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Simotec
Static Guideline

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Contacts

International Sales

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Application

Sikla „Installation Guidelines" is intended to provide guidance for supporting constructions within industrial pipework and plant engineering consisting of the Sikla Systems siFramo 80, siFramo 100, Beam System 100 and Beam System 120.
All CE marked systems are subject to the certified factory production control according to EN 1090 and may therefore be used to EXC 2 for load-bearing structures.

Basis of calculation

Eurocode 3 (DIN EN 1993) „Design of steel structures" provides the basis for determining the load capacity. Regarding serviceability the specified restrictions are allocated separately according to the design of the individual constructions. These limits may also be specified differently by the client. All deformations are determined on the basis of characteristic loads (γ_F = 1.0). The values of the permissible loads comply simultaneously the ultimate limit state and the serviceability limit state design. The respective governing load is listed as $F_{z, perm}$ in the Installation Guideline.

Load effects

Specified are permissible vertical loads $F_{z, perm}$ in kN (e.g. pipeline weights), which have to be anderstood as maximum values of characteristic load effects and consider a safety factor γ_F = 1.35.
Some Sikla constructions take into account additional friction forces $F_x = F_z * \mu_0$ for Sikla Pipe Shoes based on hot-dipped galvanized surface of Sikla beams which are calculated from pipe weight F_z and a friction coefficient μ_0 = 0.2. These variable forces from pipe expansion are taken into account with a safety factor γ_F = 1.5. Sliding or guided Pipe Shoes (Sikla slide elements) with a higher coefficient μ_0 > 0.2 (e.g. steel on steel) require an individual calculation.

Conditions

All loads are static loads at room temperature unless stated otherwise. Technical notes of the respective product data sheets for use and application range must be observed.

Load transmission into building structure

When fixing by anchors, or connection to existing cast-in channels, the structural safety analysis for the components used for this purpose must be done separately. When connecting to existing steel structures on site, resilience, support and torsional rigidity of the existing structure must be checked separately. In addition, when connecting with clamping sets, the static friction between clamping set and the on-site steel structure must fulfill the condition $\mu_0 \geq 0.2$ (Sliding Surfaces Class D). On-site steel structure sizes (flange widths) of $\geq$ 100 mm are considered by using clamps for connection points.
Unless shown otherwise: force direction F_x = steel structure longitudinal axis.
Connections to concrete are designed with anchor type VMZ-A M12 (ETA-10/0260) in concrete strength C20/C25 ander the design specifications $h_{std} \geq 2 h_{ef}$ edge distance c $\geq$ 120 mm. Axis distances are determined by the components.
Reduction factor α_A = 0.7 for structural steel flange sizes $\geq$ 201 mm for End Support WBD F80, F100 and F100/160.

Technical Information

Installation conditions are summarized at the end of this brochure - in particular specifications regarding tightening torques, bolt spacing, general installation instructions etc.

Recyclebility of Products

Products must only be re-used if the recommended working loads have not been previously exceeded and if the coating has not been discernibly damaged.

General Remarks/ Disclaimer

This document is solely for being used by the receiver but remains property of Sikla. The technical drawings and all other content are to the best of our knowledge. Pictures and illustrations are non-committing. We can not be held responsible for printing errors and their implications. We reserve the right of making alterations and improvements without notice.

The present Guideline allows the user to select and to design supporting structures (constructions) easily. This document has been prepared in close cooperation with the following external specialists.

Test Report numbers: 52140-901 0946 000; 52140-901 2896 000; 155204-2-a; 142508 T1-3; K14-6005; H14-176;

siFramo

Beam Section TP F 80 and TP F 100

Self-Forming-Screws FLS F pass- through the slotted holes Ø11x30 mm and connect into the Framo components within the box section: e.g. Framo square End Support WBD F and Framo octagonal STA F.

Self-Forming-Screws FLS screws directly into the Ø 9.1 mm roand-holes (perforations) running along the outer edges of each face of the Framo beam. All connecting Framo components are fixed in this way: e.g. Cantilever Brackets AK F, End Supports STA F, Channel Adapters SA F and Slide Sets GS F.
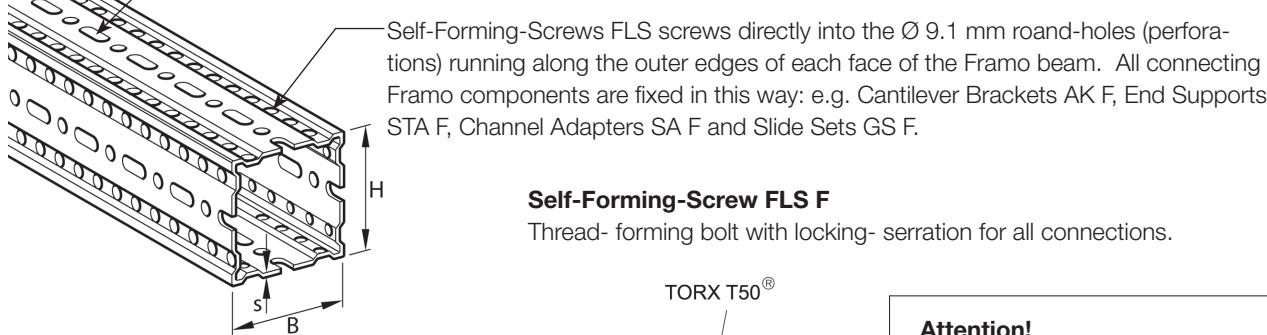
Self-Forming-Screw FLS F
Thread- forming bolt with locking- serration for all connections.

TORX T50®

Hex

Attention!
▶ *Max. applied torque no more than 60 Nm !*

Assembly of Beam Section TP F with WBD-End Support and End Support STA F
For best performance the Self-Forming-Screw FLS F must be applied to both sides in greatest possible distance apart 2 x 2 screws opposite one another.
Distance between end of section and end-plate: ≤ 10 mm.

Assembly to Beam Section TP F, e.g. Cantilever Bracket AK F
Offset hole-lines allow for connection at one level without collision of bolts inside the box section for all components with end-plate (e.g. STA F, SA F).
4 Self-Forming-Screws are required to fix each end-plate!

≤10 mm

max.

max.

≤10 mm
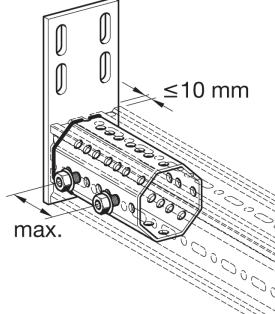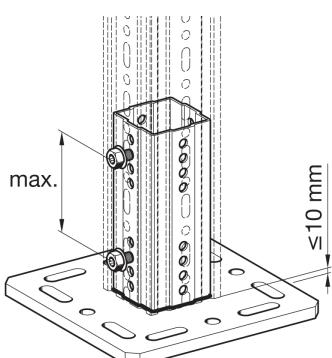
Each connection to the section requires 4 screws!
Plugged through the slotted hole, these will screw into the roand- hole of the section anderneath.
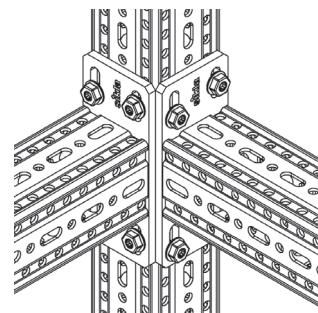
Technische Daten
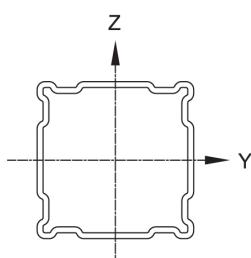
Description Beam Section [mm]	Description Axis	Wall Thickness s [mm]	Moment of Inertia I_y [cm⁴]	Moment of Inertia I_z [cm⁴]	Section Modulus W_y [cm³]	Section Modulus W_z [cm³]	Radius of Inertia i_y [cm]	Radius of Inertia i_z [cm]	Torsional Moment It [cm⁴]	Cross Section A [cm²]	Weight G [kg/m]
TP F 80/30		3.0	33.15*)	6.22*)	7.93*)	4.15*)	3.51	1.52	7.91	2.69*)	4.3
TP F 80/80		3.0	61.54*)		12.95*)		3.53		45.13	4.94*)	6.4
TP F 100/100		4.0	173.44*)		32.77*)		4.73		129.35	7.75*)	10.8
TP F 100/160		4.0	547.73*)	269.90*)	68.12*)	46.92*)	6.15	4.31	185.62	14.50*)	14.3

Beam Section TP F. Steel. Hot-dipped-galvanized according to DIN EN ISO 1461 tZn o.
All structural data takes perforation into account.
*) determination of effective values by tests.

Connection to primary steel structure by Assembly Set P2 S and P3 S
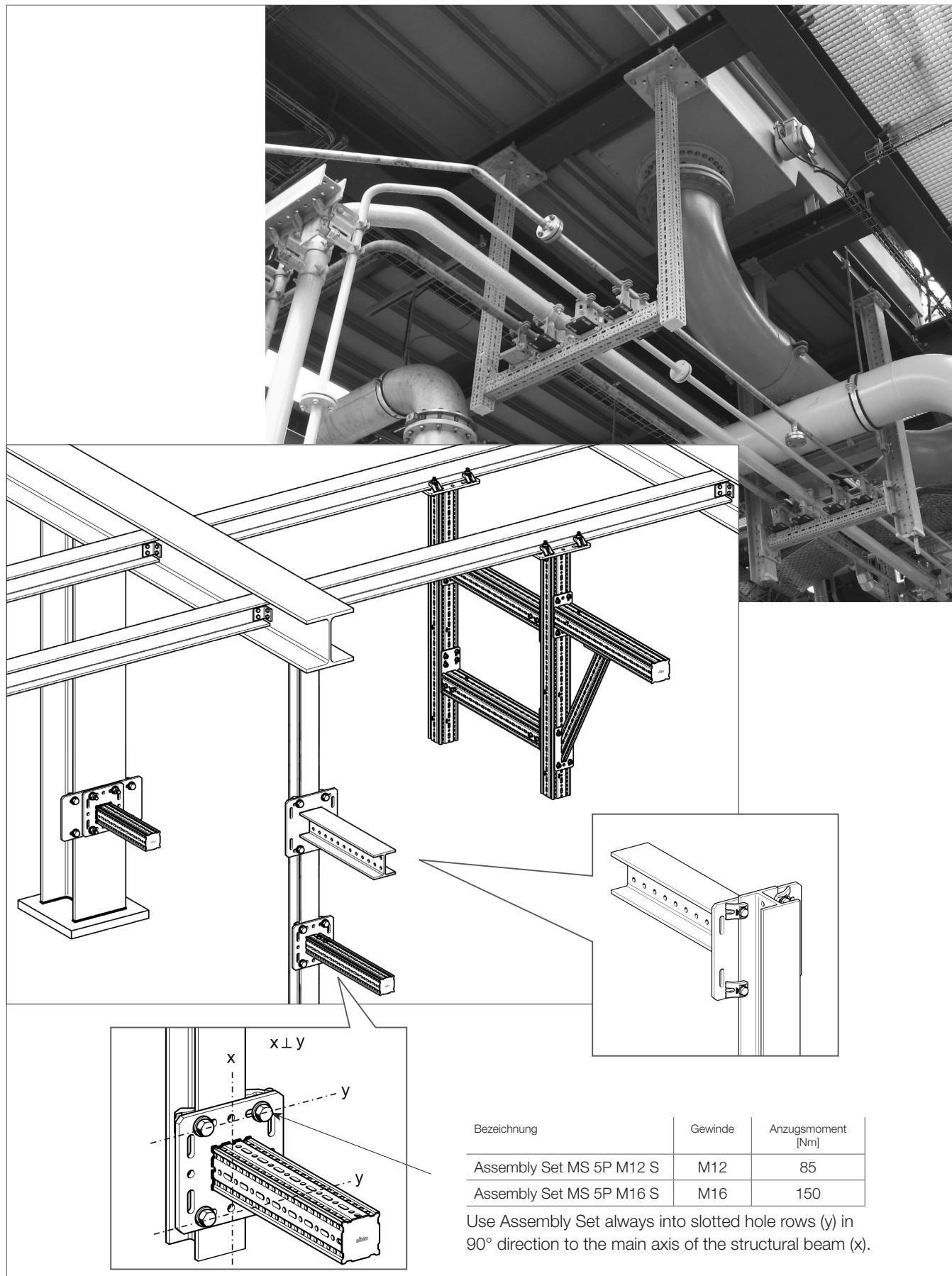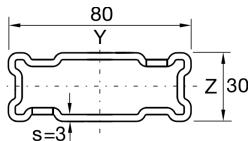
Bezeichnung	Gewinde	Anzugsmoment [Nm]
Assembly Set MS 5P M12 S	M12	85
Assembly Set MS 5P M16 S	M16	150

Use Assembly Set always into slotted hole rows (y) in 90° direction to the main axis of the structural beam (x).

Working loads in accordance with Eurocode 3

**Beam Section TP F 80/30**

80
Y
Z 30
s=3

Single-span beam with uniaxial load
dead weight of the profile is considered

Distributed Load

q_z

L

L_{max}	$q_{z, perm}$	F_z ($q_z * L$)
[mm]	[kN/m]	[kN]
500	**31.42**	**15.71**
1000	**5.02**	**5.02**
1500	**1.49**	**2.23**
2000	**0.63**	**1.26**
2500	**0.32**	**0.80**

q_z [kN/m] as permanent load over L.

Point Load

F_z

L

L_{max}	$F_{z, perm}$
[mm]	[kN]
500	**7.85**
1000	**3.14**
1500	**1.39**
2000	**0.78**
2500	**0.50**

F_z [kN] as a permanent load at L/2.

2 Point Loads

L/3   L/3   L/3
F_z F_z

L

L_{max}	$F_{z, perm}$
[mm]	[kN]
500	**5.89**
1000	**1.84**
1500	**0.82**
2000	**0.46**
2500	**0.29**

F_z [kN] as permanent loads at L/3 and 2*L/3.

3 Point Loads

L/4   L/4   L/4   L/4
F_z F_z F_z

L

L_{max}	$F_{z, perm}$
[mm]	[kN]
500	**3.93**
1000	**1.32**
1500	**0.59**
2000	**0.33**
2500	**0.21**

F_z [kN] as permanent loads at L/4. L/2 and 3*L/4.

Max. bending L/200.

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Working loads in accordance with Eurocode 33

L-Construction F 80 - 80/30
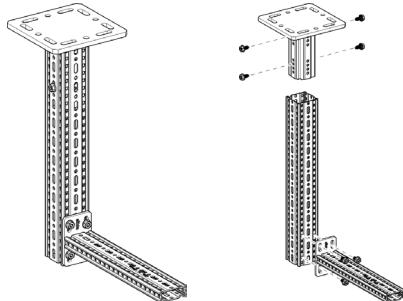
Part List
1 x End Support WBD F 80
1 x Beam Section TP F 80
1 x Cantilever Bracket AK F 80/30
8 x Self-Forming-Screw FLS F

Distributed Load

L_{max}	300		500		700	
H_{max}	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
500	**6.36**	**1.91**	**2.20**	**1.10**	**1.03**	**0.72**
1000	**5.47**	**1.64**	**1.93**	**0.97**	**0.92**	**0.64**
1500	**4.80**	**1.44**	**1.72**	**0.86**	**0.83**	**0.58**
2000	**4.27**	**1.28**	**1.55**	**0.78**	**0.75**	**0.53**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300		500		700	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**0.98**	**0.98**	**0.53**	**0.53**	**0.33**	**0.33**
1000	**0.87**	**0.87**	**0.47**	**0.47**	**0.30**	**0.30**
1500	**0.78**	**0.78**	**0.43**	**0.43**	**0.28**	**0.28**
2000	**0.70**	**0.70**	**0.39**	**0.39**	**0.26**	**0.26**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**0.62**	**0.62**	**0.35**	**0.35**	**0.22**	**0.22**
1000	**0.54**	**0.54**	**0.31**	**0.31**	**0.20**	**0.20**
1500	**0.48**	**0.48**	**0.28**	**0.28**	**0.18**	**0.18**
2000	**0.43**	**0.43**	**0.25**	**0.25**	**0.17**	**0.17**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

L_{max}	300		500		700	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**0.50**	**0.49**	**0.28**	**0.28**	**0.18**	**0.18**
1000	**0.43**	**0.43**	**0.24**	**0.24**	**0.16**	**0.16**
1500	**0.38**	**0.37**	**0.22**	**0.22**	**0.15**	**0.14**
2000	**0.34**	**0.33**	**0.20**	**0.20**	**0.13**	**0.13**

F_z [kN] as permanent loads at distance L. 2*L/3 and L/3; F_x [kN] as variable loads at distance L. 2*L/3 and L/3.

All illustrated structures are able to be installed standing as well.
Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/100; L/100.

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Working loads in accordance with Eurocode 3

Frame F 80 - 80/30
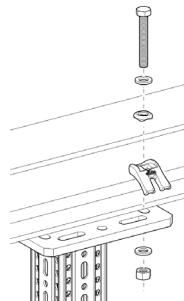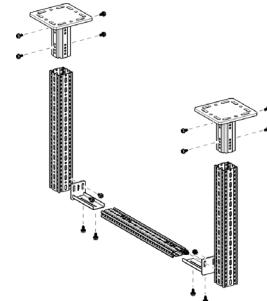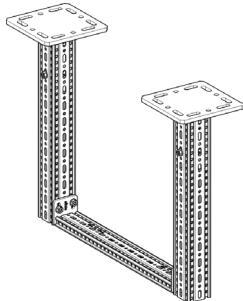
Part List
2 x End Support WBD F 80
2 x Beam Section TP F 80
1 x Beam Section TP F 80/30
2 x End Support STA F 80/30-E
16 x Self-Forming-Screw FLS F

Distributed Load

L_{max}	500		1000		1500		2000		2500		3000	
H_{max}	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
500	**20.09**	**10.04**	**5.84**	**5.84**	**2.05**	**3.07**	**0.96**	**1.92**	**0.53**	**1.32**	**0.31**	**0.94**
1000	**19.99**	**10.00**	**5.79**	**5.79**	**2.05**	**3.07**	**0.96**	**1.92**	**0.52**	**1.31**	**0.31**	**0.94**
1500	**19.90**	**9.95**	**5.75**	**5.75**	**2.05**	**3.07**	**0.95**	**1.91**	**0.52**	**1.30**	**0.31**	**0.93**
2000	**19.81**	**9.90**	**5.70**	**5.70**	**2.02**	**3.03**	**0.95**	**1.90**	**0.52**	**1.30**	**0.31**	**0.93**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	500		1000		1500		2000		2500		3000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**8.58**	**7.05**	**3.71**	**3.49**	**1.91**	**1.79**	**1.17**	**1.10**	**0.80**	**0.75**	**0.56**	**0.53**
1000	**8.58**	**7.01**	**3.69**	**3.47**	**1.90**	**1.78**	**1.17**	**1.10**	**0.79**	**0.75**	**0.56**	**0.53**
1500	**8.57**	**5.43**	**3.67**	**3.45**	**1.89**	**1.78**	**1.16**	**1.09**	**0.79**	**0.74**	**0.56**	**0.53**
2000	**8.55**	**3.68**	**3.64**	**3.43**	**1.88**	**1.77**	**1.16**	**1.09**	**0.79**	**0.74**	**0.56**	**0.52**

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

2 Point Loads

L_{max}	500		1000		1500		2000		2500		3000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**5.02**	**4.11**	**2.19**	**2.03**	**1.14**	**1.07**	**0.70**	**0.66**	**0.48**	**0.45**	**0.34**	**0.32**
1000	**5.00**	**4.09**	**2.18**	**1.95**	**1.13**	**1.06**	**0.70**	**0.66**	**0.48**	**0.45**	**0.34**	**0.32**
1500	**4.98**	**2.72**	**2.17**	**1.88**	**1.12**	**1.06**	**0.70**	**0.65**	**0.47**	**0.45**	**0.33**	**0.31**
2000	**4.95**	**1.84**	**2.15**	**1.82**	**1.12**	**1.05**	**0.69**	**0.65**	**0.47**	**0.44**	**0.33**	**0.31**

F_z [kN] as permanent loads at distance 2*L/3 and L/3; F_x [kN] as variable loads at distance 2*L/3 and L/3.

3 Point Loads

L_{max}	500		1000		1500		2000		2500		3000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**3.35**	**2.73**	**1.56**	**1.44**	**0.81**	**0.76**	**0.50**	**0.47**	**0.34**	**0.32**	**0.24**	**0.23**
1000	**3.33**	**2.72**	**1.55**	**1.43**	**0.81**	**0.75**	**0.50**	**0.47**	**0.34**	**0.32**	**0.24**	**0.22**
1500	**3.32**	**1.81**	**1.54**	**1.42**	**0.80**	**0.75**	**0.50**	**0.47**	**0.34**	**0.32**	**0.24**	**0.22**
2000	**3.30**	**1.23**	**1.53**	**1.21**	**0.80**	**0.73**	**0.50**	**0.47**	**0.33**	**0.31**	**0.24**	**0.22**

F_z [kN] as permanent loads at distance 3*L/4. L/2 and L/4; F_x [kN] as variable loads at distance 3*L/4. L/4 and L/4.

All illustrated structures are able to be installed standing as well.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/100; L/200.

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Working loads in accordance with Eurocode 3

Joining Beam Bracket F 80/30 horizontal
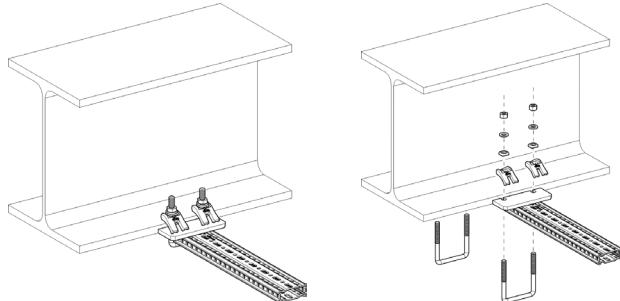
Part List
1 x Beam Section TP F 80/30
2 x U-Holder SB F 80/30-40

Distributed Load

L_{max}	300		500		700		900		1100	
B_{max}	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	**9.13**	**2.74**	**3.16**	**1.58**	**1.58**	**1.11**	**0.94**	**0.84**	**0.61**	**0.67**
150	**9.13**	**2.74**	**3.16**	**1.58**	**1.58**	**1.11**	**0.94**	**0.84**	**0.61**	**0.67**
200	**9.13**	**2.74**	**3.16**	**1.58**	**1.58**	**1.11**	**0.94**	**0.84**	**0.61**	**0.67**
250	**9.13**	**2.74**	**3.16**	**1.58**	**1.58**	**1.11**	**0.94**	**0.84**	**0.61**	**0.67**
300	**9.13**	**2.74**	**3.16**	**1.58**	**1.58**	**1.11**	**0.94**	**0.84**	**0.61**	**0.67**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**1.31**	**1.12**	**0.78**	**0.69**	**0.56**	**0.50**	**0.43**	**0.39**	**0.35**	**0.32**
150	**1.31**	**1.16**	**0.78**	**0.69**	**0.56**	**0.50**	**0.43**	**0.39**	**0.35**	**0.32**
200	**1.31**	**1.16**	**0.78**	**0.69**	**0.56**	**0.50**	**0.43**	**0.39**	**0.35**	**0.32**
250	**1.31**	**1.16**	**0.78**	**0.69**	**0.56**	**0.50**	**0.43**	**0.39**	**0.35**	**0.32**
300	**1.31**	**1.16**	**0.78**	**0.69**	**0.56**	**0.50**	**0.43**	**0.39**	**0.35**	**0.32**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**0.87**	**0.69**	**0.52**	**0.47**	**0.37**	**0.35**	**0.29**	**0.28**	**0.23**	**0.24**
150	**0.87**	**1.01**	**0.52**	**0.69**	**0.37**	**0.50**	**0.29**	**0.39**	**0.23**	**0.32**
200	**0.87**	**1.16**	**0.52**	**0.69**	**0.37**	**0.50**	**0.29**	**0.39**	**0.23**	**0.32**
250	**0.87**	**1.16**	**0.52**	**0.69**	**0.37**	**0.50**	**0.29**	**0.39**	**0.23**	**0.32**
300	**0.87**	**1.16**	**0.52**	**0.69**	**0.37**	**0.50**	**0.29**	**0.39**	**0.23**	**0.21**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**0.65**	**0.50**	**0.39**	**0.34**	**0.28**	**0.25**	**0.21**	**0.19**	**0.17**	**0.16**
150	**0.65**	**0.58**	**0.39**	**0.35**	**0.28**	**0.25**	**0.21**	**0.19**	**0.17**	**0.16**
200	**0.65**	**0.58**	**0.39**	**0.35**	**0.28**	**0.25**	**0.21**	**0.19**	**0.17**	**0.16**
250	**0.65**	**0.58**	**0.39**	**0.35**	**0.28**	**0.25**	**0.21**	**0.19**	**0.17**	**0.16**
300	**0.65**	**0.58**	**0.39**	**0.35**	**0.28**	**0.25**	**0.21**	**0.19**	**0.17**	**0.16**

F_z [kN] as permanent loads at distance L. 2*L/3 and L/3; F_x [kN] as variable loads at distance L. 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Section TP F 80

80
80 Y
Z
s=3

Single-span beam with uniaxial load
dead weight of the profile is considered

Distributed Load

q_z

L
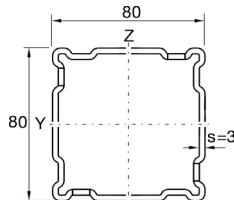
L_{max}	$q_{z, perm}$	F_z ($q_{z, perm}$ * L)
[mm]	[kN/m]	[kN]
1000	**24.13**	**24.13**
1500	**10.69**	**16.03**
2000	**5.98**	**11.97**
2500	**3.18**	**7.94**
3000	**1.84**	**5.51**
3500	**1.16**	**4.05**

q_z [kN/m] as permanent load over L.

Point Load

F_z

L

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**12.06**
1500	**8.02**
2000	**5.98**
2500	**4.76**
3000	**3.45**
3500	**2.53**

F_z [kN] as a permanent load at distance L/2.

2 Point Loads

L/3 L/3 L/3
F_z F_z

L

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**9.05**
1500	**6.01**
2000	**4.49**
2500	**2.91**
3000	**2.02**
3500	**1.49**

F_z [kN] as permanent loads at distance L/3 and 2*L/3.

3 Point Loads

L/4 L/4 L/4 L/4
F_z F_z F_z

L

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**6.03**
1500	**4.01**
2000	**2.99**
2500	**2.09**
3000	**1.45**
3500	**1.07**

F_z [kN] as permanent loads at distance L/4. L/2 and 3*L/4.

Max. bending L/200.

sikla

Working loads in accordance with Eurocode 3

L-Construction TP F 80
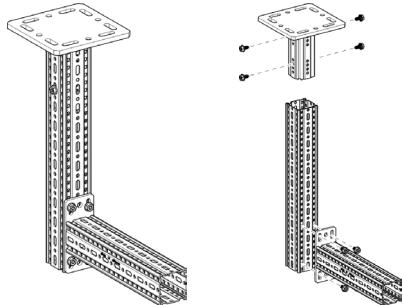
Part List
1 x End Support WBD F 80
1 x Beam Section TP F 80
1 x Cantilever Bracket AK F 80
8 x Self-Forming-Screw FLS F

Distributed Load

L_{max}	300		500		700	
H_{max}	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
500	**9.74**	**2.92**	**3.80**	**1.90**	**1.97**	**1.38**
1000	**7.80**	**2.34**	**3.07**	**1.53**	**1.60**	**1.12**
1500	**6.49**	**1.95**	**2.57**	**1.28**	**1.34**	**0.94**
2000	**5.56**	**1.67**	**2.21**	**1.10**	**1.15**	**0.81**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300		500		700	
	$F_{z.zul}$ for		$F_{z.zul}$ for		$F_{z.zul}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**1.59**	**1.59**	**0.99**	**0.99**	**0.70**	**0.70**
1000	**1.28**	**1.28**	**0.80**	**0.80**	**0.57**	**0.57**
1500	**1.07**	**1.07**	**0.68**	**0.68**	**0.48**	**0.48**
2000	**0.92**	**0.92**	**0.58**	**0.58**	**0.42**	**0.42**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700	
	$F_{z.zul}$ for		$F_{z.zul}$ for		$F_{z.zul}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**1.04**	**1.04**	**0.65**	**0.65**	**0.47**	**0.47**
1000	**0.83**	**0.83**	**0.53**	**0.53**	**0.38**	**0.38**
1500	**0.70**	**0.70**	**0.45**	**0.45**	**0.32**	**0.32**
2000	**0.60**	**0.60**	**0.38**	**0.38**	**0.28**	**0.28**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

| L_{max}	300		500		700	
	$F_{z.zul}$ for		$F_{z.zul}$ for		$F_{z.zul}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**0.76**	**0.76**	**0.48**	**0.48**	**0.35**	**0.35**
1000	**0.61**	**0.61**	**0.39**	**0.39**	**0.28**	**0.28**
1500	**0.51**	**0.51**	**0.33**	**0.33**	**0.24**	**0.24**
2000	**0.44**	**0.44**	**0.28**	**0.28**	**0.20**	**0.20**

F_z [kN] as permanent loads at distance L. 2*L/3 and L/3; F_z [kN] as variable loads at distance L. 2*L/3 and L/3.

All illustrated structures are able to be installed standing as well.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation H/100; L/100..

09/2024

Working loads in accordance with Eurocode 3

T-Support F 80
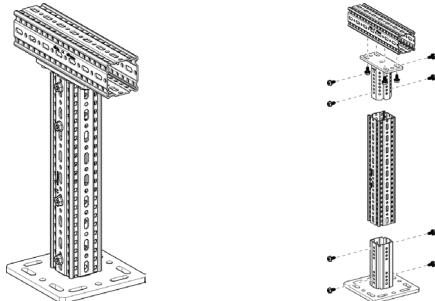
Part List
1 x End Support WBD F 80
2 x Beam Section TP F 80
1 x End Support STA F 80
12 x Self-Forming-Screw FLS F

Distributed Load - symmetrical

L_{max}	H_{max} = 2 m	
	$q_{z, perm}$	F_z ($q_{z, perm}$ x L)
[mm]	[kN/m]	[kN]
500	**22.35**	**11.17**
750	**12.23**	**9.17**
1000	**7.77**	**7.77**
1250	**5.38**	**6.73**

q_z [kN/m] as permanent load over L.

Point Load - centrical

H_{max}	L_{max} = 1 m	
	$F_{z,zul}$ for	
	F_x = 0	$F_x = \mu_0$ x F_z
[mm]	[kN/m]	[kN]
500	**14.40**	**6.75**
1000	**12.99**	**3.27**
1500	**11.62**	**1.87**
2000	**10.51**	**1.24**

F_z [kN] as a permanent load; F_x [kN] as a variable load;
central load introduction for planned eccentricity ± 30 mm.

2 Point Loads - centrical

H_{max}	L_{max}	500		750		1000	
		$F_{z,zul}$ for		$F_{z,zul}$ for		$F_{z,zul}$ for	
		F_x = 0	$F_x = \mu_0 * F_z$	F_x = 0	$F_x = \mu_0 * F_z$	F_x = 0	$F_x = \mu_0 * F_z$
[mm]		[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500		**3.90**	**3.03**	**3.00**	**2.25**	**2.43**	**1.79**
1000		**3.90**	**1.79**	**3.00**	**1.79**	**2.43**	**1.79**
1500		**3.90**	**1.02**	**3.00**	**1.02**	**2.43**	**1.02**
2000		**3.90**	**0.68**	**3.00**	**0.68**	**2.43**	**0.68**

F_z [kN] as permanent loads at distance L; F_x [kN] as variable loads at distance L.

3 Point Loads - centrical

H_{max}	L_{max}	500		750		1000	
		$F_{z,zul}$ for		$F_{z,zul}$ for		$F_{z,zul}$ for	
		F_x = 0	$F_x = \mu_0 * F_z$	F_x = 0	$F_x = \mu_0 * F_z$	F_x = 0	$F_x = \mu_0 * F_z$
[mm]		[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500		**3.25**	**2.63**	**2.59**	**2.02**	**2.16**	**1.64**
1000		**3.25**	**1.19**	**2.59**	**1.19**	**2.16**	**1.19**
1500		**3.25**	**0.68**	**2.59**	**0.68**	**2.16**	**0.68**
2000		**3.25**	**0.45**	**2.59**	**0.45**	**2.16**	**0.45**

F_z [kN] as permanent loads at distance L/2; F_x [kN] as variable loads at distance L/2.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/150.

Working loads in accordance with Eurocode

Frame F 80
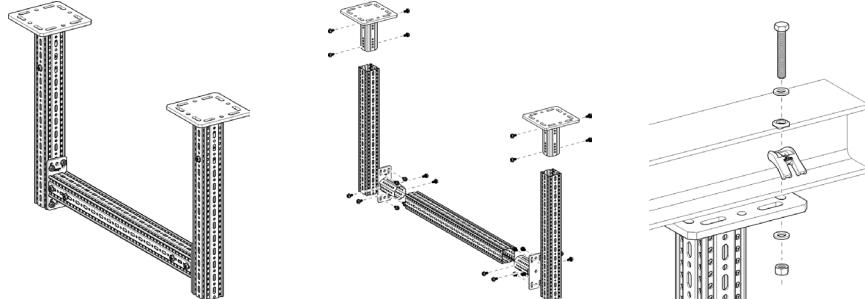
Part List
2 x End Support WBD F 80
3 x Beam Section TP F 80
2 x End Support STA F 80
24 x Self-Forming-Screw FLS

Distributed Load

L_{max}	500		1000		1500		2000		2500		3000	
H_{max}	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
1000	**47.99**	**23.99**	**26.18**	**26.18**	**12.25**	**18.37**	**6.63**	**13.26**	**3.82**	**9.54**	**2.39**	**7.18**
1500	**47.04**	**23.52**	**25.84**	**25.84**	**12.14**	**18.21**	**6.52**	**13.04**	**3.75**	**9.38**	**2.35**	**7.06**
2000	**45.96**	**22.98**	**25.38**	**25.38**	**12.04**	**18.06**	**6.42**	**12.84**	**3.70**	**9.24**	**2.32**	**6.95**
2500	**45.09**	**22.54**	**24.96**	**24.96**	**11.94**	**17.91**	**6.33**	**12.66**	**3.65**	**9.12**	**2.28**	**6.85**
3000	**40.89**	**20.45**	**20.45**	**20.45**	**11.85**	**17.77**	**6.25**	**12.50**	**3.60**	**9.00**	**2.25**	**6.76**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	500		1000		1500		2000		2500		3000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	**21.55**	**8.59**	**12.89**	**8.34**	**8.90**	**6.74**	**6.87**	**5.20**	**5.64**	**4.26**	**4.45**	**3.62**
1500	**21.13**	**5.23**	**12.81**	**5.17**	**8.84**	**5.03**	**6.83**	**4.78**	**5.60**	**4.22**	**4.37**	**3.59**
2000	**20.73**	**3.56**	**12.74**	**3.54**	**8.80**	**3.50**	**6.79**	**3.41**	**5.57**	**3.27**	**4.32**	**3.10**
2500	**20.38**	**2.60**	**12.68**	**2.60**	**8.75**	**2.58**	**6.75**	**2.54**	**5.54**	**2.48**	**4.27**	**2.40**
3000	**20.05**	**1.99**	**12.62**	**1.99**	**8.71**	**1.98**	**6.72**	**1.97**	**5.51**	**1.94**	**4.22**	**1.90**

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

2 Point Loads

L_{max}	500		1000		1500		2000		2500		3000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	**11.26**	**4.33**	**9.90**	**4.22**	**6.93**	**3.98**	**5.01**	**3.61**	**3.55**	**3.14**	**2.65**	**2.49**
1500	**11.02**	**2.63**	**9.82**	**2.61**	**6.88**	**2.54**	**4.93**	**2.43**	**3.49**	**2.28**	**2.61**	**2.08**
2000	**10.81**	**1.80**	**9.75**	**1.79**	**6.82**	**1.76**	**4.86**	**1.72**	**3.45**	**1.66**	**2.57**	**1.58**
2500	**10.61**	**1.31**	**9.68**	**1.31**	**6.77**	**1.30**	**4.80**	**1.28**	**3.40**	**1.25**	**2.53**	**1.21**
3000	**10.22**	**1.00**	**9.61**	**1.00**	**6.73**	**1.00**	**4.74**	**0.99**	**3.36**	**0.97**	**2.50**	**0.95**

F_z [kN] as permanent loads at distance 2*L/3 and L/3; F_x [kN] as variable loads at distance 2*L/3 and L/3.

3 Point Loads

L_{max}	500		1000		1500		2000		2500		3000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	**7.59**	**2.89**	**6.56**	**2.82**	**4.58**	**2.67**	**3.56**	**2.43**	**2.54**	**2.13**	**1.90**	**1.78**
1500	**7.43**	**1.76**	**6.51**	**1.74**	**4.55**	**1.70**	**3.51**	**1.63**	**2.50**	**1.53**	**1.87**	**1.41**
2000	**7.28**	**1.20**	**6.46**	**1.19**	**4.52**	**1.18**	**3.46**	**1.15**	**2.46**	**1.11**	**1.84**	**1.06**
2500	**7.15**	**0.87**	**6.42**	**0.87**	**4.48**	**0.87**	**3.41**	**0.85**	**2.43**	**0.84**	**1.81**	**0.81**
3000	**6.71**	**0.67**	**6.37**	**0.67**	**4.45**	**0.66**	**3.37**	**0.66**	**2.40**	**0.65**	**1.79**	**0.64**

F_z [kN] as permanent loads at distance 3*L/4, L/2 and L/4; F_x [kN] as variable loads at distance 3*L/4, L/4 and L/4.

All illustrated structures are able to be installed standing as well.
Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/100; L/200.

09/2024

Working loads in accordance with Eurocode 3

Joining Beam Bracket F 80 horizontal

Part List
1 x Beam Section TP F 80
2 x U-Holder SB F 80-40

Distributed Load

B_{max}	L_{max} 300		500		700		900		1100	
	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	14.39	4.32	5.64	2.82	3.02	2.12	1.88	1.69	1.28	1.41
150	20.42	6.13	8.38	4.19	4.62	3.23	2.93	2.64	1.97	2.16
200	24.82	7.45	9.80	4.90	4.94	3.46	2.96	2.67	1.97	2.16
250	28.16	8.45	9.80	4.90	4.94	3.46	2.96	2.67	1.97	2.16
300	28.16	8.45	9.80	4.90	4.94	3.46	2.96	2.67	1.97	2.16

q_z [kN/m] as permanent load over L.

Point Load

B_{max}	L_{max} 300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	2.36	1.12	1.55	0.74	1.16	0.55	0.92	0.44	0.77	0.36
150	3.51	1.66	2.41	1.14	1.72	0.87	1.34	0.70	1.10	0.59
200	4.03	2.10	2.41	1.49	1.72	1.15	1.34	0.94	1.10	0.79
250	4.03	2.45	2.41	1.79	1.72	1.41	1.34	1.10	1.10	0.90
300	4.03	2.75	2.41	1.98	1.72	1.41	1.34	1.10	1.10	0.90

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

B_{max}	L_{max} 300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	1.46	0.69	0.98	0.47	0.74	0.35	0.60	0.28	0.50	0.24
150	2.12	1.01	1.50	0.71	1.15	0.55	0.89	0.45	0.73	0.38
200	2.62	1.24	1.61	0.91	1.15	0.72	0.89	0.59	0.73	0.50
250	2.68	1.43	1.61	1.08	1.15	0.86	0.89	0.72	0.73	0.62
300	2.68	1.57	1.61	1.22	1.15	0.99	0.89	0.84	0.73	0.60

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

B_{max}	L_{max} 300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	1.06	0.50	0.72	0.34	0.55	0.26	0.44	0.21	0.37	0.18
150	1.52	0.72	1.08	0.52	0.84	0.40	0.67	0.33	0.55	0.28
200	1.86	0.88	1.21	0.65	0.86	0.52	0.67	0.43	0.55	0.37
250	2.01	1.00	1.21	0.77	0.86	0.62	0.67	0.52	0.55	0.45
300	2.01	1.10	1.21	0.87	0.86	0.71	0.67	0.55	0.55	0.45

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_z [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Joining Beam Bracket F 80 vertical

Part List
1 x Beam Section TP F 80
2 x U-Holder SB F 80-40

Distributed Load

L_{max} B_{max}	300 $q_{z, perm}$	300 F_z $(q_z * L)$	500 $q_{z, perm}$	500 F_z $(q_z * L)$	700 $q_{z, perm}$	700 F_z $(q_z * L)$	900 $q_{z, perm}$	900 F_z $(q_z * L)$	1100 $q_{z, perm}$	1100 F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	3.53	1.06	1.49	0.75	0.82	0.57	0.52	0.47	0.36	0.39
150	4.91	1.47	2.18	1.09	1.24	0.87	0.80	0.72	0.56	0.61
200	5.87	1.76	2.72	1.36	1.58	1.11	1.04	0.93	0.73	0.81
250	6.59	1.98	3.14	1.57	1.86	1.30	1.24	1.11	0.88	0.97
300	7.14	2.14	3.49	1.74	2.10	1.47	1.41	1.27	1.02	1.12

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300 $F_{z, perm}$ for		500 $F_{z, perm}$ for		700 $F_{z, perm}$ for		900 $F_{z, perm}$ for		1100 $F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.65	0.62	0.43	0.41	0.32	0.31	0.25	0.24	0.21	0.20
150	0.97	0.93	0.66	0.63	0.50	0.48	0.41	0.39	0.34	0.33
200	1.22	1.17	0.86	0.83	0.67	0.64	0.55	0.52	0.46	0.44
250	1.42	1.36	1.04	0.99	0.82	0.78	0.67	0.64	0.57	0.55
300	1.59	1.53	1.19	1.14	0.95	0.91	0.79	0.75	0.67	0.65

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L

2 Point Loads

L_{max}	300 $F_{z, perm}$ for		500 $F_{z, perm}$ for		700 $F_{z, perm}$ for		900 $F_{z, perm}$ for		1100 $F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.40	0.39	0.27	0.26	0.21	0.20	0.16	0.16	0.14	0.13
150	0.58	0.56	0.41	0.39	0.32	0.31	0.26	0.25	0.22	0.21
200	0.72	0.69	0.53	0.51	0.42	0.40	0.34	0.33	0.29	0.28
250	0.83	0.79	0.62	0.60	0.50	0.48	0.42	0.40	0.36	0.34
300	0.91	0.88	0.71	0.68	0.58	0.55	0.49	0.47	0.42	0.40

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

L_{max}	300 $F_{z, perm}$ for		500 $F_{z, perm}$ for		700 $F_{z, perm}$ for		900 $F_{z, perm}$ for		1100 $F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.29	0.28	0.20	0.19	0.15	0.14	0.12	0.12	0.10	0.10
150	0.42	0.40	0.30	0.29	0.23	0.22	0.19	0.18	0.16	0.15
200	0.51	0.49	0.38	0.36	0.30	0.29	0.25	0.24	0.21	0.21
250	0.58	0.56	0.45	0.43	0.36	0.35	0.30	0.29	0.26	0.25
300	0.64	0.61	0.50	0.48	0.41	0.40	0.35	0.34	0.31	0.29

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_z [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

09/2024

Working loads in accordance with Eurocode 3

Beam Bracket F 80 - Variante a) clamped
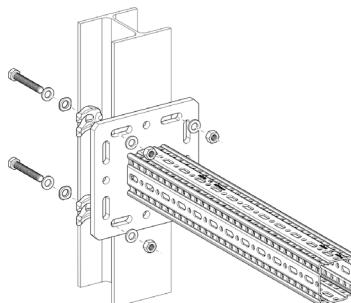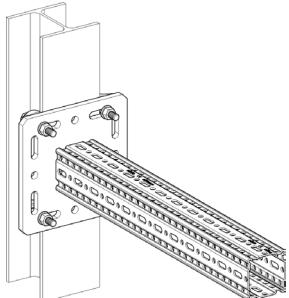
Part List
1 x Beam Bracket TKO F 80
1 x Assembly Set MS 5P M12 S

Distributed Load
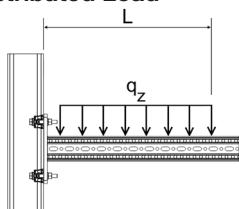
L_{max}	$q_{z, perm}$	F_z $(q_{z, perm} * L)$
[mm]	[kN/m]	[kN]
300	**54.99**	**16.50**
500	**28.59**	**14.30**
700	**14.59**	**10.21**

q_z [kN/m] as permanent load over L.

Point Load
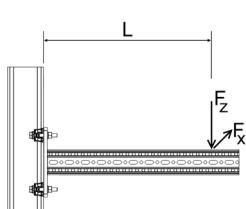
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**11.91**	**7.40**
500	**7.15**	**4.44**
700	**4.47**	**3.17**

F_z [kN] as a permanent load at distance L.
F_x [kN] as a variable load at distance L.

2 Point Loads
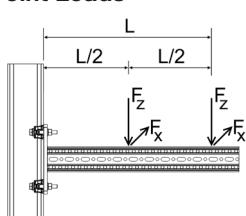
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**7.94**	**4.93**
500	**4.77**	**2.96**
700	**3.21**	**2.11**

F_z [kN] as permanent loads at distance L and L/2.
F_x [kN] as variable loads at distance L and L/2.

3 Point Loads
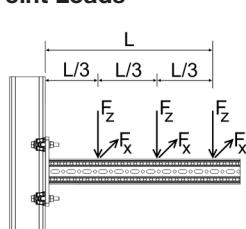
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**5.96**	**3.70**
500	**3.57**	**2.22**
700	**2.47**	**1.58**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3.
F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Bracket F 80 - Variante b) anchored

Part List
1 x Beam Bracket TKO F 80
4 x Injection system VMZ-A (M12/125)

Min. 200 mm · 135 mm · Min. 200 mm   Min. 200 mm

Min. 200 mm
170 mm
Min. 500 mm

Min. component thickness and edge distances to be respected
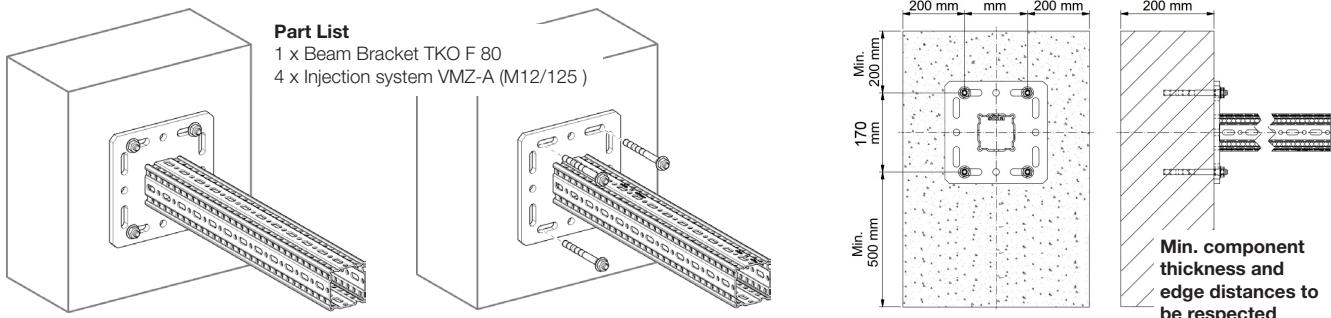
Distributed Load

L_{max}	$q_{z, perm}$	F_z $(q_{z, perm} * L)$
[mm]	[kN/m]	[kN]
300	**50.72**	**15.22**
500	**29.20**	**14.60**
700	**13.05**	**9.14**

q_z [kN/m] as permanent load at distance L.

Point Load

	$F_{z, perm}$ for	
L_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**13.09**	**11.34**
500	**6.53**	**6.53**
700	**3.99**	**3.99**

F_z [kN] as a permanent load at distance L.
F_x [kN] as a variable load at distance L.

2 Point Loads

	$F_{z, perm}$ for	
L_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**7.61**	**7.56**
500	**4.60**	**4.54**
700	**2.84**	**2.84**

F_z [kN] as permanent loads at distance L and L/2.
F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

	$F_{z, perm}$ for	
L_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**5.07**	**5.07**
500	**3.51**	**3.40**
700	**2.18**	**2.18**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3.
F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Section TP F 100
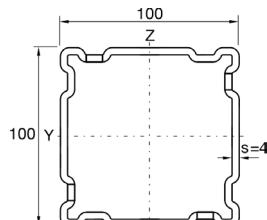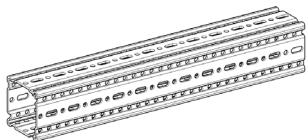
Single-span beam with uniaxial load
dead weight of the profile is considered

Distributed Load
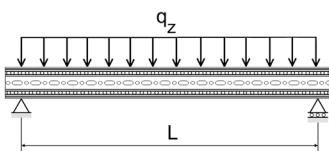
L_{max}	$q_{z, perm}$	F_z $(q_{z, perm} * L)$
[mm]	[kN/m]	[kN]
1000	**53.71**	**53.71**
2000	**15.58**	**31.17**
3000	**5.18**	**15.54**
4000	**2.19**	**8.74**
5000	**1.12**	**5.59**
6000	**0.65**	**3.89**

q_z [kN/m] as permanent load over L.
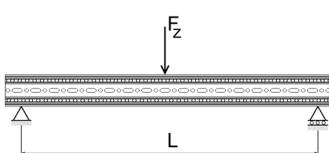
Point Load

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**31.33**
2000	**15.58**
3000	**9.71**
4000	**5.46**
5000	**3.50**
6000	**2.43**

F_z [kN] as a permanent load at L/2.
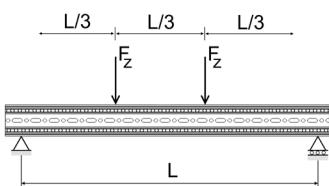
2 Point Loads

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**23.50**
2000	**11.69**
3000	**5.70**
4000	**3.21**
5000	**2.05**
6000	**1.43**

F_z [kN] as permanent loads at L/3 and 2*L/3.

3 Point Loads
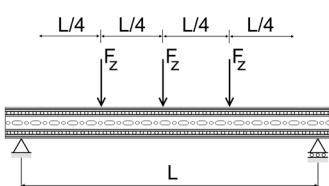
L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**15.66**
2000	**7.79**
3000	**4.09**
4000	**2.30**
5000	**1.47**
6000	**1.02**

F_z [kN] as permanent loads at L/4, L/2 and 3*L/4.

Max. bending L/200.

Working loads in accordance with Eurocode 3

L-Construction F 100
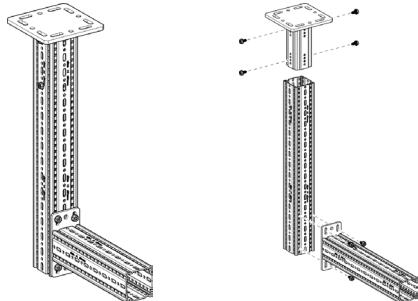
Part List
1 x End Support WBD F 100
1 x Beam Section TP F 100
1 x Cantilever Bracket AK
F 100
8 x Self-Forming-Screw FLS F

Distributed Load

L_{max}	300		500		700		900		1100	
H_{max}	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
1000	17.87	3.57	7.28	1.46	3.86	0.77	2.36	0.47	1.57	0.31
1500	15.18	3.04	6.22	1.24	3.31	0.66	2.02	0.40	1.34	0.27
2000	13.19	2.64	5.42	1.08	2.89	0.58	1.76	0.35	1.17	0.23
2500	11.66	2.33	4.81	0.96	2.56	0.51	1.56	0.31	1.04	0.21

q_z [kN/m] as permanent load over L. Max. deviation H/100; L/100

Point Load

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	3.02	3.02	1.94	1.94	1.40	1.40	1.08	1.08	0.87	0.87
1500	2.58	2.58	1.66	1.66	1.20	1.20	0.93	0.93	0.75	0.75
2000	2.25	2.25	1.45	1.45	1.06	1.06	0.82	0.82	0.65	0.65
2500	1.99	1.99	1.29	1.29	0.94	0.94	0.72	0.72	0.58	0.58

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	1.95	1.95	1.27	1.27	0.93	0.93	0.72	0.72	0.58	0.58
1500	1.66	1.66	1.09	1.09	0.80	0.80	0.62	0.62	0.50	0.50
2000	1.45	1.45	0.95	0.95	0.70	0.70	0.54	0.54	0.44	0.44
2500	1.28	1.28	0.85	0.85	0.62	0.62	0.48	0.48	0.39	0.39

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

| L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	1.43	1.43	0.94	0.94	0.69	0.69	0.53	0.53	0.43	0.43
1500	1.22	1.22	0.80	0.80	0.59	0.59	0.46	0.46	0.37	0.37
2000	1.06	1.06	0.70	0.70	0.52	0.52	0.40	0.40	0.32	0.32
2500	0.94	0.94	0.62	0.62	0.46	0.46	0.36	0.36	0.29	0.29

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

All illustrated structures are able to be installed standing as well.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation H/100; L/100.

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# Working loads in accordance with Eurocode 3

T-Support F 100
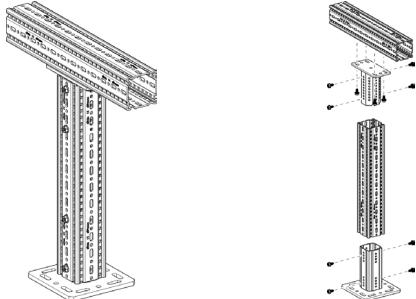
Part List
1 x End Support WBD F 100
2 x Beam Section TP F 100
1 x End Support STA F 100
12 x Self-Forming-Screw FLS F

Distributed Load - symmetrical
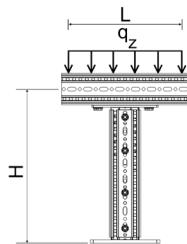
L_{max}	$H_{max} = 2$ m	
	$q_{z, perm}$	F_z $(q_{z, perm} * L)$
[mm]	[kN/m]	[kN]
500	**28.64**	**14.32**
750	**15.84**	**11.88**
1000	**10.13**	**10.13**
1250	**7.06**	**8.82**

q_z [kN/m] as permanent load over L.

Point Load - centrical
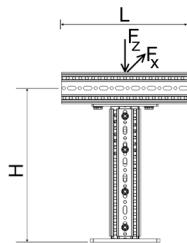
H_{max}	$L_{max} = 1$ m	
	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
500	**18.11**	**13.70**
1000	**18.11**	**7.55**
1500	**18.11**	**4.39**
2000	**18.11**	**2.96**

F_z [kN] as a permanent load; F_x [kN] as a variable load;
Central load introduction for planned eccentricity ± 30 mm.

2 Point Loads

L_{max}	500		750		1000	
	$F_{z,zul}$ for		$F_{z,zul}$ for		$F_{z,zul}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**5.10**	**4.17**	**3.96**	**3.14**	**3.23**	**2.51**
1000	**5.10**	**4.12**	**3.96**	**3.14**	**3.23**	**2.51**
1500	**5.10**	**2.40**	**3.96**	**2.40**	**3.23**	**2.40**
2000	**5.10**	**1.61**	**3.96**	**1.61**	**3.23**	**1.61**

F_z [kN] as permanent loads at distance L; F_x [kN] as variable loads at distance L.

3 Point Loads

L_{max}	500		750		1000	
	$F_{z,zul}$ for		$F_{z,zul}$ for		$F_{z,zul}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**4.20**	**3.55**	**3.39**	**2.77**	**2.83**	**2.27**
1000	**4.20**	**2.74**	**3.39**	**2.74**	**2.83**	**2.27**
1500	**4.20**	**1.60**	**3.39**	**1.60**	**2.83**	**1.60**
2000	**4.20**	**1.07**	**3.39**	**1.07**	**2.83**	**1.07**

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation H/150.
Utilization of the anchors must be taken into account depending on local conditions.

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sikla

Working loads in accordance with Eurocode 3

Frame F 100
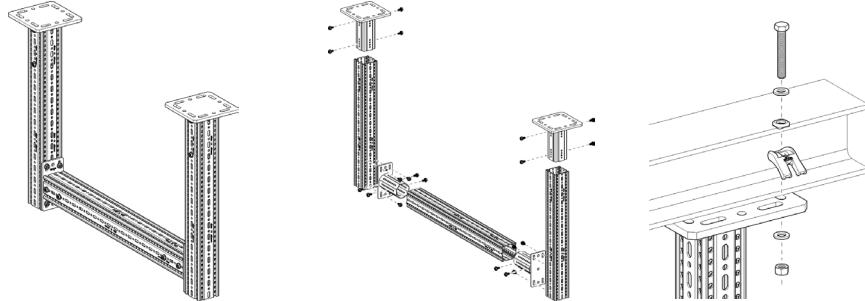
Part List
2 x End Support WBD F 100
3 x Beam Section TP F 100
2 x End Support STA F 100
24 x Self-Forming-Screw FLS F

Distributed Load

H_{max} / L_{max}	1500 $q_{z, perm}$	1500 F_z (q_z * L)	2000 $q_{z, perm}$	2000 F_z (q_z * L)	2500 $q_{z, perm}$	2500 F_z (q_z * L)	3000 $q_{z, perm}$	3000 F_z (q_z * L)	3500 $q_{z, perm}$	3500 F_z (q_z * L)	4000 $q_{z, perm}$	4000 F_z (q_z * L)
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
1500	23.00	34.51	16.65	33.31	9.72	24.29	6.11	18.33	4.09	14.32	2.88	11.51
2000	23.00	34.51	16.45	32.89	9.58	23.96	6.04	18.12	4.04	14.15	2.84	11.38
2500	23.00	34.51	16.25	32.51	9.50	23.75	5.92	17.75	4.00	14.00	2.81	11.26
3000	23.00	34.51	16.08	32.16	9.40	23.51	5.98	17.93	3.96	13.86	2.79	11.14
3500	23.00	34.51	15.91	31.83	9.31	23.28	5.86	17.59	3.92	13.73	2.76	11.04

q_z [kN/m] as permanent load over L.

Point Load

H_{max} / L_{max}	1500 $F_x = 0$	1500 $F_x = \mu_0 * F_z$	2000 $F_x = 0$	2000 $F_x = \mu_0 * F_z$	2500 $F_x = 0$	2500 $F_x = \mu_0 * F_z$	3000 $F_x = 0$	3000 $F_x = \mu_0 * F_z$	3500 $F_x = 0$	3500 $F_x = \mu_0 * F_z$	4000 $F_x = 0$	4000 $F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1500	22.46	8.30	17.30	8.24	13.94	8.15	11.49	8.09	8.89	7.93	7.10	6.67
2000	22.40	6.36	17.24	6.31	13.88	6.26	11.38	6.21	8.80	6.14	7.03	6.07
2500	22.31	5.15	17.16	5.12	13.83	5.08	11.28	5.04	8.72	4.99	6.96	4.94
3000	22.24	4.34	17.09	4.31	13.78	4.28	11.18	4.25	8.65	4.21	6.90	4.17
3500	22.17	3.74	17.03	3.72	13.72	3.70	11.09	3.68	8.58	3.64	6.85	3.59

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

2 Point Loads

H_{max} / L_{max}	1500 $F_x = 0$	1500 $F_x = \mu_0 * F_z$	2000 $F_x = 0$	2000 $F_x = \mu_0 * F_z$	2500 $F_x = 0$	2500 $F_x = \mu_0 * F_z$	3000 $F_x = 0$	3000 $F_x = \mu_0 * F_z$	3500 $F_x = 0$	3500 $F_x = \mu_0 * F_z$	4000 $F_x = 0$	4000 $F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1500	17.23	4.16	12.74	4.13	9.14	4.10	6.81	4.06	5.28	4.02	4.23	3.98
2000	17.15	3.18	12.60	3.16	9.03	3.14	6.74	3.12	5.23	3.08	4.18	3.06
2500	17.04	2.58	12.47	2.57	8.93	2.55	6.67	2.53	5.17	2.51	4.14	2.49
3000	16.99	2.17	12.34	2.16	8.83	2.15	6.61	2.13	5.13	2.11	4.10	2.10
3500	16.92	1.87	12.23	1.86	8.74	1.86	6.55	1.84	5.08	1.83	4.07	1.81

F_z [kN] as permanent loads at distance 2*L/3 and L/3; F_x [kN] as variable loads at distance 2*L/3 and L/3.

3 Point Loads

| H_{max} / L_{max}	1500 $F_x = 0$	1500 $F_x = \mu_0 * F_z$	2000 $F_x = 0$	2000 $F_x = \mu_0 * F_z$	2500 $F_x = 0$	2500 $F_x = \mu_0 * F_z$	3000 $F_x = 0$	3000 $F_x = \mu_0 * F_z$	3500 $F_x = 0$	3500 $F_x = \mu_0 * F_z$	4000 $F_x = 0$	4000 $F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1500	11.42	2.77	8.86	2.75	6.50	2.73	4.87	2.71	3.78	2.69	3.03	2.66
2000	11.38	2.12	8.81	2.11	6.43	2.10	4.82	2.08	3.74	2.06	3.00	2.05
2500	11.32	1.72	8.77	1.71	6.36	1.70	4.77	1.69	3.71	1.68	2.97	1.66
3000	11.25	1.45	8.73	1.44	6.30	1.43	4.73	1.42	3.67	1.41	2.94	1.40
3500	11.19	1.25	8.67	1.24	6.25	1.24	4.68	1.23	3.64	1.22	2.92	1.21

F_z [kN] as permanent loads at distance 3*L/4, L/2 and L/4; F_x [kN] as variable loads at distance 3*L/4, L/2 and L/4.

All illustrated structures are able to be installed standing as well.
Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/100; L/200.

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Working loads in accordance with Eurocode 3

Joining Beam Bracket F 100 horizontal

Part List
1 x Beam Section TP F 100
2 x U-Holder SB F 100-40

Distributed Load

L_{max} B_{max}	300		500		700		900		1100	
	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)	$q_{z, perm}$	F_z ($q_z * L$)
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	**14.39**	**4.32**	**5.64**	**2.82**	**3.02**	**2.12**	**1.88**	**1.69**	**1.28**	**1.41**
150	**20.42**	**6.13**	**8.38**	**4.19**	**4.62**	**3.23**	**2.93**	**2.64**	**2.02**	**2.22**
200	**24.82**	**7.45**	**10.53**	**5.26**	**5.93**	**4.15**	**3.82**	**3.44**	**2.67**	**2.94**
300	**30.81**	**9.24**	**13.70**	**6.85**	**7.96**	**5.58**	**5.26**	**4.73**	**3.74**	**4.12**

q_z [kN/m] as permanent load over L.

Point Load

L_{max} B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**2.36**	**1.12**	**1.55**	**0.74**	**1.16**	**0.55**	**0.92**	**0.44**	**0.77**	**0.36**
150	**3.51**	**1.66**	**2.41**	**1.14**	**1.83**	**0.87**	**1.48**	**0.70**	**1.24**	**0.59**
200	**4.43**	**2.10**	**3.14**	**1.49**	**2.43**	**1.15**	**1.98**	**0.94**	**1.67**	**0.79**
300	**5.79**	**2.75**	**4.32**	**2.05**	**3.44**	**1.63**	**2.86**	**1.36**	**2.45**	**1.16**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max} B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**1.46**	**0.69**	**0.98**	**0.47**	**0.74**	**0.35**	**0.60**	**0.28**	**0.50**	**0.24**
150	**2.12**	**1.01**	**1.50**	**0.71**	**1.16**	**0.55**	**0.94**	**0.45**	**0.79**	**0.38**
200	**2.62**	**1.24**	**1.92**	**0.91**	**1.51**	**0.72**	**1.25**	**0.59**	**1.06**	**0.50**
300	**3.32**	**1.57**	**2.57**	**1.22**	**2.09**	**0.99**	**1.76**	**0.84**	**1.53**	**0.72**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

L_{max} B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**1.06**	**0.50**	**0.72**	**0.34**	**0.55**	**0.26**	**0.44**	**0.21**	**0.37**	**0.18**
150	**1.52**	**0.72**	**1.08**	**0.52**	**0.84**	**0.40**	**0.69**	**0.33**	**0.58**	**0.28**
200	**1.86**	**0.88**	**1.38**	**0.65**	**1.10**	**0.52**	**0.91**	**0.43**	**0.78**	**0.37**
300	**2.33**	**1.10**	**1.82**	**0.87**	**1.50**	**0.71**	**1.27**	**0.61**	**1.11**	**0.53**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_z [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Joining Beam Bracket F 100 vertical
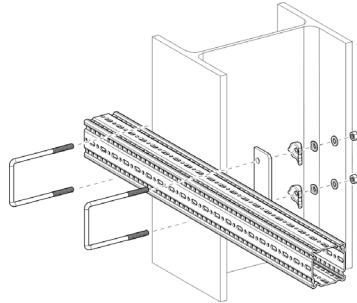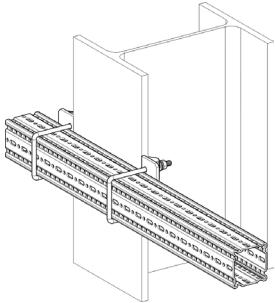
Part List
1 x Beam Section TP F 100
2 x U-Holder SB F 100-40

Distributed Load
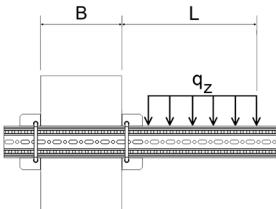
B_{max}	300		500		700		900		1100	
L_{max}	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)	$q_{z, perm}$	F_z (q_z * L)
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	3.86	1.16	1.63	0.81	0.90	0.63	0.57	0.51	0.39	0.43
150	5.35	1.61	2.38	1.19	1.35	0.95	0.87	0.78	0.61	0.67
200	6.41	1.92	2.96	1.48	1.72	1.21	1.13	1.02	0.80	0.88
250	7.19	2.16	3.43	1.71	2.03	1.42	1.35	1.21	0.96	1.06
300	7.79	2.34	3.80	1.90	2.29	1.60	1.54	1.39	1.11	1.22

q_z [kN/m] as permanent load over L.

Point Load

B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ füor		$F_{z, perm}$ for		$F_{z, perm}$ for	
L_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.71	0.68	0.47	0.45	0.35	0.33	0.28	0.27	0.23	0.22
150	1.05	1.01	0.72	0.69	0.55	0.53	0.44	0.43	0.37	0.36
200	1.33	1.27	0.94	0.90	0.73	0.70	0.60	0.57	0.50	0.48
250	1.55	1.49	1.13	1.08	0.89	0.85	0.73	0.70	0.62	0.60
300	1.74	1.67	1.30	1.24	1.03	0.99	0.86	0.82	0.74	0.70

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
L_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.44	0.42	0.30	0.28	0.22	0.21	0.18	0.17	0.15	0.14
150	0.64	0.61	0.45	0.43	0.35	0.33	0.28	0.27	0.24	0.23
200	0.79	0.75	0.58	0.55	0.45	0.44	0.38	0.36	0.32	0.31
250	0.90	0.86	0.68	0.65	0.55	0.52	0.46	0.44	0.39	0.38
300	1.00	0.95	0.77	0.74	0.63	0.60	0.53	0.51	0.46	0.44

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
L_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.32	0.30	0.22	0.21	0.16	0.16	0.13	0.13	0.11	0.11
150	0.46	0.44	0.33	0.31	0.25	0.24	0.21	0.20	0.18	0.17
200	0.56	0.53	0.41	0.40	0.33	0.32	0.27	0.26	0.23	0.22
250	0.64	0.61	0.49	0.47	0.40	0.38	0.33	0.32	0.29	0.27
300	0.70	0.67	0.55	0.53	0.45	0.43	0.38	0.37	0.33	0.32

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_z [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation L/100.

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Working loads in accordance with Eurocode 3

Beam Bracket F 100 - Variante a) clamped
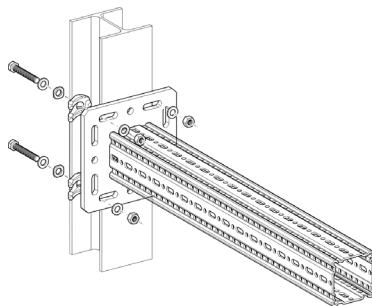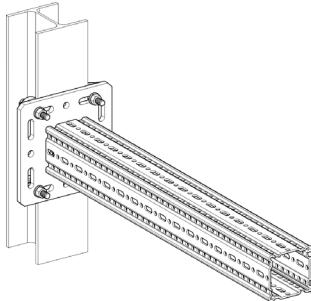
Part List
1 x Beam Bracket TKO F 100
1 x Assembly Set MS 5P M12 S

Distributed Load
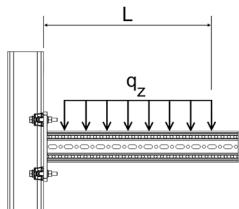
L_{max}	$q_{z, perm}$	F_z $(q_{z, perm} * L)$
[mm]	[kN/m]	[kN]
300	**54.99**	**16.50**
500	**28.59**	**14.30**
700	**14.59**	**10.21**
900	**8.83**	**7.94**
1100	**5.91**	**6.50**

q_z [kN/m] as permanent load over L.

Point Load
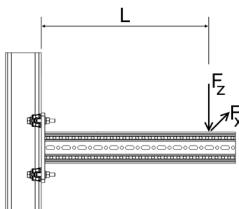
| L_{max} | $F_{z, perm}$ for | |
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**11.91**	**7.40**
500	**7.15**	**4.44**
700	**5.11**	**3.17**
900	**3.97**	**2.47**
1100	**3.25**	**2.02**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads
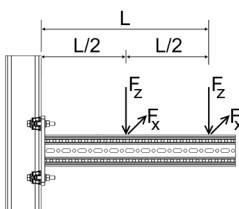
| L_{max} | $F_{z, perm}$ for | |
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**7.94**	**4.93**
500	**4.77**	**2.96**
700	**3.40**	**2.11**
900	**2.65**	**1.64**
1100	**2.17**	**1.34**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads
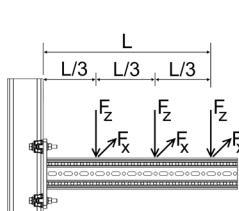
| L_{max} | $F_{z, perm}$ for | |
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN/m]	[kN]
300	**5.96**	**3.70**
500	**3.57**	**2.22**
700	**2.55**	**1.58**
900	**1.99**	**1.23**
1100	**1.62**	**1.01**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3.
F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Bracket F 100 - Variante b) anchored

Part List
1 x Beam Bracket TP F 100
4 x Injection system VMZ-A (M12/125)

Min. 200 mm | 135 mm | Min. 200 mm | Min. 200 mm

Min. 200 mm
170 mm
Min. 500 mm

Min. component thickness and edge distances to be respected
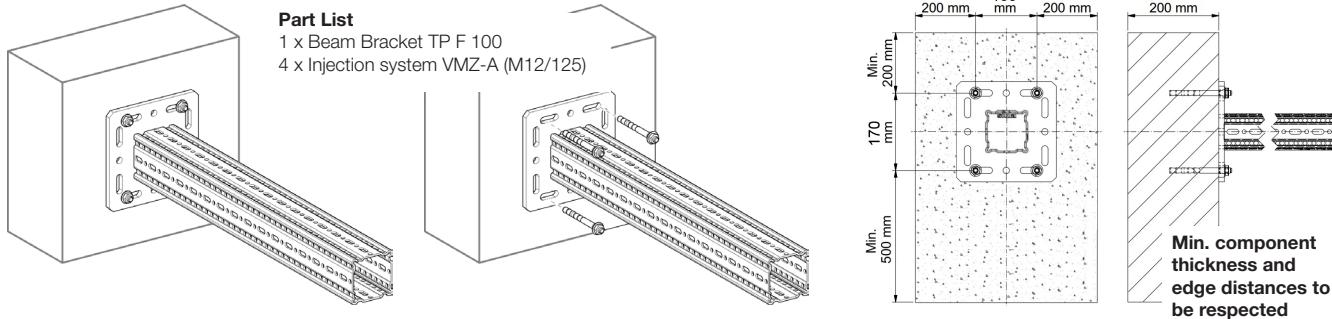
Distributed Load
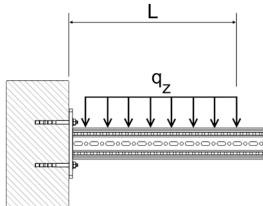
L_{max}	$q_{z, perm}$	F_z ($q_{z, perm}$ * L)
[mm]	[kN/m]	[kN]
300	**40.72**	**12.22**
500	**24.43**	**12.22**
700	**17.45**	**12.22**

q_z [kN/m] as permanent load over L.
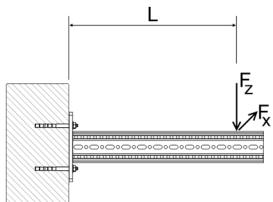
Point Load

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**12.22**	**12.22**
500	**11.33**	**11.33**
700	**7.34**	**7.34**

F_z [kN] as a permanent load at distance L.
F_x [kN] as a variable load at distance L.
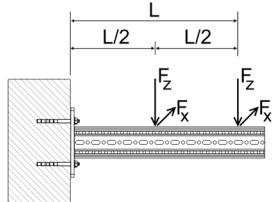
2 Point Loads

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**6.11**	**6.11**
500	**6.11**	**6.11**
700	**5.10**	**5.10**

F_z [kN] as permanent loads at distance L and L/2.
F_x [kN] as variable loads at distance L and L/2.

3 Point Loads
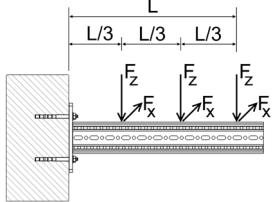
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN/m]	[kN]
300	**4.07**	**4.07**
500	**4.07**	**4.07**
700	**3.88**	**3.88**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3.
F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Section TP F 100/160
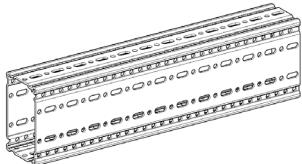
Single-span beam with uniaxial load
dead weight of the profile is considered
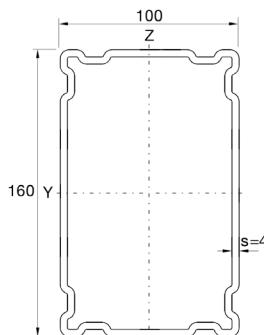
Distributed Load
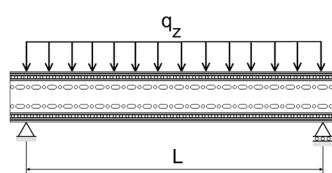
L_{max}	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]
1000	**65.08**	**65.08**
2000	**32.27**	**64.54**
3000	**14.34**	**43.03**
4000	**6.90**	**27.61**
5000	**3.53**	**17.67**
6000	**2.04**	**12.27**

q_z [kN/m] as permanent load over L.
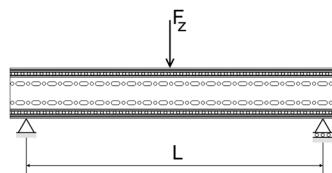
Point Load

L_{max}	$F_{z, perm}$
[mm]	[N]
1000	**64.54**
2000	**32.27**
3000	**21.51**
4000	**16.13**
5000	**11.04**
6000	**7.67**

F_z [kN] as a permanent load at L/2.
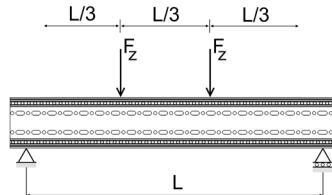
2 Point Loads

L_{max}	$F_{z, perm}$
[mm]	[N]
1000	**32.54**
2000	**24.20**
3000	**16.13**
4000	**10.13**
5000	**6.48**
6000	**4.50**

F_z [kN] as permanent loads at L/3 and 2*L/3.

3 Point Loads
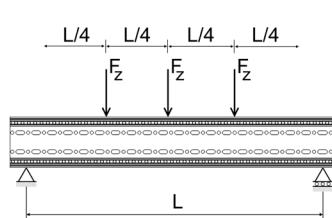
L_{max}	$F_{z, perm}$
[mm]	[N]
1000	**21.69**
2000	**16.13**
3000	**10.76**
4000	**7.26**
5000	**4.65**
6000	**3.23**

F_z [kN] as permanent loads at L/4, L/2 and 3*L/4.

Max. bending L/200.

Working loads in accordance with Eurocode 3

L-Construction F 100/160
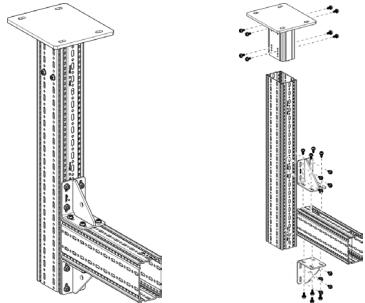
Part List
1 x End Support WBD F 100/160
2 x Beam Section TP F 100/160
2 x Corner Bracket WD F 100 140/140
24 x Self-Forming-Screw FLS F

Distributed Load

L_{max}	300		500		700		900		1100	
H_{max}	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
1000	**20.90**	**4.18**	**9.07**	**1.81**	**5.01**	**1.00**	**3.15**	**0.63**	**2.14**	**0.43**
2000	**20.87**	**4.17**	**9.05**	**1.81**	**5.00**	**1.00**	**3.14**	**0.63**	**2.13**	**0.43**
3000	**17.92**	**3.58**	**7.89**	**1.58**	**4.36**	**0.87**	**2.73**	**0.55**	**1.85**	**0.37**
4000	**15.66**	**3.13**	**6.94**	**1.39**	**3.84**	**0.77**	**2.40**	**0.48**	**1.63**	**0.33**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	**4.07**	**3.19**	**2.68**	**2.27**	**1.99**	**1.75**	**1.56**	**1.41**	**1.28**	**1.17**
2000	**3.76**	**2.66**	**2.54**	**1.98**	**1.89**	**1.57**	**1.49**	**1.29**	**1.22**	**1.08**
3000	**3.25**	**2.27**	**2.20**	**1.76**	**1.64**	**1.42**	**1.30**	**1.19**	**1.06**	**1.01**
4000	**2.85**	**1.63**	**1.94**	**1.58**	**1.45**	**1.30**	**1.15**	**1.10**	**0.93**	**0.93**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	**2.51**	**1.87**	**1.70**	**1.38**	**1.27**	**1.08**	**1.01**	**0.88**	**0.83**	**0.74**
2000	**2.39**	**1.51**	**1.65**	**1.17**	**1.24**	**0.95**	**0.98**	**0.79**	**0.81**	**0.67**
3000	**2.06**	**1.16**	**1.43**	**1.02**	**1.07**	**0.85**	**0.85**	**0.72**	**0.70**	**0.62**
4000	**1.81**	**0.81**	**1.26**	**0.81**	**0.95**	**0.76**	**0.75**	**0.66**	**0.62**	**0.57**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

| L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	**1.81**	**1.32**	**1.24**	**0.99**	**0.93**	**0.78**	**0.74**	**0.64**	**0.61**	**0.54**
2000	**1.73**	**1.06**	**1.20**	**0.83**	**0.90**	**0.68**	**0.72**	**0.57**	**0.59**	**0.49**
3000	**1.49**	**0.78**	**1.04**	**0.72**	**0.79**	**0.60**	**0.62**	**0.51**	**0.51**	**0.44**
4000	**1.31**	**0.54**	**0.92**	**0.54**	**0.69**	**0.54**	**0.55**	**0.46**	**0.45**	**0.41**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

All illustrated structures are able to be installed standing as well.
Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/100; L/100.

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Working loads in accordance with Eurocode 3

T-Support F 100/160

Part List
1 x End Support WBD F 100/160
2 x Beam Section TP F 100/160
2 x Corner Bracket WD F 100
24 x Self-Forming-Screw FLS F

Distributed Load - symmetrical
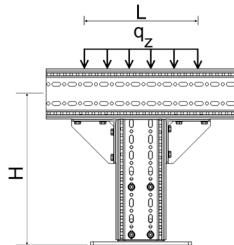
L_{max}	H_{max} = 2.5 m	
	$q_{z, perm}$	F_z ($q_{z, perm}$ * L)
[mm]	[kN/m]	[kN]
500	**44.70**	**22.35**
750	**26.01**	**19.51**
1000	**17.29**	**17.29**
1250	**12.41**	**15.51**

q_z [kN/m] as permanent load over L.

Point Load - centrical
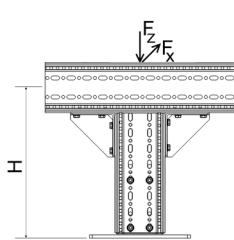
H_{max}	L_{max} = 1 m	
	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
500	**26.24**	**6.28**
1000	**26.24**	**3.76**
1500	**26.24**	**2.61**
2000	**26.24**	**1.96**

F_z [kN] as a permanent load; F_x [kN] as a variable load;
Central load introduction for planned eccentricity ± 30 mm.

2 Point Loads

L_{max}	500		750		1000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**8.70**	**3.43**	**7.11**	**3.43**	**6.01**	**3.43**
1000	**8.70**	**2.05**	**7.11**	**2.05**	**6.01**	**2.05**
1500	**8.70**	**1.42**	**7.11**	**1.42**	**6.01**	**1.42**
2000	**8.70**	**1.07**	**7.11**	**1.07**	**6.01**	**1.07**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

3 Point Loads

L_{max}	500		750		1000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**6.79**	**2.28**	**5.77**	**2.28**	**5.02**	**2.28**
1000	**6.79**	**1.37**	**5.77**	**1.37**	**5.02**	**1.37**
1500	**6.79**	**0.95**	**5.77**	**0.95**	**5.02**	**0.95**
2000	**6.79**	**0.71**	**5.77**	**0.71**	**5.02**	**0.71**

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction. Max. deviation H/150.
Utilization of the anchors must be taken into account depending on local conditions.

Working loads in accordance with Eurocode 3

Frame F 100/160
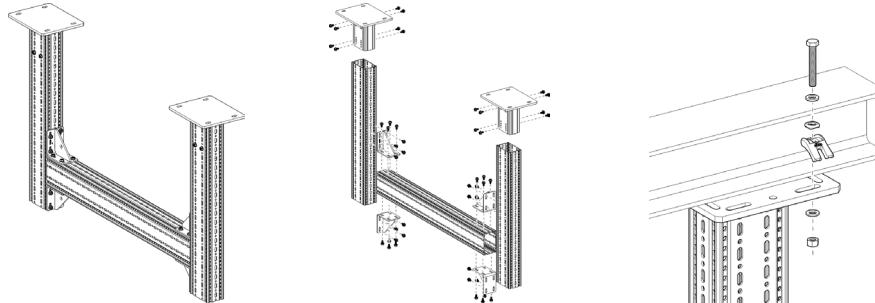
Part List
2 x End Support WBD F 100/160
3 x Beam Section TP F 100/160
4 x Corner Bracket WD F 100
48 x Self-Forming-Screw FLS F

Distributed Load

H_{max}	1500 $q_{z,perm}$	1500 F_z $(q_z * L)$	2000 $q_{z,perm}$	2000 F_z $(q_z * L)$	2500 $q_{z,perm}$	2500 F_z $(q_z * L)$	3000 $q_{z,perm}$	3000 F_z $(q_z * L)$	3500 $q_{z,perm}$	3500 F_z $(q_z * L)$	4000 $q_{z,perm}$	4000 F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
2000	65.30	79.66	37.92	65.23	25.10	55.73	17.67	48.07	12.29	39.56	8.87	33.01
2500	63.50	77.47	37.56	64.60	24.86	55.19	17.07	46.43	12.07	38.86	8.72	32.42
3000	62.02	75.67	37.21	64.00	24.63	54.67	17.36	47.21	11.87	38.22	8.57	31.89
3500	60.99	74.41	36.88	63.44	24.41	54.18	16.81	45.71	11.69	37.64	8.44	31.40
4000	60.02	73.22	36.58	62.92	24.20	53.73	16.56	45.05	11.52	37.10	8.32	30.95

q_z [kN/m] as permanent load over L.

Point Load

H_{max}	1500 $F_x = 0$	1500 $F_x = \mu_0 * F_z$	2000 $F_x = 0$	2000 $F_x = \mu_0 * F_z$	2500 $F_x = 0$	2500 $F_x = \mu_0 * F_z$	3000 $F_x = 0$	3000 $F_x = \mu_0 * F_z$	3500 $F_x = 0$	3500 $F_x = \mu_0 * F_z$	4000 $F_x = 0$	4000 $F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
2000	46.35	6.95	35.87	6.85	29.49	6.71	25.16	6.51	22.03	6.25	19.65	5.95
2500	46.05	5.38	35.67	5.34	29.32	5.27	25.02	5.17	21.90	5.05	19.53	4.89
3000	45.79	4.32	35.46	4.30	29.15	4.26	24.87	4.21	21.76	4.15	19.41	4.06
3500	45.53	3.56	35.28	3.55	28.97	3.53	24.73	3.50	21.64	3.47	19.29	3.42
4000	45.31	2.99	35.10	2.99	28.83	2.98	24.58	2.96	21.51	2.94	19.17	2.90

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

2 Point Loads

H_{max}	1500 $F_x = 0$	1500 $F_x = \mu_0 * F_z$	2000 $F_x = 0$	2000 $F_x = \mu_0 * F_z$	2500 $F_x = 0$	2500 $F_x = \mu_0 * F_z$	3000 $F_x = 0$	3000 $F_x = \mu_0 * F_z$	3500 $F_x = 0$	3500 $F_x = \mu_0 * F_z$	4000 $F_x = 0$	4000 $F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
2000	35.14	3.46	27.53	3.42	22.82	3.36	19.39	3.28	15.60	3.17	12.78	3.05
2500	34.87	2.69	27.27	2.67	22.62	2.64	19.05	2.60	15.33	2.55	12.57	2.48
3000	34.58	2.18	27.05	2.17	22.44	2.15	18.74	2.13	15.09	2.09	12.37	2.06
3500	34.29	1.80	26.84	1.80	22.23	1.79	18.45	1.77	14.86	1.75	12.18	1.73
4000	34.08	1.53	26.66	1.52	22.08	1.52	18.19	1.51	14.65	1.49	12.01	1.48

F_z [kN] as permanent loads at distance 2*L/3 and L/3; F_x [kN] as variable loads at distance 2*L/3 and L/3.

3 Point Loads

| H_{max}	1500 $F_x = 0$	1500 $F_x = \mu_0 * F_z$	2000 $F_x = 0$	2000 $F_x = \mu_0 * F_z$	2500 $F_x = 0$	2500 $F_x = \mu_0 * F_z$	3000 $F_x = 0$	3000 $F_x = \mu_0 * F_z$	3500 $F_x = 0$	3500 $F_x = \mu_0 * F_z$	4000 $F_x = 0$	4000 $F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
2000	23.08	2.31	17.97	2.28	14.83	2.24	12.68	2.19	10.95	2.13	8.98	2.05
2500	22.66	1.80	17.59	1.78	14.47	1.77	12.34	1.74	10.55	1.71	8.64	1.66
3000	22.48	1.45	17.45	1.44	14.35	1.43	12.24	1.42	10.36	1.40	8.50	1.38
3500	21.61	1.20	16.66	1.20	13.58	1.19	11.48	1.18	9.63	1.17	7.86	1.16
4000	21.01	1.02	16.54	1.01	13.47	1.01	11.39	1.01	9.47	1.00	7.74	0.99

F_z [kN] as permanent loads at distance 3*L/4, L/2 and L/4.
F_x [kN] as variable loads at distance 3*L/4, L/2 and L/4.

All illustrated structures are able to be installed standing as well.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation H/100; L/200.

09/2024

Working loads in accordance with Eurocode 3

Joining Beam Bracket F 100/160 horizontal
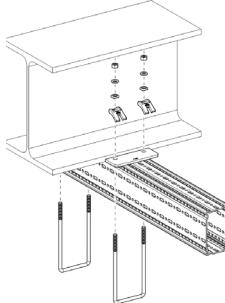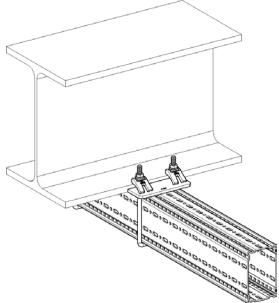
Part List
1 x Beam Section TP F 100/160
2 x U-Holder SB F 100/160-40

Distributed Load
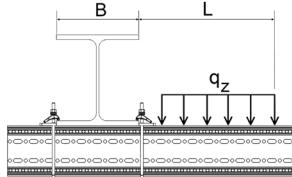
L_{max}	300		500		700		900		1100	
B_{max}	$q_{z, perm}$	$F_z\ (q_z * L)$	$q_{z, perm}$	$F_z\ (q_z * L)$	$q_{z, perm}$	$F_z\ (q_z * L)$	$q_{z, perm}$	$F_z\ (q_z * L)$	$q_{z, perm}$	$F_z\ (q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	**17.14**	**5.14**	**6.73**	**3.36**	**3.61**	**2.52**	**2.25**	**2.02**	**1.53**	**1.68**
150	**24.32**	**7.30**	**9.98**	**4.99**	**5.50**	**3.85**	**3.49**	**3.14**	**2.41**	**2.66**
200	**29.56**	**8.87**	**12.54**	**6.27**	**7.07**	**4.95**	**4.56**	**4.10**	**3.19**	**3.50**
250	**33.55**	**10.06**	**14.61**	**7.31**	**8.38**	**5.86**	**5.47**	**4.92**	**3.86**	**4.25**
300	**36.69**	**11.01**	**16.32**	**8.16**	**9.49**	**6.64**	**6.26**	**5.64**	**4.46**	**4.91**

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**2.81**	**1.33**	**1.85**	**0.88**	**1.38**	**0.65**	**1.10**	**0.52**	**0.91**	**0.43**
150	**4.18**	**1.98**	**2.87**	**1.36**	**2.18**	**1.03**	**1.76**	**0.83**	**1.47**	**0.70**
200	**5.27**	**2.50**	**3.74**	**1.77**	**2.89**	**1.37**	**2.36**	**1.12**	**1.99**	**0.95**
250	**6.16**	**2.92**	**4.49**	**2.13**	**3.53**	**1.67**	**2.91**	**1.38**	**2.47**	**1.17**
300	**6.90**	**3.27**	**5.14**	**2.44**	**4.10**	**1.94**	**3.41**	**1.62**	**2.92**	**1.38**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**1.74**	**0.83**	**1.17**	**0.56**	**0.88**	**0.42**	**0.71**	**0.34**	**0.59**	**0.28**
150	**2.52**	**1.20**	**1.78**	**0.85**	**1.38**	**0.65**	**1.12**	**0.53**	**0.95**	**0.45**
200	**3.11**	**1.48**	**2.28**	**1.08**	**1.80**	**0.85**	**1.49**	**0.71**	**1.27**	**0.60**
250	**3.58**	**1.70**	**2.70**	**1.28**	**2.17**	**1.03**	**1.81**	**0.86**	**1.55**	**0.74**
300	**3.95**	**1.87**	**3.06**	**1.45**	**2.49**	**1.18**	**2.10**	**1.00**	**1.82**	**0.86**

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

| L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
B_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	**1.26**	**0.60**	**0.86**	**0.41**	**0.65**	**0.31**	**0.52**	**0.25**	**0.44**	**0.21**
150	**1.81**	**0.86**	**1.29**	**0.61**	**1.01**	**0.48**	**0.82**	**0.39**	**0.70**	**0.33**
200	**2.21**	**1.05**	**1.64**	**0.78**	**1.31**	**0.62**	**1.08**	**0.52**	**0.93**	**0.44**
250	**2.52**	**1.20**	**1.93**	**0.92**	**1.56**	**0.74**	**1.31**	**0.62**	**1.13**	**0.54**
300	**2.77**	**1.31**	**2.17**	**1.03**	**1.79**	**0.85**	**1.52**	**0.72**	**1.32**	**0.63**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_z [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction. Max. deviation L/100.

Working loads in accordance with Eurocode 3

Joining Beam Bracket F 100/160 vertical
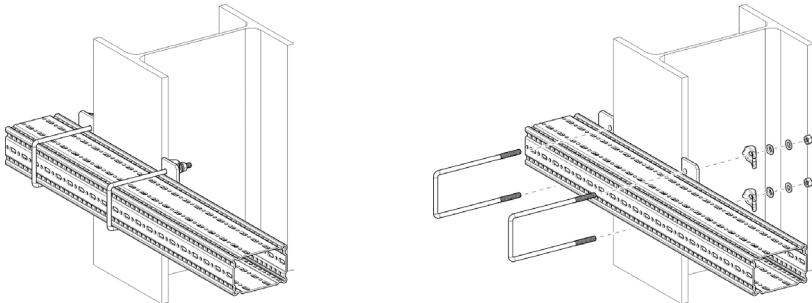
Part List
1 x Beam Section TP F 100/160
2 x U-Holder SB F 100/160-40

Distributed Load
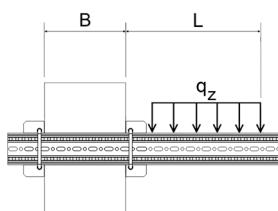
L_{max} B_{max}	300		500		700		900		1100	
	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
100	3.21	0.96	1.36	0.68	0.75	0.52	0.47	0.43	0.33	0.36
150	4.46	1.34	1.98	0.99	1.13	0.79	0.73	0.65	0.51	0.56
200	5.34	1.60	2.47	1.23	1.44	1.00	0.94	0.85	0.67	0.73
250	5.99	1.80	2.86	1.43	1.69	1.18	1.12	1.01	0.80	0.88
300	6.49	1.95	3.17	1.58	1.91	1.34	1.28	1.15	0.92	1.02

q_z [kN/m] as permanent load over L.

Point Load

L_{max} B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.59	0.56	0.39	0.37	0.29	0.28	0.23	0.22	0.19	0.18
150	0.88	0.84	0.60	0.58	0.46	0.44	0.37	0.35	0.31	0.30
200	1.11	1.06	0.79	0.75	0.61	0.58	0.50	0.48	0.42	0.40
250	1.29	1.24	0.94	0.90	0.74	0.71	0.61	0.59	0.52	0.50
300	1.45	1.39	1.08	1.03	0.86	0.83	0.72	0.69	0.61	0.59

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads

L_{max} B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.37	0.35	0.25	0.24	0.19	0.18	0.15	0.14	0.13	0.12
150	0.53	0.51	0.37	0.36	0.29	0.28	0.24	0.23	0.20	0.19
200	0.65	0.63	0.48	0.46	0.38	0.36	0.31	0.30	0.27	0.26
250	0.75	0.72	0.57	0.54	0.46	0.44	0.38	0.36	0.33	0.31
300	0.83	0.80	0.64	0.62	0.52	0.50	0.44	0.42	0.38	0.37

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

L_{max} B_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
100	0.27	0.25	0.18	0.17	0.14	0.13	0.11	0.11	0.09	0.09
150	0.38	0.36	0.27	0.26	0.21	0.20	0.17	0.17	0.15	0.14
200	0.46	0.45	0.35	0.33	0.28	0.26	0.23	0.22	0.20	0.19
250	0.53	0.51	0.41	0.39	0.33	0.32	0.28	0.27	0.24	0.23
300	0.58	0.56	0.46	0.44	0.38	0.36	0.32	0.31	0.28	0.27

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3; F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction; Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Bracket F 100/160 - Variante a) clamped
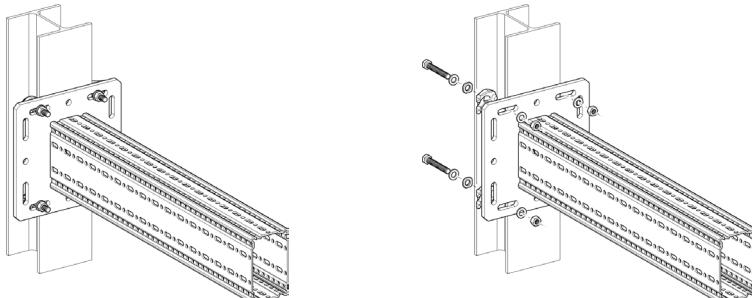
Part List
1 x Beam Bracket TKO F 100/160
1 x Assembly Set MS 5P M12 S

Distributed Load
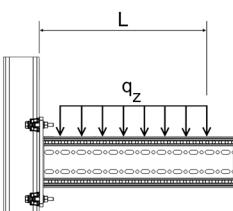
L_{max}	$q_{z, perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]
300	**47.89**	**14.37**
500	**36.39**	**18.20**
700	**18.57**	**13.00**
900	**11.23**	**10.11**
1100	**7.52**	**8.27**

q_z [kN/m] as permanent load over L.

Point Load
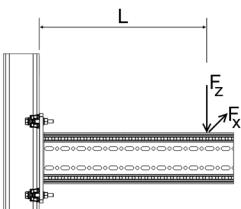
| L_{max} | $F_{z, perm}$ for | |
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**15.16**	**9.35**
500	**9.10**	**5.61**
700	**6.50**	**4.01**
900	**5.05**	**3.12**
1100	**4.14**	**2.55**

F_z [kN] as a permanent load at distance L; F_x [kN] as a variable load at distance L.

2 Point Loads
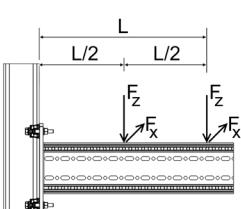
| L_{max} | $F_{z, perm}$ for | |
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**9.41**	**6.23**
500	**6.07**	**3.74**
700	**4.33**	**2.67**
900	**3.37**	**2.08**
1100	**2.76**	**1.70**

F_z [kN] as permanent loads at distance L and L/2.
F_x [kN] as variable loads at distance L and L/2.

3 Point Loads
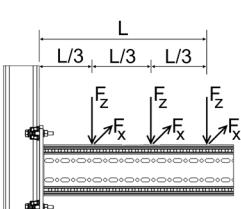
| L_{max} | $F_{z, perm}$ for | |
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**5.69**	**4.67**
500	**4.55**	**2.80**
700	**3.25**	**2.00**
900	**2.53**	**1.56**
1100	**2.07**	**1.27**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3.
F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient μ_0 = 0.2 for friction in longitudinal direction; Max. deviation L/100.

Working loads in accordance with Eurocode 3

Beam Bracket F 100/160 - Variante b) anchored
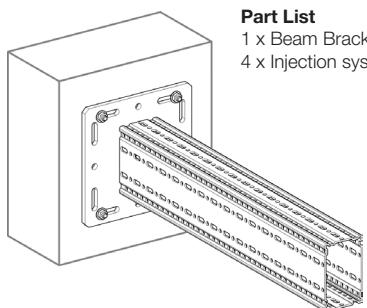
Part List
1 x Beam Bracket TKO F 100/160
4 x Injection system VMZ-A (M12/125)
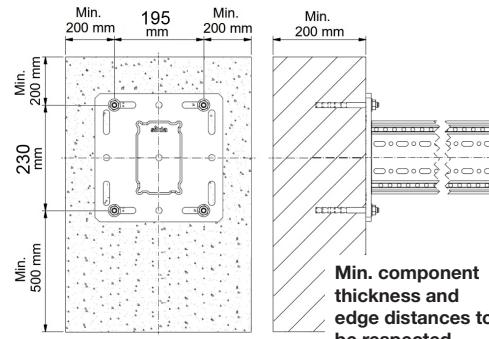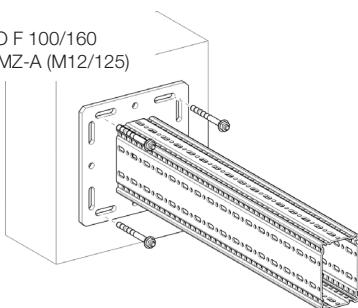
Min. 200 mm 195 mm Min. 200 mm Min. 200 mm
Min. 200 mm
230 mm
Min. 500 mm

Min. component thickness and edge distances to be respected

Distributed Load
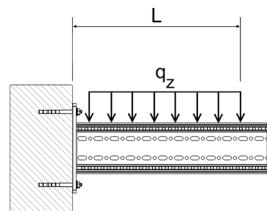
L_{max}	$q_{z, perm}$	F_z ($q_z * L$)
[mm]	[kN/m]	[kN]
300	**56.27**	**16.88**
500	**33.76**	**16.88**
700	**24.12**	**16.88**
900	**18.76**	**16.88**
1100	**15.13**	**16.64**

q_z [kN/m] as permanent load over L.

Point Load
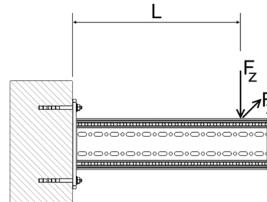
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**16.88**	**16.88**
500	**16.88**	**16.88**
700	**13.07**	**13.07**
900	**10.17**	**10.17**
1100	**8.32**	**8.32**

F_z [kN] as a permanent load at distance L; Fx [kN] as a variable load at distance L.

2 Point Loads
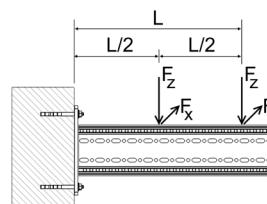
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
300	**8.44**	**8.44**
500	**8.44**	**8.44**
700	**8.44**	**8.44**
900	**6.78**	**6.78**
1100	**5.55**	**5.55**

$_z$ [kN] as permanent loads at distance L and L/2.
F_x [kN] as variable loads at distance L and L/2.

3 Point Loads
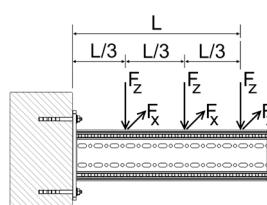
L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN/m]	[kN]
300	**5.63**	**5.63**
500	**5.63**	**5.63**
700	**5.63**	**5.63**
900	**5.08**	**5.08**
1100	**4.16**	**4.16**

F_z [kN] as permanent loads at distance L, 2*L/3 and L/3.
F_x [kN] as variable loads at distance L, 2*L/3 and L/3.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction; Max. deviation L/100.

09/2024

Working loads in accordance with Eurocode 3

L-Construction TP F 100/160 - F 100
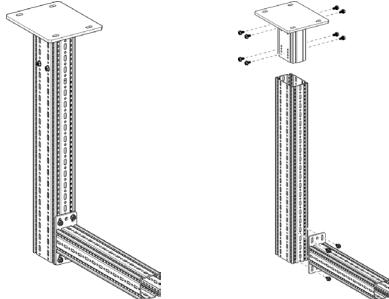
Part List
1 x End Support WBD F 100/160
1 x Beam Section TP F 100/160
1 x Cantilever Bracket AK F 100
12 x Self-Forming-Screw FLS F

Distributed Load

L_{max}	300		500		700		900		1100	
H_{max}	$q_{z, perm}$	$F_z (q_z * L)$	$q_{z, perm}$	$F_z (q_z * L)$	$q_{z, perm}$	$F_z (q_z * L)$	$q_{z, perm}$	$F_z (q_z * L)$	$q_{z, perm}$	$F_z (q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
1000	20.93	6.28	9.10	4.55	5.04	3.53	3.18	2.86	2.17	2.39
1500	20.91	6.27	9.09	4.54	5.04	3.52	3.17	2.86	2.15	2.37
2000	20.51	6.15	8.86	4.43	4.82	3.37	2.98	2.68	2.00	2.20
2500	18.95	5.68	8.23	4.11	4.49	3.14	2.78	2.50	1.87	2.06

q_z [kN/m] as permanent load over L.

Point Load

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	4.08	3.22	2.69	2.29	2.00	1.77	1.58	1.43	1.30	1.19
1500	4.07	2.92	2.69	2.13	1.96	1.67	1.51	1.37	1.21	1.15
2000	3.92	2.67	2.53	2.00	1.83	1.59	1.42	1.31	1.14	1.11
2500	3.68	2.47	2.38	1.88	1.72	1.51	1.33	1.26	1.07	1.07

F_z [kN] as a permanent load at distance L; Fx [kN] as a variable load at distance L.

2 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	2.51	1.89	1.71	1.39	1.28	1.10	1.00	0.90	0.81	0.76
1500	2.41	1.69	1.62	1.28	1.19	1.02	0.93	0.85	0.76	0.72
2000	2.23	1.53	1.50	1.18	1.11	0.96	0.87	0.81	0.71	0.69
2500	2.07	1.39	1.40	1.10	1.04	0.91	0.82	0.77	0.66	0.66

F_z [kN] as permanent loads at distance L and L/2; F_x [kN] as variable loads at distance L and L/2.

3 Point Loads

L_{max}	300		500		700		900		1100	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	1.82	1.31	1.25	0.98	0.94	0.78	0.75	0.65	0.62	0.55
1500	1.82	1.17	1.25	0.90	0.94	0.73	0.74	0.61	0.60	0.52
2000	1.71	1.05	1.17	0.83	0.87	0.68	0.68	0.58	0.56	0.50
2500	1.58	0.96	1.09	0.77	0.81	0.64	0.64	0.54	0.52	0.47

F_z [kN] as permanent loads at distance L, 2*L/3 and L/2; F_x [kN] as variable loads at distance L, 2*L/3 and L/2.

All illustrated structures are able to be installed standing as well.

Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction; Max. deviation H/100; L/100.

Working loads in accordance with Eurocode 3

Frame TP F 100/160 - F 100
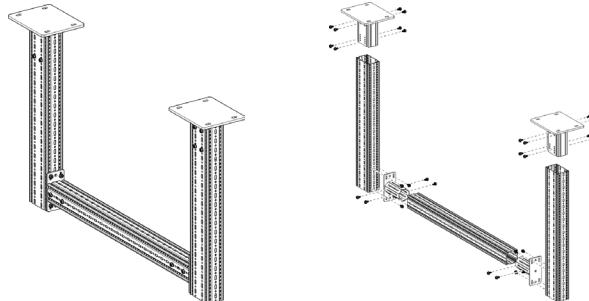
Part List
2 x End Support WBD F 100/160
3 x Beam Section TP F 100/160
1 x Beam Section TP F 100
2x End Support STA F 100
32 x Self-Forming-Screw FLS F

Distributed Load

H_{max}	L_{max} 1000		1500		2000		2500		3000		3500	
	$q_{z,perm}$	F_z $(q_z * L)$	$q_{z,perm}$	F_z $(q_z * L)$	$q_{z,perm}$	F_z $(q_z * L)$	$q_{z,perm}$	F_z $(q_z * L)$	$q_{z,perm}$	F_z $(q_z * L)$	$q_{z,perm}$	F_z $(q_z * L)$
[mm]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]	[kN/m]	[kN]
1000	34.18	34.18	22.75	34.13	17.04	34.08	10.12	25.29	6.28	18.84	4.20	14.70
1500	34.08	34.08	22.69	34.03	16.76	33.51	9.76	24.40	6.12	18.35	4.09	14.32
2000	33.98	33.98	22.62	33.92	16.37	32.74	9.53	23.83	6.00	17.99	4.01	14.05
2500	33.87	33.87	22.55	33.82	16.00	32.00	9.35	23.38	5.88	17.63	3.94	13.77
3000	33.77	33.77	22.48	33.72	15.66	31.32	9.16	22.91	5.76	17.29	3.86	13.52
3500	33.67	33.67	22.41	33.61	15.34	30.67	8.99	22.47	5.66	16.97	3.79	13.28

q_z [kN/m] as permanent load over L.

Point Load

H_{max}	L_{max} 1000		1500		2000		2500		3000		3500	
	$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	34.07	14.73	23.28	14.11	17.90	13.11	14.64	11.06	11.82	9.40	9.14	8.20
1500	33.83	9.80	23.11	9.60	17.77	9.27	14.50	8.79	11.71	8.19	9.03	7.50
2000	33.51	7.16	22.91	7.08	17.62	6.94	14.39	6.73	11.64	6.45	8.98	6.21
2500	33.19	5.54	22.70	5.50	17.47	5.43	14.27	5.33	11.58	5.18	8.94	5.00
3000	32.90	4.46	22.66	4.43	17.32	4.40	14.15	4.34	11.52	4.25	8.89	4.15
3500	32.90	3.68	22.66	3.67	17.32	3.65	14.15	3.61	11.52	3.56	8.89	3.50

F_z [kN] as a permanent load at distance L/2; F_x [kN] as a variable load at distance L/2.

2 Point Loads

H_{max}	L_{max} 1000		1500		2000		2500		3000		3500	
	$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	17.09	7.50	17.07	7.21	13.43	6.71	9.58	6.07	7.15	5.36	5.55	4.63
1500	17.04	4.95	17.01	4.85	13.30	4.69	9.48	4.46	7.07	4.18	5.48	3.85
2000	16.99	3.58	16.96	3.55	12.95	3.49	9.24	3.40	6.89	3.28	5.35	3.13
2500	16.94	2.75	16.91	2.74	12.58	2.71	8.97	2.67	6.69	2.62	5.19	2.54
3000	16.88	2.20	16.86	2.19	12.23	2.18	8.74	2.16	6.52	2.14	5.05	2.10
3500	16.83	1.80	16.81	1.80	11.98	1.80	8.57	1.79	6.40	1.78	4.96	1.76

F_z [kN] as permanent loads at distance 2*L/3 and L/3; F_x [kN] as variable loads at distance 2*L/3 and L/3.

3 Point Loads

H_{max}	L_{max} 1000		1500		2000		2500		3000		3500	
	$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for		$F_{z,perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
1000	11.39	5.01	11.38	4.82	9.27	4.52	6.67	4.12	4.98	3.65	3.87	3.19
1500	11.36	3.30	11.34	3.24	9.07	3.14	6.60	2.99	4.93	2.81	3.82	2.60
2000	11.33	2.39	11.31	2.37	8.95	2.33	6.55	2.27	4.90	2.20	3.80	2.10
2500	11.29	1.83	11.27	1.83	8.69	1.81	6.45	1.79	4.82	1.75	3.74	1.71
3000	11.26	1.46	11.11	1.46	8.57	1.45	6.40	1.44	4.79	1.43	3.72	1.41
3500	11.22	1.20	10.66	1.20	8.16	1.20	6.18	1.20	4.63	1.19	3.59	1.18

F_z [kN] as permanent loads at distance 3*L/4, L/2 and L/4.
F_x [kN] as variable loads at distance 3*L/4, L/4 and L/4.

All illustrated structures are able to be installed standing as well.
Friction coefficient $\mu_0 = 0.2$ for friction in longitudinal direction; Max. deviation H/100; L/200.

Section data Simotec Beam System 100 / 120
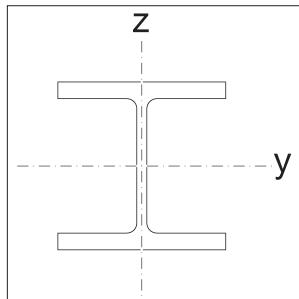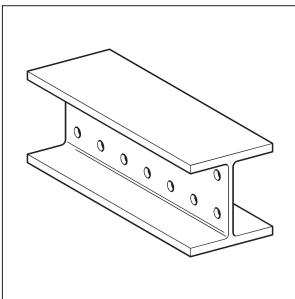
Type	Moment of Inertia [cm⁴]		Section Modulus [cm³]		Radius of Inertia [cm]		Torsional Moment [cm⁴]	Cross Section [cm²]	Weight [kg/m]
	I_y	I_z	W_y	W_z	i_y	i_z	It	A	G
H 100	**341**	**133**	**71.0**	**26.7**	**4.14**	**2.59**	**5.15**	**19.9**	**16.40**
HEA 100	349	134	72.8	26.8	4.06	2.51	5.26	21.2	16.70
H 120	**853**	**317**	**142.0**	**52.8**	**5.13**	**3.13**	**13.66**	**32.3**	**26.50**
HEB 120	864	318	144.0	52.9	5.04	3.06	13.90	34.0	26.70

Hinweise

HEA 100 = IPBl 100 as per DIN 1025 Part 3: 1994-03: B100; H 96; Flange 8; Web 5 (EN 53)
HEB 120 = IPB 120 as per DIN 1025 Part 2: 1995-11: B120; H120; Flange11; Web 6.5 (EN 53)

Sikla Beam Sections H 100 and H 120 are hot-dipped-galvanized as per DIN EN ISO 1461.

Tightening torque for typical connections

Bracket Plates FV 100/120

4 x M12 x 45
Tightening torque 50 Nm

2 x M12 x 35
Tightening torque 85 Nm

Assembly Set MS 5P M12 S

Assembly Set MS 5P M12 S
Tightening torque 85 Nm

Working loads in accordance with Eurocode 3

Beam Section 100

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**50.0**
1600	**31.0**
2000	**24.5**
3000	**15.0**
4000	**10.5**
5000	**7.8**
6000	**5.9**

Part List
Sikla-Beam Section H100

F_z [kN] as a permanent load at L/2; Max. bending L/150.

L-Construction 100

L_{max}	200		600		1000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**4.35**	**1.73**	**1.56**	**0.64**	**0.93**	**0.38**
1000	**4.35**	**0.75**	**1.56**	**0.31**	**0.90**	**0.18**
1500	**4.35**	**0.40**	**1.36**	**0.18**	**0.80**	**0.11**

F_z [kN] as a permanent load, F_x [kN] as a variable load, max. deviation H/150; L/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Part List
2 x Beam Bracket TKO 100
1 x Bracket Plates FV 100/120

Frame 100

L_{max}	500		1000		2000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**16.5**	**15.1**	**16.4**	**15.0**	**16.3**	**9.9**
1000	**16.5**	**15.1**	**16.4**	**15.0**	**16.3**	**9.9**
1500	**16.5**	**15.1**	**16.4**	**15.0**	**16.3**	**9.9**

F_z [kN] as a permanent load, F_x [kN] as a variable load;
Max. bending L/150, max. deviation H/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Part List
3 x Beam Bracket TKO 100
1 x End Support STA 100
1 x Bracket Plates FV 100/120

T-Support 100

H_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
200	**13.0**	**13.0**
600	**13.0**	**13.0**
1000	**13.0**	**13.0**
1400	**13.0**	**13.0**
2000	**13.0**	**9.5**

F_z [kN] as a permanent load; F_x [kN] as a variable load, max. deviation H/150;
central load introduction for planned eccentricity ± 50 mm;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Part List
1 x Beam Bracket TKO
1 x T-Adapter TA 100

Working loads in accordance with Eurocode 3

Beam Section 100

L$_{max}$	F$_{z, perm}$
[mm]	[kN]
1000	**50.0**
1600	**31.0**
2000	**24.5**
3000	**15.0**
4000	**10.5**
5000	**7.8**
6000	**5.9**

Part List
Sikla-Beam Section H100

F$_z$ [kN] as a permanent load at L/2, Max. bending L/150.

L-Konstruktion 100

L$_{max}$	200		600		1000	
	F$_{z, perm}$ for		F$_{z, perm}$ for		F$_{z, perm}$ for	
H$_{max}$	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**3.51**	**3.22**	**2.67**	**1.54**	**2.13**	**0.95**
1000	**3.51**	**0.96**	**2.67**	**0.43**	**2.13**	**0.27**
1500	**3.51**	**0.46**	**2.59**	**0.22**	**1.79**	**0.14**

F$_z$ [kN] as a permanent load, F$_x$ [kN] as a variable load; max. deviation H/150; L/150;
Friction coefficient μ$_0$ = 0.2 (for friction in longitudinal direction).

Part List
2 x Beam Bracket TKO 100
1 x Assembly Set MS 5P M12 S

Frame 100

L$_{max}$	500		1000		2000	
	F$_{z, perm}$ for		F$_{z, perm}$ for		F$_{z, perm}$ for	
H$_{max}$	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**8.2**	**8.0**	**8.1**	**7.9**	**8.0**	**7.8**
1000	**8.2**	**8.0**	**8.1**	**7.9**	**8.0**	**7.8**
1500	**8.2**	**8.0**	**8.1**	**7.9**	**8.0**	**7.8**

F$_z$ [kN] as a permanent load, F$_x$ [kN] as a variable load;
Max. bending L/150, max. deviation H/150;
Friction coefficient μ$_0$ = 0.2 (for friction in longitudinal direction).

Part List
3 x Beam Bracket TKO 100
1 x End Support STA 100
2 x Assembly Set MS 5P M12 S

T-Support 100

H$_{max}$	**F$_{z, perm}$** for	
	F$_x$ = 0	F$_x$ = μ$_0$ * F$_z$
[mm]	[kN]	[kN]
200	**13.0**	**13.0**
600	**13.0**	**13.0**
1000	**13.0**	**13.0**
1400	**13.0**	**13.0**
2000	**13.0**	**9.5**

F$_z$ [kN] as a permanent load; F$_x$ [kN] as a variable load, max. deviation H/150;
central load introduction for planned eccentricity ± 50 mm;
Friction coefficient μ$_0$ = 0.2 (for friction in longitudinal direction).

Part List
1 x Beam Bracket TKO 100
1 x T-Adapter TA 100

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Working loads in accordance with Eurocode 3

Beam Bracket 100

Part List
1 Beam Bracket TKO 120

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
Connection with Assembly Set MS 5P M12 S		
200	**3.51**	**3.22**
400	**3.03**	**2.62**
600	**2.67**	**2.21**
800	**2.37**	**1.90**
1000	**2.13**	**1.67**
1400	**1.76**	**1.33**
2000	**1.36**	**0.99**

F_z [kN] as a permanent load, F_x [kN] as a variable load; Max. bending L/150.

Joining Beam Bracket 100

Part List
1 x Joining Beam Bracket QKOq

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
Connection with Assembly Set MS 5P M12 S / M16 S		
300	**0.62**	**0.61**
500	**0.37**	**0.36**
700	**0.24**	**0.24**
Connection with Bracket Plates		
300	**1.48**	**1.48**
500	**0.93**	**0.93**
700	**0.66**	**0.66**

F_z [kN] as a permanent load, F_x [kN] as a variable load, max. deviation L/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Angled Beam Bracket 100

Part List
1 x Beam Bracket TKO 100
1 x Angled Beam Bracket SKO 1
2 x Assembly Set MS 5P M12 S
1 x Bracket Plates FV 100/120

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
Inclined to the horizontal Bracket with 30°		
1000	**2.70**	**2.70**
678	**4.00**	**4.00**

F_z [kN] as a permanent load, F_x [kN] as a variable load, Max. bending L/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

sikla

Working loads in accordance with Eurocode 3

Beam Section 120

Part List
Sikla-Beam Section H120

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**98.5**
1600	**61.5**
2000	**49.5**
3000	**31.5**
4000	**22.3**
5000	**16.8**
6000	**13.0**

F_z [kN] as a permanent load at L/2; Max. bending L/150.

L-Construction 120

Part List
2 x Beam Bracket TKO 120
1 x Bracket Plates FV 100/120

L_{max}	200		600		1000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**4.35**	**2.43**	**1.59**	**0.85**	**0.96**	**0.50**
1000	**4.35**	**1.45**	**1.59**	**0.57**	**0.96**	**0.34**
1500	**4.35**	**0.88**	**1.59**	**0.40**	**0.96**	**0.24**

F_z [kN] as a permanent load, F_x [kN] as a variable load, max. deviation H/150; L/150; Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Frame 120

Part List
3 x Beam Bracket TKO 120
1 x End Support STA 120
1 x Bracket Plates FV 100/120

L_{max}	500		1000		2000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**16.5**	**15.1**	**16.3**	**14.9**	**16.1**	**14.7**
1000	**16.5**	**15.1**	**16.3**	**14.9**	**16.1**	**14.7**
1500	**16.5**	**15.1**	**16.3**	**14.9**	**16.1**	**14.7**

F_z [kN] as a permanent load, F_x [kN] as a variable load;
Max. bending L/150, max. deviation H/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

T-Support 120

Part List
1 x Beam Bracket TKO 120
1 x T-Adapter TA 120

H_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
200	**23.6**	**23.6**
600	**23.6**	**23.6**
1000	**23.6**	**23.6**
1400	**23.6**	**21.6**
2000	**23.6**	**15.9**

F_z [kN] as a permanent load; F_x [kN] as a variable load, max. deviation H/150;
central load introduction for planned eccentricity ± 50 mm;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Working loads in accordance with Eurocode 3

Beam Section 120

L_{max}	$F_{z, perm}$
[mm]	[kN]
1000	**98.5**
1600	**61.5**
2000	**49.5**
3000	**31.5**
4000	**22.3**
5000	**16.8**
6000	**13.0**

Part List
Sikla-Beam Section H120

F_z [kN] as a permanent load at L/2; Max. bending L/150.

L-Construction 120

L_{max}	200		600		1000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**3.61**	**3.35**	**2.86**	**2.41**	**2.34**	**1.86**
1000	**3.61**	**2.59**	**2.86**	**1.23**	**2.34**	**0.78**
1500	**3.61**	**1.18**	**2.86**	**0.62**	**2.34**	**0.39**

F_z [kN] as a permanent load, F_x [kN] as a variable load, max. deviation H/150; L/150; Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Part List
2 x Beam Bracket TKO 120
1 x Assembly Set MS 5P M12 S

Frame 120

L_{max}	500		1000		2000	
	$F_{z, perm}$ for		$F_{z, perm}$ for		$F_{z, perm}$ for	
H_{max}	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
500	**8.2**	**8.0**	**8.0**	**7.8**	**7.8**	**7.6**
1000	**8.2**	**8.0**	**8.0**	**7.8**	**7.8**	**7.6**
1500	**8.2**	**8.0**	**8.0**	**7.8**	**7.8**	**7.6**

F_z [kN] as a permanent load, F_x [kN] as a variable load;
Max. bending L/150, max. deviation H/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Part List
3 x Beam Bracket TKO 120
1 x End Support STA 120
2 x Assembly Set MS 5P M12 S

T-Support 120

H_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
200	**23.6**	**23.6**
600	**23.6**	**23.6**
1000	**23.6**	**23.6**
1400	**23.6**	**21.6**
2000	**23.6**	**15.9**

F_z [kN] as a permanent load; F_x [kN] as a variable load, max. deviation H/150;
central load introduction for planned eccentricity ± 50 mm;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Part List
1 x Beam Bracket TKO 120
1 x T-Adapter TA 120

Working loads in accordance with Eurocode 3

Beam Bracket 120

Part List
1 Beam Bracket TKO 120

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
Connection with Assembly Set MS 5P M12 S		
200	**3.61**	**3.35**
400	**3.20**	**2.81**
600	**2.86**	**2.41**
800	**2.57**	**2.10**
1000	**2.34**	**1.86**
1400	**1.95**	**1.49**
2000	**1.52**	**1.12**

F_z [kN] as a permanent load, F_x [kN] as a variable load, Max. bending L/150.

Joining Beam Bracket 120

Part List
1 x Joining Beam Bracket QKOq

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
Connection with Assembly Set MS 5P M12 S / M16 S		
300	**0.72**	**0.69**
500	**0.44**	**0.40**
700	**0.29**	**0.25**
Connection with Bracket Plates		
300	**1.46**	**1.46**
500	**0.90**	**0.90**
700	**0.62**	**0.62**

F_z [kN] as a permanent load, F_x [kN] as a variable load, max. deviation L/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Angled Beam Bracket 120

Part List
1 x Beam Bracket TKO 120
1 x Angled Beam Bracket SKO 100
2 x Assembly Set MS 5P M12 S
1 x Bracket Plates FV 100/120

L_{max}	$F_{z, perm}$ for	
	$F_x = 0$	$F_x = \mu_0 * F_z$
[mm]	[kN]	[kN]
Inclined to the horizontal Bracket with 30°		
1000	**2.70**	**2.70**
678	**4.00**	**4.00**

F_z [kN] as a permanent load, F_x [kN] as a variable load, Max. bending L/150;
Friction coefficient $\mu_0 = 0.2$ (for friction in longitudinal direction).

Supports (Pipe Shoes)

Application

The Sikla height- adjustable Supports (Pipe Shoes; HV 90, HV 150, HV 200) can be used as a Skid, a Guide or as a Fixed Point. The testing process of the individual Support types and the determination of the direction dependent permissible loads was carried out by the independent testing house TÜV Rheinland (Report No. 69617494/01).

Conformity

The Sikla Simotec Supports (Pipe Shoes) therefore fulfill DIN EN 13480-3 : 2012-11, where particularly in section 13.3.6.1 it is highlighted that the design of Pipe Support components is in accordance with DIN EN 1993.
For every Pipe Support type (incl. required connection kit) a declaration of conformity could be issued in accordance with ISO / IEC 17050.

Installation
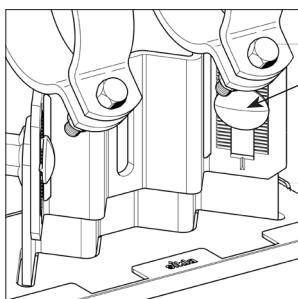
Special bolts for height- adjustable connection of lower and upper Pipe Shoe components.
Tightening torque: 80 Nm

By combining **Pipe Shoe LA or LC** with the steel supporting structure and connecting parts below, it is possible to create a guided pipe shoe or a fixed point pipe shoe:

Guiding Support on siFramo
+ Guiding Bracket FW F ...
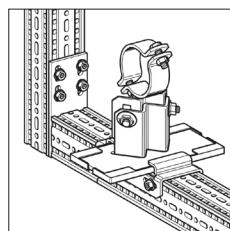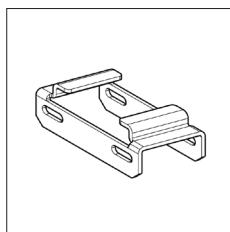
Fixed Point Support on siFramo
+ Fixed Point Bracket XW F ...
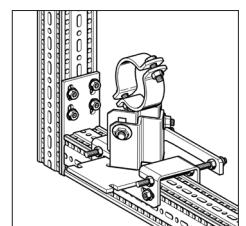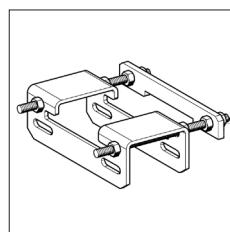
Guiding Support on steel beam section
+ Guiding Set FS ...
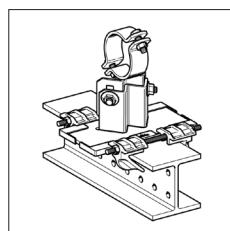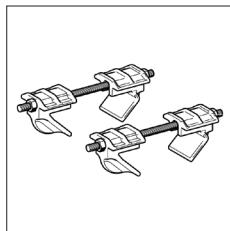
Fixed Point Support on steel beam section
+ Fixed Point Set XS ...
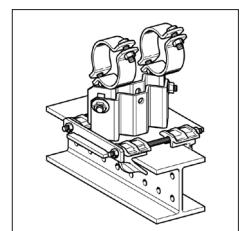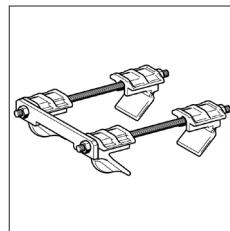
The dimension of the existing steel beam determines the required type of connection kit.
Can be installed on steel beams with flange width ≤ 300 mm and flange thickness ≤ 30 mm.

Notes on the following working load tables

The load values apply to pipe shoes from the HCP range as well as to the high temperature pipe shoes.
The load values are based on room temperature.

For higher temperatures, the corresponding temperature correction values according to the attached table must be taken into account.

Axial fixed point forces F_x can only be attained by the professional use of anti-slip protections (e.g. cleats, stoppers). Those have to be planned during the design of the piping and are on the responsibilty of the piping manufacturer. To use our fixed point sets, fixed point angles and axial stops, it is necessary to dismantle the sliding plate, so a friction value of $\mu = 0.3$ should be taken into account for the pipe static consideration.

The tests for lifting forces - F_z were performed using a combination of a pipe shoe LA - HV an a guiding or fixed points sets.
This results in the values for - F_z in the following combinations:

-       beam connection with the **FS** guiding set or the **XS** fixed point set.
-       cell Connection to siFramo with the guiding bracket **FW F** or the fixed point bracket **XW F**

Further statical product datas are available on request.

Design temperatures of pipe support components

BThe media temperature t_f has an influence on the system of the pipe support components. Acc. to DIN EN 13480-3 *„all components of the pipe support have to be designed based on a range of temperature from 0°C to 80°C. If the operational temperatures of the piping system are outside of this range, the corresponding values have to be specified."*

During the design of pipe supports, components are basically assigned into 2 groups: inside and outside of insulation.

For all components beeing placed inside of an insulation the following values apply[2]:

Kind of component	Design temperature t of the pipe support (depending on the media temperature t_f)
Straps, pipe clamps and welded components with extensive contact to the piping system	$t = t_f$
Components not in contact with the piping system	$t = t_f - 20\ °C$
Bolts, nuts, etc.	$t = t_f - 30\ °C$

For all components beeing placed outside of the insulation the following values apply[3]:

Kind of component	Media temperature t_f	Design temperature t of the pipe support
Components in direct contact with the pipe	$t_f > 80\ °C$	$t = \frac{1}{2} \times t_f$ (min. 80°C)
	$t_f \leq 80\ °C$	$t = 80\ °C$
Bolts, nuts, etc.	$t_f > 80\ °C$	$t = \frac{1}{3} \times t_f$ (min. 80 °C)
	$t_f \leq 80\ °C$	$t = 80\ °C$

For clarification of the tables see the graphical illustration[4]:
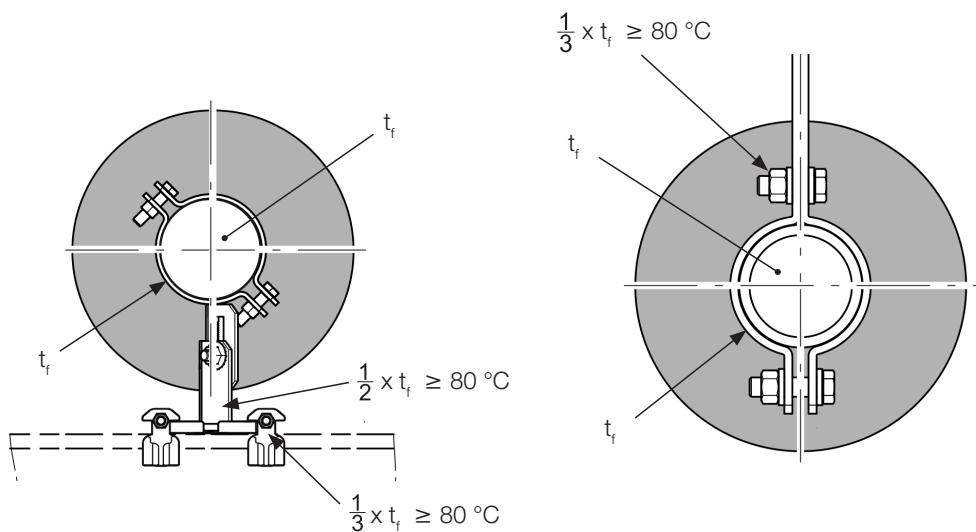
[1] Compare EN 13480-3:2014-12, Table 13.3.1
[2] Compare EN 13480-3:2014-12, Chapter 13.3.2.2-1
[3] Compare EN 13480-3:2014-12, Table 13.3.2-2
[4] Compare EN 13480-3:2014-12, Image 13.3.2-1

Correction values for pipe support components

The working loads of the SIKLA pipe shoes LA, LC and LD as well as for the rod hangers are valid for component temperatures up to 80°C. If components are getting warmer than 80 °C in service, the stated working loads have to be added with the correction value k to reduce the working loads. Because SIKLA pipe support components are manufactured with steel grade S235JR (or higher), the appropriate correction value has to be applied.

Correction val k depending on the temperature:
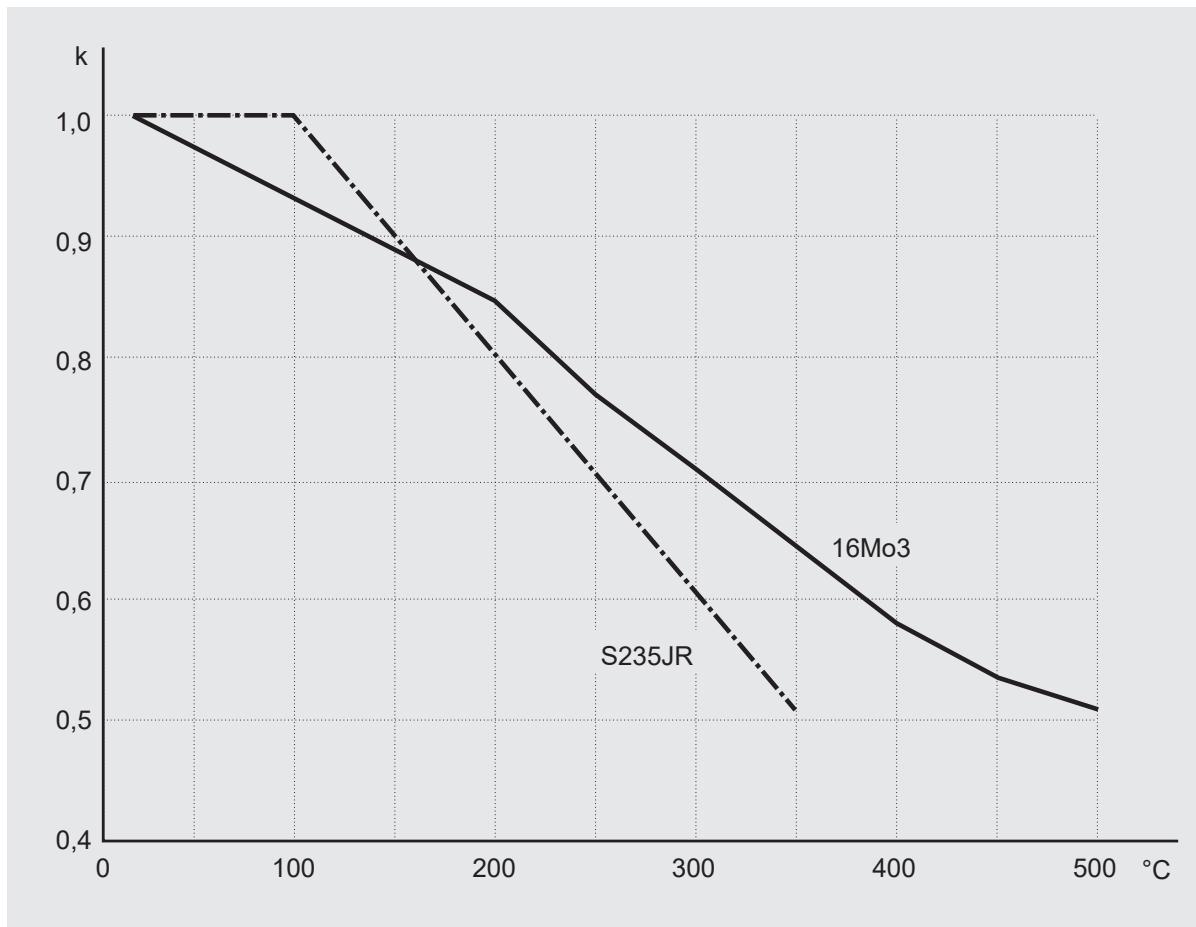
Correction values and practical application

$$F_{perm} \geq F_{exist}$$

$$(F_{perm} = F_{R,20°C} * k) \geq F_{exist}$$

F_{perm} permissible load of Sikla pipe shoe at temperature t_x [°C]

F_{exist} pipe load according to structural analysis

$F_{R,20°C}$ permissible load of Sikla pipe shoe at 20 °C

k   correction value

Temperature t [°C}	Correction value k	
	16Mo3	S235JR
20	1.00	1.00
80	0.95	1.00
100	0.93	1.00
150	0.89	0.90
200	0.85	0.81
250	0.77	0.71
300	0.71	0.61
350	0.64	0.52
400	0.58	-
450	0.53	-
500	0.51	-

Guided support LA + FS

Guided support LA + FW F

Fixed support LA + XS

Fixed support LA + XW F
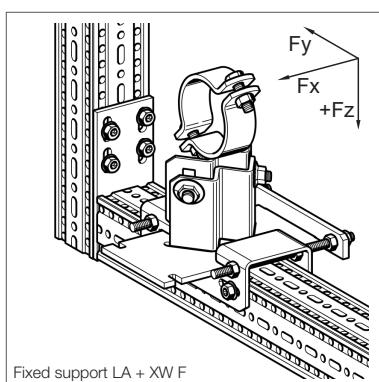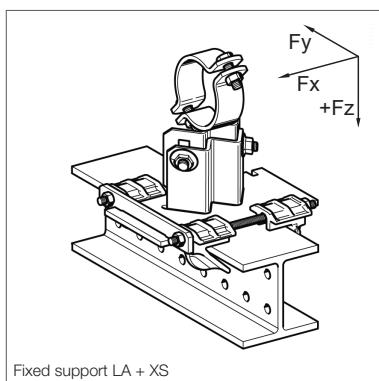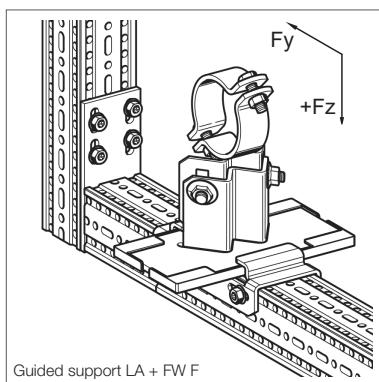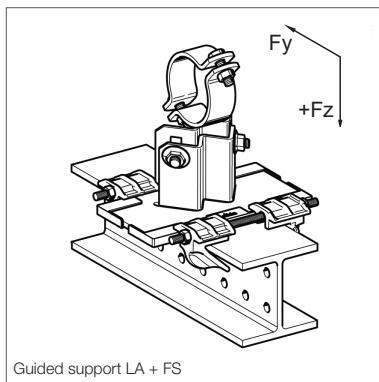
Working loads for Pipe Shoes LA, LC and LD - HV / DN sizes

Pipe Shoe LA - HV + Guiding Set FS resp. Fixed Point Set XS
Pipe Shoe LA - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

DN sizes

* only for fixed supports
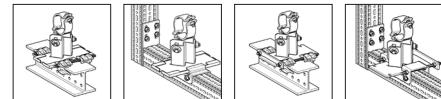
LA - HV	DN	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F [kN]	- F_z XS 80/120 [kN]	- F_z XW F [kN]
90	≤ 25	9.7	7.4	15.4	14	6.1	15.4	15.4
90	32	9.4	7.1	15.4	14	6.1	15.4	15.4
90	40	9.2	7	15.4	14	6.1	15.4	15.4
90	50	8.8	6.7	15.4	14	6.1	15.4	15.4
90	65	8.3	6.2	15.4	14	6.1	15.4	15.4
90	80	7.9	5.9	15.4	14	6.1	15.4	15.4
90	100	7.1	5.1	15.4	14	6.1	15.4	15.4
90	125	6.3	4.4	15.4	14	6.1	15.4	15.4
90	150	5.4	3.6	15.4	14	6.1	15.4	15.4
150	≤ 25	8.1	5.4	15.4	14	6.1	15.4	15.4
150	32	8	5.2	15.4	14	6.1	15.4	15.4
150	40	7.9	5.1	15.4	14	6.1	15.4	15.4
150	50	7.7	4.8	15.4	14	6.1	15.4	15.4
150	65	7.4	4.5	15.4	14	6.1	15.4	15.4
150	80	7.3	4.3	15.4	14	6.1	15.4	15.4
150	100	6.9	3.7	15.4	14	6.1	15.4	15.4
150	125	6.5	3.2	15.4	14	6.1	15.4	15.4
150	150	6.1	2.6	15.4	14	6.1	15.4	15.4
200	≤ 25	6.6	4.9	15.4	14	6.1	15.4	15.4
200	32	6.4	4.7	15.4	14	6.1	15.4	15.4
200	40	6.4	4.7	15.4	14	6.1	15.4	15.4
200	50	6.3	4.5	15.4	14	6.1	15.4	15.4
200	65	6.1	4.2	15.4	14	6.1	15.4	15.4
200	80	6	4.1	15.4	14	6.1	15.4	15.4
200	100	5.7	3.7	15.4	14	6.1	15.4	15.4
200	125	5.4	3.3	15.4	14	6.1	15.4	15.4
200	150	5.1	2.8	15.4	14	6.1	15.4	15.4
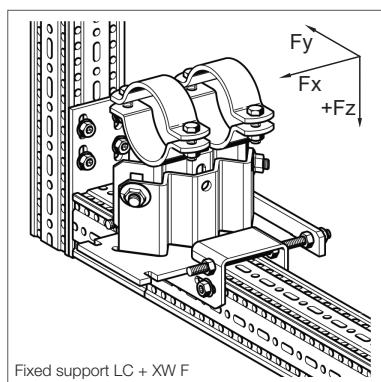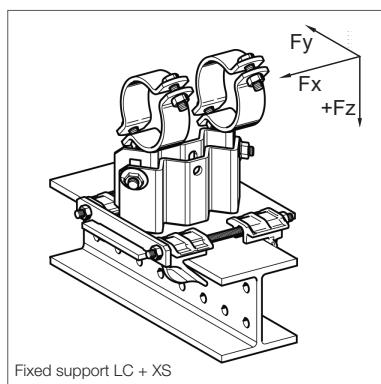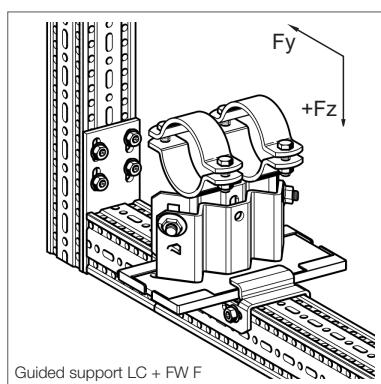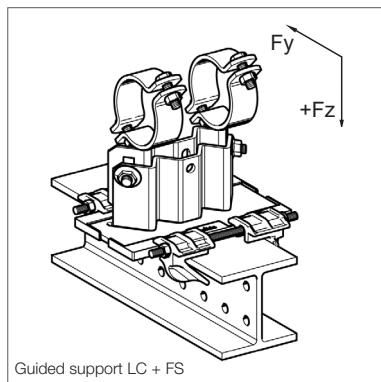
TÜVRheinland LGA
tested
Quality

Guided support LC + FS

Guided support LC + FW F

Fixed support LC + XS

Fixed support LC + XW F

**Pipe Shoe LC - HV + Guiding Set FS resp. Fixed Point Set XS**
Pipe Shoe LC - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

DN sizes

* only for fixed supports
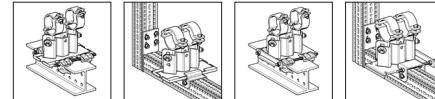
LC - HV	DN	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F [kN]	- F_z XS 80/120 [kN]	- F_z XW F [kN]
90	≤ 25	11.4	6.4	17.0	14	6.1	17	17
90	32	11.3	6.2	17.0	14	6.1	17	17
90	40	11.3	6.1	17.0	14	6.1	17	17
90	50	11.2	5.9	17.0	14	6.1	17	17
90	65	11.1	5.6	17.0	14	6.1	17	17
90	80	11.1	5.4	17.0	14	6.1	17	17
90	100	10.9	5	17.0	14	6.1	17	17
90	125	10.8	4.6	17.0	14	6.1	17	17
90	150	10.6	4	17.0	14	6.1	17	17
90	200	10.3	3.1	17.0	14	6.1	17	17
90	250	9.9	2.2	17.0	14	6.1	17	17
90	300	9.6	1.4	17.0	14	6.1	17	17
150	≤ 25	8.6	4.7	17.0	14	6.1	17	17
150	32	8.6	4.6	17.0	14	6.1	17	17
150	40	8.6	4.6	17.0	14	6.1	17	17
150	50	8.5	4.4	17.0	14	6.1	17	17
150	65	8.5	4.2	17.0	14	6.1	17	17
150	80	8.5	4.1	17.0	14	6.1	17	17
150	100	8.4	3.8	17.0	14	6.1	17	17
150	125	8.3	3.5	17.0	14	6.1	17	17
150	150	8.3	3.2	17.0	14	6.1	17	17
150	200	8.1	2.7	17.0	14	6.1	17	17
150	250	8	2.1	17.0	14	6.1	17	17
150	300	7.9	1.5	17.0	14	6.1	17	17
200	≤ 25	7.4	5	17.0	14	6.1	17	17
200	32	7.4	4.9	17.0	14	6.1	17	17
200	40	7.4	4.8	17.0	14	6.1	17	17
200	50	7.4	4.7	17.0	14	6.1	17	17
200	65	7.3	4.5	17.0	14	6.1	17	17
200	80	7.3	4.4	17.0	14	6.1	17	17
200	100	7.3	4.1	17.0	14	6.1	17	17
200	125	7.2	3.8	17.0	14	6.1	17	17
200	150	7.2	3.5	17.0	14	6.1	17	17
200	200	7.1	2.9	17.0	14	6.1	17	17
200	250	7	2.3	17.0	14	6.1	17	17
200	300	7	1.7	17.0	14	6.1	17	17
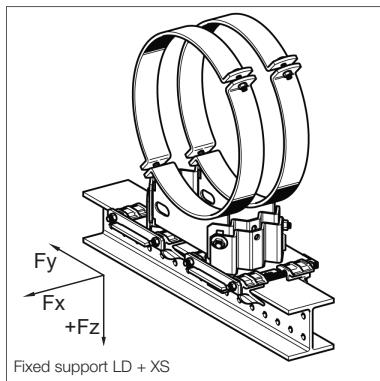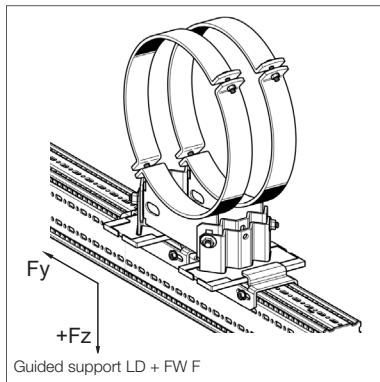
TÜVRheinland® LGA® tested Quality

Guided support LD + FW F

Fixed support LD + XS

Pipe Shoe LD - HV + 2 x Guiding Set FS resp. 2 x Fixed Point Set XS
Pipe Shoe LD - HV + 2 x Guiding Bracket FW F resp. 2 x Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

DN sizes

* only for fixed supports
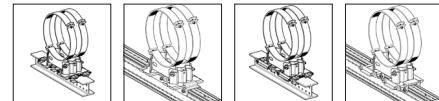
LD - HV	DN	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F [kN]	- F_z XS 80/120 [kN]	- F_z XW F [kN]
90	200	37.2	12.9	32.8	28	12.2	32.8	32.8
90	250	37.2	12.9	32.8	28	12.2	32.8	32.8
90	300	37.2	12.9	32.8	28	12.2	32.8	32.8
90	350	37.2	13.1	32.8	28	12.2	32.8	32.8
90	400	31.6	11.9	32.8	28	12.2	32.8	32.8
90	500	20.8	9.4	32.8	28	12.2	32.8	32.8
90	600	9.5	7.2	32.8	28	12.2	32.8	32.8
150	200	30.8	12.7	32.8	28	12.2	32.8	32.8
150	250	30.8	12.7	32.8	28	12.2	32.8	32.8
150	300	30.8	12.7	32.8	28	12.2	32.8	32.8
150	350	30.8	12.9	32.8	28	12.2	32.8	32.8
150	400	26.3	11.5	32.8	28	12.2	32.8	32.8
150	500	17.3	8.8	32.8	28	12.2	32.8	32.8
150	600	8.1	6.3	32.8	28	12.2	32.8	32.8
200	200	24.6	11.1	32.8	28	12.2	32.8	32.8
200	250	24.6	11.1	32.8	28	12.2	32.8	32.8
200	300	24.6	11.1	32.8	28	12.2	32.8	32.8
200	350	25	11.3	32.8	28	12.2	32.8	32.8
200	400	21.6	10.2	32.8	28	12.2	32.8	32.8
200	500	15.7	8.1	32.8	28	12.2	32.8	32.8
200	600	9.5	6.1	32.8	28	12.2	32.8	32.8

sikla

Guided support LA + FS

Guided support LA + FW F

Fixed support LA + XS

Fixed support LA + XW F
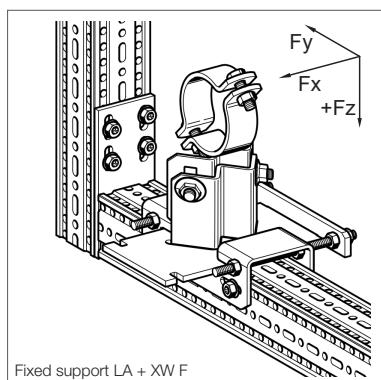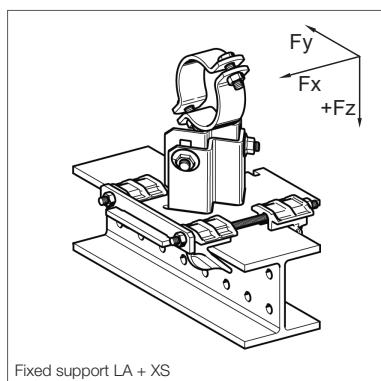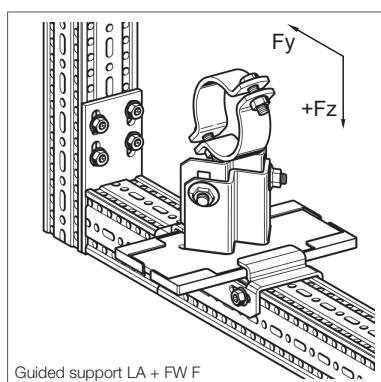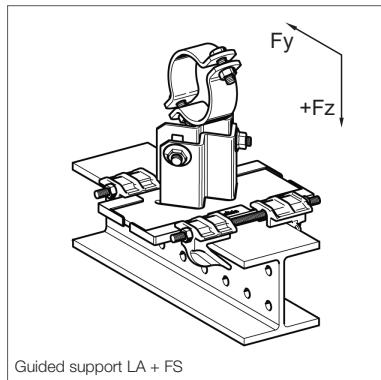
Working loads for Pipe Shoes LA, LC and LD - HV
**Pipe Shoe LA - HV + Guiding Set FS resp. Fixed Point Set XS**
Pipe Shoe LA - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports
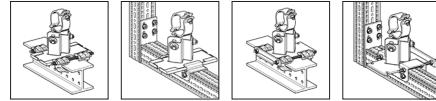
LA - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
90	14-18	9.7	7.4	15.4	14	6.1	15.4	15.4
90	18-22	9.7	7.4	15.4	14	6.1	15.4	15.4
90	23-27	9.7	7.4	15.4	14	6.1	15.4	15.4
90	26-30	9.7	7.4	15.4	14	6.1	15.4	15.4
90	30-34	9.7	7.4	15.4	14	6.1	15.4	15.4
90	35-39	9.5	7.3	15.4	14	6.1	15.4	15.4
90	40-44	9.4	7.1	15.4	14	6.1	15.4	15.4
90	45-49	9.2	7	15.4	14	6.1	15.4	15.4
90	50-54	9.1	6.9	15.4	14	6.1	15.4	15.4
90	55-59	8.9	6.7	15.4	14	6.1	15.4	15.4
90	57-61	8.8	6.7	15.4	14	6.1	15.4	15.4
90	62-66	8.7	6.5	15.4	14	6.1	15.4	15.4
90	67-71	8.5	6.4	15.4	14	6.1	15.4	15.4
90	72-77	8.3	6.2	15.4	14	6.1	15.4	15.4
90	78-83	8.1	6	15.4	14	6.1	15.4	15.4
90	84-89	7.9	5.9	15.4	14	6.1	15.4	15.4
90	89-95	7.7	5.7	15.4	14	6.1	15.4	15.4
90	96-102	7.5	5.5	15.4	14	6.1	15.4	15.4
90	102-109	7.3	5.3	15.4	14	6.1	15.4	15.4
90	109-115	7.1	5.1	15.4	14	6.1	15.4	15.4
90	115-122	6.9	4.9	15.4	14	6.1	15.4	15.4
90	122-128	6.7	4.8	15.4	14	6.1	15.4	15.4
90	128-134	6.5	4.6	15.4	14	6.1	15.4	15.4
90	134-140	6.3	4.4	15.4	14	6.1	15.4	15.4
90	140-146	6.1	4.3	15.4	14	6.1	15.4	15.4
90	146-152	5.9	4.1	15.4	14	6.1	15.4	15.4
90	152-158	5.7	3.9	15.4	14	6.1	15.4	15.4
90	157-163	5.5	3.8	15.4	14	6.1	15.4	15.4
90	163-169	5.4	3.6	15.4	14	6.1	15.4	15.4
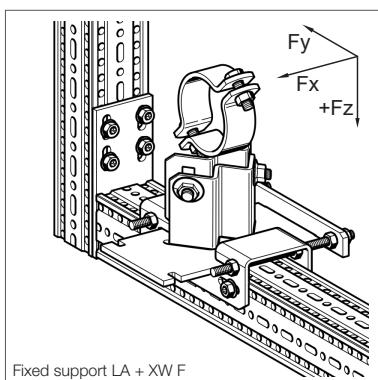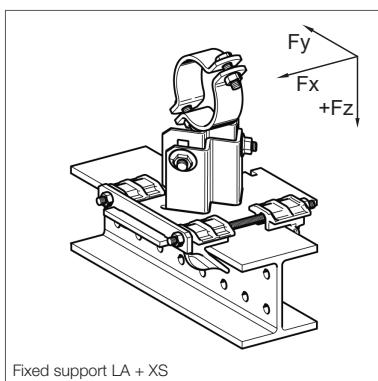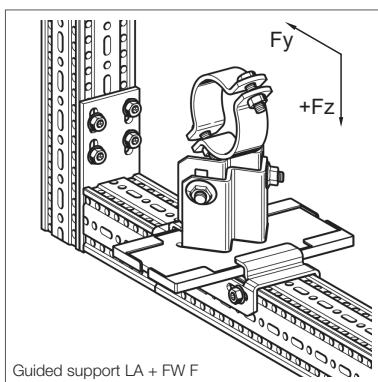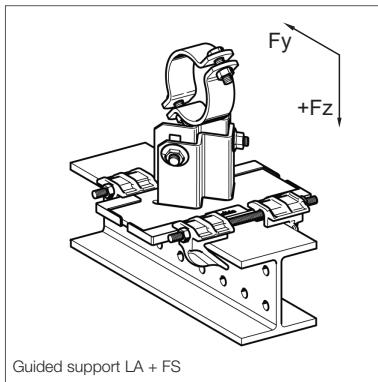
TÜVRheinland LGA
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Quality

09/2024

Guided support LA + FS

Guided support LA + FW F

Fixed support LA + XS


Fixed support LA + XW F

Pipe Shoe LA - HV + Guiding Set FS resp. Fixed Point Set XS
**Pipe Shoe LA - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F**

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports
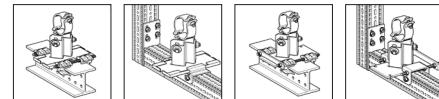
LA - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
150	14-18	8.1	5.4	15.4	14	6.1	15.4	15.4
150	18-22	8.1	5.4	15.4	14	6.1	15.4	15.4
150	23-27	8.1	5.4	15.4	14	6.1	15.4	15.4
150	26-30	8.1	5.4	15.4	14	6.1	15.4	15.4
150	30-34	8.1	5.4	15.4	14	6.1	15.4	15.4
150	35-39	8.1	5.3	15.4	14	6.1	15.4	15.4
150	40-44	8	5.2	15.4	14	6.1	15.4	15.4
150	45-49	7.9	5.1	15.4	14	6.1	15.4	15.4
150	50-54	7.8	5	15.4	14	6.1	15.4	15.4
150	55-59	7.7	4.9	15.4	14	6.1	15.4	15.4
150	57-61	7.7	4.8	15.4	14	6.1	15.4	15.4
150	62-66	7.6	4.7	15.4	14	6.1	15.4	15.4
150	67-71	7.5	4.6	15.4	14	6.1	15.4	15.4
150	72-77	7.4	4.5	15.4	14	6.1	15.4	15.4
150	78-83	7.4	4.4	15.4	14	6.1	15.4	15.4
150	84-89	7.3	4.3	15.4	14	6.1	15.4	15.4
150	89-95	7.2	4.1	15.4	14	6.1	15.4	15.4
150	96-102	7.1	4	15.4	14	6.1	15.4	15.4
150	102-109	6.9	3.9	15.4	14	6.1	15.4	15.4
150	109-115	6.9	3.7	15.4	14	6.1	15.4	15.4
150	115-122	6.7	3.6	15.4	14	6.1	15.4	15.4
150	122-128	6.6	3.5	15.4	14	6.1	15.4	15.4
150	128-134	6.5	3.3	15.4	14	6.1	15.4	15.4
150	134-140	6.5	3.2	15.4	14	6.1	15.4	15.4
150	140-146	6.4	3.1	15.4	14	6.1	15.4	15.4
150	146-152	6.3	3	15.4	14	6.1	15.4	15.4
150	152-158	6.2	2.8	15.4	14	6.1	15.4	15.4
150	157-163	6.1	2.7	15.4	14	6.1	15.4	15.4
150	163-169	6.1	2.6	15.4	14	6.1	15.4	15.4
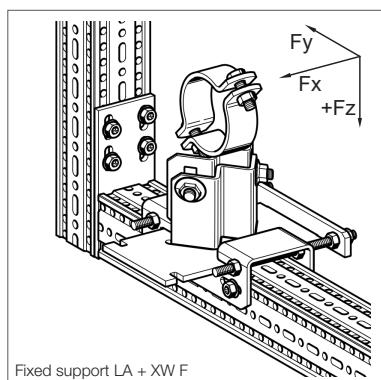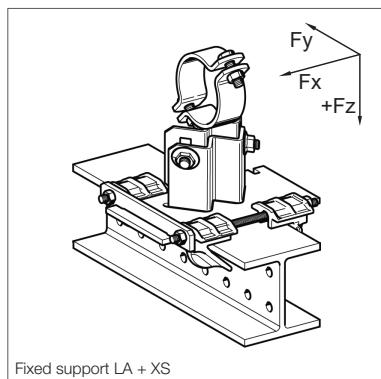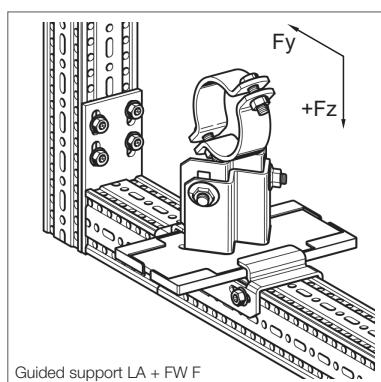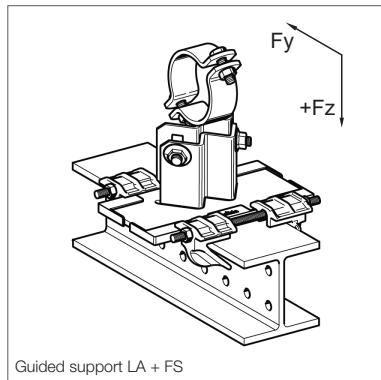
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LGA
tested
Quality

Guided support LA + FS


Guided support LA + FW F

Fixed support LA + XS

Fixed support LA + XW F

Pipe Shoe LA - HV + Guiding Set FS resp. Fixed Point Set XS
Pipe Shoe LA - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports
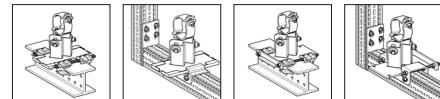
LA - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
200	14-18	6.6	4.9	15.4	14	6.1	15.4	15.4
200	18-22	6.6	4.9	15.4	14	6.1	15.4	15.4
200	23-27	6.6	4.9	15.4	14	6.1	15.4	15.4
200	26-30	6.6	4.9	15.4	14	6.1	15.4	15.4
200	30-34	6.6	4.9	15.4	14	6.1	15.4	15.4
200	35-39	6.5	4.8	15.4	14	6.1	15.4	15.4
200	40-44	6.4	4.7	15.4	14	6.1	15.4	15.4
200	45-49	6.4	4.7	15.4	14	6.1	15.4	15.4
200	50-54	6.3	4.6	15.4	14	6.1	15.4	15.4
200	55-59	6.3	4.5	15.4	14	6.1	15.4	15.4
200	57-61	6.3	4.5	15.4	14	6.1	15.4	15.4
200	62-66	6.2	4.4	15.4	14	6.1	15.4	15.4
200	67-71	6.2	4.3	15.4	14	6.1	15.4	15.4
200	72-77	6.1	4.2	15.4	14	6.1	15.4	15.4
200	78-83	6.0	4.1	15.4	14	6.1	15.4	15.4
200	84-89	6.0	4.1	15.4	14	6.1	15.4	15.4
200	89-95	5.9	4.0	15.4	14	6.1	15.4	15.4
200	96-102	5.8	3.9	15.4	14	6.1	15.4	15.4
200	102-109	5.7	3.7	15.4	14	6.1	15.4	15.4
200	109-115	5.7	3.7	15.4	14	6.1	15.4	15.4
200	115-122	5.6	3.5	15.4	14	6.1	15.4	15.4
200	122-128	5.5	3.4	15.4	14	6.1	15.4	15.4
200	128-134	5.5	3.4	15.4	14	6.1	15.4	15.4
200	134-140	5.4	3.3	15.4	14	6.1	15.4	15.4
200	140-146	5.3	3.2	15.4	14	6.1	15.4	15.4
200	146-152	5.3	3.1	15.4	14	6.1	15.4	15.4
200	152-158	5.2	3.0	15.4	14	6.1	15.4	15.4
200	157-163	5.2	2.9	15.4	14	6.1	15.4	15.4
200	163-169	5.1	2.8	15.4	14	6.1	15.4	15.4
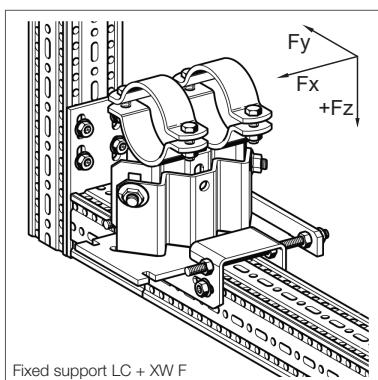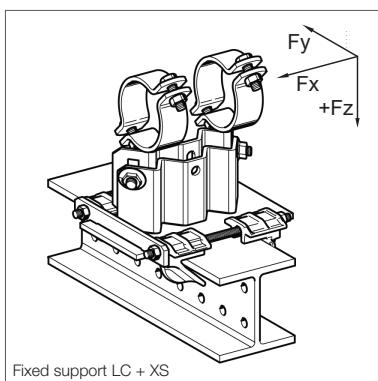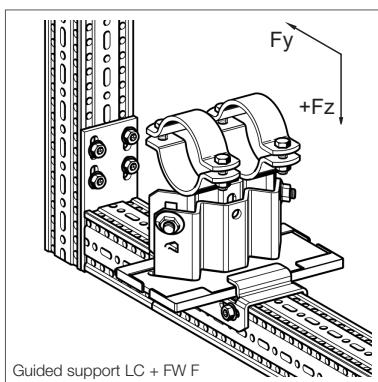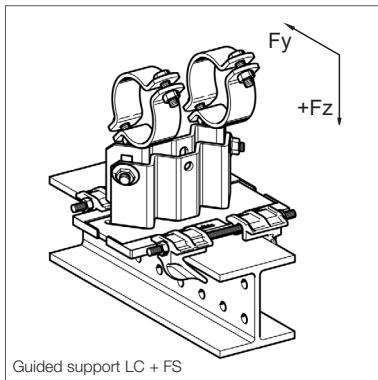
Guided support LC + FS

Guided support LC + FW F


Fixed support LC + XS

Fixed support LC + XW F

Pipe Shoe LC - HV + Guiding Set FS bzw. Fixed supportset XS
### Pipe Shoe LC - HV + Guiding Bracket FW F bzw. Fixed supportwinkel XW F

Bemessungsgrandlage EC 3, Lastwerte for Lager im Auslieferungszustand.
Beachten Sie bei den Nutzlasten die Hinweise auf Seite 46.

* only for fixed supports
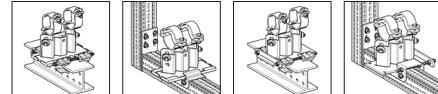
LC - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
90	14-18	11.4	6.4	17	14	6.1	17	17
90	18-22	11.4	6.4	17	14	6.1	17	17
90	23-27	11.4	6.4	17	14	6.1	17	17
90	26-30	11.4	6.4	17	14	6.1	17	17
90	30-34	11.4	6.4	17	14	6.1	17	17
90	35-39	11.4	6.3	17	14	6.1	17	17
90	40-44	11.3	6.2	17	14	6.1	17	17
90	45-49	11.3	6.1	17	14	6.1	17	17
90	50-54	11.3	6.0	17	14	6.1	17	17
90	55-59	11.2	6.0	17	14	6.1	17	17
90	57-61	11.2	5.9	17	14	6.1	17	17
90	62-66	11.2	5.8	17	14	6.1	17	17
90	67-71	11.2	5.8	17	14	6.1	17	17
90	72-77	11.1	5.6	17	14	6.1	17	17
90	78-83	11.1	5.5	17	14	6.1	17	17
90	84-89	11.1	5.4	17	14	6.1	17	17
90	89-95	11.0	5.3	17	14	6.1	17	17
90	96-102	11.0	5.2	17	14	6.1	17	17
90	102-109	10.9	5.1	17	14	6.1	17	17
90	109-115	10.9	5.0	17	14	6.1	17	17
90	115-122	10.9	4.9	17	14	6.1	17	17
90	122-128	10.8	4.8	17	14	6.1	17	17
90	128-134	10.8	4.7	17	14	6.1	17	17
90	134-140	10.8	4.6	17	14	6.1	17	17
90	140-146	10.7	4.4	17	14	6.1	17	17
90	146-152	10.7	4.3	17	14	6.1	17	17
90	152-158	10.6	4.2	17	14	6.1	17	17
90	157-163	10.6	4.2	17	14	6.1	17	17
90	163-169	10.6	4.0	17	14	6.1	17	17
90	168-174	10.5	4.0	17	14	6.1	17	17
90	174-180	10.5	3.9	17	14	6.1	17	17
90	181-187	10.5	3.7	17	14	6.1	17	17
90	188-194	10.4	3.6	17	14	6.1	17	17
90	194-200	10.4	3.5	17	14	6.1	17	17
90	201-207	10.3	3.4	17	14	6.1	17	17
90	208-214	10.3	3.3	17	14	6.1	17	17
90	215-221	10.3	3.1	17	14	6.1	17	17
90	222-229	10.2	3.0	17	14	6.1	17	17
90	230-237	10.2	2.9	17	14	6.1	17	17
90	238-245	10.1	2.7	17	14	6.1	17	17
90	246-254	10.1	2.6	17	14	6.1	17	17
90	255-262	10.0	2.4	17	14	6.1	17	17
90	259-266	10.0	2.4	17	14	6.1	17	17
90	266-273	9.9	2.2	17	14	6.1	17	17
90	274-282	9.9	2.1	17	14	6.1	17	17
90	283-291	9.8	1.9	17	14	6.1	17	17
90	292-300	9.8	1.8	17	14	6.1	17	17
90	301-309	9.7	1.6	17	14	6.1	17	17
90	310-317	9.7	1.5	17	14	6.1	17	17
90	317-324	9.6	1.4	17	14	6.1	17	17
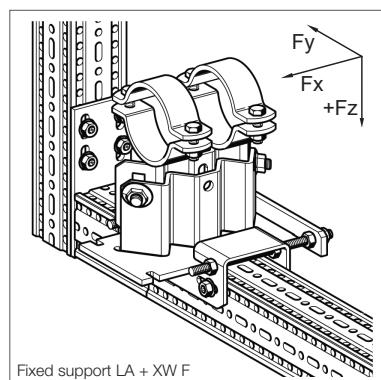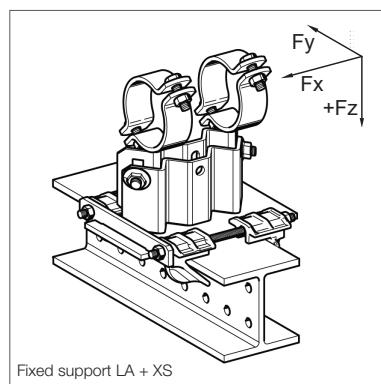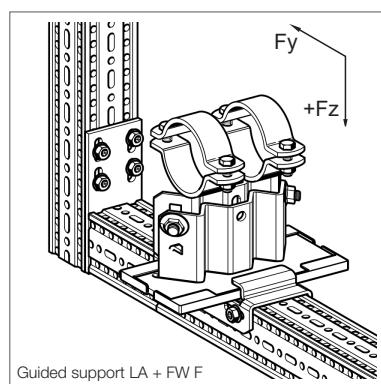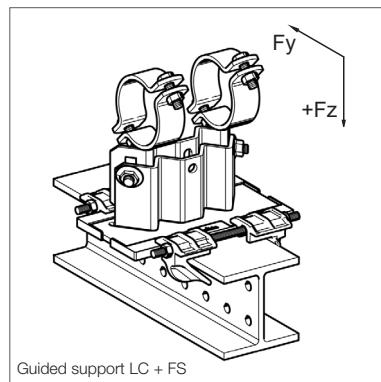
Guided support LC + FS

Guided support LA + FW F


Fixed support LA + XS

Fixed support LA + XW F

Pipe Shoe LC - HV + Guiding Set FS bzw. Fixed supportset XS
**Pipe Shoe LC - HV + Guiding Bracket FW F bzw. Fixed supportwinkel XW F**

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports
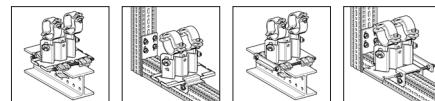
LC - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
150	14-18	8.6	4.7	17	14	6.1	17	17
150	18-22	8.6	4.7	17	14	6.1	17	17
150	23-27	8.6	4.7	17	14	6.1	17	17
150	26-30	8.6	4.7	17	14	6.1	17	17
150	30-34	8.6	4.7	17	14	6.1	17	17
150	35-39	8.6	4.7	17	14	6.1	17	17
150	40-44	8.6	4.6	17	14	6.1	17	17
150	45-49	8.6	4.6	17	14	6.1	17	17
150	50-54	8.5	4.5	17	14	6.1	17	17
150	55-59	8.5	4.4	17	14	6.1	17	17
150	57-61	8.5	4.4	17	14	6.1	17	17
150	62-66	8.5	4.4	17	14	6.1	17	17
150	67-71	8.5	4.3	17	14	6.1	17	17
150	72-77	8.5	4.2	17	14	6.1	17	17
150	78-83	8.5	4.2	17	14	6.1	17	17
150	84-89	8.5	4.1	17	14	6.1	17	17
150	89-95	8.4	4.0	17	14	6.1	17	17
150	96-102	8.4	4.0	17	14	6.1	17	17
150	102-109	8.4	3.9	17	14	6.1	17	17
150	109-115	8.4	3.8	17	14	6.1	17	17
150	115-122	8.4	3.7	17	14	6.1	17	17
150	122-128	8.4	3.7	17	14	6.1	17	17
150	128-134	8.3	3.6	17	14	6.1	17	17
150	134-140	8.3	3.5	17	14	6.1	17	17
150	140-146	8.3	3.5	17	14	6.1	17	17
150	146-152	8.3	3.4	17	14	6.1	17	17
150	152-158	8.3	3.3	17	14	6.1	17	17
150	157-163	8.3	3.3	17	14	6.1	17	17
150	163-169	8.3	3.2	17	14	6.1	17	17
150	168-174	8.2	3.2	17	14	6.1	17	17
150	174-180	8.2	3.1	17	14	6.1	17	17
150	181-187	8.2	3.0	17	14	6.1	17	17
150	188-194	8.2	3.0	17	14	6.1	17	17
150	194-200	8.2	2.9	17	14	6.1	17	17
150	201-207	8.2	2.8	17	14	6.1	17	17
150	208-214	8.2	2.7	17	14	6.1	17	17
150	215-221	8.1	2.7	17	14	6.1	17	17
150	222-229	8.1	2.6	17	14	6.1	17	17
150	230-237	8.1	2.5	17	14	6.1	17	17
150	238-245	8.1	2.4	17	14	6.1	17	17
150	246-254	8.1	2.3	17	14	6.1	17	17
150	255-262	8.0	2.2	17	14	6.1	17	17
150	259-266	8.0	2.2	17	14	6.1	17	17
150	266-273	8.0	2.1	17	14	6.1	17	17
150	274-282	8.0	2.0	17	14	6.1	17	17
150	283-291	8.0	1.9	17	14	6.1	17	17
150	292-300	7.9	1.8	17	14	6.1	17	17
150	301-309	7.9	1.7	17	14	6.1	17	17
150	310-317	7.9	1.6	17	14	6.1	17	17
150	317-324	7.9	1.5	17	14	6.1	17	17

tested Quality

Guided support LC + FS

Guided support LC + FW F


Fixed support LC + XS

Fixed support LC + XW F

Pipe Shoe LC - HV + Guiding Set FS resp. Fixed Point Set XS
Pipe Shoe LC - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports
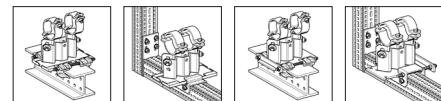
LC - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
200	14-18	7.4	5.0	17	14	6.1	17	17
200	18-22	7.4	5.0	17	14	6.1	17	17
200	23-27	7.4	5.0	17	14	6.1	17	17
200	26-30	7.4	5.0	17	14	6.1	17	17
200	30-34	7.4	5.0	17	14	6.1	17	17
200	35-39	7.4	4.9	17	14	6.1	17	17
200	40-44	7.4	4.9	17	14	6.1	17	17
200	45-49	7.4	4.8	17	14	6.1	17	17
200	50-54	7.4	4.8	17	14	6.1	17	17
200	55-59	7.4	4.7	17	14	6.1	17	17
200	57-61	7.4	4.7	17	14	6.1	17	17
200	62-66	7.3	4.6	17	14	6.1	17	17
200	67-71	7.3	4.6	17	14	6.1	17	17
200	72-77	7.3	4.5	17	14	6.1	17	17
200	78-83	7.3	4.4	17	14	6.1	17	17
200	84-89	7.3	4.4	17	14	6.1	17	17
200	89-95	7.3	4.3	17	14	6.1	17	17
200	96-102	7.3	4.2	17	14	6.1	17	17
200	102-109	7.3	4.1	17	14	6.1	17	17
200	109-115	7.3	4.1	17	14	6.1	17	17
200	115-122	7.3	4.0	17	14	6.1	17	17
200	122-128	7.3	3.9	17	14	6.1	17	17
200	128-134	7.2	3.9	17	14	6.1	17	17
200	134-140	7.2	3.8	17	14	6.1	17	17
200	140-146	7.2	3.7	17	14	6.1	17	17
200	146-152	7.2	3.6	17	14	6.1	17	17
200	152-158	7.2	3.6	17	14	6.1	17	17
200	157-163	7.2	3.5	17	14	6.1	17	17
200	163-169	7.2	3.5	17	14	6.1	17	17
200	168-174	7.2	3.4	17	14	6.1	17	17
200	174-180	7.2	3.3	17	14	6.1	17	17
200	181-187	7.2	3.2	17	14	6.1	17	17
200	188-194	7.2	3.2	17	14	6.1	17	17
200	194-200	7.1	3.1	17	14	6.1	17	17
200	201-207	7.1	3.0	17	14	6.1	17	17
200	208-214	7.1	2.9	17	14	6.1	17	17
200	215-221	7.1	2.9	17	14	6.1	17	17
200	222-229	7.1	2.8	17	14	6.1	17	17
200	230-237	7.1	2.7	17	14	6.1	17	17
200	238-245	7.1	2.6	17	14	6.1	17	17
200	246-254	7.1	2.5	17	14	6.1	17	17
200	255-262	7.0	2.4	17	14	6.1	17	17
200	259-266	7.0	2.3	17	14	6.1	17	17
200	266-273	7.0	2.3	17	14	6.1	17	17
200	274-282	7.0	2.2	17	14	6.1	17	17
200	283-291	7.0	2.1	17	14	6.1	17	17
200	292-300	7.0	2.0	17	14	6.1	17	17
200	301-309	7.0	1.8	17	14	6.1	17	17
200	310-317	7.0	1.8	17	14	6.1	17	17
200	317-324	7.0	1.7	17	14	6.1	17	17
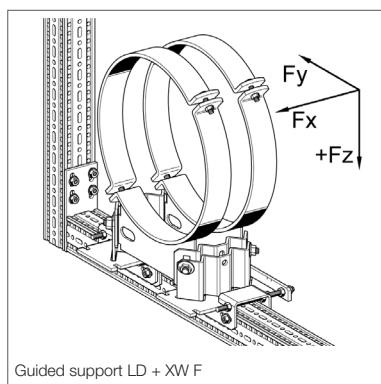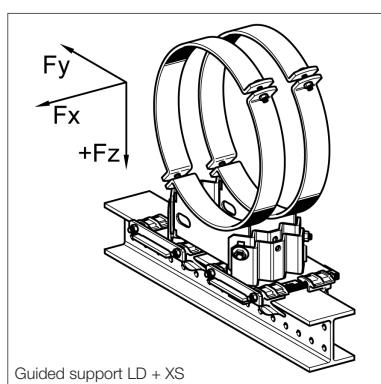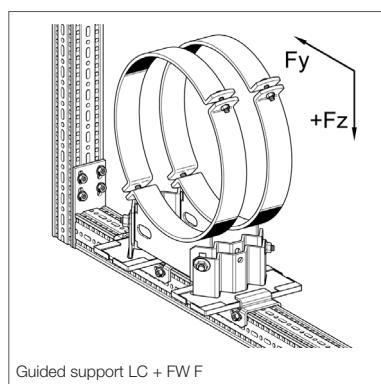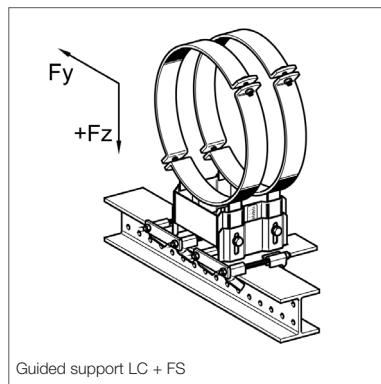
Guided support LC + FS

Guided support LC + FW F

Guided support LD + XS

Guided support LD + XW F

Pipe Shoe LC - HV + Guiding Set FS resp. Fixed Point Set XS
**Pipe Shoe LC - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F**

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports
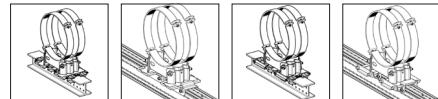
LD - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
90	215-221	37.2	12.9	32.8	28	12.2	32.8	32.8
90	222-229	37.2	12.9	32.8	28	12.2	32.8	32.8
90	230-237	37.2	12.9	32.8	28	12.2	32.8	32.8
90	238-245	37.2	12.9	32.8	28	12.2	32.8	32.8
90	246-254	37.2	12.9	32.8	28	12.2	32.8	32.8
90	255-262	37.2	12.9	32.8	28	12.2	32.8	32.8
90	259-266	37.2	12.9	32.8	28	12.2	32.8	32.8
90	266-273	37.2	12.9	32.8	28	12.2	32.8	32.8
90	274-282	37.2	12.9	32.8	28	12.2	32.8	32.8
90	283-291	37.2	12.9	32.8	28	12.2	32.8	32.8
90	292-300	37.2	12.9	32.8	28	12.2	32.8	32.8
90	301-309	37.2	12.9	32.8	28	12.2	32.8	32.8
90	310-317	37.2	12.9	32.8	28	12.2	32.8	32.8
90	317-324	37.2	12.9	32.8	28	12.2	32.8	32.8
90	325-333	37.2	12.9	32.8	28	12.2	32.8	32.8
90	334-342	37.2	12.9	32.8	28	12.2	32.8	32.8
90	343-350	37.2	12.9	32.8	28	12.2	32.8	32.8
90	349-356	37.2	13.1	32.8	28	12.2	32.8	32.8
90	358-365	36.2	12.7	32.8	28	12.2	32.8	32.8
90	366-374	35.2	12.5	32.8	28	12.2	32.8	32.8
90	375-382	34.3	12.3	32.8	28	12.2	32.8	32.8
90	381-388	33.7	12.2	32.8	28	12.2	32.8	32.8
90	389-396	32.8	12.0	32.8	28	12.2	32.8	32.8
90	397-407	31.6	11.9	32.8	28	12.2	32.8	32.8
90	408-418	30.4	11.5	32.8	28	12.2	32.8	32.8
90	419-429	29.2	11.2	32.8	28	12.2	32.8	32.8
90	430-440	28.0	11.0	32.8	28	12.2	32.8	32.8
90	441-451	26.8	10.7	32.8	28	12.2	32.8	32.8
90	447-457	26.2	10.6	32.8	28	12.2	32.8	32.8
90	458-468	25.0	10.3	32.8	28	12.2	32.8	32.8
90	467-477	24.0	10.1	32.8	28	12.2	32.8	32.8
90	477-487	22.9	9.9	32.8	28	12.2	32.8	32.8
90	488-498	21.7	9.6	32.8	28	12.2	32.8	32.8
90	498-508	20.8	9.4	32.8	28	12.2	32.8	32.8
90	509-519	19.4	9.1	32.8	28	12.2	32.8	32.8
90	520-530	18.2	8.9	32.8	28	12.2	32.8	32.8
90	531-541	17.0	8.6	32.8	28	12.2	32.8	32.8
90	542-552	15.8	8.3	32.8	28	12.2	32.8	32.8
90	553-563	14.6	8.1	32.8	28	12.2	32.8	32.8
90	564-574	13.4	7.8	32.8	28	12.2	32.8	32.8
90	575-585	12.2	7.6	32.8	28	12.2	32.8	32.8
90	586-596	11.1	7.3	32.8	28	12.2	32.8	32.8
90	594-604	10.2	7.1	32.8	28	12.2	32.8	32.8
90	600-610	9.5	7.2	32.8	28	12.2	32.8	32.8

Guided support LC + FS

Guided support LC + FW F

Guided support LD + XS

Guided support LD + XW F

Pipe Shoe LC - HV + Guiding Set FS resp. Fixed Point Set XS
Pipe Shoe LC - HV + Guiding Bracket FW F resp. Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.
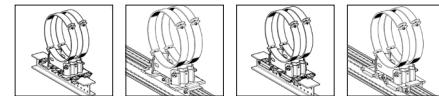
* only for fixed supports

| LD - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
150	215-221	30.8	12.7	32.8	28	12.2	32.8	32.8
150	222-229	30.8	12.7	32.8	28	12.2	32.8	32.8
150	230-237	30.8	12.7	32.8	28	12.2	32.8	32.8
150	238-245	30.8	12.7	32.8	28	12.2	32.8	32.8
150	246-254	30.8	12.7	32.8	28	12.2	32.8	32.8
150	255-262	30.8	12.7	32.8	28	12.2	32.8	32.8
150	259-266	30.8	12.7	32.8	28	12.2	32.8	32.8
150	266-273	30.8	12.7	32.8	28	12.2	32.8	32.8
150	274-282	30.8	12.7	32.8	28	12.2	32.8	32.8
150	283-291	30.8	12.7	32.8	28	12.2	32.8	32.8
150	292-300	30.8	12.7	32.8	28	12.2	32.8	32.8
150	301-309	30.8	12.7	32.8	28	12.2	32.8	32.8
150	310-317	30.8	12.7	32.8	28	12.2	32.8	32.8
150	317-324	30.8	12.7	32.8	28	12.2	32.8	32.8
150	325-333	30.8	12.7	32.8	28	12.2	32.8	32.8
150	334-342	30.8	12.7	32.8	28	12.2	32.8	32.8
150	343-350	30.8	12.7	32.8	28	12.2	32.8	32.8
150	349-356	30.8	12.9	32.8	28	12.2	32.8	32.8
150	358-365	30.8	12.4	32.8	28	12.2	32.8	32.8
150	366-374	29.2	12.2	32.8	28	12.2	32.8	32.8
150	375-382	28.5	12.0	32.8	28	12.2	32.8	32.8
150	381-388	28.0	11.8	32.8	28	12.2	32.8	32.8
150	389-396	27.2	11.6	32.8	28	12.2	32.8	32.8
150	397-407	26.3	11.5	32.8	28	12.2	32.8	32.8
150	408-418	25.3	11.1	32.8	28	12.2	32.8	32.8
150	419-429	24.3	10.8	32.8	28	12.2	32.8	32.8
150	430-440	23.3	10.5	32.8	28	12.2	32.8	32.8
150	441-451	22.3	10.2	32.8	28	12.2	32.8	32.8
150	447-457	21.8	10.0	32.8	28	12.2	32.8	32.8
150	458-468	20.8	9.8	32.8	28	12.2	32.8	32.8
150	467-477	20.0	9.5	32.8	28	12.2	32.8	32.8
150	477-487	19.1	9.3	32.8	28	12.2	32.8	32.8
150	488-498	18.1	9.0	32.8	28	12.2	32.8	32.8
150	498-508	17.3	8.8	32.8	28	12.2	32.8	32.8
150	509-519	16.2	8.4	32.8	28	12.2	32.8	32.8
150	520-530	15.2	8.1	32.8	28	12.2	32.8	32.8
150	531-541	14.3	7.9	32.8	28	12.2	32.8	32.8
150	542-552	13.3	7.6	32.8	28	12.2	32.8	32.8
150	553-563	12.3	7.3	32.8	28	12.2	32.8	32.8
150	564-574	11.3	7.0	32.8	28	12.2	32.8	32.8
150	575-585	10.3	6.7	32.8	28	12.2	32.8	32.8
150	586-596	9.3	6.4	32.8	28	12.2	32.8	32.8
150	594-604	8.6	6.2	32.8	28	12.2	32.8	32.8
150	600-610	8.1	6.3	32.8	28	12.2	32.8	32.8
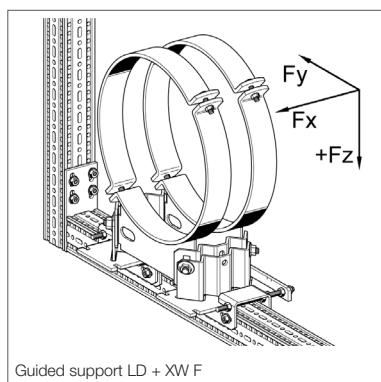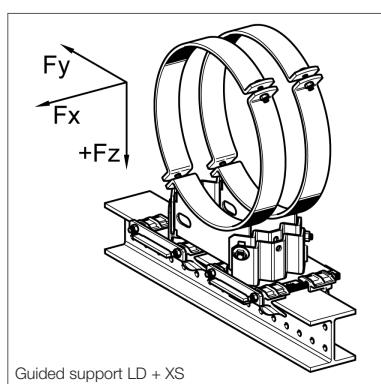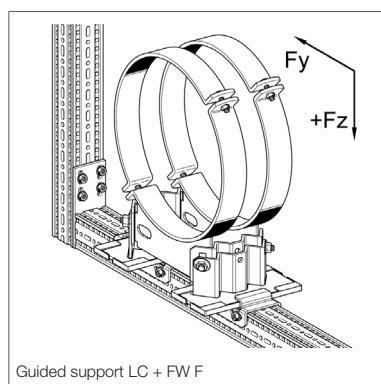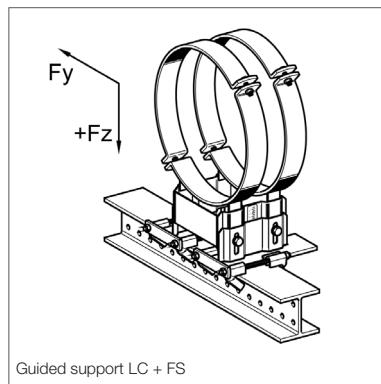
Pipe Shoe LD - HV + 2 x Guiding Set FS resp. 2 x Fixed Point Set XS
Pipe Shoe LD - HV + 2 x Guiding Bracket FW F resp. 2 x Fixed Point Bracket XW F

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

* only for fixed supports

Guided support LC + FS

Guided support LC + FW F

Guided support LD + XS

Guided support LD + XW F
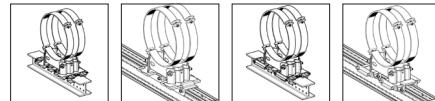
LD - HV	D (Rohr) [mm]	F_x * [kN]	F_y [kN]	+ F_z [kN]	- F_z FS 80/120 [kN]	- F_z FW F 80 [kN]	- F_z XS 80/120 [kN]	- F_z XW F 80 [kN]
200	215-221	24.6	11.1	32.8	28	12.2	32.8	32.8
200	222-229	24.6	11.1	32.8	28	12.2	32.8	32.8
200	230-237	24.6	11.1	32.8	28	12.2	32.8	32.8
200	238-245	24.6	11.1	32.8	28	12.2	32.8	32.8
200	246-254	24.6	11.1	32.8	28	12.2	32.8	32.8
200	255-262	24.6	11.1	32.8	28	12.2	32.8	32.8
200	259-266	24.6	11.1	32.8	28	12.2	32.8	32.8
200	266-273	24.6	11.1	32.8	28	12.2	32.8	32.8
200	274-282	24.6	11.1	32.8	28	12.2	32.8	32.8
200	283-291	24.6	11.1	32.8	28	12.2	32.8	32.8
200	292-300	24.6	11.1	32.8	28	12.2	32.8	32.8
200	301-309	24.6	11.1	32.8	28	12.2	32.8	32.8
200	310-317	24.6	11.1	32.8	28	12.2	32.8	32.8
200	317-324	24.6	11.1	32.8	28	12.2	32.8	32.8
200	325-333	24.6	11.1	32.8	28	12.2	32.8	32.8
200	334-342	24.6	11.1	32.8	28	12.2	32.8	32.8
200	343-350	24.6	11.1	32.8	28	12.2	32.8	32.8
200	349-356	25.0	11.3	32.8	28	12.2	32.8	32.8
200	358-365	24.1	10.9	32.8	28	12.2	32.8	32.8
200	366-374	23.5	10.8	32.8	28	12.2	32.8	32.8
200	375-382	23.1	10.6	32.8	28	12.2	32.8	32.8
200	381-388	22.7	10.5	32.8	28	12.2	32.8	32.8
200	389-396	22.2	10.3	32.8	28	12.2	32.8	32.8
200	397-407	21.6	10.2	32.8	28	12.2	32.8	32.8
200	408-418	20.9	9.8	32.8	28	12.2	32.8	32.8
200	419-429	20.3	9.6	32.8	28	12.2	32.8	32.8
200	430-440	19.6	9.4	32.8	28	12.2	32.8	32.8
200	441-451	19.0	9.2	32.8	28	12.2	32.8	32.8
200	447-457	18.6	9.0	32.8	28	12.2	32.8	32.8
200	458-468	17.9	8.8	32.8	28	12.2	32.8	32.8
200	467-477	17.4	8.6	32.8	28	12.2	32.8	32.8
200	477-487	16.8	8.4	32.8	28	12.2	32.8	32.8
200	488-498	16.1	8.2	32.8	28	12.2	32.8	32.8
200	498-508	15.7	8.1	32.8	28	12.2	32.8	32.8
200	509-519	14.9	7.8	32.8	28	12.2	32.8	32.8
200	520-530	14.2	7.5	32.8	28	12.2	32.8	32.8
200	531-541	13.6	7.3	32.8	28	12.2	32.8	32.8
200	542-552	12.9	7.1	32.8	28	12.2	32.8	32.8
200	553-563	12.3	6.9	32.8	28	12.2	32.8	32.8
200	564-574	11.6	6.6	32.8	28	12.2	32.8	32.8
200	575-585	11.0	6.4	32.8	28	12.2	32.8	32.8
200	586-596	10.3	6.2	32.8	28	12.2	32.8	32.8
200	594-604	9.8	6.0	32.8	28	12.2	32.8	32.8
200	600-610	9.5	6.1	32.8	28	12.2	32.8	32.8

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Guided support with insulation insert
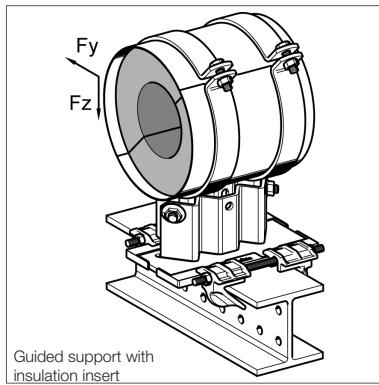
Working loads for Supports with insulation insert and suspension

Pipe Shoe LK - HV + Guiding Set FS 80/120

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

LK - HV	D (Rohr) [mm]	F_y [kN]	$+ F_z$ [kN]
150	33.7	3.1	3.1
150	42.4	3.8	3.8
150	48.3	4.3	4.3
150	60.3	4.0	3.9
150	76.1	2.8	2.8
150	88.9	2.5	2.4
150	114.3	4.5	14.0
150	139.7	4.1	14.0
150	168.3	3.6	14.0
150	219.1	2.8	14.0
150	273.0	1.9	14.0
150	323.9	0.4	14.0

Guided support suspension
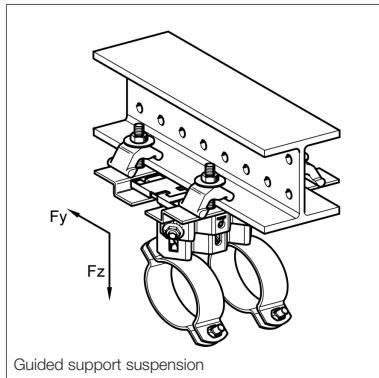
Pipe Shoe LA / LC / LD - HV 90 + Guiding Set FS Z 80/120

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

LA / LC / LD - HV	D (Rohr) [mm]	F_y [kN]	$+ F_z$ [kN]	LA / LC / LD - HV	D (Rohr) [mm]	F_y [kN]	$+ F_z$ [kN]
90	14-18	5.0	10.0	90	146-152	3.4	10.0
90	18-22	4.9	10.0	90	152-158	3.3	10.0
90	23-27	4.9	10.0	90	157-163	3.3	10.0
90	26-30	4.8	10.0	90	163-169	3.2	10.0
90	30-34	4.8	10.0	90	168-174	3.2	10.0
90	35-39	4.7	10.0	90	174-180	3.1	10.0
90	40-44	4.7	10.0	90	181-187	3.0	10.0
90	45-49	4.6	10.0	90	188-194	2.9	10.0
90	50-54	4.5	10.0	90	194-200	2.9	10.0
90	55-59	4.5	10.0	90	201-207	2.8	10.0
90	57-61	4.5	10.0	90	208-214	2.7	10.0
90	62-66	4.4	10.0	90	215-221	2.6	10.0
90	67-71	4.3	10.0	90	222-229	2.5	10.0
90	72-77	4.3	10.0	90	230-237	2.4	10.0
90	78-83	4.2	10.0	90	238-245	2.3	10.0
90	84-89	4.1	10.0	90	246-254	2.2	10.0
90	89-95	4.1	10.0	90	255-262	2.1	10.0
90	96-102	4.0	10.0	90	259-266	2.1	10.0
90	102-109	3.9	10.0	90	266-273	2.0	10.0
90	109-115	3.8	10.0	90	274-282	1.9	10.0
90	115-122	3.8	10.0	90	283-291	1.8	10.0
90	122-128	3.7	10.0	90	292-300	1.7	10.0
90	128-134	3.6	10.0	90	301-309	1.6	10.0
90	134-140	3.5	10.0	90	310-317	1.5	10.0
90	140-146	3.5	10.0	90	317-324	1.4	10.0

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Guided support suspension
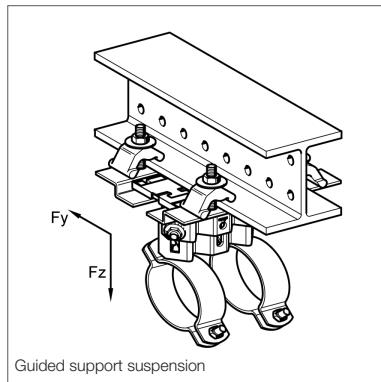
# Working loads for Supports with insulation insert and suspension
Pipe Shoe LA / LC / LD - HV 150 + Guiding Set FS Z 80/120

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

LA / LC / LD - HV	D (Rohr) [mm]	F_y [kN]	+ F_z [kN]	LA / LC / LD - HV	D (Rohr) [mm]	F_y [kN]	+ F_z [kN]
150	14-18	3.3	10.0	150	146-152	2.4	10.0
150	18-22	3.2	10.0	150	152-158	2.4	10.0
150	23-27	3.2	10.0	150	157-163	2.3	10.0
150	26-30	3.2	10.0	150	163-169	2.3	10.0
150	30-34	3.1	10.0	150	168-174	2.3	10.0
150	35-39	3.1	10.0	150	174-180	2.2	10.0
150	40-44	3.1	10.0	150	181-187	2.2	10.0
150	45-49	3.1	10.0	150	188-194	2.1	10.0
150	50-54	3.0	10.0	150	194-200	2.1	10.0
150	55-59	3.0	10.0	150	201-207	2.1	10.0
150	57-61	3.0	10.0	150	208-214	2.0	10.0
150	62-66	2.9	10.0	150	215-221	2.0	10.0
150	67-71	2.9	10.0	150	222-229	1.9	10.0
150	72-77	2.9	10.0	150	230-237	1.9	10.0
150	78-83	2.8	10.0	150	238-245	1.8	10.0
150	84-89	2.8	10.0	150	246-254	1.8	10.0
150	89-95	2.8	10.0	150	255-262	1.7	10.0
150	96-102	2.7	10.0	150	259-266	1.7	10.0
150	102-109	2.7	10.0	150	266-273	1.6	10.0
150	109-115	2.6	10.0	150	274-282	1.6	10.0
150	115-122	2.6	10.0	150	283-291	1.5	10.0
150	122-128	2.6	10.0	150	292-300	1.5	10.0
150	128-134	2.5	10.0	150	301-309	1.4	10.0
150	134-140	2.5	10.0	150	310-317	1.4	10.0
150	140-146	2.4	10.0	150	317-324	1.3	10.0

Guided support suspension
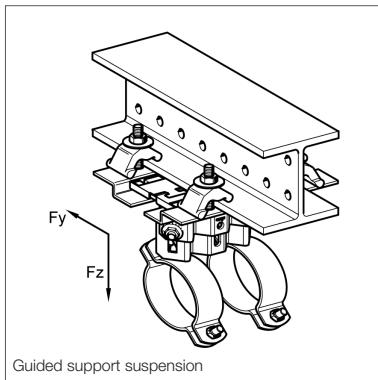
Working loads for Supports with insulation insert and suspension
Pipe Shoe LA / LC / LD - HV 200 + Guiding Set FS Z 80/120

Basis of assessment EC 3, working loads for Pipe Shoes as delivered.
Please note the information on page 46 about the working loads.

LA / LC / LD - HV	D (Rohr) [mm]	F_y [kN]	$+ F_z$ [kN]	LA / LC / LD - HV	D (Rohr) [mm]	F_y [kN]	$+ F_z$ [kN]
200	14-18	2.5	10.0	200	146-152	1.9	10.0
200	18-22	2.5	10.0	200	152-158	1.9	10.0
200	23-27	2.5	10.0	200	157-163	1.9	10.0
200	26-30	2.5	10.0	200	163-169	1.9	10.0
200	30-34	2.5	10.0	200	168-174	1.9	10.0
200	35-39	2.4	10.0	200	174-180	1.8	10.0
200	40-44	2.4	10.0	200	181-187	1.8	10.0
200	45-49	2.4	10.0	200	188-194	1.8	10.0
200	50-54	2.4	10.0	200	194-200	1.7	10.0
200	55-59	2.3	10.0	200	201-207	1.7	10.0
200	57-61	2.3	10.0	200	208-214	1.7	10.0
200	62-66	2.3	10.0	200	215-221	1.6	10.0
200	67-71	2.3	10.0	200	222-229	1.6	10.0
200	72-77	2.3	10.0	200	230-237	1.6	10.0
200	78-83	2.2	10.0	200	238-245	1.5	10.0
200	84-89	2.2	10.0	200	246-254	1.5	10.0
200	89-95	2.2	10.0	200	255-262	1.5	10.0
200	96-102	2.2	10.0	200	259-266	1.5	10.0
200	102-109	2.1	10.0	200	266-273	1.4	10.0
200	109-115	2.1	10.0	200	274-282	1.4	10.0
200	115-122	2.1	10.0	200	283-291	1.3	10.0
200	122-128	2.0	10.0	200	292-300	1.3	10.0
200	128-134	2.0	10.0	200	301-309	1.3	10.0
200	134-140	2.0	10.0	200	310-317	1.2	10.0
200	140-146	2.0	10.0	200	317-324	1.2	10.0

PA block type 30

PA block type 100

up to DN 50

up to DN 65
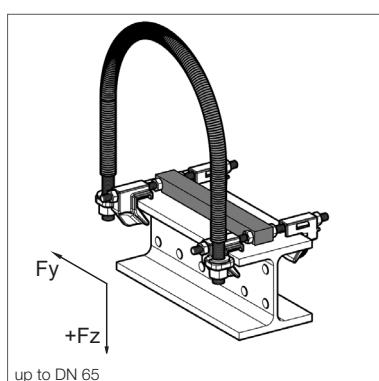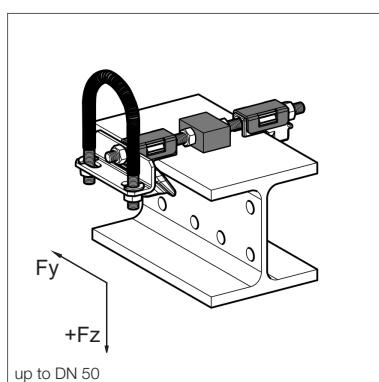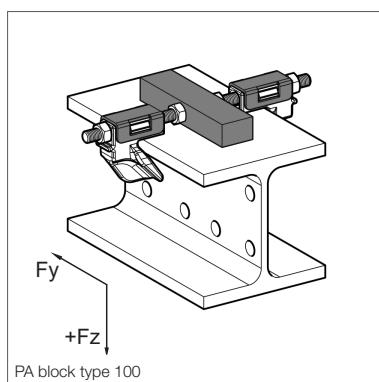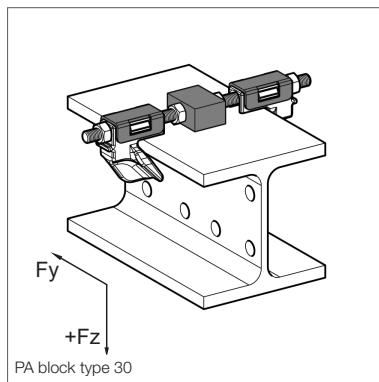
Working loads for sliding supports LR - H 20, guided supports FR - H 20 and fixed points XR - H 20

Design according to EN 13480-3 Annex J

Sliding support LR - 20 with slide bar type 30 and type 100

DN	$+F_z$ [kN]
15	4.5
20	4.5
25	4.5
32	4.5
40	4.5
50	4.5
65	9.0
80	9.0
100	9.0
125	9.0
150	9.0
175	9.0
200	9.0
225	9.0
250	9.0
300	9.0

Guided support FR – H 20

DN	F_y [kN]	$+F_z$ [kN]	$-F_z$ [kN]
15	0.2	4.5	0.2
20	0.2	4.5	0.2
25	0.2	4.5	0.2
32	0.2	4.5	0.2
40	0.2	4.5	0.2
50	0.2	4.5	0.2
65	0.9	9.0	1.1
80	0.9	9.0	1.1
100	0.9	9.0	1.1
125	0.9	9.0	1.1
150	0.9	9.0	1.1
175	0.9	9.0	1.1
200	0.9	9.0	1.1
225	0.9	9.0	1.1
250	0.9	9.0	1.1
300	0.9	9.0	1.1

up to DN 50

up to DN 65
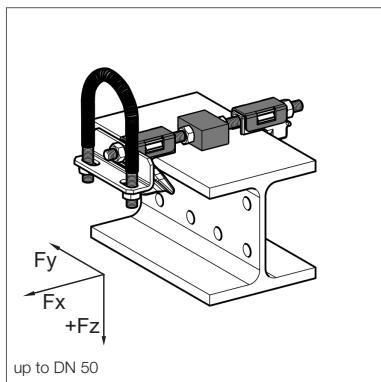
Fixed points XR - H 20

| DN	F_x [kN]	F_y [kN]	$+ F_z$ [kN]	$- F_z$ [kN]
15	0.5	0.2	4.5	0.2
20	0.5	0.2	4.5	0.2
25	0.5	0.2	4.5	0.2
32	0.5	0.2	4.5	0.2
40	0.5	0.2	4.5	0.2
50	0.5	0.2	4.5	0.2
65	0.3	0.9	9.0	1.1
80	0.3	0.9	9.0	1.1
100	0.3	0.9	9.0	1.1
125	0.3	0.9	9.0	1.1
150	0.3	0.9	9.0	1.1
175	0.3	0.9	9.0	1.1
200	0.3	0.9	9.0	1.1
225	0.3	0.9	9.0	1.1
250	0.3	0.9	9.0	1.1
300	0.3	0.9	9.0	1.1
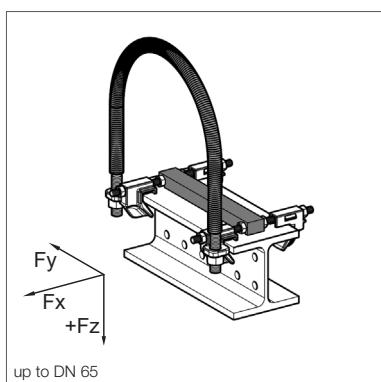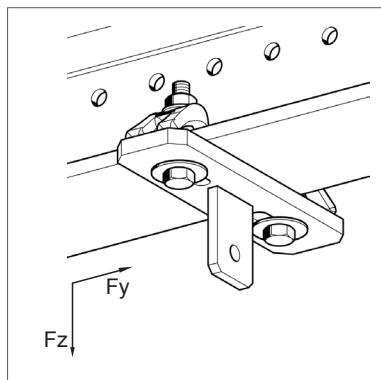
Working loads for Rod Hangers

Design according to EN 13480-3 Annex J
Working loads valid for up to 4 degrees Load Chain inclination.

Beam system Eye-Plate HP 80/99

Type	F_z [kN]
M10	11.2
M12	12.1
M16	12.5
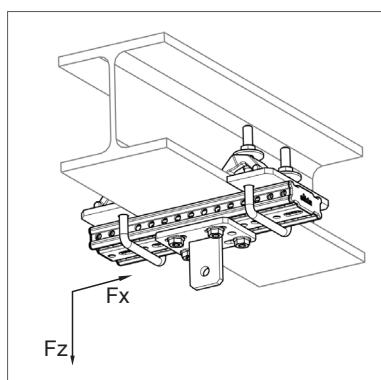
Rod hanger beam connection LKA

Beam width 100-199 mm			Beam width 200-310 mm	
Type	F_z [kN]		Type	F_z [kN]
M10	10.9		M10	10.8
M12	11.5		M12	11.3
M16	12.1		M16	11.9
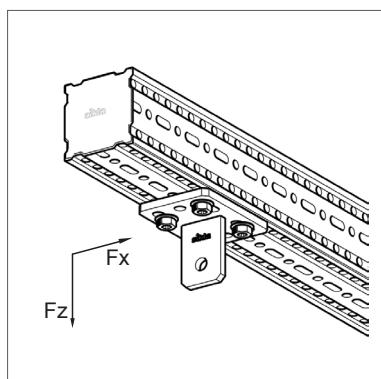
siFramo Eye-Plate HP F 80
siFramo Eye-Plate HP F 100

Type	F_z [kN]
M10	11.2
M12	12.1
M16	12.5
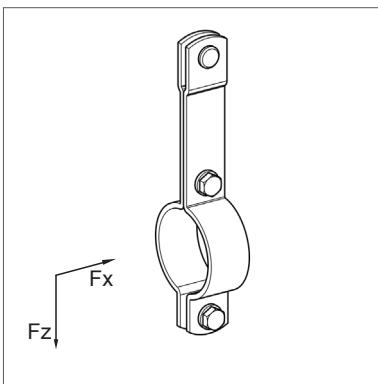
Pipe Clamp Stabil Form C LK

Beam width 100-199 mm	
DN	F_z [kN]
15	4.0
20	4.0
25	4.0
32	4.0
40	4.0
50	4.0
65	4.0
80	4.0
100	4.0
125	5.4
150	5.4
175	5.4
200	9.3
250	9.3
300	9.3
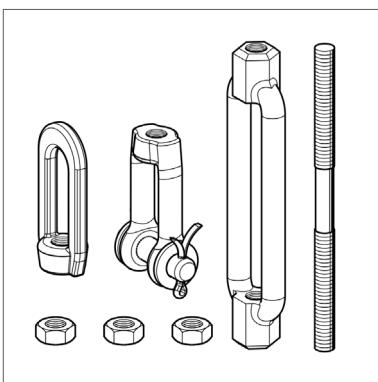
Rod Hanger Load Chain Assembly LKV

Type	F_z [kN]
M10	11.2
M12	12.1
M16	14.0