



Quality by Witzmann

# THE GROUP

With 24 companies in 19 countries,  
Witzenmann is the global number 1 in the industry

## World leader

Witzenmann is a global group of companies that specialises in flexible metal elements. Our company is renowned as an innovative development partner and reliable manufacturer within the industry thanks to our vision of "managing flexibility". Today, Witzmann offers the widest range of products for the most diverse areas of applications. This enables us to offer the correct solutions time and time again.

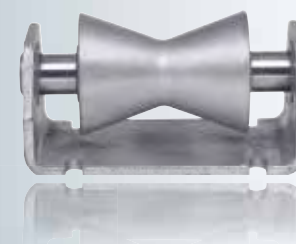


## Witzenmann GmbH

Östliche Karl-Friedrich-Str. 134  
75175 Pforzheim, Germany  
Phone +49 7231 581-0  
Fax +49 7231 581-820  
wi@witzmann.com  
www.witzenmann.de

## Witzenmann Sachsen GmbH

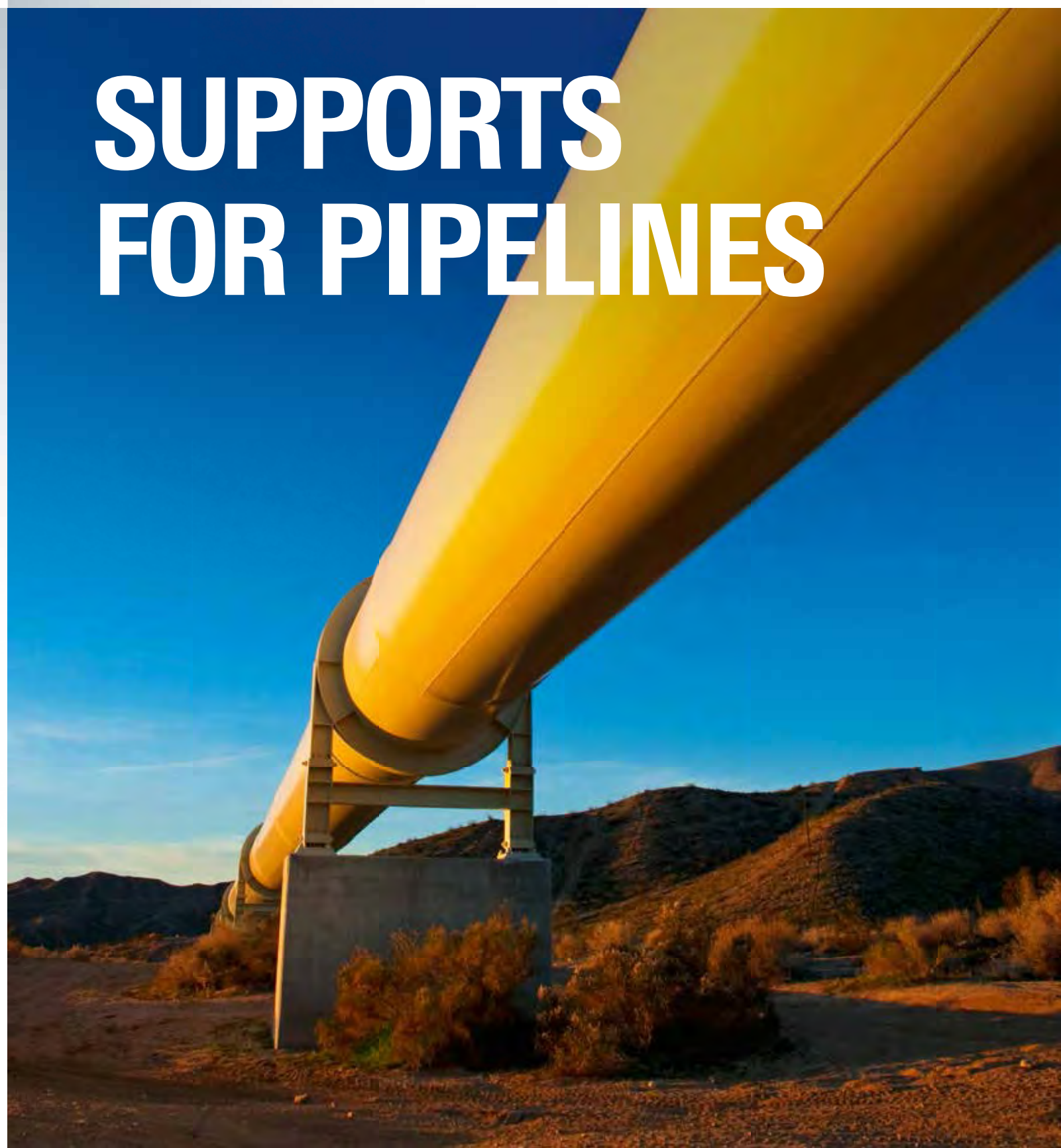
Greizer Str. 38  
08412 Werdau, Germany  
Phone +49 3761 451-93  
Fax +49 3761 451-26  
info@witzmann-sachsen.de  
www.witzenmann-sachsen.de



**WITZENMANN**

managing flexibility

# SUPPORTS FOR PIPELINES





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|                               |   |    |
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| <hr/>                         |   |    |



# HYDRA® MOVABLE, ROLLER AND FIXED SUPPORTS



HYDRA movable, roller and fixed support for industrial pipeline construction are a main aspect of production at Witzenmann Sachsen. The customers for these products are drawn above all from heavy industry, major chemical and petrochemical plants as well as the entire plant engineering and construction industry. In close cooperation with customers, special support series are adapted to the modified requirements of new plants. The international technology association of Witzenmann Sachsen within the Witzenmann Group creates both economic and innovative product solutions that help to set the global standard time and time again.

## **The technical features of the HYDRA support range at a glance**

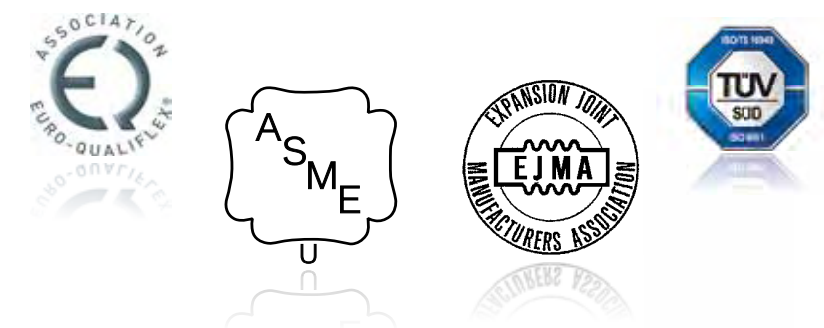
- From DN 15
- Temperatures up to 300 °C or up to 650 °C
- For non-insulated, thermally insulated or pre-insulated pipelines
- Movable support, guide support, guides, fixed support, roller supports

- Guide support with clampable system or weldable guide
- Fixed support clampable or bolting-on
- Clampable for carrier width 80 to 300 mm and support base thicknesses 7 to 19 mm
- Clampable on T, U or L-carrier
- 1-clamp and 2-clamp version
- Low-friction version with polyamide sliding plate or version steel to steel sliding or version with stainless steel sliding plate and sliding element PTFE
- Versions of 3 to 4 fixed overall heights and in 3 height adjustment ranges
- Roller support maintenance-free



# QUALITY BY WITZENMANN

Converting our prominent development expertise perfectly into customised product solutions that fulfil the highest requirements - this is our standard.



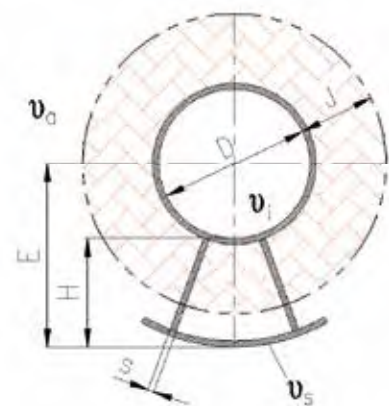
Durability and absolute operational reliability are essential for a company aiming to be the quality leader. It is not only DIN ISO 9001 / TS 16949 certification, but also a wide variety of national and international approvals and certifications such as VDA 6.1, J'ATEX (94/9 CE) or DESP (97/23 CE) that constitute "HYDRA - Quality by Witzmann". Our customers include major companies involved in petrochemicals, industry and plant engineering and construction, power plant operators and suppliers in the energy sector. This is reason enough for us to consistently enhance the qualitative development of our product solutions.

#### Spin-off effects from other markets

Witzmann is involved in many highly specialised markets. These include, for instance, aerospace, nuclear power and even medical technology. These are all fields in which maximum functional reliability is required under demanding operating conditions. This is one of the coefficients which, thanks to our multi-faceted expertise, makes us an in-demand development partner around the world. The FLEXPERTE software we have developed provides the specialist planner with a simple way of configuring supports, hangers and supports, all the way through to a 3D-CAD presentation. It is compatible with all common planning tools via PDS and PDMS interfaces.



# TECHNICAL DATA



## Temperature influences

### Temperature at the outer insulating support / lower edge of support (contact diameter)

Support temperature (outside) in °C

$$\vartheta_s = C_1 \cdot (\chi \cdot \vartheta_i + (1 - \chi) \cdot \vartheta_a)$$

$$\vartheta_L = C_1 \cdot C_2 \cdot (\chi \cdot \vartheta_i + (1 - \chi) \cdot \vartheta_a)$$

with

Correction coefficient  $C_1$

$C_1 = 1.0$  for continuous webs

$C_1 = 0.7$  for interrupted webs

Medium temperature  $\vartheta_i$  in °C

Ambient temperature  $\vartheta_a$  in °C

Correction coefficient  $C_2$

$$C_2 = 1 - \left( \frac{H - J}{H} \right)^3$$

Temperature coefficient  $\chi$  (a) from diagram

$$a_{\text{calliper}} = \frac{D_A \cdot J}{4000 \cdot s}$$

$$a_{\text{support}} = \frac{D_A \cdot J}{4000 \cdot s}$$

with

Contact diameter  $D_A$  in mm

Thickness of root face

(insulation thickness)  $J$  in mm

Width of root face  $s$  in mm

$$D_A = D + 2 \cdot J$$

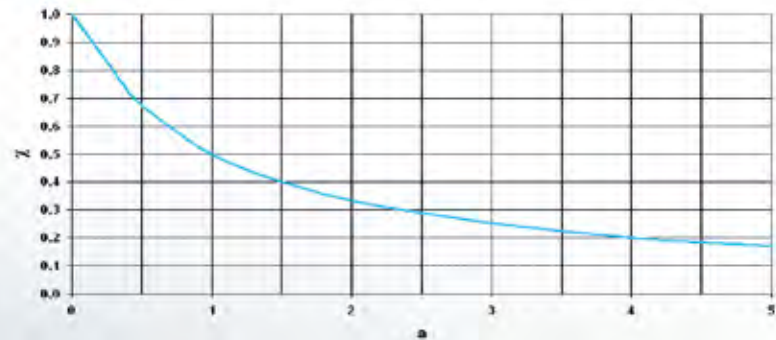
### Temperature on the support bushes of the roller support

Support temperature in °C

$$\vartheta_R = \frac{1}{3} (2 \cdot \vartheta_s + \vartheta_a)$$

For determining the correction coefficient  $K_\vartheta$  and thus the permitted loads on the roller support

Temperature coefficient  $\chi$



# REDUCTION COEFFICIENTS

## Nominal loads and coefficient

For simplification, HYDRA products are designed acc. to nominal loads. Adaptation to the real operating conditions, nominal loads is performed using temperature and material-dependent correction coefficient  $K_\vartheta$  by means of loads.

When a clamping system is used, the permitted loads of the clamping system must be taken into account.

## Nominal load $F_N$

Permitted load at 20 °C and S235JR

## Load $F_t$

Permitted load at design temperature and selected material

## Nominal load $F_s$

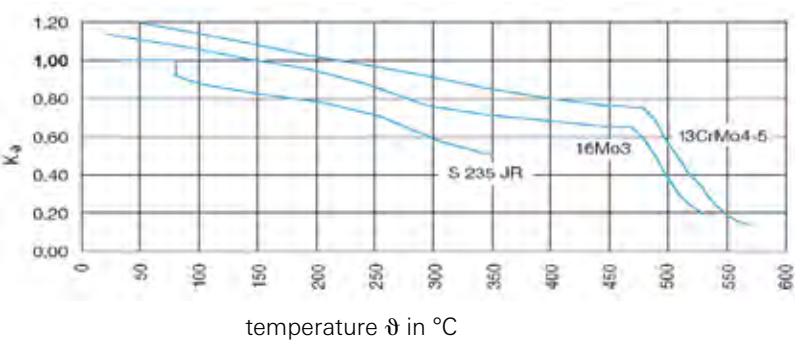
Existing load from pipe statics

## Condition

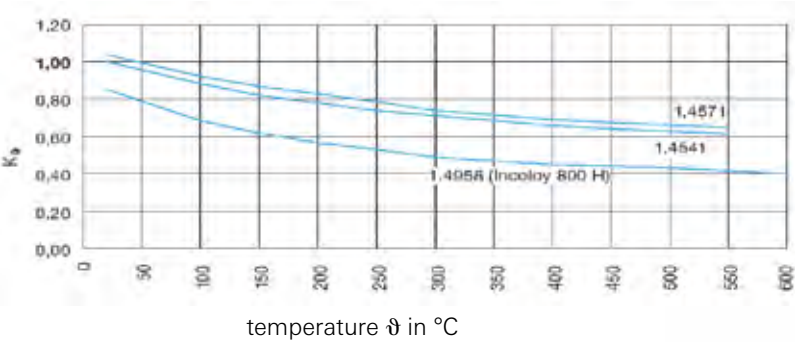
$$F_s \leq F_t = F_N \times K_\vartheta$$

## Correction coefficient $K_\vartheta$ / temperature-dependent

### Correction coefficient $K_\vartheta$ for ferritic materials



### Correction coefficient $K_\vartheta$ for austenitic materials



|                |                       | Correction coefficient $K_\vartheta$ from ferritic and martensitic materials |            |   |      |        |      |       |      |      |      |        |        |        |        |      |        |      |      |
|----------------|-----------------------|--|------------|---|------|--------|------|-------|------|------|------|--------|--------|--------|--------|------|--------|------|------|
| Number acc. to | Material Name acc. to | Upper limit temperature acc. to  |            | Correction coefficient $K_\vartheta$    |      |        |      |       |      |      |      |        |        |        |        |      |        |      |      |
|                |                       | VGB-R510L  | DIN EN, WB | Component temperature $\vartheta$ in °C |      |        |      |       |      |      |      |        |        |        |        |      |        |      |      |
|                |                       |  |            | 100                                     | 200  | 250    | 300  | 350   | 400  | 450  | 480  | 500    | 520    | 540    | 560    | 580  | 600    | 630  | 650  |
| 1.0038         | S235JR                | 350  | 350        | 0.88                                    | 0.79 | 0.71   | 0.58 | (0.5) |      |      |      |        |        |        |        |      |        |      |      |
| 1.5415         | 16Mo3                 | 500  | 530        |   |      | (0.87) | 0.76 | 0.72  | 0.68 | 0.65 | 0.60 | 0.39   | (0.25) |        |        |      |        |      |      |
| 1.7335         | 13CrMo4-5             | 530  | 570        |   |      |        | 0.85 | 0.8   | 0.76 | 0.75 |      | 0.58   | 0.40   | (0.25) | (0.17) |      |        |      |      |
| 1.7380         | 10CrMo9-10            | 580  | 600        |   |      |        |      |       |      |      |      | (0.57) | 0.43   | 0.33   | 0.24   | 0.18 | (0.14) |      |      |
| 1.4903         | X10CrMo-VNb9-1 (P91)  | > 580  | 650        |   |      |        |      |       |      |      |      |        | (0.91) | 0.76   | 0.62   | 0.49 | 0.38   | 0.25 | 0.19 |

|        |                        | Correction coefficient $K_\vartheta$ from austenitic materials |                   |   |      |      |      |      |      |                   |                   |      |      |      |      |      |      |  |  |
|--------|------------------------|--|-------------------|---|------|------|------|------|------|-------------------|-------------------|------|------|------|------|------|------|--|--|
|        |                        | in °C  |                   | Component temperature $\vartheta$ in °C |      |      |      |      |      |                   |                   |      |      |      |      |      |      |  |  |
|        |                        |  |                   | 50                                      | 100  | 150  | 200  | 300  | 400  | 500 <sup>1)</sup> | 550 <sup>1)</sup> | 580  | 590  | 600  | 610  | 630  | 650  |  |  |
|        |                        |  |                   |   |      |      |      |      |      |                   |                   |      |      |      |      |      |      |  |  |
| 1.4541 | X6CrNiTi18-10          | >580   | 550               | 0.94                                    | 0.88 | 0.82 | 0.78 | 0.71 | 0.66 | 0.63              | 0.62              |      |      |      |      |      |      |  |  |
| 1.4571 | X6CrNiTi-Mo17-12-2     | >580   | 550               | 1.0                                     | 0.92 | 0.87 | 0.83 | 0.74 | 0.69 | 0.67              | 0.66              |      |      |      |      |      |      |  |  |
| 1.4958 | X5NiCrAlTi31-20 (800A) |  | 900 <sup>2)</sup> |   |      |      |      |      |      | 0.42              | 0.40              | 0.40 | 0.40 | 0.40 | 0.40 | 0.38 | 0.32 |  |  |

1) For temperatures above > 400 °C, another bolting material must be used. Consequently the temperature information must be provided with the order.  
2) Due to lack of bolting materials, only upon request at temperatures above 650 °C.



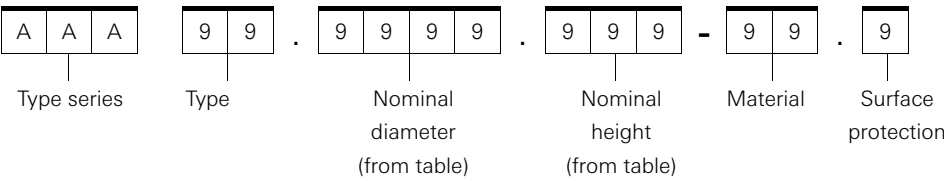
# HYDRA® MOVABLE SUPPORT



## HYDRA® MOVABLE SUPPORT

Type series, names, variants

Type designation (example)



HYDRA type series

|     |  |
|-----|--|
| LKL | Movable support with PA sliding plate, low-friction sliding                              |
| LSL | Movable support without sliding plate, steel to steel sliding                            |
| LXL | Movable support with stainless steel sliding plate                                       |
| LVS | Movable support without sliding plate, steel to steel sliding, height-adjustable         |
| LVL | Movable support with PA sliding plate, low-friction sliding, height-adjustable           |
| IKL | Movable support with PA sliding plate, low-friction sliding, for pre-insulated pipelines |

Type

| Characteristic | Types                                   |
|----------------|---|
| 20             | T-shaped, base width 80 mm, 1 clamp     |
| 21             | T-shaped, base width 80 mm, 2-clamp     |
| 22             | T-shaped, base width 100 mm, 2-clamp    |
| 23             | Box-shaped base, 2-clamp                |
| 24             | Box-shaped base, heavy version, 2-clamp |

Material

| Name                   |        | Characteristic | max. medium temp* acc. to VGB R510L in °C |
|------------------------|--------|----------------|---|
| S235JRG2               | 1.0038 | 37             | 300 (standard)                            |
| 16Mo3                  | 1.5415 | 16             | 500                                       |
| 13CrMo4-5              | 1.7335 | 13             | 530                                       |
| 10CrMo9-10             | 1.7380 | 10             | 580                                       |
| X6CrNiTi18-10          | 1.4541 | 41             | 550                                       |
| X6CrNiMoTi17-12-2      | 1.4571 | 71             | 550                                       |
| X10CrMoVNb9-1          | 1.4903 | 91             | 650                                       |
| X5NiCrAlTi31-20 (800A) | 1.4958 | 80             | 650                                       |
| others                 | -      | 99             | -   |

\* Reduction coefficients see page 9  
\*max. temperature on polyamide sliding plate 90° C

Surface protection

| Name               | Characteristic |
|--------------------|----------------|
| Unthreatened       | 0              |
| Galvanized         | 1              |
| Hot-dip galvanized | 2 (standard)   |
| Primed             | 3              |
| Special            | 4              |



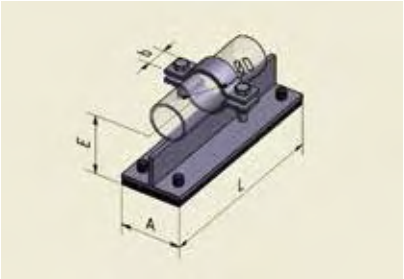
HYDRA® MOVABLE SUPPORT

Type series LKL and LSL, type 20 and 21,  
low overall height, up to 95 °C, fixed height, steel to steel or low-friction sliding

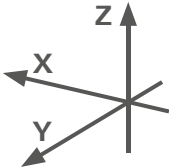
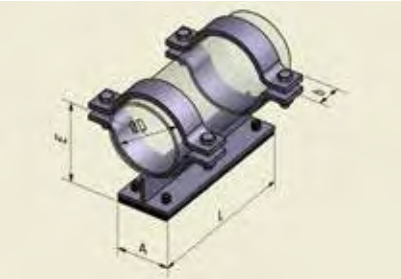
Technical data

- 1 and 2-clamp, clampable
- Nominal height H = 60 mm  
(for non-insulated pipelines)
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficients of friction:  
Friction for formation LKL PA and steel hot-dip galvanized:  
0.2 to 0.3
- Support base thicknesses for clamping system:  
LKL 16 mm  
LSL 8 mm

Type 20



Type 21



Differences in the type series:

Type series LKL – with clamped polyamide sliding plate

Type series LSL – steel to steel sliding (H and E dimension 8 mm lower than LKL)

Order example: LKL 21.0080.060-37.2

Type 21, nominal diameter 80, nominal height 60 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LKL ...<br>Type LSL ... | Nominal loads <sup>2)</sup> |                 |                | System dimension LKL |                          | Dimensions |     |    | Weight  |
|------------------|-----------------------|------------------------------|-----------------------------|-----------------|----------------|----------------------|--------------------------|------------|-----|----|---------|
|                  |                       |                              | -F <sub>z</sub>             | +F <sub>z</sub> | F <sub>x</sub> | Nominal height H     | Installation dimension E | A          | L   | b  |         |
| DN               | D                     |                              | kN                          | kN              | kN             | mm                   | mm                       | mm         | mm  | mm | approx. |
| -                | mm                    |                              | 5,3                         | 2               | 4              | 60                   | 69                       | 82         | 250 | 25 | 2       |
| 15               | 21.3                  | 20.0015. ... <sup>1)</sup>   |                             |                 |                |                      | 71                       |            |     |    |         |
| 20               | 26.9                  | 20.0020. ... <sup>1)</sup>   |                             |                 |                |                      | 76                       |            |     |    |         |
| 25               | 33.7                  | 20.0025. ... <sup>1)</sup>   | 5,3                         | 3               | 4              | 60                   | 80                       | 82         | 250 | 30 | 2       |
| 32               | 42.4                  | 20.0032. ... <sup>1)</sup>   |                             |                 |                |                      | 83                       |            |     |    |         |
| 40               | 48.3                  | 20.0040. ... <sup>1)</sup>   |                             |                 |                |                      | 90                       |            |     |    |         |
| 50               | 60.3                  | 21.0050. ... <sup>1)</sup>   | 19                          | 14              | 7,3            | 60                   | 98                       | 82         | 250 | 40 | 3       |
| 65               | 76.1                  | 21.0065. ... <sup>1)</sup>   | 18                          |                 |                |                      | 104                      |            |     |    |         |
| 80               | 88.9                  | 21.0080. ... <sup>1)</sup>   | 17                          |                 |                |                      | 117                      |            |     |    |         |
| 100              | 114.3                 | 21.0100. ... <sup>1)</sup>   | 15                          | 15              | 5,6            | 60                   | 130                      | 82         | 250 | 40 | 5       |
| 125              | 139.7                 | 21.0125. ... <sup>1)</sup>   | 13                          | 13              | 5              |                      | 144                      |            |     |    |         |
| 150              | 168.3                 | 21.0150. ... <sup>1)</sup>   | 12                          | 12              | 4,6            |                      |                          |            |     |    |         |

1) Add nominal heights and the characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C

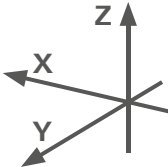
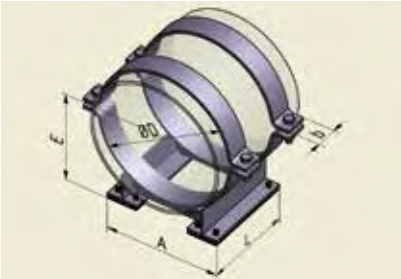
HYDRA® MOVABLE SUPPORT

Type series LKL and LSL, type 23,  
low overall height, up to 95 °C, fixed height, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Nominal height H = 60 mm  
(for non-insulated pipelines)
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKL)
- Surface protection: steel components hot-dip galvanized
- Coefficient of friction:  
Sliding pairing LKL PA steel hot-dip galvanized: 0.2 to 0.3
- Support base thicknesses for clamping system:  
LKL 16 mm  
LSL 8 mm

Type 23



Differences in the type series:

Type series LKL – with clamped polyamide sliding plate

Type series LSL – steel to steel sliding (H and E dimension 8 mm lower than LKL)

Order example: LKL 23.0150.060-37.2

Type 23, nominal diameter 150, nominal height 60 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LKL ...<br>Type LSL ... | Nominal loads <sup>2)</sup> |                 |                | System dimension LKL |                          | Dimensions |     |    | Weight  |
|------------------|-----------------------|------------------------------|-----------------------------|-----------------|----------------|----------------------|--------------------------|------------|-----|----|---------|
|                  |                       |                              | -F <sub>z</sub>             | +F <sub>z</sub> | F <sub>x</sub> | Nominal height H     | Installation dimension E | A          | L   | b  |         |
| DN               | D                     |                              | kN                          | kN              | kN             | mm                   | mm                       | mm         | mm  | mm | approx. |
| -                | mm                    |                              | 74                          | 20              | 47             | 60                   | 117                      | 203        | 250 | 40 | 7       |
| 100              | 114.3                 | 23.0100. ... <sup>1)</sup>   |                             |                 |                |                      | 130                      |            |     | 40 | 8       |
| 125              | 139.7                 | 23.0125. ... <sup>1)</sup>   |                             |                 |                |                      | 144                      |            |     | 40 | 8       |
| 150              | 168.3                 | 23.0150. ... <sup>1)</sup>   | 80                          | 20              | 45             | 60                   | 170                      | 262        | 250 | 50 | 10      |
| 200              | 219.1                 | 23.0200. ... <sup>1)</sup>   | 102                         |                 |                |                      | 197                      |            |     | 50 | 11      |
| 250              | 273.0                 | 23.0250. ... <sup>1)</sup>   | 115                         |                 |                |                      | 222                      |            |     | 50 | 12      |
| 300              | 323.9                 | 23.0300. ... <sup>1)</sup>   | 127                         | 20              | 77             | 60                   | 238                      | 304        | 250 | 60 | 15      |
| 350              | 355.6                 | 23.0350. ... <sup>1)</sup>   | 127                         | 20              | 77             |                      | 263                      |            |     | 60 | 16      |
| 400              | 406.4                 | 23.0400. ... <sup>1)</sup>   | 170                         | 25              | 103            |                      | 289                      |            |     | 60 | 17      |
| 450              | 457.0                 | 23.0450. ... <sup>1)</sup>   | 170                         | 25              | 103            | 60                   | 314                      | 357        | 250 | 70 | 25      |
| 500              | 508.0                 | 23.0500. ... <sup>1)</sup>   |                             |                 |                |                      | 365                      |            |     | 70 | 29      |
| 600              | 610.0                 | 23.0600. ... <sup>1)</sup>   |                             |                 |                |                      |                          |            |     |    |         |

1) Add nominal heights and the characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C



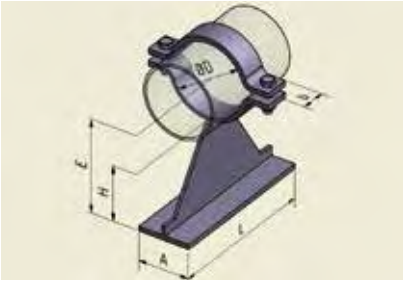
HYDRA® MOVABLE SUPPORT

Type series LKL, LSL and LXL, type 20,  
up to 300 °C, fixed height, steel to steel or low-friction sliding


**Technical data**

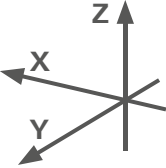
- 1-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKL)  
Sliding plate: Stainless steel (LXL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficients of friction:  
Sliding pairing LKL PA steel hot-dip galvanized: 0.2 to 0.3  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)
- Support base thicknesses for clamping system:  
LKL 17 mm  
LSL with nominal height 85 and 190: 9 mm  
LSL with nominal height 140: 7.4 mm

**Type 20**



**Type series LKL**





**Differences in the type series:**  
**Type series LKL – with clamped polyamide sliding plate**  
**Type series LSL – steel to steel sliding (E dimension 8 mm lower than LKL)**  
**Type series LXL – with welded stainless steel sliding plate (E dimension 5 mm lower than LSL)**

**Order example: LKL 20.0080.150-37.2**  
Type 20, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LKL ...<br>Type LSL ...<br>Type LXL ... | Nominal loads <sup>2)</sup> and system dimensions |     |                 |     |                 |     | Dimensions |     |    | Weight  |
|------------------|-----------------------|--|---|-----|-----------------|-----|-----------------|-----|------------|-----|----|---------|
|                  |                       |  | Nominal height H                                  |     |                 |     |                 |     |            |     |    |         |
|                  |                       |  | 95  |     | 150             |     | 200             |     |            |     |    |         |
|                  |                       |  | 85  |     | 140             |     | 190             |     |            |     |    |         |
|                  |                       |  | 88  |     | 143             |     | 193             |     |            |     |    |         |
| DN               | D                     |  | -F <sub>z</sub>                                   | E   | -F <sub>z</sub> | E   | -F <sub>z</sub> | E   | A          | L   | b  | approx. |
| -                | mm                    |  | kN  | mm  | kN              | mm  | kN              | mm  | mm         | mm  | mm | kg      |
| 15               | 21.3                  | 20.0015 . ... <sup>1)</sup>                  | 5,3   | 103 | 2,6             | 159 | 2,6             | 209 | 80         | 250 | 25 | 3       |
| 20               | 26.9                  | 20.0020 . ... <sup>1)</sup>                  |   | 105 |                 | 161 |                 | 211 |            |     |    |         |
| 25               | 33.7                  | 20.0025 . ... <sup>1)</sup>                  | 5,3   | 110 | 2,6             | 166 | 2,6             | 216 | 80         | 250 | 30 | 3       |
| 32               | 42.4                  | 20.0032 . ... <sup>1)</sup>                  |   | 114 |                 | 170 |                 | 220 |            |     |    |         |
| 40               | 48.3                  | 20.0040 . ... <sup>1)</sup>                  |   | 117 |                 | 173 |                 | 223 |            |     |    |         |
| 50               | 60.3                  | 20.0050 . ... <sup>1)</sup>                  | 7,9   | 124 | 2,6             | 180 | 2,6             | 230 | 80         | 250 | 40 | 4       |
| 65               | 76.1                  | 20.0065 . ... <sup>1)</sup>                  |   | 132 |                 | 188 |                 | 238 |            |     |    |         |
| 80               | 88.9                  | 20.0080 . ... <sup>1)</sup>                  |   | 138 |                 | 194 |                 | 244 |            |     |    |         |
| 100              | 114.3                 | 20.0100 . ... <sup>1)</sup>                  | 7,9   | 153 | 2,1             | 209 | -               | -   | 80         | 250 | 40 | 4       |
| 125              | 139.7                 | 20.0125 . ... <sup>1)</sup>                  |   | 166 |                 | 222 |                 | -   |            |     |    |         |
| 150              | 168.3                 | 20.0150 . ... <sup>1)</sup>                  |   | 180 |                 | 236 |                 | -   |            |     |    |         |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80° C

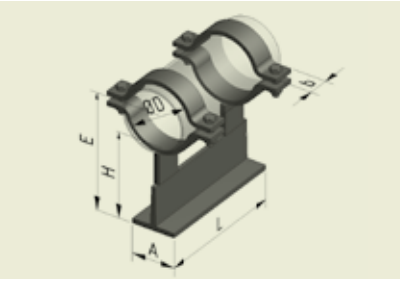
HYDRA® MOVABLE SUPPORT

Type series LKL, LSL and LXL, type 21 and 22,  
up to 300 °C, fixed height, steel to steel or low-friction sliding


**Technical data**

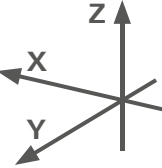
- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKL)  
Sliding plate: Stainless steel (LXL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficients of friction:  
Sliding pairing LKL PA steel hot-dip galvanized: 0.2 to 0.3  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)
- Support base thicknesses for clamping system:  
LKL 21: 17 mm    LKL 22: 19 mm  
LSL 21: 9 mm    LSL 22: 11 mm

**Type 21 and 22**



**Type series LKL**





**Differences in the type series:**  
**Type series LKL – with clamped polyamide sliding plate**  
**Type series LSL – steel to steel sliding (E dimension 8 mm lower than LKL)**  
**Type series LXL – with welded stainless steel sliding plate (E dimension 5 mm lower than LSL)**

**Order example: LKL 21.0080.150-37.2**  
Type 21, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LKL ...<br>Type LSL ...<br>Type LXL ... | Nominal loads <sup>2)</sup> and system dimensions |     |                 |     |                 |     |                 |     | Dimensions                |     |    | Weight  |
|------------------|-----------------------|--|---|-----|-----------------|-----|-----------------|-----|-----------------|-----|---------------------------|-----|----|---------|
|                  |                       |  | Nominal height H                                  |     |                 |     |                 |     |                 |     |                           |     |    |         |
|                  |                       |  | 95  |     | 115             |     | 150             |     | 200             |     |                           |     |    |         |
|                  |                       |  | 85  |     | 105             |     | 140             |     | 190             |     |                           |     |    |         |
|                  |                       |  | 88  |     | 108             |     | 143             |     | 193             |     |                           |     |    |         |
| DN               | D                     |  | -F <sub>z</sub>                                   | E   | -F <sub>z</sub> | E   | -F <sub>z</sub> | E   | -F <sub>z</sub> | E   | A                         | L   | b  | approx. |
| -                | mm                    |  | kN  | mm  | kN              | mm  | kN              | mm  | kN              | mm  | mm                        | mm  | mm | kg      |
| 15               | 21.3                  | 21.0015 . ... <sup>1)</sup>                  | 11  | 103 | -               | -   | 11              | 159 | 6,1             | 209 | 80                        | 250 | 25 | 4       |
| 20               | 26.9                  | 21.0020 . ... <sup>1)</sup>                  |   | 105 |                 |     |                 | 161 |                 | 211 |                           |     |    |         |
| 25               | 33.7                  | 21.0025 . ... <sup>1)</sup>                  | 16  | 110 | -               | -   | 12              | 166 | 5,5             | 216 | 80                        | 250 | 30 | 5       |
| 32               | 42.4                  | 21.0032 . ... <sup>1)</sup>                  |   | 114 |                 |     |                 | 170 |                 | 220 |                           |     |    |         |
| 40               | 48.3                  | 21.0040 . ... <sup>1)</sup>                  |   | 117 |                 |     |                 | 173 |                 | 223 |                           |     |    |         |
| 50               | 60.3                  | 21.0050 . ... <sup>1)</sup>                  | 19  | 124 | -               | -   | 9,2             | 180 | 5,3             | 230 | 80                        | 250 | 40 | 5       |
| 65               | 76.1                  | 21.0065 . ... <sup>1)</sup>                  | 18  | 132 |                 |     |                 | 188 |                 | 238 |                           |     |    |         |
| 80               | 88.9                  | 21.0080 . ... <sup>1)</sup>                  | 17  | 138 |                 |     |                 | 194 |                 | 244 |                           |     |    |         |
| 100              | 114.3                 | 22.0100 . ... <sup>1)</sup>                  | -   | -   | 5,0             | 172 | 5,0             | 207 | 5,0             | 258 | 100<br>(with H60<br>= 80) | 250 | 40 | 7       |
| 125              | 139.7                 | 22.0125 . ... <sup>1)</sup>                  |   |     | 4,5             | 185 | 4,5             | 220 | 4,5             | 271 |                           |     |    |         |
| 150              | 168.3                 | 22.0150 . ... <sup>1)</sup>                  |   |     | 4,2             | 199 | 4,2             | 234 | 4,2             | 285 |                           |     |    |         |
| 200              | 219.1                 | 22.0200 . ... <sup>1)</sup>                  | -   | -   | 3,7             | 225 | 3,7             | 260 | 3,7             | 311 | 100                       | 250 | 50 | 10      |
| 250              | 273.0                 | 22.0250 . ... <sup>1)</sup>                  |   |     | 3,2             | 252 | 3,2             | 287 | 3,2             | 338 |                           |     |    |         |
| 300              | 323.9                 | 22.0300 . ... <sup>1)</sup>                  |   |     | 2,9             | 277 | 2,9             | 312 | 2,9             | 363 |                           |     |    |         |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80° C



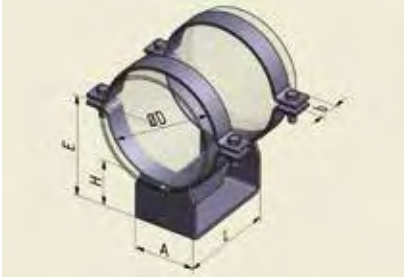
HYDRA® MOVABLE SUPPORT

Type series LKL, LSL and LXL, type 23,  
up to 300 °C, fixed height, steel to steel or low-friction sliding


Technical data

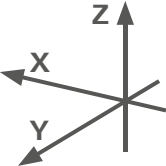
- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKL)  
Sliding plate: Stainless steel (LXL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficients of friction:  
Sliding pairing LKL PA steel hot-dip galvanized: 0.2 to 0.3  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)
- Support base thicknesses for clamping system:  
LKL 18 mm  
LSL 10 mm

Type 23



Type series LKL





Difference in the type series:

- Type series LKL – with clamped polyamide sliding plate
- Type series LSL – steel to steel sliding (E dimension with H=107 8 mm lower than LKL)
- Type series LXL – with welded stainless steel sliding plate (E dimension with H=110 5 mm lower,  
with H = 153, 203 and 253 3 mm higher than LSL)

Order example: LKL 23.0150.150-37.2

Type 23, nominal diameter 150, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Nominal loads <sup>2)</sup> | Type LKL ...<br>Type LSL ...<br>Type LXL ... | System dimensions<br>Installation dimension (nominal height) |     |     |     | Dimensions |     |     | Weight  |
|------------------|-----------------------|-----------------------------|--|--|-----|-----|-----|------------|-----|-----|---------|
|                  |                       |                             |  | 115  | 150 | 200 | -   |            |     |     |         |
|                  |                       |                             |  | 107  | 150 | 200 | 250 |            |     |     |         |
|                  |                       |                             |  | 110  | 153 | 203 | 253 |            |     |     |         |
| DN               | D                     | -F <sub>z</sub>             |  | Installation dimension E                                     |     |     |     | A          | L   | b   | approx. |
| -                | mm                    | kN                          |  | mm   | mm  | mm  | mm  | mm         | mm  | mm  | kg      |
| 100              | 114.3                 | 74                          | 23.0100 ... <sup>1)</sup>                    | 172  | 207 | 257 | 307 | 100        | 290 | 50  | 12      |
| 125              | 139.7                 | 77                          | 23.0125 ... <sup>1)</sup>                    | 185  | 220 | 270 | 320 |            |     |     |         |
| 150              | 168.3                 | 80                          | 23.0150 ... <sup>1)</sup>                    | 199  | 234 | 284 | 334 |            |     |     |         |
| 200              | 219.1                 | 102                         | 23.0200 ... <sup>1)</sup>                    | 225  | 260 | 310 | 360 | 175        | 290 | 50  | 20      |
| 250              | 273.0                 | 115                         | 23.0250 ... <sup>1)</sup>                    | 252  | 287 | 337 | 387 |            |     | 60  | 22      |
| 300              | 323.9                 | 127                         | 23.0300 ... <sup>1)</sup>                    | 277  | 312 | 362 | 412 |            |     | 60  | 23      |
| 350              | 355.6                 | 127                         | 23.0350 ... <sup>1)</sup>                    | 293  | 328 | 378 | 428 |            |     | 60  | 24      |
| 400              | 406.4                 | 170                         | 23.0400 ... <sup>1)</sup>                    | 318  | 353 | 403 | 453 | 250        | 290 | 70  | 37      |
| 450              | 457.0                 |                             | 23.0450 ... <sup>1)</sup>                    | 344  | 379 | 429 | 479 |            |     | 70  | 38      |
| 500              | 508.0                 |                             | 23.0500 ... <sup>1)</sup>                    | 369  | 404 | 454 | 504 |            |     | 70  | 40      |
| 600              | 610.0                 | 170                         | 23.0600 ... <sup>1)</sup>                    | 420  | 455 | 505 | 555 | 250        | 290 | 90  | 48      |
| 700              | 711.0                 |                             | 23.0700 ... <sup>1)</sup>                    | 471  | 506 | 556 | 606 |            |     | 90  | 52      |
| 800              | 814.0                 |                             | 23.0800 ... <sup>1)</sup>                    | 522  | 557 | 607 | 657 |            |     | 100 | 72      |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80° C

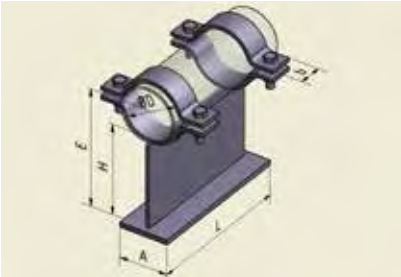
HYDRA® MOVABLE SUPPORT

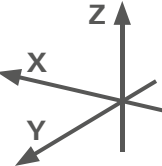
Type series LSL and LXL, type 21 and 22,  
up to 600 °C, fixed height, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent - see pg. 9  
Sliding plate: Stainless steel (LXL)
- Surface protection: steel parts unthreaded, primed
- Coefficients of friction:  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)
- Support base thicknesses for clamping system:  
LSL 8 mm

Type 21 and 22





Differences in the type series:

- Type series LSL – steel to steel sliding
- Type series LXL – with welded stainless steel sliding plate (E dimension 3 mm higher than LSL)

Order example LSL 21.0080.150-16.0

Type 21, nominal diameter 80, nominal height 150 mm 16Mo3, unthreaded

| Nominal diameter | Outside pipe diameter | Type LSL ...<br>Type LXL ... | Nominal loads <sup>2)</sup> and system dimensions |     |                 |     |                 |     | Dimensions |     |    | Weight  |
|------------------|-----------------------|------------------------------|---|-----|-----------------|-----|-----------------|-----|------------|-----|----|---------|
|                  |                       |                              | Nominal height H                                  |     |                 |     |                 |     |            |     |    |         |
|                  |                       |                              | 150   |     | 200             |     | 250             |     |            |     |    |         |
|                  |                       |                              | 153   |     | 203             |     | 253             |     |            |     |    |         |
| DN               | D                     |                              | -F <sub>z</sub>                                   | E   | -F <sub>z</sub> | E   | -F <sub>z</sub> | E   | A          | L   | b  | approx. |
| -                | mm                    |                              | kN  | mm  | kN              | mm  | kN              | mm  | mm         | mm  | mm | kg      |
| 15               | 21,3                  | 21.0015 . ... <sup>1)</sup>  | 5.5   | 160 | 5.0             | 210 | 4.0             | 260 | 80         | 250 | 30 | 4       |
| 20               | 26,9                  | 21.0020 . ... <sup>1)</sup>  |   | 162 |                 | 212 |                 | 262 |            |     | 30 | 4       |
| 25               | 33,7                  | 21.0025 . ... <sup>1)</sup>  |   | 166 |                 | 216 |                 | 266 |            |     | 30 | 4       |
| 32               | 42,4                  | 21.0032 . ... <sup>1)</sup>  |   | 170 |                 | 220 |                 | 270 |            |     | 30 | 4       |
| 40               | 48.3                  | 21.0040 . ... <sup>1)</sup>  |   | 173 |                 | 223 |                 | 273 |            |     | 30 | 4       |
| 50               | 60.3                  | 21.0050 . ... <sup>1)</sup>  |   | 180 |                 | 230 |                 | 280 |            |     | 40 | 5       |
| 65               | 76.1                  | 21.0065 . ... <sup>1)</sup>  |   | 188 |                 | 238 |                 | 288 |            |     | 40 | 5       |
| 80               | 88.9                  | 21.0080 . ... <sup>1)</sup>  |   | 194 |                 | 244 | 294             |     |            | 40  | 5  |         |
| 100              | 114.3                 | 22.0100 . ... <sup>1)</sup>  | 6.8   | 207 | 5.8             | 257 | 4.8             | 307 | 100        | 250 | 50 | 8       |
| 125              | 139.7                 | 22.0125 . ... <sup>1)</sup>  |   | 220 |                 | 270 |                 | 320 |            |     |    | 9       |
| 150              | 168.3                 | 22.0150 . ... <sup>1)</sup>  |   | 234 |                 | 284 |                 | 334 |            |     |    | 9       |
| 200              | 219.1                 | 22.0200 . ... <sup>1)</sup>  | 6.8   | 260 | 5.8             | 310 | 4.8             | 360 | 100        | 250 | 50 | 10      |
| 250              | 273.0                 | 22.0250 . ... <sup>1)</sup>  |   | 287 |                 | 337 |                 | 387 |            |     |    | 13      |
| 300              | 323.9                 | 22.0300 . ... <sup>1)</sup>  |   | 312 |                 | 362 |                 | 412 |            |     |    | 15      |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from 16Mo3 and temperatures up to 150° C



HYDRA® MOVABLE SUPPORT

Type series LSL and LXL, type 23,  
up to 600 °C, fixed height, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent - see pg. 9  
Sliding plate: Stainless steel (LXL)
- Surface protection: steel parts unthreaded, primed
- Coefficients of friction:  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)
- Support base thicknesses for clamping system:  
LSL 10 mm

Differences in the type series:

Type series LSL – steel to steel sliding

Type series LXL – with welded stainless steel sliding plate (E dimension 3 mm higher than LSL)

Order example LSL 23.0200.150-16.0

Type 23, nominal diameter 200, nominal height 150 mm, 16Mo3, unthreaded

| Nominal diameter | Outside pipe diameter | Nominal loads <sup>2)</sup> | Type LSL ...<br>Type LXL ... | System dimensions<br>Installation dimension (nominal height) |     |     | Dimensions |     |     | Weight |
|------------------|-----------------------|-----------------------------|------------------------------|--|-----|-----|------------|-----|-----|--------|
|                  |                       |                             |                              | 150  | 200 | 250 |            |     |     |        |
|                  |                       |                             |                              | 103  | 203 | 253 |            |     |     |        |
|                  |                       |                             |                              | Installation dimension E                                     |     |     |            |     |     |        |
| DN               | D                     | -F <sub>Z</sub>             |                              | A  | L   | b   | approx.    |     |     |        |
| -                | mm                    | kN                          |                              | mm   | mm  | mm  | kg         |     |     |        |
| 100              | 114.3                 | 74                          | 23.0100 ... <sup>1)</sup>    | 207  | 257 | 307 | 100        | 290 | 50  | 12     |
| 125              | 139.7                 | 77                          | 23.0125 ... <sup>1)</sup>    | 220  | 270 | 320 |            |     |     |        |
| 150              | 168.3                 | 80                          | 23.0150 ... <sup>1)</sup>    | 234  | 284 | 334 |            |     |     |        |
| 200              | 219.1                 | 102                         | 23.0200 ... <sup>1)</sup>    | 260  | 310 | 360 | 175        | 290 | 50  | 20     |
| 250              | 273.0                 | 115                         | 23.0250 ... <sup>1)</sup>    | 287  | 337 | 387 |            |     | 60  | 22     |
| 300              | 323.9                 | 127                         | 23.0300 ... <sup>1)</sup>    | 312  | 362 | 412 |            |     | 60  | 23     |
| 350              | 355.6                 | 127                         | 23.0350 ... <sup>1)</sup>    | 328  | 378 | 428 |            |     | 60  | 24     |
| 400              | 406.4                 | 170                         | 23.0400 ... <sup>1)</sup>    | 353  | 403 | 453 | 250        | 290 | 70  | 37     |
| 450              | 457.0                 |                             | 23.0450 ... <sup>1)</sup>    | 379  | 429 | 479 |            |     | 70  | 38     |
| 500              | 508.0                 |                             | 23.0500 ... <sup>1)</sup>    | 404  | 454 | 504 |            |     | 70  | 40     |
| 600              | 610.0                 | 170                         | 23.0600 ... <sup>1)</sup>    | 455  | 505 | 555 | 250        | 290 | 90  | 48     |
| 700              | 711.0                 |                             | 23.0700 ... <sup>1)</sup>    | 506  | 556 | 606 |            |     | 90  | 52     |
| 800              | 814.0                 |                             | 23.0800 ... <sup>1)</sup>    | 557  | 607 | 657 |            |     | 100 | 72     |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from 16Mo3 and temperatures up to 150° C

HYDRA® MOVABLE SUPPORT

Type series LSL and LXL, type 24,  
up to 600 °C, fixed height, heavy version, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent - see pg. 9  
Sliding plate: Stainless steel (LXL)
- Surface protection: steel parts hot-dip galvanized, unthreaded, primed
- Coefficients of friction:  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)
- Support base thicknesses for clamping system:  
LSL DN<=350: 8 mm  
LSL DN>350: 10 mm  
LSL DN>800: 15 mm

Differences in the type series:

Type series LSL – steel to steel sliding

Type series LXL – with welded stainless steel sliding plate (E dimension 3 mm higher than LSL)

Order example LSL 24.0500.200-37.2

Type 24, nominal diameter 500, nominal height 200 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Nominal loads <sup>2)</sup> | Type LSL ...<br>Type LXL ... | System dimensions<br>Installation dimension (nominal height) |     |     |         | Dimensions |     |     | Weight |
|------------------|-----------------------|-----------------------------|------------------------------|--|-----|-----|---------|------------|-----|-----|--------|
|                  |                       |                             |                              | 150  | 200 | 250 | 300     |            |     |     |        |
|                  |                       |                             |                              | 153  | 203 | 253 | 303     |            |     |     |        |
|                  |                       |                             |                              | Installation dimension E                                     |     |     |         |            |     |     |        |
| DN               | D                     | -F <sub>Z</sub>             |                              | A  | L   | b   | approx. |            |     |     |        |
| -                | mm                    | kN                          | mm                           | mm   | mm  | mm  | kg      |            |     |     |        |
| 150              | 168.3                 | 100                         | 24.0150 ... <sup>1)</sup>    | 234  | 284 | 334 | -       | 120        | 250 | 50  | 14     |
| 200              | 219.1                 |                             | 24.0200 ... <sup>1)</sup>    | 260  | 310 | 360 | -       | 150        |     |     | 16     |
| 250              | 273.0                 |                             | 24.0250 ... <sup>1)</sup>    | 287  | 337 | 387 | -       | 180        | 250 | 60  | 20     |
| 300              | 323.9                 | 24.0300 ... <sup>1)</sup>   | 312                          | 362  | 412 | -   | 210     | 23         |     |     |        |
| 350              | 355.6                 | 24.0350 ... <sup>1)</sup>   | 328                          | 378  | 428 | -   | 220     | 24         |     |     |        |
| 400              | 406.4                 | 235                         | 24.0400 ... <sup>1)</sup>    | 353  | 403 | 453 | -       | 270        | 330 | 70  | 41     |
| 450              | 457.0                 |                             | 24.0450 ... <sup>1)</sup>    | 379  | 429 | 479 | -       | 270        |     |     | 43     |
| 500              | 508.0                 |                             | 24.0500 ... <sup>1)</sup>    | 404  | 454 | 504 | -       | 320        |     |     | 48     |
| 600              | 610.0                 | 300                         | 24.0600 ... <sup>1)</sup>    | 455  | 505 | 555 | -       | 370        | 330 | 90  | 64     |
| 700              | 711.0                 |                             | 24.0700 ... <sup>1)</sup>    | 506  | 556 | 606 | -       | 370        |     |     | 68     |
| 800              | 814.0                 | 360                         | 24.0800 ... <sup>1)</sup>    | -  | 607 | 657 | 707     | 420        | 330 | 100 | 109    |
| 900              | 914.0                 |                             | 24.0900 ... <sup>1)</sup>    |  | 657 | 707 | 757     | 420        |     |     | 134    |
| 1000             | 1016.0                | 420                         | 24.1000 ... <sup>1)</sup>    |  | 708 | 758 | 808     | 520        | 330 | 100 | 152    |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C



HYDRA® MOVABLE SUPPORT

Type series LVS and LVL, type 20 and 21,  
up to 300 °C, height-adjustable, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LVL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficient of friction:  
Sliding pairing LVL PA steel hot-dip galvanized: 0.2 to 0.3
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking, adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- Support base thicknesses for clamping system:  
LVL 16 mm  
LVS 8 mm

Type 20

Type 21

LVL

Z

X

Y

Differences in the type series:  
Type series LVL – with polyamide sliding plate  
Type series LVS – steel to steel sliding (H and E dimensions 8 mm less than LVL)

Order example: LVL 20.0080.150-37.2  
Type 20, nominal diameter 80, nominal height 150, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LVL ...<br>Type LVS ... | Nominal loads <sup>2)</sup> and height ranges |                |                 |                |                |                |                |                |                |                | Dimensions     |                |     | Weight |   |         |
|------------------|-----------------------|------------------------------|---|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------|---|---------|
|                  |                       |                              |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
|                  |                       |                              |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
|                  |                       |                              |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
|                  |                       |                              | Type 20                                       |                | Type 21         |                | 20             |                | 21             |                | 20             |                | 21             |                | A   | L      | b | approx. |
|                  |                       |                              | -F <sub>Z</sub>                               | F <sub>Y</sub> | -F <sub>Z</sub> | F <sub>Y</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> |     |        |   |         |
| -                | mm                    | kN                           | kN  | kN             | kN              | kN             | kN             | kN             | kN             | kN             | kN             | mm             | mm             | mm             | kg  |        |   |         |
| 15               | 21.3                  | ...0015 ... <sup>1)</sup>    | 2   | 2              | 6               | 6              | 1.6            | 3.2            | 1.0            | 1.6            | 0.4            | 0.8            | 80             | 25             | 250 | 4      |   |         |
| 20               | 26.9                  | ...0020 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
| 25               | 33.7                  | ...0025 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
| 32               | 42.4                  | ...0032 ... <sup>1)</sup>    | 2   | 2              | 6               | 6              | 1.6            | 3.2            | 1.2            | 1.6            | 0.6            | 0.8            | 80             | 30             | 250 | 4      |   |         |
| 40               | 48.3                  | ...0040 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
| 50               | 60.3                  | ...0050 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
| 65               | 76.1                  | ...0065 ... <sup>1)</sup>    | 3   | 3              | 7               | 7              | 2.4            | 4.0            | 1.4            | 2.4            | 0.6            | 1.2            | 80             | 40             | 250 | 5      |   |         |
| 80               | 88.9                  | ...0080 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
| 100              | 114.3                 | ...0100 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |
| 125              | 139.7                 | ...0125 ... <sup>1)</sup>    | 4   | 4              | 7               | 7              | 2.4            | 4.0            | 1.4            | 2.4            | -              |                | 80             | 40             | 250 | 7      |   |         |
| 150              | 168.3                 | ...0150 ... <sup>1)</sup>    |   |                |                 |                |                |                |                |                |                |                |                |                |     |        |   |         |

1) Add type, nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
F<sub>x</sub>-loads apply to guide support, i.e. support with clamping system from pg. 29

HYDRA® MOVABLE SUPPORT

Type series LVS and LVL, type 22,  
up to 300 °C, height-adjustable, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LVL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficient of friction:  
Sliding pairing LVL PA steel hot-dip galvanized: 0.2 to 0.3
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking, adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- Support base thicknesses for clamping system:  
LVL 16 mm  
LVS 8 mm

Type 22

LVL

Z

X

Y

Differences in the type series:  
Type series LVL – with polyamide sliding plate  
Type series LVS – steel to steel sliding (H and E dimensions 8 mm smaller than LVL)

Order example: LVL 22.0150.150-37.2  
Type 22, nominal diameter 150, nominal height 150, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LVL ...<br>Type LVS ... | Nominal loads <sup>2)</sup> and height ranges |                |                |                |                | Dimensions |     |     | Weight  |   |
|------------------|-----------------------|------------------------------|---|----------------|----------------|----------------|----------------|------------|-----|-----|---------|---|
|                  |                       |                              | Nominal height H                              |                |                |                |                |            |     |     |         |   |
|                  |                       |                              | 100   |                | 150            |                | 200            |            |     |     |         |   |
|                  |                       |                              | 96 - 120                                      |                | 120 - 170      |                | 170 - 215      |            |     |     |         |   |
| DN               | D                     |                              | -F <sub>Z</sub>                               | F <sub>Y</sub> | F <sub>X</sub> | F <sub>X</sub> | F <sub>X</sub> | A          | L   | b   | approx. |   |
| -                | mm                    |                              | kN  | kN             | kN             | kN             | kN             | mm         | mm  | mm  | kg      |   |
| 100              | 114.3                 |                              | 22.0100 . ... <sup>1)</sup>                   | 8              | 8              | 4              | 2.8            | 1.6        | 100 | 40  | 250     | 7 |
| 125              | 139.7                 |                              | 22.0125 . ... <sup>1)</sup>                   |                |                |                |                |            |     |     |         |   |
| 150              | 168.3                 | 22.0150 . ... <sup>1)</sup>  |   |                |                |                |                |            |     |     |         |   |
| 200              | 219.1                 | 22.0200 . ... <sup>1)</sup>  | 9   | 9              | 4              | 2.8            | 1.6            | 100        | 50  | 250 | 11      |   |
| 250              | 273.0                 | 22.0250 . ... <sup>1)</sup>  |   |                |                |                |                |            |     |     |         |   |
| 300              | 323.9                 | 22.0300 . ... <sup>1)</sup>  |   |                |                |                |                |            |     |     |         |   |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
F<sub>x</sub>-loads apply to guide support, i.e. support with clamping system from pg. 29



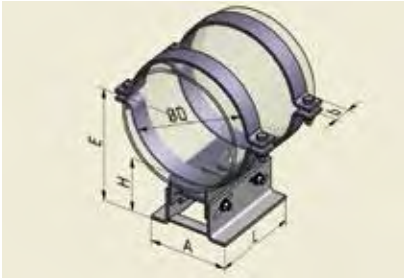
HYDRA® MOVABLE SUPPORT

Type series LVS and LVL, type 23,  
up to 300 °C, height-adjustable, steel to steel or low-friction sliding

**Technical data**

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LVL)
- Surface protection:  
steel components hot-dip galvanized
- Coefficient of friction:  
Sliding pairing LVL PA steel hot-dip galvanized: 0.2 to 0.3
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking, adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- Support base thicknesses for clamping system:  
LVL 16 mm  
LVS 8 mm

**Type 23**



**LVL**





Differences in the type series:

- Type series LVL – with polyamide sliding plate
- Type series LVS – steel to steel sliding (H and E dimensions 8 mm less than LVL)

Order example: LVL 23.0250.150-37.2

Type 23, nominal diameter 250, nominal height 150, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LVL ...<br>Type LVS ... | Nominal loads <sup>2)</sup> and height ranges |                |                |                |                | Dimensions |    |     | Weight  |
|------------------|-----------------------|------------------------------|---|----------------|----------------|----------------|----------------|------------|----|-----|---------|
|                  |                       |                              | Nominal height H                              |                |                |                |                |            |    |     |         |
|                  |                       |                              |   |                | 100            | 150            | 200            |            |    |     |         |
|                  |                       |                              |   |                | 96 - 120       | 120 - 170      | 170 - 215      |            |    |     |         |
| DN               | D                     |                              | -F <sub>z</sub>                               | F <sub>y</sub> | F <sub>x</sub> | F <sub>x</sub> | F <sub>x</sub> | A          | L  | b   | approx. |
| -                | mm                    |                              | kN  | kN             | kN             | kN             | kN             | mm         | mm | mm  | kg      |
| 100              | 114.3                 | 23.0100 . ... <sup>1)</sup>  | 25  | 25             | 5              | 5              | 5              | 175        | 40 | 250 | 11      |
| 125              | 139.7                 | 23.0125 . ... <sup>1)</sup>  |   |                |                |                |                | 175        |    |     |         |
| 150              | 168.3                 | 23.0150 . ... <sup>1)</sup>  |   |                |                |                |                | 190        |    |     |         |
| 200              | 219.1                 | 23.0200 . ... <sup>1)</sup>  | 32  | 32             | 5              | 5              | 5              | 190        | 50 | 250 | 15      |
| 250              | 273.0                 | 23.0250 . ... <sup>1)</sup>  |   |                |                |                |                | 210        |    |     |         |
| 300              | 323.9                 | 23.0300 . ... <sup>1)</sup>  |   |                |                |                |                | 210        |    |     |         |
| 350              | 355.6                 | 23.0350 . ... <sup>1)</sup>  | 32  | 32             | 5              | 5              | 5              | 280        | 60 | 250 | 20      |
| 400              | 406.4                 | 23.0400 . ... <sup>1)</sup>  |   |                |                |                |                | 280        |    |     | 21      |
| 450              | 457.0                 | 23.0450 . ... <sup>1)</sup>  |   |                |                |                |                | 290        |    |     | 22      |
| 500              | 508.0                 | 23.0500 . ... <sup>1)</sup>  | 32  | 32             | 5              | 5              | 5              | 320        | 70 | 250 | 30      |
| 600              | 610.0                 | 23.0600 . ... <sup>1)</sup>  |   |                |                |                |                | 320        |    |     | 34      |

1) Add nominal height and characteristic for material and surface protection

2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C

F<sub>x</sub>-loads apply to guide support, i.e. support with clamping system pg. 29

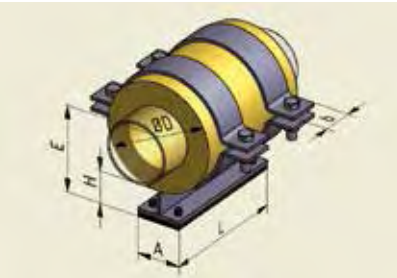
HYDRA® MOVABLE SUPPORT

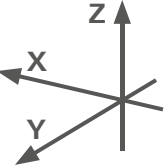
Type series IKL, type 21,  
up to 300 °C, for pre-insulated pipelines, fixed height, low-friction sliding

**Technical data**

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced
- Surface protection: steel components hot-dip galvanized
- Coefficient of friction:  
Sliding pairing PA steel hot-dip galvanized: 0.2 to 0.3
- Support base thicknesses for clamping system:  
IKL 16 mm

**Type 21**





The insulation is not included in the delivery!

Order example: IKL 21.0080.0160-37.2

Type 21, nominal diameter 80, insulation diameter 160 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Insulation pipe diameter | Type IKL ...                     | Nominal loads <sup>2)</sup> |                 |                | Nominal height | Installation dimension | Dimensions |     |    | Weight  |
|------------------|-----------------------|--------------------------|----------------------------------|-----------------------------|-----------------|----------------|----------------|------------------------|------------|-----|----|---------|
| DN               | D                     | DM                       |                                  | -F <sub>z</sub>             | +F <sub>z</sub> | F <sub>x</sub> | H              | E                      | A          | L   | b  | approx. |
| -                | mm                    | mm                       |                                  | kN                          | kN              | kN             | mm             | mm                     | mm         | mm  | mm | kg      |
| 20               | 26.9                  | 90                       | 21.0020.0090 . ... <sup>1)</sup> | 1                           | 1               | 1              | 60             | 105                    | 82         | 250 | 40 | 1.8     |
| 25               | 33.7                  | 90                       | 21.0025.0090 . ... <sup>1)</sup> |                             |                 |                |                | 105                    |            |     |    |         |
| 32               | 42.4                  | 110                      | 21.0032.0110 . ... <sup>1)</sup> | 2                           | 2               | 2              | 60             | 115                    | 82         | 250 | 50 | 2.4     |
| 40               | 48.3                  | 110                      | 21.0040.0110 . ... <sup>1)</sup> |                             |                 |                |                | 115                    |            |     |    |         |
| 50               | 60.3                  | 125                      | 21.0050.0125 . ... <sup>1)</sup> |                             |                 |                |                | 123                    |            |     |    |         |
| 65               | 76.1                  | 140                      | 21.0065.0140 . ... <sup>1)</sup> | 3                           | 3               | 3              | 60             | 130                    | 82         | 250 | 50 | 2.8     |
| 65               | 76.1                  | 160                      | 21.0065.0160 . ... <sup>1)</sup> |                             |                 |                |                | 140                    |            |     |    |         |
| 80               | 88.9                  | 160                      | 21.0080.0160 . ... <sup>1)</sup> |                             |                 |                |                | 140                    |            |     |    |         |
| 80               | 88.9                  | 180                      | 21.0080.0180 . ... <sup>1)</sup> |                             |                 |                |                | 150                    |            |     |    |         |
| 100              | 114.3                 | 200                      | 21.0100.0200 . ... <sup>1)</sup> | 4                           | 3.5             | 3              | 60             | 160                    | 82         | 250 | 60 | 3.5     |
| 125              | 139.7                 | 200                      | 21.0125.0200 . ... <sup>1)</sup> |                             |                 |                |                | 160                    |            |     |    |         |
| 125              | 139.7                 | 225                      | 21.0125.0225 . ... <sup>1)</sup> |                             |                 |                |                | 173                    |            |     |    |         |

1) Add the characteristic for material and surface protection

2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C



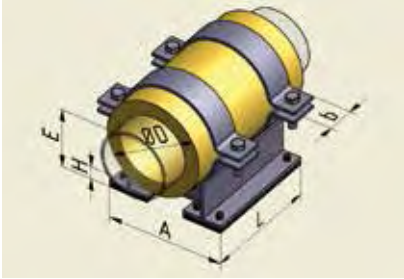
HYDRA® MOVABLE SUPPORT

Type series IKL, type 23 and 24,  
up to 300 °C, for pre-insulated pipelines, fixed height, low-friction sliding

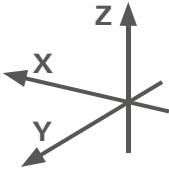
Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced
- Surface protection:  
steel components hot-dip galvanized
- Coefficients of friction:  
Sliding pairing PA-steel hot-dip galvanized: 0.2 to 0.3
- Support base thicknesses for clamping system:  
IKL 16 mm

Type 23



Type 24



The insulation is not included in the delivery!

Order example: 24.0250.0450-37.2

Type 24, nominal diameter 250, insulation diameter 450 mm, S235JR, hot-dip galvanized

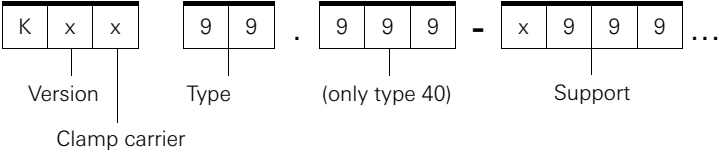
| Nominal diameter | Outside pipe diameter | Insulation pipe diameter | Type IKL ...                    | Nominal loads <sup>2)</sup> |                 |                | Nominal height | Installation dimension | Dimensions |     |     | Weight  |
|------------------|-----------------------|--------------------------|---------------------------------|-----------------------------|-----------------|----------------|----------------|------------------------|------------|-----|-----|---------|
| DN               | D                     | DM                       |                                 | -F <sub>z</sub>             | +F <sub>z</sub> | F <sub>x</sub> | H              | E                      | A          | L   | b   | approx. |
| -                | mm                    | mm                       |                                 | kN                          | kN              | kN             | mm             | mm                     | mm         | mm  | mm  | kg      |
| 100              | 114.3                 | 200                      | 23.0100.0200 .... <sup>1)</sup> | 5                           | 3.5             | 5              | 60             | 160                    | 241        | 250 | 60  | 10      |
| 125              | 139.7                 | 200                      | 23.0125.0200 .... <sup>1)</sup> |                             |                 |                |                | 160                    | 241        |     |     | 10      |
| 125              | 139.7                 | 225                      | 23.0125.0225 .... <sup>1)</sup> |                             |                 |                |                | 173                    | 251        |     |     | 11      |
| 150              | 168.3                 | 250                      | 24.0150.0250 .... <sup>1)</sup> | 12                          | 3.5             | 5              | 60             | 185                    | 279        | 250 | 235 | 15      |
| 200              | 219.1                 | 315                      | 24.0200.0315 .... <sup>1)</sup> | 15                          |                 |                |                | 218                    | 303        |     |     | 17      |
| 200              | 219.1                 | 355                      | 24.0200.0355 .... <sup>1)</sup> | 15                          |                 |                |                | 238                    | 297        |     |     | 18      |
| 200              | 219.1                 | 400                      | 24.0200.0400 .... <sup>1)</sup> | 15                          |                 |                |                | 260                    | 318        |     |     | 26      |
| 250              | 273.0                 | 400                      | 24.0250.0400 .... <sup>1)</sup> | 20                          | 3.5             | 5              | 60             | 260                    | 318        | 250 | 235 | 26      |
| 250              | 273.0                 | 450                      | 24.0250.0450 .... <sup>1)</sup> |                             |                 |                |                | 285                    | 333        |     |     | 28      |
| 300              | 323.9                 | 450                      | 24.0300.0450 .... <sup>1)</sup> |                             |                 |                |                | 285                    | 333        |     |     | 28      |
| 350              | 355.6                 | 500                      | 24.0350.0500 .... <sup>1)</sup> | 20                          | 3.5             | 5              | 60             | 310                    | 346        | 250 | 235 | 31      |
| 400              | 406.4                 | 560                      | 24.0400.0560 .... <sup>1)</sup> | 25                          |                 |                |                | 340                    | 362        |     |     | 34      |
| 400              | 406.4                 | 600                      | 24.0400.0600 .... <sup>1)</sup> | 30                          |                 |                |                | 360                    | 372        |     |     | 35      |
| 450              | 457.0                 | 630                      | 24.0450.0630 .... <sup>1)</sup> | 30                          | 3.5             | 5              | 60             | 375                    | 379        | 250 | 235 | 37      |
| 500              | 508.0                 | 670                      | 24.0500.0670 .... <sup>1)</sup> | 35                          |                 |                |                | 395                    | 389        |     |     | 39      |
| 600              | 610.0                 | 800                      | 24.0600.0800 .... <sup>1)</sup> | 40                          |                 |                |                | 460                    | 418        |     |     | 44      |

1) Add the characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C

ACCESSORIES  
MOVABLE SUPPORT

Clamping systems - names, versions, types

Type designation (example)



Version

|   |  |
|---|--|
| O | Guide support, without uplift restraint            |
| Z | Guide support, with double uplift restraint        |
| A | Guide support, with quadruple uplift restraint     |
| L | Movable support, sliding plate and support clamped |

Type

|    |  |
|----|--|
| 10 | Sliding directly on beam, clamping gap 10 mm |
| 15 | Sliding directly on beam, clamping gap 15 mm |
| 20 | Sliding directly on beam, clamping gap 20 mm |
| 40 | Sliding plate clamped on the beam            |

Support

|          |                                       |
|----------|---------------------------------------|
| T999     | T / double-T: Width must be specified |
| U999x999 | U-section: Width must be specified    |
| L999x999 | L-section: Width must be specified    |



MATRIX CLAMPING SYSTEMS

Type series Kxx

Design work

The guide support is a combination of a movable support and clamping system. Which clamping system is right for the guide support depends on:

- Support base thicknesses
- Support width
- Uplift loads

| Sections   | Variant O<br>without uplift restraint   | Variant Z<br>with uplift restraint double   | Variant A<br>with uplift restraint quadruple   |
|------------|---|---|--|
| T-sections |   |   |  |
| U-sections |  |  |  |
| L-sections |  |  |  |

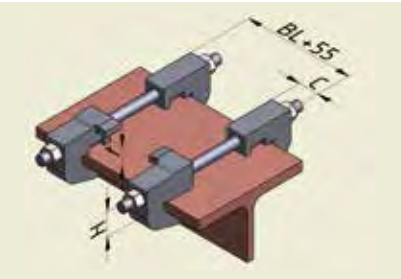
CLAMPING SYSTEMS

Type series Kxxx, type 10, 15, 20  
and type 40 - PA sliding plate clamped

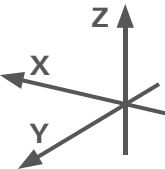
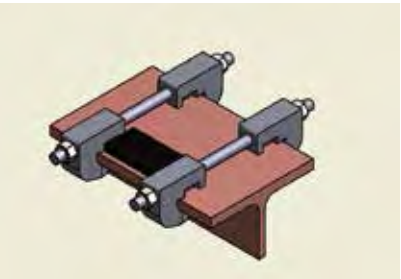
Technical data

- Clamp carrier T-shaped:  
Carrier width >80 mm  
Support base thicknesses 7 to 19 mm
- Clamp carrier U-section:  
Carrier width >50 mm  
Support base thicknesses 7 to 19 mm
- Clamp carrier L-section:  
Carrier width >60 mm  
Support height >60 mm  
Support base thicknesses 7 to 19 mm
- Materials:  
Claws: S235JR, forged  
Sliding plate: Polyamide glass fibre-reinforced
- Surface protection: hot-dip galvanized
- Tightening torque:  
Thread M12: 70 Nm

Type 10, 15, 20



Type 40 PA sliding plate clamped



Order example: KZT 20-T180

Type 20, double uplift restraint, sliding on support, support width 180 mm

| Type Kxx           | Nominal loads   |                   | Dimensions |    |    | Support base thicknesses | Weight        |
|--------------------|-----------------|-------------------|------------|----|----|--------------------------|---------------|
|                    | +F <sub>z</sub> | F <sub>x</sub> 2) | C          | H  | t  |                          |               |
|                    | kN              | kN                | mm         | mm | mm | mm                       | approx.<br>kg |
| KOT / KOU / KOL 20 | -               | 10                | 25         | 27 | -  | -                        | 1.8           |
| KZT / KZU / KZL 10 | 4               | 10                | 25         | 27 | 10 | 5 - 8                    | 1.8           |
| KZT / KZU / KZL 15 |                 |                   |            | 27 | 15 | 9 - 13                   |               |
| KZT / KZU / KZL 20 |                 |                   |            | 30 | 21 | 14 - 19                  |               |
| KAT 10             | 6               | 10                | 25         | 27 | 10 | 5 - 8                    | 1.8           |
| KAT 15             |                 |                   |            | 27 | 15 | 9 - 13                   |               |
| KAT 20             |                 |                   |            | 30 | 21 | 14 - 19                  |               |
| KLT 40 . ... 1)    | -               | -                 | 25         | 27 | -  | -                        | 2             |
| KOT 40 . ... 1)    | -               | 10                |            | 27 | -  | -                        |               |
| KAT 40 . ... 1)    | 6               | 10                |            | 30 | 13 | 6 - 11                   |               |
| KLU 40 . ... 1)    | -               | -                 | 25         | 27 | -  | -                        | 1.9           |
| KOU 40 . ... 1)    | -               | 10                |            | 27 | -  | -                        |               |
| KZU 40 . ... 1)    | 4               | 10                |            | 30 | 13 | 6 - 11                   |               |
| KLL 40 . ... 1)    | -               | -                 | 25         | 27 | -  | -                        | 1.9           |
| KOL 40 . ... 1)    | -               | 10                |            | 27 | -  | -                        |               |
| KZL 40 . ... 1)    | 4               | 10                |            | 30 | 13 | 6 - 11                   |               |

1) Add support base width BL

2) Max. lateral load of supports with clamping system: min (0.35\*F<sub>z</sub> support or F<sub>x</sub>-clamping system)

| Type 40 - Standard support base widths BL [mm] |     |     |     |     |     |     |     |     |     |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 80   | 100 | 175 | 190 | 210 | 250 | 280 | 290 | 320 | 340 |



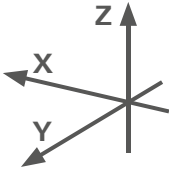
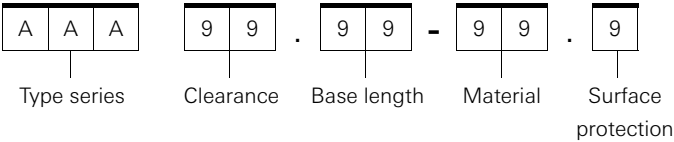
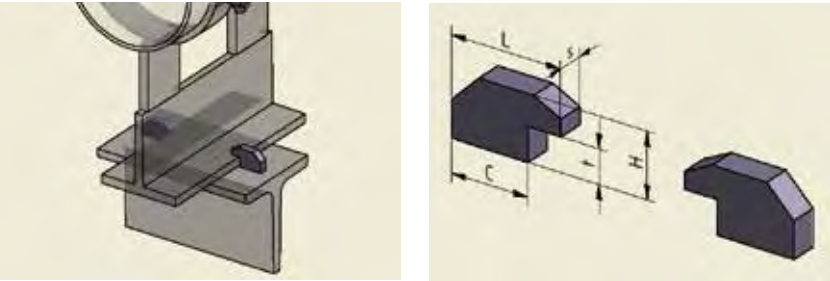
# UPLIFT RESTRAINT TO WELD ON

Type series LAW

Technical data

- Material: S235JR
- Surface protection: primed

LAW



Order example: LAW 12.50-37.2

Clearance 12 mm, base length 50 mm, S235JR, primed

| Type LAW ... | Nominal loads                |                | Dimensions |    |    |    |    |           | Weight        |
|--------------|------------------------------|----------------|------------|----|----|----|----|-----------|---------------|
|              | F <sub>z</sub> <sup>1)</sup> | F <sub>x</sub> | L          | H  | C  | s  | t  | Weld<br>a | approx.<br>kg |
|              | kN                           | kN             | mm         | mm | mm | mm | mm | mm        |               |
| 10.24 - 37.3 | 3                            | 14             | 36         | 20 | 24 | 10 | 10 | 3         | 0.08          |
| 10.35 - 37.3 | 7                            | 26             | 47         | 25 | 35 | 10 | 10 | 4         | 0.16          |
| 12.28 - 37.3 | 4                            | 16             | 40         | 23 | 28 | 10 | 12 | 3         | 0.12          |
| 12.50 - 37.3 | 12                           | 35             | 65         | 30 | 50 | 15 | 12 | 4         | 0.40          |
| 17.40 - 37.3 | 8                            | 30             | 55         | 33 | 40 | 15 | 17 | 4         | 0.34          |
| 17.60 - 37.3 | 14                           | 45             | 75         | 33 | 60 | 20 | 17 | 4         | 0.64          |
| 20.40 - 37.3 | 8                            | 30             | 55         | 35 | 40 | 15 | 20 | 4         | 0.36          |

1) for 1 pair

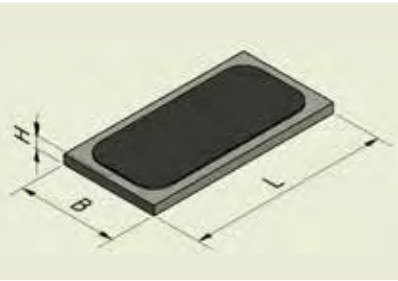
# SLIDING ELEMENT WITH PTFE SLIDING PLATE

Type series LGA to weld on and LGV to bolting on

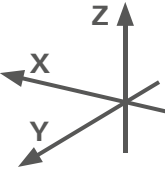
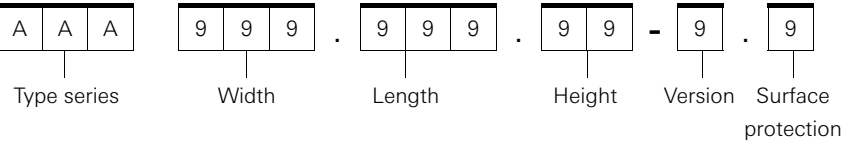
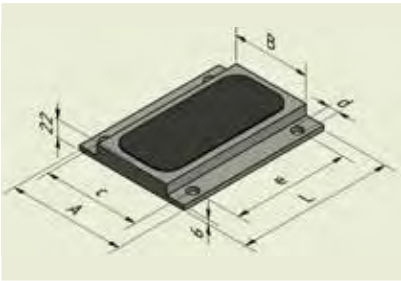
Technical data

- Material: S235JR, PTFE
- Surface protection: primed

LGA to weld on



LGV to bolting on



Versions

Version 0: Maximum operating temperature 100 °C

Version 1: Maximum operating temperature 180 °C

Order example: LGA 050.100.10-0.3

Width 50 mm, length 200 mm, height 10 mm, variant 0, primed

| Type LGA ....<br>Type LGV ....     | Nominal<br>load | Dimensions      |     |    |     |     |     |      | PTFE          | Number of<br>holes | Weight |     |
|------------------------------------|-----------------|-----------------|-----|----|-----|-----|-----|------|---------------|--------------------|--------|-----|
|                                    |                 | -F <sub>z</sub> | A   | B  | LGA | L   | c   | e    |               |                    | d      | LGA |
|                                    | H               |                 |     |    |     |     |     |      |               |                    |        |     |
|                                    | kN              |                 |     |    | mm  |     |     |      |               |                    |        |     |
| 050 . 050 . 10 . ... <sup>1)</sup> | 13              | 100             | 50  | 10 | 50  | 75  | 0   | 11.5 | Ø 40 x 5      | 2                  | 0.1    | 0.5 |
| 050 . 100 . 10 . ... <sup>1)</sup> | 22              | 100             | 50  | 10 | 100 | 75  | 60  | 11.5 | 30 x 80 x 5   | 4                  | 0.3    | 1.0 |
| 050 . 150 . 10 . ... <sup>1)</sup> | 37              | 100             | 50  | 10 | 150 | 75  | 100 | 11.5 | 30 x 130 x 5  | 4                  | 0.4    | 1.5 |
| 100 . 100 . 10 . ... <sup>1)</sup> | 59              | 150             | 100 | 12 | 100 | 125 | 60  | 14   | 80 x 80 x 5   | 4                  | 0.7    | 1.7 |
| 100 . 150 . 12 . ... <sup>1)</sup> | 98              | 150             | 100 | 12 | 150 | 125 | 100 | 14   | 80 x 130 x 5  | 4                  | 1.0    | 2.6 |
| 100 . 200 . 12 . ... <sup>1)</sup> | 138             | 150             | 100 | 12 | 200 | 125 | 150 | 14   | 80 x 180 x 5  | 4                  | 1.3    | 3.4 |
| 150 . 200 . 12 . ... <sup>1)</sup> | 228             | 200             | 150 | 12 | 200 | 175 | 150 | 14   | 130 x 180 x 5 | 4                  | 2      | 5.0 |
| 200 . 200 . 12 . ... <sup>1)</sup> | 318             | 250             | 200 | 12 | 200 | 225 | 150 | 14   | 180 x 180 x 5 | 4                  | 2.7    | 6.3 |

Load values are designed for a specific pressure  $p = 10 \text{ N/mm}^2$   
To ensure the coefficient of friction  $\mu = 0.1$  a stainless steel plate must be used as a counter support.  
The PTFE sliding plate must be completely covered by the stainless steel plate in every support position.  
1) Add the characteristic for version and surface protection





# HYDRA<sup>®</sup> FIXED SUPPORT

Type series, names, variants

A A A      9 9      . 9 9 9      . 9 9 9      . 9 9      . 9 - T 9 9 9

Type series      Type      Nominal diameter  
                                (from table)

Nominal height  
                                (from table)

Material      Surface protection      Clamp carrier

|   |   |   |
|---|---|---|
| A | A | A |
|---|---|---|

|   |   |
|---|---|
| 9 | 9 |
|---|---|

. 

|   |   |   |   |
|---|---|---|---|
| 9 | 9 | 9 | 9 |
|---|---|---|---|

. 

|   |   |   |
|---|---|---|
| 9 | 9 | 9 |
|---|---|---|

- 

|   |   |
|---|---|
| 9 | 9 |
|---|---|

. 

|   |
|---|
| 9 |
|---|

Type series                      Type                      Nominal diameter (from table)                      Nominal height (from table)                      Material                      Surface protection

|   |   |   |
|---|---|---|
| A | A | A |
|---|---|---|

|   |   |
|---|---|
| 9 | 9 |
|---|---|

 .

|   |   |   |   |
|---|---|---|---|
| 9 | 9 | 9 | 9 |
|---|---|---|---|

 .

|   |   |   |   |
|---|---|---|---|
| 9 | 9 | 9 | 9 |
|---|---|---|---|

 -

|   |   |
|---|---|
| 9 | 9 |
|---|---|

 .

|   |
|---|
| 9 |
|---|

|   |   |   |   |
|---|---|---|---|
| T | 9 | 9 | 9 |
|---|---|---|---|

Type series      Type      Nominal diameter (from table)      Nominal height (from table)      Material      Surface protection      Clamp carrier

|     |   |
|-----|---|
| FLN | Fixed support, fixed height, clampable                              |
| FVN | Fixed support, height-adjustable, clampable                         |
| FSN | Fixed support, steel to steel, bolting-on                           |
| FSD | Fixed support, double, bolting-on                                   |
| FLV | Fixed support, fixed height, clampable, for pre-insulated pipelines |

| Characteristic | Types                                |
|----------------|--------------------------------------|
| 20             | T-shaped, base width 80 mm, 1-clamp  |
| 21             | T-shaped, base width 80 mm, 2-clamp  |
| 22             | T-shaped, base width 100 mm, 2-clamp |
| 23             | Box-shaped base, 2-clamp             |

**Surface protection (key same as movable support pg. 11)**

|          |                                       |
|----------|---------------------------------------|
| T999     | T / double-T: Width must be specified |
| U999x999 | U-section: Width must be specified    |
| L999x999 | L-section: Width must be specified    |



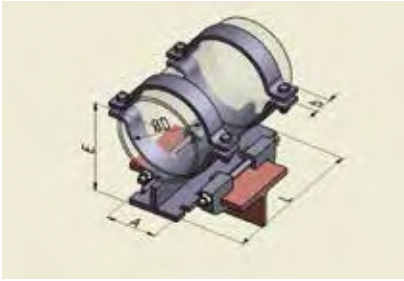
HYDRA® FIXED SUPPORT

Type series FLN, type 21, 22 and 23,  
low overall height, fixed height, clampable

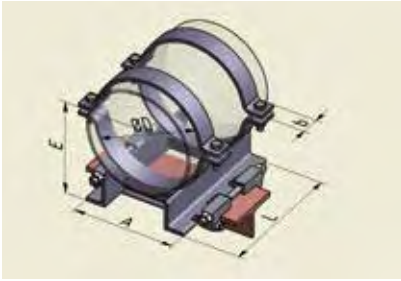
**Technical data**

- 2-clamp, clampable
- Nominal height H = 60 mm  
(for non-insulated pipelines)
- Clamp carrier T-shaped:  
Carrier width 80 (100) to 140 mm  
Support base thickness 7 to 19 mm
- Materials: S235JR
- Surface protection: hot-dip galvanized
- The clamping system is included

**Type 21 and 22**



**Type 23**



The low overall height is suitable for non-insulated pipelines with temperatures up to 90 °C.

Order example: FLN 21.0080.060-37.2-T140  
Type 21, nominal diameter 80, nominal height 60 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FLN ...                    | Nominal loads <sup>1)</sup> |                 |                |                              | Installation dimension | Dimensions |    |     | Weight     |
|------------------|-----------------------|---------------------------------|-----------------------------|-----------------|----------------|------------------------------|------------------------|------------|----|-----|------------|
|                  |                       |                                 | -F <sub>z</sub>             | +F <sub>z</sub> | F <sub>x</sub> | F <sub>y</sub> <sup>4)</sup> |                        | A          | b  | L   |            |
| DN               | D                     |                                 | kN                          | kN              | kN             | kN                           | mm                     | mm         | mm | mm  | approx. kg |
| -                | mm                    |                                 |                             |                 |                |                              |                        |            |    |     |            |
| 15               | 21.3                  | 21.0015.060 . . . <sup>2)</sup> | 2                           | 2               | 3              | 6                            | 69                     | 80         | 25 | 310 | 5          |
| 20               | 26.9                  | 21.0020.060 . . . <sup>2)</sup> | 2                           | 2               | 3              | 6                            | 71                     |            |    |     |            |
| 25               | 33.7                  | 21.0025.060 . . . <sup>2)</sup> | 2                           | 2               | 3              | 6                            | 76                     |            |    |     |            |
| 32               | 42.4                  | 21.0032.060 . . . <sup>2)</sup> | 2                           | 2               | 3              | 6                            | 80                     |            |    |     |            |
| 40               | 48.3                  | 21.0040.060 . . . <sup>2)</sup> | 2                           | 2               | 3              | 7                            | 83                     | 80         | 40 | 310 | 6          |
| 50               | 60.3                  | 21.0050.060 . . . <sup>2)</sup> | 4                           | 3               | 3              | 7                            | 90                     |            |    |     |            |
| 65               | 76.1                  | 21.0065.060 . . . <sup>2)</sup> | 4                           | 3               | 4              | 8                            | 98                     |            |    |     |            |
| 80               | 88.9                  | 21.0080.060 . . . <sup>2)</sup> | 4                           | 3               | 4              | 8                            | 104                    |            |    |     |            |
| 100              | 114.3                 | 22.0100.060 . . . <sup>2)</sup> | 6                           | 4               | 4              | 8                            | 117                    | 80         | 40 | 310 | 9          |
| 125              | 139.7                 | 22.0125.060 . . . <sup>2)</sup> | 6                           | 4               | 4              | 8                            | 130                    |            |    |     |            |
| 150              | 168.3                 | 22.0150.060 . . . <sup>2)</sup> | 6                           | 4               | 4              | 8                            | 144                    |            |    |     |            |
| 100              | 114.3                 | 23.0100.060 . . . <sup>2)</sup> | 10                          | 6               | 6              | 25                           | 117                    | 200        | 40 | 340 | 9          |
| 125              | 139.7                 | 23.0125.060 . . . <sup>2)</sup> | 10                          | 6               | 6              | 25                           | 130                    | 210        |    |     |            |
| 150              | 168.3                 | 23.0150.060 . . . <sup>2)</sup> | 10                          | 6               | 6              | 32                           | 140                    | 222        |    |     |            |
| 200              | 219.1                 | 23.0200.060 . . . <sup>2)</sup> | 15                          | 6               | 6              | 32                           | 170                    | 238        |    |     |            |
| 250              | 273.0                 | 23.0250.060 . . . <sup>2)</sup> | 20                          | 6               | 6              | 32                           | 197                    | 255        | 60 | 340 | 17         |
| 300              | 323.9                 | 23.0300.060 . . . <sup>2)</sup> | 25                          | 6               | 6              | 32                           | 222                    | 271        |    |     |            |
| 350              | 355.6                 | 23.0350.060 . . . <sup>2)</sup> | 30                          | 6               | 6              | 32                           | 238                    | 278        |    |     |            |
| 400              | 406.4                 | 23.0400.060 . . . <sup>2)</sup> | 40                          | 6               | 6              | 32                           | 263                    | 292        |    |     |            |
| 450              | 457.0                 | 23.0450.060 . . . <sup>2)</sup> | 40                          | 6               | 6              | 32                           | 289                    | 301        | 70 | 340 | 28         |
| 500              | 508.0                 | 23.0500.060 . . . <sup>2)</sup> | 50                          | 6               | 6              | 32                           | 314                    | 324        |    |     |            |
| 600              | 610.0                 | 23.0600.060 . . . <sup>2)</sup> | 60                          | 6               | 6              | 32                           | 365                    | 346        |    |     |            |

1) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
2) Add characteristic for material and surface protection and clamp carrier  
3) Lower nominal height can be ordered for combination with LSL supports  
4) On Type FLN 23 attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.

HYDRA® FIXED SUPPORT

Type series FLN, type 20,  
up to 300 °C, fixed height, clampable

**Technical data**

- 1-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials: S235JR
- Surface protection: hot-dip galvanized
- The clamping system is included

**Type 20**



Order example: FLN 20.0080.150-37.2-T140  
Type 20, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FLN ...                | Nominal loads <sup>2)</sup> and system dimensions |                |                |     |                |     |                |     | Dimensions |    |     | Weight |
|------------------|-----------------------|-----------------------------|---|----------------|----------------|-----|----------------|-----|----------------|-----|------------|----|-----|--------|
|                  |                       |                             | Nominal height <sup>3)</sup>                      |                |                |     |                |     |                |     |            |    |     |        |
|                  |                       |                             | -F <sub>z</sub>                                   |                | 95             |     | 150            |     | 200            |     | A          | L  | b   |        |
| DN               | D                     |                             | F <sub>y</sub>                                    | F <sub>z</sub> | F <sub>x</sub> | E   | F <sub>x</sub> | E   | F <sub>x</sub> | E   |            |    |     |        |
| -                | mm                    |                             | kN  | kN             | kN             | mm  | kN             | mm  | kN             | mm  | mm         | mm | mm  | kg     |
| 15               | 21.3                  | 20.0015 . ... <sup>1)</sup> | 3   | 1,5            | 1              | 104 | 1              | 159 | 1              | 209 | 80         | 25 | 310 | 6      |
| 20               | 26.9                  | 20.0020 . ... <sup>1)</sup> |   |                |                | 106 |                | 161 |                | 211 |            |    |     |        |
| 25               | 33.7                  | 20.0025 . ... <sup>1)</sup> | 3,5   | 2,3            | 1              | 111 | 1              | 166 | 1              | 216 | 80         | 30 | 310 | 7      |
| 32               | 42.4                  | 20.0032 . ... <sup>1)</sup> |   |                |                | 115 |                | 170 |                | 220 |            |    |     |        |
| 40               | 48.3                  | 20.0040 . ... <sup>1)</sup> |   |                |                | 118 |                | 173 |                | 223 |            |    |     |        |
| 50               | 60.3                  | 20.0050 . ... <sup>1)</sup> | 6   | 3,7            | 2              | 125 | 2              | 180 | 2              | 230 | 80         | 40 | 310 | 8      |
| 65               | 76.1                  | 20.0065 . ... <sup>1)</sup> |   |                |                | 133 |                | 188 |                | 238 |            |    |     |        |
| 80               | 88.9                  | 20.0080 . ... <sup>1)</sup> |   |                |                | 139 |                | 194 |                | 244 |            |    |     |        |
| 100              | 114.3                 | 20.0100 . ... <sup>1)</sup> | 6   | 5,2            | 2              | 154 | 2              | 209 | -              | -   | 80         | 40 | 310 | 9      |
| 125              | 139.7                 | 20.0125 . ... <sup>1)</sup> |   |                |                | 167 |                | 222 |                |     |            |    |     |        |
| 150              | 168.3                 | 20.0150 . ... <sup>1)</sup> |   |                |                | 181 |                | 236 |                |     |            |    |     |        |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lower nominal height can be ordered for combination with LSL supports



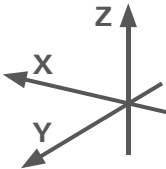
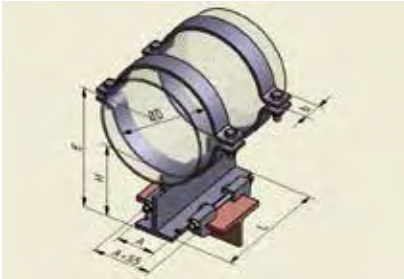
HYDRA® FIXED SUPPORT

Type series FLN, type 21,  
up to 300 °C / 450 °C, fixed height, clampable

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR, 16Mo3  
Material is temperature-dependent, see pg. 9
- Surface protection: steel parts hot-dip galvanized, unthreaded
- The clamping system is included

Type 21



Order example: FLN 21.0080.150-37.2-T140

Type 21, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal<br>diameter | Outside pipe<br>diameter | Type FLN ...               | Nominal loads <sup>2)</sup> and system dimensions |                |                 |                |     |                |     |                |     |                |     |    | Dimensions |     |         | Weight |
|---------------------|--------------------------|----------------------------|---|----------------|-----------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|----|------------|-----|---------|--------|
|                     |                          |                            | Nominal height <sup>3)</sup>                      |                |                 |                |     |                |     |                |     |                |     |    |            |     |         |        |
|                     |                          |                            |   |                |                 | only S235JR    |     |                |     |                |     | only 16Mo3     |     |    |            |     |         |        |
|                     |                          |                            |   |                |                 | 95             |     | 150            |     | 200            |     | 250            |     |    |            |     |         |        |
| DN                  | D                        |                            | -F <sub>z</sub>                                   | F <sub>y</sub> | +F <sub>z</sub> | F <sub>x</sub> | E   | F <sub>x</sub> | E   | F <sub>x</sub> | E   | F <sub>x</sub> | E   | A  | L          | b   | approx. |        |
| -                   | mm                       |                            | kN  | kN             | kN              | kN             | mm  | kN             | mm  | kN             | mm  | kN             | mm  | mm | mm         | mm  | kg      |        |
| 15                  | 21.3                     | 21.0015 .... <sup>1)</sup> | 7,4   | 5,7            | 3               | 2              | 104 | 1,3            | 159 | 0,9            | 209 | 0,7            | 259 | 80 | 25         | 310 | 6       |        |
| 20                  | 26.9                     | 21.0020 .... <sup>1)</sup> |   |                |                 |                | 106 |                |     |                |     | 211            | 261 |    |            |     |         |        |
| 25                  | 33.7                     | 21.0025 .... <sup>1)</sup> | 8,9   | 6,8            | 4,7             | 2,5            | 111 | 1,4            | 166 | 1,1            | 216 | 0,7            | 266 | 80 | 30         | 310 | 7       |        |
| 32                  | 42.4                     | 21.0032 .... <sup>1)</sup> |   |                |                 |                | 115 |                |     |                |     | 220            | 270 |    |            |     |         |        |
| 40                  | 48.3                     | 21.0040 .... <sup>1)</sup> |   |                |                 |                | 118 |                |     |                |     | 223            | 273 |    |            |     |         |        |
| 50                  | 60.3                     | 21.0050 .... <sup>1)</sup> | 11,8  | 8              | 6               | 4,2            | 125 | 2,5            | 180 | 1,8            | 230 | 1              | 280 | 80 | 40         | 310 | 8       |        |
| 65                  | 76.1                     | 21.0065 .... <sup>1)</sup> |   |                |                 |                | 133 |                |     |                |     | 238            | 288 |    |            |     |         |        |
| 80                  | 88.9                     | 21.0080 .... <sup>1)</sup> |   |                |                 |                | 139 |                |     |                |     | 244            | 294 |    |            |     |         |        |
| 100                 | 114.3                    | 21.0100 .... <sup>1)</sup> | 11,8  | 8              | 6               | 5              | 154 | 3              | 209 | -              | -   | -              | -   | 80 | 40         | 310 | 9       |        |
| 125                 | 139.7                    | 21.0125 .... <sup>1)</sup> |   |                |                 |                | 167 |                |     |                |     |                |     |    |            |     |         |        |
| 150                 | 168.3                    | 21.0150 .... <sup>1)</sup> |   |                |                 |                | 181 |                |     |                |     |                |     |    |            |     |         |        |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lower nominal height can be ordered for combination with LSL supports

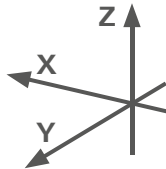
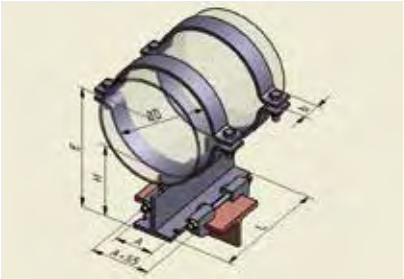
HYDRA® FIXED SUPPORT

Type series FLN, type 22,  
up to 300 °C / 450 °C, fixed height, clampable

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR, 16Mo3  
Material is temperature-dependent, see pg. 9
- Surface protection: steel parts hot-dip galvanized, unthreaded
- The clamping system is included

Type 22



Order example: FLN 22.0200.150-37.2-T140

Type 22, nominal diameter 200, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal<br>diameter | Outside pipe<br>diameter | Type FLN ...               | Nominal loads <sup>2)</sup> and system dimensions |                |                 |                |     |                |     |                |     |                |     |     | Dimensions |     |    | Weight |         |
|---------------------|--------------------------|----------------------------|---|----------------|-----------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|-----|------------|-----|----|--------|---------|
|                     |                          |                            | Nominal height <sup>3)</sup>                      |                |                 |                |     |                |     |                |     |                |     |     |            |     |    |        |         |
|                     |                          |                            |   |                |                 | only S235JR    |     |                |     |                |     | only 16Mo3     |     |     |            | A   | L  | b      | approx. |
|                     |                          |                            |   |                |                 | 115            |     | 150            |     | 200            |     | 250            |     |     |            |     |    |        |         |
| DN                  | D                        |                            | -F <sub>z</sub>                                   | F <sub>y</sub> | +F <sub>z</sub> | F <sub>x</sub> | E   | F <sub>x</sub> | E   | F <sub>x</sub> | E   | F <sub>x</sub> | E   |     |            |     |    |        |         |
| -                   | mm                       |                            | kN  | kN             | kN              | kN             | mm  | kN             | mm  | kN             | mm  | kN             | mm  | mm  | mm         | mm  | kg |        |         |
| 25                  | 33.7                     | 22.0025 .... <sup>1)</sup> | 10,9  | 6,8            | 4,7             | 1,8            | 131 | 1,8            | 165 | 1,8            | 215 | -              | -   | 100 | 30         | 310 | 8  |        |         |
| 32                  | 42.4                     | 22.0032 .... <sup>1)</sup> |   |                |                 |                | 135 |                | 169 |                | 219 |                |     |     |            |     |    |        |         |
| 40                  | 48.3                     | 22.0040 .... <sup>1)</sup> |   |                |                 |                | 138 |                | 172 |                | 222 |                |     |     |            |     |    |        |         |
| 50                  | 60.3                     | 22.0050 .... <sup>1)</sup> | 14,5  | 8              | 6               | 3,1            | 145 | 3,1            | 179 | 3,1            | 229 | -              | -   | 100 | 40         | 310 | 9  |        |         |
| 65                  | 76.1                     | 22.0065 .... <sup>1)</sup> |   |                |                 |                | 153 |                | 187 |                | 237 |                |     |     |            |     |    |        |         |
| 80                  | 88.9                     | 22.0080 .... <sup>1)</sup> |   |                |                 |                | 159 |                | 193 |                | 243 |                |     |     |            |     |    |        |         |
| 100                 | 114.3                    | 22.0100 .... <sup>1)</sup> | 14,5  | 8              | 6               | 3,7            | 174 | 3,7            | 208 | 3,7            | 258 | 2              | 308 | 100 | 40         | 310 | 11 |        |         |
| 125                 | 139.7                    | 22.0125 .... <sup>1)</sup> |   |                |                 |                | 187 |                | 221 |                | 271 |                | 321 |     |            |     |    |        |         |
| 150                 | 168.3                    | 22.0150 .... <sup>1)</sup> |   |                |                 |                | 201 |                | 235 |                | 285 |                | 335 |     |            |     |    |        |         |
| 175                 | 193.7                    | 22.0175 .... <sup>1)</sup> | 18,1  | 8              | 6               | 4,6            | 214 | 4,6            | 248 | 4,6            | 298 | 2,5            | 348 | 100 | 50         | 310 | 14 |        |         |
| 200                 | 219.1                    | 22.0200 .... <sup>1)</sup> |   |                |                 |                | 227 |                | 261 |                | 311 |                | 361 |     |            |     |    |        |         |
| 250                 | 273.0                    | 22.0250 .... <sup>1)</sup> |   |                |                 |                | 254 |                | 288 |                | 338 |                | 388 |     |            |     |    |        |         |
| 300                 | 323.9                    | 22.0300 .... <sup>1)</sup> |   |                |                 |                | 279 |                | 313 |                | 363 |                | 413 |     |            |     |    |        |         |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lower nominal height can be ordered for combination with LSL supports



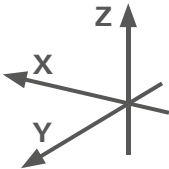
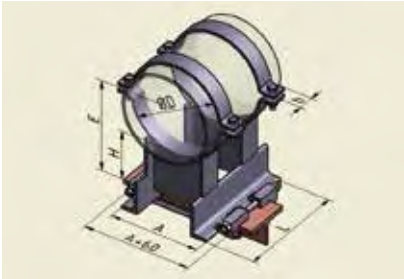
HYDRA® FIXED SUPPORT

Type series FLN, type 23,  
up to 300 °C / 450 °C, fixed height, clampable

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 (100) to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR, 16Mo3  
Material is temperature-dependent, see pg. 9
- Surface protection: steel parts hot-dip galvanized, unthreaded
- The clamping system is included

Type 23



Order example: FLN 23.0400.150-37.2-T140

Type 23, nominal diameter 400, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FLN ...                  | Nominal loads <sup>2)</sup> and system dimensions |                              |                 |                |     |                |            |                |     |                | Dimensions  |     |     | Weight |         |
|------------------|-----------------------|-------------------------------|---|------------------------------|-----------------|----------------|-----|----------------|------------|----------------|-----|----------------|-------------|-----|-----|--------|---------|
|                  |                       |                               | Nominal height <sup>3)</sup>                      |                              |                 |                |     |                |            |                |     |                | A<br>L<br>b |     |     |        |         |
|                  |                       |                               | only S235JR                                       |                              |                 |                |     |                | only 16Mo3 |                |     |                |             |     |     |        |         |
|                  |                       |                               | -F <sub>z</sub>                                   | F <sub>y</sub> <sup>4)</sup> | +F <sub>z</sub> | 115            |     | 150            |            | 200            |     | 250            |             |     |     |        |         |
| DN               | D                     |                               |   |                              |                 | F <sub>x</sub> | E   | F <sub>x</sub> | E          | F <sub>x</sub> | E   | F <sub>x</sub> | E           |     |     |        | approx. |
| -                | mm                    |                               | kN  | kN                           | kN              | kN             | mm  | kN             | mm         | kN             | mm  | kN             | mm          | mm  | mm  | mm     | kg      |
| 100              | 114.3                 | 23.0100 . . . . <sup>1)</sup> | 47  | 32                           | 6               | 6              | 173 | 6              | 208        | 6              | 258 | 6              | 308         | 182 | 40  | 340    | 15      |
| 125              | 139.7                 | 23.0125 . . . . <sup>1)</sup> |   |                              |                 |                | 185 |                | 220        |                | 270 |                | 320         | 190 |     |        |         |
| 150              | 168.3                 | 23.0150 . . . . <sup>1)</sup> |   |                              |                 |                | 200 |                | 235        |                | 285 |                | 335         | 198 |     |        |         |
| 200              | 219.1                 | 23.0200 . . . . <sup>1)</sup> | 47  | 32                           | 6               | 6              | 225 | 6              | 260        | 6              | 310 | 6              | 360         | 212 | 50  | 340    | 21      |
| 250              | 273.0                 | 23.0250 . . . . <sup>1)</sup> |   |                              |                 |                | 252 |                | 287        |                | 337 |                | 387         | 270 | 50  |        |         |
| 300              | 323.9                 | 23.0300 . . . . <sup>1)</sup> |   |                              |                 |                | 277 |                | 312        |                | 362 |                | 412         | 286 | 50  |        |         |
| 350              | 355.6                 | 23.0350 . . . . <sup>1)</sup> |   |                              |                 |                | 293 |                | 328        |                | 378 |                | 428         | 296 | 60  |        |         |
| 400              | 406.4                 | 23.0400 . . . . <sup>1)</sup> |   |                              |                 |                | 319 |                | 354        |                | 404 |                | 454         | 320 | 60  |        |         |
| 450              | 457.0                 | 23.0450 . . . . <sup>1)</sup> | 54  | 32                           | 6               | 6              | 344 | 6              | 379        | 6              | 429 | 6              | 479         | 334 | 60  | 340    | 26      |
| 500              | 508.0                 | 23.0500 . . . . <sup>1)</sup> |   |                              |                 |                | 369 |                | 404        |                | 454 |                | 504         | 356 | 70  |        | 28      |
| 600              | 610.0                 | 23.0600 . . . . <sup>1)</sup> |   |                              |                 |                | 420 |                | 455        |                | 505 |                | 555         | 380 | 70  |        | 40      |
| 700              | 711.0                 | 23.0700 . . . . <sup>1)</sup> |   |                              |                 |                | 471 |                | 506        |                | 556 |                | 606         | 390 | 90  |        | 53      |
| 800              | 813.0                 | 23.0800 . . . . <sup>1)</sup> |   |                              |                 |                | 522 |                | 557        |                | 607 |                | 657         | 420 | 100 |        | 73      |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lower nominal height can be ordered for combination with LSL supports  
4) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.

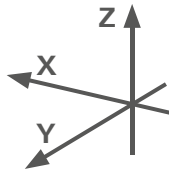
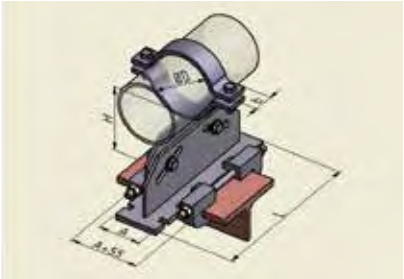
HYDRA® FIXED SUPPORT

Type series FVN, type 20,  
up to 300 °C, height-adjustable, clampable

Technical data

- 1-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR
- Surface protection: steel components hot-dip galvanized
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking, adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- The clamping system is included

Type 20



Order example: FVN 20.0080.150-37.2-T140

Type 20, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FVN ...                | Nominal loads <sup>2)</sup> and height ranges |                 |                  |                |                | Dimensions |    |     | Weight  |
|------------------|-----------------------|-----------------------------|---|-----------------|------------------|----------------|----------------|------------|----|-----|---------|
|                  |                       |                             | -F <sub>z</sub>                               |                 | Nominal height H |                |                |            |    |     |         |
|                  |                       |                             |   |                 | 100              | 150            | 200            |            |    |     |         |
|                  |                       |                             |   |                 | 96 -120          | 120 -170       | 170 - 215      |            |    |     |         |
| DN               | D                     |                             | F <sub>y</sub>                                | +F <sub>z</sub> | F <sub>x</sub>   | F <sub>x</sub> | F <sub>x</sub> | A          | b  | L   | approx. |
| -                | mm                    |                             | kN  | kN              | kN               | kN             | kN             | mm         | mm | mm  | kg      |
| 15               | 21.3                  | 20.0015 . ... <sup>1)</sup> | 2   | 2               | 1.6              | 1.0            | 0.4            | 80         | 25 | 310 | 6       |
| 20               | 26.9                  | 20.0020 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |
| 25               | 33.7                  | 20.0025 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |
| 32               | 42.4                  | 20.0032 . ... <sup>1)</sup> | 2   | 2               | 1.6              | 1.2            | 0.6            | 80         | 30 | 310 | 7       |
| 40               | 48.3                  | 20.0040 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |
| 50               | 60.3                  | 20.0050 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |
| 65               | 76.1                  | 20.0065 . ... <sup>1)</sup> | 3   | 3               | 2.4              | 1.4            | 0.6            | 80         | 40 | 310 | 8       |
| 80               | 88.9                  | 20.0080 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |
| 100              | 114.3                 | 20.0100 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |
| 125              | 139.7                 | 20.0125 . ... <sup>1)</sup> | 4   | 3               | 2.4              | 1.4            | -              | 80         | 40 | 310 | 9       |
| 150              | 168.3                 | 20.0150 . ... <sup>1)</sup> |   |                 |                  |                |                |            |    |     |         |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C



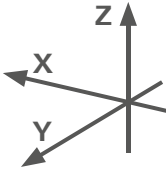
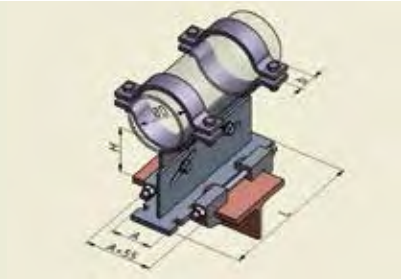
HYDRA® FIXED SUPPORT

Type series FVN, type 21,  
up to 300 °C, height-adjustable, clampable

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR
- Surface protection: steel components hot-dip galvanized
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking, adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- The clamping system is included

Type 21



Order example: FVN 21.0080.150-37.2-T140

Type 21, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FVN ...                | Nominal loads <sup>2)</sup> and height ranges |                 |                |                |                | Dimensions |    |     | Weight  |
|------------------|-----------------------|-----------------------------|---|-----------------|----------------|----------------|----------------|------------|----|-----|---------|
|                  |                       |                             | Nominal height H                              |                 |                |                |                |            |    |     |         |
|                  |                       |                             |   |                 | 100            | 150            | 200            |            |    |     |         |
|                  |                       |                             | -F <sub>z</sub>                               |                 | 96 -120        | 120 -170       | 170 - 215      | A          | b  | L   |         |
| DN               | D                     |                             | F <sub>y</sub>                                | +F <sub>z</sub> | F <sub>x</sub> | F <sub>x</sub> | F <sub>x</sub> |            |    |     | approx. |
| -                | mm                    |                             | kN  | kN              | kN             | kN             | kN             | mm         | mm | mm  | kg      |
| 15               | 21.3                  | 21.0015 . ... <sup>1)</sup> | 6   | 6               | 3.2            | 1.6            | 0.8            | 80         | 25 | 310 | 6       |
| 20               | 26.9                  | 21.0020 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 25               | 33.7                  | 21.0025 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 32               | 42.4                  | 21.0032 . ... <sup>1)</sup> | 6   | 6               | 3.2            | 1.6            | 0.8            | 80         | 30 | 310 | 7       |
| 40               | 48.3                  | 21.0040 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 50               | 60.3                  | 21.0050 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 65               | 76.1                  | 21.0065 . ... <sup>1)</sup> | 7   | 6               | 4.0            | 2.4            | 1.2            | 80         | 40 | 310 | 8       |
| 80               | 88.9                  | 21.0080 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 100              | 114.3                 | 21.0100 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 125              | 139.7                 | 21.0125 . ... <sup>1)</sup> | 7   | 6               | 4.0            | 2.4            | -              | 80         | 40 | 310 | 9       |
| 150              | 168.3                 | 21.0150 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C

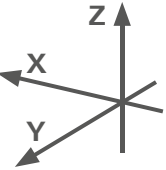
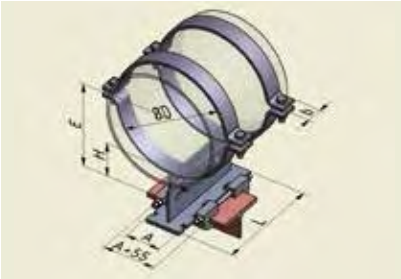
HYDRA® FIXED SUPPORT

Type series FVN, type 22,  
up to 300 °C, height-adjustable, clampable

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR
- Surface protection: steel components hot-dip galvanized
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking, adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- The clamping system is included

Type 22



Order example: FVN 22.0200.150-37.2-T140

Type 22, nominal diameter 200, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FVN ...                | Nominal loads <sup>2)</sup> and height ranges |                 |                |                |                | Dimensions |    |     | Weight  |
|------------------|-----------------------|-----------------------------|---|-----------------|----------------|----------------|----------------|------------|----|-----|---------|
|                  |                       |                             | Nominal height H                              |                 |                |                |                |            |    |     |         |
|                  |                       |                             |   |                 | 100            | 150            | 200            |            |    |     |         |
|                  |                       |                             |   |                 | 96 -120        | 120 -170       | 170 - 215      |            |    |     |         |
| DN               | D                     |                             | -F <sub>z</sub>                               |                 | F <sub>x</sub> | F <sub>x</sub> | F <sub>x</sub> | A          | b  | L   | approx. |
| -                | mm                    |                             | F <sub>y</sub>                                | +F <sub>z</sub> | F <sub>x</sub> | F <sub>x</sub> | F <sub>x</sub> |            |    |     |         |
| -                | mm                    |                             | kN  | kN              | kN             | kN             | kN             | mm         | mm | mm  | kg      |
| 100              | 114.3                 | 22.0100 . ... <sup>1)</sup> | 8   | 6               | 4              | 2.8            | 1.6            | 100        | 40 | 310 | 11      |
| 125              | 139.7                 | 22.0125 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 150              | 168.3                 | 22.0150 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 175              | 193.7                 | 22.0175 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 200              | 219.1                 | 22.0200 . ... <sup>1)</sup> | 9   | 6               | 4              | 2.8            | 1.6            | 100        | 50 | 310 | 14      |
| 250              | 273.0                 | 22.0250 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |
| 300              | 323.9                 | 22.0300 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |         |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C



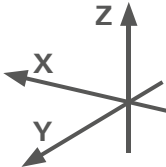
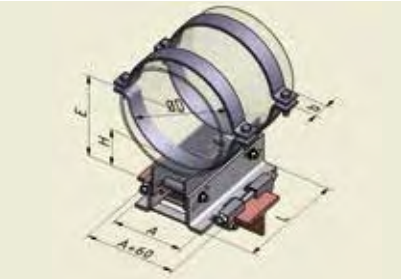
HYDRA® FIXED SUPPORT

Type series FVN, type 23,  
up to 300 °C, height-adjustable, clampable

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 100 to 140 mm  
Support base thickness 7 to 19 mm
- Materials:  
Support: S235JR
- Surface protection: steel components hot-dip galvanized
- Height adjustment:  
Infinitely variable, height adjustment scale, self-locking,  
adaptation to pipe slope up to 10° possible  
Recommended bolting tightening torque 90 Nm
- The clamping system is included

Type 23



Order example: FVN 23.0400.150-37.2-T140

Type 23, nominal diameter 400, nominal height 150 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FVN ...                | Nominal loads <sup>2)</sup> and height ranges |                 |                |                |                | Dimensions |    |     | Weight |         |
|------------------|-----------------------|-----------------------------|---|-----------------|----------------|----------------|----------------|------------|----|-----|--------|---------|
|                  |                       |                             | Nominal height H                              |                 |                |                |                |            |    |     |        |         |
|                  |                       |                             |   |                 | 100            | 150            | 200            | A          | b  | L   |        | approx. |
|                  |                       |                             | -F <sub>z</sub>                               |                 | 96 -120        | 120 -170       | 170 - 215      |            |    |     |        |         |
| DN               | D                     |                             | F <sub>y</sub> <sup>3)</sup>                  | +F <sub>z</sub> | F <sub>x</sub> | F <sub>x</sub> | F <sub>x</sub> |            |    |     |        |         |
| -                | mm                    |                             | kN  | kN              | kN             | kN             | kN             | mm         | mm | mm  | kg     |         |
| 100              | 114.3                 | 23.0100 . ... <sup>1)</sup> | 25  | 6               | 6              | 6              | 6              | 175        | 40 | 340 | 18     |         |
| 125              | 139.7                 | 23.0125 . ... <sup>1)</sup> |   |                 |                |                |                | 175        |    |     |        |         |
| 150              | 168.3                 | 23.0150 . ... <sup>1)</sup> |   |                 |                |                |                | 190        |    |     |        |         |
| 200              | 219.1                 | 23.0200 . ... <sup>1)</sup> | 32  | 6               | 6              | 6              | 6              | 190        | 50 | 340 | 22     |         |
| 250              | 273.0                 | 23.0250 . ... <sup>1)</sup> |   |                 |                |                |                | 210        |    |     |        |         |
| 300              | 323.9                 | 23.0300 . ... <sup>1)</sup> |   |                 |                |                |                | 210        |    |     |        |         |
| 350              | 355.6                 | 23.0350 . ... <sup>1)</sup> | 32  | 6               | 6              | 6              | 6              | 280        | 60 | 340 | 28     |         |
| 400              | 406.4                 | 23.0400 . ... <sup>1)</sup> |   |                 |                |                |                | 280        |    |     |        |         |
| 450              | 457.0                 | 23.0450 . ... <sup>1)</sup> |   |                 |                |                |                | 290        |    |     |        |         |
| 500              | 508.0                 | 23.0500 . ... <sup>1)</sup> | 32  | 6               | 6              | 6              | 6              | 320        | 70 | 340 | 38     |         |
| 600              | 610.0                 | 23.0600 . ... <sup>1)</sup> |   |                 |                |                |                |            |    |     |        |         |

1) Add nominal height, characteristic for material, surface protection and clamp carrier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.

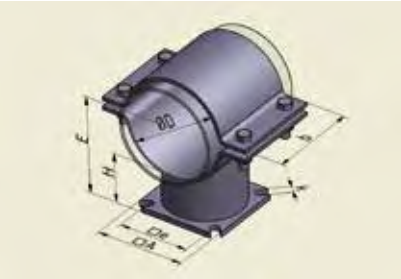
HYDRA® FIXED SUPPORT

Type series FSN and FSD, type 01 and 02,  
low overall height, fixed height, bolting-on

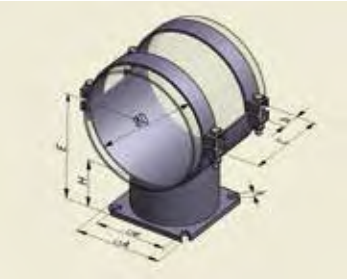
Technical data

- Pipe shell, bolting on
- Nominal height H = 60 mm  
(for non-insulated pipelines)
- Materials: S235JR
- Surface protection: hot-dip galvanized
- Serie 03 and 04 with borehole for slip safety lock
- Slip safety lock is not included

FSN 01



FSN 02



The low overall height is suitable for non-insulated pipelines with temperatures up to 90 °C.

FSN – Fixed support steel to steel, as Fig., loads see Tab.

FSD – Fixed support double with lower and upper support +FZ = -FZ

Order example: FSN 01.0200.060-37.2

Type 01, nominal diameter 200, nominal height 60 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type FSN ...                      | Nominal loads <sup>1)</sup>       |                 |                              |     |                |     | Installation dimension | Dimensions |     |     |     |    | Weight |
|------------------|-----------------------|-----------------------------------|-----------------------------------|-----------------|------------------------------|-----|----------------|-----|------------------------|------------|-----|-----|-----|----|--------|
| DN               | D                     |                                   | -F <sub>z</sub>                   | +F <sub>z</sub> | F <sub>y</sub> <sup>2)</sup> |     | F <sub>x</sub> |     |                        | E          | A   | b   | C   | e  | k      |
| -                | mm                    |                                   | kN                                | kN              | FSN                          | FSD | FSN            | FSD | mm                     | mm         | mm  | mm  | mm  | mm | kg     |
| 80               | 88.9                  |                                   | 01. 0080 .060 . ... <sup>3)</sup> | 25              | 7                            | 25  | 43             | 5   | 8                      | 104        | 115 | 90  |     | 85 | 14     |
| 100              | 114.3                 | 01. 0100 .060 . ... <sup>3)</sup> | 25                                | 9               | 25                           | 43  | 5              | 8   | 117                    | 115        | 90  | -   | 85  | 14 | 3.7    |
| 125              | 139.7                 | 01. 0125 .060 . ... <sup>3)</sup> | 50                                | 17              | 50                           | 85  | 10             | 17  | 130                    | 150        | 180 |     | 115 | 18 | 10     |
| 150              | 168.3                 | 01. 0150 .060 . ... <sup>3)</sup> | 50                                | 17              | 50                           | 85  | 10             | 17  | 144                    | 150        | 180 |     | 115 | 18 | 11     |
| 200              | 219.1                 | 01. 0200 .060 . ... <sup>3)</sup> | 95                                | 17              | 95                           | 162 | 19             | 32  | 170                    | 200        | 200 | -   | 160 | 18 | 16     |
| 250              | 273.0                 | 01. 0250 .060 . ... <sup>3)</sup> | 190                               | 37              | 190                          | 323 | 38             | 64  | 197                    | 250        | 270 |     | 200 | 27 | 32     |
| 300              | 323.9                 | 01. 0300 .060 . ... <sup>3)</sup> | 190                               | 36              | 190                          | 323 | 38             | 64  | 222                    | 250        | 270 | -   | 200 | 27 | 35     |
| 350              | 355.6                 | 02. 0350 .060 . ... <sup>3)</sup> | 230                               | 71              | 230                          | 391 | 46             | 78  | 238                    | 315        | 100 | 300 | 25  | 33 | 44     |
| 400              | 406.4                 | 02. 0400 .060 . ... <sup>3)</sup> | 230                               |                 | 230                          | 391 | 46             | 78  | 263                    | 315        |     | 300 | 250 | 33 | 47     |
| 450              | 457.0                 | 02. 0450 .060 . ... <sup>3)</sup> | 280                               |                 | 280                          | 476 | 56             | 95  | 289                    | 360        |     | 370 | 290 | 33 | 57     |
| 500              | 508.0                 | 02. 0500 .060 . ... <sup>3)</sup> | 410                               |                 | 410                          | 697 | 82             | 139 | 314                    | 400        |     | 440 | 320 | 39 | 79     |
| 600              | 610.0                 | 02. 0600 .060 . ... <sup>3)</sup> | 510                               |                 | 510                          | 867 | 102            | 173 | 365                    | 450        |     | 440 | 370 | 39 | 97     |

1) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
2) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.  
3) Add characteristic for material and surface protection



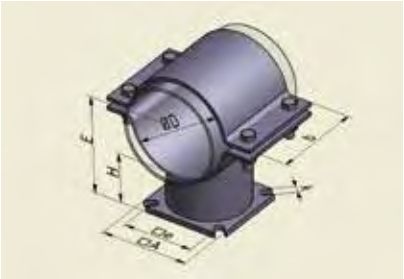
HYDRA® FIXED SUPPORT

Type series FSN and FSD, type 01,  
up to 600 °C, fixed height, bolting-on

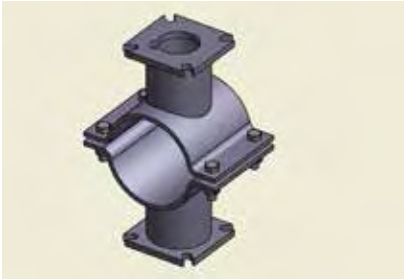
**Technical data**

- Single or double, bolting-on
- Nominal height H = 115 mm only with material S235JR
- Materials: S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection: hot-dip galvanized, unthreaded, primed
- Serie 03 with borehole for slip safety lock
- Slip safety lock is not included

**FSN 01**



**FSD 01**



FSN – Fixed support steel to steel, as Fig., loads see Tab.

FSD – Fixed support double with lower and upper support +FZ = -FZ

Order example: FSN 01.0200.150-37.2

Type 01, nominal diameter 200, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type FSN ...<br>Type FSD ...       | Nominal loads <sup>1)</sup> |                 |                              |     |                |    | Nominal height | Installation dimension | Dimensions |     |     |    | Weight  |
|------------------|-----------------------|------------------------------------|-----------------------------|-----------------|------------------------------|-----|----------------|----|----------------|------------------------|------------|-----|-----|----|---------|
| DN               | D                     |                                    | -F <sub>Z</sub>             | +F <sub>Z</sub> | F <sub>Y</sub> <sup>2)</sup> |     | F <sub>X</sub> |    | H              | E                      | A          | b   | e   | k  | approx. |
| -                | mm                    |                                    | kN                          | kN              | kN                           | kN  | kN             | kN | mm             | mm                     | mm         | mm  | mm  | mm | kg      |
| 80               | 88.9                  | 01 . 0080 .115 . ... <sup>3)</sup> | 25                          | 7               | 14                           | 24  | 2              | 3  | 115            | 159                    | 115        | 90  | 85  | 14 | 4.0     |
|                  |                       | 01 . 0080 .150 . ... <sup>3)</sup> |                             |                 | 12                           | 20  | 2              | 3  | 150            | 194                    |            |     |     |    | 4.3     |
|                  |                       | 01 . 0080 .200 . ... <sup>3)</sup> |                             |                 | 9                            | 15  | 1              | 2  | 200            | 244                    |            |     |     |    | 4.7     |
|                  |                       | 01 . 0080 .250 . ... <sup>3)</sup> |                             |                 | 7                            | 12  | 1              | 2  | 250            | 294                    |            |     |     |    | 5.2     |
| 100              | 114.3                 | 01 . 0100 .115 . ... <sup>3)</sup> | 25                          | 9               | 14                           | 24  | 2              | 3  | 115            | 172                    | 115        | 90  | 85  | 14 | 4.2     |
|                  |                       | 01 . 0100 .150 . ... <sup>3)</sup> |                             |                 | 12                           | 20  | 2              | 3  | 150            | 207                    |            |     |     |    | 4.5     |
|                  |                       | 01 . 0100 .200 . ... <sup>3)</sup> |                             |                 | 9                            | 15  | 1              | 2  | 200            | 257                    |            |     |     |    | 5       |
|                  |                       | 01 . 0100 .250 . ... <sup>3)</sup> |                             |                 | 7                            | 12  | 1              | 2  | 250            | 307                    |            |     |     |    | 5.4     |
| 125              | 139.7                 | 01 . 0125 .115 . ... <sup>3)</sup> | 37                          | 17              | 30                           | 51  | 6              | 10 | 115            | 185                    | 150        | 180 | 115 | 18 | 10      |
|                  |                       | 01 . 0125 .150 . ... <sup>3)</sup> |                             |                 | 25                           | 43  | 5              | 9  | 150            | 220                    |            |     |     |    | 11      |
|                  |                       | 01 . 0125 .200 . ... <sup>3)</sup> |                             |                 | 19                           | 32  | 3              | 5  | 200            | 270                    |            |     |     |    | 11      |
|                  |                       | 01 . 0125 .250 . ... <sup>3)</sup> |                             |                 | 14                           | 24  | 2              | 3  | 250            | 320                    |            |     |     |    | 12      |
| 150              | 168.3                 | 01 . 0150 .115 . ... <sup>3)</sup> | 37                          | 17              | 30                           | 51  | 6              | 10 | 115            | 199                    | 150        | 180 | 115 | 18 | 11      |
|                  |                       | 01 . 0150 .150 . ... <sup>3)</sup> |                             |                 | 25                           | 43  | 5              | 9  | 150            | 234                    |            |     |     |    | 12      |
|                  |                       | 01 . 0150 .200 . ... <sup>3)</sup> |                             |                 | 19                           | 32  | 3              | 5  | 200            | 284                    |            |     |     |    | 12      |
|                  |                       | 01 . 0150 .250 . ... <sup>3)</sup> |                             |                 | 14                           | 24  | 2              | 3  | 250            | 334                    |            |     |     |    | 13      |
| 200              | 219.1                 | 01 . 0200 .115 . ... <sup>3)</sup> | 60                          | 17              | 60                           | 102 | 12             | 20 | 115            | 225                    | 200        | 200 | 160 | 18 | 17      |
|                  |                       | 01 . 0200 .150 . ... <sup>3)</sup> | 54                          |                 | 50                           | 85  | 10             | 17 | 150            | 260                    |            |     |     |    | 17      |
|                  |                       | 01 . 0200 .200 . ... <sup>3)</sup> | 54                          |                 | 40                           | 68  | 8              | 14 | 200            | 310                    |            |     |     |    | 18      |
|                  |                       | 01 . 0200 .250 . ... <sup>3)</sup> | 54                          |                 | 32                           | 54  | 6              | 10 | 250            | 360                    |            |     |     |    | 19      |
| 250              | 273.0                 | 01 . 0250 .115 . ... <sup>3)</sup> | 140                         | 36              | 140                          | 238 | 28             | 48 | 115            | 252                    | 250        | 270 | 200 | 27 | 34      |
|                  |                       | 01 . 0250 .150 . ... <sup>3)</sup> | 120                         |                 | 120                          | 204 | 24             | 41 | 150            | 287                    |            |     |     |    | 35      |
|                  |                       | 01 . 0250 .200 . ... <sup>3)</sup> | 106                         |                 | 100                          | 170 | 20             | 34 | 200            | 337                    |            |     |     |    | 37      |
|                  |                       | 01 . 0250 .250 . ... <sup>3)</sup> | 106                         |                 | 85                           | 145 | 17             | 29 | 250            | 387                    |            |     |     |    | 38      |
| 300              | 323.9                 | 01 . 0300 .115 . ... <sup>3)</sup> | 140                         | 36              | 140                          | 238 | 28             | 48 | 115            | 277                    | 250        | 270 | 200 | 27 | 37      |
|                  |                       | 01 . 0300 .150 . ... <sup>3)</sup> | 120                         |                 | 120                          | 204 | 24             | 41 | 150            | 312                    |            |     |     |    | 38      |
|                  |                       | 01 . 0300 .200 . ... <sup>3)</sup> | 106                         |                 | 100                          | 170 | 20             | 34 | 200            | 362                    |            |     |     |    | 40      |
|                  |                       | 01 . 0300 .250 . ... <sup>3)</sup> | 106                         |                 | 85                           | 145 | 17             | 29 | 250            | 412                    |            |     |     |    | 42      |

1) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
2) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.  
3) Add the characteristic for material and surface protection

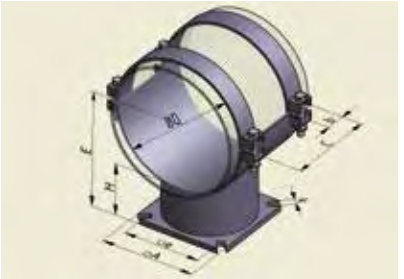
HYDRA® FIXED SUPPORT

Type series FSN and FSD, type 02,  
up to 600 °C, fixed height, bolting-on

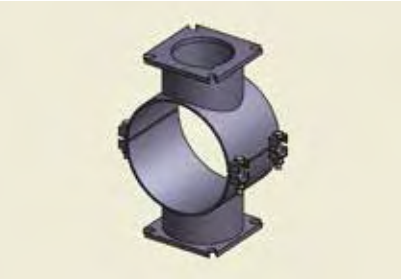
**Technical data**

- Single or double, bolting-on
- Nominal height H = 115 mm only with material S235JR
- Materials: S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection: hot-dip galvanized, unthreaded, primed
- Serie 04 with borehole for slip safety lock
- Slip safety lock is not included

**FSN 02**



**FSD 02**



FSN – Fixed support steel to steel, as Fig., loads see Tab.

FSD – Fixed support double with lower and upper support +FZ = -FZ

Order example: FSN 02.0400.150-37.2

Type 02, nominal diameter 400, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type FSN ...<br>Type FSD ...       | Nominal loads <sup>1)</sup> |                 |                              |     |                |     | Nominal height | Installation dimension | Dimensions |     |     |     |    | Weight  |
|------------------|-----------------------|------------------------------------|-----------------------------|-----------------|------------------------------|-----|----------------|-----|----------------|------------------------|------------|-----|-----|-----|----|---------|
| DN               | D                     |                                    | -F <sub>Z</sub>             | +F <sub>Z</sub> | F <sub>Y</sub> <sup>2)</sup> |     | F <sub>X</sub> |     | H              | E                      | A          | b   | C   | e   | k  | approx. |
| -                | mm                    |                                    | kN                          | FSN             | FSN                          | FSD | FSN            | FSD | mm             | mm                     | mm         | mm  | mm  | mm  | mm | kg      |
| 350              | 355.6                 | 02 . 0350 .115 . ... <sup>3)</sup> | 210                         | 71              | 210                          | 357 | 42             | 71  | 115            | 293                    | 315        | 100 | 300 | 250 | 33 | 47      |
|                  |                       | 02 . 0350 .150 . ... <sup>3)</sup> | 162                         |                 | 160                          | 272 | 32             | 54  | 150            | 328                    |            |     |     |     |    | 49      |
|                  |                       | 02 . 0350 .200 . ... <sup>3)</sup> | 162                         |                 | 130                          | 221 | 26             | 44  | 200            | 378                    |            |     |     |     |    | 52      |
|                  |                       | 02 . 0350 .250 . ... <sup>3)</sup> | 162                         |                 | 115                          | 195 | 23             | 41  | 250            | 428                    |            |     |     |     |    | 55      |
| 400              | 406.4                 | 02 . 0400 .115 . ... <sup>3)</sup> | 210                         | 71              | 210                          | 357 | 42             | 71  | 115            | 318                    | 315        | 100 | 300 | 250 | 33 | 50      |
|                  |                       | 02 . 0400 .150 . ... <sup>3)</sup> | 162                         |                 | 160                          | 272 | 32             | 54  | 150            | 353                    |            |     |     |     |    | 52      |
|                  |                       | 02 . 0400 .200 . ... <sup>3)</sup> | 162                         |                 | 130                          | 221 | 26             | 44  | 200            | 403                    |            |     |     |     |    | 55      |
|                  |                       | 02 . 0400 .250 . ... <sup>3)</sup> | 162                         |                 | 115                          | 195 | 23             | 41  | 250            | 453                    |            |     |     |     |    | 58      |
| 450              | 457.0                 | 02 . 0450 .115 . ... <sup>3)</sup> | 260                         | 71              | 260                          | 442 | 52             | 88  | 115            | 344                    | 360        | 100 | 370 | 290 | 33 | 61      |
|                  |                       | 02 . 0450 .150 . ... <sup>3)</sup> | 200                         |                 | 200                          | 340 | 40             | 68  | 150            | 379                    |            |     |     |     |    | 63      |
|                  |                       | 02 . 0450 .200 . ... <sup>3)</sup> | 192                         |                 | 170                          | 289 | 34             | 57  | 200            | 429                    |            |     |     |     |    | 66      |
|                  |                       | 02 . 0450 .250 . ... <sup>3)</sup> | 192                         |                 | 155                          | 263 | 31             | 55  | 250            | 479                    |            |     |     |     |    | 70      |
| 500              | 508.0                 | 02 . 0500 .115 . ... <sup>3)</sup> | 400                         | 71              | 400                          | 680 | 80             | 136 | 115            | 369                    | 400        | 100 | 440 | 320 | 39 | 84      |
|                  |                       | 02 . 0500 .150 . ... <sup>3)</sup> | 320                         |                 | 320                          | 527 | 64             | 105 | 150            | 404                    |            |     |     |     |    | 87      |
|                  |                       | 02 . 0500 .200 . ... <sup>3)</sup> | 270                         |                 | 270                          | 459 | 54             | 91  | 200            | 454                    |            |     |     |     |    | 91      |
|                  |                       | 02 . 0500 .250 . ... <sup>3)</sup> | 270                         |                 | 235                          | 399 | 47             | 83  | 250            | 504                    |            |     |     |     |    | 96      |
| 600              | 610.0                 | 02 . 0600 .115 . ... <sup>3)</sup> | 420                         | 71              | 420                          | 714 | 84             | 142 | 115            | 420                    | 450        | 100 | 440 | 370 | 39 | 105     |
|                  |                       | 02 . 0600 .150 . ... <sup>3)</sup> | 420                         |                 | 420                          | 578 | 84             | 115 | 150            | 455                    |            |     |     |     |    | 110     |
|                  |                       | 02 . 0600 .200 . ... <sup>3)</sup> | 340                         |                 | 340                          | 510 | 68             | 102 | 200            | 505                    |            |     |     |     |    | 115     |
|                  |                       | 02 . 0600 .250 . ... <sup>3)</sup> | 306                         |                 | 300                          | 493 | 60             | 102 | 250            | 555                    |            |     |     |     |    | 121     |

1) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
2) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.  
3) Add the characteristic for material and surface protection



HYDRA® FIXED SUPPORT

Type series FSN and FSD, type 02,  
up to 600 °C, fixed height, bolting-on

Technical data

- Single or double, bolting-on
- Nominal height H = 115 mm only with material S235JR
- Materials: S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection: hot-dip galvanized, unthreaded, primed
- Serie 04 with borehole for slip safety lock
- Slip safety lock is not included

FSN 02



FSD 02





FSN – Fixed support steel to steel, as Fig., loads see Tab.  
FSD – Fixed support double with lower and upper support +FZ = -FZ

Order example: FSN 02.0400.150-37.2  
Type 02, nominal diameter 400, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type FSN ...<br>Type FSD ...       | Nominal loads <sup>1)</sup> |                 |                              |      |                |     | Nominal height | Installation dimension | Dimensions |     |     |     |    | Weight  |
|------------------|-----------------------|------------------------------------|-----------------------------|-----------------|------------------------------|------|----------------|-----|----------------|------------------------|------------|-----|-----|-----|----|---------|
| DN               | D                     |                                    | -F <sub>Z</sub>             | +F <sub>Z</sub> | F <sub>Y</sub> <sup>2)</sup> |      | F <sub>X</sub> |     | H              | E                      | A          | b   | C   | e   | k  | approx. |
| -                | mm                    |                                    |                             | FSN             | FSN                          | FSD  | FSN            | FSD |                |                        |            |     |     |     |    |         |
|                  |                       |                                    | kN                          | kN              | kN                           | kN   | kN             | kN  | mm             | mm                     | mm         | mm  | mm  | mm  | mm | mm      |
| 700              | 711.0                 | 02 . 0700 .115 . ... <sup>3)</sup> | 520                         | 71              | 520                          | 884  | 104            | 176 | 115            | 471                    | 550        | 100 | 550 | 460 | 39 | 140     |
|                  |                       | 02 . 0700 .150 . ... <sup>3)</sup> | 520                         |                 | 520                          | 884  | 104            | 176 | 150            | 506                    |            |     |     |     |    | 146     |
|                  |                       | 02 . 0700 .200 . ... <sup>3)</sup> | 460                         |                 | 460                          | 782  | 92             | 156 | 200            | 556                    |            |     |     |     |    | 152     |
|                  |                       | 02 . 0700 .250 . ... <sup>3)</sup> | 410                         |                 | 410                          | 697  | 82             | 139 | 250            | 606                    |            |     |     |     |    | 159     |
| 800              | 813.0                 | 02 . 0800 .115 . ... <sup>3)</sup> | 520                         | 71              | 520                          | 884  | 104            | 176 | 115            | 522                    | 550        | 100 | 550 | 460 | 39 | 150     |
|                  |                       | 02 . 0800 .150 . ... <sup>3)</sup> | 520                         |                 | 520                          | 884  | 104            | 176 | 150            | 557                    |            |     |     |     |    | 156     |
|                  |                       | 02 . 0800 .200 . ... <sup>3)</sup> | 460                         |                 | 460                          | 782  | 92             | 156 | 200            | 607                    |            |     |     |     |    | 163     |
|                  |                       | 02 . 0800 .250 . ... <sup>3)</sup> | 410                         |                 | 410                          | 697  | 82             | 139 | 250            | 657                    |            |     |     |     |    | 170     |
| 900              | 914.0                 | 02 . 0900 .115 . ... <sup>3)</sup> | 730                         | 71              | 730                          | 1241 | 146            | 248 | 115            | 572                    | 650        | 100 | 650 | 540 | 45 | 196     |
|                  |                       | 02 . 0900 .150 . ... <sup>3)</sup> | 730                         |                 | 730                          | 1241 | 146            | 248 | 150            | 607                    |            |     |     |     |    | 204     |
|                  |                       | 02 . 0900 .200 . ... <sup>3)</sup> | 660                         |                 | 660                          | 1122 | 132            | 224 | 200            | 657                    |            |     |     |     |    | 211     |
|                  |                       | 02 . 0900 .250 . ... <sup>3)</sup> | 600                         |                 | 600                          | 1020 | 120            | 204 | 250            | 707                    |            |     |     |     |    | 219     |
| 1000             | 1016                  | 02 . 1000 .115 . ... <sup>3)</sup> | 730                         | 71              | 730                          | 1241 | 146            | 248 | 115            | 623                    | 650        | 100 | 650 | 540 | 45 | 208     |
|                  |                       | 02 . 1000 .150 . ... <sup>3)</sup> | 730                         |                 | 730                          | 1241 | 146            | 248 | 150            | 658                    |            |     |     |     |    | 216     |
|                  |                       | 02 . 1000 .200 . ... <sup>3)</sup> | 660                         |                 | 660                          | 1122 | 132            | 224 | 200            | 708                    |            |     |     |     |    | 223     |
|                  |                       | 02 . 1000 .250 . ... <sup>3)</sup> | 600                         |                 | 600                          | 1020 | 120            | 204 | 250            | 758                    |            |     |     |     |    | 231     |

1) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
2) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.  
3) Add the characteristic for material and surface protection

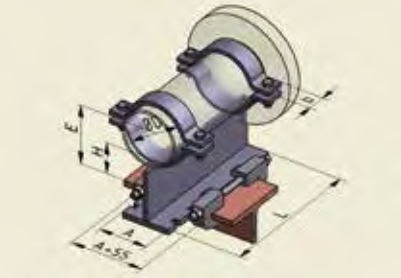
HYDRA® FIXED SUPPORT

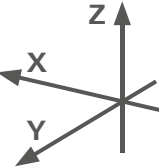
Type series FLV, type 22,  
up to 300 °C / 450 °C, fixed height, clampable, for pre-insulated pipelines

Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
- Max. insulation thickness:  
Nominal height H - 30 mm
- Materials:  
Support: S235JR, 16Mo3  
Material is temperature-dependent, see pg. 9
- Surface protection: steel parts hot-dip galvanized, unthreaded

Type 22





The insulation is not included in the delivery!

Order example: FLV 22.0100.0200-37.2-T140  
Type 22, nominal diameter 100, Pre-insulated diameter 200 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Insulation diameter | Type FLV ...                     | Nominal loads <sup>1)</sup> |                 |                |                | Nominal height | Installation dimension | Dimensions |        |       |     | Weight  |
|------------------|-----------------------|---------------------|----------------------------------|-----------------------------|-----------------|----------------|----------------|----------------|------------------------|------------|--------|-------|-----|---------|
|                  |                       |                     |                                  | -F <sub>Z</sub>             | +F <sub>Z</sub> | F <sub>X</sub> | F <sub>Y</sub> |                |                        | A          | S235JR | 16Mo3 | L   |         |
|                  |                       |                     |                                  | kN                          | kN              | kN             | kN             |                |                        | mm         | b      | b     | mm  | approx. |
| -                | mm                    | mm                  |                                  |                             |                 |                |                | mm             | mm                     | mm         | mm     | mm    | mm  | kg      |
| 20               | 26.9                  | 90                  | 22.0020.0090 . ... <sup>2)</sup> | 6                           | 1               | 3              | 6              | 92             | 105                    | 100        | 25     | 30    | 310 | 7       |
| 25               | 33.7                  | 90                  | 22.0025.0090 . ... <sup>2)</sup> |                             |                 |                |                | 88             | 105                    |            | 30     | 30    |     |         |
| 32               | 42.4                  | 110                 | 22.0032.0110 . ... <sup>2)</sup> | 6                           | 2               | 3              | 6              | 94             | 115                    | 100        | 30     | 30    | 310 | 7       |
| 40               | 48.3                  | 110                 | 22.0040.0110 . ... <sup>2)</sup> | 7                           | 2               | 3              | 7              | 91             | 115                    |            | 30     | 30    |     |         |
| 50               | 60.3                  | 125                 | 22.0050.0125 . ... <sup>2)</sup> | 7                           | 2               | 3              | 7              | 92             | 123                    |            | 40     | 40    |     |         |
| 65               | 76.1                  | 140                 | 22.0065.0140 . ... <sup>2)</sup> | 8                           | 3               | 4              | 8              | 92             | 130                    | 100        | 40     | 40    | 310 | 8       |
| 65               | 76.1                  | 160                 | 22.0065.0160 . ... <sup>2)</sup> |                             |                 |                |                | 102            | 140                    |            |        |       |     |         |
| 80               | 88.9                  | 160                 | 22.0080.0160 . ... <sup>2)</sup> |                             |                 |                |                | 96             | 140                    |            |        |       |     |         |
| 80               | 88.9                  | 180                 | 22.0080.0180 . ... <sup>2)</sup> |                             |                 |                |                | 106            | 150                    |            |        |       |     |         |
| 100              | 114.3                 | 200                 | 22.0100.0200 . ... <sup>2)</sup> | 8                           | 5               | 4              | 8              | 103            | 160                    | 100        | 40     | 50    | 310 | 10      |
| 125              | 139.7                 | 200                 | 22.0125.0200 . ... <sup>2)</sup> |                             |                 |                |                | 90             | 160                    |            |        |       |     |         |
| 125              | 139.7                 | 225                 | 22.0125.0225 . ... <sup>2)</sup> |                             |                 |                |                | 103            | 173                    |            |        |       |     |         |

1) The nominal loads apply to support made from S235JR and temperatures up to 80 °C  
2) Add characteristic for material, surface protection and clamp carrier



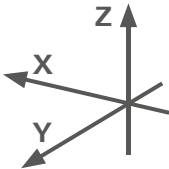
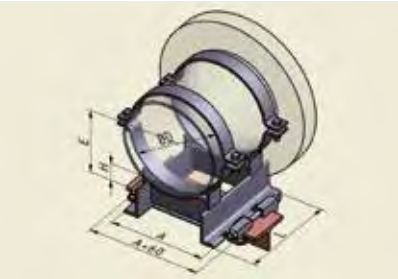
# HYDRA® FIXED SUPPORT

Type series FLV, type 23,  
up to 450 °C, fixed height, clampable, for pre-insulated pipelines

### Technical data

- 2-clamp, clampable
- Clamp carrier T-shaped:
  - Carrier width 80 to 140 mm
  - Support base thickness 7 to 19 mm
- Max. insulation thickness:
  - Nominal height H - 30 mm
- Materials:
  - Support: S235JR, 16Mo3
  - Material is temperature-dependent, see pg. 9
- Surface protection: steel parts hot-dip galvanized, unthreaded
- The clamping system is included

### Type 23



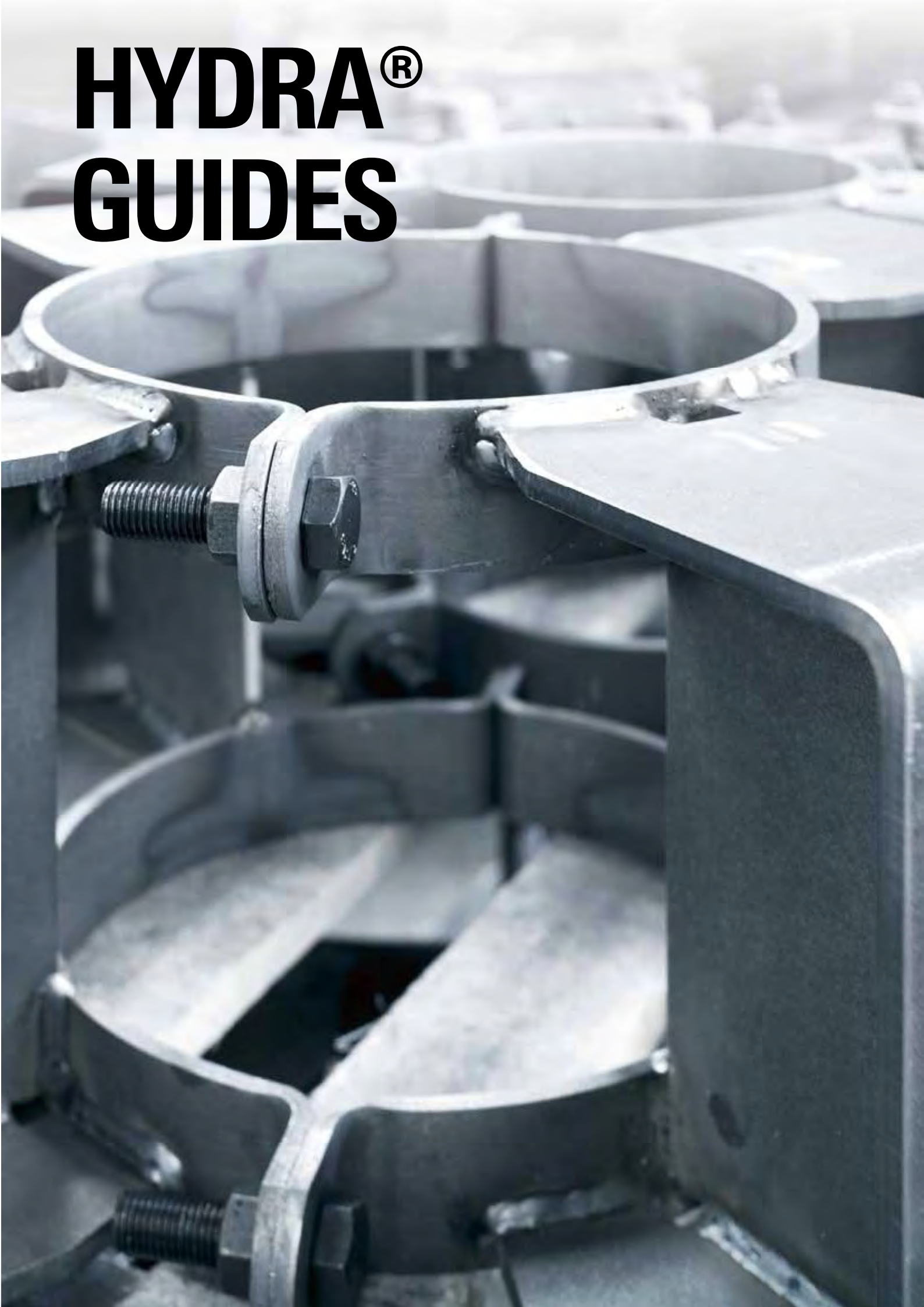
The insulation is not included in the delivery!

### Order example: FLV 23.0300.0450-37.2-T140

Type 23, nominal diameter 300, Pre-insulated diameter 450 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Insulation diameter | Type FLV ...                     | Nominal loads <sup>2)</sup> |                 |                |                              | Nominal height | Installation dimension | Dimensions |    |    |        | Weight <sup>1)</sup> |       |   |
|------------------|-----------------------|---------------------|----------------------------------|-----------------------------|-----------------|----------------|------------------------------|----------------|------------------------|------------|----|----|--------|----------------------|-------|---|
|                  |                       |                     |                                  | -F <sub>Z</sub>             | +F <sub>Z</sub> | F <sub>X</sub> | F <sub>Y</sub> <sup>4)</sup> |                |                        | H          | E  | A  | S235JR |                      | 16Mo3 | L |
|                  |                       |                     |                                  |                             |                 |                |                              |                |                        |            |    |    | b      |                      | b     |   |
| DN               | D                     | D                   |                                  | kN                          | kN              | kN             | kN                           | mm             | mm                     | mm         | mm | mm | mm     | approx.              |       |   |
| -                | mm                    | mm                  |                                  |                             |                 |                |                              |                |                        |            |    |    |        | kg                   |       |   |
| 100              | 114.3                 | 200                 | 23.0100.0200 . . . <sup>3)</sup> | 25                          | 5               | 6              | 25                           | 103            | 160                    | 203        | 40 | 50 | 340    | 15                   |       |   |
| 125              | 139.7                 | 200                 | 23.0125.0200 . . . <sup>3)</sup> |                             |                 |                |                              | 90             | 160                    | 203        |    |    |        | 15                   |       |   |
| 125              | 139.7                 | 225                 | 23.0125.0225 . . . <sup>3)</sup> |                             |                 |                |                              | 103            | 173                    | 216        |    |    |        | 17                   |       |   |
| 150              | 168.3                 | 250                 | 23.0150.0250 . . . <sup>3)</sup> | 32                          | 6               | 6              | 32                           | 101            | 185                    | 232        | 40 | 50 | 340    | 18                   |       |   |
| 200              | 219.1                 | 315                 | 23.0200.0315 . . . <sup>3)</sup> |                             |                 |                |                              | 108            | 218                    | 235        | 50 |    |        | 20                   |       |   |
| 200              | 219.1                 | 355                 | 23.0200.0355 . . . <sup>3)</sup> |                             |                 |                |                              | 128            | 238                    | 250        | 50 |    |        | 20                   |       |   |
| 200              | 219.1                 | 400                 | 23.0200.0400 . . . <sup>3)</sup> |                             |                 |                |                              | 150            | 260                    | 250        | 50 |    |        | 22                   |       |   |
| 250              | 273.0                 | 400                 | 23.0250.0400 . . . <sup>3)</sup> | 32                          | 6               | 6              | 32                           | 124            | 260                    | 324        | 50 | 60 | 340    | 24                   |       |   |
| 250              | 273.0                 | 450                 | 23.0250.0450 . . . <sup>3)</sup> |                             |                 |                |                              | 149            | 285                    | 320        |    |    |        | 25                   |       |   |
| 300              | 323.9                 | 450                 | 23.0300.0450 . . . <sup>3)</sup> |                             |                 |                |                              | 123            | 285                    | 320        |    |    |        | 25                   |       |   |
| 350              | 355.6                 | 500                 | 23.0350.0500 . . . <sup>3)</sup> | 32                          | 6               | 6              | 32                           | 132            | 310                    | 320        | 60 | 60 | 340    | 26                   |       |   |
| 400              | 406.4                 | 560                 | 23.0400.0560 . . . <sup>3)</sup> |                             |                 |                |                              | 137            | 340                    | 350        |    | 70 |        | 27                   |       |   |
| 400              | 406.4                 | 600                 | 23.0400.0600 . . . <sup>3)</sup> |                             |                 |                |                              | 157            | 360                    | 350        |    | 70 |        | 28                   |       |   |
| 450              | 457.0                 | 630                 | 23.0450.0630 . . . <sup>3)</sup> | 32                          | 6               | 6              | 32                           | 147            | 375                    | 360        | 60 | 70 | 340    | 29                   |       |   |
| 500              | 508.0                 | 670                 | 23.0500.0670 . . . <sup>3)</sup> | 35                          |                 |                |                              | 141            | 395                    | 360        | 70 | 70 |        | 37                   |       |   |
| 600              | 610.0                 | 800                 | 23.0600.0800 . . . <sup>3)</sup> | 40                          |                 |                |                              | 155            | 460                    | 380        | 70 | 90 |        | 41                   |       |   |

1) From DN 400, weight for 16Mo3 10 kg heavier  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Add characteristic for material, surface protection and clamp carrier  
4) Attach slip safety locks on both sides of the pipe at the 6 o'clock position to transfer the axial forces.



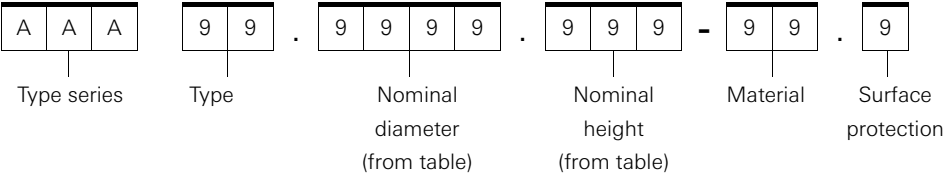
# HYDRA® GUIDES



HYDRA® GUIDES

Type series, names, variants

Type designation LSF / LKF / LXF



Type series

|     |   |
|-----|---|
| LKF | Guide with PA sliding plate, low-friction sliding   |
| LSF | Guide without sliding plate, steel to steel sliding |
| LXF | Guide with stainless steel sliding plate            |

Type

| Characteristic | Types (combinable)                      |
|----------------|---|
| 2x             | Double guide                            |
| 3x             | Triple guide                            |
| 4x             | Quadruple guide                         |
| 6x             | Double guide, 90°                       |
| x1             | T-shaped base width 80 mm, 2-clamp      |
| x2             | T-shaped base width 100 mm, 2-clamp     |
| x3             | Box-shaped base, 2-clamp                |
| x4             | Box-shaped base, heavy version, 2-clamp |

Material

| Name              |        | Characteristic | max. medium temp* acc. to VGB R510L in °C |
|-------------------|--------|----------------|---|
| S235JRG2          | 1.0038 | 37             | 300 (standard)                            |
| 16Mo3             | 1.5415 | 16             | 500                                       |
| 13CrMo4-5         | 1.7335 | 13             | 530                                       |
| 10CrMo9-10        | 1.7380 | 10             | 580                                       |
| X6CrNiTi18-10     | 1.4541 | 41             | 550                                       |
| X6CrNiMoTi17-12-2 | 1.4571 | 71             | 550                                       |
| X10CrMoVNb9-1     | 1.4903 | 91             | 650                                       |
| others            | -      | 99             | -   |

\* Temperature reduction coefficients see page 9  
\*max. temperature on polyamide sliding plate 90° C

Surface protection

| Name               | Characteristic |
|--------------------|----------------|
| Unthreated         | 0              |
| Galvanized         | 1              |
| Hot-dip galvanized | 2 (standard)   |
| Primed             | 3              |
| Special            | 4              |

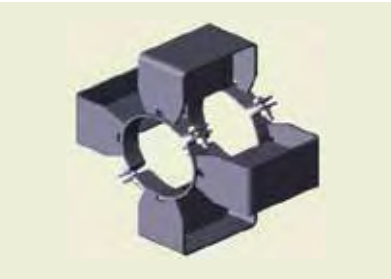
Type 23



Type 33



Type 43



Type 63



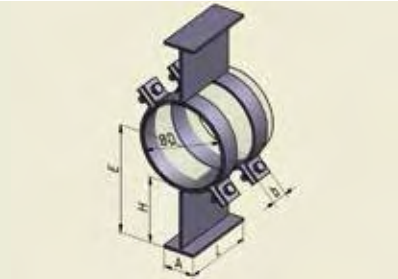
HYDRA® GUIDES

Type series LKF, LSF and LXF, type 21 and 22, up to 300 °C, fixed height, steel to steel or low-friction sliding, various guide types

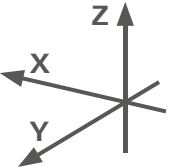
Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKF)  
Sliding plates: Stainless steel (LXF)
- Surface protection:  
steel parts hot-dip galvanized, unthreated, primed
- Coefficients of friction:  
Sliding pairing LKF polyamide-steel: 0.2 to 0.3  
Sliding pairing LXF stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)

Type 21 and 22



Type series LKF



Differences in the type series:

Type series LKF – with clamped polyamide sliding plate

Type series LSF – steel to steel sliding (E dimension 8 mm lower than LKF)

Type series LXF – with welded stainless steel sliding plate (E dimension 5 mm lower than LSF)

Order example: LKF 21.0080.150-37.2

Type 21, nominal diameter 80, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LKF ...<br>Type LSF ...<br>Type LXF ... | Nominal loads <sup>2)</sup> and system dimensions |     |                 |     |                 |     |                 |     | Dimensions |     |    | Weight  |
|------------------|-----------------------|--|---|-----|-----------------|-----|-----------------|-----|-----------------|-----|------------|-----|----|---------|
|                  |                       |  | Nominal height H                                  |     |                 |     |                 |     |                 |     |            |     |    |         |
|                  |                       |  | 95  |     | 115             |     | 150             |     | 200             |     |            |     |    |         |
|                  |                       |  | 85  |     | 105             |     | 140             |     | 190             |     |            |     |    |         |
|                  |                       |  | 88  |     | 108             |     | 143             |     | 193             |     |            |     |    |         |
| DN               | D                     |  | ±F <sub>Z</sub>                                   | E   | ±F <sub>Z</sub> | E   | ±F <sub>Z</sub> | E   | ±F <sub>Z</sub> | E   | A          | L   | b  | approx. |
| -                | mm                    |  | kN  | mm  | kN              | mm  | kN              | mm  | kN              | mm  | mm         | mm  | mm | kg      |
| 40               | 48.3                  | 21.0040 . ... <sup>1)</sup>                  | 16  | 117 | -               | -   | 10              | 173 | 5,5             | 223 | 80         | 250 | 30 | 8       |
| 50               | 60.3                  | 21.0050 . ... <sup>1)</sup>                  |   | 124 |                 |     |                 | 180 |                 | 230 |            |     | 40 |         |
| 65               | 76.1                  | 21.0065 . ... <sup>1)</sup>                  |   | 132 |                 |     |                 | 188 |                 | 238 |            |     | 40 |         |
| 80               | 88.9                  | 21.0080 . ... <sup>1)</sup>                  |   | 138 |                 |     |                 | 194 |                 | 244 |            |     | 40 |         |
| 100              | 114.3                 | 22.0100 . ... <sup>1)</sup>                  | -   | -   | 5,0             | 172 | 5,0             | 207 | 5,0             | 257 | 100        | 250 | 40 | 12      |
| 125              | 139.7                 | 22.0125 . ... <sup>1)</sup>                  |   |     | 4,5             | 185 | 4,5             | 220 | 4,5             | 270 |            |     |    |         |
| 150              | 168.3                 | 22.0150 . ... <sup>1)</sup>                  |   |     | 4,2             | 199 | 4,2             | 234 | 4,2             | 284 |            |     |    |         |
| 200              | 219.1                 | 22.0200 . ... <sup>1)</sup>                  | -   | -   | 3,7             | 225 | 3,7             | 260 | 3,7             | 310 | 100        | 250 | 50 | 14      |
| 250              | 273.0                 | 22.0250 . ... <sup>1)</sup>                  |   |     | 3,2             | 252 | 3,2             | 287 | 3,2             | 337 |            |     |    |         |
| 300              | 323.9                 | 22.0300 . ... <sup>1)</sup>                  |   |     | 2,9             | 277 | 2,9             | 312 | 2,9             | 362 |            |     |    |         |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C



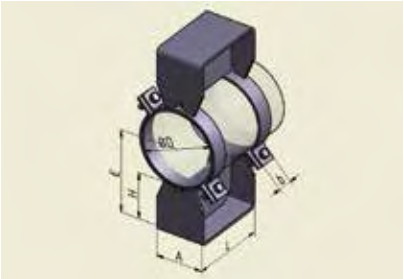
HYDRA® GUIDES

Type series LKF, LSF and LXF, type 23,  
up to 300 °C, fixed height, steel to steel or low-friction sliding


**Technical data**

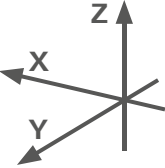
- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: S235JR  
Sliding plate: Polyamide PA 66,  
glass fibre-reinforced (LKF)  
Sliding plate: Stainless steel (LXF)
- Surface protection:  
steel parts hot-dip galvanized, unthreaded, primed
- Coefficients of friction:  
Sliding pairing LKF polyamide-steel: 0.2 to 0.3  
Sliding pairing LXF stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)

**Type 23**



**Type series LKF**





**Differences in the type series:**  
**Type series LKF – with clamped polyamide sliding plate**  
**Type series LSF – steel to steel sliding**  
**Type series LXF – with welded stainless steel sliding plate (E dimension 3 mm higher than specified)**

**Order example: LKF 23.0150.150-37.2**  
Type 23, nominal diameter 150, nominal height 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LKF ...<br>Type LSF ...<br>Type LXF ... | Nennlasten <sup>2)</sup> | Nominal loads <sup>2)</sup> and system dimensions |     |     |     | Dimensions |     |     | Weight  |
|------------------|-----------------------|--|--------------------------|---|-----|-----|-----|------------|-----|-----|---------|
|                  |                       |  |                          | Nominal height H                                  |     |     |     |            |     |     |         |
|                  |                       |  |                          | 115   | 150 | 200 | -   |            |     |     |         |
|                  |                       |  |                          | 107   | 150 | 200 | 250 |            |     |     |         |
|                  |                       |  |                          | 110   | 153 | 203 | 253 |            |     |     |         |
| DN               | D                     |  | ±Fz                      | Einbaumaß E                                       |     |     |     | A          | L   | b   | approx. |
| -                | mm                    |  | kN                       | mm  |     |     |     | mm         | mm  | mm  | kg      |
| 100              | 114.3                 | 23.0100 . . . . <sup>1)</sup>                | 74                       | 172   | 207 | 257 | 307 | 100        | 290 | 40  | 15      |
| 125              | 139.7                 | 23.0125 . . . . <sup>1)</sup>                | 77                       | 185   | 220 | 270 | 320 |            |     | 40  |         |
| 150              | 168.3                 | 23.0150 . . . . <sup>1)</sup>                | 80                       | 199   | 234 | 284 | 334 |            |     | 40  |         |
| 200              | 219.1                 | 23.0200 . . . . <sup>1)</sup>                | 102                      | 225   | 260 | 310 | 360 | 175        | 290 | 50  | 29      |
| 250              | 273.0                 | 23.0250 . . . . <sup>1)</sup>                | 115                      | 252   | 287 | 337 | 387 |            |     | 50  |         |
| 300              | 323.9                 | 23.0300 . . . . <sup>1)</sup>                | 127                      | 277   | 312 | 362 | 412 |            |     | 50  |         |
| 350              | 355.6                 | 23.0350 . . . . <sup>1)</sup>                | 127                      | 293   | 328 | 378 | 428 |            |     | 60  |         |
| 400              | 406.4                 | 23.0400 . . . . <sup>1)</sup>                | 170                      | 318   | 353 | 403 | 453 | 250        | 290 | 60  | 41      |
| 450              | 457.0                 | 23.0450 . . . . <sup>1)</sup>                |                          | 344   | 379 | 429 | 479 |            |     | 60  | 42      |
| 500              | 508.0                 | 23.0500 . . . . <sup>1)</sup>                |                          | 369   | 404 | 454 | 504 |            |     | 70  | 48      |
| 600              | 610.0                 | 23.0600 . . . . <sup>1)</sup>                | 170                      | 420   | 455 | 505 | 555 |            |     | 250 | 290     |
| 700              | 711.0                 | 23.0700 . . . . <sup>1)</sup>                |                          | 471   | 506 | 556 | 606 | 90         | 65  |     |         |
| 800              | 814.0                 | 23.0800 . . . . <sup>1)</sup>                |                          | 522   | 557 | 607 | 657 | 100        | 84  |     |         |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C

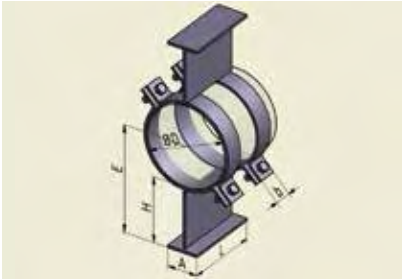
HYDRA® GUIDES

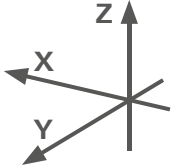
Type series LSF and LXF, type 21 and 22,  
up to 600 °C, fixed height, steel to steel or low-friction sliding

**Technical data**

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent - see pg. 9  
Sliding plate: Stainless steel (LXL)
- Surface protection: steel parts unthreaded, primed
- Coefficients of friction:  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)

**Type 21 and 22**





**Differences in the type series:**  
**Type series LSF – steel to steel sliding**  
**Type series LXF – with welded stainless steel sliding plate (E dimension um 3 mm higher than specified)**

**Order example: LSF 21.0080.150-16.0**  
Type 21, nominal diameter 80, nominal height 150 mm 16Mo3, unthreaded

| Nominal<br>diameter | Outside pipe<br>diameter | Type LSF ...<br>Type LXF ... | Nominal loads <sup>2)</sup> and system dimensions |     |     |     |     |     | Dimensions |     |    | Weight  |
|---------------------|--------------------------|------------------------------|---|-----|-----|-----|-----|-----|------------|-----|----|---------|
|                     |                          |                              | Nominal height H                                  |     |     |     |     |     |            |     |    |         |
|                     |                          |                              | 150   |     | 200 |     | 250 |     |            |     |    |         |
|                     |                          |                              | 153   |     | 203 |     | 253 |     |            |     |    |         |
| DN                  | D                        |                              | ±Fz   | E   | ±Fz | E   | ±Fz | E   | A          | L   | b  | approx. |
| -                   | mm                       |                              | kN  | mm  | kN  | mm  | kN  | mm  | mm         | mm  | mm | kg      |
| 40                  | 48.3                     | 21.0040 . ... <sup>1)</sup>  | 10  | 173 | 5,5 | 223 | 3,9 | 273 | 80         | 250 | 30 | 8       |
| 50                  | 60.3                     | 21.0050 . ... <sup>1)</sup>  |   | 180 |     | 230 |     | 280 |            |     | 40 |         |
| 65                  | 76.1                     | 21.0065 . ... <sup>1)</sup>  |   | 188 |     | 238 |     | 288 |            |     |    |         |
| 80                  | 88.9                     | 21.0080 . ... <sup>1)</sup>  |   | 194 |     | 244 |     | 294 |            |     |    |         |
| 100                 | 114.3                    | 22.0100 . ... <sup>1)</sup>  | 5,0   | 207 | 5,0 | 257 | 4,7 | 307 | 100        | 250 | 40 | 13      |
| 125                 | 139.7                    | 22.0125 . ... <sup>1)</sup>  | 4,5   | 220 | 4,5 | 270 | 4,7 | 320 |            |     |    |         |
| 150                 | 168.3                    | 22.0150 . ... <sup>1)</sup>  | 4,2   | 234 | 4,2 | 284 | 4,7 | 334 |            |     |    |         |
| 200                 | 219.1                    | 22.0200 . ... <sup>1)</sup>  | 3,7   | 260 | 3,7 | 310 | 3,9 | 360 | 100        | 250 | 50 | 17      |
| 250                 | 273.0                    | 22.0250 . ... <sup>1)</sup>  | 3,2   | 287 | 3,2 | 337 | 3,9 | 387 |            |     |    |         |
| 300                 | 323.9                    | 22.0300 . ... <sup>1)</sup>  | 2,9   | 312 | 2,9 | 362 | 3,9 | 412 |            |     |    |         |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from 16Mo3 and temperatures up to 150 °C



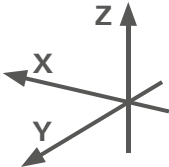
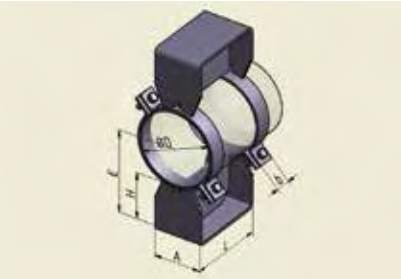
HYDRA® GUIDES

Type series LSF and LXF, type 23,  
up to 600 °C, fixed height, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent - see pg. 9  
Sliding plate: Stainless steel (LXL)
- Surface protection: steel parts unthreaded, primed
- Coefficients of friction:  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)

Type 23



Differences in the type series:

Type series LSF – steel to steel sliding

Type series LXF – with welded stainless steel sliding plate (E dimension 3 mm higher than specified)

Order example: LSF 23.0080.150-16.0

Type 23, nominal diameter 100, nominal height 150 mm, 16Mo3, unthreaded

| Nominal<br>diameter | Outside pipe<br>diameter | Type LSF ...<br>Type LXF ... | Nominal<br>loads <sup>2)</sup> | and system dimensions |     |     | Dimensions |     |     | Weight  |
|---------------------|--------------------------|------------------------------|--------------------------------|-----------------------|-----|-----|------------|-----|-----|---------|
|                     |                          |                              |                                | Nominal height H      |     |     |            |     |     |         |
|                     |                          |                              |                                | 150                   | 200 | 250 |            |     |     |         |
|                     |                          |                              |                                | 153                   | 203 | 253 |            |     |     |         |
| DN                  | D                        |                              | ±F <sub>Z</sub>                | Einbaumaß E           |     |     | A          | L   | b   | approx. |
| -                   | mm                       |                              | kN                             | mm                    |     |     | mm         | mm  | mm  | kg      |
| 100                 | 114.3                    | 23.0100 . ... <sup>1)</sup>  | 74                             | 207                   | 257 | 307 | 100        | 290 | 50  | 20      |
| 125                 | 139.7                    | 23.0125 . ... <sup>1)</sup>  | 77                             | 220                   | 270 | 320 |            |     |     |         |
| 150                 | 168.3                    | 23.0150 . ... <sup>1)</sup>  | 80                             | 234                   | 284 | 334 |            |     |     |         |
| 200                 | 219.1                    | 23.0200 . ... <sup>1)</sup>  | 102                            | 260                   | 310 | 360 | 175        | 290 | 50  | 35      |
| 250                 | 273.0                    | 23.0250 . ... <sup>1)</sup>  | 115                            | 287                   | 337 | 387 |            |     | 60  |         |
| 300                 | 323.9                    | 23.0300 . ... <sup>1)</sup>  | 127                            | 312                   | 362 | 412 |            |     | 60  |         |
| 350                 | 355.6                    | 23.0350 . ... <sup>1)</sup>  | 127                            | 328                   | 378 | 428 |            |     | 60  |         |
| 400                 | 406.4                    | 23.0400 . ... <sup>1)</sup>  | 170                            | 353                   | 403 | 453 | 250        | 290 | 70  | 55      |
| 450                 | 457.0                    | 23.0450 . ... <sup>1)</sup>  |                                | 379                   | 429 | 479 |            |     |     |         |
| 500                 | 508.0                    | 23.0500 . ... <sup>1)</sup>  |                                | 404                   | 454 | 504 |            |     |     |         |
| 600                 | 610.0                    | 23.0600 . ... <sup>1)</sup>  | 170                            | 455                   | 505 | 555 | 250        | 290 | 90  | 64      |
| 700                 | 711.0                    | 23.0700 . ... <sup>1)</sup>  |                                | 506                   | 556 | 606 |            |     | 90  | 69      |
| 800                 | 814.0                    | 23.0800 . ... <sup>1)</sup>  |                                | 557                   | 607 | 657 |            |     | 100 | 88      |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from 16Mo3 and temperatures up to 150 °C

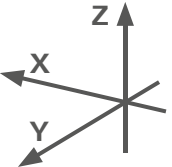
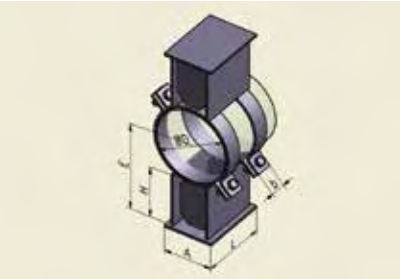
HYDRA® GUIDES

Type series LSF and LXF, type 24,  
up to 600 °C, fixed height, steel to steel or low-friction sliding

Technical data

- 2-clamp, clampable
- Max. insulation thickness:  
Nominal height H - 10 mm  
with clamping system H - 30 mm
- Materials:  
Support: 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent - see pg. 9  
Sliding plate: Stainless steel (LXL)
- Surface protection:  
steel parts hot-dip galvanized, unthreaded, primed
- Coefficients of friction:  
Sliding pairing LXL stainless steel PTFE: 0.1 (in conjunction  
with sliding element LGA or LGV - see pg. 29)

Type 24



Differences in the type series:

Type series LSF – steel to steel sliding

Type series LXF – with welded stainless steel sliding plate (E dimension 3 mm higher than specified)

Order example: LSF 24.0500.200-37.2

Type 24, nominal diameter 500, nominal height 200 mm, S235JR, hot-dip galvanized

| Nominal<br>diameter | Outside pipe<br>diameter | Type LSF ...<br>Type LXF ... | Nominal<br>loads <sup>2)</sup> | and system dimensions |     |     |     | Dimensions |     |     | Weight  |
|---------------------|--------------------------|------------------------------|--------------------------------|-----------------------|-----|-----|-----|------------|-----|-----|---------|
|                     |                          |                              |                                | Nominal height H      |     |     |     |            |     |     |         |
|                     |                          |                              |                                | 150                   | 200 | 250 | 300 |            |     |     |         |
|                     |                          |                              |                                | 153                   | 203 | 253 | 303 |            |     |     |         |
| DN                  | D                        |                              | ±F <sub>Z</sub>                | Einbaumaß E           |     |     |     | A          | L   | b   | approx. |
| -                   | mm                       |                              | kN                             | mm                    |     |     |     | mm         | mm  | mm  | kg      |
| 150                 | 168.3                    | 24.0150 ... <sup>1)</sup>    | 100                            | 234                   | 284 | 334 | -   | 120        | 250 | 50  | 23      |
| 200                 | 219.1                    | 24.0200 ... <sup>1)</sup>    |                                | 260                   | 310 | 360 |     |            |     |     | 27      |
| 250                 | 273.0                    | 24.0250 ... <sup>1)</sup>    | 135                            | 287                   | 337 | 387 | -   | 210        | 250 | 60  | 32      |
| 300                 | 323.9                    | 24.0300 ... <sup>1)</sup>    |                                | 312                   | 362 | 412 |     |            |     |     | 35      |
| 350                 | 355.6                    | 24.0350 ... <sup>1)</sup>    |                                | 328                   | 378 | 428 |     |            |     |     | 37      |
| 400                 | 406.4                    | 24.0400 ... <sup>1)</sup>    |                                | 353                   | 403 | 453 |     |            |     |     | 61      |
| 450                 | 457.0                    | 24.0450 ... <sup>1)</sup>    | 235                            | 379                   | 429 | 479 | -   | 270        | 330 | 70  | 65      |
| 500                 | 508.0                    | 24.0500 ... <sup>1)</sup>    |                                | 404                   | 454 | 504 |     |            |     |     | 73      |
| 600                 | 610.0                    | 24.0600 ... <sup>1)</sup>    | 300                            | 455                   | 505 | 555 | -   | 370        | 330 | 90  | 97      |
| 700                 | 711.0                    | 24.0700 ... <sup>1)</sup>    |                                | 506                   | 556 | 606 |     |            |     |     | 102     |
| 800                 | 814.0                    | 24.0800 ... <sup>1)</sup>    | 360                            | -                     | 607 | 657 | 707 | 420        | 330 | 110 | 160     |
| 900                 | 914.0                    | 24.0900 ... <sup>1)</sup>    |                                |                       | 657 | 707 | 757 | 420        |     |     | 200     |
| 1000                | 1016.0                   | 24.1000 ... <sup>1)</sup>    |                                |                       | 708 | 758 | 808 | 520        |     |     | 230     |

1) Add nominal height and characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C

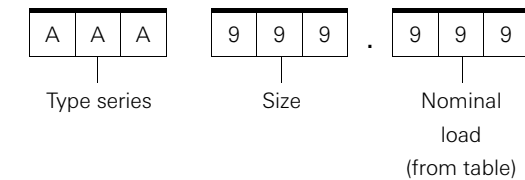


# HYDRA® ROLLER SUPPORT

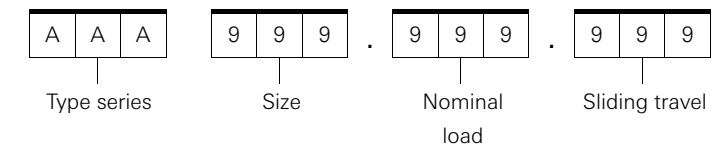
## HYDRA® ROLLER SUPPORT

Type designations

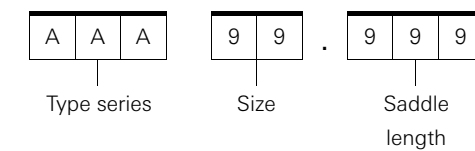
### Type designation RZL / RZG / RKF / RKL / RDF



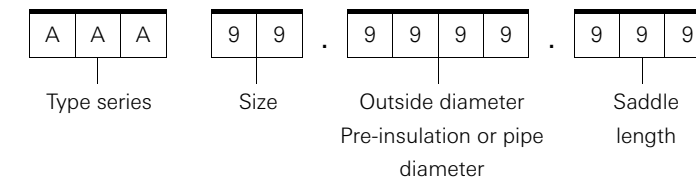
### RDL



### ADJ / AKJ



### ADM / AKM



### Type series

|   |  |
|---|--|
| Cylinder roller support                             |  |
| RZL   | Movable support                                    |
| RZG   | Guide support with uplift restraint                |
| Double cone roller support                          |  |
| RKL   | Movable support                                    |
| RKF   | Guide support                                      |
| Double cylinder roller support                      |  |
| RDL   | Movable support                                    |
| RDF   | Guide support                                      |
| Uplift restraint for double cone roller support     |  |
| AKJ   | for insulated pipelines                            |
| AKM   | for non-insulated pipelines or pre-insulated pipes |
| Uplift restraint for double cylinder roller support |  |
| ADJ   | for insulated pipelines                            |
| ADM   | for non-insulated pipelines or pre-insulated pipes |



HYDRA® ROLLER SUPPORT

Type series, selection

Selection of roller support

Loads roller support

F = F\_N x K\_u x K\_D

F\_N ... ■ Nominal load corresponds to permitted load of the corresponding dimension (e.g.: F\_Z as support load)

K\_u ... ■ Temperature coefficient, see pg. 9  
■ If using a saddle, first calculate temperature on support

K\_D ... ■ Reduction coefficient from deviation from average contact diameter  
■ Only relevant with RDL and RDF, otherwise K\_D = 1  
■ Reduction from average contact diameter to limit diameter linear up to 70%  
■ With lifting off (+F\_Z), K\_D = 0.7 applies

Required lateral relocatability (only with RDL)

W\_support > W + 2 x W\_R

W ... ■ Existing lateral displacement  
W\_R ... ■ Recommended reserve, with RDL = 10 mm

Installation dimension E: Top edge of carrier – pipe centreline (with RZL and RZG)

E = E\_roller support + E\_support

Installation dimension E: top edge of support-pipe middle

E = 0.532 x DA + Y

DA ... ■ contact diameter  
Y ... ■ system dimension

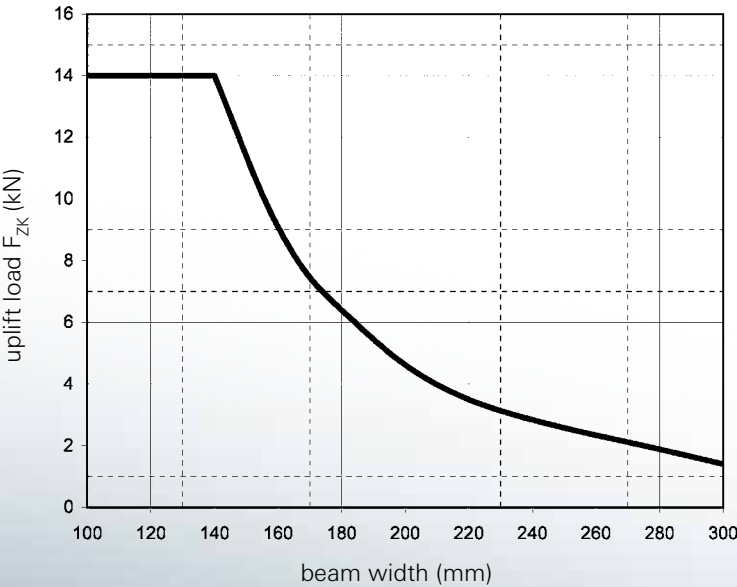
Allowable uplift load with clamped roller support depending on the beam width

Minimum required beam width 120 mm (smaller beam widths on request)

Allowable uplift load

F\_Z = min (F\_Z,R; F\_Zk)

F\_Z,R see page 58 or 59



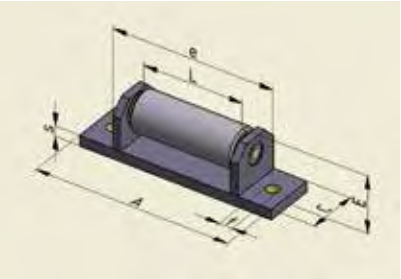
HYDRA® STEEL TO STEEL CYLINDER ROLLER SUPAPORT

Type series RZL and RZG, movable support type RZL and guide support with uplift restraint type RZG

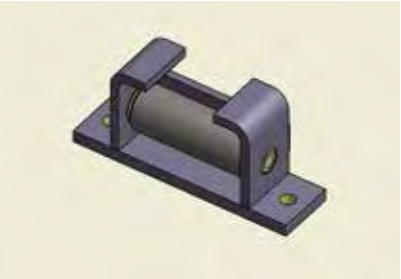
Technical data

- Clampable size<sup>1)</sup>: 01, 03, 05
- Materials:  
Housing: S235JR  
Roller: S355J2 / polyamide (max. 100 °C)  
RDx 0... / RDx 9...
- Surface protection:  
steel components hot-dip galvanized
- For usual application in pipeline construction, Roller made from S355J2 and steel parts hot-dip galvanized. Reduced noise transmission and creepage currents. Roller made from polyamide and steel parts hot-dip galvanized, maximum contact temp. 100 °C.
- Description and characteristics
  - Resistance of the roller less than 4%.
  - Bars for lateral guidance up to 20% of the nominal load.
  - Uplift restraint up to 50% of the nominal load.
  - Calculation of the resistance = K\_L x F\_A  
F\_A ... effective nominal load.
  - Combined radial-axial support  
PTFE compound, dirt-repellent and maintenance-free, comprising:  
Ground rust-free stainless steel shaft.  
PTFE composite supports with flanged disc.  
Form-fitting axial securing devices made from rust-free stainless steel.

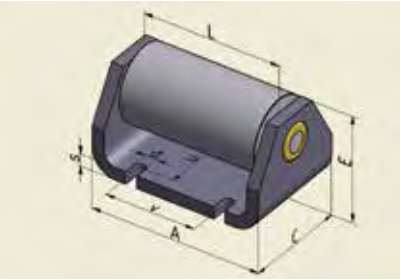
Movable support RZL, 01 - 05



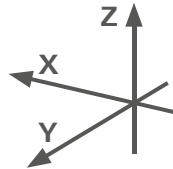
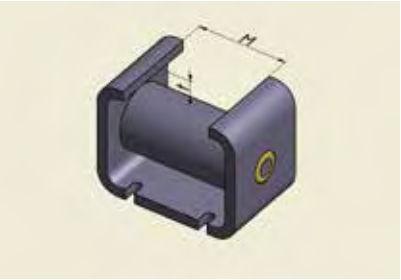
Guide support RZG, 01 - 05



Movable support RZL, 08



Guide support RZG, 08



Order example: RZG 903.014

Guide support, polyamide roller, size 03, nominal load 14 kN

| Contact width | Type RZL ...<br>Type RZG ... | Nominal loads   |                | Coefficient of resistance | Installation dimension | Dimensions |     |     |    |    | Connection dimensions |    |     |     |    |    | Weight  |
|---------------|------------------------------|-----------------|----------------|---------------------------|------------------------|------------|-----|-----|----|----|-----------------------|----|-----|-----|----|----|---------|
| L             |                              | -F <sub>Z</sub> | F <sub>x</sub> | K <sub>L</sub>            | E                      | A          | C   | RZG |    |    | d                     | e  | f   | u   | v  | s  | approx. |
| mm            |                              | kN              | kN             | -                         | mm                     | mm         | mm  | M   | t  | mm | mm                    | mm | mm  | mm  | mm | mm | kg      |
| 80            | 001 .008                     | 8               | 2.4            | 0.05                      | 45                     | 150        | 40  | 48  | 16 | 10 | 125                   | -  | -   | -   | 8  |    | 0.9     |
| 100           | 003 .014                     | 14              | 4.2            |                           | 55                     | 190        | 70  | 54  | 18 | 12 | 160                   | 10 | 50  | 75  | 8  |    | 1.9     |
| 120           | 005 .024                     | 24              | 7.2            |                           | 75                     | 250        | 90  | 69  | 20 | 14 | 210                   | 12 | 70  | 80  | 8  |    | 4.4     |
| 170           | 008 .050                     | 50              | 10.0           |                           | 125                    | 208        | 130 | 130 | 20 | 14 | -                     | -  | 100 | 110 | 15 |    | 15.0    |
| 80            | 901 .008                     | 8               | 2.4            | 0.07                      | 45                     | 150        | 40  | 48  | 16 | 10 | 125                   | -  | -   | -   | 8  |    | 0.7     |
| 100           | 903 .014                     | 14              | 4.2            |                           | 55                     | 190        | 70  | 54  | 18 | 12 | 160                   | 10 | 50  | 75  | 8  |    | 1.4     |
| 120           | 905 .024                     | 24              | 7.2            |                           | 75                     | 250        | 90  | 69  | 20 | 14 | 210                   | 12 | 70  | 80  | 8  |    | 2.8     |
| 170           | 908 .050                     | 50              | 10.0           |                           | 125                    | 208        | 130 | 130 | 20 | 14 | -                     | -  | 100 | 110 | 15 |    | 7.0     |

1) Clamping system KOT - see pg. 27



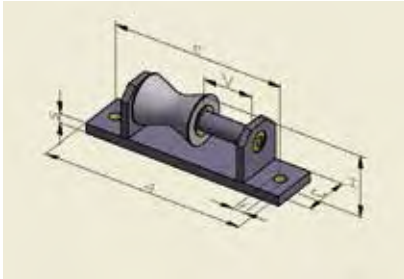
HYDRA® DOUBLE CONE ROLLER SUPPORT

Type series RKF and RKL,  
guide support type RKF (V=0), movable support laterally relocatable type RKL

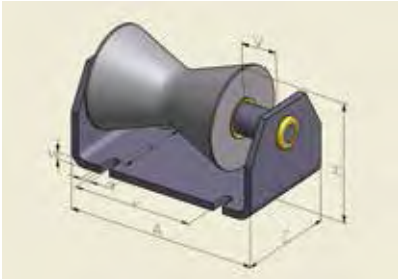
**Technical data**

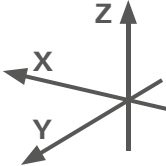
- Clampable size: 01, 02, 03
- Materials:  
Housing: S235J2  
Roller: S355J2 / polyamide (max. 100 °C)  
RKx 0... / RKx 9...
- Surface protection:  
steel components hot-dip galvanized
- For usual application in pipeline construction,  
roller made from S355J2 and steel parts  
hot-dip galvanized.
- Reduced noise transmission and creepage currents,  
roller made from polyamide and steel parts  
hot-dip galvanized, maximum contact temp. 100 °C.
- Description and characteristics:
  - Resistance of the roller approx. 2%
  - Lateral guidance up to 35% of the nominal load
  - Upliftrestraint (see AKx)
  - Calculation of the resistance =  $K_L \times F_A$   
 $F_A$  ... effective nominal load.
  - Combined radial-axial support  
PTFE compound, dirt-repellent and  
maintenance-free, comprising:
  - Ground rust-free stainless steel shaft.
  - PTFE composite supports with flanged disc.
  - Form-fitting axial securing devices  
made from rust-free stainless steel.

**Size 01 - 03**



**Size 05**





**Order example: RKF 903.005**  
Guide support, polyamide roller, size 03, nominal load 5 kN

| Contact diameter | Type RKF ...<br>Type RKL ... | Nominal loads   |                 |                | Lateral displacement travel V | Coefficient of resistance |                | System dimension | Dimensions     |     |                 | Connection dimensions |     |    |                 |     |     |     | Weight  |     |   |
|------------------|------------------------------|-----------------|-----------------|----------------|-------------------------------|---------------------------|----------------|------------------|----------------|-----|-----------------|-----------------------|-----|----|-----------------|-----|-----|-----|---------|-----|---|
|                  |                              | -F <sub>Z</sub> | +F <sub>Z</sub> | F <sub>x</sub> |                               | RKL                       | Axial          |                  | Lateral        | Y   | A <sup>3)</sup> | C                     | H   | d  | e <sup>3)</sup> | f   | u   | RKF |         | RKL | s |
|                  |                              |                 |                 |                |                               |                           | K <sub>L</sub> |                  | K <sub>Q</sub> |     |                 |                       |     |    |                 |     |     | v   |         | v   |   |
| DA               |                              | kN              | kN              | kN             | mm                            | -                         | -              | mm               | mm             | mm  | mm              | mm                    | mm  | mm | mm              | mm  | mm  | mm  | approx. |     |   |
| mm               |                              |                 |                 |                |                               |                           |                |                  |                |     |                 |                       |     |    |                 |     |     |     | kg      |     |   |
| 50 - 119         | 001 .001                     | 1.5             | 1.5             | 1)             | 50                            | 0.05                      | 0.06           | 44               | 120            | 40  | 53              | -                     | 95  | 10 | -               | -   | -   | 8   | 1.0     |     |   |
| 85 - 220         | 002 .006                     | 6               | 6               |                |                               | 0.05                      | 0.06           | 63               | 180            | 70  | 79              | 10                    | 150 | 12 | 50              | 75  | 105 | 8   | 2.7     |     |   |
| 165 - 325        | 003 .016                     | 16              | 16              |                |                               | 0.05                      | 0.06           | 89               | 250            | 90  | 110             | 12                    | 210 | 14 | 70              | 80  | 130 | 8   | 6.3     |     |   |
| 325 - 508        | 005 .025                     | 25              | 25              |                |                               | 0.02                      | 0.06           | 128              | 220            | 150 | 165             | 14                    | -   | -  | 110             | 120 | 170 | 10  | 22      |     |   |
|                  | 005 .050                     | 50              | 50              |                |                               | 0.03                      | 0.06           | 139              | 230            | -   | 175             | -                     | -   | -  | -               | -   | -   | 15  | 27      |     |   |
| 50 - 119         | 901 .001                     | 1               | 1               | 1)             | 50                            | 0.07                      | 0.06           | 44               | 120            | 40  | 53              | -                     | 95  | 10 | -               | -   | -   | 8   | 0.8     |     |   |
| 85 - 220         | 902 .003                     | 3               | 3               |                |                               | 0.07                      | 0.06           | 63               | 180            | 70  | 79              | 10                    | 150 | 12 | 50              | 75  | 105 | 8   | 1.8     |     |   |
| 165 - 325        | 903 .005                     | 5               | 5               |                |                               | 0.07                      | 0.06           | 89               | 250            | 90  | 110             | 12                    | 210 | 14 | 70              | 80  | 130 | 8   | 3.9     |     |   |
| 325 - 508        | 905 .015                     | 15              | 15              |                |                               | 0.03                      | 0.06           | 128              | 220            | 150 | 165             | 14                    | -   | -  | 110             | 120 | 170 | 10  | 12      |     |   |

1) Maximum 35% of the existing load (-Fz) at stop  
2) Clamping system KOT - see pg. 27  
3) Add lateral displacement at roller support type RKL

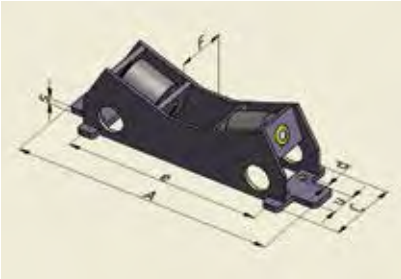
HYDRA® DOUBLE CYLINDER ROLLER SUPPORT

Type series RDF,  
guide support type RDF


**Technical data**

- Clampable size: 02, 03, 05, 08
- Materials:  
Housing: S235J2  
Roller: S355J2 / polyamide (max. 100 °C)  
RZx 0... / RZx 9...
- Surface protection: steel components hot-dip galvanized
- For usual application in pipeline construction,  
roller made from S355J2 and steel parts  
hot-dip galvanized. Reduced noise transmission  
and creepage currents, roller made from  
polyamide and steel parts hot-dip galvanized,  
maximum contact temp. 100 °C.
- Description and characteristics:
  - Resistance of the roller less than 5%
  - Lateral guidance up to 35% of the nominal load

**Size 02 - 08**



**Size 11 - 30**



- Uplift restraint (see ADx)
- Calculation of the resistance  
=  $K_L \times F_A$   
 $F_A$  ... effective nominal load.
- Combined radial-axial support  
PTFE compound, dirt-repellent

and maintenance-free, comprising:  
Ground rust-free stainless steel  
shaft.  
PTFE composite supports with  
flanged disc.  
Form-fitting axial securing devices  
made from rust-free stainless steel.

**Order example: RDF 016.200**  
Guide support, steel roller, size 16, nominal load 200 kN

| Contact diameter | Type RDF ... | Nominal load                  | Coefficient of resistance | System dimension | Dimensions |     |     | Connection dimensions |    |      |     |    | Weight  |
|------------------|--------------|-------------------------------|---------------------------|------------------|------------|-----|-----|-----------------------|----|------|-----|----|---------|
| DA               |              | -F <sub>Z</sub> <sup>1)</sup> | K <sub>L</sub>            | Y                | A          | C   | F   | d                     | a  | e    | u   | s  | approx. |
| mm               |              | kN                            | -                         | mm               | mm         | mm  | mm  | mm                    | mm | mm   | mm  | mm | kg      |
| 110 - 260        | 002 .006     | 6                             | 0.04                      | 50               | 250        | 75  | 56  | 12                    | -  | 190  | -   | 8  | 1.6     |
| 240 - 360        | 003 .013     | 13                            | 0.04                      | 52               | 270        | 75  | 58  | 12                    | -  | 210  | -   | 8  | 2.0     |
| 350 - 560        | 005 .033     | 33                            | 0.04                      | 65               | 385        | 110 | 80  | 12                    | -  | 290  | 40  | 8  | 5.5     |
| 560 - 830        | 008 .059     | 59                            | 0.04                      | 67               | 480        | 120 | 92  | 14                    | -  | 385  | 50  | 8  | 9.0     |
| 813 - 1350       | .050         | 50                            | 0.03                      | 82               | 500        | 260 | 150 | 23                    | 33 | 320  | 210 | 8  | 40.0    |
|                  | 011 .100     | 100                           | 0.03                      |                  |            |     |     |                       |    |      |     | 8  | 46.0    |
|                  | .200         | 200                           | 0.04                      |                  |            |     |     |                       |    |      |     | 10 | 52.0    |
| 1120 - 1920      | .100         | 100                           | 0.03                      | 130              | 880        | 320 | 185 | 27                    | 37 | 520  | 270 | 8  | 70.0    |
|                  | 016 .200     | 200                           | 0.03                      |                  |            |     |     |                       |    |      |     | 10 | 90.0    |
|                  | .350         | 350                           | 0.04                      |                  |            |     |     |                       |    |      |     | 12 | 110.0   |
| 1620 - 2620      | .200         | 200                           | 0.03                      | 165              | 1280       | 450 | 270 | 33                    | 43 | 830  | 380 | 10 | 175.0   |
|                  | 022 .300     | 300                           | 0.03                      |                  |            |     |     |                       |    |      |     | 12 | 205.0   |
|                  | .500         | 500                           | 0.04                      |                  |            |     |     |                       |    |      |     | 15 | 265.0   |
| 2220 - 3520      | .200         | 200                           | 0.03                      | 170              | 1550       | 450 | 270 | 33                    | 43 | 1170 | 380 | 10 | 190.0   |
|                  | 030 .300     | 300                           | 0.03                      |                  |            |     |     |                       |    |      |     | 12 | 240.0   |
|                  | .500         | 500                           | 0.04                      |                  |            |     |     |                       |    |      |     | 15 | 300.0   |
| 110 - 260        | 902 .003     | 3                             | 0.07                      | 50               | 250        | 75  | 56  | 12                    | -  | 190  | -   | 8  | 1.1     |
| 240 - 360        | 903 .005     | 5                             | 0.07                      | 52               | 270        | 75  | 58  | 12                    | -  | 210  | -   | 8  | 1.4     |
| 350 - 560        | 905 .015     | 15                            | 0.07                      | 65               | 385        | 110 | 80  | 12                    | -  | 290  | 40  | 8  | 3.7     |
| 560 - 830        | 908 .025     | 25                            | 0.07                      | 67               | 480        | 120 | 92  | 14                    | -  | 385  | 50  | 8  | 6.2     |
| 813 - 1350       | 911 .050     | 50                            | 0.03                      | 82               | 660        | 260 | 150 | 23                    | 33 | 320  | 210 | 8  | 22.0    |
| 1120 - 1920      | 916 .100     | 100                           | 0.03                      | 130              | 880        | 320 | 185 | 27                    | 37 | 520  | 270 | 8  | 55.0    |

1) Nominal load applies to the average diameter, it must be reduced to the limit diameter in a linear way up to 70%  
2) Clamping system KOT - see pg. 27



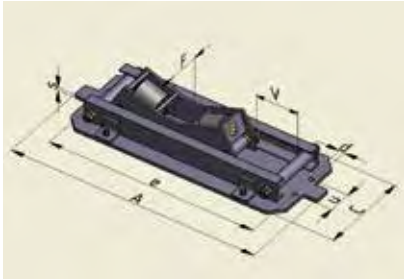
HYDRA® DOUBLE CYLINDER ROLLER SUPPORT

Type series RDL,  
movable support laterally relocatable type RDL

**Technical data**

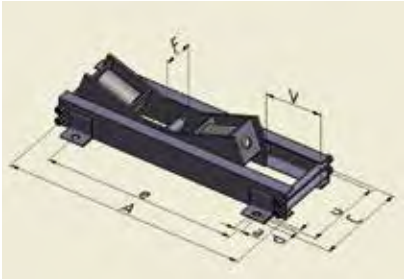
- Clampable size: 02, 03, 05, 08
- Materials:  
Housing: S235JR  
Roller: S355J2 / polyamide (max. 100 °C)  
RDx 0... / RDx 9...
- Surface protection:  
steel components hot-dip galvanized
- For usual application in pipeline construction,  
roller made from S355J2 and steel parts  
hot-dip galvanized. Reduced noise transmission  
and creepage currents, roller made from  
polyamide and steel parts hot-dip galvanized,  
maximum contact temp. 100 °C.
- Description and characteristics:
  - Resistance of the roller less than 5%
  - Lateral guidance up to 35% of the nominal load
  - Uplift restraint (see ADx)

**Size 02 - 08**



- Calculation of the running  
resistance =  $K_L \times F_A$   
 $F_A$  ... effective nominal load.
- Combined radial-axial support  
PTFE compound, dirt-repellent  
and maintenance-free, comprising:

**Size 11 - 30**



Ground rust-free  
stainless steel shaft.  
PTFE composite supports with  
flanged disc. Form-fitting axial se-  
curing devices made from rust-free  
stainless steel.

**Order example: RDL 016.200.600**  
Guide support, steel roller, size 16, nominal load 200 kN, lateral displacement 600 mm

| Contact<br>diameter | Type RDL ...                | Nominal load | Coefficient of<br>resistance  |                | System<br>dimension | Dimensions |     |     | Connection dimensions |    |      |     |    | Weight<br>at V=100 |
|---------------------|-----------------------------|--------------|-------------------------------|----------------|---------------------|------------|-----|-----|-----------------------|----|------|-----|----|--------------------|
|                     |                             |              | -F <sub>Z</sub> <sup>2)</sup> | Axial          |                     | +V         | C   | F   | a                     | d  | +V   | u   | s  |                    |
|                     |                             |              |                               | K <sub>L</sub> |                     | A          |     |     |                       |    | e    |     |    |                    |
| mm                  |                             | kN           | -                             | -              | mm                  | mm         | mm  | mm  | mm                    | mm | mm   | mm  | mm | kg                 |
| 110 - 260           | 002 .006. ... <sup>1)</sup> | 6            | 0.04                          | 0.05           | 50                  | 390        | 170 | 56  | -                     | 12 | 290  | 56  | 8  | 11.2               |
| 240 - 360           | 003 .013. ... <sup>1)</sup> | 13           | 0.04                          | 0.05           | 52                  | 390        | 170 | 58  | -                     | 12 | 290  | 56  | 8  | 11.4               |
| 350 - 560           | 005 .033. ... <sup>1)</sup> | 33           | 0.04                          | 0.05           | 65                  | 520        | 225 | 82  | -                     | 12 | 420  | 60  | 8  | 22.1               |
| 560 - 830           | 008 .059. ... <sup>1)</sup> | 59           | 0.04                          | 0.05           | 67                  | 600        | 240 | 96  | -                     | 14 | 500  | 60  | 8  | 28.2               |
| 813 - 1350          | .050. ... <sup>1)</sup>     | 50           | 0.03                          | 0.03           | 82                  | 830        | 380 | 150 | 33                    | 23 | 650  | 330 | 8  | 71                 |
|                     | 011 .100. ... <sup>1)</sup> | 100          | 0.03                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 71                 |
|                     | .200. ... <sup>1)</sup>     | 200          | 0.04                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 78                 |
| 1120 - 1920         | .100. ... <sup>1)</sup>     | 100          | 0.03                          | 0.03           | 130                 | 1000       | 480 | 185 | 37                    | 27 | 760  | 420 | 9  | 164                |
|                     | 016 .200. ... <sup>1)</sup> | 200          | 0.03                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 166                |
|                     | .350. ... <sup>1)</sup>     | 350          | 0.04                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 171                |
| 1620 - 2620         | .200. ... <sup>1)</sup>     | 200          | 0.03                          | 0.02           | 165                 | 1400       | 640 | 270 | 43                    | 33 | 1160 | 550 | 10 | 331                |
|                     | 022 .300. ... <sup>1)</sup> | 300          | 0.03                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 343                |
|                     | .500. ... <sup>1)</sup>     | 500          | 0.04                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 359                |
| 2220 - 3520         | .200. ... <sup>1)</sup>     | 200          | 0.03                          | 0.02           | 170                 | 1670       | 640 | 270 | 43                    | 33 | 1370 | 550 | 10 | 364                |
|                     | 030 .300. ... <sup>1)</sup> | 300          | 0.03                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 377                |
|                     | .500. ... <sup>1)</sup>     | 500          | 0.04                          | 0.03           |                     |            |     |     |                       |    |      |     |    | 395                |
| 110 - 260           | 902 .003. ... <sup>1)</sup> | 3            | 0.07                          | 0.05           | 50                  | 390        | 170 | 56  | -                     | 12 | 290  | 56  | 8  | 10.6               |
| 240 - 360           | 903 .005. ... <sup>1)</sup> | 5            | 0.07                          | 0.05           | 52                  | 390        | 170 | 58  | -                     | 12 | 290  | 56  | 8  | 10.9               |
| 350 - 560           | 905 .015. ... <sup>1)</sup> | 15           | 0.07                          | 0.05           | 65                  | 520        | 225 | 82  | -                     | 12 | 420  | 60  | 8  | 20.3               |
| 560 - 830           | 908 .025. ... <sup>1)</sup> | 25           | 0.07                          | 0.05           | 67                  | 600        | 240 | 96  | -                     | 14 | 500  | 60  | 8  | 25.4               |
| 813 - 1350          | 911 .050. ... <sup>1)</sup> | 50           | 0.03                          | 0.03           | 82                  | 830        | 380 | 150 | 33                    | 23 | 650  | 330 | 8  | 66                 |
| 1120 - 1920         | 916 .100. ... <sup>1)</sup> | 100          | 0.03                          | 0.03           | 130                 | 1000       | 480 | 185 | 37                    | 27 | 760  | 420 | 9  | 95                 |

1) Add nominal lateral displacement V  
2) Nominal load applies to the average diameter, it must be reduced to the limit diameter in a linear way up to 70%  
3) Clamping system KOT - see pg. 27


HYDRA® UPLIFT RESTRAINT

Type series ADJ and ADM  
for double cylinder roller support RDF and saddles for insulated or non-insulated pipelines

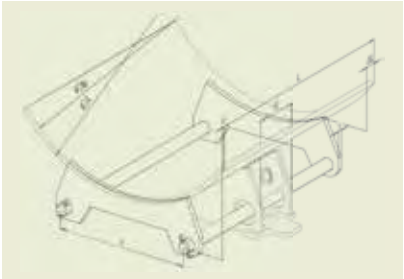
**Technical data**

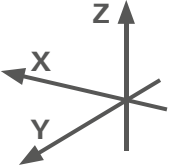
- Materials:  
Plate: S235JR  
Rod: S355J2
- Surface protection:  
steel parts hot-dip galvanized, primed
- Description and characteristics:  
ADJ: for insulated pipelines  
ADM: for non-insulated pipelines
- Available displacement travel:  
ADJ: reduced by the support width B  
ADM: reduced by the support width B + 2 x ΔL  
an adequate reserve must be included in the calculation
- The uplift restraints can be welded onto supports locally  
with a suitable overall length.
- To avoid assembly and welding problems  
for the customer, and to achieve optimum  
corrosion protection (e.g. hot-dip galvanizing),  
it is recommended that the uplift restraints should be  
obtained as a structural unit with the corresponding supports welded on.

**Type ADJ**



**Type ADM**





**Order example: ADM 16.273.600**  
Uplift restraint for non-insulated pipelines, size 16, outside diameter pre-insulation or pipe 273 mm,  
support length 600 mm

| Size | Type ADJ ... | Type ADM ...               | Nominal<br>load              | Support<br>width | Dimensions      |    |      |    |    | ADM outside<br>diameter pre-<br>insulation<br>or pipe |      | ADM | Weight approx.      |       |     |
|------|--------------|----------------------------|------------------------------|------------------|-----------------|----|------|----|----|---|------|-----|---------------------|-------|-----|
|      |              |                            |                              |                  |                 |    |      |    |    |   |      |     |                     |       |     |
|      |              |                            | F <sub>Z</sub> <sup>2)</sup> | B                | L <sup>3)</sup> | U  | e    | d  | s  | DA  |      | ΔL  | Total <sup>4)</sup> |       | +   |
|      |              |                            |                              |                  |                 |    |      |    |    | min   | max. |     | ADJ                 | ADM   |     |
|      |              |                            | kN                           | mm               | mm              | mm | mm   | mm | mm | mm  | mm   | mm  | kg                  | kg    | kg  |
| 02   | 02 .300      | 02. ... <sup>1)</sup> .300 | 3                            | 56               | 300             | 20 | 116  | 15 | 6  | 98  | 248  | 16  | 1.4                 | 1.3   | 0.3 |
| 03   | 03 .300      | 03. ... <sup>1)</sup> .300 | 3                            | 58               | 300             | 20 | 157  | 15 | 6  | 228   | 348  | 16  | 1.5                 | 1.3   | 0.3 |
| 05   | 05 .300      | 05. ... <sup>1)</sup> .300 | 7                            | 80               | 300             | 23 | 230  | 20 | 8  | 334   | 544  | 18  | 3.5                 | 3.4   | 0.5 |
| 08   | 08 .300      | 08. ... <sup>1)</sup> .300 | 13                           | 92               | 300             | 28 | 325  | 24 | 10 | 540   | 810  | 20  | 5.5                 | 5.7   | 0.7 |
| 11   | 11 .500      | 11. ... <sup>1)</sup> .500 | 29                           | 150              | 500             | 39 | 600  | 48 | 15 | 735   | 1320 | 25  | 27.4                | 29.7  | 2.9 |
| 16   | 16 .500      | 16. ... <sup>1)</sup> .500 | 50                           | 185              | 500             | 48 | 710  | 60 | 20 | 1080  | 1880 | 30  | 58.3                | 61.1  | 4.5 |
| 22   | 22 .600      | 22. ... <sup>1)</sup> .600 | 66                           | 270              | 600             | 52 | 1070 | 70 | 20 | 1580  | 2580 | 30  | 112.3               | 118.1 | 6.1 |
| 30   | 30 .600      | 30. ... <sup>1)</sup> .600 | 66                           | 270              | 600             | 52 | 1340 | 70 | 20 | 2180  | 3480 | 30  | 128.3               | 140.3 | 6.1 |

1) Add outside diameter pre-insulation or pipe DM  
2) Applies to specified standard lengths. With longer lengths: FZ (L) = FZ \* standard length / actual length  
3) L corresponds to the support length, here standard lengths of the uplift restraints  
4) Weight with standard length



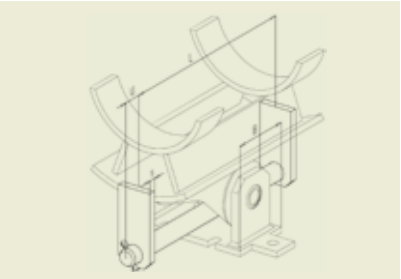
# HYDRA® UPLIFT RESTRAINT

Type series AKJ and AKM  
for double cone roller support RKF/RKL and saddles for insulated or non-insulated pipelines

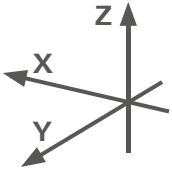
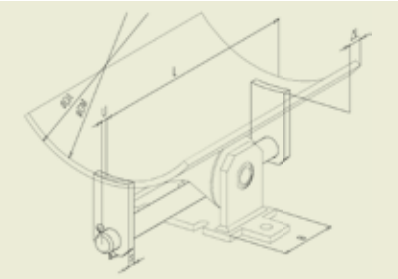
## Technical data

- Materials:  
Plate: S235JR  
Rod: S355J2
- Surface protection:  
steel parts hot-dip galvanized, primed
- Description and characteristics:  
AKJ: for insulated pipelines  
AKM: for non-insulated pipelines
- Available displacement travel:  
AKJ: reduced by the support width B  
AKM: reduced by the support width  $B + 2 \times \Delta L$ ,  
an adequate reserve must be included in the calculation
- The uplift restraint can be welded onto supports locally  
with a suitable overall length.
- To avoid assembly and welding problems  
for the customer and to achieve optimum  
corrosion protection (e.g. hot-dip galvanizing),  
it is recommended that the uplift restraint should be  
obtained as a structural unit with the corresponding supports welded on.

Type AKJ



Type AKM



## Order example: AKM 05.273.600

Uplift restraint for non-insulated pipelines, size 5, outside diameter pre-insulation or pipe 273 mm,  
support length 600 mm

| Size | Type AKJ ... | Type AKM ...               | Nominal load                 | Support width | Dimensions      |    |    |    | AKM outside diameter pre-insulation or pipe |      | AKM | Weight approx. |                     |      |
|------|--------------|----------------------------|------------------------------|---------------|-----------------|----|----|----|---|------|-----|----------------|---------------------|------|
|      |              |                            | F <sub>Z</sub> <sup>2)</sup> | B             | L <sup>3)</sup> | U  | d  | s  | DA  |      |     | ΔL             | Total <sup>4)</sup> |      |
|      |              |                            |                              |               |                 |    |    |    | min   | max. | AKJ |                | AKM                 |      |
|      |              |                            |                              |               |                 |    |    |    |   |      |     |                |                     | mm   |
| 01   | 01 .300      | 01. ... <sup>1)</sup> .300 | 0.5                          | 40            | 300             | 15 | 8  | 5  | 40  | 109  | 15  | 0.2            |                     | 0.08 |
| 02   | 02 .300      | 02. ... <sup>1)</sup> .300 | 3                            | 70            | 300             | 20 | 15 | 6  | 73  | 208  | 16  | 0.7            |                     | 0.3  |
| 03   | 03 .300      | 03. ... <sup>1)</sup> .300 | 13                           | 90            | 300             | 28 | 24 | 8  | 150   | 309  | 18  | 2.0            |                     | 0.7  |
| 05   | 05 .300      | 05. ... <sup>1)</sup> .300 | 31                           | 150           | 300             | 35 | 35 | 15 | -   | -    | -   | 5.1            | -                   | 1.5  |

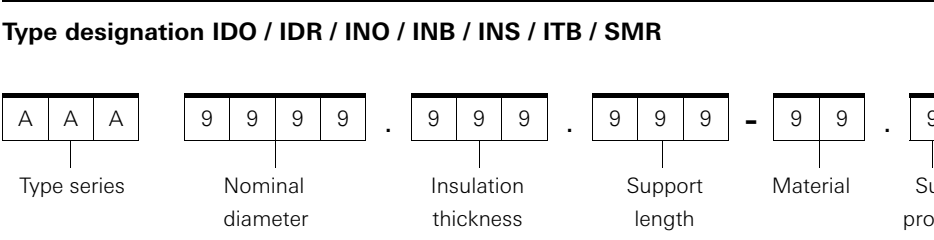
1) Add outside diameter Pre-insulated or pipe DM  
2) Applies to specified standard lengths. With longer lengths: FZ (L) = FZ \* standard length / actual length  
3) L corresponds to the support length, here standard lengths of the uplift restraint  
4) Weight with standard length

# HYDRA® PIPE SADDLES

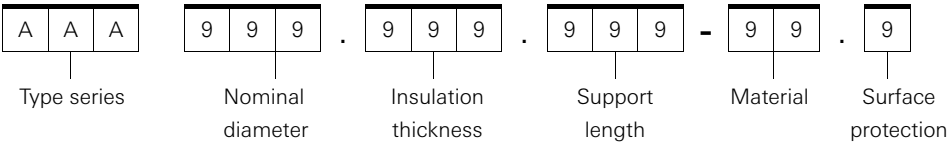


HYDRA® PIPE SADDLES

Type series, names, variants  
if standard, then no information



IKO / IKB



Type series

| Insulating supports |  |
|---------------------|--|
| IKO                 | For welding-on for double cone and double cylinder roller support DN 50 - 450                      |
| IKB                 | with pipe clamp for double cone and double cylinder roller support DN 50 - 450                     |
| IDO                 | For welding-on for double cone and double cylinder roller support DN 100 - 1200                    |
| IDR                 | with pipe clamp for double cone and double cylinder roller support DN 100 - 1200                   |
| INO                 | For welding-on with support shell for double cone and double cylinder roller support DN 500 - 1200 |
| INB                 | with U-bolt for double cone and double cylinder roller support DN 500 - 1800                       |
| INS                 | with pipe clamp and support shell for double cone and double cylinder roller support DN 500 - 2000 |
| ITB                 | Insulating base with pipe clamp DN 50 - 350  |
| SMR                 | Support shell with pipe clamp for pre-insulation pipe DN 90 - 1000                                 |

In addition to the supports listed here, we offer support shells in common dimensions.  
DN 150 - 800, lengths 300 - 800 (depending on DN and in 100 mm steps)

Material

| Name              |        | Characteristic | max. medium temp* acc. to VGB R510L in °C |
|-------------------|--------|----------------|---|
| S235JRG2          | 1.0038 | 37             | 300 (standard)                            |
| 16Mo3             | 1.5415 | 16             | 500                                       |
| 13CrMo4-5         | 1.7335 | 13             | 530                                       |
| 10CrMo9-10        | 1.7380 | 10             | 580                                       |
| X6CrNiTi18-10     | 1.4541 | 41             | 550                                       |
| X6CrNiMoTi17-12-2 | 1.4571 | 71             | 550                                       |
| X10CrMoVNb9-1     | 1.4903 | 91             | 650                                       |
| others            | -      | 99             | -   |

\* Reduction coefficients see page 9

Surface protection

| Name               | Characteristic |
|--------------------|----------------|
| unthreated         | 0              |
| galvanized         | 1              |
| Hot-dip galvanized | 2              |
| Primed             | 3              |
| Special            | 4              |

HYDRA® PIPE SADDLES

Type series, selection

Selection of pipe saddles

Saddle loads

$F = F_N \times K_u$

F<sub>N</sub> ...

■ Nominal load corresponds to the permitted load of the corresponding dimension (e.g.: FZ as nominal load)

K<sub>u</sub> ...

■ Temperature coefficient, see pg. 9  
use medium temperature here

Length of the saddles

$L \geq V + 2 \times V_R + B_L$

$V_R \geq 100 \text{ mm}$

V ... ■ Existing axial displacement

V<sub>R</sub> ... ■ Recommended reserve

B<sub>L</sub> ... ■ Relevant support width B (only with supports with uplift restraint, otherwise B<sub>L</sub> = 0)

HYDRA


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# HYDRA® PIPE SADDLES

Type series IDO and IDR, DN 100 - 1200, for double cylinder and double cone roller support for welding onto the pipe – type IDO, with pipe clamps – type IDR

| Technical data  | IDO   | IDR  |
|---|---|--|
| <ul style="list-style-type: none"> <li>Materials:<br/>S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)<br/>Material is temperature-dependent, see pg. 9</li> <li>Surface protection: hot-dip galvanized, unthreaded, primed</li> </ul> |  |  |

**Order example: IDR 0200.120.500-16.3**  
Insulating support with pipe clamp, nominal diameter 200, insulation thickness 120 mm, support length 500 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type IDO ... <sup>4)</sup><br>Type IDR ... <sup>4)</sup> | Nominal loads 2) |                               |    | Insulating thickness | Contact diameter | Dimensions |    | Weight approx.  |          |     |         |     |     | Version without/with rib |         |     |
|------------------|-----------------------|--|------------------|-------------------------------|----|----------------------|------------------|------------|----|-----------------|----------|-----|---------|-----|-----|--------------------------|---------|-----|
| DN               | D                     |  | -F <sub>Z</sub>  | IDR                           |    |                      |                  | J          | DA | L <sup>1)</sup> | IDR<br>b | IDO |         |     | IDR |                          |         |     |
|                  |                       |  |                  | +F <sub>Z</sub> <sup>3)</sup> |    |                      |                  |            |    |                 |          |     | 300/400 | 600 | 700 |                          | 300/400 | 600 |
| -                | mm                    |  | kN               | kN                            | kN |                      |                  | mm         | mm | mm              | mm       | kg  | kg      | kg  | kg  |                          | kg      | kg  |
| 100              | 114.3                 | 0100 .100 .300   | 45               | 35                            | 13 | 100                  | 330              | 300        | 50 | 7               | 14       | 16  | 10      | 17  | 21  | -                        |         |     |
|                  |                       | 0100 .120 .300   | 40               |                               |    | 120                  | 370              |            |    | 8               | 16       | 19  | 12      | 19  | 24  | -                        |         |     |
|                  |                       | 0100 .150 .300   | 40               |                               |    | 150                  | 430              |            |    | 11              | 22       | 26  | 14      | 25  | 31  | -                        |         |     |
|                  |                       | 0100 .200 .300   | 30               |                               |    | 200                  | 530              |            |    | 14              | 30       | 35  | 18      | 33  | 40  | +                        |         |     |
|                  |                       | 0100 .250 .300   | 30               |                               |    | 250                  | 630              |            |    | 19              | 42       | 50  | 24      | 44  | 53  | +                        |         |     |
| 125              | 139.7                 | 0125 .100 .300   | 45               | 35                            | 13 | 100                  | 355              | 300        | 50 | 7               | 14       | 17  | 11      | 18  | 23  | -                        |         |     |
|                  |                       | 0125 .120 .300   | 40               |                               |    | 120                  | 395              |            |    | 8               | 17       | 19  | 12      | 20  | 25  | -                        |         |     |
|                  |                       | 0125 .150 .300   | 40               |                               |    | 150                  | 455              |            |    | 11              | 23       | 27  | 15      | 26  | 32  | -                        |         |     |
|                  |                       | 0125 .200 .300   | 30               |                               |    | 200                  | 555              |            |    | 14              | 30       | 36  | 19      | 34  | 41  | +                        |         |     |
|                  |                       | 0125 .250 .300   | 30               |                               |    | 250                  | 655              |            |    | 19              | 42       | 50  | 25      | 45  | 54  | +                        |         |     |
| 150              | 168.3                 | 0150 .100 .300   | 45               | 35                            | 13 | 100                  | 385              | 300        | 50 | 7               | 15       | 17  | 12      | 19  | 24  | -                        |         |     |
|                  |                       | 0150 .120 .300   | 40               |                               |    | 120                  | 425              |            |    | 8               | 17       | 20  | 13      | 22  | 27  | -                        |         |     |
|                  |                       | 0150 .150 .300   | 40               |                               |    | 150                  | 485              |            |    | 11              | 23       | 27  | 16      | 28  | 34  | -                        |         |     |
|                  |                       | 0150 .200 .300   | 30               |                               |    | 200                  | 585              |            |    | 14              | 31       | 37  | 21      | 36  | 43  | +                        |         |     |
|                  |                       | 0150 .250 .300   | 30               |                               |    | 250                  | 685              |            |    | 20              | 43       | 51  | 26      | 47  | 56  | +                        |         |     |
| 200              | 219.1                 | 0200 .100 .300   | 45               | 35                            | 13 | 100                  | 435              | 300        | 50 | 8               | 16       | 19  | 14      | 21  | 27  | -                        |         |     |
|                  |                       | 0200 .120 .300   | 40               |                               |    | 120                  | 475              |            |    | 9               | 18       | 21  | 15      | 24  | 30  | -                        |         |     |
|                  |                       | 0200 .150 .300   | 40               |                               |    | 150                  | 535              |            |    | 12              | 24       | 28  | 18      | 30  | 37  | -                        |         |     |
|                  |                       | 0200 .200 .300   | 30               |                               |    | 200                  | 635              |            |    | 15              | 32       | 38  | 22      | 38  | 46  | +                        |         |     |
|                  |                       | 0200 .250 .300   | 30               |                               |    | 250                  | 735              |            |    | 20              | 45       | 53  | 28      | 50  | 60  | +                        |         |     |
| 250              | 273.0                 | 0250 .100 .300   | 45               | 35                            | 14 | 100                  | 490              | 300        | 60 | 8               | 17       | 20  | 17      | 26  | 33  | -                        |         |     |
|                  |                       | 0250 .120 .300   | 40               |                               |    | 120                  | 530              |            |    | 9               | 19       | 23  | 18      | 28  | 36  | -                        |         |     |
|                  |                       | 0250 .150 .300   | 40               |                               |    | 150                  | 590              |            |    | 12              | 25       | 30  | 21      | 34  | 43  | -                        |         |     |
|                  |                       | 0250 .200 .300   | 30               |                               |    | 200                  | 690              |            |    | 16              | 34       | 40  | 26      | 42  | 52  | +                        |         |     |
|                  |                       | 0250 .250 .300   | 30               |                               |    | 250                  | 790              |            |    | 21              | 46       | 54  | 32      | 54  | 66  | +                        |         |     |
| 300              | 323.9                 | 0300 .080 .300   | 60               | 40                            | 15 | 80                   | 500              | 300        | 60 | 8               | 16       | 18  | 18      | 26  | 33  | -                        |         |     |
|                  |                       | 0300 .100 .300   | 45               |                               |    | 100                  | 540              |            |    | 9               | 18       | 21  | 19      | 28  | 36  | -                        |         |     |
|                  |                       | 0300 .120 .300   | 50               |                               |    | 120                  | 580              |            |    | 11              | 22       | 26  | 21      | 32  | 41  | -                        |         |     |
|                  |                       | 0300 .150 .300   | 40               |                               |    | 150                  | 640              |            |    | 13              | 28       | 33  | 24      | 38  | 47  | +                        |         |     |
|                  |                       | 0300 .200 .300   | 30               |                               |    | 200                  | 740              |            |    | 16              | 35       | 42  | 29      | 45  | 56  | +                        |         |     |
| 350              | 355.6                 | 0300 .250 .300   | 30               | 40                            | 15 | 250                  | 840              | 300        | 60 | 21              | 47       | 56  | 35      | 57  | 70  | +                        |         |     |
|                  |                       | 0350 .080 .300   | 60               |                               |    | 80                   | 535              |            |    | 8               | 16       | 19  | 19      | 27  | 36  | -                        |         |     |
|                  |                       | 0350 .100 .300   | 45               |                               |    | 100                  | 575              |            |    | 9               | 19       | 22  | 20      | 30  | 38  | -                        |         |     |
|                  |                       | 0350 .120 .300   | 50               |                               |    | 120                  | 615              |            |    | 11              | 23       | 27  | 22      | 34  | 43  | -                        |         |     |
|                  |                       | 0350 .150 .300   | 40               |                               |    | 150                  | 675              |            |    | 13              | 29       | 34  | 26      | 39  | 49  | +                        |         |     |
| 400              | 406.4                 | 0350 .200 .300   | 30               | 55                            | 21 | 200                  | 775              | 300        | 70 | 16              | 36       | 42  | 30      | 47  | 58  | +                        |         |     |
|                  |                       | 0350 .250 .300   | 30               |                               |    | 250                  | 875              |            |    | 22              | 48       | 57  | 36      | 59  | 72  | +                        |         |     |
|                  |                       | 0400 .080 .300   | 75               |                               |    | 80                   | 585              |            |    | 11              | 22       | 26  | 29      | 40  | 53  | -                        |         |     |
|                  |                       | 0400 .100 .300   | 60               |                               |    | 100                  | 625              |            |    | 12              | 25       | 29  | 31      | 43  | 56  | -                        |         |     |
|                  |                       | 0400 .120 .300   | 65               |                               |    | 120                  | 665              |            |    | 14              | 30       | 35  | 33      | 47  | 62  | -                        |         |     |
| 400              | 406.4                 | 0400 .150 .300   | 50               | 55                            | 21 | 150                  | 725              | 300        | 70 | 17              | 37       | 44  | 37      | 54  | 69  | +                        |         |     |
|                  |                       | 0400 .200 .300   | 40               |                               |    | 200                  | 825              |            |    | 21              | 46       | 54  | 42      | 63  | 79  | +                        |         |     |
|                  |                       | 0400 .250 .300   | 40               |                               |    | 250                  | 925              |            |    | 28              | 61       | 73  | 50      | 79  | 98  | +                        |         |     |

| Nominal diameter | Pipe outside diameter | Type IDO ... <sup>4)</sup><br>Type IDR ... <sup>4)</sup> | Nominal loads 2) |                 |                 | Insulating thickness          | Contact diameter | Dimensions |     | Weight approx.  |     |     |     |         |     | Version without/with rib |
|------------------|-----------------------|--|------------------|-----------------|-----------------|-------------------------------|------------------|------------|-----|-----------------|-----|-----|-----|---------|-----|--------------------------|
| DN               | D                     |  | IDO              | IDR             |                 |                               |                  | J          | DA  | L <sup>1)</sup> | IDR | IDO |     |         | IDR |                          |
|                  |                       |  |                  | -F <sub>Z</sub> | -F <sub>Z</sub> | +F <sub>Z</sub> <sup>3)</sup> |                  |            |     |                 |     |     | b   | 300/400 | 600 |                          |
| -                | mm                    |  |                  | kN              | kN              | kN                            | mm               | mm         | mm  | mm              | kg  | kg  | kg  | kg      | kg  |                          |
| 450              | 457.0                 | 0450 .080 .300   | 75               | 55              | 21              | 80                            | 640              | 300        | 70  | 11              | 23  | 27  | 32  | 43      | 57  | -                        |
|                  |                       | 0450 .100 .300   | 60               |                 |                 | 100                           | 680              |            |     | 13              | 26  | 30  | 33  | 46      | 60  | -                        |
|                  |                       | 0450 .120 .300   | 65               |                 |                 | 120                           | 720              |            |     | 15              | 31  | 36  | 35  | 51      | 66  | -                        |
|                  |                       | 0450 .150 .300   | 50               |                 |                 | 150                           | 780              |            |     | 17              | 38  | 45  | 40  | 58      | 74  | +                        |
|                  |                       | 0450 .200 .300   | 40               |                 |                 | 200                           | 880              |            |     | 21              | 47  | 56  | 45  | 67      | 85  | +                        |
|                  |                       | 0450 .250 .300   | 40               |                 |                 | 250                           | 980              |            |     | 28              | 63  | 76  | 54  | 83      | 103 | +                        |
| 500              | 508.0                 | 0500 .080 .300   | 95               | 55              | 21              | 80                            | 690              | 300        | 70  | 12              | 24  | 29  | 34  | 46      | 61  | -                        |
|                  |                       | 0500 .100 .300   | 75               |                 |                 | 100                           | 730              |            |     | 13              | 27  | 32  | 36  | 49      | 64  | -                        |
|                  |                       | 0500 .120 .300   | 80               |                 |                 | 120                           | 770              |            |     | 16              | 32  | 38  | 38  | 54      | 70  | -                        |
|                  |                       | 0500 .150 .300   | 65               |                 |                 | 150                           | 830              |            |     | 18              | 39  | 47  | 42  | 61      | 78  | +                        |
|                  |                       | 0500 .200 .300   | 50               |                 |                 | 200                           | 930              |            |     | 22              | 49  | 58  | 48  | 70      | 89  | +                        |
|                  |                       | 0500 .250 .300   | 50               |                 |                 | 250                           | 1030             |            |     | 29              | 65  | 77  | 55  | 86      | 107 | +                        |
| 600              | 610.0                 | 0600 .080 .300   | 120              | 70              | 26              | 80                            | 790              | 300        | 90  | 14              | 28  | 33  | 46  | 60      | 80  | -                        |
|                  |                       | 0600 .100 .300   | 95               |                 |                 | 100                           | 830              |            |     | 16              | 32  | 37  | 47  | 63      | 84  | -                        |
|                  |                       | 0600 .120 .300   | 105              |                 |                 | 120                           | 870              |            |     | 19              | 38  | 45  | 50  | 69      | 91  | -                        |
|                  |                       | 0600 .150 .300   | 85               |                 |                 | 150                           | 930              |            |     | 21              | 46  | 55  | 55  | 77      | 100 | +                        |
|                  |                       | 0600 .200 .300   | 60               |                 |                 | 200                           | 1030             |            |     | 26              | 57  | 69  | 62  | 88      | 113 | +                        |
|                  |                       | 0600 .250 .300   | 70               |                 |                 | 250                           | 1130             |            |     | 36              | 79  | 95  | 72  | 109     | 138 | +                        |
| 700              | 711.0                 | 0700 .080 .300   | 155              | 90              | 26              | 80                            | 890              | 300        | 90  | 16              | 33  | 39  | 52  | 68      | 92  | -                        |
|                  |                       | 0700 .100 .300   | 125              |                 |                 | 100                           | 930              |            |     | 18              | 37  | 43  | 54  | 72      | 96  | -                        |
|                  |                       | 0700 .120 .300   | 145              |                 |                 | 120                           | 970              |            |     | 22              | 46  | 54  | 58  | 81      | 106 | -                        |
|                  |                       | 0700 .150 .300   | 115              |                 |                 | 150                           | 1030             |            |     | 26              | 56  | 66  | 64  | 90      | 117 | +                        |
|                  |                       | 0700 .200 .300   | 85               |                 |                 | 200                           | 1130             |            |     | 31              | 70  | 83  | 72  | 104     | 133 | +                        |
|                  |                       | 0700 .250 .300   | 90               |                 |                 | 250                           | 1230             |            |     | 42              | 94  | 112 | 84  | 128     | 161 | +                        |
| 800              | 813.0                 | 0800 .080 .300   | 155              | 90              | 35              | 80                            | 1000             | 300        | 100 | 20              | 41  | 48  | 76  | 96      | 130 | -                        |
|                  |                       | 0800 .100 .300   | 125              |                 |                 | 100                           | 1040             |            |     | 22              | 45  | 52  | 78  | 100     | 134 | -                        |
|                  |                       | 0800 .120 .300   | 145              |                 |                 | 120                           | 1080             |            |     | 26              | 54  | 63  | 82  | 108     | 145 | -                        |
|                  |                       | 0800 .150 .300   | 115              |                 |                 | 150                           | 1140             |            |     | 30              | 65  | 78  | 89  | 119     | 157 | +                        |
|                  |                       | 0800 .200 .300   | 85               |                 |                 | 200                           | 1240             |            |     | 36              | 80  | 96  | 98  | 134     | 174 | +                        |
|                  |                       | 0800 .250 .300   | 90               |                 |                 | 250                           | 1340             |            |     | 47              | 106 | 126 | 110 | 159     | 203 | +                        |
| 900              | 914.0                 | 0900 .080 .300   | 150              | 110             | 34              | 80                            | 1100             | 300        | 100 | 22              | 44  | 52  | 83  | 105     | 143 | -                        |
|                  |                       | 0900 .100 .300   | 170              |                 |                 | 100                           | 1140             |            |     | 26              | 53  | 62  | 87  | 113     | 152 | -                        |
|                  |                       | 0900 .120 .300   | 185              |                 |                 | 120                           | 1180             |            |     | 31              | 63  | 74  | 92  | 122     | 163 | -                        |
|                  |                       | 0900 .150 .300   | 145              |                 |                 | 150                           | 1240             |            |     | 35              | 76  | 91  | 100 | 135     | 178 | +                        |
|                  |                       | 0900 .200 .300   | 110              |                 |                 | 200                           | 1340             |            |     | 42              | 93  | 111 | 109 | 152     | 197 | +                        |
|                  |                       | 0900 .250 .300   | 110              |                 |                 | 250                           | 1440             |            |     | 54              | 121 | 144 | 123 | 179     | 228 | +                        |
| 1000             | 1016.0                | 1000 .080 .400   | 210              | 140             | 34              | 80                            | 1200             | 400        | 100 | 31              | 47  | 55  | 99  | 114     | 155 | -                        |
|                  |                       | 1000 .100 .400   | 235              |                 |                 | 100                           | 1240             |            |     | 37              | 56  | 65  | 104 | 122     | 164 | -                        |
|                  |                       | 1000 .120 .400   | 195              |                 |                 | 120                           | 1280             |            |     | 40              | 61  | 71  | 107 | 127     | 170 | -                        |
|                  |                       | 1000 .150 .400   | 155              |                 |                 | 150                           | 1340             |            |     | 45              | 73  | 87  | 116 | 138     | 183 | +                        |
|                  |                       | 1000 .200 .400   | 150              |                 |                 | 200                           | 1440             |            |     | 59              | 97  | 116 | 132 | 162     | 210 | +                        |
|                  |                       | 1000 .250 .400   | 150              |                 |                 | 250                           | 1540             |            |     | 76              | 125 | 149 | 151 | 189     | 241 | +                        |
| 1100             | 1120.0                | 1100 .080 .400   | 210              | 140             | 34              | 80                            | 1305             | 400        | 100 | 33              | 50  | 59  | 107 | 123     | 168 | -                        |
|                  |                       | 1100 .100 .400   | 235              |                 |                 | 100                           | 1345             |            |     | 39              | 59  | 69  | 112 | 131     | 177 | -                        |
|                  |                       | 1100 .120 .400   | 195              |                 |                 | 120                           | 1385             |            |     | 42              | 64  | 75  | 115 | 136     | 183 | -                        |
|                  |                       | 1100 .150 .400   | 155              |                 |                 | 150                           | 1445             |            |     | 47              | 77  | 92  | 125 | 148     | 197 | +                        |
|                  |                       | 1100 .200 .400   | 150              |                 |                 | 200                           | 1545             |            |     | 61              | 101 | 121 | 141 | 172     | 224 | +                        |
|                  |                       | 1100 .250 .400   | 150              |                 |                 | 250                           | 1645             |            |     | 78              | 129 | 154 | 160 | 199     | 256 | +                        |
| 1200             | 1220.0                | 1200 .080 .400   | 290              | 210             | 34              | 80                            | 1405             | 400        | 100 | 38              | 57  | 67  | 117 | 135     | 184 | -                        |
|                  |                       | 1200 .100 .400   | 300              |                 |                 | 100                           | 1445             |            |     | 44              | 67  | 78  | 123 | 144     | 195 | -                        |
|                  |                       | 1200 .120 .400   | 305              |                 |                 | 120                           | 1485             |            |     | 51              | 78  | 91  | 130 | 155     | 207 | -                        |
|                  |                       | 1200 .150 .400   | 245              |                 |                 | 150                           | 1545             |            |     | 58              | 94  | 112 | 141 | 170     | 224 | +                        |
|                  |                       | 1200 .200 .400   | 185              |                 |                 | 200                           | 1645             |            |     | 69              | 114 | 136 | 156 | 190     | 247 | +                        |
|                  |                       | 1200 .250 .400   | 205              |                 |                 | 250                           | 1745             |            |     | 95              | 156 | 186 | 183 | 231     | 294 | +                        |

- 1) Longer lengths  $L$  ( $L_{\max} = 1200$  mm) available in 100 mm steps from  $L > 600$  mm with additional average pipe clamp
- 2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C
- 3) Lift-off loads in conjunction with uplift restraint (note permitted lift-off load)
- 4) Add the characteristic for material and surface protection



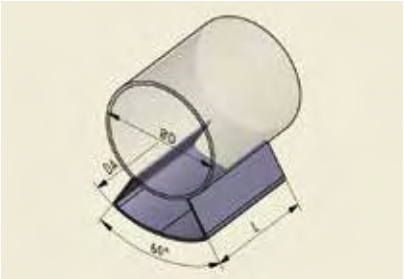
HYDRA® PIPE SADDLES

Type series IKO and IKB, DN 50 - 450, for double cylinder and double cone roller support for welding onto the pipe – type IKO, with pipe clamps – type IKB

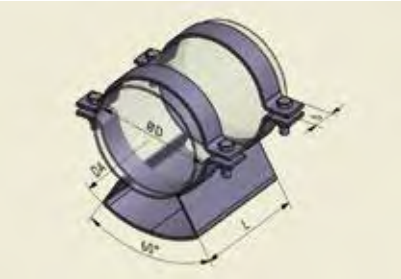
Technical data

- Materials:  
S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection:  
hot-dip galvanized, unthreaded, primed

IKO



IKB



Order example: IKB 0200.120.400-16.3

Insulating saddle with pipe clamp, nominal diameter 200, insulation thickness 120 mm, support length 400 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type IKO ... <sup>4)</sup><br>Type IKB ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                               | Insulating thickness | Contact diameter | Dimensions      |     | Weight approx. |     |        |      |
|------------------|-----------------------|--|-----------------------------|-------------------------------|----------------------|------------------|-----------------|-----|----------------|-----|--------|------|
| DN               | D                     |  |                             |                               | J                    | DA               | L <sup>1)</sup> | IKB | at L =         |     | at L = |      |
| -                | mm                    |  | -F <sub>Z</sub>             | +F <sub>Z</sub> <sup>3)</sup> |                      |                  |                 | b   | 300            | 400 | 300    | 400  |
|                  |                       |  | kN                          | kN                            | mm                   | mm               | mm              | mm  | kg             | kg  | kg     | kg   |
| 50               | 60.3                  | 050 .050 .300  | 9                           | 6                             | 50                   | 175              | 300             | 40  | 1.9            | 2.5 | 3.3    | 3.9  |
|                  |                       | 050 .080 .300  | 6                           |                               | 80                   | 235              |                 |     | 2.8            | 3.6 | 4.2    | 5.1  |
|                  |                       | 050 .100 .300  | 5                           |                               | 100                  | 275              |                 |     | 3.3            | 4.4 | 4.8    | 5.9  |
|                  |                       | 050 .120 .300  | 5                           |                               | 120                  | 315              |                 |     | 3.9            | 5.2 | 5.4    | 6.7  |
|                  |                       | 050 .150 .300  | 4                           |                               | 150                  | 375              |                 |     | 4.8            | 6.4 | 6.3    | 7.9  |
| 65               | 76.1                  | 065 .050 .300  | 8                           | 6                             | 50                   | 190              | 300             | 40  | 1.9            | 2.6 | 3.5    | 4.2  |
|                  |                       | 065 .080 .300  | 6                           |                               | 80                   | 250              |                 |     | 2.8            | 3.7 | 4.4    | 5.4  |
|                  |                       | 065 .100 .300  | 5                           |                               | 100                  | 290              |                 |     | 3.4            | 4.5 | 5.0    | 6.1  |
|                  |                       | 065 .120 .300  | 5                           |                               | 120                  | 330              |                 |     | 4.0            | 5.3 | 5.6    | 6.9  |
|                  |                       | 065 .150 .300  | 4                           |                               | 150                  | 390              |                 |     | 4.9            | 6.5 | 6.5    | 8.1  |
| 80               | 88.9                  | 080 .050 .300  | 7                           | 6                             | 50                   | 205              | 300             | 40  | 2.0            | 2.7 | 3.6    | 4.3  |
|                  |                       | 080 .080 .300  | 6                           |                               | 80                   | 265              |                 |     | 2.9            | 3.9 | 4.5    | 5.5  |
|                  |                       | 080 .100 .300  | 5                           |                               | 100                  | 305              |                 |     | 3.5            | 4.7 | 5.1    | 6.3  |
|                  |                       | 080 .120 .300  | 4                           |                               | 120                  | 345              |                 |     | 4.1            | 5.4 | 5.7    | 7.1  |
|                  |                       | 080 .150 .300  | 4                           |                               | 150                  | 405              |                 |     | 5.0            | 6.6 | 6.6    | 8.3  |
| 100              | 114.3                 | 100 .050 .300  | 7                           | 10                            | 50                   | 230              | 300             | 50  | 2.2            | 2.8 | 6.1    | 6.8  |
|                  |                       | 100 .080 .300  | 5                           |                               | 80                   | 290              |                 |     | 3.0            | 4.0 | 7.0    | 8.0  |
|                  |                       | 100 .100 .300  | 5                           |                               | 100                  | 330              |                 |     | 3.6            | 4.8 | 7.6    | 8.8  |
|                  |                       | 100 .120 .300  | 4                           |                               | 120                  | 370              |                 |     | 4.2            | 5.6 | 8.2    | 9.6  |
|                  |                       | 100 .150 .300  | 3                           |                               | 150                  | 430              |                 |     | 5.1            | 7   | 9.1    | 11   |
| 125              | 139.7                 | 125 .050 .300  | 6                           | 10                            | 50                   | 255              | 300             | 50  | 2.3            | 3.0 | 6.7    | 7.4  |
|                  |                       | 125 .080 .300  | 5                           |                               | 80                   | 315              |                 |     | 3.2            | 4.2 | 7.6    | 8.6  |
|                  |                       | 125 .100 .300  | 4                           |                               | 100                  | 355              |                 |     | 3.7            | 5.0 | 8.2    | 9.4  |
|                  |                       | 125 .120 .300  | 4                           |                               | 120                  | 395              |                 |     | 4.3            | 5.8 | 8.8    | 10.2 |
|                  |                       | 125 .150 .300  | 3                           |                               | 150                  | 455              |                 |     | 5.2            | 7   | 9.7    | 11   |
| 150              | 168.3                 | 150 .050 .300  | 8                           | 10                            | 50                   | 285              | 300             | 50  | 3.0            | 4.0 | 8.0    | 9.0  |
|                  |                       | 150 .080 .300  | 7                           |                               | 80                   | 345              |                 |     | 4.1            | 5   | 9.1    | 10   |
|                  |                       | 150 .100 .300  | 6                           |                               | 100                  | 385              |                 |     | 4.9            | 6   | 9.9    | 11   |
|                  |                       | 150 .120 .300  | 6                           |                               | 120                  | 425              |                 |     | 6              | 7   | 11     | 12   |
|                  |                       | 150 .150 .300  | 5                           |                               | 150                  | 485              |                 |     | 7              | 9   | 12     | 14   |
| 200              | 219.1                 | 200 .050 .300  | 10                          | 10                            | 50                   | 335              | 300             | 50  | 4              | 5   | 10     | 11   |
|                  |                       | 200 .080 .300  | 9                           |                               | 80                   | 395              |                 |     | 5              | 7   | 11     | 13   |
|                  |                       | 200 .100 .300  | 8                           |                               | 100                  | 435              |                 |     | 6              | 8   | 12     | 14   |
|                  |                       | 200 .120 .300  | 7                           |                               | 120                  | 475              |                 |     | 7              | 9   | 13     | 15   |
|                  |                       | 200 .150 .300  | 6                           |                               | 150                  | 535              |                 |     | 8              | 11  | 14     | 17   |

| Nominal diameter | Pipe outside diameter | Type IKO ... <sup>4)</sup><br>Type IKB ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                               | Insulating thickness | Contact diameter | Dimensions      |     | Weight approx. |     |            |     |
|------------------|-----------------------|--|-----------------------------|-------------------------------|----------------------|------------------|-----------------|-----|----------------|-----|------------|-----|
| DN               | D                     |  | -F <sub>z</sub>             | +F <sub>z</sub> <sup>3)</sup> | J                    | DA               | L <sup>1)</sup> | IKB | IKO at L =     |     | IKB at L = |     |
| -                | mm                    |  |                             |                               |                      |                  |                 |     | 300            | 400 | 300        | 400 |
|                  |                       |  | kN                          | kN                            | mm                   | mm               | mm              | mm  | kg             | kg  | kg         | kg  |
| 250              | 273                   | 250 .050 .300  | 9                           | 10                            | 50                   | 390              | 300             | 60  | 4              | 6   | 14         | 15  |
|                  |                       | 250 .080 .300  | 14                          |                               | 80                   | 450              |                 |     | 7              | 10  | 17         | 19  |
|                  |                       | 250 .100 .300  | 13                          |                               | 100                  | 490              |                 |     | 9              | 12  | 18         | 21  |
|                  |                       | 250 .120 .300  | 12                          |                               | 120                  | 530              |                 |     | 10             | 13  | 19         | 22  |
|                  |                       | 250 .150 .300  | 10                          |                               | 150                  | 590              |                 |     | 12             | 15  | 21         | 25  |
| 300              | 323.9                 | 300 .080 .300  | 12                          | 10                            | 80                   | 500              | 300             | 60  | 8              | 11  | 18         | 21  |
|                  |                       | 300 .100 .300  | 11                          |                               | 100                  | 540              |                 |     | 9              | 12  | 20         | 23  |
|                  |                       | 300 .120 .300  | 17                          |                               | 120                  | 580              |                 |     | 13             | 17  | 23         | 27  |
|                  |                       | 300 .150 .300  | 15                          |                               | 150                  | 640              |                 |     | 15             | 20  | 25         | 30  |
| 350              | 355.6                 | 350 .080 .300  | 18                          | 10                            | 80                   | 535              | 300             | 60  | 10             | 14  | 22         | 25  |
|                  |                       | 350 .100 .300  | 17                          |                               | 100                  | 575              |                 |     | 12             | 16  | 23         | 27  |
|                  |                       | 350 .120 .300  | 23                          |                               | 120                  | 615              |                 |     | 16             | 21  | 27         | 32  |
|                  |                       | 350 .150 .300  | 21                          |                               | 150                  | 675              |                 |     | 18             | 25  | 30         | 36  |
| 400              | 406.4                 | 400 .080 .300  | 24                          | 15                            | 80                   | 585              | 300             | 70  | 13             | 17  | 32         | 36  |
|                  |                       | 400 .100 .300  | 22                          |                               | 100                  | 625              |                 |     | 15             | 20  | 34         | 38  |
|                  |                       | 400 .120 .300  | 33                          |                               | 120                  | 665              |                 |     | 20             | 27  | 39         | 46  |
|                  |                       | 400 .150 .300  | 30                          |                               | 150                  | 725              |                 |     | 24             | 31  | 42         | 50  |
| 450              | 457                   | 450 .080 .300  | 22                          | 15                            | 80                   | 640              | 300             | 70  | 14             | 19  | 34         | 39  |
|                  |                       | 450 .100 .300  | 21                          |                               | 100                  | 680              |                 |     | 16             | 21  | 36         | 41  |
|                  |                       | 450 .120 .300  | 30                          |                               | 120                  | 720              |                 |     | 22             | 29  | 42         | 49  |
|                  |                       | 450 .150 .300  | 28                          |                               | 150                  | 780              |                 |     | 25             | 33  | 45         | 54  |

1) Available lengths L = 300 and L = 400 mm  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lift-off loads in conjunction with uplift restraint (note permitted lift-off load)  
4) Add the characteristic for material and surface protection



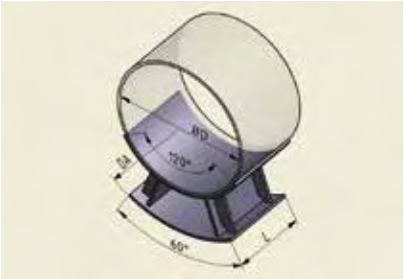
HYDRA® PIPE SADDLES

Type series INO and INB, DN 500 - 1800, for double cylinder and double cone roller support with support shell for welding onto the pipe – type INO, with support shell and U-bolt – type INB

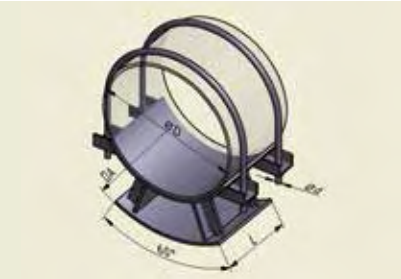
Technical data

- Materials:  
S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection:  
hot-dip galvanized, unthreaded, primed

INO



INB



Order example: INB 0700.120.500-16.3

Insulating saddle with U-bolt, nominal diameter 700, insulation thickness 120 mm, support length 500 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type INO ... <sup>4)</sup><br>Type INB ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                 |                               | Insulating thickness | Contact diameter | Dimensions |    | Weight approx. at L = |     |     |     | Version without/with rib |
|------------------|-----------------------|--|-----------------------------|-----------------|-------------------------------|----------------------|------------------|------------|----|-----------------------|-----|-----|-----|--------------------------|
| DN               | D                     |  | INO                         | INB             |                               |                      |                  | J          | DA | L <sup>1)</sup>       | d   | INO |     |                          |
|                  |                       |  | -F <sub>Z</sub>             | -F <sub>Z</sub> | +F <sub>Z</sub> <sup>3)</sup> |                      |                  |            |    | L                     | 600 | L   | 600 |                          |
| -                | mm                    |  | kN                          | kN              | kN                            | mm                   | mm               | mm         | mm | kg                    | kg  | kg  | kg  |                          |
| 500              | 508                   | 0500 .080 .300   | 75                          | 50              | 28                            | 80                   | 690              | 300        | 20 | 25                    | 50  | 35  | 60  | o                        |
|                  |                       | 0500 .100 .300   |                             |                 |                               | 100                  | 730              |            |    | 27                    | 53  | 36  | 63  | o                        |
|                  |                       | 0500 .120 .300   |                             |                 |                               | 120                  | 770              |            |    | 29                    | 55  | 38  | 66  | o                        |
|                  |                       | 0500 .150 .300   |                             |                 |                               | 150                  | 830              |            |    | 32                    | 62  | 41  | 72  | o                        |
|                  |                       | 0500 .200 .300   |                             |                 |                               | 200                  | 930              |            |    | 38                    | 74  | 48  | 84  | m                        |
|                  |                       | 0500 .250 .300   |                             |                 |                               | 250                  | 1030             |            |    | 43                    | 83  | 53  | 93  | m                        |
| 600              | 610                   | 0600 .080 .300   | 100                         | 65              | 26                            | 80                   | 790              | 300        | 20 | 30                    | 57  | 40  | 69  | o                        |
|                  |                       | 0600 .100 .300   |                             |                 |                               | 100                  | 830              |            |    | 31                    | 60  | 41  | 72  | o                        |
|                  |                       | 0600 .120 .300   |                             |                 |                               | 120                  | 870              |            |    | 33                    | 63  | 43  | 75  | o                        |
|                  |                       | 0600 .150 .300   |                             |                 |                               | 150                  | 930              |            |    | 37                    | 70  | 46  | 81  | o                        |
|                  |                       | 0600 .200 .300   |                             |                 |                               | 200                  | 1030             |            |    | 42                    | 82  | 54  | 94  | m                        |
|                  |                       | 0600 .250 .300   |                             |                 |                               | 250                  | 1130             |            |    | 47                    | 91  | 59  | 103 | m                        |
| 700              | 711                   | 0700 .080 .300   | 125                         | 80              | 24                            | 80                   | 890              | 300        | 20 | 34                    | 66  | 46  | 79  | o                        |
|                  |                       | 0700 .100 .300   |                             |                 |                               | 100                  | 930              |            |    | 36                    | 70  | 47  | 82  | o                        |
|                  |                       | 0700 .120 .300   |                             |                 |                               | 120                  | 970              |            |    | 38                    | 73  | 49  | 85  | o                        |
|                  |                       | 0700 .150 .300   |                             |                 |                               | 150                  | 1030             |            |    | 43                    | 84  | 55  | 97  | m                        |
|                  |                       | 0700 .200 .300   |                             |                 |                               | 200                  | 1130             |            |    | 49                    | 95  | 62  | 108 | m                        |
|                  |                       | 0700 .250 .300   |                             |                 |                               | 250                  | 1230             |            |    | 55                    | 106 | 68  | 119 | m                        |
| 800              | 813                   | 0800 .080 .300   | 150                         | 80              | 23                            | 80                   | 1000             | 300        | 20 | 45                    | 88  | 58  | 102 | o                        |
|                  |                       | 0800 .100 .300   |                             |                 |                               | 100                  | 1040             |            |    | 48                    | 91  | 59  | 105 | o                        |
|                  |                       | 0800 .120 .300   |                             |                 |                               | 120                  | 1080             |            |    | 50                    | 94  | 61  | 108 | o                        |
|                  |                       | 0800 .150 .300   |                             |                 |                               | 150                  | 1140             |            |    | 55                    | 107 | 69  | 121 | m                        |
|                  |                       | 0800 .200 .300   |                             |                 |                               | 200                  | 1240             |            |    | 62                    | 120 | 76  | 134 | m                        |
|                  |                       | 0800 .250 .300   |                             |                 |                               | 250                  | 1340             |            |    | 69                    | 131 | 83  | 145 | m                        |
| 900              | 914                   | 0900 .080 .300   | 175                         | 100             | 21                            | 80                   | 1105             | 300        | 20 | 51                    | 99  | 64  | 64  | o                        |
|                  |                       | 0900 .100 .300   |                             |                 |                               | 100                  | 1145             |            |    | 54                    | 103 | 66  | 118 | o                        |
|                  |                       | 0900 .120 .300   |                             |                 |                               | 120                  | 1185             |            |    | 56                    | 107 | 68  | 122 | o                        |
|                  |                       | 0900 .150 .300   |                             |                 |                               | 150                  | 1245             |            |    | 63                    | 123 | 78  | 138 | m                        |
|                  |                       | 0900 .200 .300   |                             |                 |                               | 200                  | 1345             |            |    | 72                    | 138 | 87  | 153 | m                        |
|                  |                       | 0900 .250 .300   |                             |                 |                               | 250                  | 1445             |            |    | 79                    | 152 | 95  | 168 | m                        |
| 1000             | 1016                  | 1000 .080 .400   | 250                         | 140             | 18                            | 80                   | 1205             | 400        | 24 | 74                    | 108 | 95  | 131 | o                        |
|                  |                       | 1000 .100 .400   |                             |                 |                               | 100                  | 1245             |            |    | 77                    | 112 | 97  | 135 | o                        |
|                  |                       | 1000 .120 .400   |                             |                 |                               | 120                  | 1285             |            |    | 81                    | 116 | 100 | 139 | o                        |
|                  |                       | 1000 .150 .400   |                             |                 |                               | 150                  | 1345             |            |    | 90                    | 133 | 112 | 156 | m                        |
|                  |                       | 1000 .200 .400   |                             |                 |                               | 200                  | 1445             |            |    | 100                   | 147 | 123 | 170 | m                        |
|                  |                       | 1000 .250 .400   |                             |                 |                               | 250                  | 1545             |            |    | 110                   | 161 | 133 | 184 | m                        |

| Nominal diameter | Pipe outside diameter | Type INO ... <sup>4)</sup><br>Type INB ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                       |                                     | Insulating thickness | Contact diameter | Dimensions |    | Weight approx.<br>at L = |     |                 |                 | Version without/with rib |                               |   |
|------------------|-----------------------|--|-----------------------------|-----------------------|-------------------------------------|----------------------|------------------|------------|----|--------------------------|-----|-----------------|-----------------|--------------------------|-------------------------------|---|
|                  |                       |  | INO                         | INB                   |                                     |                      |                  | J          | DA | L <sup>1)</sup>          | d   | INO             |                 |                          | INB                           |   |
|                  |                       |  |                             |                       |                                     |                      |                  |            |    |                          |     | -F <sub>Z</sub> | -F <sub>Z</sub> |                          | +F <sub>Z</sub> <sup>3)</sup> | L |
| DN               | D                     |  | -F <sub>Z</sub><br>kN       | -F <sub>Z</sub><br>kN | +F <sub>Z</sub> <sup>3)</sup><br>kN | mm                   | mm               | mm         | mm | kg                       | kg  | kg              | kg              | -                        |                               |   |
| 1100             | 1120                  | 1100 .080 .400   | 275                         | 140                   | 17                                  | 80                   | 1310             | 400        | 24 | 80                       | 117 | 103             | 142             | o                        |                               |   |
|                  |                       | 1100 .100 .400   |                             |                       |                                     | 100                  | 1350             |            |    | 84                       | 121 | 105             | 146             | o                        |                               |   |
|                  |                       | 1100 .120 .400   |                             |                       |                                     | 120                  | 1390             |            |    | 87                       | 125 | 108             | 150             | o                        |                               |   |
|                  |                       | 1100 .150 .400   |                             |                       |                                     | 150                  | 1450             |            |    | 96                       | 142 | 121             | 167             | m                        |                               |   |
|                  |                       | 1100 .200 .400   |                             |                       |                                     | 200                  | 1550             |            |    | 107                      | 158 | 132             | 182             | m                        |                               |   |
|                  |                       | 1100 .250 .400   |                             |                       |                                     | 250                  | 1650             |            |    | 117                      | 172 | 142             | 196             | m                        |                               |   |
| 1200             | 1220                  | 1200 .080 .400   | 300                         | 190                   | 16                                  | 80                   | 1410             | 400        | 24 | 89                       | 130 | 112             | 156             | o                        |                               |   |
|                  |                       | 1200 .100 .400   |                             |                       |                                     | 100                  | 1450             |            |    | 93                       | 134 | 116             | 161             | o                        |                               |   |
|                  |                       | 1200 .120 .400   |                             |                       |                                     | 120                  | 1490             |            |    | 97                       | 139 | 119             | 166             | o                        |                               |   |
|                  |                       | 1200 .150 .400   |                             |                       |                                     | 150                  | 1550             |            |    | 107                      | 158 | 133             | 184             | m                        |                               |   |
|                  |                       | 1200 .200 .400   |                             |                       |                                     | 200                  | 1650             |            |    | 119                      | 176 | 146             | 202             | m                        |                               |   |
|                  |                       | 1200 .250 .400   |                             |                       |                                     | 250                  | 1750             |            |    | 131                      | 193 | 157             | 219             | m                        |                               |   |
| 1300             | 1320                  | 1300 .080 .400   | -                           | 202                   | 15                                  | 80                   | 1510             | 400        | 24 | -                        | -   | 118             | 164             | o                        |                               |   |
|                  |                       | 1300 .100 .400   |                             |                       |                                     | 100                  | 1550             |            |    |                          |     | 121             | 167             | o                        |                               |   |
|                  |                       | 1300 .120 .400   |                             |                       |                                     | 120                  | 1590             |            |    |                          |     | 123             | 171             | o                        |                               |   |
|                  |                       | 1300 .150 .400   |                             |                       |                                     | 150                  | 1650             |            |    |                          |     | 137             | 189             | m                        |                               |   |
|                  |                       | 1300 .200 .400   |                             |                       |                                     | 200                  | 1750             |            |    |                          |     | 149             | 205             | m                        |                               |   |
|                  |                       | 1300 .250 .400   |                             |                       |                                     | 250                  | 1850             |            |    |                          |     | 159             | 220             | m                        |                               |   |
| 1400             | 1420                  | 1400 .080 .400   | -                           | 202                   | 14                                  | 80                   | 1610             | 400        | 24 | -                        | -   | 126             | 174             | o                        |                               |   |
|                  |                       | 1400 .100 .400   |                             |                       |                                     | 100                  | 1650             |            |    |                          |     | 128             | 178             | o                        |                               |   |
|                  |                       | 1400 .120 .400   |                             |                       |                                     | 120                  | 1690             |            |    |                          |     | 131             | 182             | o                        |                               |   |
|                  |                       | 1400 .150 .400   |                             |                       |                                     | 150                  | 1750             |            |    |                          |     | 145             | 201             | m                        |                               |   |
|                  |                       | 1400 .200 .400   |                             |                       |                                     | 200                  | 1850             |            |    |                          |     | 157             | 217             | m                        |                               |   |
|                  |                       | 1400 .250 .400   |                             |                       |                                     | 250                  | 1950             |            |    |                          |     | 168             | 231             | m                        |                               |   |
| 1500             | 1520                  | 1500 .080 .400   | -                           | 202                   | 14                                  | 80                   | 1710             | 400        | 24 | -                        | -   | 134             | 185             | o                        |                               |   |
|                  |                       | 1500 .100 .400   |                             |                       |                                     | 100                  | 1750             |            |    |                          |     | 136             | 189             | o                        |                               |   |
|                  |                       | 1500 .120 .400   |                             |                       |                                     | 120                  | 1790             |            |    |                          |     | 139             | 193             | o                        |                               |   |
|                  |                       | 1500 .150 .400   |                             |                       |                                     | 150                  | 1850             |            |    |                          |     | 154             | 212             | m                        |                               |   |
|                  |                       | 1500 .200 .400   |                             |                       |                                     | 200                  | 1950             |            |    |                          |     | 166             | 228             | m                        |                               |   |
|                  |                       | 1500 .250 .400   |                             |                       |                                     | 250                  | 2050             |            |    |                          |     | 176             | 243             | m                        |                               |   |
| 1600             | 1620                  | 1600 .080 .400   | -                           | 205                   | 13                                  | 80                   | 1810             | 400        | 24 | -                        | -   | 141             | 196             | o                        |                               |   |
|                  |                       | 1600 .100 .400   |                             |                       |                                     | 100                  | 1850             |            |    |                          |     | 144             | 200             | o                        |                               |   |
|                  |                       | 1600 .120 .400   |                             |                       |                                     | 120                  | 1890             |            |    |                          |     | 147             | 204             | o                        |                               |   |
|                  |                       | 1600 .150 .400   |                             |                       |                                     | 150                  | 1950             |            |    |                          |     | 162             | 223             | m                        |                               |   |
|                  |                       | 1600 .200 .400   |                             |                       |                                     | 200                  | 2050             |            |    |                          |     | 174             | 240             | m                        |                               |   |
|                  |                       | 1600 .250 .400   |                             |                       |                                     | 250                  | 2150             |            |    |                          |     | 185             | 255             | m                        |                               |   |
| 1700             | 1720                  | 1700 .080 .400   | -                           | 205                   | 12                                  | 80                   | 1910             | 400        | 24 | -                        | -   | 152             | 210             | o                        |                               |   |
|                  |                       | 1700 .100 .400   |                             |                       |                                     | 100                  | 1950             |            |    |                          |     | 155             | 215             | o                        |                               |   |
|                  |                       | 1700 .120 .400   |                             |                       |                                     | 120                  | 1990             |            |    |                          |     | 158             | 220             | o                        |                               |   |
|                  |                       | 1700 .150 .400   |                             |                       |                                     | 150                  | 2050             |            |    |                          |     | 174             | 241             | m                        |                               |   |
|                  |                       | 1700 .200 .400   |                             |                       |                                     | 200                  | 2150             |            |    |                          |     | 188             | 259             | m                        |                               |   |
|                  |                       | 1700 .250 .400   |                             |                       |                                     | 250                  | 2250             |            |    |                          |     | 200             | 277             | m                        |                               |   |
| 1800             | 1820                  | 1800 .080 .400   | -                           | 205                   | 12                                  | 80                   | 2010             | 400        | 24 | -                        | -   | 159             | 221             | o                        |                               |   |
|                  |                       | 1800 .100 .400   |                             |                       |                                     | 100                  | 2050             |            |    |                          |     | 162             | 225             | o                        |                               |   |
|                  |                       | 1800 .120 .400   |                             |                       |                                     | 120                  | 2090             |            |    |                          |     | 165             | 230             | o                        |                               |   |
|                  |                       | 1800 .150 .400   |                             |                       |                                     | 150                  | 2150             |            |    |                          |     | 182             | 252             | m                        |                               |   |
|                  |                       | 1800 .200 .400   |                             |                       |                                     | 200                  | 2250             |            |    |                          |     | 196             | 271             | m                        |                               |   |
|                  |                       | 1800 .250 .400   |                             |                       |                                     | 250                  | 2350             |            |    |                          |     | 209             | 288             | m                        |                               |   |

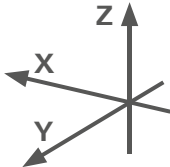


HYDRA® PIPE SADDLES

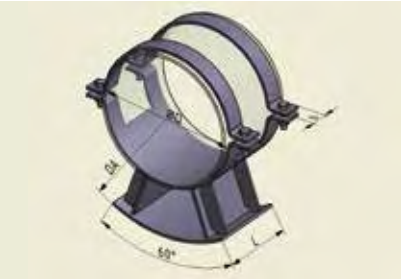
Type series INS, DN 500 - 2000, for double cylinder and double cone roller support with support shell and pipe clamps

Technical data

- Materials:  
S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection: hot-dip galvanized, unthreaded, primed
- With DN>1200 heavy version



INS



Order example: INS 0700.120.500-16.3

Insulating saddle, nominal diameter 700, insulation thickness 120 mm, support length 500 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type INS ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                               | Insulating thickness | Contact diameter | Dimensions      |     | Weight approx. at L = |     | Version without/with rib |
|------------------|-----------------------|----------------------------|-----------------------------|-------------------------------|----------------------|------------------|-----------------|-----|-----------------------|-----|--------------------------|
|                  |                       |                            | -F <sub>Z</sub>             | +F <sub>Z</sub> <sup>3)</sup> |                      |                  | L <sup>1)</sup> | b   | L                     | 600 |                          |
| DN               | D                     |                            | kN                          | kN                            | J                    | DA               | mm              | mm  | kg                    | kg  | -                        |
| -                | mm                    |                            |                             |                               | mm                   | mm               |                 |     |                       |     |                          |
| 500              | 508                   | 0500 .080 .300             | 100                         | 15                            | 80                   | 690              | 300             | 70  | 44                    | 72  | o                        |
|                  |                       | 0500 .100 .300             |                             |                               | 100                  | 730              |                 |     | 45                    | 75  | o                        |
|                  |                       | 0500 .120 .300             |                             |                               | 120                  | 770              |                 |     | 47                    | 78  | o                        |
|                  |                       | 0500 .150 .300             |                             |                               | 150                  | 830              |                 |     | 51                    | 85  | o                        |
|                  |                       | 0500 .200 .300             |                             |                               | 200                  | 930              |                 |     | 56                    | 95  | m                        |
|                  |                       | 0500 .250 .300             |                             |                               | 250                  | 1030             |                 |     | 61                    | 104 | m                        |
| 600              | 610                   | 0600 .080 .300             | 100                         | 19                            | 80                   | 790              | 300             | 90  | 55                    | 89  | o                        |
|                  |                       | 0600 .100 .300             |                             |                               | 100                  | 830              |                 |     | 56                    | 92  | o                        |
|                  |                       | 0600 .120 .300             |                             |                               | 120                  | 870              |                 |     | 58                    | 95  | o                        |
|                  |                       | 0600 .150 .300             |                             |                               | 150                  | 930              |                 |     | 62                    | 102 | o                        |
|                  |                       | 0600 .200 .300             |                             |                               | 200                  | 1030             |                 |     | 68                    | 112 | m                        |
|                  |                       | 0600 .250 .300             |                             |                               | 250                  | 1130             |                 |     | 73                    | 121 | m                        |
| 700              | 711                   | 0700 .080 .300             | 130                         | 19                            | 80                   | 890              | 300             | 90  | 63                    | 102 | o                        |
|                  |                       | 0700 .100 .300             |                             |                               | 100                  | 930              |                 |     | 65                    | 106 | o                        |
|                  |                       | 0700 .120 .300             |                             |                               | 120                  | 970              |                 |     | 66                    | 109 | o                        |
|                  |                       | 0700 .150 .300             |                             |                               | 150                  | 1030             |                 |     | 71                    | 118 | m                        |
|                  |                       | 0700 .200 .300             |                             |                               | 200                  | 1130             |                 |     | 78                    | 130 | m                        |
|                  |                       | 0700 .250 .300             |                             |                               | 250                  | 1230             |                 |     | 84                    | 141 | m                        |
| 800              | 813                   | 0800 .080 .300             | 130                         | 26                            | 80                   | 1000             | 300             | 100 | 88                    | 140 | o                        |
|                  |                       | 0800 .100 .300             |                             |                               | 100                  | 1040             |                 |     | 90                    | 144 | o                        |
|                  |                       | 0800 .120 .300             |                             |                               | 120                  | 1080             |                 |     | 92                    | 148 | o                        |
|                  |                       | 0800 .150 .300             |                             |                               | 150                  | 1140             |                 |     | 97                    | 158 | m                        |
|                  |                       | 0800 .200 .300             |                             |                               | 200                  | 1240             |                 |     | 105                   | 170 | m                        |
|                  |                       | 0800 .250 .300             |                             |                               | 250                  | 1340             |                 |     | 111                   | 182 | m                        |
| 900              | 914                   | 0900 .080 .300             | 170                         | 25                            | 80                   | 1105             | 300             | 100 | 98                    | 157 | o                        |
|                  |                       | 0900 .100 .300             |                             |                               | 100                  | 1145             |                 |     | 101                   | 162 | o                        |
|                  |                       | 0900 .120 .300             |                             |                               | 120                  | 1185             |                 |     | 103                   | 166 | o                        |
|                  |                       | 0900 .150 .300             |                             |                               | 150                  | 1245             |                 |     | 110                   | 179 | m                        |
|                  |                       | 0900 .200 .300             |                             |                               | 200                  | 1345             |                 |     | 119                   | 194 | m                        |
|                  |                       | 0900 .250 .300             |                             |                               | 250                  | 1445             |                 |     | 127                   | 208 | m                        |

| Nominal diameter | Pipe outside diameter | Type INS ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                               | Insulating thickness | Contact diameter | Dimensions      |     | Weight approx. at L = |     | Version without/with rib |
|------------------|-----------------------|----------------------------|-----------------------------|-------------------------------|----------------------|------------------|-----------------|-----|-----------------------|-----|--------------------------|
|                  |                       |                            | -F <sub>Z</sub>             | +F <sub>Z</sub> <sup>3)</sup> |                      |                  | L <sup>1)</sup> | b   | L                     | 600 |                          |
| DN               | D                     |                            | kN                          | kN                            | J                    | DA               | mm              | mm  | kg                    | kg  | -                        |
| -                | mm                    |                            |                             |                               | mm                   | mm               | mm              | mm  |                       |     |                          |
| 1100             | 1120                  | 1100 .080 .400             | 230                         | 25                            | 80                   | 1310             | 400             | 100 | 125                   | 172 | o                        |
|                  |                       | 1100 .100 .400             |                             |                               | 100                  | 1350             |                 |     | 128                   | 176 | o                        |
|                  |                       | 1100 .120 .400             |                             |                               | 120                  | 1390             |                 |     | 131                   | 181 | o                        |
|                  |                       | 1100 .150 .400             |                             |                               | 150                  | 1450             |                 |     | 141                   | 194 | m                        |
|                  |                       | 1100 .200 .400             |                             |                               | 200                  | 1550             |                 |     | 152                   | 210 | m                        |
|                  |                       | 1100 .250 .400             |                             |                               | 250                  | 1650             |                 |     | 162                   | 224 | m                        |
| 1000             | 1016                  | 1000 .080 .400             | 230                         | 25                            | 80                   | 1205             | 400             | 100 | 115                   | 158 | o                        |
|                  |                       | 1000 .100 .400             |                             |                               | 100                  | 1245             |                 |     | 118                   | 163 | o                        |
|                  |                       | 1000 .120 .400             |                             |                               | 120                  | 1285             |                 |     | 122                   | 167 | o                        |
|                  |                       | 1000 .150 .400             |                             |                               | 150                  | 1345             |                 |     | 131                   | 181 | m                        |
|                  |                       | 1000 .200 .400             |                             |                               | 200                  | 1445             |                 |     | 141                   | 195 | m                        |
|                  |                       | 1000 .250 .400             |                             |                               | 250                  | 1545             |                 |     | 151                   | 209 | m                        |
| 1200             | 1220                  | 1200 .080 .400             | 300                         | 25                            | 80                   | 1410             | 400             | 100 | 137                   | 188 | o                        |
|                  |                       | 1200 .100 .400             |                             |                               | 100                  | 1450             |                 |     | 141                   | 194 | o                        |
|                  |                       | 1200 .120 .400             |                             |                               | 120                  | 1490             |                 |     | 145                   | 199 | o                        |
|                  |                       | 1200 .150 .400             |                             |                               | 150                  | 1550             |                 |     | 155                   | 214 | m                        |
|                  |                       | 1200 .200 .400             |                             |                               | 200                  | 1650             |                 |     | 167                   | 232 | m                        |
|                  |                       | 1200 .250 .400             |                             |                               | 250                  | 1750             |                 |     | 179                   | 249 | m                        |
| 1400             | 1420                  | 1400 .080 .400             | 300                         | 50                            | 80                   | 1605             | 400             | 100 | 161                   | 217 | o                        |
|                  |                       | 1400 .100 .400             |                             |                               | 100                  | 1645             |                 |     | 165                   | 223 | o                        |
|                  |                       | 1400 .120 .400             |                             |                               | 120                  | 1685             |                 |     | 169                   | 229 | o                        |
|                  |                       | 1400 .150 .400             |                             |                               | 150                  | 1745             |                 |     | 179                   | 244 | m                        |
|                  |                       | 1400 .200 .400             |                             |                               | 200                  | 1845             |                 |     | 192                   | 262 | m                        |
|                  |                       | 1400 .250 .400             |                             |                               | 250                  | 1945             |                 |     | 204                   | 279 | m                        |
| 1600             | 1620                  | 1600 .080 .400             | 300                         | 50                            | 80                   | 1805             | 400             | 100 | 180                   | 244 | o                        |
|                  |                       | 1600 .100 .400             |                             |                               | 100                  | 1845             |                 |     | 185                   | 250 | o                        |
|                  |                       | 1600 .120 .400             |                             |                               | 120                  | 1885             |                 |     | 189                   | 256 | o                        |
|                  |                       | 1600 .150 .400             |                             |                               | 150                  | 1945             |                 |     | 199                   | 271 | m                        |
|                  |                       | 1600 .200 .400             |                             |                               | 200                  | 2045             |                 |     | 212                   | 289 | m                        |
|                  |                       | 1600 .250 .400             |                             |                               | 250                  | 2145             |                 |     | 224                   | 306 | m                        |
| 1800             | 1820                  | 1800 .080 .400             | 300                         | 50                            | 80                   | 2005             | 400             | 100 | 200                   | 270 | o                        |
|                  |                       | 1800 .100 .400             |                             |                               | 100                  | 2045             |                 |     | 204                   | 276 | o                        |
|                  |                       | 1800 .120 .400             |                             |                               | 120                  | 2085             |                 |     | 208                   | 282 | o                        |
|                  |                       | 1800 .150 .400             |                             |                               | 150                  | 2145             |                 |     | 219                   | 298 | m                        |
|                  |                       | 1800 .200 .400             |                             |                               | 200                  | 2245             |                 |     | 233                   | 316 | m                        |
|                  |                       | 1800 .250 .400             |                             |                               | 250                  | 2345             |                 |     | 245                   | 334 | m                        |
| 2000             | 2020                  | 2000 .080 .400             | 300                         | 50                            | 80                   | 2205             | 400             | 100 | 219                   | 297 | o                        |
|                  |                       | 2000 .100 .400             |                             |                               | 100                  | 2245             |                 |     | 224                   | 303 | o                        |
|                  |                       | 2000 .120 .400             |                             |                               | 120                  | 2285             |                 |     | 228                   | 309 | o                        |
|                  |                       | 2000 .150 .400             |                             |                               | 150                  | 2345             |                 |     | 239                   | 325 | m                        |
|                  |                       | 2000 .200 .400             |                             |                               | 200                  | 2445             |                 |     | 253                   | 344 | m                        |
|                  |                       | 2000 .250 .400             |                             |                               | 250                  | 2545             |                 |     | 266                   | 362 | m                        |

1) Longer lengths L (L<sub>max</sub> = 1200 mm) available in 100 mm steps from L > 600 mm with additional average pipe clamp  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lift-off loads in conjunction with uplift restraint (note permitted lift-off load)  
4) Add the characteristic for material and surface protection

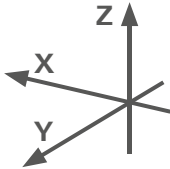


HYDRA® CLAMP

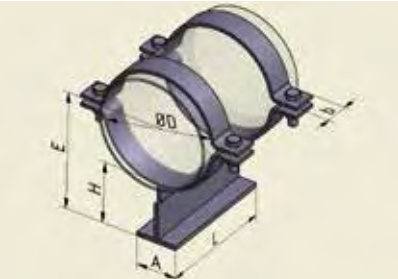
Type series ITB, DN 50 - 350,  
for cylinder roller support with T-base and pipe clamps

Technical data

- Materials:  
S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10,  
X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection: hot-dip galvanized, unthreaded, primed



ITB



Order example: ITB 0150.120.500-16.3

Insulating base, nominal diameter 150, insulation thickness 120 mm, support length 500 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type ITB ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                               |                 | Max. insulating thickness | Height | Installation dimension | Dimensions |                 |    | Weight  |
|------------------|-----------------------|----------------------------|-----------------------------|-------------------------------|-----------------|---------------------------|--------|------------------------|------------|-----------------|----|---------|
|                  |                       |                            | -F <sub>Z</sub>             | +F <sub>Z</sub> <sup>3)</sup> | +F <sub>Y</sub> |                           |        |                        | A          | L <sup>1)</sup> | b  |         |
| DN               | D                     |                            | kN                          | kN                            | kN              | J                         | H      | E                      | mm         | mm              | mm | approx. |
| -                | mm                    |                            |                             |                               |                 | mm                        | mm     | mm                     |            |                 |    | kg      |
| 50               | 60.3                  | 0050 .050 .300             | 5                           | 5                             | 6.5             | 50                        | 76     | 106                    | 70         | 300             | 40 | 4       |
|                  |                       | 0050 .080 .300             |                             |                               | 4.7             | 80                        | 101    | 131                    |            |                 |    | 4       |
|                  |                       | 0050 .100 .300             |                             |                               | 3.8             | 100                       | 121    | 151                    |            |                 |    | 4       |
|                  |                       | 0050 .120 .300             |                             |                               | 3.2             | 120                       | 141    | 171                    |            |                 |    | 4       |
|                  |                       | 0050 .150 .300             |                             |                               | 2.6             | 150                       | 171    | 201                    |            |                 |    | 5       |
| 65               | 76.1                  | 0065 .050 .300             | 5                           | 5                             | 6.5             | 50                        | 76     | 114                    | 70         | 300             | 40 | 4       |
|                  |                       | 0065 .080 .300             |                             |                               | 4.7             | 80                        | 101    | 139                    |            |                 |    | 4       |
|                  |                       | 0065 .100 .300             |                             |                               | 3.8             | 100                       | 121    | 159                    |            |                 |    | 4       |
|                  |                       | 0065 .120 .300             |                             |                               | 3.2             | 120                       | 141    | 179                    |            |                 |    | 5       |
|                  |                       | 0065 .150 .300             |                             |                               | 2.6             | 150                       | 171    | 209                    |            |                 |    | 5       |
| 80               | 89.9                  | 0080 .050 .300             | 5                           | 5                             | 6.5             | 50                        | 76     | 121                    | 70         | 300             | 40 | 4       |
|                  |                       | 0080 .080 .300             |                             |                               | 4.7             | 80                        | 101    | 146                    |            |                 |    | 4       |
|                  |                       | 0080 .100 .300             |                             |                               | 3.8             | 100                       | 121    | 166                    |            |                 |    | 5       |
|                  |                       | 0080 .120 .300             |                             |                               | 3.2             | 120                       | 141    | 186                    |            |                 |    | 5       |
|                  |                       | 0080 .150 .300             |                             |                               | 2.6             | 150                       | 171    | 216                    |            |                 |    | 5       |
| 100              | 114.3                 | 0100 .050 .300             | 15                          | 10                            | 7.2             | 50                        | 78     | 135                    | 70         | 300             | 40 | 5       |
|                  |                       | 0100 .080 .300             |                             |                               | 5.2             | 80                        | 103    | 160                    |            |                 |    | 5       |
|                  |                       | 0100 .100 .300             |                             |                               | 4.2             | 100                       | 123    | 180                    |            |                 |    | 6       |
|                  |                       | 0100 .120 .300             |                             |                               | 3.5             | 120                       | 143    | 200                    |            |                 |    | 6       |
|                  |                       | 0100 .150 .300             |                             |                               | 2.9             | 150                       | 173    | 230                    |            |                 |    | 6       |
| 125              | 139.7                 | 0125 .080 .300             | 15                          | 10                            | 5.1             | 80                        | 108    | 178                    | 100        | 300             | 40 | 8       |
|                  |                       | 0125 .100 .300             |                             |                               | 4.1             | 100                       | 128    | 198                    |            |                 |    | 8       |
|                  |                       | 0125 .120 .300             |                             |                               | 3.5             | 120                       | 148    | 218                    |            |                 |    | 8       |
|                  |                       | 0125 .150 .300             |                             |                               | 2.8             | 150                       | 178    | 248                    |            |                 |    | 8       |
|                  |                       | 0125 .200 .300             |                             |                               | 2.2             | 200                       | 228    | 298                    |            |                 |    | 9       |
| 150              | 168.3                 | 0150 .080 .300             | 15                          | 10                            | 5.1             | 80                        | 108    | 192                    | 100        | 300             | 40 | 8       |
|                  |                       | 0150 .100 .300             |                             |                               | 4.1             | 100                       | 128    | 212                    |            |                 |    | 9       |
|                  |                       | 0150 .120 .300             |                             |                               | 3.5             | 120                       | 148    | 232                    |            |                 |    | 9       |
|                  |                       | 0150 .150 .300             |                             |                               | 2.8             | 150                       | 178    | 262                    |            |                 |    | 9       |
|                  |                       | 0150 .200 .300             |                             |                               | 2.2             | 200                       | 228    | 312                    |            |                 |    | 9       |

| Nominal diameter | Pipe outside diameter | Type ITB ... <sup>4)</sup> | Nominal loads <sup>2)</sup> |                               |                 | Max. insulating thickness | Height | Installation dimension | Dimensions |                 |    | Weight  |
|------------------|-----------------------|----------------------------|-----------------------------|-------------------------------|-----------------|---------------------------|--------|------------------------|------------|-----------------|----|---------|
|                  |                       |                            | -F <sub>Z</sub>             | +F <sub>Z</sub> <sup>3)</sup> | +F <sub>Y</sub> |                           |        |                        | A          | L <sup>1)</sup> | b  |         |
| DN               | D                     |                            | kN                          | kN                            | kN              | J                         | H      | E                      | mm         | mm              | mm | approx. |
| -                | mm                    |                            |                             |                               |                 | mm                        | mm     | mm                     | mm         | mm              | mm | kg      |
| 200              | 219.1                 | 0200 .080 .300             | 15                          | 10                            | 5.1             | 80                        | 108    | 218                    | 100        | 300             | 50 | 11      |
|                  |                       | 0200 .100 .300             |                             |                               | 4.1             | 100                       | 128    | 238                    |            |                 |    | 11      |
|                  |                       | 0200 .120 .300             |                             |                               | 3.5             | 120                       | 148    | 258                    |            |                 |    | 11      |
|                  |                       | 0200 .150 .300             |                             |                               | 2.8             | 150                       | 178    | 288                    |            |                 |    | 11      |
|                  |                       | 0200 .200 .300             |                             |                               | 2.2             | 200                       | 228    | 338                    |            |                 |    | 12      |
| 250              | 273                   | 0250 .080 .300             | 15                          | 10                            | 5.1             | 80                        | 108    | 245                    | 100        | 300             | 50 | 12      |
|                  |                       | 0250 .100 .300             |                             |                               | 4.1             | 100                       | 128    | 265                    |            |                 |    | 12      |
|                  |                       | 0250 .120 .300             |                             |                               | 3.5             | 120                       | 148    | 285                    |            |                 |    | 12      |
|                  |                       | 0250 .150 .300             |                             |                               | 2.8             | 150                       | 178    | 315                    |            |                 |    | 12      |
|                  |                       | 0250 .200 .300             |                             |                               | 2.2             | 200                       | 228    | 365                    |            |                 |    | 13      |
| 150              | 168.3                 | 0150 .120 .300             | 20                          | 10                            | 6.3             | 120                       | 148    | 232                    | 140        | 300             | 40 | 13      |
|                  |                       | 0150 .150 .300             |                             |                               | 5.1             | 150                       | 178    | 262                    |            |                 |    | 13      |
|                  |                       | 0150 .200 .300             |                             |                               | 3.8             | 200                       | 228    | 312                    |            |                 |    | 14      |
| 200              | 219.1                 | 0200 .120 .300             | 20                          | 10                            | 7.8             | 120                       | 148    | 258                    | 140        | 300             | 50 | 15      |
|                  |                       | 0200 .150 .300             |                             |                               | 6.3             | 150                       | 178    | 288                    |            |                 |    | 16      |
|                  |                       | 0200 .200 .300             |                             |                               | 4.8             | 200                       | 228    | 338                    |            |                 |    | 16      |
| 250              | 273                   | 0250 .120 .300             | 20                          | 10                            | 7.8             | 120                       | 148    | 285                    | 140        | 300             | 50 | 16      |
|                  |                       | 0250 .150 .300             |                             |                               | 6.3             | 150                       | 178    | 315                    |            |                 |    | 17      |
|                  |                       | 0250 .200 .300             |                             |                               | 4.8             | 200                       | 228    | 365                    |            |                 |    | 17      |
| 300              | 323.9                 | 0300 .120 .300             | 20                          | 10                            | 7.8             | 120                       | 148    | 310                    | 140        | 300             | 50 | 17      |
|                  |                       | 0300 .150 .300             |                             |                               | 6.3             | 150                       | 178    | 340                    |            |                 |    | 18      |
|                  |                       | 0300 .200 .300             |                             |                               | 4.8             | 200                       | 228    | 390                    |            |                 |    | 18      |
| 350              | 355.6                 | 0350 .120 .300             | 20                          | 10                            | 9.4             | 120                       | 148    | 326                    | 140        | 300             | 60 | 19      |
|                  |                       | 0350 .150 .300             |                             |                               | 7.6             | 150                       | 178    | 356                    |            |                 |    | 20      |
|                  |                       | 0350 .200 .300             |                             |                               | 5.7             | 200                       | 228    | 406                    |            |                 |    | 21      |

1) Longer lengths L (L<sub>max</sub> = 600 mm) available in 100 mm steps  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) Lift-off loads in conjunction with uplift restraint (note permitted lift-off load)  
4) Add the characteristic for material and surface protection



HYDRA® PIPE TRAY

Type series SMR , DN 90 - 1000,  
for double cylinder and double cone roller support for Pre-insulation pipe

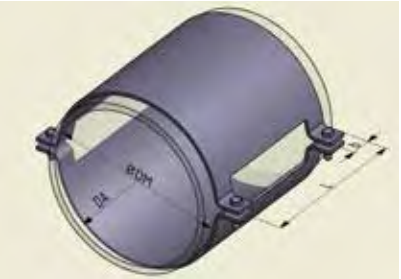
Technical data

- Materials:  
S235JR, 16Mo3, 13CrMo4-5, 10CrMo9-10, X10CrMoVNb9-1 (P91)  
Material is temperature-dependent, see pg. 9
- Surface protection:  
hot-dip galvanized, unthreaded, primed

Shape 1



Shape 2



Order example: SMR 0550.300.1-16.3

Insulating saddle, Pre-insulation or outside pipe diameter 550 mm, support length 300 mm, shape 1, 16Mo3, primed

| Pre-insulated<br>pipe diameter | Type SMR ...                | Nominal loads <sup>4)</sup> |                               |                               | Contact<br>diameter | Dimensions      |     | Weight approx.<br>with support length |         |         |         |
|--------------------------------|-----------------------------|-----------------------------|-------------------------------|-------------------------------|---------------------|-----------------|-----|---------------------------------------|---------|---------|---------|
|                                |                             | F <sub>v</sub>              | +F <sub>z</sub> <sup>5)</sup> | +F <sub>z</sub> <sup>5)</sup> |                     | L <sup>3)</sup> | b   | L                                     |         | 2 x L   |         |
|                                |                             |                             | Shape 1                       | Shape 2                       |                     |                 |     | Shape 1                               | Shape 2 | Shape 1 | Shape 2 |
| DM                             |                             | kN                          | kN                            | kN                            | mm                  | mm              | mm  | kg                                    | kg      | kg      | kg      |
| -                              |                             |                             |                               |                               |                     |                 |     |                                       |         |         |         |
| 90                             | 0090 .220 ... <sup>2)</sup> | 5                           | 1                             | 5                             | 100                 | 220             | 30  | 2,0                                   | 3,0     | 3,2     | 5,3     |
| 110                            | 0110 .220 ... <sup>2)</sup> | 6                           | 1                             |                               | 120                 |                 |     | 2,4                                   | 3,5     | 3,8     | 6,3     |
| 125                            | 0125 .220 ... <sup>2)</sup> | 7                           | 2                             |                               | 135                 |                 |     | 2,8                                   | 4,2     | 4,4     | 7,6     |
| 140                            | 0140 .220 ... <sup>2)</sup> | 8                           | 2                             |                               | 150                 |                 |     | 3,2                                   | 4,9     | 5,2     | 9,0     |
| 160                            | 0160 .220 ... <sup>2)</sup> | 10                          | 2                             |                               | 170                 |                 |     | 3,6                                   | 5,5     | 5,9     | 10,1    |
| 170                            | 0170 .220 ... <sup>2)</sup> | 10                          | 3                             | 7                             | 182                 | 300             | 40  | 5,1                                   | 7,4     | 8,0     | 13,3    |
| 180                            | 0180 .220 ... <sup>2)</sup> | 11                          | 3                             |                               | 192                 |                 |     | 5,3                                   | 7,8     | 8,5     | 14,0    |
| 200                            | 0200 .300 ... <sup>2)</sup> | 12                          | 3                             |                               | 212                 |                 |     | 5,9                                   | 8,5     | 9,3     | 15,5    |
| 225                            | 0225 .300 ... <sup>2)</sup> | 14                          | 4                             |                               | 237                 |                 |     | 6,7                                   | 9,9     | 10,8    | 18,2    |
| 250                            | 0250 .300 ... <sup>2)</sup> | 15                          | 4                             |                               | 262                 |                 |     | 7,3                                   | 11      | 11,9    | 20      |
| 280                            | 0280 .300 ... <sup>2)</sup> | 17                          | 5                             |                               | 292                 |                 |     | 8,1                                   | 12      | 13,2    | 22      |
| 300                            | 0300 .300 ... <sup>2)</sup> | 18                          | 5                             |                               | 312                 |                 |     | 8,6                                   | 13      | 14,1    | 24      |
| 315                            | 0315 .300 ... <sup>2)</sup> | 19                          | 5                             |                               | 327                 |                 |     | 9,0                                   | 13      | 14,8    | 25      |
| 325                            | 0325 .300 ... <sup>2)</sup> | 20                          | 5                             |                               | 337                 |                 |     | 9                                     | 14      | 15      | 26      |
| 355                            | 0355 .300 ... <sup>2)</sup> | 22                          | 6                             |                               | 367                 |                 |     | 10                                    | 15      | 17      | 28      |
| 400                            | 0400 .300 ... <sup>2)</sup> | 25                          | 7                             | 14                            | 412                 | 300             | 60  | 12                                    | 18      | 19      | 33      |
| 450                            | 0450 .300 ... <sup>2)</sup> | 28                          | 11                            |                               | 466                 |                 |     | 20                                    | 27      | 31      | 49      |
| 500                            | 0500 .300 ... <sup>2)</sup> | 31                          | 13                            |                               | 516                 |                 |     | 22                                    | 30      | 35      | 57      |
| 550                            | 0550 .300 ... <sup>2)</sup> | 34                          | 14                            |                               | 566                 |                 |     | 24                                    | 33      | 38      | 62      |
| 560                            | 0560 .300 ... <sup>2)</sup> | 35                          | 21                            |                               | 580                 |                 |     | 37                                    | 44      | 54      | 79      |
| 600                            | 0600 .300 ... <sup>2)</sup> | 37                          | 23                            | 26                            | 620                 | 300             | 90  | 40                                    | 47      | 58      | 84      |
| 630                            | 0630 .300 ... <sup>2)</sup> | 39                          | 24                            |                               | 650                 |                 |     | 42                                    | 50      | 62      | 92      |
| 670                            | 0670 .300 ... <sup>2)</sup> | 42                          | 25                            |                               | 690                 |                 |     | 44                                    | 53      | 66      | 97      |
| 710                            | 0710 .300 ... <sup>2)</sup> | 44                          | 26                            |                               | 730                 |                 |     | 47                                    | 56      | 69      | 102     |
| 800                            | 0800 .300 ... <sup>2)</sup> | 50                          | 26                            |                               | 820                 |                 |     | 52                                    | 63      | 77      | 115     |
| 900                            | 0900 .300 ... <sup>2)</sup> | 75                          | 34                            | 34                            | 924                 | 400             | 100 | 86                                    | 111     | 133     | 205     |
| 1000                           | 1000 .300 ... <sup>2)</sup> | 84                          |                               |                               | 1024                |                 |     | 95                                    | 122     | 146     | 226     |

1) Pressure resistance insulation:  $p \geq 0.3 \text{ N/mm}^2$   
2) Add the shape and characteristic for material and surface protection  
3) Up to DM= 200 longer lengths L ( $L_{max} = 600 \text{ mm}$ ) available in 100 mm steps  
4) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
5) Uplift loads in conjunction with uplift restraint (note permitted uplift load)

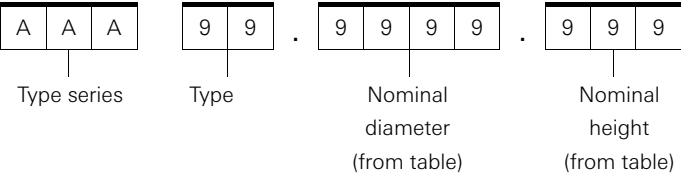
HYDRA®  
SPECIAL  
VERSIONS



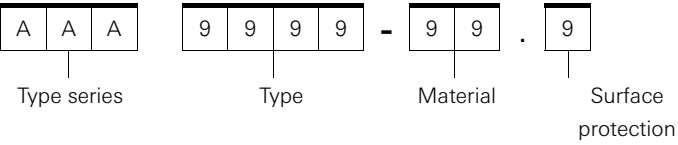
# HYDRA® SPECIAL VERSIONS

Type series, names, variants

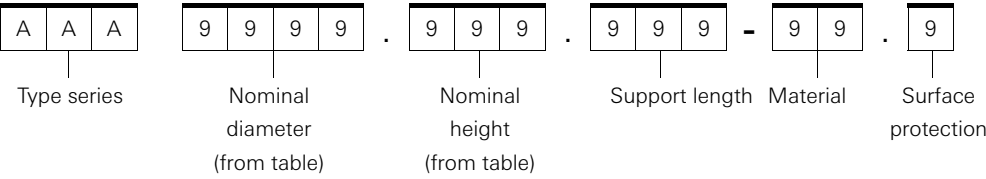
## Type designation LKL / LKG / FLN



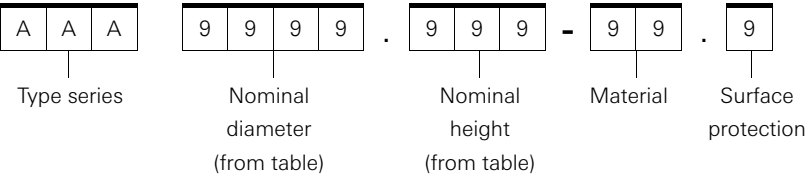
### LBN



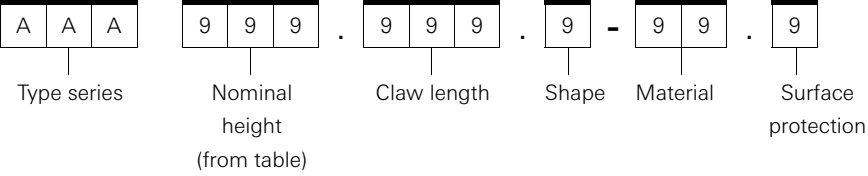
## LPR / LUR / LSN / LSV



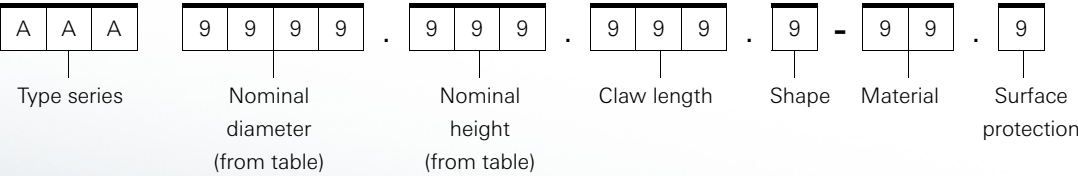
### LFA



## PAN / PAV



### PRN / PRV



# HYDRA® SPECIAL VERSIONS

Type series, names, variants  
if standard, then no information

## Type series

| Non-insulated pipelines |   |
|-------------------------|---|
| LKL                     | Movable support, PA sliding plate, up to 95 °C                            |
| LKG                     | Guide support, U-Bolt Clamp, PA sliding plate, up to 95 °C                |
| FLN                     | Fixed support, U-Bolt Clamp or 1-clamp, up to 95 °C                       |
| LBN                     | Guide support, U-shaped, up to 80 °C                                      |
| LPR                     | Movable support, 2-clamp, up to 300 °C                                    |
| Insulated pipelines     |   |
| LUR                     | Movable support, 2-clamp, box-shaped, up to 500 or 540 °C                 |
| LSN / LSV               | Movable support / fixed support, calliper-shaped to weld on, up to 500 °C |
| LFA                     | Fixed support, to weld on, up to 500 °C                                   |
| PAN                     | Vertikal pipe support to weld on, normal version                          |
| PAV                     | Vertikal pipe support to weld on, stronger version                        |
| PRN                     | Vertikal pipe support with 2 clamps, normal version                       |
| PRV                     | Vertikal pipe support with 2 clamps, stronger version                     |

## Material

| Name              |        | Characteristic | max. temp. to VGB R510L in °C |
|-------------------|--------|----------------|-------------------------------|
| S235JRG2          | 1.0038 | 37             | 300 (standard)                |
| 16Mo3             | 1.5415 | 16             | 500                           |
| 13CrMo4-5         | 1.7335 | 13             | 530                           |
| 10CrMo9-10        | 1.7380 | 10             | 580                           |
| X6CrNiTi18-10     | 1.4541 | 41             | 550                           |
| X6CrNiMoTi17-12-2 | 1.4571 | 71             | 550                           |
| X10CrMoVNb9-1     | 1.4903 | 91             | 650                           |
| others            | -      | 99             | -                             |

\* Temperature reduction coefficients see page 9  
\*max. temperature on polyamide sliding plate 90° C

## Surface protection

| Name               | Characteristic |
|--------------------|----------------|
| Unthreated         | 0              |
| Galvanized         | 1              |
| Hot-dip galvanized | 2              |
| Primed             | 3              |
| Special            | 4              |

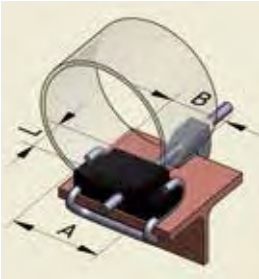


HYDRA® MOVABLE AND GUIDE SUPPORT

Type series LKL movable support and LKG guide support with U-Bolt, type 10, up to 95 °C, low overall height, fixed height

- Technical data
- To clamp on structural steel
  - Nominal height H = 40 mm (for non-insulated pipelines)
  - Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
  - Materials:  
Bracket / support: S235JR  
Clamping claws: S235JR, forged  
Sliding plate: Polyamide PA 66, glass fibre-reinforced
  - Surface protection: steel components hot-dip galvanized
  - Bolting (threaded rods), nuts for clamping system  
Thread: M12  
Recommended bolting tightening torque: 70 Nm
  - Friction coefficient:  
Sliding pairing PA-steel hot-dip galvanized: 0.2 to 0.3

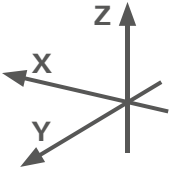
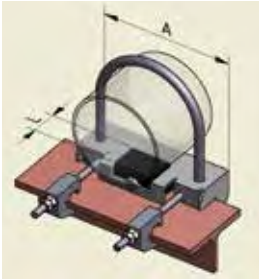
LKL 10



LKG 10, DN 15-80



LKG 10, DN 100-300



Order example: LKL 10.0080.040-37.2-T140

Type 10, nominal diameter 80, nominal height 40 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type LKL ...<br>Type LKG ...    | Nominal loads   |                 |                | Perm. displacement<br>Movable support | Dimensions |    |    |     |    | Weight  |         |
|------------------|-----------------------|---------------------------------|-----------------|-----------------|----------------|---------------------------------------|------------|----|----|-----|----|---------|---------|
|                  |                       |                                 |                 |                 |                |                                       | LKL        |    |    | LKG |    | LKL     | LKG     |
|                  |                       |                                 | -F <sub>z</sub> | +F <sub>z</sub> | F <sub>x</sub> |                                       | A          | L  | B  | A   | L  | approx. | approx. |
| DN               | D                     |                                 | kN              | kN              | kN             | mm                                    | mm         | mm | mm | mm  | mm | kg      | kg      |
| -                | mm                    |                                 |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 15               | 21.3                  | 10.0015.040 . ... <sup>1)</sup> | 2               | 1               | 2              | ±25                                   | 85         | 50 | 50 | 85  | 50 | 0.9     | 0.9     |
| 20               | 26.9                  | 10.0020.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 25               | 33.7                  | 10.0025.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 32               | 42.4                  | 10.0032.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 40               | 48.3                  | 10.0040.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 50               | 60.3                  | 10.0050.040 . ... <sup>1)</sup> | 2               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 115 | 50 | 0.9     | 1       |
| 65               | 76.1                  | 10.0065.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 80               | 88.9                  | 10.0080.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 100              | 114.3                 | 10.0100.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 125              | 139.7                 | 10.0125.040 . ... <sup>1)</sup> | 3               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 196 | 50 | 0.9     | 3.0     |
| 150              | 168.3                 | 10.0150.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 200              | 219.1                 | 10.0200.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 250              | 273.0                 | 10.0250.040 . ... <sup>1)</sup> |                 |                 |                |                                       |            |    |    |     |    |         |         |
| 300              | 323.9                 | 10.0300.040 . ... <sup>1)</sup> | 5               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 214 | 50 | 0.9     | 3.2     |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 5               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 242 | 50 | 0.9     | 4.6     |
|                  |                       |                                 | 5               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 5               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 5               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 5               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 294 | 50 | 0.9     | 5.0     |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 348 | 50 | 0.9     | 5.4     |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               | 1               | 2              | ±35                                   | 115        | 50 | 70 | 398 | 50 | 0.9     | 5.8     |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |
|                  |                       |                                 | 9               |                 |                |                                       |            |    |    |     |    |         |         |

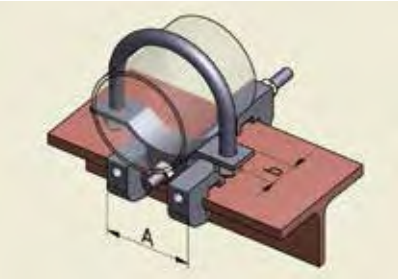
1) Add characteristic for material, surface protection and clamp carrier

HYDRA® FIXED SUPPORT

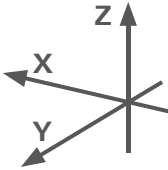
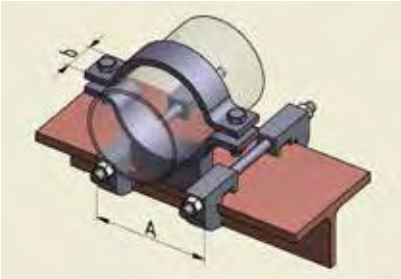
Type series FLN, type 10 and 11, up to 95 °C, low overall height, fixed height

- Technical data
- To clamp on structural steel
  - Nominal height H = 40 mm (for non-insulated pipelines)
  - Clamp carrier T-shaped:  
Carrier width 80 to 140 mm  
Support base thickness 7 to 19 mm
  - Materials:  
Bracket / clamp / carrier: S235JR  
Clamping claws: S235JR, forged
  - Surface protection: steel components hot-dip galvanized
  - Bolting (threaded rods), nuts for clamping system  
Thread: M12  
Recommended bolting tightening torque: 70 Nm
  - Friction coefficient:  
Sliding pairing PA-steel hot-dip galvanized: 0.2 to 0.3

FLN 10



FLN 11



Order example: FLN 10.0080.040-37.2-T140

Type 10, nominal diameter 80, nominal height 40 mm, S235JR, hot-dip galvanized, clamp carrier T140

| Nominal diameter | Outside pipe diameter | Type FLN 10 ...<br>Type FLN 11 ... | Nominal loads / dimensions |                 |                |                |     |    | Nominal loads / dimensions |                 |                |                |     |    | Weight            |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
|------------------|-----------------------|------------------------------------|----------------------------|-----------------|----------------|----------------|-----|----|----------------------------|-----------------|----------------|----------------|-----|----|-------------------|--|----|-----|-----|-------|--------------------|----|-----|-----|-------|--------------------|----|----|--|--|-----|-----|----|--|--|--|-----|--|--|
| DN               | D                     |                                    | FLN 10                     |                 |                |                |     |    | FLN 11                     |                 |                |                |     |    | approx.<br><br>kg |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| -                | mm                    |                                    | -F <sub>Z</sub>            | +F <sub>Z</sub> | F <sub>X</sub> | F <sub>Y</sub> | A   | b  | -F <sub>Z</sub>            | +F <sub>Z</sub> | F <sub>X</sub> | F <sub>Y</sub> | A   | b  |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
|                  |                       |                                    | kN                         | kN              | kN             | kN             | mm  | mm | kN                         | kN              | kN             | kN             | mm  | mm |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 15               | 21.3                  | ....0015. 040-37.2                 | -                          | -               | -              | -              | -   | -  | 2                          | 2               | 4              | 4              | 25  | 25 | 1                 |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 20               | 26.9                  | ....0020. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 25               | 33.7                  | ....0025. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 32               | 42.4                  | ....0032. 040-37.2                 | 2                          | 1               | 2              | 2              | 25  | 25 | 2                          | 2               | 4              | 4              | 25  | 30 | 1                 |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 40               | 48.3                  | ....0040. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 50               | 60.3                  | ....0050. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 65               | 76.1                  | ....0065. 040-37.2                 | 2                          | 1               | 2              | 2              | 100 | 30 | 2                          | 2               | 5              | 6              | 100 | 40 | 2                 |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 80               | 88.9                  | ....0080. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 100              | 114.3                 | ....0100. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 125              | 139.7                 | ....0125. 040-37.2                 | 3                          | 1               | 2              | 2              | 130 | 35 | 3                          | 3               | 5              | 8              | 140 | 40 | 4                 |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
|                  |                       |                                    |                            |                 |                |                |     |    |                            |                 |                |                | 140 |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
|                  |                       |                                    |                            |                 |                |                |     |    |                            |                 |                |                | 150 |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 150              | 168.3                 | ....0150. 040-37.2                 |                            |                 |                |                |     |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 200              | 219.1                 | ....0200. 040-37.2                 | 5                          | 1               | 2              | 2              | 170 | 50 | 5                          | 5               | 6              | 8              | 170 | 50 | 6                 |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 250              | 273.0                 | ....0250. 040-37.2                 | 9                          |                 |                |                | 200 |    |                            |                 |                |                |     |    |                   |  | 9  | 200 |     |       |                    | 12 | 250 | 300 | 323.9 | ....0300. 040-37.2 | 12 |    |  |  | 250 |     | 12 |  |  |  | 250 |  |  |
|                  |                       |                                    | 9                          |                 |                |                | 200 |    |                            |                 |                |                |     |    |                   |  | 12 | 250 | 300 | 323.9 | ....0300. 040-37.2 | 12 |     |     |       | 250                |    | 12 |  |  |     | 250 |    |  |  |  |     |  |  |
|                  |                       |                                    | 12                         |                 |                |                | 250 |    |                            |                 |                |                |     |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |
| 300              | 323.9                 | ....0300. 040-37.2                 | 12                         |                 |                |                | 250 |    | 12                         |                 |                |                | 250 |    |                   |  |    |     |     |       |                    |    |     |     |       |                    |    |    |  |  |     |     |    |  |  |  |     |  |  |



HYDRA® GUIDE SUPPORT

Type series LBN,  
up to 80 °C, U-Bolt, fixed height

- Technical data
- U-Bolt
  - Fixed height (for non-insulated pipelines)
  - Materials:  
S235JR, stainless steel
  - Surface protection: galvanized, unthreaded

Order example: LBN 0082-37.1  
Nominal diameter 65, S235JR, galvanized

| Nominal diameter | Outside pipe diameter | Type LBN ...                 | Nominal loads <sup>2)</sup> |                | Dimensions |     |     |    |           |                  | Weight |
|------------------|-----------------------|------------------------------|-----------------------------|----------------|------------|-----|-----|----|-----------|------------------|--------|
|                  |                       |                              | F <sub>z</sub>              | F <sub>x</sub> | E          | H   | I   | d  | Max.<br>t | sp <sup>3)</sup> |        |
|                  |                       |                              | kN                          | kN             | mm         | mm  | mm  | M  | mm        | mm               |        |
| -                | mm                    |                              |                             |                |            |     |     |    |           |                  | kg     |
| 15               | 21.3                  | 0029 - . . . . <sup>1)</sup> | 2                           | = 0.1 x FZ     | 35         | 53  | 40  | 6  | 9         | 4                | 0.04   |
| 20               | 26.9                  | 0034 - . . . . <sup>1)</sup> | 2                           |                | 40         | 64  | 40  | 6  | 14        | 4                | 0.04   |
| 25               | 33.7                  | 0038 - . . . . <sup>1)</sup> | 3                           |                | 46         | 74  | 40  | 8  | 15        | 4                | 0.09   |
| 32               | 42.4                  | 0046 - . . . . <sup>1)</sup> | 5                           |                | 56         | 86  | 45  | 10 | 17        | 4                | 0.16   |
| 40               | 48.3                  | 0052 - . . . . <sup>1)</sup> | 5                           |                | 62         | 92  | 45  | 10 | 17        | 4                | 0.17   |
| 50               | 60.3                  | 0064 - . . . . <sup>1)</sup> | 8                           |                | 76         | 109 | 50  | 12 | 17        | 4                | 0.29   |
| 65               | 76.1                  | 0082 - . . . . <sup>1)</sup> | 8                           |                | 94         | 125 | 50  | 12 | 17        | 4                | 0.33   |
| 80               | 88.9                  | 0094 - . . . . <sup>1)</sup> | 8                           |                | 106        | 139 | 50  | 12 | 17        | 4                | 0.36   |
| 100              | 114.3                 | 0120 - . . . . <sup>1)</sup> | 15                          |                | 136        | 171 | 60  | 16 | 17        | 4                | 0.81   |
| 125              | 139.7                 | 0148 - . . . . <sup>1)</sup> | 15                          |                | 164        | 197 | 60  | 16 | 17        | 4                | 0.91   |
| 150              | 168.3                 | 0176 - . . . . <sup>1)</sup> | 15                          |                | 192        | 225 | 60  | 16 | 17        | 4                | 1.0    |
| 200              | 219.1                 | 0228 - . . . . <sup>1)</sup> | 22                          |                | 248        | 289 | 70  | 20 | 17        | 5                | 2.1    |
| 250              | 273.0                 | 0282 - . . . . <sup>1)</sup> | 22                          |                | 302        | 343 | 70  | 20 | 17        | 5                | 2.4    |
| 300              | 323.9                 | 0332 - . . . . <sup>1)</sup> | 22                          |                | 352        | 394 | 70  | 20 | 17        | 5                | 2.7    |
| 350              | 355.6                 | 0378 - . . . . <sup>1)</sup> | 32                          |                | 402        | 439 | 80  | 24 | 21        | 7                | 4.4    |
| 400              | 406.4                 | 0428 - . . . . <sup>1)</sup> | 32                          |                | 452        | 489 | 80  | 24 | 21        | 7                | 4.9    |
| 500              | 508.0                 | 0530 - . . . . <sup>1)</sup> | 32                          |                | 554        | 591 | 80  | 24 | 21        | 7                | 5.8    |
| 600              | 610.0                 | 0638 - . . . . <sup>1)</sup> | 44                          |                | 668        | 707 | 100 | 30 | 25        | 7                | 11     |
| 800              | 813.0                 | 0840 - . . . . <sup>1)</sup> | 44                          |                | 870        | 910 | 100 | 30 | 25        | 7                | 14     |

1) Add the characteristic for material and surface protection  
2) The nominal loads apply to supports made from S235JR and temperatures up to 80 °C  
3) sp = clearance between round steel bracket and pipe

HYDRA® MOVEABLE SUPPORT

Type series LPR,  
up to 300 °C, 2-clamp, fixed height

- Technical data
- 2-clamp with U-section
  - Fixed height (for non-insulated pipelines)
  - Materials:  
S235JR
  - Surface protection: hot-dip galvanized

Order example: LPR 0080.036.150-37.2  
Nominal diameter 80, nominal height 36 mm, length 150 mm, S235JR, hot-dip galvanized

| Nominal diameter | Outside pipe diameter | Type LPR ...                        | Nominal loads <sup>1)</sup> |                 |                |                              | Nominal height | Installation dimension | Dimensions |     | Weight     |
|------------------|-----------------------|-------------------------------------|-----------------------------|-----------------|----------------|------------------------------|----------------|------------------------|------------|-----|------------|
|                  |                       |                                     | -F <sub>z</sub>             | +F <sub>z</sub> | F <sub>x</sub> | F <sub>y</sub> <sup>2)</sup> |                |                        | A          | L   |            |
|                  |                       |                                     | kN                          | kN              | kN             | kN                           |                |                        | mm         | mm  |            |
| -                | mm                    |                                     |                             |                 |                |                              |                |                        |            |     | approx. kg |
| 80               | 88.9                  | 080 .036 .150 . . . . <sup>3)</sup> | 26                          | 3.9             | 2.1            | 13                           | 36             | 81                     | 80         | 150 | 3.1        |
| 100              | 114.3                 | 100 .042 .150 . . . . <sup>3)</sup> | 44                          | 6.1             | 4.7            | 22                           | 42             | 99                     |            |     | 5.3        |
| 125              | 139.7                 | 125 .044 .150 . . . . <sup>3)</sup> | 44                          | 6.0             | 4.7            | 22                           | 44             | 114                    |            |     | 5.7        |
| 150              | 168.3                 | 150 .045 .150 . . . . <sup>3)</sup> | 44                          | 6.1             | 4.7            | 22                           | 45             | 130                    |            |     | 6.3        |
| 200              | 219.1                 | 200 .049 .200 . . . . <sup>3)</sup> | 44                          | 6.0             | 3.8            | 22                           | 49             | 158                    | 120        | 200 | 8.7        |
| 250              | 273.0                 | 250 .052 .200 . . . . <sup>3)</sup> | 53                          | 6.2             | 4.5            | 26                           | 52             | 188                    |            |     | 12         |
| 300              | 323.9                 | 300 .053 .200 . . . . <sup>3)</sup> | 53                          | 6.3             | 4.5            | 26                           | 53             | 215                    |            |     | 13         |
| 350              | 355.6                 | 350 .054 .200 . . . . <sup>3)</sup> | 53                          | 6.1             | 4.5            | 26                           | 54             | 232                    |            |     | 14         |
| 400              | 406.4                 | 400 .062 .250 . . . . <sup>3)</sup> | 77                          | 9.2             | 5.9            | 38                           | 62             | 266                    | 200        | 250 | 25         |
| 450              | 457                   | 450 .065 .250 . . . . <sup>3)</sup> | 77                          | 9.2             | 5.9            | 38                           | 65             | 294                    |            |     | 27         |
| 500              | 508                   | 500 .067 .250 . . . . <sup>3)</sup> | 77                          | 9.0             | 5.9            | 38                           | 67             | 321                    |            |     | 28         |
| 550              | 559                   | 550 .069 .250 . . . . <sup>3)</sup> | 99                          | 13              | 7.6            | 49                           | 69             | 348                    |            |     | 36         |
| 600              | 610                   | 600 .070 .250 . . . . <sup>3)</sup> | 99                          | 13              | 7.6            | 49                           | 70             | 375                    |            |     | 38         |
| 700              | 711                   | 700 .072 .250 . . . . <sup>3)</sup> | 99                          | 13              | 7.6            | 49                           | 72             | 428                    |            |     | 42         |
| 800              | 813                   | 800 .076 .250 . . . . <sup>3)</sup> | 126                         | 17              | 11             | 63                           | 76             | 482                    |            |     | 62         |

1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C and minimum contact 50 mm from edge length L  
2) Only applies when used as axial stop (stopping point) and only with slip-through protection  
3) Add the characteristic for material and surface protection



# HYDRA® MOVEABLE SUPPORT

Type series LUR,  
up to 540 °C, 2-clamp, fixed height

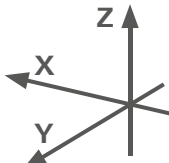
## Technical data

- 2-clamp, box-shaped
- Materials: S235JR, 16Mo3, 13CrMo5-5  
Material is temperature-dependent, see pg 9
- Surface protection: hot-dip galvanized, primed, unthreated

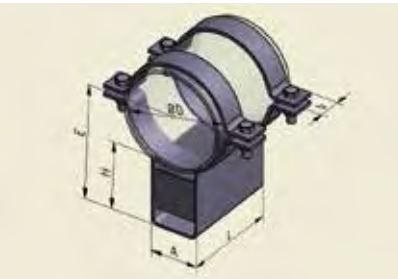
**For other load combinations FX / FY, the following must apply:**

$$(\text{exist } F_x / \text{perm } F_x)^2 + (\text{exist } F_y / \text{perm } F_y)^2 < 4$$

perm  $F_{yx}$  from the following table, taking account of temperature reduction



**LUR**



**Order example: LUR 0150.171.200-16.0**

Nominal diameter 150, nominal height 171 mm, length 200 mm, 16Mo3, unthreated

| Nominal diameter | Pipe outside diameter | Type LUR ...                        | Material  | Nominal loads <sup>1)</sup> |                 |                |                              | Max. insulation thickness | Nominal height | Installation dimension | Dimensions |     | Weight  |
|------------------|-----------------------|-------------------------------------|-----------|-----------------------------|-----------------|----------------|------------------------------|---------------------------|----------------|------------------------|------------|-----|---------|
| DN               | D                     |                                     |           | -F <sub>Z</sub>             | +F <sub>Z</sub> | F <sub>X</sub> | F <sub>Y</sub> <sup>3)</sup> | H                         | H              | E                      | A          | L   | approx. |
| -                | mm                    |                                     |           | kN                          | kN              | kN             | kN                           | mm                        | mm             | mm                     | mm         | mm  | kg      |
| 80               | 88.9                  | 0080 .102 .200 - .... <sup>1)</sup> | S235JRG2  | 22                          | 4.2             | 1.7            | 11                           | 92                        | 102            | 146                    | 80         | 200 | 4.2     |
|                  |                       | 0080 .162 .200 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 152                       | 162            | 206                    | 80         | 200 | 5.5     |
|                  |                       | 0080 .212 .200 - .... <sup>1)</sup> | 13CrMo4-5 |                             |                 |                |                              | 192                       | 212            | 256                    | 80         | 200 | 6.5     |
| 100              | 114.3                 | 0100 .108 .200 - .... <sup>1)</sup> | S235JRG2  | 27                          | 6.8             | 2.1            | 14                           | 98                        | 108            | 165                    | 80         | 200 | 6.4     |
|                  |                       | 0100 .168 .200 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 158                       | 168            | 225                    | 80         | 200 | 7.6     |
|                  |                       | 0100 .218 .200 - .... <sup>1)</sup> | 13CrMo4-5 |                             |                 |                |                              | 198                       | 218            | 275                    | 80         | 200 | 8.7     |
| 125              | 139.7                 | 0125 .110 .200 - .... <sup>1)</sup> | S235JRG2  | 27                          | 6.7             | 2.1            | 14                           | 100                       | 110            | 180                    | 80         | 200 | 6.9     |
|                  |                       | 0125 .170 .200 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 160                       | 170            | 240                    | 80         | 200 | 8.1     |
|                  |                       | 0125 .220 .200 - .... <sup>1)</sup> | 13CrMo4-5 |                             |                 |                |                              | 200                       | 220            | 290                    | 80         | 200 | 9.2     |
| 150              | 168.3                 | 0150 .111 .200 - .... <sup>1)</sup> | S235JRG2  | 27                          | 6.7             | 2.1            | 14                           | 101                       | 111            | 195                    | 80         | 200 | 7.4     |
|                  |                       | 0150 .171 .200 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 161                       | 171            | 255                    | 80         | 200 | 8.7     |
|                  |                       | 0150 .221 .200 - .... <sup>1)</sup> | 13CrMo4-5 |                             |                 |                |                              | 201                       | 221            | 305                    | 80         | 200 | 9.7     |
| 200              | 219.1                 | 0200 .165 .250 - .... <sup>1)</sup> | S235JRG2  | 33                          | 6.7             | 3.1            | 16                           | 155                       | 165            | 274                    | 120        | 250 | 12      |
|                  |                       | 0200 .225 .250 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 215                       | 225            | 334                    | 120        | 250 | 14      |
| 250              | 273                   | 0250 .168 .250 - .... <sup>1)</sup> | S235JRG2  | 39                          | 7.0             | 3.7            | 20                           | 158                       | 168            | 304                    | 120        | 250 | 15      |
|                  |                       | 0250 .228 .250 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 218                       | 228            | 364                    | 120        | 250 | 17      |
| 300              | 323.9                 | 0300 .169 .250 - .... <sup>1)</sup> | S235JRG2  | 39                          | 7.2             | 3.7            | 20                           | 159                       | 169            | 331                    | 120        | 250 | 16      |
|                  |                       | 0300 .229 .250 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 219                       | 229            | 391                    | 120        | 250 | 18      |
| 350              | 355.6                 | 0350 .170 .250 - .... <sup>1)</sup> | S235JRG2  | 39                          | 6.9             | 3.7            | 20                           | 160                       | 170            | 348                    | 120        | 250 | 17      |
|                  |                       | 0350 .230 .250 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 220                       | 230            | 408                    | 120        | 250 | 19      |
| 400              | 406.4                 | 0400 .189 .330 - .... <sup>1)</sup> | S235JRG2  | 61                          | 10.3            | 6.6            | 31                           | 179                       | 189            | 392                    | 200        | 330 | 32      |
|                  |                       | 0400 .249 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 239                       | 249            | 452                    | 200        | 330 | 36      |
| 450              | 457                   | 0450 .192 .330 - .... <sup>1)</sup> | S235JRG2  | 61                          | 10.3            | 6.6            | 31                           | 182                       | 192            | 420                    | 200        | 330 | 34      |
|                  |                       | 0450 .252 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 242                       | 252            | 480                    | 200        | 330 | 37      |
| 500              | 508                   | 0500 .193 .330 - .... <sup>1)</sup> | S235JRG2  | 61                          | 10.1            | 6.6            | 31                           | 183                       | 193            | 447                    | 200        | 330 | 36      |
|                  |                       | 0500 .253 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 243                       | 253            | 507                    | 200        | 330 | 39      |
| 550              | 559                   | 0550 .195 .330 - .... <sup>1)</sup> | S235JRG2  | 79                          | 14.2            | 8.4            | 39                           | 185                       | 195            | 474                    | 200        | 330 | 43      |
|                  |                       | 0550 .255 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 245                       | 255            | 534                    | 200        | 330 | 46      |
| 600              | 610                   | 0600 .196 .330 - .... <sup>1)</sup> | S235JRG2  | 79                          | 14.2            | 8.4            | 39                           | 186                       | 196            | 501                    | 200        | 330 | 45      |
|                  |                       | 0600 .256 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 246                       | 256            | 561                    | 200        | 330 | 48      |
| 700              | 711                   | 0700 .198 .330 - .... <sup>1)</sup> | S235JRG2  | 79                          | 14.2            | 8.4            | 39                           | 188                       | 198            | 554                    | 200        | 330 | 50      |
|                  |                       | 0700 .262 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 252                       | 262            | 614                    | 200        | 330 | 53      |
| 800              | 813                   | 0800 .202 .330 - .... <sup>1)</sup> | S235JRG2  | 88                          | 19.1            | 9.4            | 44                           | 192                       | 202            | 608                    | 200        | 330 | 69      |
|                  |                       | 0800 .262 .330 - .... <sup>1)</sup> | 16Mo3     |                             |                 |                |                              | 252                       | 262            | 668                    | 200        | 330 | 72      |

1) Add the characteristic for material and surface protection

2) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C and minimum contact 50 mm from edge length  $L$

3) Only applies when used as axial stop (stopping point) and only with slip-through protection

## HYDRA® MOVABLE OR FIXED SUPPORT

Type series LSN and LSV,  
saddle, movable or fixed supports, supporting shell, box-shaped, to weld on

## Technical data

- Materials: S235JR, 16Mo3  
Material is temperature-dependent, see pg. 9
- Surface protection: primed, unthreated

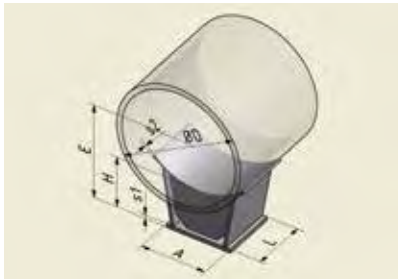
**With additional torques  $M_v$  and  $M_x$**

**the following must apply:**

exist  $F_y + \text{exist } M_x / E < F_y$

exist  $F_x$  + exist  $M_y / E < F_x$

## LSN / LSV



**LSN: 1 supporting LSV: 2 supporting**  
**web(s) web(s)**



**Order example: LSV 400.100.120-16.3**

Nominal diameter 400, nominal height 100 mm, length 120 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type LSN ...<br>Type LSV ...           | Nominal loads <sup>1)</sup> |                |                | Nominal height | Installation dimension | Dimensions |     |    |    |                | Weight |
|------------------|-----------------------|--|-----------------------------|----------------|----------------|----------------|------------------------|------------|-----|----|----|----------------|--------|
| DN               | D                     |  | -F <sub>Z</sub>             | F <sub>x</sub> | F <sub>y</sub> |                |                        | H          | E   | A  | L  | s <sub>1</sub> |        |
| -                | mm                    |  | kN                          | kN             | kN             | mm             | mm                     | mm         | mm  | mm | mm | mm             | a      |
| 300              | 323.9                 | LSN 0300 .077 .120 - ... <sup>2)</sup> | 110                         | 35             | 30             | 77             | 239                    | 140        | 120 | 8  | 6  | 4              | 3.4    |
|                  |                       | LSV 0300 .077 .120 - ... <sup>2)</sup> | 170                         | 50             | 50             |                |                        |            |     |    |    |                | 3.8    |
| 350              | 355.6                 | LSN 0350 .075 .120 - ... <sup>2)</sup> | 130                         | 45             | 30             | 75             | 253                    | 160        | 120 | 8  | 6  | 4              | 3.8    |
|                  |                       | LSV 0350 .075 .120 - ... <sup>2)</sup> | 170                         | 60             | 60             |                |                        |            |     |    |    |                | 4.2    |
| 400              | 406.4                 | LSN 0400 .100 .120 - ... <sup>2)</sup> | 140                         | 45             | 30             | 100            | 303                    | 220        | 120 | 8  | 6  | 4              | 5.0    |
|                  |                       | LSV 0400 .100 .120 - ... <sup>2)</sup> | 210                         | 65             | 60             |                |                        |            |     |    |    |                | 5.8    |
| 450              | 457                   | LSN 0450 .100 .120 - ... <sup>2)</sup> | 150                         | 50             | 40             | 100            | 329                    | 220        | 120 | 8  | 8  | 5              | 6.0    |
|                  |                       | LSV 0450 .100 .120 - ... <sup>2)</sup> | 290                         | 100            | 85             |                |                        |            |     |    |    |                | 6.9    |
| 500              | 508                   | LSN 0500 .115 .150 - ... <sup>2)</sup> | 170                         | 55             | 50             | 115            | 369                    | 300        | 150 | 10 | 8  | 5              | 9.6    |
|                  |                       | LSV 0500 .115 .150 - ... <sup>2)</sup> | 330                         | 110            | 95             |                |                        |            |     |    |    |                | 11     |
| 550              | 559                   | LSN 0550 .120 .150 - ... <sup>2)</sup> | 170                         | 55             | 50             | 120            | 400                    | 300        | 150 | 10 | 8  | 5              | 10     |
|                  |                       | LSV 0550 .120 .150 - ... <sup>2)</sup> | 330                         | 110            | 95             |                |                        |            |     |    |    |                | 12     |
| 600              | 610                   | LSN 0600 .120 .150 - ... <sup>2)</sup> | 180                         | 60             | 50             | 120            | 430                    | 350        | 150 | 10 | 8  | 5              | 12     |
|                  |                       | LSV 0600 .120 .150 - ... <sup>2)</sup> | 340                         | 120            | 100            |                |                        |            |     |    |    |                | 13     |
| 700              | 711                   | LSN 0700 .120 .170 - ... <sup>2)</sup> | 210                         | 95             | 60             | 120            | 476                    | 420        | 170 | 10 | 8  | 5              | 16     |
|                  |                       | LSV 0700 .120 .170 - ... <sup>2)</sup> | 460                         | 150            | 150            |                |                        |            |     |    |    |                | 18     |
| 800              | 813                   | LSN 0800 .120 .170 - ... <sup>2)</sup> | 220                         | 110            | 60             | 120            | 527                    | 480        | 170 | 10 | 8  | 5              | 18     |
|                  |                       | LSV 0800 .120 .170 - ... <sup>2)</sup> | 500                         | 160            | 160            |                |                        |            |     |    |    |                | 21     |
| 900              | 914                   | LSN 0900 .150 .190 - ... <sup>2)</sup> | 270                         | 120            | 65             | 150            | 607                    | 540        | 190 | 12 | 10 | 6              | 27     |
|                  |                       | LSV 0900 .150 .190 - ... <sup>2)</sup> | 550                         | 210            | 190            |                |                        |            |     |    |    |                | 31     |
| 1000             | 1016                  | LSN 1000 .150 .190 - ... <sup>2)</sup> | 290                         | 140            | 70             | 150            | 658                    | 600        | 190 | 12 | 10 | 6              | 30     |
|                  |                       | LSV 1000 .150 .190 - ... <sup>2)</sup> | 600                         | 220            | 200            |                |                        |            |     |    |    |                | 35     |
| 1200             | 1220                  | LSN 1200 .150 .190 - ... <sup>2)</sup> | 330                         | 220            | 70             | 150            | 760                    | 740        | 190 | 12 | 10 | 6              | 38     |
|                  |                       | LSV 1200 .150 .190 - ... <sup>2)</sup> | 670                         | 280            | 250            |                |                        |            |     |    |    |                | 44     |
| 1400             | 1420                  | LSN 1400 .150 .210 - ... <sup>2)</sup> | 340                         | 270            | 85             | 150            | 860                    | 870        | 210 | 12 | 10 | 6              | 51     |
|                  |                       | LSV 1400 .150 .210 - ... <sup>2)</sup> | 850                         | 340            | 290            |                |                        |            |     |    |    |                | 62     |
| 1600             | 1620                  | LSN 1600 .150 .210 - ... <sup>2)</sup> | 340                         | 320            | 85             | 150            | 960                    | 1000       | 210 | 12 | 10 | 6              | 59     |
|                  |                       | LSV 1600 .150 .210 - ... <sup>2)</sup> | 970                         | 340            | 300            |                |                        |            |     |    |    |                | 72     |
| 1800             | 1820                  | LSN 1800 .150 .250 - ... <sup>2)</sup> | 680                         | 540            | 140            | 150            | 1060                   | 1160       | 250 | 15 | 10 | 6              | 86     |
|                  |                       | LSV 1800 .150 .250 - ... <sup>2)</sup> | 1210                        | 540            | 420            |                |                        |            |     |    |    |                | 102    |
| 2000             | 2020                  | LSN 2000 .150 .250 - ... <sup>2)</sup> | 680                         | 540            | 140            | 150            | 1160                   | 1280       | 250 | 15 | 10 | 6              | 96     |
|                  |                       | LSV 2000 .150 .250 - ... <sup>2)</sup> | 1300                        | 540            | 420            |                |                        |            |     |    |    |                | 115    |

1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C

2) Add the characteristic for material and surface protection



HYDRA® FIXED SUPPORT

Type series LFA,  
to weld on, fixed height

**Technical data**

- Materials: S235JR, 16Mo3  
Material is temperature-dependent, see pg. 9
- Surface protection: primed, unthreated
- Support eye nut from DN 500

**LFA < DN 700**



**LFA > DN 700**



**Order example: LFA 0400.238-16.3**  
Nominal diameter 400, nominal height 238 mm, 16Mo3, primed

| Nominal diameter | Pipe outside diameter | Type LFA ...                  | Nominal loads <sup>1)</sup> |                 |                |                | Nominal height | Installation dimension | Dimensions |     |     |     |     | Site weld min | k <sup>3)</sup> | Weight |     |     |
|------------------|-----------------------|-------------------------------|-----------------------------|-----------------|----------------|----------------|----------------|------------------------|------------|-----|-----|-----|-----|---------------|-----------------|--------|-----|-----|
|                  |                       |                               | -F <sub>z</sub>             | +F <sub>x</sub> | F <sub>y</sub> | F <sub>x</sub> |                |                        | H          | E   | B   | L*  | b   |               |                 |        | e   | s   |
|                  |                       |                               | DN                          | D               | kN             | kN             |                |                        | kN         | kN  | mm  | mm  | mm  | mm            |                 | mm     | mm  | mm  |
| -                | mm                    |                               |                             |                 |                |                |                |                        |            |     |     |     |     |               |                 |        |     |     |
| 80               | 88.9                  | 0080 .094 . ... <sup>2)</sup> | 17                          | 17              | 10             | 5.0            | 94             | 139                    | -          | -   | 115 | 85  | 10  | 3             | 14              | 1.7    |     |     |
|                  |                       | 0080 .154 . ... <sup>2)</sup> | 17                          | 17              | 6.5            | 3.0            | 154            | 199                    |            |     |     |     |     |               |                 |        | 2.2 |     |
| 100              | 114.3                 | 0100 .098 . ... <sup>2)</sup> | 17                          | 17              | 10             | 5.0            | 98             | 155                    |            |     |     |     | 115 | 85            | 10              | 3      | 14  | 1.7 |
|                  |                       | 0100 .158 . ... <sup>2)</sup> | 17                          | 17              | 6.5            | 3.0            | 158            | 215                    |            |     |     |     |     |               |                 |        |     | 2.3 |
| 125              | 139.7                 | 0125 .100 . ... <sup>2)</sup> | 31                          | 31              | 25             | 12             | 100            | 170                    |            |     |     |     | 150 | 115           | 12              | 3      | 18  | 2.6 |
|                  |                       | 0125 .160 . ... <sup>2)</sup> | 31                          | 31              | 17             | 8.0            | 160            | 230                    |            |     |     |     |     |               |                 |        |     | 3.2 |
| 150              | 168.3                 | 0150 .103 . ... <sup>2)</sup> | 31                          | 31              | 25             | 12             | 103            | 187                    |            |     |     |     | 150 | 115           | 12              | 3      | 18  | 2.6 |
|                  |                       | 0150 .163 . ... <sup>2)</sup> | 31                          | 31              | 17             | 8.0            | 163            | 247                    |            |     |     |     |     |               |                 |        |     | 3.2 |
| 200              | 219.1                 | 0200 .155 . ... <sup>2)</sup> | 54                          | 54              | 46             | 23             | 155            | 265                    |            |     |     |     | 200 | 160           | 15              | 3      | 18  | 6.0 |
|                  |                       | 0200 .215 . ... <sup>2)</sup> | 54                          | 54              | 34             | 17             | 215            | 325                    |            |     |     |     |     |               |                 |        |     | 7.1 |
| 250              | 273.0                 | 0250 .159 . ... <sup>2)</sup> | 110                         | 107             | 110            | 55             | 159            | 295                    |            |     |     |     | 250 | 200           | 15              | 4      | 27  | 10  |
|                  |                       | 0250 .219 . ... <sup>2)</sup> | 110                         | 107             | 85             | 42             | 219            | 355                    |            |     |     |     |     |               |                 |        |     | 12  |
| 300              | 323.9                 | 0300 .161 . ... <sup>2)</sup> | 110                         | 107             | 110            | 55             | 161            | 323                    |            |     |     |     | 250 | 200           | 15              | 4      | 27  | 10  |
|                  |                       | 0300 .221 . ... <sup>2)</sup> | 110                         | 107             | 85             | 42             | 221            | 383                    |            |     |     |     |     |               |                 |        |     | 12  |
| 350              | 355.6                 | 0350 .161 . ... <sup>2)</sup> | 190                         | 162             | 190            | 95             | 161            | 339                    |            |     |     |     | 315 | 250           | 20              | 5      | 33  | 18  |
|                  |                       | 0350 .221 . ... <sup>2)</sup> | 190                         | 162             | 145            | 72             | 221            | 399                    |            |     |     |     |     |               |                 |        |     | 21  |
| 400              | 406.4                 | 0400 .178 . ... <sup>2)</sup> | 190                         | 162             | 190            | 95             | 178            | 381                    |            |     |     |     | 315 | 250           | 20              | 5      | 33  | 19  |
|                  |                       | 0400 .238 . ... <sup>2)</sup> | 190                         | 162             | 145            | 72             | 238            | 441                    |            |     |     |     |     |               |                 |        |     | 22  |
| 450              | 457                   | 0450 .181 . ... <sup>2)</sup> | 250                         | 192             | 250            | 125            | 181            | 409                    |            |     |     |     | 360 | 290           | 20              | 5      | 33  | 23  |
|                  |                       | 0450 .241 . ... <sup>2)</sup> | 250                         | 192             | 190            | 95             | 241            | 469                    |            |     |     |     |     |               |                 |        |     | 27  |
| 500              | 508                   | 0500 .183 . ... <sup>2)</sup> | 380                         | 269             | 380            | 190            | 183            | 437                    |            |     |     |     | 400 | 320           | 20              | 6      | 39  | 32  |
|                  |                       | 0500 .243 . ... <sup>2)</sup> | 380                         | 269             | 290            | 145            | 243            | 497                    |            |     |     |     |     |               |                 |        |     | 37  |
| 600              | 610                   | 0600 .186 . ... <sup>2)</sup> | 470                         | 307             | 470            | 235            | 186            | 491                    |            |     |     |     | 450 | 370           | 25              | 6      | 39  | 42  |
|                  |                       | 0600 .246 . ... <sup>2)</sup> | 470                         | 307             | 380            | 190            | 246            | 551                    |            |     |     |     |     |               |                 |        |     | 48  |
| 700              | 711                   | 0700 .188 . ... <sup>2)</sup> | 600                         | 342             | 600            | 300            | 188            | 543                    | 600        | 600 | 550 | 460 | 25  | 6             | 39              | 94     |     |     |
|                  |                       | 0700 .248 . ... <sup>2)</sup> | 600                         | 342             | 500            | 250            | 248            | 603                    |            |     |     |     |     |               |                 | 101    |     |     |
| 800              | 813                   | 0800 .190 . ... <sup>2)</sup> | 600                         | 342             | 600            | 300            | 190            | 596                    | 600        | 600 | 550 | 460 | 25  | 6             | 39              | 92     |     |     |
|                  |                       | 0800 .250 . ... <sup>2)</sup> | 600                         | 342             | 500            | 250            | 250            | 656                    |            |     |     |     |     |               |                 | 99     |     |     |
| 900              | 914                   | 0900 .190 . ... <sup>2)</sup> | 820                         | 412             | 820            | 410            | 190            | 647                    | 700        | 700 | 650 | 540 | 30  | 7             | 45              | 128    |     |     |
|                  |                       | 0900 .250 . ... <sup>2)</sup> | 820                         | 412             | 700            | 350            | 250            | 707                    |            |     |     |     |     |               |                 | 137    |     |     |
| 1000             | 1016                  | 1000 .190 . ... <sup>2)</sup> | 820                         | 412             | 820            | 410            | 190            | 698                    | 700        | 700 | 650 | 540 | 30  | 7             | 45              | 126    |     |     |
|                  |                       | 1000 .250 . ... <sup>2)</sup> | 820                         | 412             | 700            | 350            | 250            | 758                    |            |     |     |     |     |               |                 | 135    |     |     |

1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C  
2) Add the characteristic for material and surface protection  
3) Up to DN 300: boltings 5.6; from DN 350: boltings 8.8

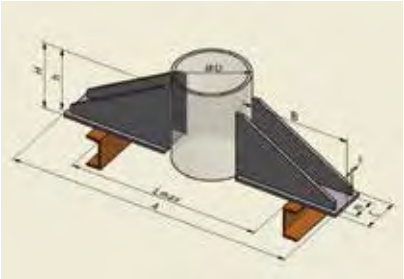
HYDRA® VERTIKAL PIPE SUPPORT

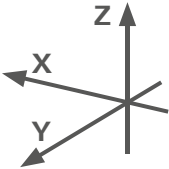
Type series PAN,  
up to 540 °C, vertical pipeline, to weld onto pipe, to prop up

**Technical data**

- Materials: S235JR, 16Mo3, 13CrMo5-5  
Material is temperature-dependent, see pg 9
- Surface protection: hot-dip galvanized, primed, unthreated
- Types  
Shape 1: 1 weld-on web (DN: 20 - 100)  
Shape 2: 2 weld-on web (DN: 50 - 600)

**PAN, presentation shape 2**





**Order example: PAN 200.415.2-37.3**  
Height 200 mm, width 415 mm, shape 2, S235JR, primed

| Nominal<br>diameter | Pipe<br>outside<br>diameter | Type PAN ...                   | Nominal loads <sup>1)</sup> |                |                | Dimensions |     |     |     |     |    |     |                  | Site weld<br>min | Weight |      |         |
|---------------------|-----------------------------|--------------------------------|-----------------------------|----------------|----------------|------------|-----|-----|-----|-----|----|-----|------------------|------------------|--------|------|---------|
|                     |                             |                                | -F <sub>Z</sub>             | F <sub>x</sub> | F <sub>y</sub> | A          | B   | C   | H   | h   | s  | m   | L <sub>max</sub> |                  |        | a    | approx. |
|                     |                             |                                | kN                          | kN             | kN             | mm         | mm  | mm  | mm  | mm  | mm | mm  | mm               |                  |        | mm   | mm      |
| DN                  | D                           |                                |                             |                |                |            |     |     |     |     |    |     |                  |                  |        |      |         |
| -                   | mm                          |                                |                             |                |                | mm         | mm  | mm  | mm  | mm  | mm | mm  | mm               | mm               | mm     | kg   |         |
| 20                  | 26.9                        | 105 .160 .1 -... <sup>2)</sup> | 6                           | 3              | 0.6            | 347        | 160 | 50  | 105 | 100 | 5  | -   | 285              | 2.5              |        | 1.4  |         |
| 25                  | 33.7                        | 105 .160 .1 -... <sup>2)</sup> |                             |                |                | 354        |     |     |     |     |    |     | 290              |                  |        |      |         |
| 32                  | 42.4                        | 105 .160 .1 -... <sup>2)</sup> |                             |                |                | 362        |     |     |     |     |    |     | 300              |                  |        |      |         |
| 40                  | 48.3                        | 105 .160 .1 -... <sup>2)</sup> |                             |                |                | 368        |     |     |     |     |    |     | 305              |                  |        |      |         |
| 50                  | 60.3                        | 135 .300 .1 -... <sup>2)</sup> | 6                           | 3              | 0.6            | 660        | 300 | 50  | 135 | 129 | 6  | -   | 600              | 3                |        | 3.6  |         |
| 65                  | 76.1                        | 135 .300 .1 -... <sup>2)</sup> |                             |                |                | 676        |     |     |     |     |    |     | 615              |                  |        |      |         |
| 80                  | 88.9                        | 135 .300 .1 -... <sup>2)</sup> |                             |                |                | 690        |     |     |     |     |    |     | 625              |                  |        |      |         |
| 100                 | 114.3                       | 135 .300 .1 -... <sup>2)</sup> |                             |                |                | 714        |     |     |     |     |    |     | 650              |                  |        |      |         |
| 50                  | 60.3                        | 150 .305 .2 -... <sup>2)</sup> | 20                          | 10             | 10             | 646        | 305 | 80  | 150 | 144 | 6  | 48  | 595              | V - join         |        | 7.2  |         |
| 65                  | 76.1                        | 150 .305 .2 -... <sup>2)</sup> |                             |                |                | 669        |     |     |     |     |    |     | 605              |                  |        |      |         |
| 80                  | 88.9                        | 150 .305 .2 -... <sup>2)</sup> |                             |                |                | 686        |     |     |     |     |    |     | 620              |                  |        |      |         |
| 100                 | 114.3                       | 170 .365 .2 -... <sup>2)</sup> |                             |                |                | 825        |     |     |     |     |    |     | 770              |                  |        |      |         |
| 125                 | 139.7                       | 170 .365 .2 -... <sup>2)</sup> | 30                          | 15             | 15             | 854        | 365 | 100 | 170 | 162 | 8  | 64  | 785              |                  |        | 13.4 |         |
| 150                 | 168.3                       | 170 .365 .2 -... <sup>2)</sup> |                             |                |                | 886        |     |     |     |     |    |     | 815              |                  |        |      |         |
| 200                 | 219.1                       | 200 .415 .2 -... <sup>2)</sup> | 38                          | 19             | 19             | 1025       | 415 | 150 | 200 | 192 | 8  | 100 | 970              |                  |        | 19.2 |         |
| 250                 | 273.0                       | 200 .415 .2 -... <sup>2)</sup> |                             |                |                | 1084       |     |     |     |     |    |     | 1025             |                  |        |      |         |
| 300                 | 323.9                       | 200 .415 .2 -... <sup>2)</sup> |                             |                |                | 1138       |     |     |     |     |    |     | 1075             |                  |        |      |         |
| 350                 | 355.6                       | 200 .415 .2 -... <sup>2)</sup> |                             |                |                | 1171       |     |     |     |     |    |     | 1110             |                  |        |      |         |
| 400                 | 406.4                       | 260 .415 .2 -... <sup>2)</sup> | 64                          | 32             | 32             | 1220       | 415 | 150 | 260 | 252 | 8  | 114 | 1160             |                  |        | 22   |         |
| 450                 | 457.0                       | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1273       |     |     |     |     |    |     | 1215             |                  |        |      |         |
| 500                 | 508.0                       | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1325       |     |     |     |     |    |     | 1265             |                  |        |      |         |
| 550                 | 559.0                       | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1377       |     |     |     |     |    |     | 1315             |                  |        |      |         |
| 600                 | 610.0                       | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1429       |     |     |     |     |    |     | 1370             |                  |        |      |         |

1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C and L=L<sub>max</sub>  
At L<L<sub>max</sub> the following can be applied: F(L) = 0.95 x F(L<sub>max</sub>) x ((L<sub>max</sub> - D) / (L - D))  
2) Add the characteristic for material and surface protection

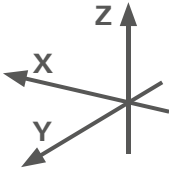


HYDRA® VERTIKAL PIPE SUPPORT

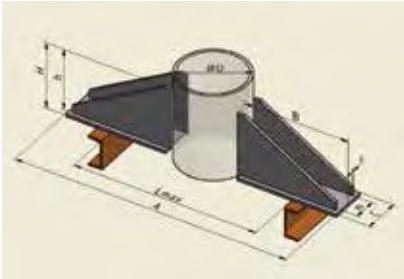
Type series PAV,  
up to 540 °C, vertical pipeline, heavy version, to weld onto pipe, to prop up

Technical data

- Materials: S235JR, 16Mo3, 13CrMo5-5  
Material is temperature-dependent, see pg 9
- Surface protection: hot-dip galvanized, primed, unthreaded



PAV



Order example: PAV 260.415.2-37.3

Height 260 mm, width 415 mm, shape 2, S235JR, primed

| Nominal diameter | Pipe outside diameter | Type PAV ...                   | Nominal loads <sup>1)</sup> |                |                | Dimensions |     |     |     |     |    |     |                  | Weight  |
|------------------|-----------------------|--------------------------------|-----------------------------|----------------|----------------|------------|-----|-----|-----|-----|----|-----|------------------|---------|
| DN               | D                     |                                | -F <sub>Z</sub>             | F <sub>x</sub> | F <sub>y</sub> | A          | B   | C   | H   | h   | s  | m   | L <sub>max</sub> | approx. |
| -                | mm                    |                                | kN                          | kN             | kN             | mm         | mm  | mm  | mm  | mm  | mm | mm  | mm               | kg      |
| 100              | 114.3                 | 180 .365 .2 -... <sup>2)</sup> | 42                          | 21             | 21             | 820        | 365 | 110 | 180 | 170 | 10 | 70  | 760              | 17.6    |
| 125              | 139.7                 | 180 .365 .2 -... <sup>2)</sup> |                             |                |                | 851        |     |     |     |     |    |     | 790              |         |
| 150              | 168.3                 | 180 .365 .2 -... <sup>2)</sup> |                             |                |                | 883        |     |     |     |     |    |     | 820              |         |
| 200              | 219.1                 | 260 .415 .2 -... <sup>2)</sup> | 90                          | 45             | 45             | 1029       | 415 | 150 | 260 | 248 | 12 | 92  | 965              | 34      |
| 250              | 273.0                 | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1087       |     |     |     |     |    |     | 1025             |         |
| 300              | 323.9                 | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1141       |     |     |     |     |    |     | 1080             |         |
| 350              | 355.6                 | 260 .415 .2 -... <sup>2)</sup> |                             |                |                | 1173       |     |     |     |     |    |     | 1110             |         |
| 400              | 406.4                 | 330 .415 .2 -... <sup>2)</sup> | 150                         | 75             | 75             | 1213       | 415 | 180 | 330 | 318 | 12 | 136 | 1150             | 42      |
| 450              | 457                   | 330 .415 .2 -... <sup>2)</sup> |                             |                |                | 1266       |     |     |     |     |    |     | 1205             |         |
| 500              | 508                   | 330 .415 .2 -... <sup>2)</sup> |                             |                |                | 1319       |     |     |     |     |    |     | 1255             |         |
| 550              | 559                   | 330 .415 .2 -... <sup>2)</sup> |                             |                |                | 1372       |     |     |     |     |    |     | 1310             |         |
| 600              | 610                   | 410 .415 .2 -... <sup>2)</sup> | 220                         | 110            | 110            | 1425       | 415 | 180 | 410 | 398 | 12 | 136 | 1360             | 48      |
| 700              | 711                   | 410 .415 .2 -... <sup>2)</sup> |                             |                |                | 1528       |     |     |     |     |    |     | 1465             |         |
| 800              | 813                   | 410 .415 .2 -... <sup>2)</sup> |                             |                |                | 1632       |     |     |     |     |    |     | 1570             |         |

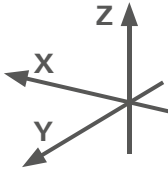
1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C and L=L<sub>max</sub>  
At L<L<sub>max</sub> the following can be applied: F(L) = 0.95 x F(L<sub>max</sub>) x ((L<sub>max</sub> - D) / (L - D))  
2) Add the characteristic for material and surface protection

HYDRA® VERTIKAL PIPE SUPPORT

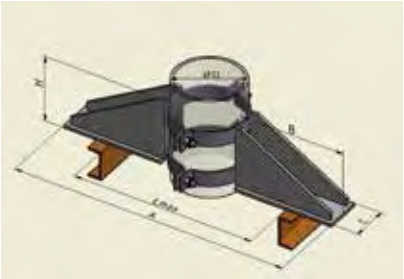
Type series PRN,  
up to 540 °C, vertical pipeline, with clamps to prop up

Technical data

- 2-clamp
- Materials: S235JR, 16Mo3, 13CrMo5-5  
Material is temperature-dependent, see pg 9
- Surface protection: hot-dip galvanized, primed, unthreaded
- Types:  
Shape 1: 1 weld-on web (DN: 20 - 80)  
Shape 2: 2 weld-on webs (DN: 50 - 800)



PRN, shape 2



Order example: PRN 0250.200.415.2-37.2

Nominal diameter 250, height 200 mm, length 415 mm, shape 2, S235JR, hot-dip galvanized

| Nominal diameter | Pipe outside diameter | Type PRN ...                        | Nominal loads <sup>1)</sup>   |                |                | Dimensions |     |     |     |                  | Weight  |
|------------------|-----------------------|-------------------------------------|-------------------------------|----------------|----------------|------------|-----|-----|-----|------------------|---------|
|                  |                       |                                     |                               |                |                |            |     |     |     |                  |         |
|                  |                       |                                     | -F <sub>Z</sub> <sup>3)</sup> | F <sub>x</sub> | F <sub>y</sub> | A          | B   | C   | H   | L <sub>max</sub> | approx. |
| DN               | D                     |                                     | kN                            | kN             | kN             | mm         | mm  | mm  | mm  | mm               | kg      |
| -                | mm                    |                                     |                               |                |                |            |     |     |     |                  |         |
| 20               | 26.9                  | 020 .105 .160 .1 -... <sup>2)</sup> | 1.4                           | 0.7            | 0.1            | 356.9      | 160 | 50  | 105 | 295              | 2.0     |
| 25               | 33.7                  | 025 .105 .160 .1 -... <sup>2)</sup> |                               |                |                |            |     |     |     | 300              | 2.0     |
| 32               | 42.4                  | 032 .105 .160 .1 -... <sup>2)</sup> |                               |                |                |            |     |     |     | 310              | 2.1     |
| 40               | 48.3                  | 040 .105 .160 .1 -... <sup>2)</sup> |                               |                |                |            |     |     |     | 315              | 2.1     |
| 50               | 60.3                  | 050 .135 .300 .1 -... <sup>2)</sup> | 1.5                           | 0.8            | 0.2            | 672.3      | 300 | 50  | 135 | 610              | 5.0     |
| 65               | 76.1                  | 065 .135 .300 .1 -... <sup>2)</sup> | 1.6                           |                |                | 688.1      |     |     |     | 625              | 5.1     |
| 80               | 88.9                  | 080 .135 .300 .1 -... <sup>2)</sup> | 1.6                           |                |                | 701.9      |     |     |     | 640              | 5.3     |
| 50               | 60.3                  | 050 .150 .305 .2 -... <sup>2)</sup> | 1.7                           | 0.9            | 0.2            | 664.07     | 305 | 80  | 150 | 600              | 8.7     |
| 65               | 76.1                  | 065 .150 .305 .2 -... <sup>2)</sup> | 1.8                           |                |                | 683.88     |     |     |     | 620              | 8.9     |
| 80               | 88.9                  | 080 .150 .305 .2 -... <sup>2)</sup> | 1.8                           |                |                | 699.89     |     |     |     | 635              | 9.1     |
| 100              | 114.3                 | 100 .170 .365 .2 -... <sup>2)</sup> | 2.7                           | 1.4            | 0.3            | 843.5      | 365 | 100 | 170 | 780              | 17      |
| 125              | 139.7                 | 125 .170 .365 .2 -... <sup>2)</sup> |                               |                |                | 871.94     |     |     |     | 810              | 18      |
| 150              | 168.3                 | 150 .170 .365 .2 -... <sup>2)</sup> |                               |                |                | 902.83     |     |     |     | 840              | 18      |
| 200              | 219.1                 | 200 .200 .415 .2 -... <sup>2)</sup> | 2.9                           | 1.5            | 0.3            | 1042.77    | 415 | 150 | 200 | 980              | 25      |
| 250              | 273.0                 | 250 .200 .415 .2 -... <sup>2)</sup> |                               |                |                | 1101.15    |     |     |     | 1040             | 28      |
| 300              | 323.9                 | 300 .200 .415 .2 -... <sup>2)</sup> |                               |                |                | 1154.86    |     |     |     | 1090             | 30      |
| 350              | 355.6                 | 350 .200 .415 .2 -... <sup>2)</sup> |                               |                |                | 1187.89    |     |     |     | 1125             | 30      |
| 400              | 406.4                 | 400 .260 .415 .2 -... <sup>2)</sup> | 4.1                           | 2.1            | 0.4            | 1244.51    | 415 | 150 | 260 | 1180             | 41      |
| 450              | 457.0                 | 450 .260 .415 .2 -... <sup>2)</sup> | 5.9                           | 3.0            | 0.6            | 1293.18    |     |     |     | 1230             | 43      |
| 500              | 508.0                 | 500 .260 .415 .2 -... <sup>2)</sup> | 5.9                           | 3.0            | 0.6            | 1345.55    |     |     |     | 1285             | 45      |
| 550              | 559                   | 550 .260 .415 .2 -... <sup>2)</sup> | 9.5                           | 4.8            | 1.0            | 1407.86    |     |     |     | 1345             | 71      |
| 600              | 610                   | 600 .260 .415 .2 -... <sup>2)</sup> |                               |                |                | 1459.77    | 415 | 150 | 260 | 1395             | 74      |
| 700              | 711                   | 700 .260 .415 .2 -... <sup>2)</sup> |                               |                |                | 1562.18    |     |     |     | 1500             | 81      |
| 800              | 813                   | 800 .260 .415 .2 -... <sup>2)</sup> |                               |                |                | 1665.26    |     |     |     | 1605             | 88      |

1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C and L=L<sub>max</sub>  
At L<L<sub>max</sub> the following can be applied: F(L) = 0.95 x F(L<sub>max</sub>) x ((L<sub>max</sub> - D) / (L - D))  
2) Add the characteristic for material and surface protection  
3) For the transmission of axial forces, attach anti-slip devices to the pipe (6 o'clock position)

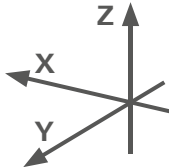


# HYDRA® VERTIKAL PIPE SUPPORT

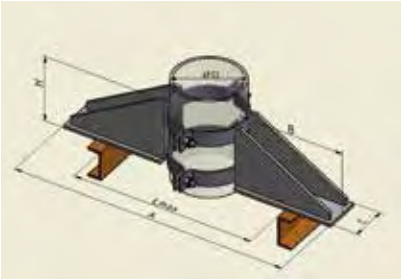
Type series PRV,  
up to 540 °C, vertical pipeline, heavy version, with clamps to prop up

### Technical data

- 2-clamp
- Materials: S235JR, 16Mo3, 13CrMo4-5  
Material is temperature-dependent, see pg 9
- Surface protection: hot-dip galvanized, primed, unthreaded



### PRV



Order example: PRV 0250.260.415.2-37.2

Nominal diameter 250, height 200 mm, length 415 mm, shape 2, S235JR, hot-dip galvanized

| Nominal diameter | Pipe outside diameter | Type PRV ...                        | Nominal loads <sup>1)</sup>   |                |                | Dimensions |     |     |     |                  | Weight  |
|------------------|-----------------------|-------------------------------------|-------------------------------|----------------|----------------|------------|-----|-----|-----|------------------|---------|
| DN               | D                     |                                     | -F <sub>Z</sub> <sup>3)</sup> | F <sub>x</sub> | F <sub>y</sub> | A          | B   | C   | H   | L <sub>max</sub> | approx. |
| -                | mm                    |                                     | kN                            | kN             | kN             | mm         | mm  | mm  | mm  | mm               | kg      |
| 100              | 114.3                 | 100 .180 .365 .2 -... <sup>2)</sup> | 3.8                           | 1.9            | 0.4            | 845        | 365 | 110 | 180 | 780              | 27      |
| 125              | 139.7                 | 125 .180 .365 .2 -... <sup>2)</sup> |                               |                |                | 874        |     |     |     | 810              | 27      |
| 150              | 168.3                 | 150 .180 .365 .2 -... <sup>2)</sup> |                               |                |                | 905        |     |     |     | 840              | 28      |
| 200              | 219.1                 | 200 .260 .415 .2 -... <sup>2)</sup> | 6.0                           | 3.0            | 0.6            | 1055       | 415 | 150 | 260 | 995              | 48      |
| 250              | 273.0                 | 250 .260 .415 .2 -... <sup>2)</sup> |                               |                |                | 1112       |     |     |     | 1050             | 50      |
| 300              | 323.9                 | 300 .260 .415 .2 -... <sup>2)</sup> |                               |                |                | 1166       |     |     |     | 1105             | 52      |
| 350              | 355.6                 | 350 .260 .415 .2 -... <sup>2)</sup> |                               |                |                | 1198       |     |     |     | 1135             | 54      |
| 400              | 406.4                 | 400 .330 .415 .2 -... <sup>2)</sup> |                               |                |                | 1249       |     |     |     | 1185             | 77      |
| 450              | 457                   | 450 .330 .415 .2 -... <sup>2)</sup> | 13.0                          | 6.5            | 1.3            | 1298       | 415 | 180 | 330 | 1235             | 80      |
| 500              | 508                   | 500 .330 .415 .2 -... <sup>2)</sup> | 20.0                          | 10.0           | 2.0            | 1361       |     |     |     | 1300             | 108     |
| 550              | 559                   | 550 .330 .415 .2 -... <sup>2)</sup> | 20.0                          | 10.0           | 2.0            | 1413       |     |     |     | 1350             | 113     |

1) The nominal loads apply to supports made from S235JR at temperatures up to 80 °C and L=L<sub>max</sub>  
At L<L<sub>max</sub> the following can be applied: F(L) = 0.95 x F(L<sub>max</sub>) x ((L<sub>max</sub> - D) / (L - D))  
2) Add the characteristic for material and surface protection  
3) For the transmission of axial forces, attach anti-slip devices to the pipe