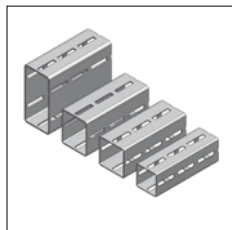
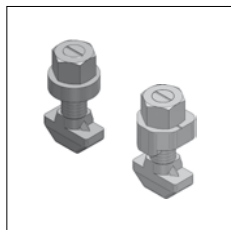


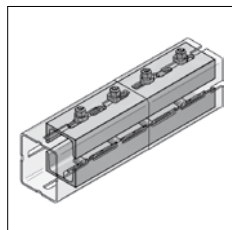
# CENTUM® - components list



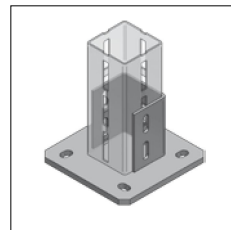
CENTUM Square profile  
Page 14/4



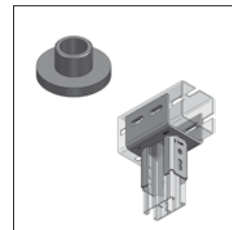
CENTUM Connection system  
Page 14/5



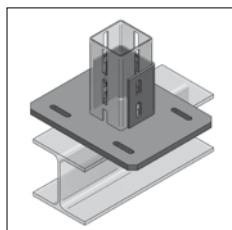
CENTUM Connector-set  
Page 14/6



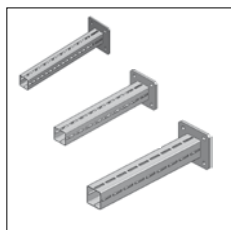
CENTUM Holder  
Page 14/7



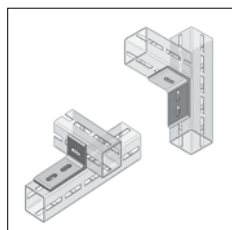
CENTUM Adaptation anchor  
CENTUM Adaptor  
Page 14/8



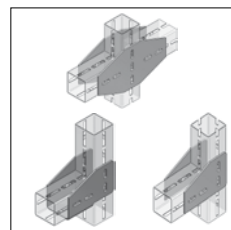
CENTUM Girder fixation  
Page 14/9



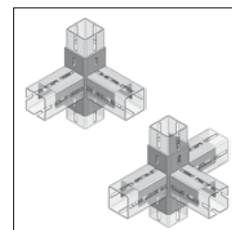
CENTUM Consoles  
Page 14/10



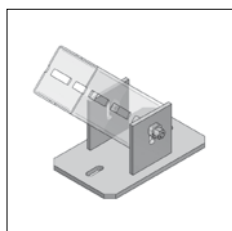
CENTUM Angles  
Page 14/11



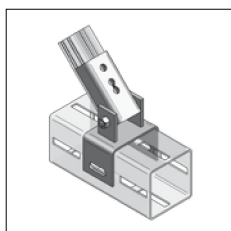
CENTUM Angle-shoe  
CENTUM Plates  
Page 14/12



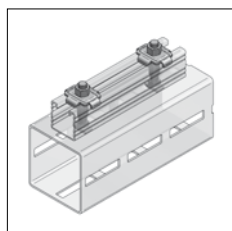
CENTUM Angle coupler  
Page 14/14



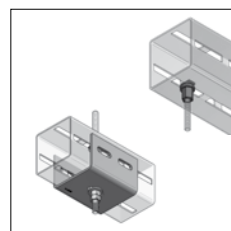
CENTUM Joint holder  
Page 14/14



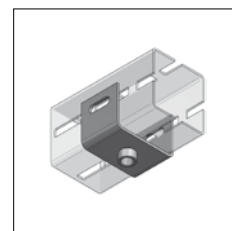
CENTUM Joint connection  
Page 14/15



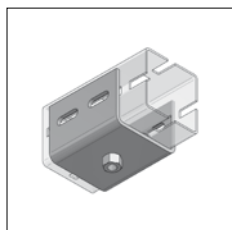
CENTUM C-profile connector  
Page 14/15



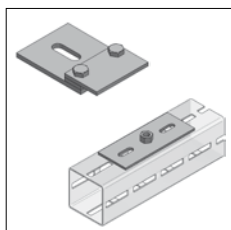
CENTUM hanger massive  
Direct connector  
Page 14/16



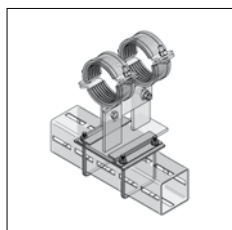
CENTUM Thread connector  
Page 14/17



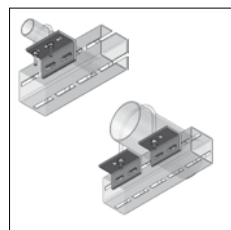
CENTUM Massive connector  
Page 14/18



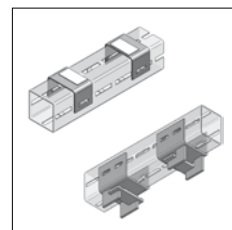
CENTUM Z-pressure pad  
CENTUM Base plate  
Page 14/19



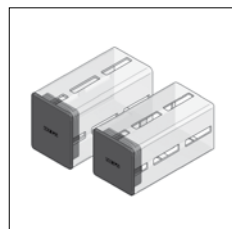
CENTUM Z-pressure pad Set with U-bolt  
Page 14/20



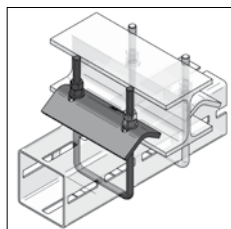
CENTUM Pipe holder  
Page 14/21



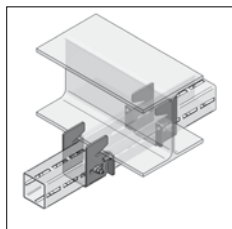
CENTUM Sliding base  
Page 14/22



CENTUM Protecting cap  
Page 14/22



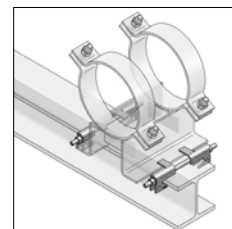
CENTUM Clamping bow  
Page 14/23



CENTUM Clamping shoe  
Page 14/24



CENTUM Clamping claws  
Page 14/25



CENTUM Guiding Clamp-Set  
Page 14/29

## CENTUM® - components list



Pipe clamp Form A/C  
Page 14/29



Pipe clamp Form A  
Maxima/Titan HD  
Page 14/30



Pipe clamp Form A  
type TGA  
Page 14/30



Stirrup clamp  
Page 14/31



U-Bolt  
Page 14/31



Sliding support T  
Page 14/32



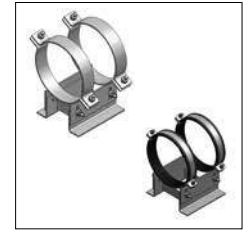
Sliding support T HV,  
1 Pipe clamp  
Page 14/33



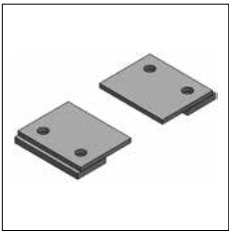
Sliding support T HV,  
2 Pipe clamps  
Page 14/34



Sliding sledge  
Page 14/35



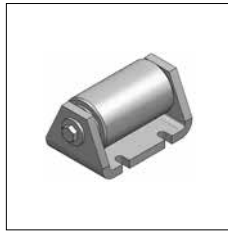
Sliding sledge HV  
Page 14/36



Fixation plate for  
Sliding sledge  
Page 14/36



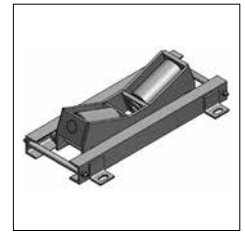
Isolation saddle for roller  
bearings  
Page 14/37



Single-roller-bearing  
Page 14/37



Double roller bearing, axial  
Page 14/37



Double roller bearing,  
radial-axial  
Page 14/37



Fixpoint with CENTUM  
Massive connector  
Page 14/38

**i** Tightening torque of locking screws on pipe clamps see chapter 15.

## ■ CENTUM® - The answer for heavy-duty application!



CENTUM® is the perfect solution for heavy-duty piping and industrial application.

Especially designed to admit high loads, reliable and economically. Thanks to a minimum of system components, a clear and simple screw connection system, CENTUM® offers decisive advantages compared to common welded steel constructions.

The major advantages of CENTUM®:

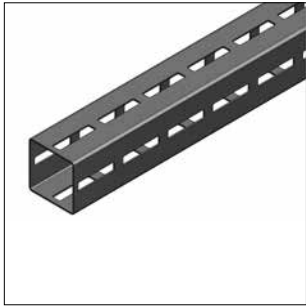
- Saving time and labour costs
- Stepless positioning of system components
- Unique, shape-fitting screw connection system with a max. load capacity up to 10 kN per connection
- Dismantlement at any time
- Compatible interface for MEFA-profile channels
- All parts are hot-dip galvanized or zinc-nickel coated
- Closed profile geometric for max. torsion stiffness
- A well thought-out range of system components offering a maximum of possible variants in construction



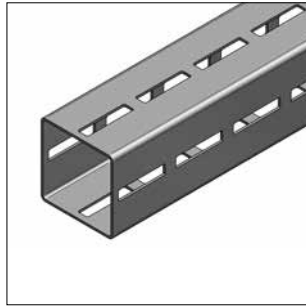
Approval/  
calculation options:

- RAL-GZ-655-B+C+D+E
- DIN EN 13480-3
- DIN 1090-2 CE
- DIN EN 1998-4 (Seismic)
- DIN EN ISO 9001
- DIN EN 1993

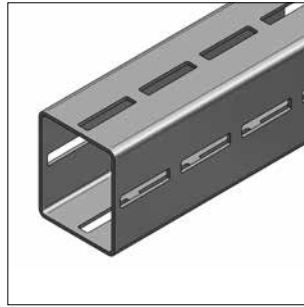
## CENTUM® Square profile



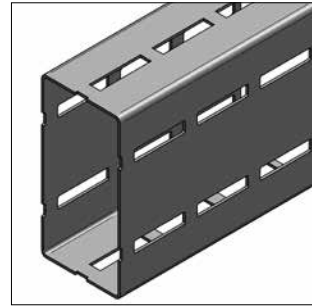
CENTUM® profile XL 80



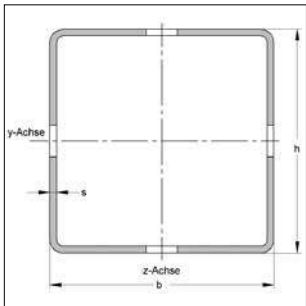
CENTUM® profile XL 100



CENTUM® profile XL 120



CENTUM® profile XL 200



### Description of system:

- modular system
- 4-sided without raster in connection with mounting parts
- torsion stiffness
- high load capacity

### Technical data:

Material: steel  
 Material type of all profiles: S275J2H  
 Surface: hot-dip galvanized according to DIN EN ISO 1461

\*\* At 8 m delivery length special delivery conditions

\* not certified acc. to RAL

Identification	Dimensions h x b [mm]	Profile thickness s [mm]	perforation	Length L [m]	Weight [kg/m]	Packing [m]	Part-No.
CENTUM® profile XL 80	80 x 80	2,5	4-sided	6	5,51	6	16008060
CENTUM® profile XL 100	100 x 100	3	4-sided	6	8,46	6	16010060
CENTUM® profile XL 120	120 x 100	4	4-sided	6	12,20	6	16012060
CENTUM® profile XL 120s*	120 x 100	5	4-sided	6	14,83	6	16012061
CENTUM® profile XL 200	200 x 100	5	4-sided	6	20,46	6	16020060
CENTUM® profile XL 200 WST	200 x 100	5	4-sided	8**	20,46	8	16020080

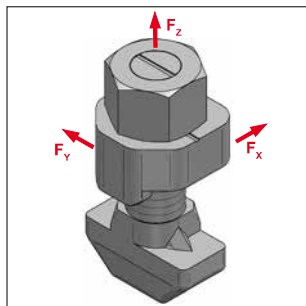
### CENTUM® overview technical values

Identification	cross-section	Section modulus	Geometrical moment		Section		gyration	
	area	of torsion	of inertia		modulus		radius	
	$A_k$ cm <sup>2</sup>	$W_t$ cm <sup>3</sup>	$I_{y-y}$ cm <sup>4</sup>	$I_{z-z}$ cm <sup>4</sup>	$W_{y-y}$ cm <sup>3</sup>	$W_{z-z}$ cm <sup>3</sup>	$i_y$ cm	$i_z$ cm
Profile XL 80	6,19	36,04	64,51	64,51	16,13	16,13	3,23	3,23
Profile XL 100	9,73	56,40	157,14	157,14	31,43	31,43	4,02	4,02
Profile XL 120	14,45	89,10	310,55	237,23	51,76	47,44	4,64	4,05
Profile XL 120s	17,55	109,25	372,76	284,42	62,12	56,88	4,61	4,03
Profile XL 200	24,15	185,25	1255,68	433,47	125,56	86,69	7,21	4,24

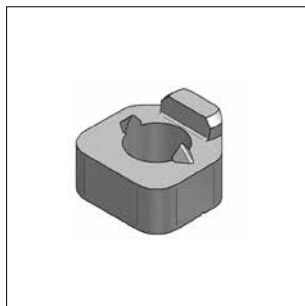
**i** Load values for CENTUM® profile rails can be found at the end of the chapter.



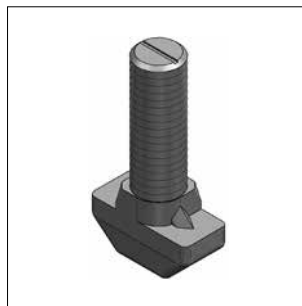
## CENTUM® T-lock head, toothed



CENTUM® T-lock head



CENTUM® Lock washer



CENTUM® T-lock bolt



### Specification:

For profile type: XL 80, XL 100, XL 120 and XL 200  
 Features: immovable and form-locking connection  
 max. load:  $F_x$   $F_y$   $F_z$   
 XL 80: 8 kN 8kN 3kN  
 from XL 100: 10 kN 10kN 3kN  
 Safety  $\gamma$ : 2  
 Application: C-profile connector

### Technical data:

Material: steel  
 Surface: zinc-nickel

Identification	Property class	recommended tightening torque [Nm]		Weight [kg/pc.]	Packing [pcs.]	Part-No.
		XL 80	from XL 100			
<b>CENTUM® T-lock head M12x40, toothed</b>	10.9	90	120	0,120	50	1610011000
consisting of:						
<b>CENTUM® Lock washer</b>	10	--	--	0,031	100	1610019000/zn
<b>CENTUM® T-lock bolt, toothed</b>	10.9	90	120	0,064	50	1610012100/zn
<b>CENTUM® hex nut M12 FK10, DIN EN ISO 4032</b>	10	--	--	0,017	100	8989995/zn

## Assembly instruction for T-lock head

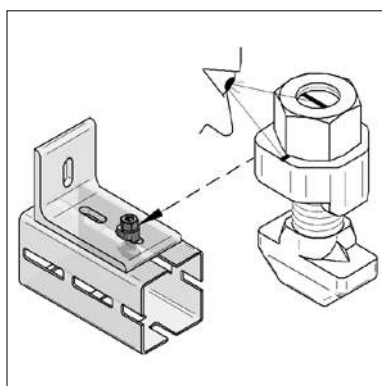


Figure 1

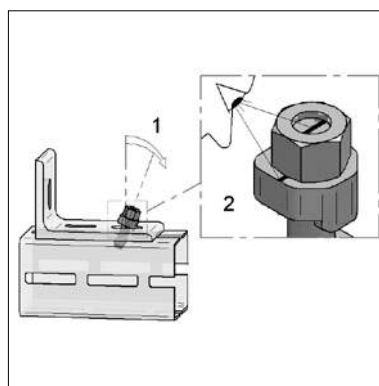


Figure 2

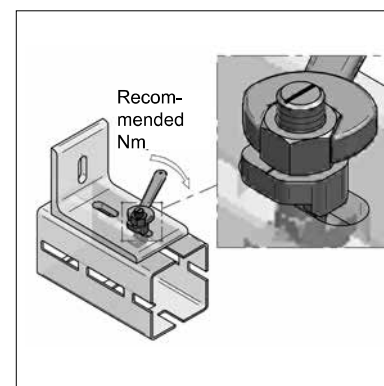


Figure 3

### Positioning:

Locate T-lock head into mounting part like shown in Figure 1.

### Adjustment:

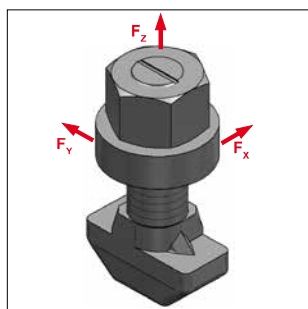
Turn T-lock head around 90 degrees, so that T-lock bolt stands diagonally to long hole (see 1).

Tilt forward T-lock head, so that guide wedge of Lock washer snaps in long hole (see 2).

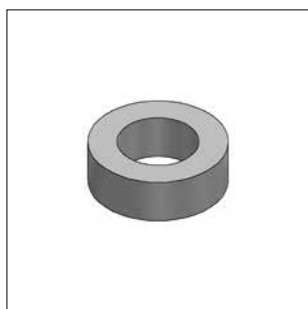
### Fixation:

Tighten tilted T-lock with 90 Nm (XL 80) or 120 Nm (from XL 100).  
 T-lock head after dismantling non-reusable.

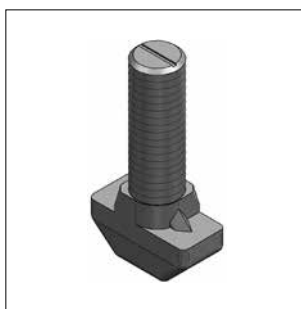
## CENTUM® T-bolt, with steel disk



CENTUM® T-bolt



CENTUM® steel disk



CENTUM® T-lock bolt, toothed

### Specification:

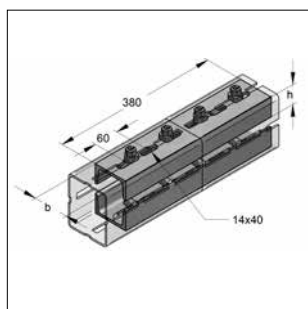
For profile type:	XL 80, XL 100, XL 120 and XL 200		
Features:	frictional connection		
max. load:	$F_x$	$F_y$	$F_z$
XL 80:	3 kN	8kN	3kN
from XL 100:	3 kN	10kN	3kN
Safety $\gamma$ :	2		
Application:	C-profile connector		

### Technical data:

Material:	steel
Surface:	zinc-nickel

Identification	Property class	recommended tightening torque [Nm]		Weight [kg/pc.]	Packing [pcs.]	Part-No.
		XL 80	from XL 100			
<b>CENTUM® T-bolt M12x40</b> consisting of:	10.9	90	120	0,100	50	1610012000
<b>CENTUM® steel disk</b>	4.6	--	--	0,019	100	1610019100/zn
<b>CENTUM® T-lock bolt, toothed</b>	10.9	90	120	0,064	50	1610012100/zn
<b>CENTUM® Hexagon nut M12 FK10, DIN EN ISO 4032</b>	10	--	--	0,017	100	8989995/zn

## CENTUM® Connector



CENTUM® Connector

### Specification:

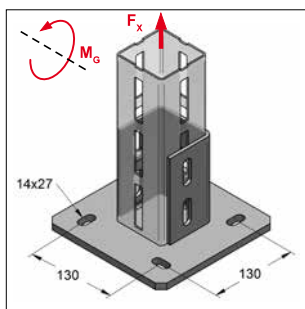
Scope of supply:	mounting accessories, loose insert (8x T-lock head, toothed, M 12/40)
Function:	connection of XL 80, XL 100, XL 120 or XL 200

### Technical data:

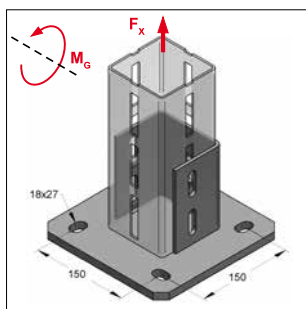
Material:	steel
Surface u-steel:	hot-dip galvanized
Surface screws:	zinc-nickel

Identification	Profile type:	Limit moment $M_G$ [kNm]	Length [mm]	Width b [mm]	Height h [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
<b>CENTUM® Connector-Set</b>	XL 100, XL 120, XL 200	2	380	80	45	7,90	1	1640005010

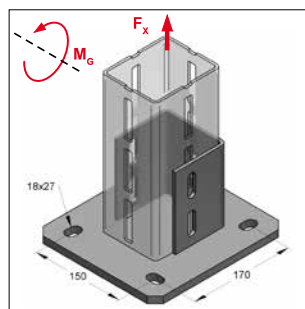
## CENTUM® Holder



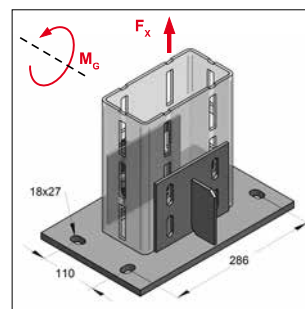
CENTUM® Holder XL 80



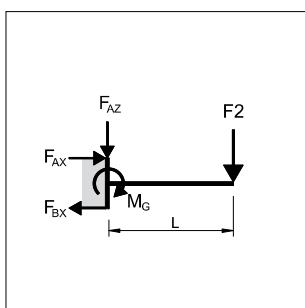
CENTUM® Holder XL 100



CENTUM® Holder XL 120



CENTUM® Holder XL 200



$$M_G = F_2 \times L$$

### Specification:

For profile type: XL 80, XL 100, XL 120 und XL 200  
 Scope of supply: T-lock head, toothed, M12/40

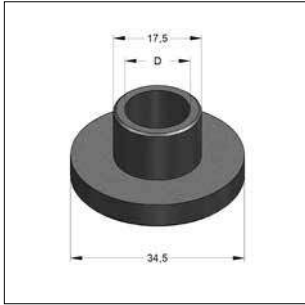
\* at utilization of all bolt holes

### Technical data:

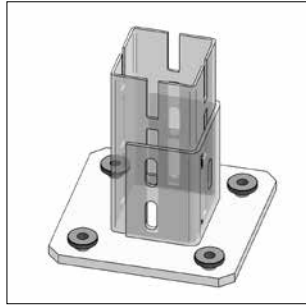
Material: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 Safety factor: 1,54

Identification	max. load*	maximum torque	Plate-width	Plate-length	Plate-thickness	Weight	Packing	Part-No.
	$F_x^*$ [kN]	$M_G^*$ [kNm]						
<b>CENTUM® Holder XL 80</b>	32	4,2	200	200	10	4,48	1	1620801000
<b>CENTUM® Holder XL 100</b>	40	5,2	220	220	12	6,15	1	1621001000
<b>CENTUM® Holder XL 120</b>	40	5,2	220	240	12	6,71	1	1621201000
<b>CENTUM® Holder XL 200</b>	40	5,2	220	340	12	9,57	1	1622001000

## CENTUM® Adaptation anchor M16



CENTUM® Adaptation



### Specification:

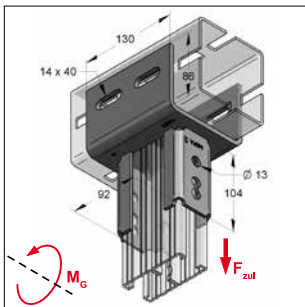
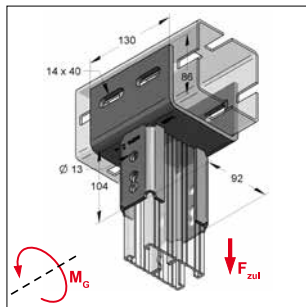
For rail holder: XL 100, XL 120 and XL 200  
application area: Reduction of mounting holes from M16 to M12 or M10

### Technical data:

Material: steel  
Material type: zinc-nickel

Identification	internal - Ø D [mm]	Weight [kg/pc.]	Packing [pcs.]	Part-No.
<b>CENTUM® Adaptation anchor M16 to M10</b>	11	0,047	50	1610019502/zn
<b>CENTUM® Adaptation anchor M16 to M12</b>	13	0,045	50	1610019503/zn

## CENTUM® Adaptor

CENTUM® Adaptor  
verticalCENTUM® Adaptor  
horizontal

### Specification:

For profile type: XL 100, 45/90  
Application: to connect C-profile rails 45/90  
Needed accessory: threaded square plate  
hexagon screw  
t-lock head

### Technical data:

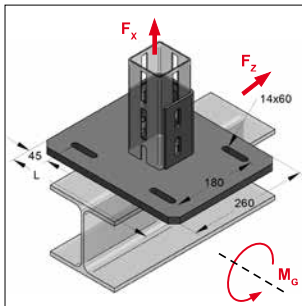
Material: steel  
Material type: S235JR  
Surface: hot-dip galvanized  
Safety factor: 1,54

\* loads referring to component, not to connection

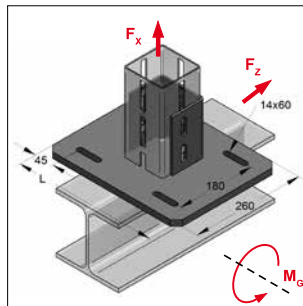
Identification	max. load* $F_{zul}$ [kN]	maximum torque $M_G$ [kNm] fbv	Length [mm]	Thickness [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
<b>CENTUM® Adaptor vertical</b>	12	0,80 0,35	130	6	2,32	1	1621005011
<b>CENTUM® Adaptor horizontal</b>	12	0,80 0,35	130	6	2,32	1	1621005021



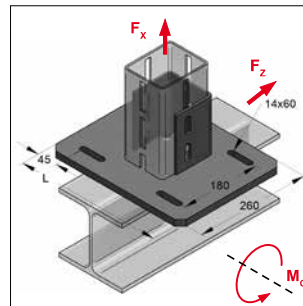
## ■ CENTUM® Girder fixation



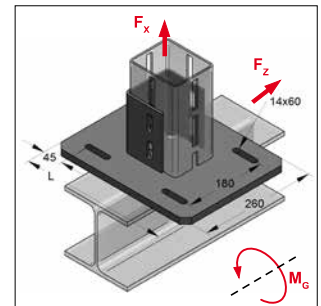
Girder fixation XL 80, vertical



Girder fixation XL 100, vertical



Girder fixation XL 120, vertical



Girder fixation XL 120, horizontal

### Specification:

For profile type:	XL 100
On request:	XL 80, XL 120
Needed accessory:	T-lock head, toothed, M12/40 clamping claw AF/LR

### Technical data:

Material:	steel
Material type:	S235JR (profile holder) S355 JR (plate)
Surface:	hot-dip galvanized

\* on request

Identification	Plate-width	Plate-length L	Plate-thickness	for min. girder width	for max. girder width	Weight	Packing	Part-No.
	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/pc.]	[pc.]	
<b>Girder fixation XL 80, size 1, vertical*</b>	260	240	15	46	120	8,59	1	162080201
<b>Girder fixation XL 80, size 2, vertical*</b>	260	332	15	140	220	11,62	1	162080202
<b>Girder fixation XL 80, size 3, vertical*</b>	260	424	15	240	320	14,65	1	162080203
<b>Girder fixation XL 100, size 1, vertical</b>	260	240	15	46	120	8,82	1	162100201
<b>Girder fixation XL 100, size 2, vertical</b>	260	332	15	140	220	11,85	1	162100202
<b>Girder fixation XL 100, size 3, vertical</b>	260	424	15	240	320	14,88	1	162100203
<b>Girder fixation XL 120, size 1, vertical*</b>	260	240	15	46	120	8,93	1	162120201
<b>Girder fixation XL 120, size 2, vertical*</b>	260	332	15	140	220	11,96	1	162120202
<b>Girder fixation XL 120, size 3, vertical*</b>	260	424	15	240	320	14,99	1	162120203
<b>Girder fixation XL 120, size 1, horizontal*</b>	260	240	15	46	120	8,93	1	162120301
<b>Girder fixation XL 120, size 2, horizontal*</b>	260	332	15	140	220	11,96	1	162120302
<b>Girder fixation XL 120, size 3, horizontal*</b>	260	424	15	240	320	14,99	1	162120303

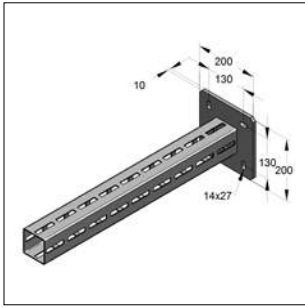
**Table:** Loads are related to clamping claws for adaption to steel girder, galvanized incl. screws class 8.8 and washer.

In combination with 4x clamping claw type AF, M12 (see page 14/24)			
max. load	$F_x$ max (Pulling force) [kN]	$F_z$ max (Shear) [kN]	$M_g^{**}$ [kNm]
CENTUM® Girder fixation XL 80	32	7,8	4,2
CENTUM® Girder fixation XL 100	34	7,8	4,2
CENTUM® Girder fixation XL 120	34	7,8	4,2

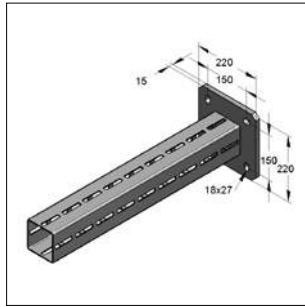
In combination with 4x clamping claw type LR, M12 (see page 14/29)			
max. load	$F_x$ max (Pulling force) [kN]	$F_z$ max (Shear) [kN]	$M_g^{**}$ [kNm]
CENTUM® Girder fixation XL 80	18	1,8	4,2
CENTUM® Girder fixation XL 100	18	1,8	4,2
CENTUM® Girder fixation XL 120	18	1,8	4,2

\*\* at utilization of all bolt holes

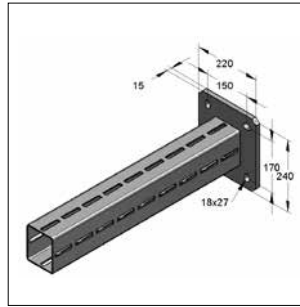
# CENTUM® Console



CENTUM® Console XL 80



CENTUM® Console XL 100



CENTUM® Console XL 120

**Specification:**

For profile type: XL 80, 100 and 120

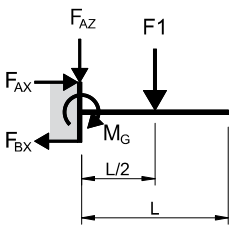
**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 Safety factor: 1,35

\* Delivery time on request, variant demand possible

Identification	Length [mm]	max. load			Weight [kg/pc.]	Packing [pc.]	Part-No.
		F1 [kN]	F2 [kN]	q0 [kN/m]			
CENTUM® Console XL 80	720	8,38	4,19	11,64	7,26	1	1630800720
CENTUM® Console XL 80	960	6,29	2,94	6,55	8,58	1	1630800960
CENTUM® Console XL 80	1440	4,19	1,88	4,18	11,23	1	1630801440
CENTUM® Console XL 100	720	16,17	8,08	22,45	11,92	1	1631000720
CENTUM® Console XL 100	960	12,13	6,06	12,63	13,62	1	1631000960
CENTUM® Console XL 100	1440	8,08	4,58	5,61	18,02	1	1631001440
CENTUM® Console XL 120*	720	25,02	12,51	34,75	15,17	1	1631200720
CENTUM® Console XL 120*	960	18,77	9,38	19,55	18,10	1	1631200960
CENTUM® Console XL 120*	1440	12,51	6,26	8,69	23,96	1	1631201440

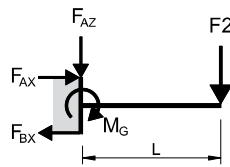
max. load 1 (LF1)



$F_{AZ} = F1$

$F_{AZ} = F1$	$M_G = \frac{F1 * L}{2}$
---------------	--------------------------

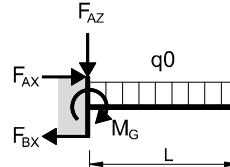
max. load 2 (LF2)



$F_{AZ} = F2$

$F_{AZ} = F2$	$M_G = F2 * L$
---------------	----------------

max. load 3 (LF3)



$F_{AZ} = q0 * L$

$F_{AZ} = q0 * L$	$M_G = \frac{q0 * L^2}{2}$
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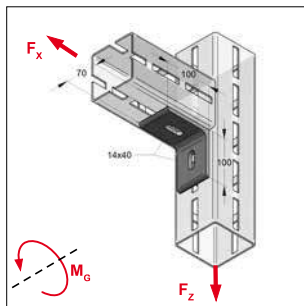
14

Limit moment XL 80	$M_G:$ 3.017,28 Nm
Support reaction force XL 80	$F_{AX}:$ 23,21 kN
Support reaction force XL 80	$F_{BX}:$ 23,21 kN
Limit moment XL 100 und 120	$M_G:$ 9.008,0 Nm
Support reaction force XL 100 und 120	$F_{AX}:$ 53,0 kN
Support reaction force XL 100 und 120	$F_{BX}:$ 53,0 kN

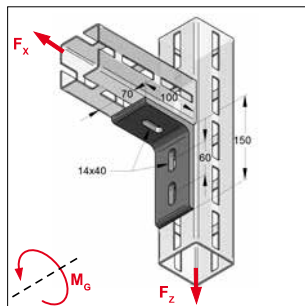
Remark:

All load capacities excessive refer to static loads.

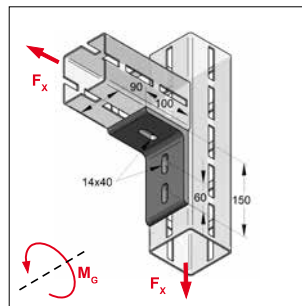
## ■ CENTUM® Angles - corner connector



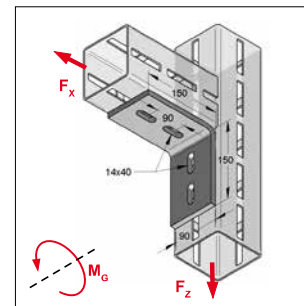
CENTUM® 2-hole angle  
XL 80



CENTUM® 3-hole angle  
XL 80



CENTUM® 3-hole angle  
from XL 100



CENTUM® 4-hole angle  
from XL 100

### Specification:

For profile type: XL 80, XL 100, XL 120 und XL 200

Required accessory: T-lock head, toothed, M12/40

\* by using of all screw holes

### Technical data:

Material: steel

Material type: S235JR

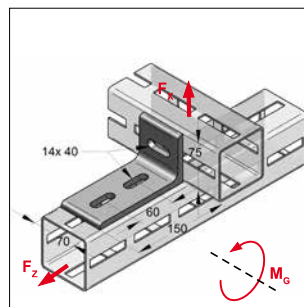
Surface: hot-dip galvanized

Safety factor: 1,54

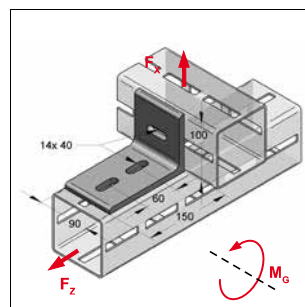
Remark: Always align elongated holes of components in direction of elongated holes of CENTUM® profile.

Identification	max. load		max. limited torque	Weight [kg/pc.]	Packing [pc.]	Part-No.
	$F_x$ [kN]	$F_z$ [kN]	$M_G^*$ [kNm]			
<b>CENTUM® 2-hole angle XL 80</b>	5,2	8	0,40	0,87	1	1640081005
<b>CENTUM® 3-hole angle XL 80</b>	5,2	16	0,46	1,33	1	1640081010
<b>CENTUM® 3-hole angle from XL 100</b>	6,0	20	0,60	1,74	1	1640001010
<b>CENTUM® 4-hole angle from XL 100</b>	6,0	20	0,50	2,02	1	1640001020

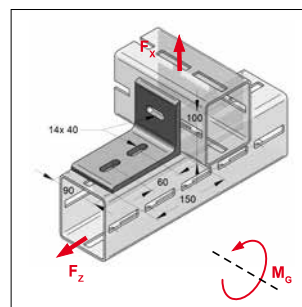
## ■ CENTUM® Angles horizontal - cross connector



CENTUM® 3-hole angle  
horizontal XL 80



CENTUM® 3-hole angle  
horizontal XL 100



CENTUM® 3-hole angle  
horizontal XL 120

### Specification:

For profile type: XL 80, XL 100, XL 120 und XL 200

Required accessory: T-lock head, toothed, M12/40

\* by using of all screw holes

### Technical data:

Material: steel

Material type: S235JR

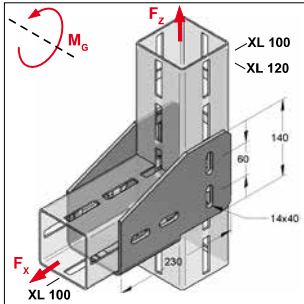
Surface: hot-dip galvanized

Safety factor: 1,54

Remark: Always align elongated holes of components in direction of elongated holes of CENTUM® profile.

Identification	max. load		max. limited torque	Weight [kg/pc.]	Packing [pc.]	Part-No.
	$F_x$ [kN]	$F_z$ [kN]	$M_G^*$ [kNm]			
<b>CENTUM® 3-hole angle horizontal XL 80</b>	5,2	16	0,4	1,07	1	1640081012
<b>CENTUM® 3-hole angle horizontal XL 100</b>	6	20	0,6	1,74	1	1640001012
<b>CENTUM® 3-hole angle horizontal XL 120</b>	6	20	0,6	1,74	1	1641201012

## CENTUM® Angle-shoe XL



CENTUM® Angle-shoe XL 100

**Specification:**

For profile type: XL 100  
 High-strength corner connection with profile support  
 Required accessory: T-lock head, toothed, M12/40

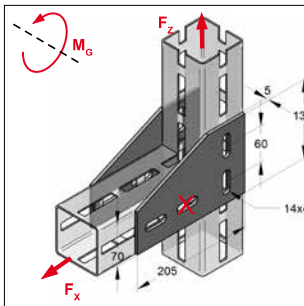
**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 Safety factor: 1,54

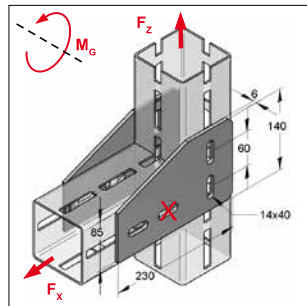
\* by using of all screw holes

Identification	max. load		max. limited torque	Weight	Packing	Part-No.
	$F_x$ [kN]	$F_z$ [kN]				
CENTUM® Angle-shoe XL 100	40	40	1,2	3,57	1	1641002010

## CENTUM® Corner plate



CENTUM® Corner plate



CENTUM® Corner plate L  
 from XL 100

**Specification:**

For profile type: XL 80, XL 100, XL 120 und XL 200  
 Required accessory: T-lock head, toothed, M12/40

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 Safety factor: 1,54

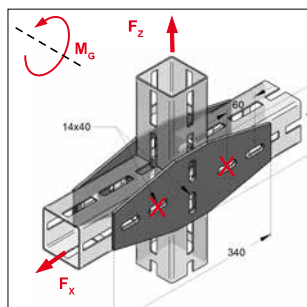
\* by using of all screw holes

Remark: for  $M_G = 0$  only one screw per side at X

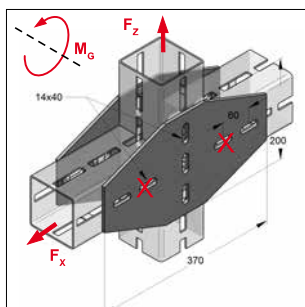
Identification	profile type	max. load		max. limited torque	Weight	Packing	Part-No.
		$F_x$ [kN]	$F_z$ [kN]				
CENTUM® Corner plate XL 80 (use in pairs)	XL 80	32	32	0,95*	0,92	1	1640083010
CENTUM® Corner plate L (use in pairs)	from XL 100	40	40	1,20*	1,38	1	1640003010



## CENTUM® Cross plate



CENTUM® Cross plate  
XL 80



CENTUM® Cross plate  
from XL 100

### Specification:

For profile type: XL 100, XL 120 and XL 200  
Required accessory: T-lock head, toothed, M12/40

\* by using of all screw holes

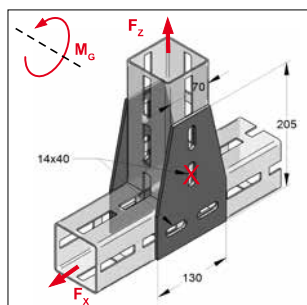
Remark: for  $M_G = 0$  only one screw per side at X

### Technical data:

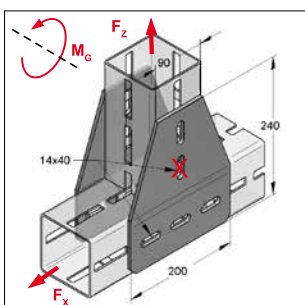
Material: steel  
Material type: S235JR  
Surface: hot-dip galvanized  
Safety factor: 1,54

Identification	profile type	max. load		max. limited torque $M_G^*$ [kNm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
		$F_x$ [kN]	$F_z$ [kN]				
<b>CENTUM® Cross plate XL 80</b> (use in pairs)	XL 80	32	32	0,95*	1,47	1	1640083020
<b>CENTUM® Cross plate</b> (use in pairs)	from XL 100	40	40	1,20*	2,89	1	1640003020

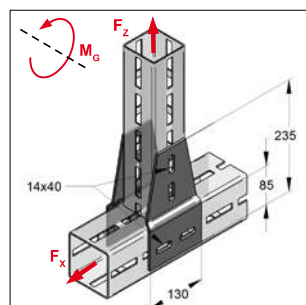
## CENTUM® T-plate



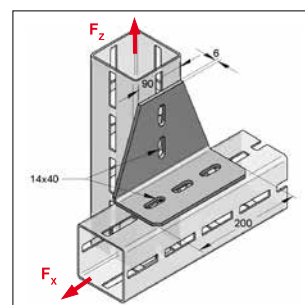
CENTUM® T-plate  
XL 80



CENTUM® T-plate  
ab XL 100



CENTUM® T-plate cranked sym.



CENTUM® T-plate, angled

### Specification:

For profile type: XL 80, XL 100, XL 120 und XL 200  
Required accessory: T-lock head, toothed, M12/40

Remark: for  $M_G = 0$  only one screw per side at X

### Technical data:

Material: steel  
Material type: S235JR  
Surface: hot-dip galvanized  
Safety factor: 1,54

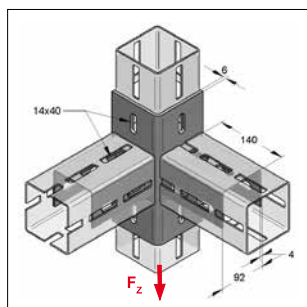
<sup>1)</sup> by using of all screw holes

<sup>2)</sup> use in pairs

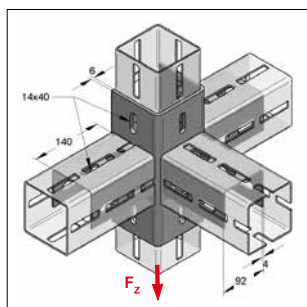
<sup>3)</sup> cross profile XL 100; any connecting profile

Identification	profile type	max. load		max. limited torque $M_G^*$ [kNm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
		$F_x$ [kN]	$F_z$ [kN]				
<b>CENTUM® T-plate XL 80</b> <sup>2)</sup>	XL 80	32	32	0,95 <sup>1)</sup>	0,92	1	1640081030
<b>CENTUM® T-plate</b> <sup>2)</sup>	from XL 100	40	40	1,20 <sup>1)</sup>	1,97	1	1640001030
<b>CENTUM® T-plate cranked sym.</b> <sup>2)</sup>	to connect XL 80 with XL 100	32	32	0,95 <sup>1)</sup>	1,08	1	1640003030
	to connect XL 100 with XL 120	40	40	1,20 <sup>1)</sup>			
<b>CENTUM® T-plate, angled</b>	XL 80, XL 100, XL 120, XL 200 <sup>3)</sup>	20	9	-	1,99	1	1640001040

## CENTUM® Angle coupler



CENTUM® Angle coupler 90°



CENTUM® Angle coupler 180°

### Specification:

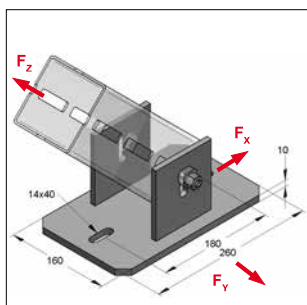
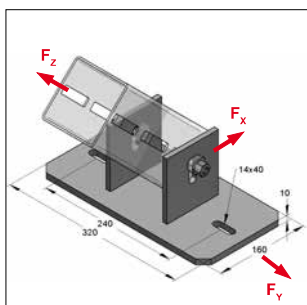
For profile type: XL 100  
Required accessory: T-lock head, toothed, M12/40

### Technical data:

Material: steel  
Material type: S235JR  
Surface: hot-dip galvanized  
Safety factor: 1,54

Identification	max. load $F_z$ [kN]	Weight [kg/pc.]	Packing [pc.]	Part-No.
CENTUM® Angle coupler 90°	20	4,72	1	1641006010
CENTUM® Angle coupler 180°	20	7,12	1	1641006020

## CENTUM® Joint holder

CENTUM® Joint holder  
XL 100 verticalCENTUM® Joint holder  
XL 100 horizontal

### Specification:

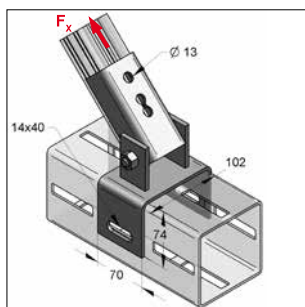
For profile type: XL 100 or XL 120  
Required accessory: T-bolt, with steel disk, M12/40  
Tightening torque: 60 Nm  
Delivery time: on request

### Technical data:

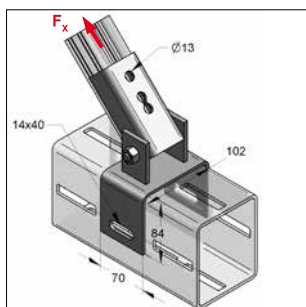
Material: steel  
Material type: S235JR  
Surface: hot-dip galvanized  
Safety factor: 1,54

Identification	max. load			center hole Plate	Dimension Plate L x B x S	Weight [kg/pc.]	Packing [pc.]	Part-No.
	$F_x$ [kN]	$F_z$ [kN]	$F_y$ [kN]					
CENTUM® Joint holder XL 100 vertical	6,3	20	11	180	260 x 160 x 10	4,89	1	1641004010
CENTUM® Joint holder XL 100 horizontal	6,3	20	11	240	320 x 160 x 10	5,72	1	1641004020

## ■ CENTUM® Joint connection



Joint connection XL 100



Joint connection XL 120

### Specification:

For profile type: XL 100, XL 120 and XL 200  
in combination with C-profile rails 45

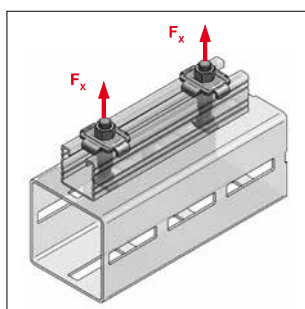
### Technical data:

Material: steel  
Material type: S235JR  
Surface: zinc-nickel

<sup>1)</sup> loads referring to component, not to connection

Identification	max. load <sup>1)</sup> $F_x$ [kN]	Hole-Ø [mm]	Elongated hole-Ø [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
<b>CENTUM® Joint connection XL 100</b>	7,0	13	14 x 40	1,26	1	1641014110
<b>CENTUM® Joint connection XL 120</b>	7,0	13	14 x 40	1,31	1	1641214110

## ■ CENTUM® C-profile connector



CENTUM® C-profile connector

### Specification:

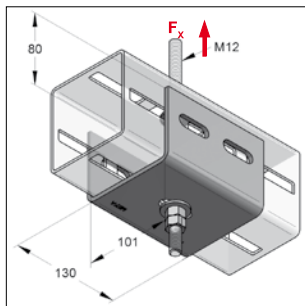
For profile type: XL 100, XL 120 and XL 200  
Application: to connect profile rails

### Technical data:

Material: steel  
Material type: S235JR  
Surface: galvanized

Identification	for profile-height [mm]	max. load $F_x$ [kN]	tightening torque [Nm]	Weight [kg/pc.]	Packing [pcs.]	Part-No.
<b>CENTUM® C-profile connector</b>	40-45	2,0	10	0,160	50	1640017040
<b>CENTUM® C-profile connector</b>	60	2,0	10	0,170	50	1640017060

## CENTUM® Hanger massive



CENTUM® Hanger massive

**Specification:**

For profile type: XL 100, XL 120 and XL 200  
 Application: Suspension of CENTUM® Profiles with threaded rods  
 Scope of supply: CENTUM® retaining profile (for profile width 100 mm)  
 3x nut M12  
 2x Washer 13 x 30 x 2,5

Required accessory: threaded rod M12

**Technical data:**

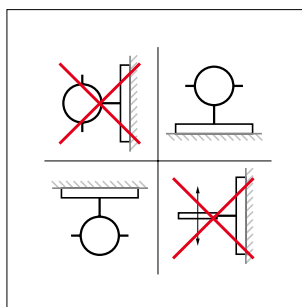
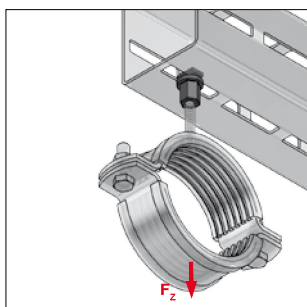
Material: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 Safety factor: 1,54

Identification	Thread	max. load $F_x$ [kN]	Weight [kg/pc.]	Packing [pc.]	Part-No.
CENTUM® Hanger massive	M12	10,0	1,50	1	1620003010

## CENTUM® Direct connector



CENTUM® Direct connector



Mounting recommendation

**Specification:**

For profile type: XL 80, XL 100, XL 120, XL 200  
 Application: direct connection for M10 or M12 thread

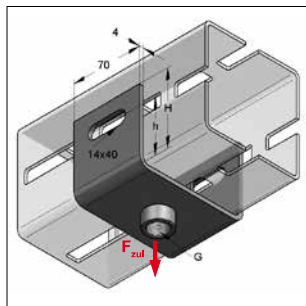
**Technical data:**

Material type: steel  
 Surface: zinc-nickel  
 Safety factor: 1,54

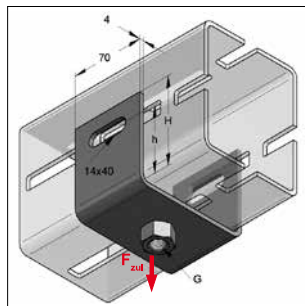
Identification	wrench size	height collar nut [mm]	recommended tightening torque [Nm]	max. load $F$ [kN]	Weight [kg/pc.]	Packing [pcs.]	Part-No.
CENTUM® Direct connector	SW 17	25	25	3,0	0,072	50	1640016010
CENTUM® Direct connector	SW 17	25	25	3,0	0,070	50	1640016012



## CENTUM® Thread connector



CENTUM® Thread connector  
XL 80/ XL 100 1/2"



CENTUM® Thread connector  
XL 120 M16

### Specification:

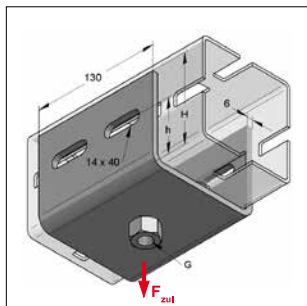
For profile type: XL 100, XL 120 and XL 200  
Required: 2 x T-lock head, toothed, M12/40

### Technical data:

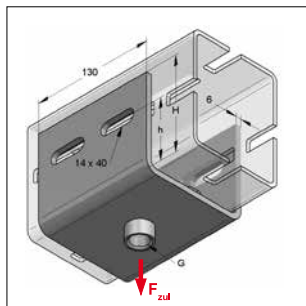
Material: steel  
Material type: S235JR  
Surface: zinc-nickel  
Safety factor: 1,54

Identification	Profile type	thread G	max. load $F_{zul}$ [kN]	H [mm]	h [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
CENTUM® Thread connector	XL 80	M16	4,0	64	40	0,480	1	1640818007
CENTUM® Thread connector	XL 80	1/2"	4,0	64	40	0,470	1	1640818008
CENTUM® Thread connector	XL 80	1"	4,0	64	40	0,520	1	1640818010
CENTUM® Thread connector	XL 100 / XL 200	M12	5,0	74	50	0,550	1	1641018006
CENTUM® Thread connector	XL 100 / XL 200	M16	5,0	74	50	0,557	1	1641018007
CENTUM® Thread connector	XL 100 / XL 200	1/2"	5,0	74	50	0,557	1	1641018008
CENTUM® Thread connector	XL 100 / XL 200	1"	5,0	74	50	0,610	1	1641018010
CENTUM® Thread connector	XL 120	M16	5,0	84	60	0,620	1	1641218007
CENTUM® Thread connector	XL 120	1/2"	5,0	84	60	0,610	1	1641218008
CENTUM® Thread connector	XL 120	1"	5,0	84	60	0,660	1	1641218010

## CENTUM® Massive connector



CENTUM® Massive connector  
XL 100 M16



CENTUM® Massive connector  
XL 120 1/2"

### Specification:

For profile type: XL 100, XL 120 and XL 200

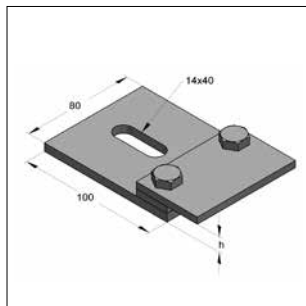
Required: 4 x T-lock head, toothed, M12/40

### Technical data:

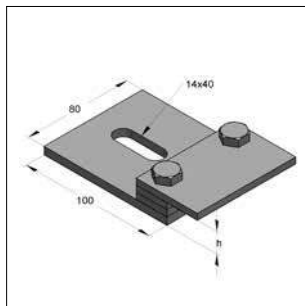
Material: steel  
Material type: S235JR  
Surface: zinc-nickel  
Safety factor: 1,54

Identification	Profile type	thread G	max. load $F_{zul}$ [kN]	H [mm]	h [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
CENTUM® Massive connector	XL 100 / XL 200	M16	10,0	86	50	1,65	1	1641019007
CENTUM® Massive connector	XL 100 / XL 200	1/2"	10,0	86	50	1,64	1	1641019008
CENTUM® Massive connector	XL 100 / XL 200	1"	10,0	86	50	1,69	1	1641019010
CENTUM® Massive connector	XL 120	M16	10,0	96	60	1,78	1	1641219007
CENTUM® Massive connector	XL 120	1/2"	10,0	96	60	1,77	1	1641219008
CENTUM® Massive connector	XL 120	1"	10,0	96	60	1,82	1	1641219010

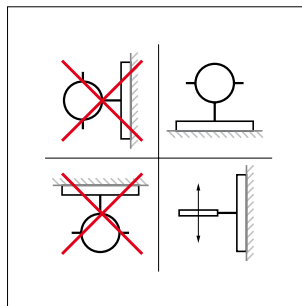
## CENTUM® Z-pressure pad



CENTUM® Z-pressure pad  
clamping strength 11 mm



CENTUM® Z-pressure pad  
clamping strength 16 mm



Mounting recommendation

### Specification:

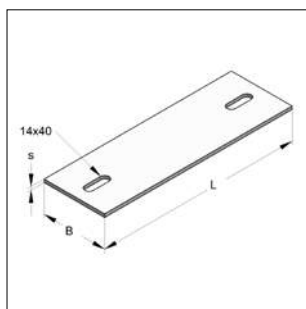
For profile type: XL100, XL120 and XL 200  
set of 2 pcs.  
Mounting instruction: suitable for standing assembly, only  
Required accessory: sliding stripe PA 6 (see chapter 4)  
T-bolt with steel disk, M12/40

### Technical data:

Material: steel  
Material type: S235JRG  
Surface: zinc-nickel

Identification	Length	Width	clamping strength h	Thickness	elongated hole-Ø	Weight	Packing	Part-No.
	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/set]	[set]	
<b>CENTUM® Z-pressure pad s11</b>	100	80	11	6	14 x 40	1,31	1	1650015011
<b>CENTUM® Z-pressure pad s16</b>	100	80	16	6	14 x 40	1,48	1	1650015016

## Sliding stripe PA 6



Sliding stripe

### Specification:

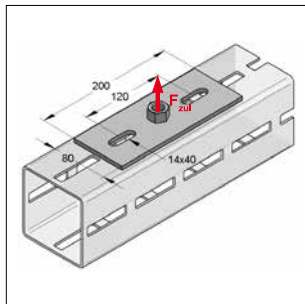
Product features: Improvement of the sliding property  
Application area: sliding plates

### Technical data:

Material: Polyamid 6  
Static friction factor: 0,2 - 0,3  
Sliding friction factor: 0,15 - 0,25  
Thermal load: - 30 °C up to + 110 °C

Identification	Length L	Width B	Thickness s	elongated hole-Ø	sliding element width	Weight	Packing	Part-No.
	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/pc.]	[pc.]	
<b>Sliding stripe PA 310 2-hole</b>	310	100	5	14 x 40	≤ 100	0,172	1	9992458
<b>Sliding stripe PA 355 2-hole</b>	355	100	5	14 x 40	≤ 150	0,198	1	9992200
<b>Sliding stripe PA 410 2-hole</b>	410	100	5	14 x 40	≤ 200	0,230	1	9992459

## CENTUM® Base plate



CENTUM® Base plate M12

**Specification:**

For profile type: XL100, XL120 and XL 200

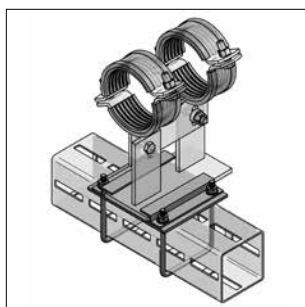
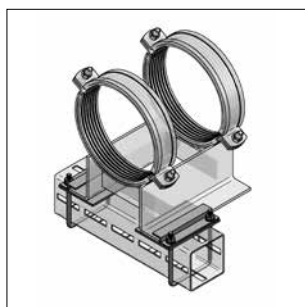
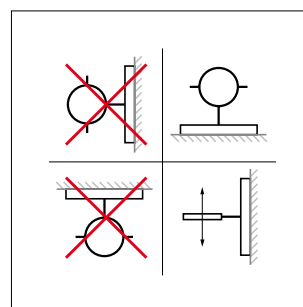
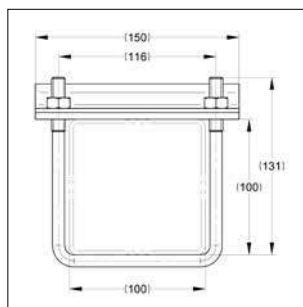
 Required accessory: T-lock head, toothed, M12/40 or  
T-bolt with steel disk, M12/40

**Technical data:**

 Material: steel  
 Material type: S235JRG2  
 Surface: zinc-nickel  
 Safety factor: 1,54

Identification	Length [mm]	Height [mm]	max. load $F_{zul}$ [kN]	Thickness [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
CENTUM® Base plate M12	200	80	5,5	6	0,760	1	1640018106
CENTUM® Base plate M16	200	80	5,5	6	0,790	1	1640018107
CENTUM® Base plate 1/2"	200	80	5,5	6	0,780	1	1640018108
CENTUM® Base plate 1"	200	80	5,5	6	0,830	1	1640018110

## CENTUM® Z-pressure pad Set with U-bolt


 CENTUM® Z-pressure pad Set  
for sliding sledge and sliding plate  
with 100 mm width

 CENTUM® Z-pressure pad Set  
for sliding sledge and sliding plate  
above 140 mm width


Mounting recommendation

**Specification:**

Application: Fixing of sliding element on  
CENTUM XL 100 or square pipe 100

scope of delivery: 2 x U-bolt 116/131 M10  
(Set for 100 mm) 2 x Z-pressure pad 150 mm 2-hole  
1 x sliding stripe PA6 4-hole (150 x 165 x 5)  
4 x nut M10

scope of delivery: 2 x U-bolt 116/131 M10  
(Set above 140 mm) 2 x Z-pressure pad 150 mm 2-hole  
2 x sliding stripe PA6 2-hole (150 x 100 x 5)  
4 x nut M10

**Technical data:**

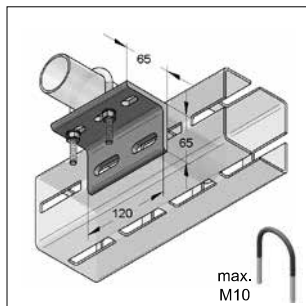
Material: steel  
 Material type: S235JR  
 Surface: zinc-nickel  
 - U-bolt, Z-pressure pad: hot-dip galvanized  
 - nut: hot-dip galvanized

Material sliding stripe: PA6  
 static friction factor: 0,2 - 0,3  
 sliding friction factor: 0,15 - 0,25  
 Temperature resistance: - 30° C up to + 110° C

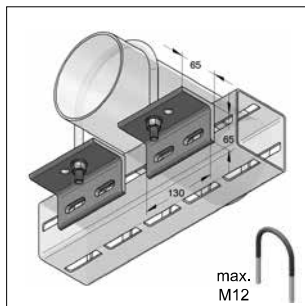
Identification	for pipe / CENTUM	max. thickness sliding eleme	lifting stress / set	Weight [kg/set]	Packing [set]	Part-No.-Nr.
	[mm]	[mm]	[kN]			
Z-pressure pad Set for sliding sledge with 100 mm width	100 x 100	16	4,5	1,060	1	14799100
Z-pressure pad Set for sliding sledge above 140 mm width	100 x 100	16	4,5	1,090	1	14799140



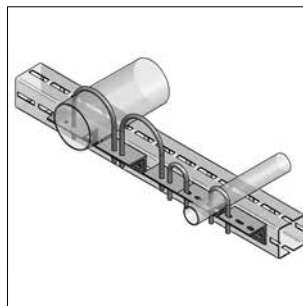
## ■ CENTUM® Pipe holder



CENTUM® Ø 21,3 - 76,1



CENTUM® Ø 88,9 - 219,1



combined exemplar

### Specification:

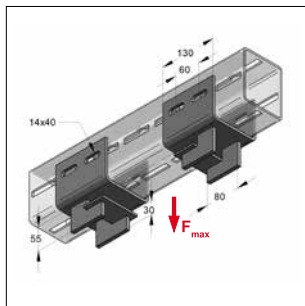
For pipe diameter: Ø 21,3 - 219,1 mm  
 Mounting instruction: pipe must overlie  
 Advantage: installation of different pipe diameter  
 Required accessory: T-lock head and U-bolt  
 Delivery time: on request

### Technical data:

Material: steel  
 Material type: S235JRG2  
 Surface: hot-dip galvanized

Identification	for pipe-Ø	Length [mm]	Height [mm]	Thickness [mm]	Weight [kg/pc.]	Packing [pcs.]	Part-No.
<b>CENTUM® Pipe holder</b>	<b>21,3 - 76,1</b>	120	65	7	0,81	1	1640008200
<b>CENTUM® Pipe holder</b>	<b>88,9 - 219,1</b>	130	65	7	1,80	2	1640008210

## CENTUM® Sliding base, hanging



CENTUM® Sliding base, hanging

**Specification:**

For profile type: XL 100, XL 120 or XL 200  
 Required accessory: T-lock head, toothed, M12/40

Remark: shipment in pairs

sliding element: Base plates above 150 mm width  
 Sliding sledge and Sliding support T above 100 mm width

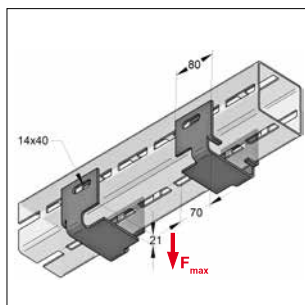
**Technical data:**

Material Sliding base: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 max. sliding plate thickness: ≤ 16 mm  
 Material sliding body: PE - UHMW  
 static friction factor: 0,2  
 slide friction factor: 0,15  
 Temperature resistance: - 200 °C up to + 80 °C  
 Safety factor: 1,54

\* Loads refer to pair

Identification	Profile type	Alignment	max. load* $F_{max}$ [kN]	Weight [kg/set]	Packing [set]	Part-No.
CENTUM® Sliding base	XL 100 / XL 200	hanging	15,0	4,78	1	1651002001
CENTUM® Sliding base	XL 120	hanging, profile upright	15,0	5,05	1	1651202011

## CENTUM® Sliding base, hanging light



CENTUM® Sliding base, hanging light

**Specification:**

For profile type: XL 80, XL 100  
 Required accessory: T-lock head, toothed, M12/40

Remark: shipment in pairs

sliding element: - with glued Sliding stripes  
 - Base plates, width Sliding sledge and Sliding support T above 100 mm width

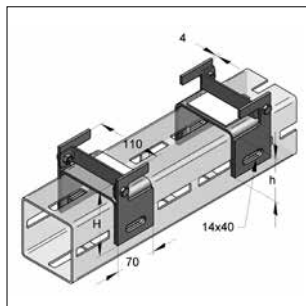
**Technical data:**

Material Sliding base: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 max. sliding plate thickness: ≤ 16 mm  
 Material sliding body: PE - UHMW  
 static friction factor: 0,2  
 slide friction factor: 0,15  
 Temperature resistance: - 200 °C up to + 80 °C  
 Safety factor: 1,54

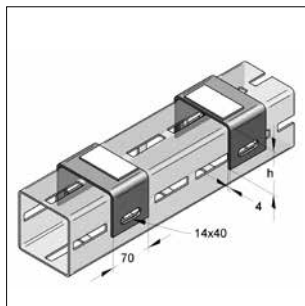
\* Loads refer to pair

Identification	Profile type	Alignment	max. load* $F_{max}$ [kN]	Weight [kg/set]	Packing [set]	Part-No.
CENTUM® Sliding base, light	XL 80	hanging	5,0	1,13	1	1650804000
CENTUM® Sliding base, light	XL 100	hanging	5,0	1,35	1	1651004000

## ■ CENTUM® Sliding base, standing



CENTUM® Sliding base, standing  
with lift lock



CENTUM® Sliding base, standing  
without lift lock

### Specification:

For profile type: XL 100, XL 120 and XL 200  
Required accessory: T-lock head, toothed, M12/40 or  
T-bolt with steel disk, M12/40

Remark: shipment in pairs

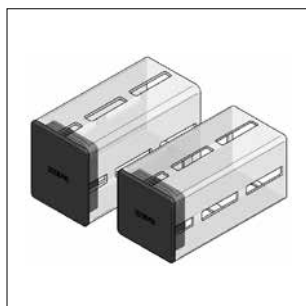
### Technical data:

Material Sliding base: steel  
Material type: S235JR  
Surface: hot-dip galvanized  
max. sliding plate thickness: ≤ 16 mm  
Material sliding body: PE - UHMW  
static friction factor: 0,2  
slide friction factor: 0,15  
Temperature resistance: - 200 °C up to + 80 °C  
Safety factor: 1,54

\* Loads refer to pair

Identification	Profile type	Alignment	max. load * $F_{zul}$ [kN]	H [mm]	h [mm]	Weight [kg/set]	Packing [set]	Part-No.
<b>Sliding base with lift lock</b>	XL 100 / XL 200	standing	40	110	74	2,13	1	1651001020
<b>Sliding base without lift lock</b>	XL 100 / XL 200	standing	40	-	74	1,07	1	1651001010
<b>Sliding base with lift lock</b>	XL 120	standing, profile upright	40	120	84	2,23	1	1651201050
<b>Sliding base without lift lock</b>	XL 120	standing, profile upright	40	-	84	1,28	1	1651201030

## ■ CENTUM® Protecting cap



CENTUM® Protecting cap

### Specification:

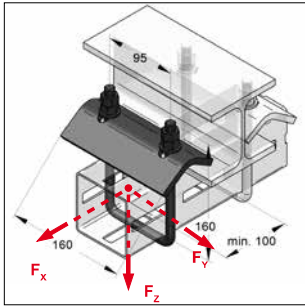
For profile type: XL 80, XL 100 or XL 120

### Technical data:

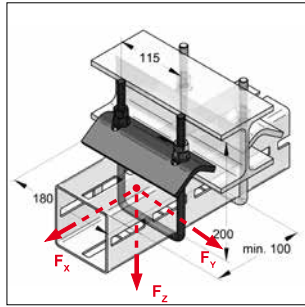
Material: plastic  
Material type: PE  
Colour: black

Identification	Weight [kg/pc.]	Packing [set]	Part-No.
<b>CENTUM® Protecting cap XL 80</b>	0,056	20	1670080
<b>CENTUM® Protecting cap XL 100</b>	0,092	20	1670100
<b>CENTUM® Protecting cap XL 120</b>	0,064	20	1670120

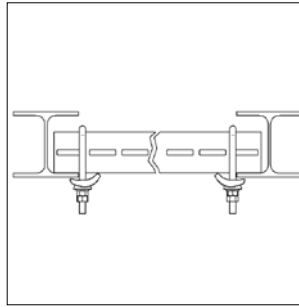
## CENTUM® Clamping bow light



CENTUM® Clamping bow light  
XL 80



CENTUM® Clamping bow light  
XL 100 / XL 120



**Specification:**

For profile rail type: XL 80, XL 100 or XL 120  
Application area: for mounting of steel profile rail on girder

Delivery time: on request

**Set consisting of:**

U-bolt 1 pc.  
CENTUM® tensioning bracket 1 pc.  
Nuts M12 4 pcs.  
washer 2 pcs.

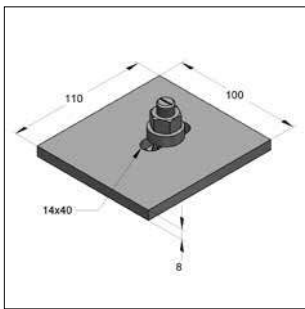
**Technical data:**

Material: steel  
Material type: S235JR  
Surface:  
U-bolt: zinc-nickel  
CENTUM® tensioning bracket Galvanized  
Nuts M12 Galvanized  
washer Galvanized

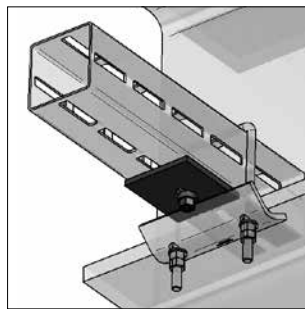
Remark: max. loads refer according to a clamping bow set. Please notice max. loads of CENTUM® profile rails

Identification	Thread U-bolt	max. load			tightening torque [Nm]	max. clamping strength [mm]	Weight [kg/pc.]	Packing [pc.]	Part-No.
		F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>					
CENTUM® Clamping bow XL 80	M12	3,0	3,0	10,0	25	6 - 25	1,30	1	1660801011
CENTUM® Clamping bow XL 100 / 120	M12	3,0	3,0	10,0	25	6 - 25	1,46	1	1661001011

## CENTUM® Spacer plate for clamping bows



CENTUM® Spacer plate  
for clamping bows  
T-bolt, with steel disk



CENTUM® spacer plate combined  
with CENTUM® clamping bow

**Specification:**

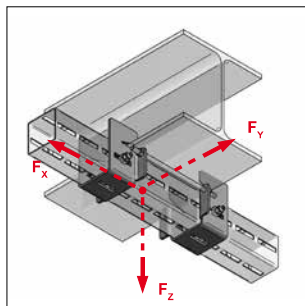
Application area: to raise clamping thickness of CENTUM clamping bow  
Mounting instruction: with space plate clamping thickness can be increased by 8 mm  
Required accessory: T-bolt, with steel disk, M12/40  
Delivery time: on request

**Technical data:**

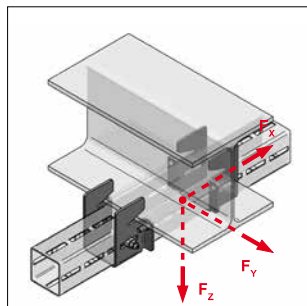
Material: steel  
Surface: hot-dip galvanized

Identification	Width [mm]	Dimension			Weight [kg/pc.]	Packing [pc.]	Part-No.
		Length [mm]	Thickness s [mm]	elongated hole [mm]			
CENTUM® Spacer plate	100	110	8	14x40	0,830	1	1660011030

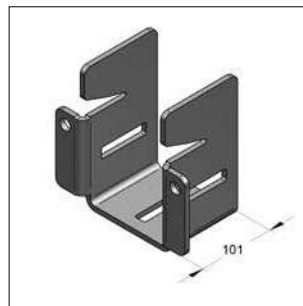
## CENTUM® Clamping shoe



CENTUM® Clamping shoe mounted



CENTUM® Clamping shoe mounted



CENTUM® Clamping shoe single

### Specification:

Application area: Attaching CENTUM® profiles to steel girder  
 Installation advise: Evenly tightening of threaded rods with 15 Nm  
 Torque for CENTUM® T-lock head 120 Nm

Scope of delivery: Sold in pairs

### Technical data:

Material: steel  
 Material type: S235JR  
 Surface: hot-dip galvanized  
 Safety factor: 1,54

Identification	Profile type	Clamping thickness Flange [mm]	min. Clamping range Flange [mm]	max. web thickness Girder [mm]	max. load			Weight [kg/set]	Packing [set]	Part-No.
					$F_x$ [kN]	$F_y$ [kN]	$F_z$ [kN]			
<b>CENTUM® Clamping shoe S</b>	XL 100	5-10	82*	10	20,0	4,2	22,5	4,24	1	1661002010
<b>CENTUM® Clamping shoe M</b>	XL 100	8-15	100	10	20,0	4,2	22,5	4,39	1	1661003010
<b>CENTUM® Clamping shoe L</b>	XL 100	13-20	140	20	20,0	4,2	22,5	4,56	1	1661004010
<b>CENTUM® Clamping shoe XL</b>	XL 100	19-30	180	40	20,0	4,2	22,5	5,20	1	1661005010
<b>CENTUM® Clamping shoe S</b>	XL 120	5-10	82*	10	20,0	4,2	22,5	4,77	1	1661202010
<b>CENTUM® Clamping shoe M</b>	XL 120	8-15	100	10	20,0	4,2	22,5	4,93	1	1661203010
<b>CENTUM® Clamping shoe L</b>	XL 120	13-20	140	20	20,0	4,2	22,5	5,08	1	1661204010
<b>CENTUM® Clamping shoe XL</b>	XL 120	19-30	180	40	20,0	4,2	22,5	5,80	1	1661205010
<b>CENTUM® Clamping shoe L</b>	XL 200	13-20	140	20	20,0	4,2	22,5	7,22	1	1662004010
<b>CENTUM® Clamping shoe XL</b>	XL 200	19-30	180	40	20,0	4,2	22,5	8,21	1	1662005010

\*The min. clamping width of flange with 82mm only for IPE girder, with 91mm only for IPEa girder, for other types of girder the min. clamping width is 100mm.

## CENTUM® clamping shoe accessory -set



CENTUM® clamping shoe accessory

### Specification:

Application area: fixing accessories for Centum clamping shoe  
 Content: 4 x T-lock head, toothed M12/40  
 2 x profile rail M12  
 4 x nut M12

### Technische Daten:

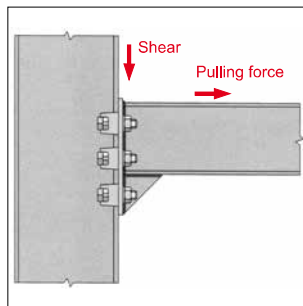
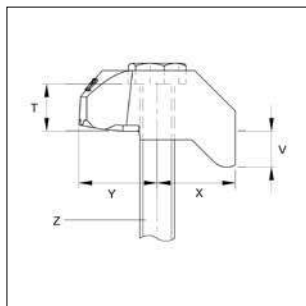
Material: Steel  
 Surface: zinc-nickel  
 T-lock head: zinc-nickel  
 Threaded rods & nuts: galvanized

Identification	Threaded rod length [mm]	clamping range flange [mm]	Weight [kg/set]	Packing [set]	Artikel-Nr.
<b>CENTUM® clamping shoe accessory 160</b>	160	82 - 160	0,780	1	1660019160
<b>CENTUM® clamping shoe accessory 300</b>	300	160 - 300	0,986	1	1660019300

## CENTUM® Clamping claw - type AF



Clamping Claw AF



### Specification:

Application: - flange up to inclination of 10°  
- absorption of high shearing forces by clamping girder fixation at vertical girder

Mounting instruction: cam height V = min./max. clamping thickness  
washers for height-adjustment of flange available on request

Delivery time: on request

### Technical data:

Material: cast iron  
Surface: hot-dip galvanized  
Safety factor: 5:1 (tensile)  
2:1 (shear)

### Required accessory:

hexagon bolt h.-d. galv. FK 8.8 / threaded rod (see chapter 5.)  
washers DIN EN ISO 7089 h.-d. galv.  
hexagon nuts h.-d. galv.

\* in conjunction with property class 8.8

\*\* for shear force value is valid for two screws couplings

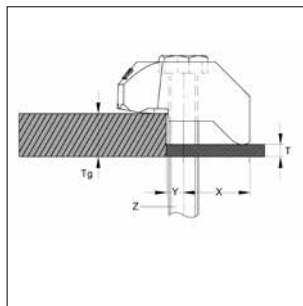
\*\*\* on request

Type	Dimensions			V	Width	Needed screw	Property class screw	Tightening torque	Pulling force	max. load*		Weight Packing		Part-No.
	Y	X	T							Shear**	Girder	[kg/pc.]	[pc.]	
	[mm]	[mm]	[mm]	[mm]	[mm]			[Nm]	[kN]	[kN]	[kN]			
<b>AF M12</b>	29	27	17	12,5 (medium)	39,0	M12x80	8.8	90	8,5	3,4	3,9	0,244	1	1660004012
<b>AF M16</b>	35	37	22	15,0 (medium)	48,5	M16x80	8.8	240	16,0	8,0	10,0	0,460	1	1660004016
<b>AF M12 k***</b>	29	27	17	5,0 (short)	39,0	M12	8.8	90	8,5	3,4	3,9	0,191	1	1660004012/k
<b>AF M16 k***</b>	35	37	22	8,0 (short)	48,5	M16	8.8	240	16,0	8,0	10,0	0,434	1	1660004016/k

selection chart for clamping claw AF page 14/28.



## ■ CENTUM® Washer component AF



Washer component AF

### Specification:

Application: should only be used in combination with clamping claw - type AF

Product feature: for raising clamping thickness, allows assembly at different flange thickness

Delivery time: on request

Installation advise: T = thickness of the washer component

V = cam lift of clamping claw - type AF (see page clamping claw - type AF)

tg = flange thickness

Thickness of washer component is calculated with help of formula:  $T = tg - V$

### Technical Data:

Material: steel

Surface: hot-dip galvanized

Identification	Needed screw	Dimension			Width	Weight	Packing	Part-No.
		Z	Y	X				
		[mm]	[mm]	[mm]	[mm]	[kg/pc.]	[pc.]	
AF 12 CW	M12	7	33	2	40	0,023	1	0576012
AF 12 P1	M12	7	33	5	40	0,062	1	0576082
AF 12 P2	M12	7	33	10	40	0,111	1	0576112
AF 16 CW	M16	8	40	2	50	0,035	1	0576016
AF 16 P1	M16	8	42	5	52	0,097	1	0576114
AF 16 P2	M16	8	42	10	52	0,172	1	0576116

 selection chart for clamping claw AF page 14/28.

## Selection chart for clamping claw Typ AF with different flange thicknesses in parallel flange Straps:

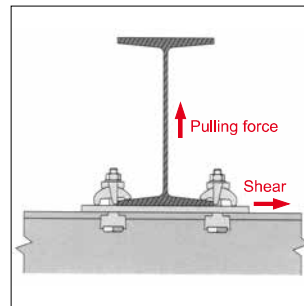
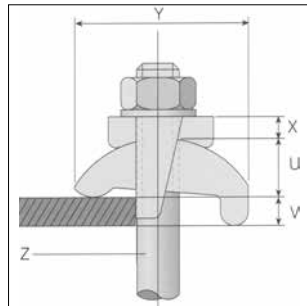
flange thickness	M12				M16			
	clamping claw Typ AF	Washer AF CW	Washer AF P1	Washer AF P2	clamping claw Typ AF	Washer AF CW	Washer AF P1	Washer AF P2
	[mm]	[cam height V]	[pc.]	[pc.]	[cam height V]	[pc.]	[pc.]	[pc.]
5	short*	-	-	-	-	-	-	-
6	short*	-	-	-	-	-	-	-
7	short*	1	-	-	short*	-	-	-
8	short*	1	-	-	short*	-	-	-
9	short*	2	-	-	short*	-	-	-
10	short*	-	1	-	short*	1	-	-
11	short*	3	-	-	short*	1	-	-
12	short*	1	1	-	short*	2	-	-
13	medium	-	-	-	short*	-	1	-
14	medium	1	-	-	short*	3	-	-
15	short*	-	-	1	medium	-	-	-
16	medium	2	-	-	medium	-	-	-
17	medium	-	1	-	medium	1	-	-
18	medium	-	1	-	short*	-	-	1
19	medium	1	1	-	medium	-	1	-
20	short*	-	1	1	medium	-	1	-
21	medium	2	1	-	medium	-	1	-
22	medium	2	1	-	medium	1	1	-
23	medium	-	-	1	medium	1	1	-
24	medium	1	-	1	medium	-	-	1
25	short*	-	-	2	medium	-	-	1
26	medium	2	-	1	medium	-	-	1
27	medium	-	1	1	medium	1	-	1
28	medium	-	1	1	short*	-	-	2
29	medium	1	1	1	medium	-	1	1
30	short*	-	1	2	medium	-	1	1
31	medium	2	1	1	medium	-	1	1
32	medium	-	-	2	medium	1	1	1
33	medium	-	-	2	medium	1	1	1
34	medium	1	-	2	medium	-	-	2
35	short*	-	-	3	medium	-	-	2

\*clamping claw AF with short cam height on request available.

## ■ CENTUM® Clamping claw - type LR



Clamping claw LR



### Specification:

Application: - girder with parallel and up to 15° inclined flanges.  
- Horizontal connection of girder fixation at girder.

Delivery time: on request

<sup>1)</sup> checked for dynamic loads

<sup>3)</sup> in conjunction with property class 8.8

<sup>4)</sup> for shear force value is valid for two screws couplings

<sup>2)</sup> larger flange thickness can be clamped with washer components (P1 and P2 on request)

### Technical data:

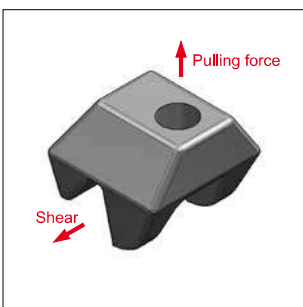
Material: spherulitic cast iron  
Surface: galvanized  
Safety factor: 5:1

### Required accessory:

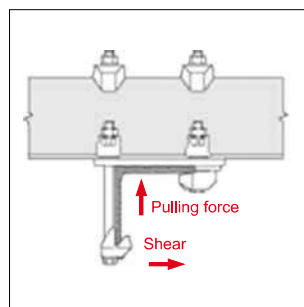
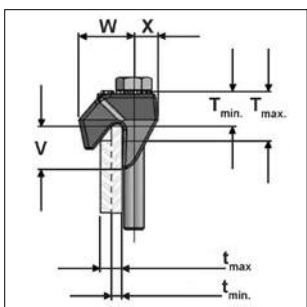
1 x hexagon bolt h.-d. galv. FK 8.8 / threaded rod  
1 x washer DIN EN ISO 7089 h.-d. galv.  
1 x hexagon nut h.-d. galv.

Type	Dimensions				needed Screw Z	Tightening torque [Nm]	max. load <sup>3)</sup>		Weight [kg/pc.]	Packing [pc.]	Part-No.	
	Y [mm]	U [mm]	X [mm]	V <sup>2)</sup> [mm]			Width [mm]	Pulling force [kN]				Shear <sup>4)</sup> [kN]
LR M12	56,0	18,5	7,0	3-12	39,0	M12	69	4,5	0,9	0,172	1	1660003012
LR M16 <sup>1)</sup>	67,0	22,5	8,0	3-16	46,0	M16	147	8,5	1,7	0,310	1	1660003016

## ■ CENTUM® Clamping claw - type CF



Clamping claw CF



### Specification:

Application: - flange-edges of girder, U-profiles, angle-profiles  
- absorption of high shearing forces by clamping at the vertical girder

Delivery time: on request

\* in conjunction with property class 8.8

\*\* for shear force value is valid for two screws couplings

### Technical data:

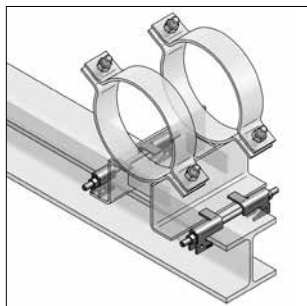
Material: cast iron  
Surface: hot-dip galvanized  
Safety factor: 2,0

### Required accessory:

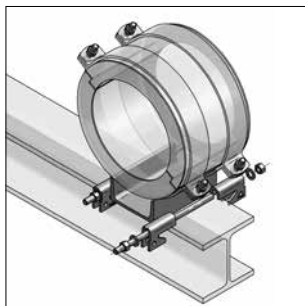
1 x hexagon bolt h.-d. galv. FK 8.8 / threaded rod  
1 x washer DIN EN ISO 7089 h.-d. galv.  
1 x hexagon nut h.-d. galv.

Type	Dimensions			Width [mm]	min.-max. clamping size t [mm]	min.-max. projection T [mm]	Tightening torque [Nm]	max. load		Weight [kg/pc.]	Packing [pc.]	Part-No.
	X [mm]	V [mm]	W [mm]					Pulling force* [kN]	Shear** [kN]			
CF M12	14	25	32	46	6-13	21-29	90	8,5	3,9	0,222	1	1660002012
CF M16	18	32	44	56	8-16	25-33	240	16,0	10,0	0,428	1	1660002016

## ■ Guiding Clamp-Set



Guiding Clamp-Set Typ A  
(assembled)



Guiding Clamp-Set Typ B  
(assembled)

### Specification:

Application: for lateral guidance of sliding sledges and sliding supports on girder


Type A with lift lock for guide bearing

Type B without lift lock for floating bearing

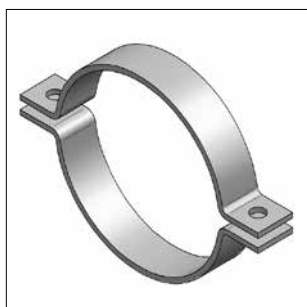
### Technical data:

Material: steel  
Material type: S235JR

Surface:  
- guiding clamps: hot-dip galvanized  
- screwing: zinc-nickel

 Assembly instructions see chapter 15

## ■ Pipe clamp Form A, DIN 3567



Pipe clamp Form A, DIN 3567

### Specification:

Closure: Hexagon nut/ closure-screw  
Model: 2-parts  
OD: 25 up to 521 mm  
Connection: without connection  
Delivery time: on request

### Technical data:

Material: steel  
Material type: S235JR  
Surface: raw, galvanized, hot-dip galvanized

## ■ Pipe clamp Form C, DIN 3567



Pipe clamp Form C, DIN 3567

### Specification:

Closure: Hexagon nut/ closure screw  
Model: 2-parts  
OD: 115 up to 356 mm  
Connection: without connection  
Delivery time: on request

### Technical data:

Material: steel  
Material type: S235JR  
Surface: raw, galvanized, hot-dip galvanized

## ■ Pipe clamp Form A, type Maxima / Titan HD clamp



Pipe clamp Form A  
type Maxima / Titan HD  
clamp

**Specification:**

Closure: Hexagon nut/ closure screw  
Model: 2-parts  
OD: 20 up to 368 mm  
Connection: without connection  
Delivery time: on request

**Technical data:**

Material: steel  
Material type: S235JR  
Surface: galvanized

## ■ Pipe clamp Form A, type Maxima / Titan HD clamp



Pipe clamp Form A  
type Maxima / Titan HD  
clamp

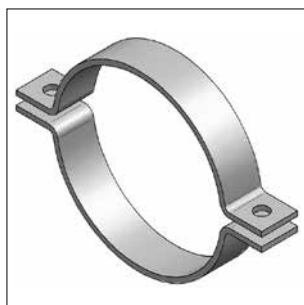

**Specification:**

Closure: Hexagon nut/ closure screw  
Model: 2-parts  
OD: 22 up to 368 mm  
Connection: without connection  
Sound insulation: according to DIN 4109  
Delivery time: on request

**Technical data:**

Material: steel  
Material type: S235JR  
Surface: galvanized  
Sound insulation lining: EPDM (ceramic lining on request)  
Temperature resistance: - 35 °C up to + 100 °C  
Insulation thickness: 6 mm

## ■ Pipe clamp Form A, type TGA



Pipe clamp Form A, type TGA

**Specification:**

Closure: Hexagon nut/ closure screw  
Model: 2-parts  
OD: 219 up to 1220 mm  
Connection: without connection  
Delivery time: on request

**Technical data:**

Material: steel  
Material type: S235JR  
Surface: raw, galvanized, hot-dip galvanized

## ■ Pipe clamp Form A, type TGA



Pipe clamp Form A, type TGA

### Specification:

Closure:	Hexagon nut/ closure screw
Model:	2-parts
OD:	219 up to 1220 mm
Connection:	without connection
Sound insulation:	according to DIN 4109
Delivery time:	on request

### Technical data:

Material:	steel
Material type:	S235JR
Surface:	galvanized
Sound insulation lining:	EPDM (ceramic lining on request)
Temperature resistance:	- 35 °C up to + 100 °C
Insulation thickness:	6 mm

## ■ Stirrup clamp according to DIN 1593

Stirrup clamp according to  
DIN 1593

### Specification:

Closure:	Hexagon nut / closure screw
Model:	one-piece
OD:	20 up to 219 mm
Connection:	without connection
Delivery time:	on request

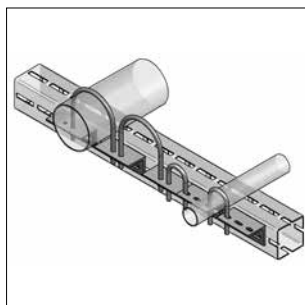
### Technical data:

Material:	steel
Material type:	S235JR
Surface:	galvanized hot-dip galvanized

## ■ U-bolt pipe hanger



U-bolt pipe hanger



Pipe holder see page 14/16

**Remark:**  
U-bolts galvanized  
see catalogue  
chapter 1

### Specification:

OD:	60,3 up to 324 mm
Connection:	M10, M12, M20
Delivery time:	on request

### Technical data:

Material:	steel
Material type:	S235JR
Surface:	zinc-nickel

## ■ Sliding support T



Sliding support T

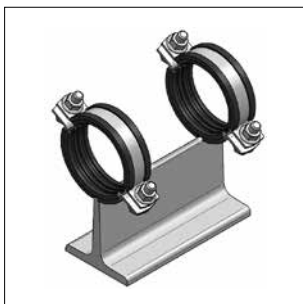
**Specification:**

Closure: Hexagon nut / closure screw  
 Model: T-support  
 OD: 20 up to 219 mm  
 Delivery time: on request

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: galvanized  
 hot-dip galvanized

## ■ Sliding support T, sound insulated



Sliding support T, sound insulated


**Specification:**

Closure: Hexagon nut / closure screw  
 Model: T-support  
 OD: 20 up to 219 mm  
 Sound insulation: according to DIN 4109

Delivery time: on request

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: galvanized  
 hot-dip galvanized

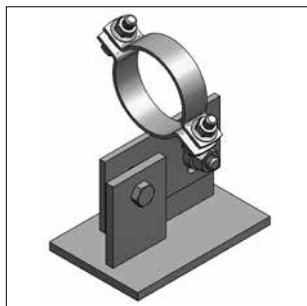
Sound insulation lining: EPDM  
 (ceramic lining on request)

Temperature resistance: - 35 °C up to + 100 °C

Insulation thickness: 6 mm



## ■ Sliding support T 100/150, height-adjustable, with 1 pipe clamp



Sliding support T 100/150

**Specification:**

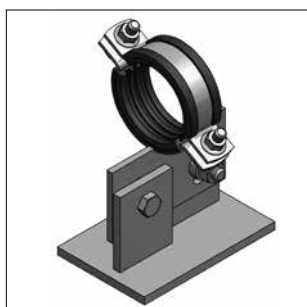
Closure:	Hexagon nut / closure screw
Model:	T-support
Support width:	100
Support length:	150
OD:	20 up to 219 mm
Height, adjustable:	100 up to 125 mm 125 up to 150 mm

**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	galvanized hot-dip galvanized

Delivery time: on request

## ■ Sliding support T 100/150, height-adjustable, with 1 pipe clamp, sound insulated



Sliding support T 100/150

**Specification:**

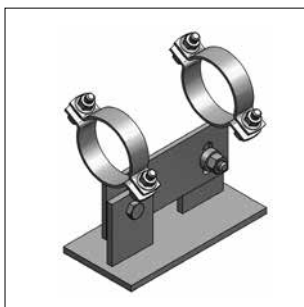
Closure:	Hexagon nut / closure screw
Model:	T-support
Support width:	100
Support length:	150
OD:	20 up to 219 mm
Sound insulation:	according to DIN 4109
Height, adjustable:	100 up to 125 mm 125 up to 150 mm

**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	galvanized, hot-dip galvanized
Sound insulation lining:	EPDM (ceramic lining on request)
Temperature resistance:	- 35 °C up to + 100 °C
Insulation thickness:	6 mm

Delivery time: on request

## ■ Sliding support T 100/200 and T 100/300, height-adjustable, with 2 pipe clamps



Sliding support T 100/200

**Specification:**

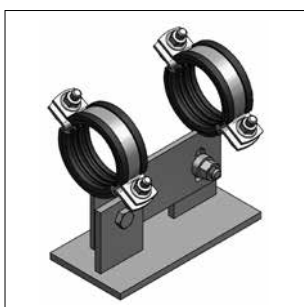
Closure:	Hexagon nut / closure screw
Model:	T-support
Support width:	100
Support length:	200/300
OD:	20 up to 219 mm
Height, adjustable:	100 up to 125 mm 125 up to 150 mm 150 up to 175 mm

**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	galvanized hot-dip galvanized

Delivery time: on request

## ■ Sliding support T 100/200 and T 100/300, height-adjustable, with 2 pipe clamps, sound insulated



Sliding support T 100/200

**Specification:**

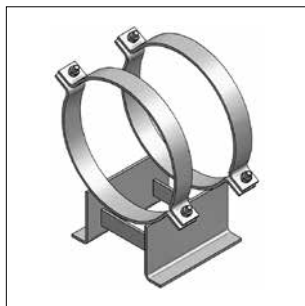
Closure:	Hexagon nut / closure screw
Model:	T-support
Support width:	100
Support length:	200/300
OD:	20 up to 219 mm
Sound insulation:	according to DIN 4109
Height, adjustable:	100 up to 125 mm 125 up to 150 mm 150 up to 175 mm

**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	galvanized hot-dip galvanized
Sound insulation lining:	EPDM (ceramic lining on request)
Temperature resistance:	- 35 °C up to + 100 °C

Delivery time: on request

## ■ Sliding sledge



Sliding sledge

**Specification:**

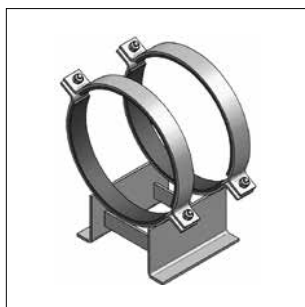
Closure: Hexagon nut / closure screw  
 Model: Double-L-support  
 OD: 219 up to 813 mm

Delivery time: on request

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: raw, galvanized  
 hot-dip galvanized

## ■ Sliding sledge, sound insulated



Sliding sledge, sound insulated


**Specification:**

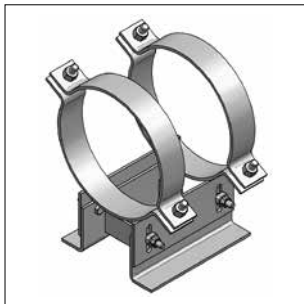
Closure: Hexagon nut / closure screw  
 Model: Double-L-support  
 OD: 219 up to 813 mm  
 Sound insulation: according to DIN 4109

Delivery time: on request

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: galvanized  
 hot-dip galvanized  
 Sound insulation lining: EPDM  
 (ceramic lining on request)  
 Temperature resistance: - 35 °C up to + 100 °C  
 Insulation thickness: 6 mm

## ■ Sliding sledge, height adjustable



Sliding sledge, height adjustable

**Specification:**

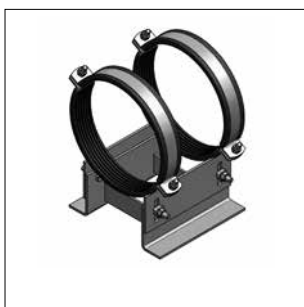
Closure:	Hexagon nut / closure screw
Model:	Double-L-support
OD:	219 up to 813 mm
Height, adjustable:	100 up to 150 mm 150 up to 200 mm

**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	raw, galvanized hot-dip galvanized

Delivery time: on request

## ■ Sliding sledge, height adjustable, sound insulated



Sliding sledge, sound insulated


**Specification:**

Closure:	Hexagon nut / closure screw
Model:	Double-L-support
OD:	219 up to 813 mm
Sound insulation:	according to DIN 4109
Height, adjustable:	100 up to 150 mm 150 up to 200 mm

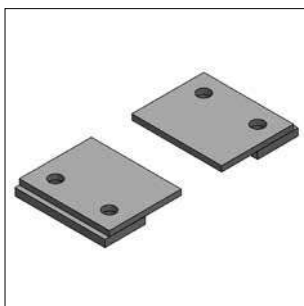
**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	galvanized hot-dip galvanized

Sound insulation lining:	EPDM (ceramic lining on request)
Temperature resistance:	- 35 °C up to + 100 °C
Insulation thickness:	6 mm

Delivery time: on request

## ■ Fixation plate for Sliding sledge

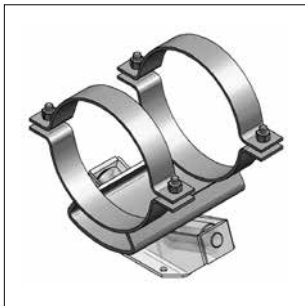


Fixation plate for Sliding sledge

**Technical data:**

Material:	steel
Material type:	S235JR
Surface:	raw, galvanized hot-dip galvanized
Delivery time:	on request

## ■ Insulation-saddle for roller-bearing



Insulation-saddle for roller-bearing

**Specification:**

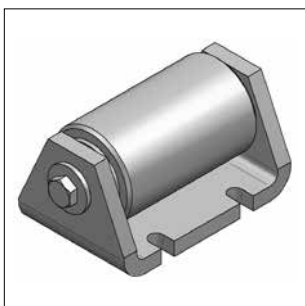
Closure: Hexagon nut / closure screw  
 OD: 219 up to 813 mm

Delivery time: on request

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: raw, galvanized  
 hot-dip galvanized

## ■ Single-roller-bearing



Single-roller-bearing

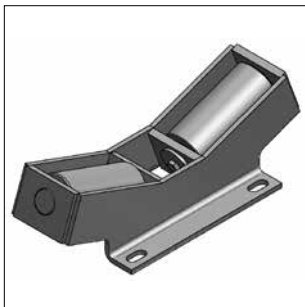
**Specification:**

Delivery time: on request

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: raw, galvanized, hot-dip galvanized  
 Material axle: stainless steel, polished  
 Material bush: bronze

## ■ Double-roller-bearing, axial



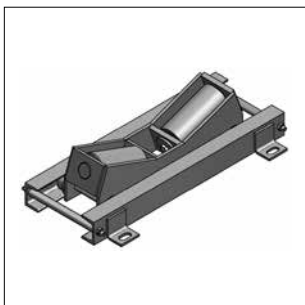
Double-roller-bearing, axial

**Technical data:**

Material: steel  
 Material type: S235JR  
 Surface: raw, galvanized, hot-dip galvanized  
 Material axle: stainless steel, polished  
 Material bush: bronze

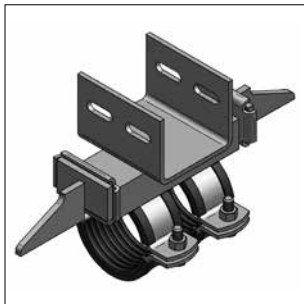
14

## ■ Double-roller-bearing, radial-axial

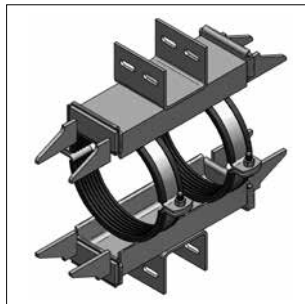
Double-roller-bearing  
radial-axial
**Technical data:**

Material: Steel  
 Material type: S235JR  
 Surface: raw, galvanized, hot-dip galvanized  
 Material axle: stainless steel, polished  
 Material bush: bronze

## ■ Fixpoint with CENTUM® Massive connector



Fixpoint type A with CENTUM®  
Massive connector



Fixpoint type B with CENTUM®  
Massive connector



### Specification:

**Application:** established MEFA fixpoint for high power transmission while sound insulation. Due to welded Massive connector it's possible to mount this fixpoint directly at CENTUM square profile.

**Sound insulation:** according to DIN 4109

**Accessory:** T-lock head, toothed, M12x40

### Technical data:

**Material:** Steel

**Material type:** S235JR

**Surface:** galvanized

**Pressure piece:** raw

**Sound insulation lining:** EPDM/ Silicon

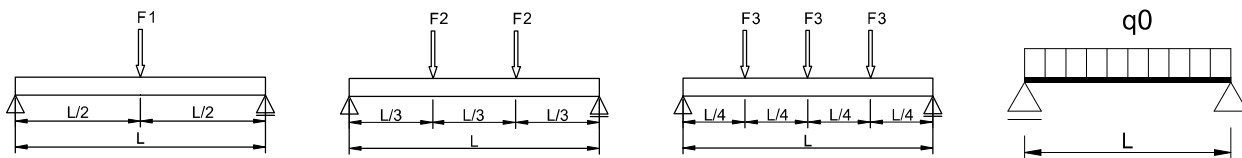
**Temperature resistance:** -35°C up to +100°C/ -50°C up to +250°C

Remark: for further informations regarding dimensions, loads and assembly please contact our application engineering.

# Load values CENTUM® profile rails XL 80 / XL 100 / XL 120

bearing spacing [mm]	XL 80				XL 100				XL 120			
	single load 1xF1 [kN]	double load 2xF2 [kN]	three loads 3xF3 [kN]	distributed load q [kN/m]	single load 1xF1 [kN]	double load 2xF2 [kN]	three loads 3xF3 [kN]	distributed load q [kN/m]	single load 1xF1 [kN]	double load 2xF2 [kN]	three loads 3xF3 [kN]	distributed load q [kN/m]
500	23,03	17,28	11,52	92,12	44,88	33,66	22,44	162,54	73,92	55,44	36,96	254,41
750	15,35	11,51	7,68	40,91	29,91	22,43	14,96	79,74	49,26	36,94	24,63	131,34
1000	11,50	8,63	5,75	22,99	22,41	16,81	11,21	44,82	36,92	27,69	18,46	73,83
1250	9,19	6,89	4,60	14,70	17,91	13,44	8,96	28,66	29,51	22,13	14,76	47,21
1500	7,64	5,73	3,82	10,19	14,91	11,18	7,46	19,88	24,56	18,42	12,28	32,75
1750	6,54	4,91	3,27	7,47	12,76	9,57	6,38	14,58	21,03	15,77	10,52	24,03
2000	5,71	4,28	2,86	5,71	11,15	8,36	5,58	11,15	18,37	13,78	9,19	18,37
2250	5,06	3,73	2,53	4,50	9,89	7,42	4,95	8,79	16,30	12,23	8,15	14,49
2500	4,55	3,01	2,16	3,28	8,88	6,66	4,44	7,11	14,64	10,98	7,32	11,72
2750	4,12	2,47	1,78	2,45	8,05	6,04	4,03	5,86	13,28	9,96	6,64	9,66
3000	3,52	2,07	1,48	1,88	7,36	5,08	3,64	4,62	12,15	9,11	6,08	8,10
3250	2,97	1,75	1,25	1,47	6,78	4,31	3,09	3,61	11,19	8,39	5,60	6,89
3500	2,54	1,49	1,07	1,16	6,27	3,69	2,65	2,88	10,36	7,35	5,18	5,73
3750	2,19	1,29	0,93	0,94	5,44	3,20	2,29	2,32	9,64	6,37	4,57	4,63
4000	1,90	1,12	0,80	0,76	4,75	2,79	2,00	1,90	9,01	5,57	4,00	3,80
4250	1,66	0,98	0,70	0,63	4,17	2,45	1,76	1,57	8,35	4,90	3,52	3,15
4500	1,46	0,86	0,62	0,52	3,68	2,16	1,55	1,31	7,40	4,34	3,12	2,63
4750	1,29	0,76	0,54	0,44	3,27	1,92	1,38	1,10	6,59	3,87	2,78	2,22
5000	1,14	0,67	0,48	0,37	2,91	1,71	1,23	0,94	5,89	3,46	2,48	1,89
5250	1,01	0,59	0,43	0,31	2,61	1,53	1,10	0,80	5,29	3,11	2,23	1,62
5500	0,89	0,53	0,38	0,26	2,34	1,37	0,99	0,68	4,77	2,80	2,01	1,39
5750	0,79	0,47	0,34	0,22	2,10	1,24	0,89	0,59	4,31	2,53	1,82	1,20
6000	0,71	0,42	0,30	0,19	1,89	1,11	0,80	0,51	3,90	2,29	1,65	1,04
6250	-	-	-	-	-	-	-	-	-	-	-	-
6500	-	-	-	-	-	-	-	-	-	-	-	-
6750	-	-	-	-	-	-	-	-	-	-	-	-
7000	-	-	-	-	-	-	-	-	-	-	-	-
7250	-	-	-	-	-	-	-	-	-	-	-	-
7500	-	-	-	-	-	-	-	-	-	-	-	-
7750	-	-	-	-	-	-	-	-	-	-	-	-
8000	-	-	-	-	-	-	-	-	-	-	-	-

max. bending  $f_{z,d} = L/200$   $\gamma = 1,54$  Safety Elastic limit  $f_y = 275$  N/mm<sup>2</sup>; E-Modul 210.000 N/mm<sup>2</sup>





## Load values CENTUM® profile rails XL 120s / XL 200

bearing spacing [mm]	XL 120s				XL 200			
	single load 1xF1 [kN]	double load 2xF2 [kN]	three loads 3xF3 [kN]	distributed load q [kN/m]	single load 1xF1 [kN]	double load 2xF2 [kN]	three loads 3xF3 [kN]	distributed load q [kN/m]
500	88,71	66,53	44,36	268,32	179,33	129,69	86,46	518,76
750	59,11	44,34	29,56	157,62	119,51	89,63	59,76	318,69
1000	44,30	33,23	22,15	88,60	89,59	67,19	44,80	179,18
1250	35,41	26,56	17,71	56,65	71,63	53,72	35,82	114,60
1500	29,48	22,11	14,74	39,30	59,64	44,73	29,82	79,52
1750	25,23	18,93	12,62	28,84	51,08	38,31	25,54	58,37
2000	22,05	16,54	11,03	22,05	44,65	33,49	22,33	44,65
2250	19,56	14,67	9,78	17,39	39,64	29,73	19,82	35,24
2500	17,57	13,18	8,79	14,06	35,63	26,72	17,82	28,50
2750	15,94	11,96	7,97	11,59	32,34	24,26	16,17	23,52
3000	14,58	10,93	7,29	9,72	29,60	22,20	14,80	19,73
3250	13,42	10,07	6,71	8,26	27,27	20,46	13,64	16,79
3500	12,43	8,82	6,22	6,87	25,28	18,96	12,64	14,45
3750	11,56	7,65	5,49	5,56	23,54	17,66	11,77	12,56
4000	10,81	6,68	4,80	4,56	22,03	16,52	11,02	11,02
4250	10,02	5,88	4,22	3,78	20,68	15,51	10,34	9,73
4500	8,87	5,21	3,74	3,16	19,48	14,61	9,74	8,66
4750	7,90	4,64	3,33	2,66	18,41	13,81	9,21	7,75
5000	7,07	4,15	2,98	2,26	17,44	13,08	8,72	6,98
5250	6,34	3,73	2,67	1,94	16,56	12,42	8,28	6,31
5500	5,72	3,36	2,41	1,67	15,76	11,82	7,88	5,73
5750	5,16	3,03	2,18	1,44	15,03	10,82	7,52	5,13
6000	4,68	2,75	1,97	1,25	14,35	9,88	7,09	4,49
6250	-	-	-	-	13,73	9,05	6,50	3,95
6500	-	-	-	-	13,15	8,32	5,97	3,49
6750	-	-	-	-	12,61	7,66	5,50	3,10
7000	-	-	-	-	12,04	7,07	5,07	2,76
7250	-	-	-	-	11,14	6,54	4,69	2,46
7500	-	-	-	-	10,32	6,06	4,35	2,20
7750	-	-	-	-	9,57	5,62	4,03	1,98
8000	-	-	-	-	8,89	5,22	3,75	1,78

max. bending  $f_{zul} = L/200$   $\gamma = 1,54$  Safety Elastic limit  $f_y = 275 \text{ N/mm}^2$ ; E-Modul  $210.000 \text{ N/mm}^2$

