, type RS341S00                   | 378243             | 378244              | 378245             | 378246              |
| P. 7          | Connecting coupling with external thread                      | 340287             | 340210              | 340211             | 340212              |
| P. 7          | Connecting coupling with welding end                          | 340289             | 340213              | 340215             | 340216              |
| P. 8          | Connecting coupling with precision socket                     | 393001<br>461807   | 393000              | 393002             | 393003              |
| P. 8          | Connecting coupling with threaded flange as per DIN EN 1092-1 | -                  | 340203              | 340204             | 340206              |
| P. 8          | Connecting coupling with threaded flange as per ANSI B16.5    | -                  | 1330402             | 1330406            | 1330407             |
| P. 9          | Connection fitting with double nipple                         | 340286             | 340207              | 340208             | 340209              |
| P. 9          | Reduction fitting with reduction nipple                       | DN 12/16<br>426120 | DN 16/20<br>1253973 | DN 20/25<br>426122 | DN 16/25<br>1170920 |
| P. 12         | Rimming tool  | 319603             | 319604              | 319605             | 319606              |
| P. 12         | Cutter for annular corrugated hose                            | 346685             |                     |                    |                     |

## Mounting accessories

| Brochure page | Designation   | Nominal diameter |        |        |        |
|---------------|---|------------------|--------|--------|--------|
|               |   | 12               | 16     | 20     | 25     |
| P. 13         | SMC Quick-fix clip made of plastic PES                      | 358194           | 358193 | 358192 | 358191 |
| P. 12         | Pliers for hose clamp                                       | 392977           |        |        |        |
| P. 13         | Hose clamp for fastening to pipe DN40                       | 392971           |        |        |        |
| P. 13         | Hose clamp for fastening to pipe DN65                       | 392973           |        |        |        |
| P. 13         | Hose clamp for fastening to pipe DN125                      | 392974           |        |        |        |
| P. 13         | Hose clamp for fastening to pipe DN150                      | 392975           |        |        |        |
| P. 13         | Hose clamp for fastening to pipe DN200                      | 392976           |        |        |        |
| P. 13         | Tightening strap on roll (20 m)                             | 348865           |        |        |        |
| P. 13         | Turnbuckle for tightening strap                             | 348871           |        |        |        |
| P. 13         | Glass fabric tape to prevent galvanic corrosion, 100 m roll | 1297332          |        |        |        |
| P. 13         | Glass fabric tape with PTFE, self-adhering, 50 m roll       | 1297345          |        |        |        |

## Replacement parts

| Brochure page | Designation                          | Nominal diameter |        |        |        |
|---------------|--------------------------------------|------------------|--------|--------|--------|
|               |                                      | 12               | 16     | 20     | 25     |
| P. 12         | Clamping washer set (VPE 50 items)   | 925372           | 925374 | 925375 | 925376 |
| P. 12         | Gasket set, graphite (VPE 100 items) | 925381           | 925382 | 925383 | 925384 |
| P. 12         | Union nut                            | 314429           | 84431  | 319431 | 317846 |

## Pre-insulated feed line

| Brochure page | Designation   | Nominal diameter |        |    |        |
|---------------|---|------------------|--------|----|--------|
|               |   | 12               | 16     | 20 | 25     |
| P. 16         | HYDRA pre-insulated feed line                       | -                | 426859 | -  | 426860 |
| P. 18         | FAK 7 Termination set for sealing connections       | 427252           |        |    |        |
| P. 18         | FAK 8 I connection set for sealing hose connections | 449142           |        |    |        |