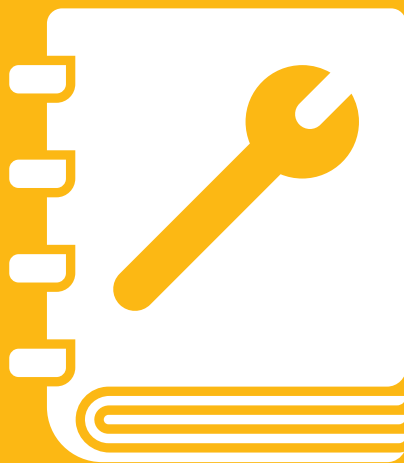


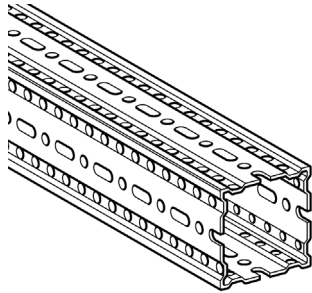
# sikla



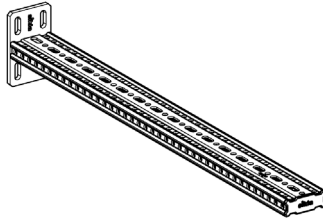
## Installation Guideline

**Products: siFramo**

**Beam Section TP F**

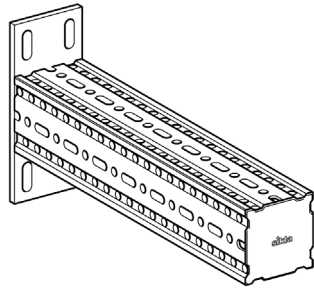


**Cantilever Bracket AK F 80/30**



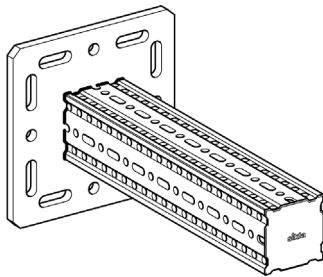
with End Cap

**Cantilever Bracket AK F**



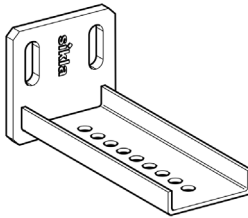
with End Cap

**Beam Bracket TKO F**

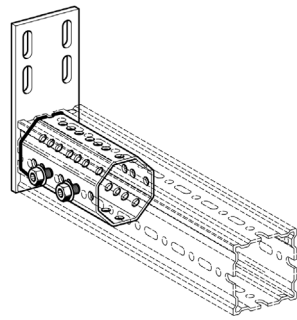


with End Cap

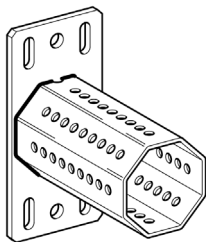
**End Support STA F 80/30 E**



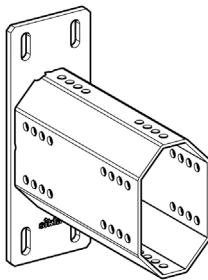
**End Support STA F - E**



**End Support STA F**

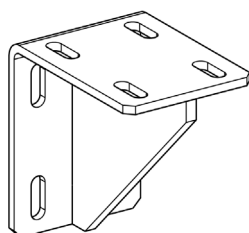


**End Support STA F**

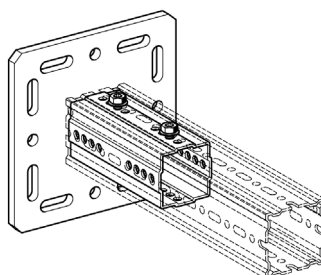


## Products: siFramo

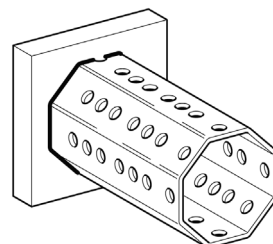
**Corner Bracket WD F**



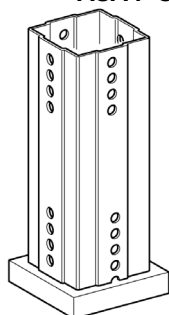
**End support WBD F**



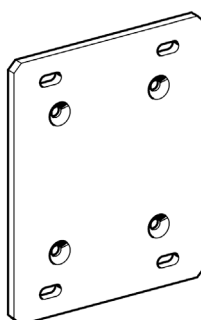
**Welding Adapter  
ASA F GPL 100 8kt**



**Welding Adapter  
ASA F GPL 4kt**

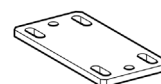


**Joining Plate AP**

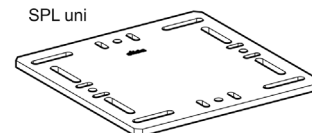


**Welding plate SPL**

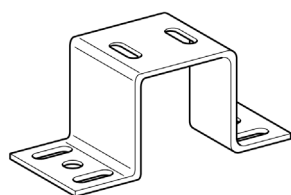
SPL F 100



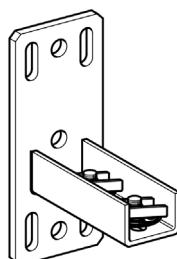
SPL uni



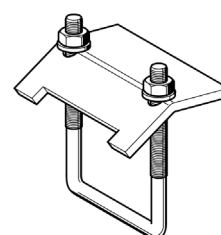
**Beam Section Holder TPH F**



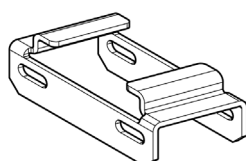
**Channel Adapter SA F**



**U-Holder SB F**



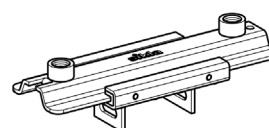
**Guiding Set FW F**



**Slide Set GS F 1G**

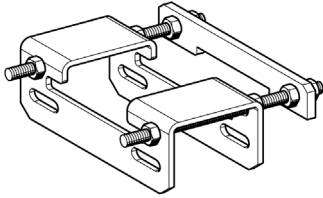


**Slide Set GS F 2G**

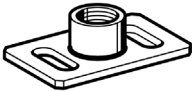


**Products: siFramo**

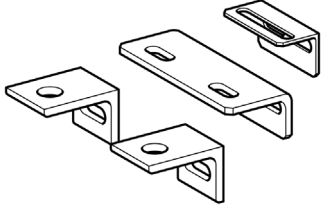
**Fixed Point Set XS F**



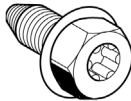
**Mounting Plate GPL F**



**U Bolt Fastening F**



**Self Forming Screw FLS F**



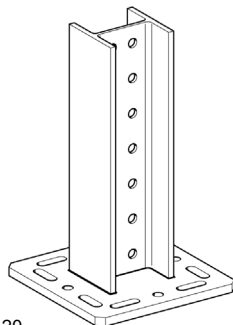
**End Cap F**





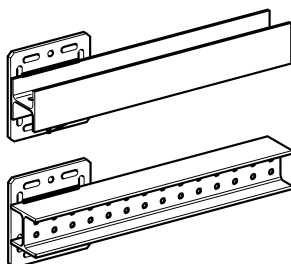
## Products: Structural Elements 100/120

**Beam Bracket TKO**



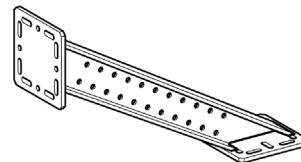
100; 120

**Joining Beam Bracket QKO**



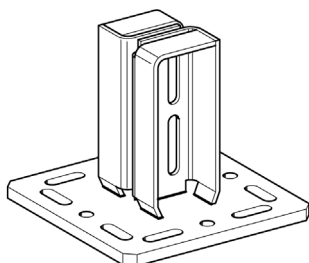
100; 120

**Angled Beam Bracket SKO 100**



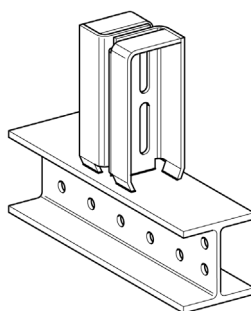
suitable for both profile types

**End Support STA**



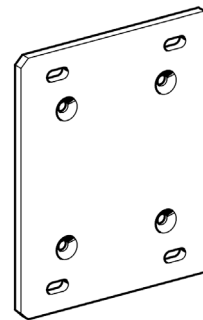
100; 120

**T-Adapter TA**

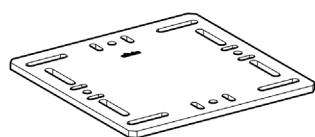


100; 120

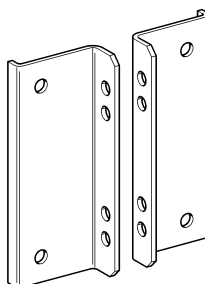
**Joining Plate AP**



**Welding plate SPL**

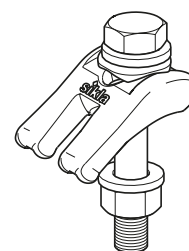


**Bracket Plates FV 100/120**

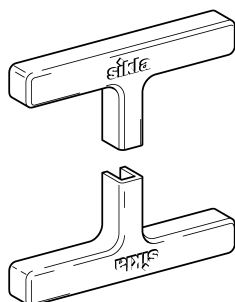


suitable for both profile types

**Assembly Set MS 5P M12**



**End Cap ADK**

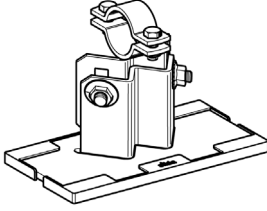


100; 120

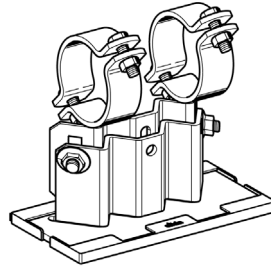


## Products: Pipe Shoes

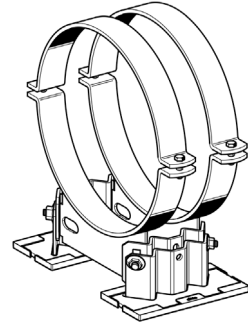
Pipe Shoe LA-HV



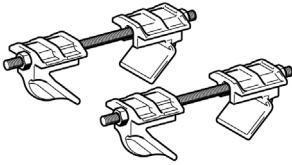
Pipe Shoe LC-HV



Pipe Shoe LD-HV

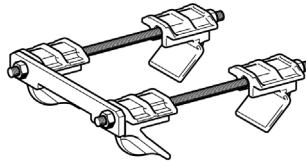


Guiding Set FS



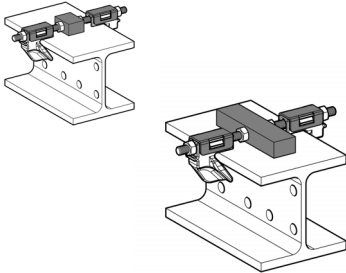
80/120 up to 280/300

Fixed Point Set XS

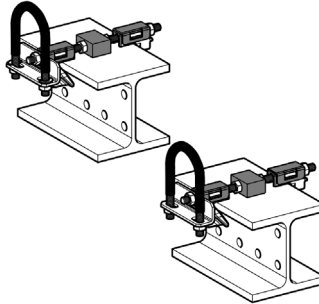


80/120 up to 280/300

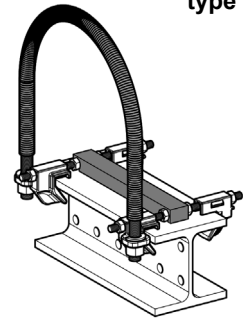
Slide Support LU-H 020  
type 30/100



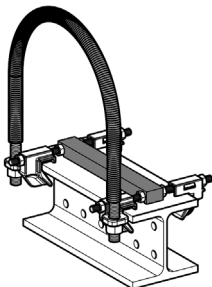
Guided Support FR-H 020 type 30  
Fixed point XR-H 020 type 30



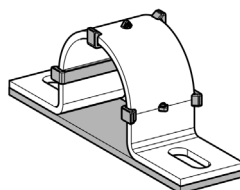
Guided Support FR-H 020  
type 100



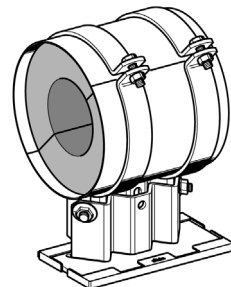
Fixed Point XR-H 020 type 100



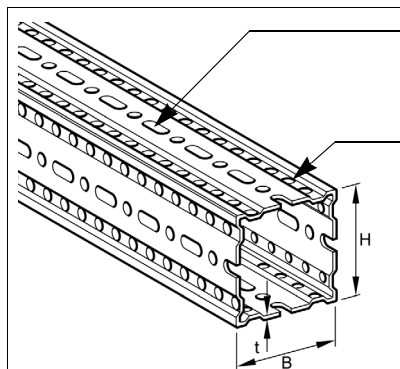
U Clamp RUC I



Pre-Insulated Pipe Shoe LK-HV



## siFramo: Beam Section TP F and Self Forming Screw FLS



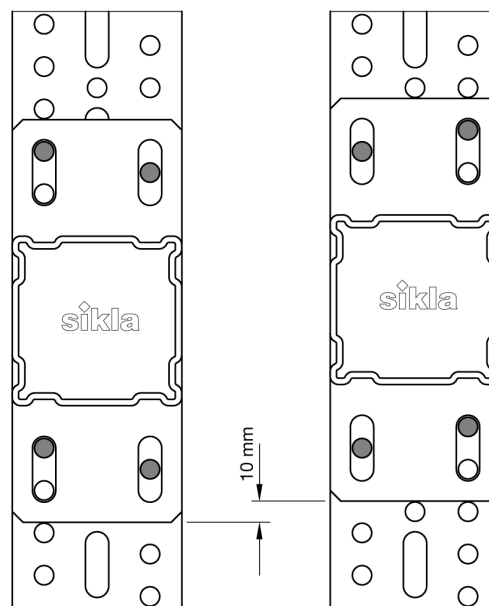
One Self Forming Screw FLS passes through the slot (11x30) to connect into the internal adapter elements within the box section e.g. square End Support to WBD F, octagonal End Support to STA F.

Self Forming Screws FLS screw directly into the 9.1mm holes (perforations) running along the outer edges of each face of the siFramo profile. All end plates of the connecting siFramo supports are fixed to the profile in this way. e.g. Cantilever Brackets AK F, End Supports STA F, Channel Adaptor SA F and Slide Sets GS F.

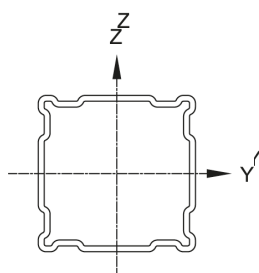
### Fine and infinite adjustment of End Connectors

(e.g. Cantilever Brackets AK F 80):

The specially designed off-set hole pattern to the outer edges of each profile face ensures a continuous 4-bolt connection of the end plate along the complete surface (length) of the profile.



### Technical Data



Bezeichnung Trägerprofil	Abmessung Trägerprofil	Wand- dicke s [mm]	Trägheits- moment $I_y$ [cm <sup>4</sup> ]	Trägheits- moment $I_z$ [cm <sup>4</sup> ]	Widerstand- Modul $W_y$ [cm <sup>3</sup> ]	Widerstand- Modul $W_z$ [cm <sup>3</sup> ]	Trägheits- radius $i_y$ [cm]	Trägheits- radius $i_z$ [cm]	Radius Inertia $r$ [cm]	Torsional Moment $I_t$ [cm <sup>4</sup> ]	Fläche Cross Section A [cm <sup>2</sup> ]	Gewicht G [kg/m]
TP F 80/30		3,0	35,4 <sup>1)</sup>	6,7 <sup>1)</sup>	10,3 <sup>1)</sup>	4,7 <sup>1)</sup>	3,63	1,58	11,20	2,69 <sup>1)</sup>	4,3	
TP F 80/90		3,0	35,4 <sup>1)</sup>	6,7 <sup>1)</sup>	10,3 <sup>1)</sup>	4,7 <sup>1)</sup>	3,63	1,58	11,20	2,69 <sup>1)</sup>	4,3	
TP F 80/80		3,0	63,4 <sup>1)</sup>		15,8 <sup>1)</sup>		2,95		98,22 <sup>1)</sup>	7,28	6,4	
TP F 80/80		3,0	63,4 <sup>1)</sup>		15,8 <sup>1)</sup>		2,95		98,22 <sup>1)</sup>	7,28	6,4	
TP F 100/100		4,0	179,8 <sup>1)</sup>		36,9 <sup>1)</sup>		4,80		181,44	7,80 <sup>1)</sup>	10,8	
TP F 100/100		4,0	179,8 <sup>1)</sup>		36,9 <sup>1)</sup>		4,80		181,44	7,80 <sup>1)</sup>	10,8	
TP F 100/160		4,0	559,4 <sup>1)</sup>	280,3 <sup>1)</sup>	75,5 <sup>1)</sup>	46,2 <sup>1)</sup>	6,16	4,36	384,80	14,74 <sup>1)</sup>	14,3	
TP F 100/160		4,0	559,4 <sup>1)</sup>	280,3 <sup>1)</sup>	75,5 <sup>1)</sup>	46,2 <sup>1)</sup>	6,16	4,36	384,80	14,74 <sup>1)</sup>	14,3	

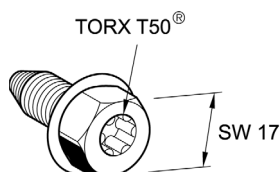
Trägerprofil TP F, Stahl, tauchverzinkt nach DIN EN ISO 1461 tZn o.

Alle statischen Werte berücksichtigen die Perforation.

All structural data takes perforation into account.

\*) Querschnittswerte sind Näherungswerte.

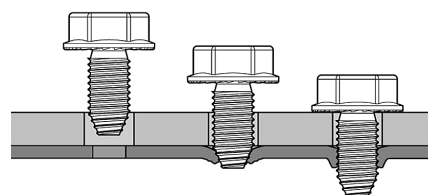
### Self Forming Screw FLS



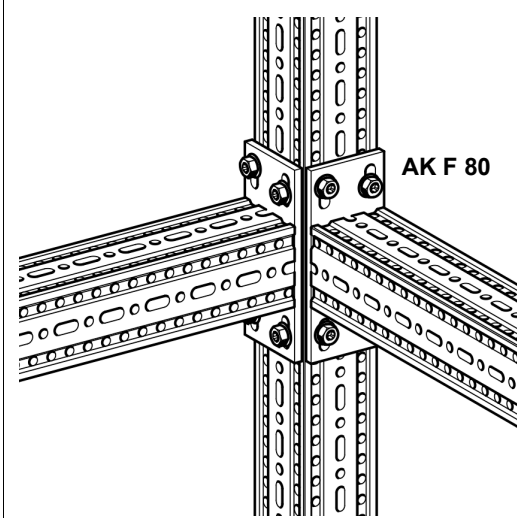
The non-cutting, cold formed threads of the screw form their own M10 threads to the perforated siFramo 80 profile. The low thread forming torque and resulting high clamping force, offers a superior process-reliable shake-proof fastening. A special stop gearing provides additional safety against over-torquing.

#### Caution!

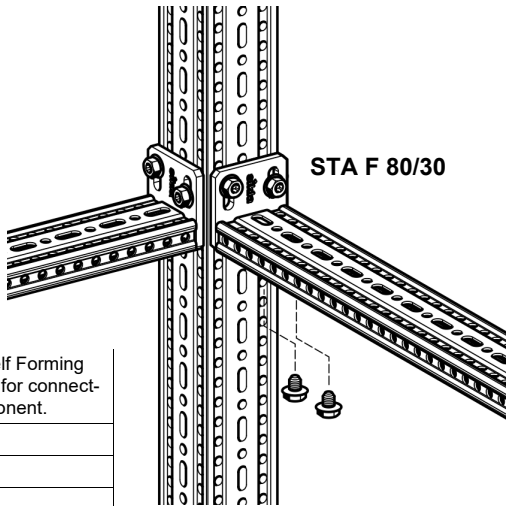
► Tightening Torque 60 Nm !



## siFramo: Cantilever Bracket AK F, End Support STA F and Bracket WD F



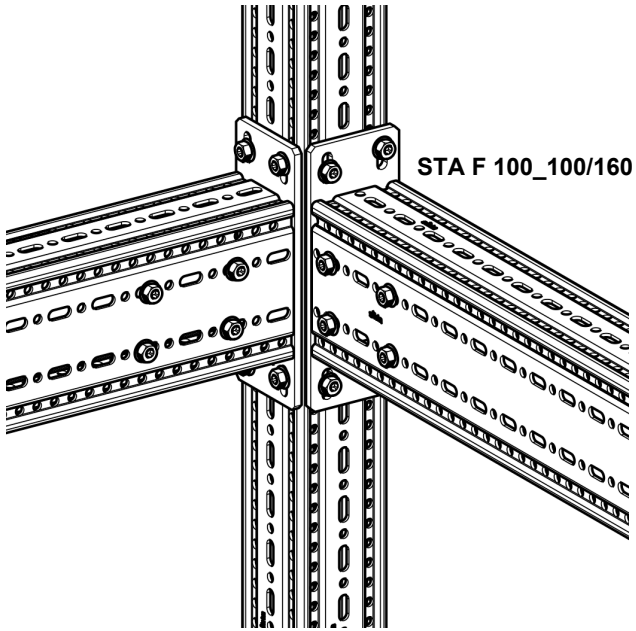
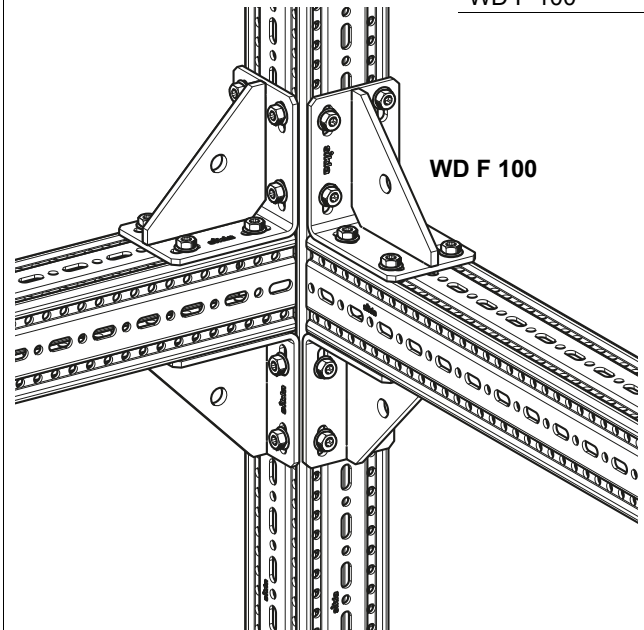
The self-forming screws cannot clash with each other inside the beam section when fastening end-connectors to adjacent faces of the beam section. The off-set pilot hole pattern means that multiple end-connectors may be fastened at the same datum position on one beam section.



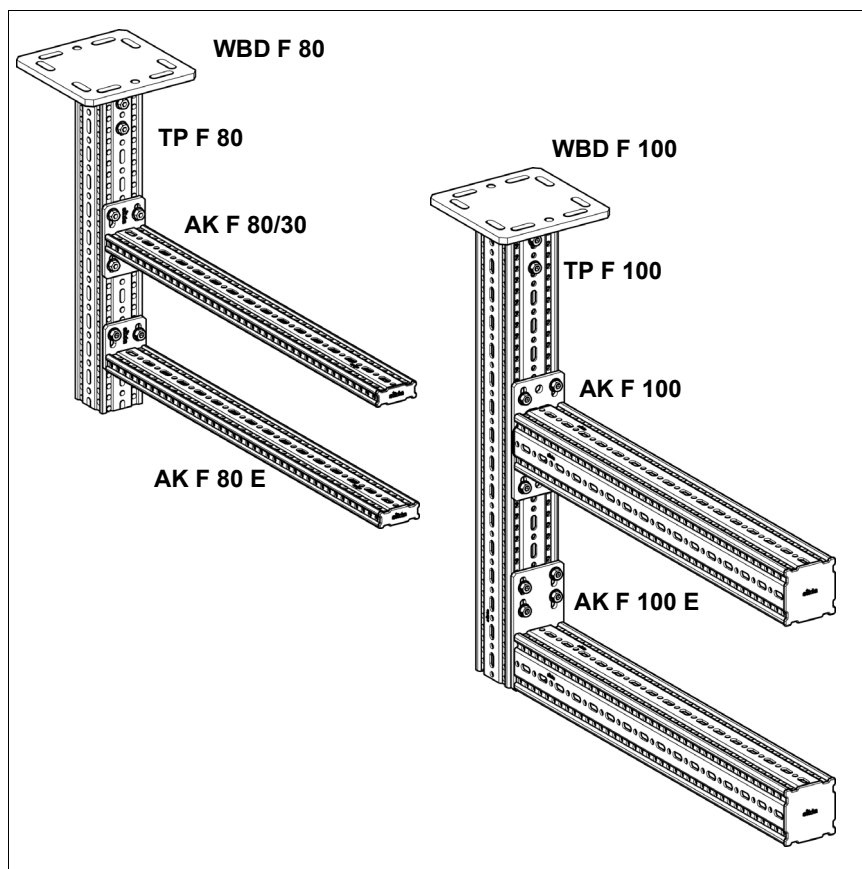
**Note:**

► Each siFramo connector fastens to the beam sections by means of the Self Forming Screws, in accordance with the hole pattern of the slots (exception Corner Bracket WD F / End Support WBD F 100/160)

Product name	Quantity of Self Forming Screws needed for connecting component.
AK F 80/30	4
AK F 80/30 E	2
AK F 80	4
AK F 100	4
AK F 100/160 E	4
STA F 80/30 E	2
STA F 80	4
STA F 100	4
STA F 100/160	4
WD F 100	8



## siFramo: End Support WBD, Cantilever Bracket AK F and End Support STA F



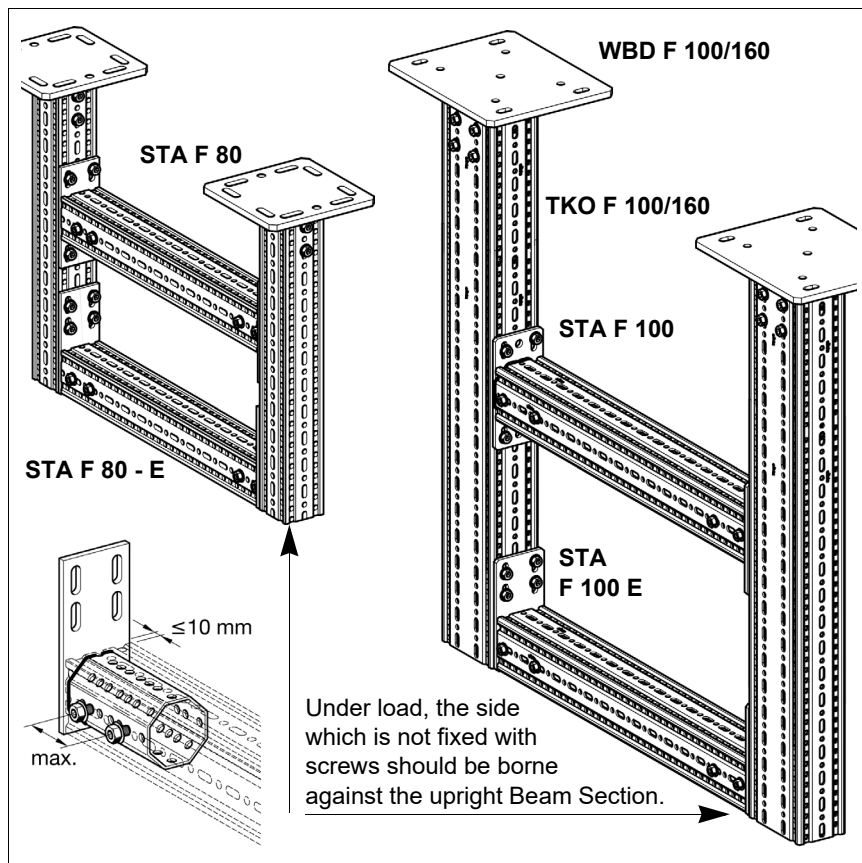
### Cantilever Bracket AK F

(End Cap incl. in scope of delivery)  
for direct assembly to Beam Section F with 4 Self Forming Screws FLS F.

The hole pattern of the Mounting Plate allows a continuous height setting on Beam Section F.

Suitable for cantilevers up to 800mm

The Cantilever Bracket AK F E allows a flush corner to the underside of the profile.



### End Support STA F

for construction of cross-bars, every cut length of the Beam Section will achieve the required number of FLS screw connections

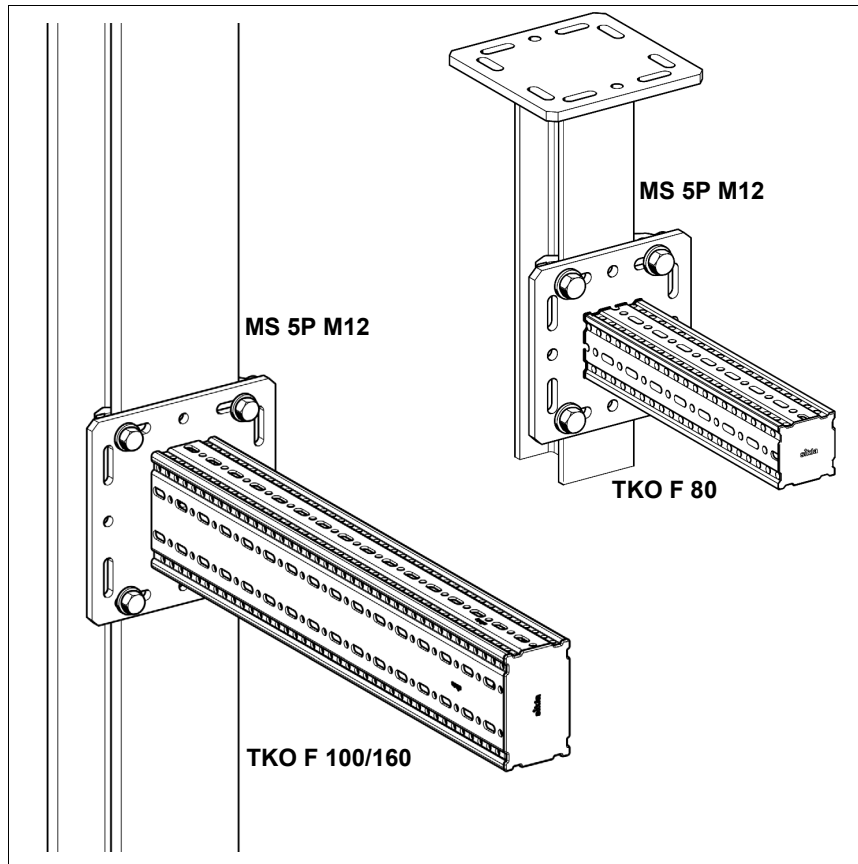
#### Note:

- End supports STA F are provided on both sides of the cross beam.





## siFramo: Beam Bracket and End Support WBD

**Beam Bracket TKO F**

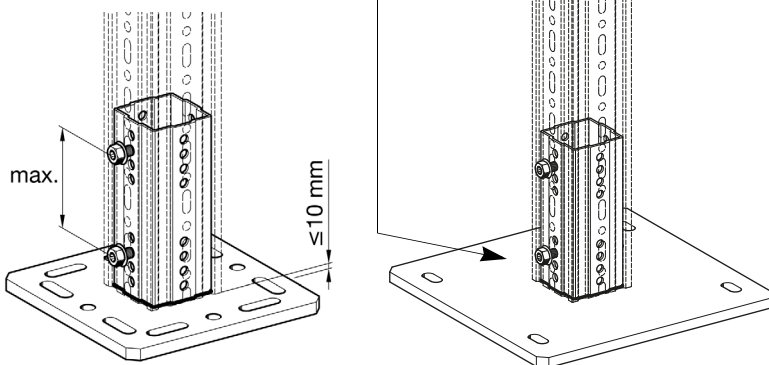
as a prefabricated cantilever support or beam bracket component

Variable assemblies for base plate (220 x 220)

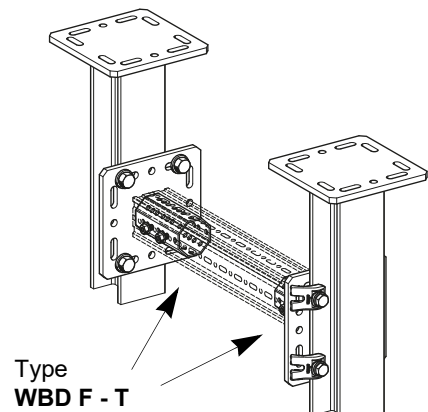
- ◆ to existing primary steel members with flange widths up to 120 mm by means of beam clamp Assembly Set MS 5P M12 (tightening torque 85 Nm)
- ◆ to Simotec Beam Sections 100/120 form locking with Joining Plates FV 100/120
- ◆ to concrete and masonry with Anchors M12
- ◆ to cast-in anchor channels with T-Head Bolts

**Caution!**

- The screw connections at the end of the profile have to be positioned close to the foot plate to ensure secure performance of the construction in bending.



Different sized foot plates type WBD are available for connection to primary steel flanges up to 300mm wide, or for heavy duty anchor loads where axial spacings between the anchors needs to be increased.

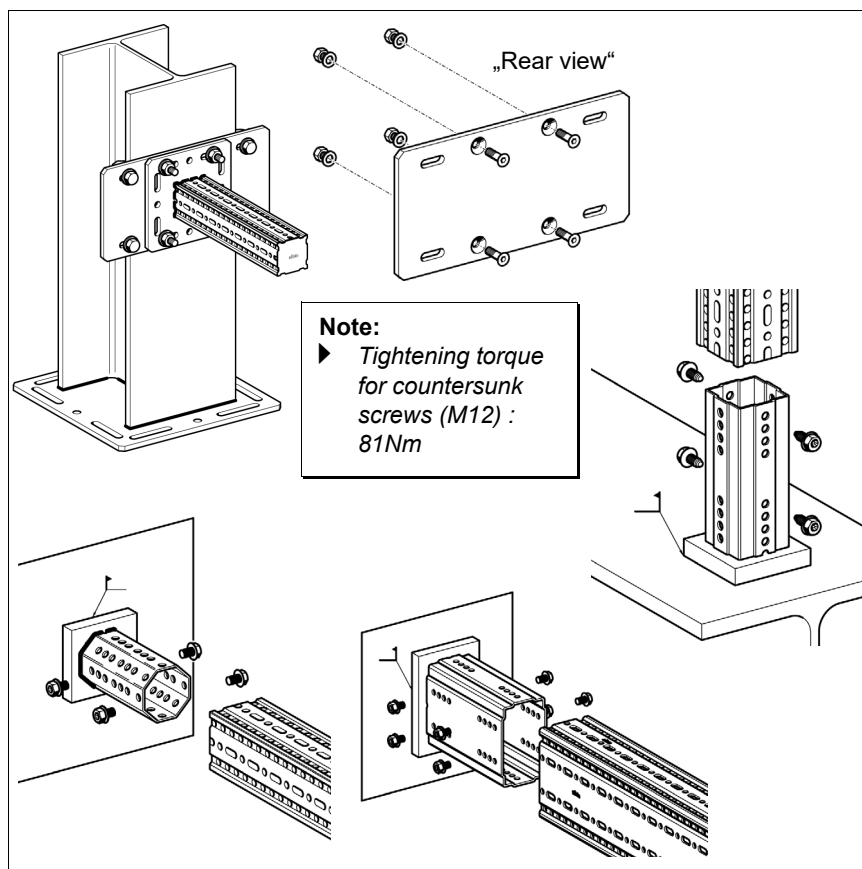


with flexible octagonal adapters inside the cross beam profile. This ensures that pipe supports can be added without clashes of FLS 80 screws even at the ends of the profile.

**Note:**

- Each connecting adapter is fastened by means of 4 Self Forming Screws FLS F; each 2x2 pairing passing through the central-slots on opposing sides of the profile, and screwed to the internal adapter holes.

## siFramo: Welding Adapter ASA, Joining Plate AP and Angled Beam Bracket SKO



### Joining Plate AP for connection of Beam Brackets TKO F to

- ◆ steel beam flange widths >120 mm (up to 310 mm) or
- ◆ concrete pad / wall by means of heavy-duty anchors where larger axial distances are required between the anchors

Countersunk screws, nuts and washers are included in the scope of delivery.

**Welding Adapter ASA** for connection of siFramo Beam Sections to weldable plates, steel girders... The connection of siFramo Beam Sections to **Welding Adapter ASA** is carried out by means of **Self Forming Screws FLS F**.

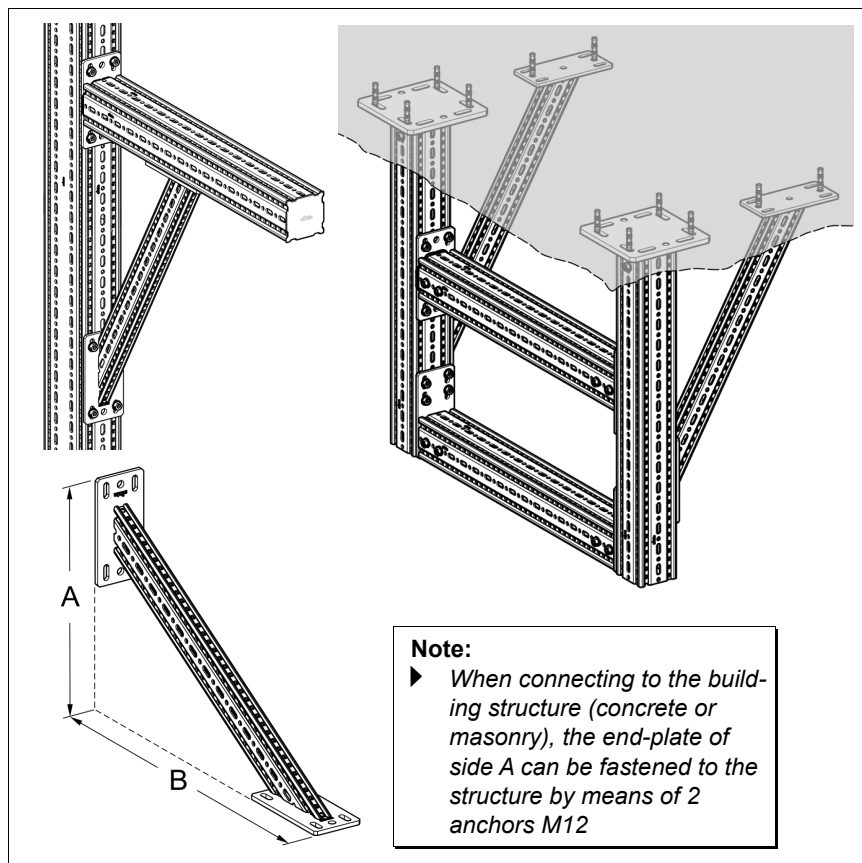
Product name	Quantity of Self Forming Screws for connection of TP to ASA
F 80	4
F 100	4
F 100/160	8

### Note:

- The preparation and calculation of the fillet weld is responsibility of the operator (local welding code). Recommendations concerning fillet weld geometry and calculation can be requested from Sikla.

### Note:

- Tightening torque for Self Forming Screws FLS F: 60 Nm



**Angled Beam Bracket SKO F** for bracing of heavy constructions and to limit deflections.

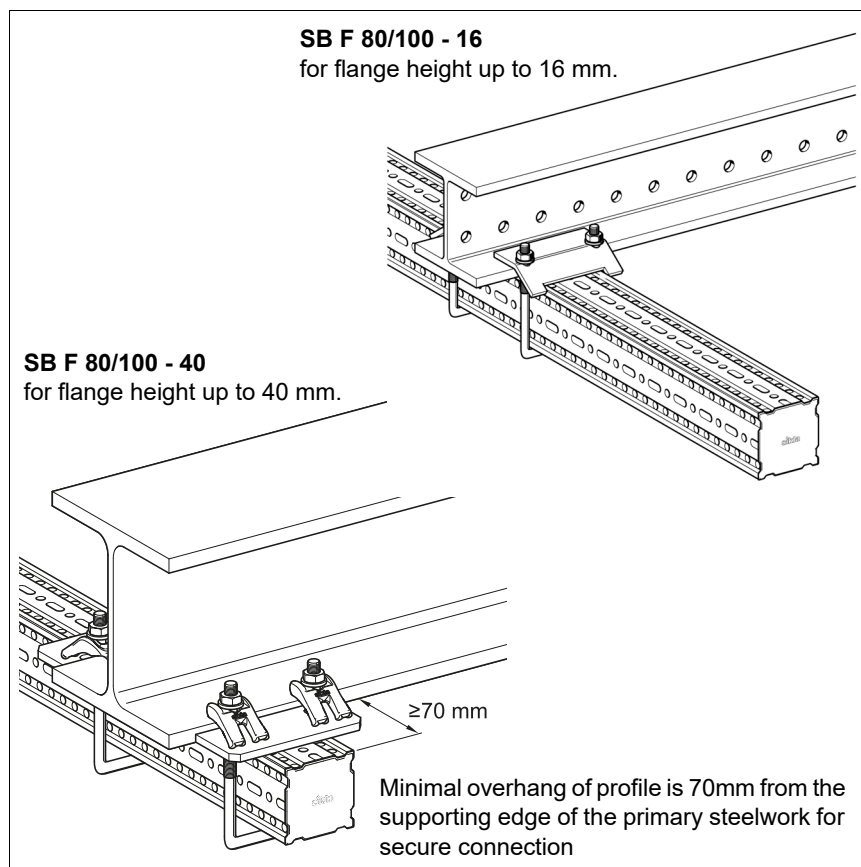
Connection of the **Angled Bema Section SKO F** by means of 4 **Self Forming Screws FLS** to **Beam Section TP F 100 or 100/160** (narrower side of the section)



## siFramo: U-Holder SB, Channel Adapter SA and Beam Section Holder TPH

**SB F 80/100 - 16**  
for flange height up to 16 mm.

**SB F 80/100 - 40**  
for flange height up to 40 mm.



### U-Holder SB F

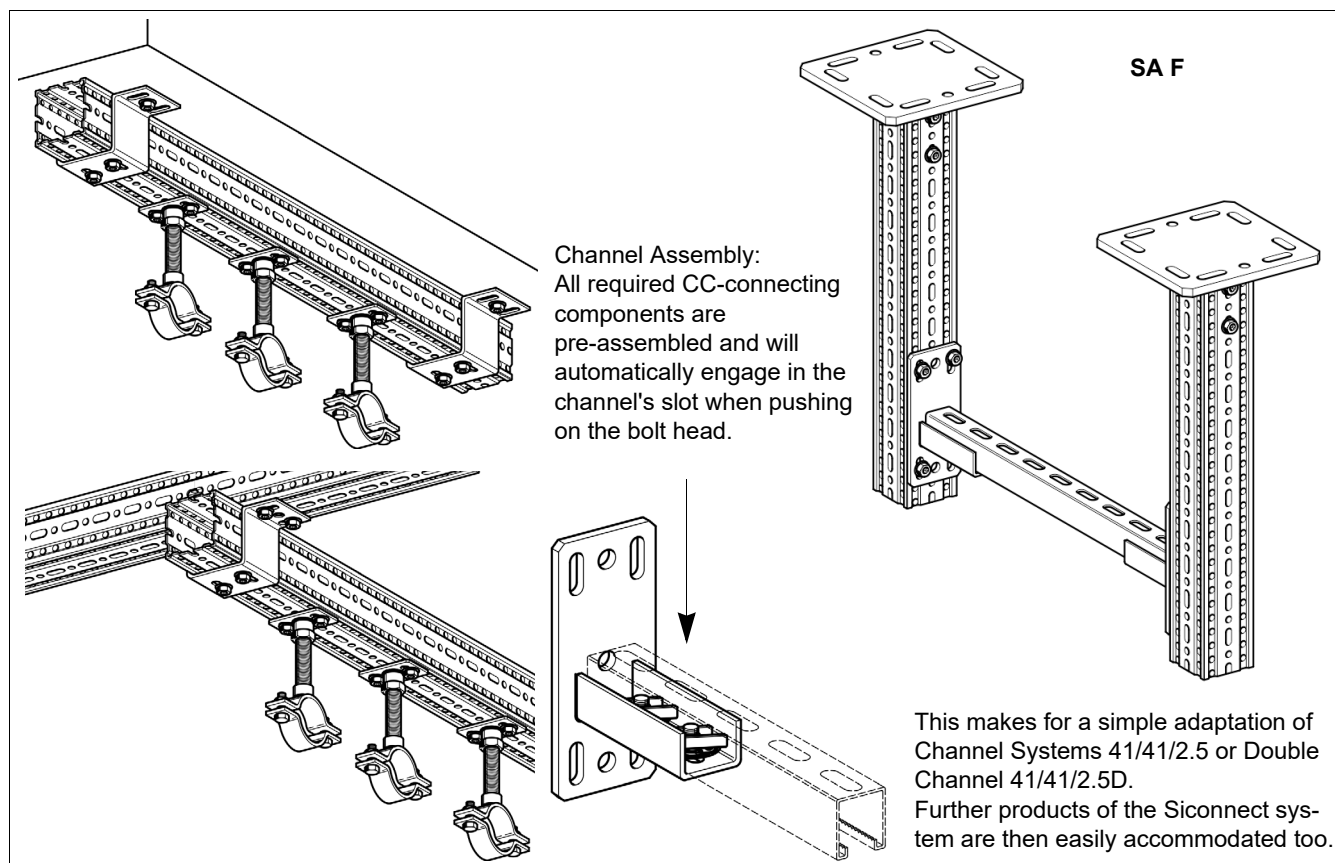
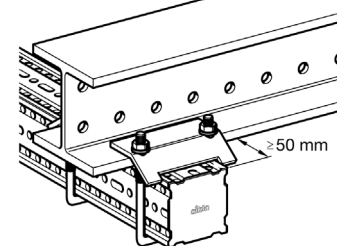
for direct assembly to Beam Sections of various widths at a height up to 16 mm resp. 40 mm max.

All necessary connecting elements are part of the scope of delivery.

#### Note:

- Application of U-Holder always to be used in pairs.

Minimal overhang of profile is 50 mm from the supporting edge of the primary steelwork for secure connection

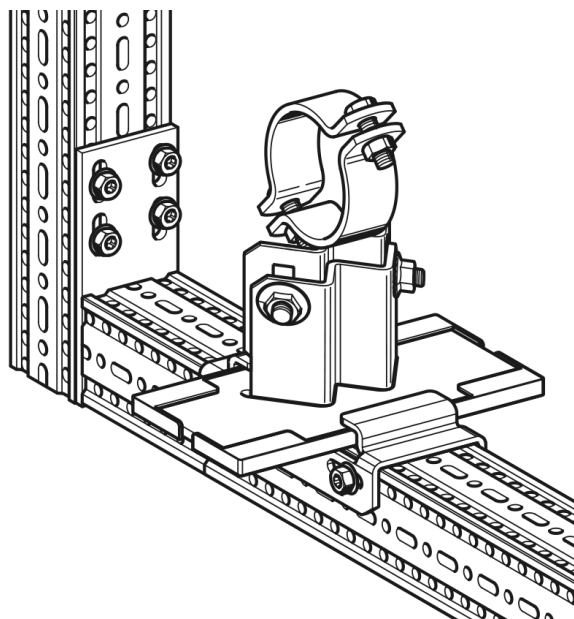
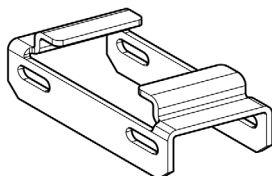




## siFramo: Guiding Bracket FW F, Slide Set GS F and U Bolt Fastening UB

### FW F

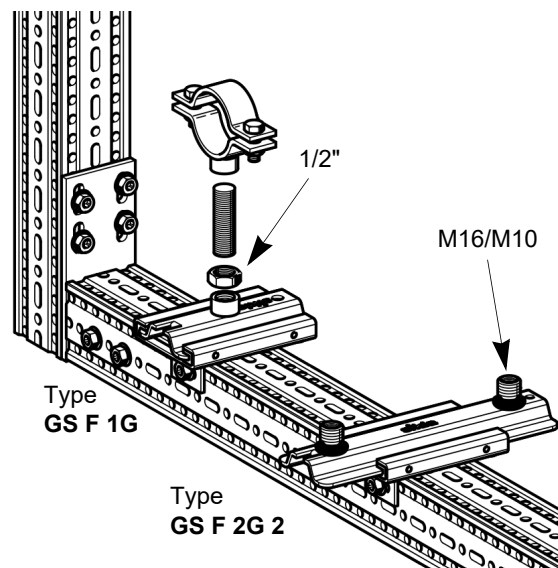
is need to create a guided pipe shoe



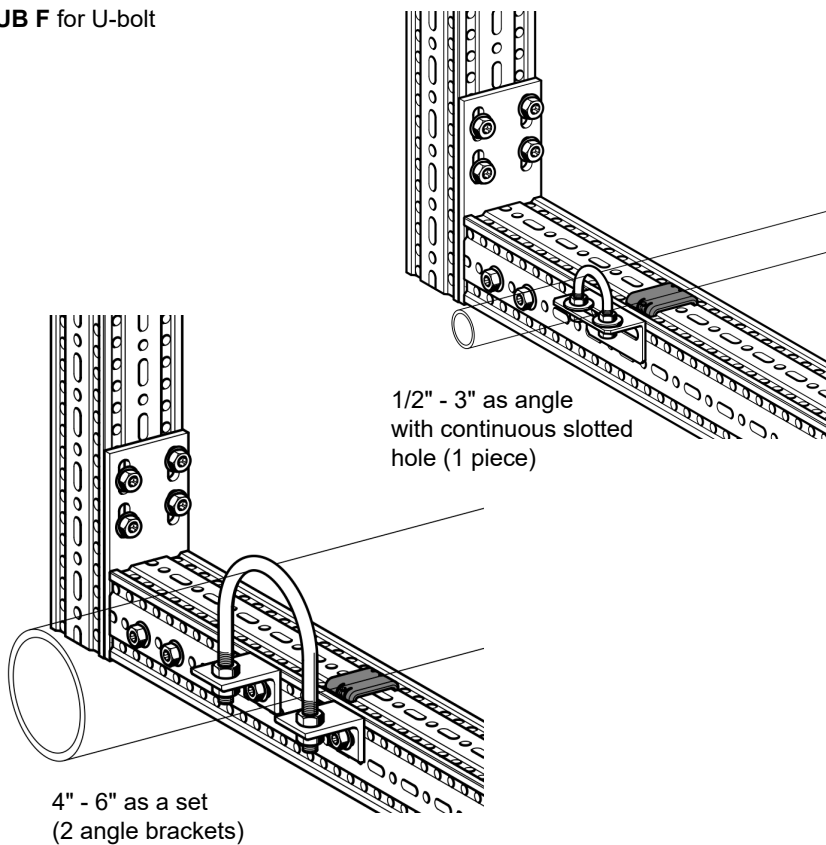
**GS F 1G** (slide plate included),  
**GS F 2G** (base plate with guide bars and slider included)  
 for direct assembly to the Beam Section F 80.

With Sikla Threaded Tube G 1/2", the pipe clamp Stabil I can be mounted directly into the connecting thread.

Adjustment by means of Counter Nut.



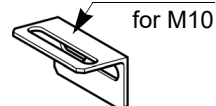
### UB F for U-bolt



#### Note:

► *U-bolts preferably should be used as Guiding Supports!*

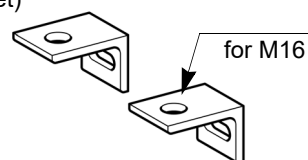
Type **UB F 1/2" - 1 1/2"**  
 (1 piece)



Type **UB F 2" - 3"**  
 (1 piece)



Type **UB F 4" - 6"**  
 (1 set)

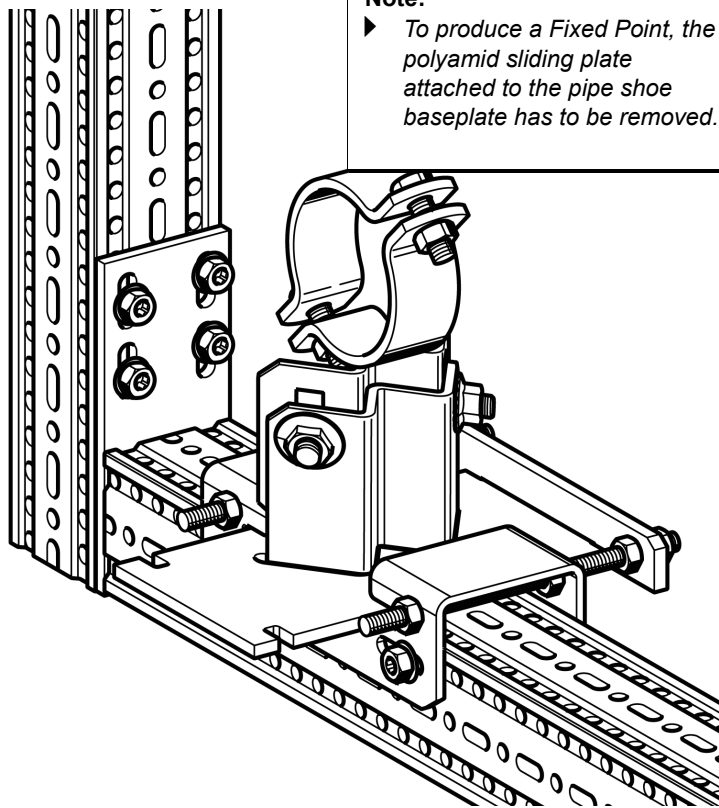


## siFramo: Fixed Point Bracket XW F and Mounting Plate GPL F

### Fixed Point Set XS F

#### Note:

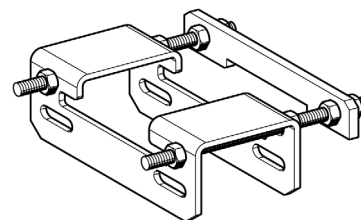
► To produce a Fixed Point, the polyamid sliding plate attached to the pipe shoe baseplate has to be removed.



To create modular Anchor Points for the Pipe Shoe range, the **Fixed Point Set XS F** is mounted onto the Beam Section F, and the front plate of the assembly locks into the pre-notched base plate of the Pipe Shoe.

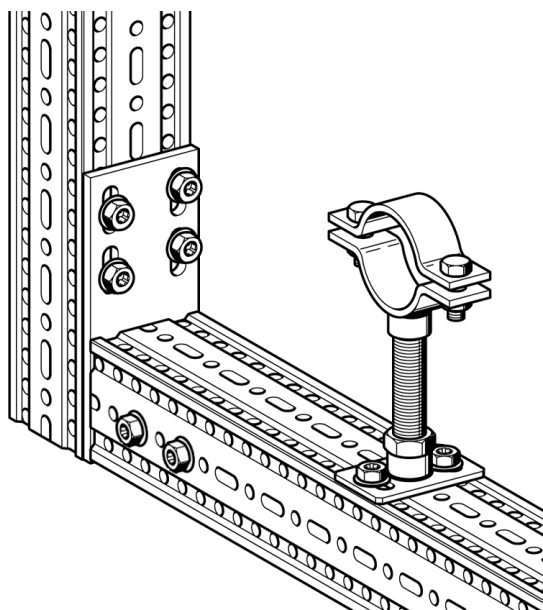
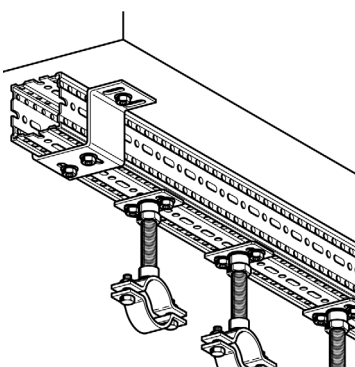
Threaded Studs and Nuts are included in the scope of delivery.

### Fixed Point Set XS F



### Mounting Plate GPL F

Beam Section Holder  
TPH F  
for in-situ  
fastening



The connecting thread allows the direct adaption of a Pipe Clamp Stabil I with

Sikla-Threaded Tube  
G 1/2".

Adjustment by means of  
Counter Nut.

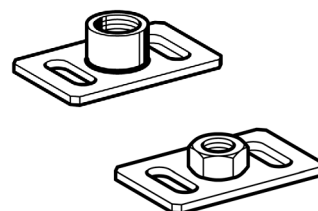
### Mounting Plate GPL F

Mounting Plate GPL F is fixed cross-wise to the Beam Section F by means of 2 Self Forming Screws.

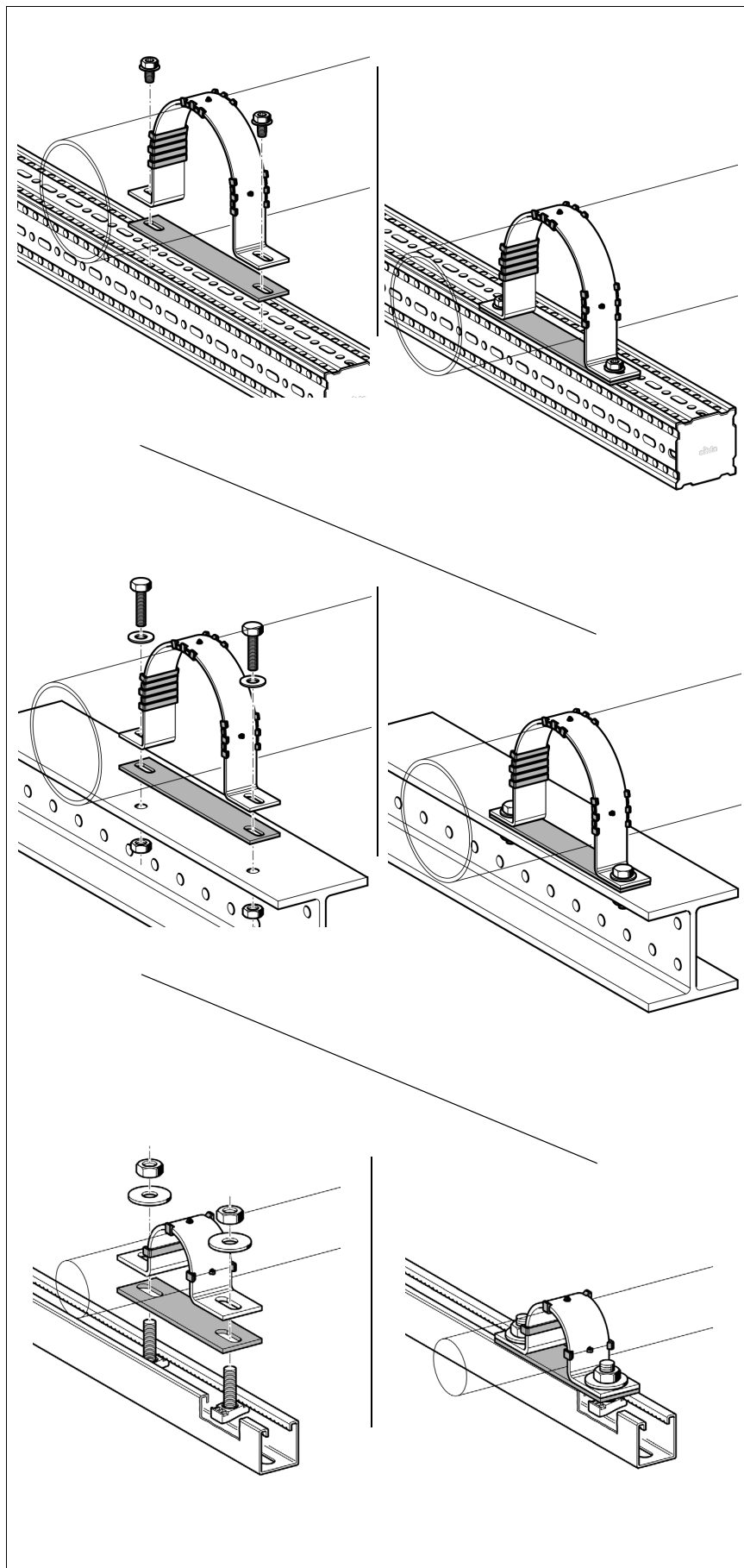
#### Caution!

► Note the permissible bending moment of the threaded tube!

Thread 1/2", M16, M12 and M10



## U Clamp RUC I



### Mounting options of U Clamp RUC I by means of:

- ◆ Self Forming Screws FLS F for installation on Beam Section TP F.
- ◆ M10 screws and locknuts for installation on girder flange.
- ◆ M10 screws with Channel Nuts for installation on Channel MS 41.

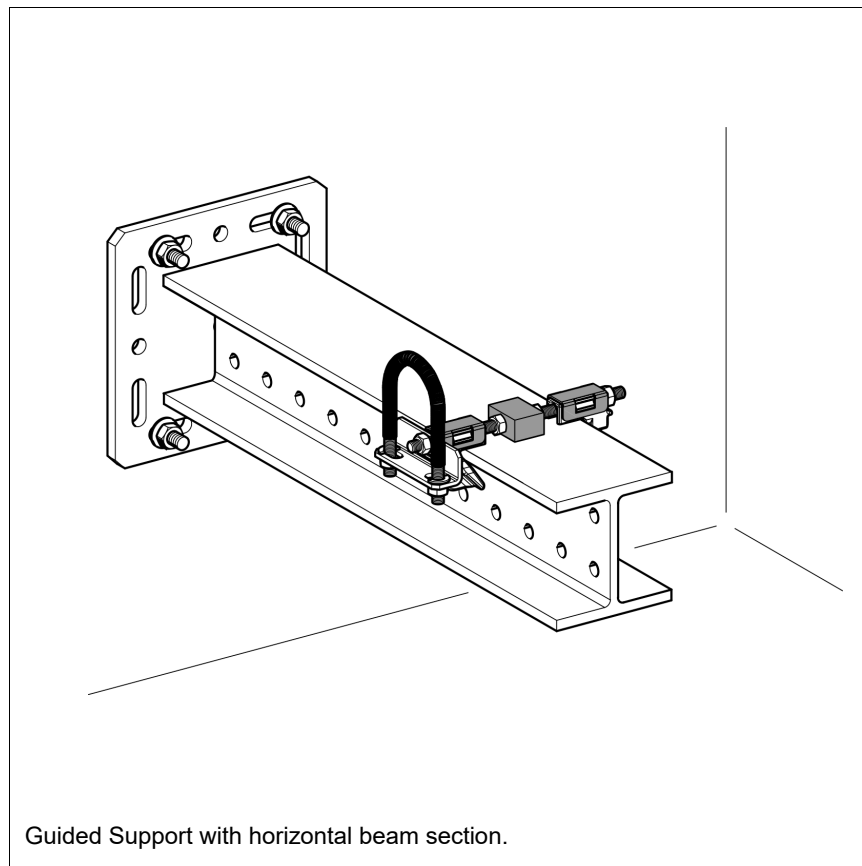
U Clamp RUC I installed on Beam Section TD F.

U Clamp RUC I installed on girder flange.

U Clamp RUC I installed on Channel MS 41.



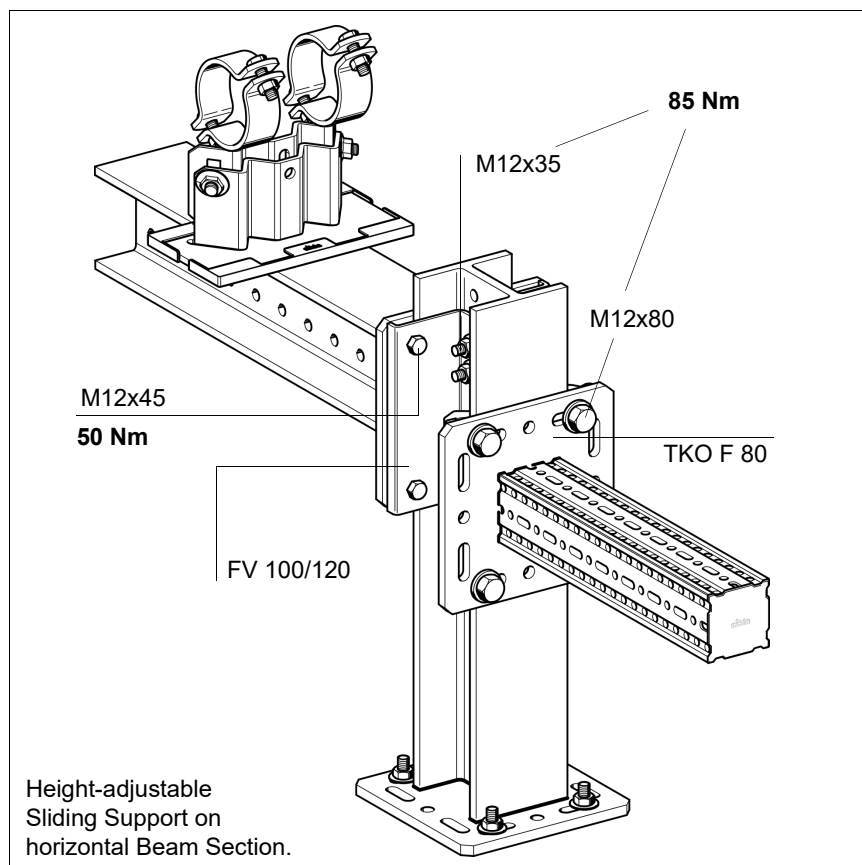
## Structural Elements 100/120: Beam Bracket TKO and TKO F

**Horizontal Beam Bracket TKO:**

Wall connection with 4 Heavy Load Anchors M12

**Caution!**

► Anchor configuration to be designed considering the load and axial spacing of the anchors

**Vertical Beam Bracket TKO:**

Floor connection with 4 Heavy Load Anchors M12

**Bracket Plates FV 100/120:**

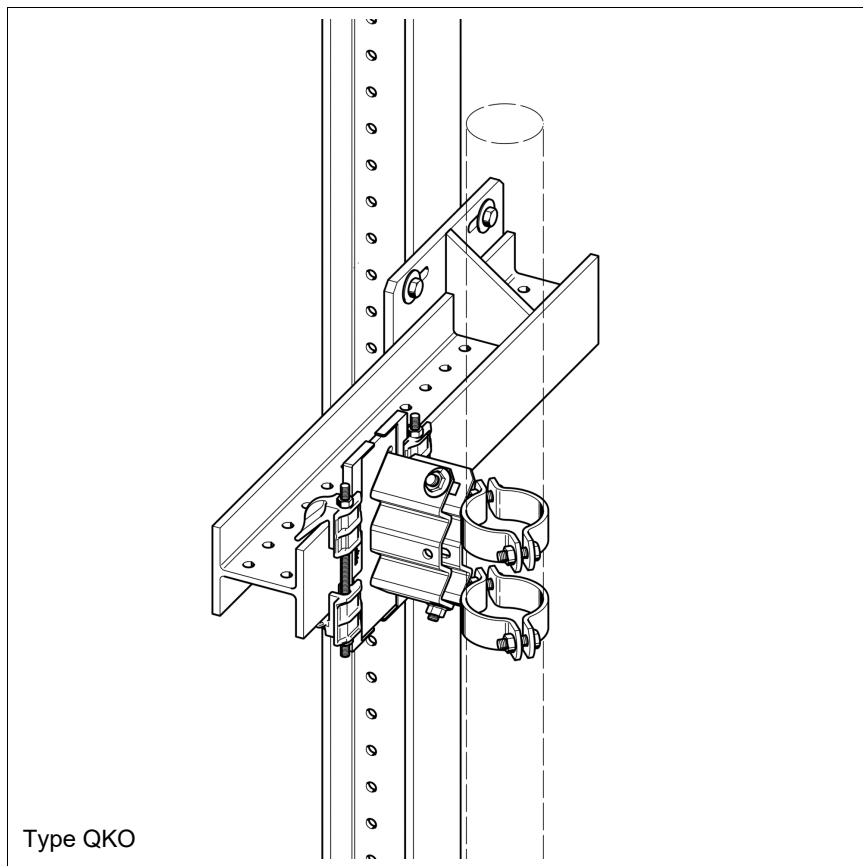
Connection of horizontal Beam Bracket TKO to vertical Beam Bracket TKO through Bracket Plates FV 100/200 with 2 Hexagon Screws M12x35 and 4 Hexagon Screws M12x45 including appropriate washers.

**Caution!**

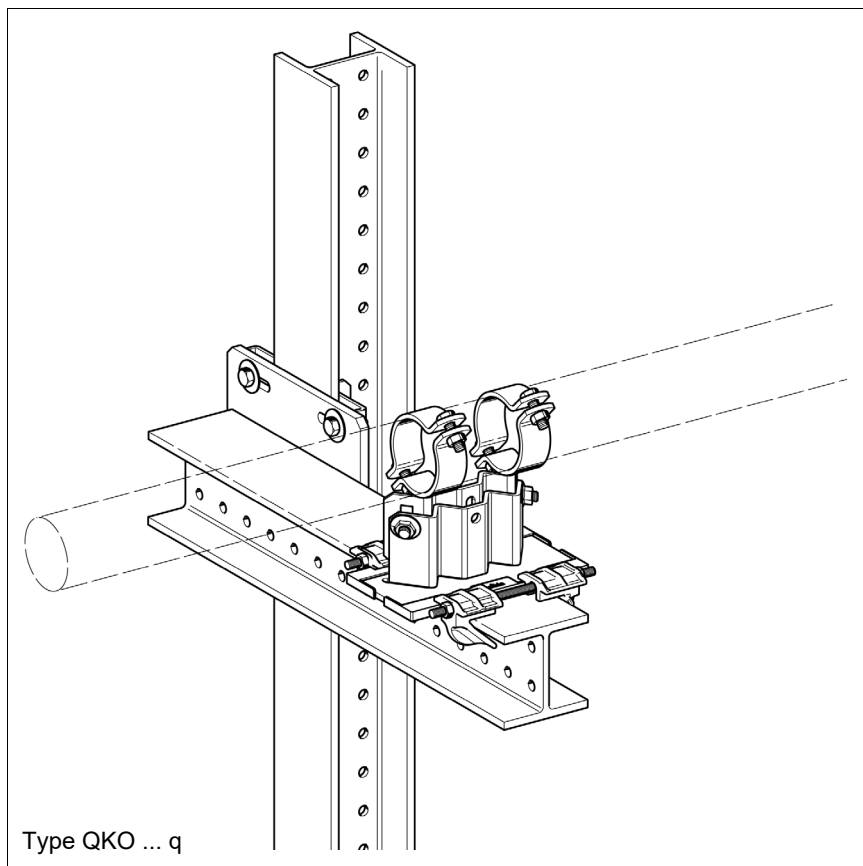
► Form closed connections of the beams is compulsory if clamping connections are not allowed.

**Compatible Sikla Modular Steelwork Systems:**

**TKO F** allows the connection of horizontal TKO siFramo beam bracket to a vertical TKO beam bracket. Pipe shoes can also be secured to both systems.

**Structural Elements 100/120: Joining Beam Bracket QKO**

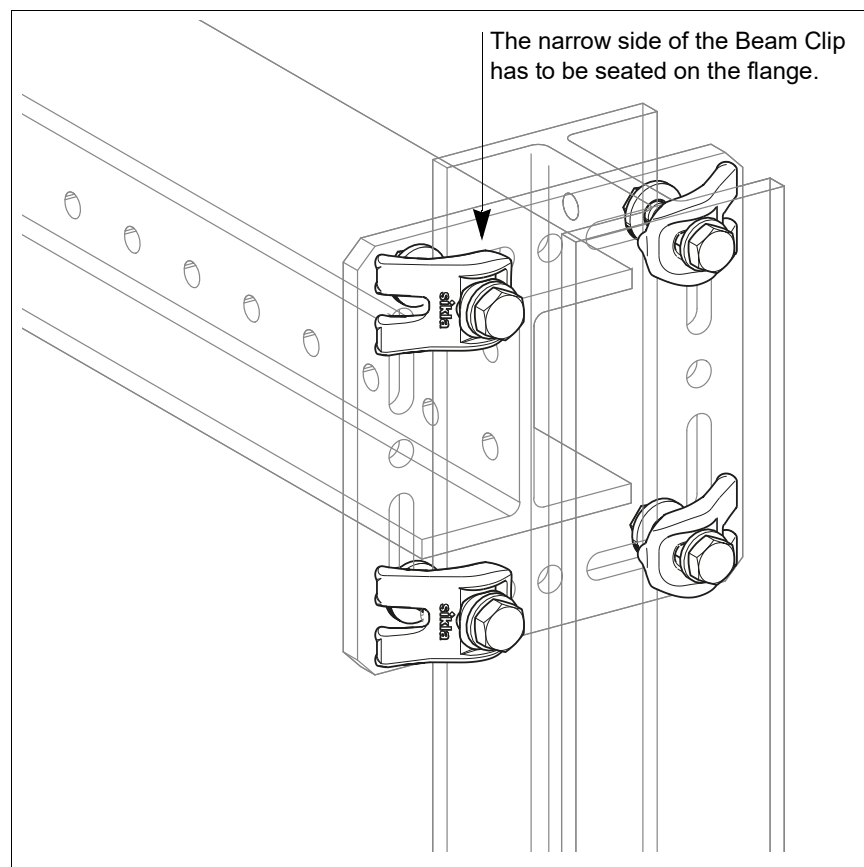
The **Joining Beam Bracket QKO** enables single-arm constructions on concrete or steel beams.



**Type QKO ... q** enables the connection of load bearing cantilever in a perpendicular position to the main vertical column, which only rarely could be replicated by conventional means.



## Structural Elements 100/120: Assembly Set MS 5P M12 and End Support STA

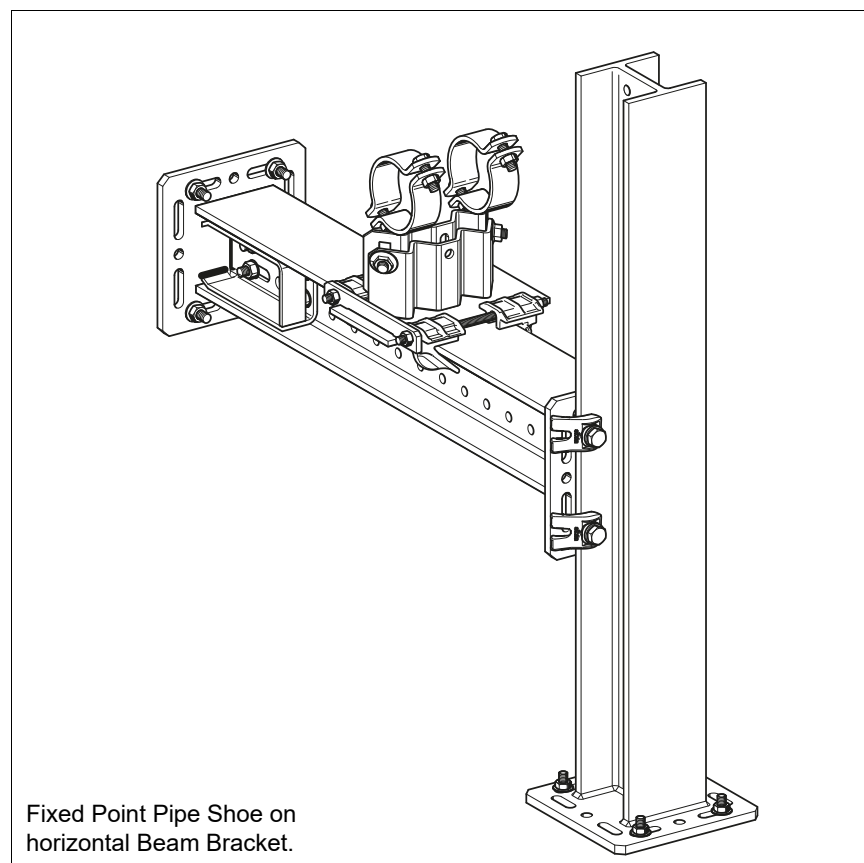


### Assembly Set MS 5P M12:

All necessary fasteners to connect a Beam Bracket TKO to a Beam Section are included in the scope of delivery of an Assembly Set MS 5P M12.

#### Caution!

► Tightening torque of the M12 Hex Bolts = 85 Nm



### End Support STA:

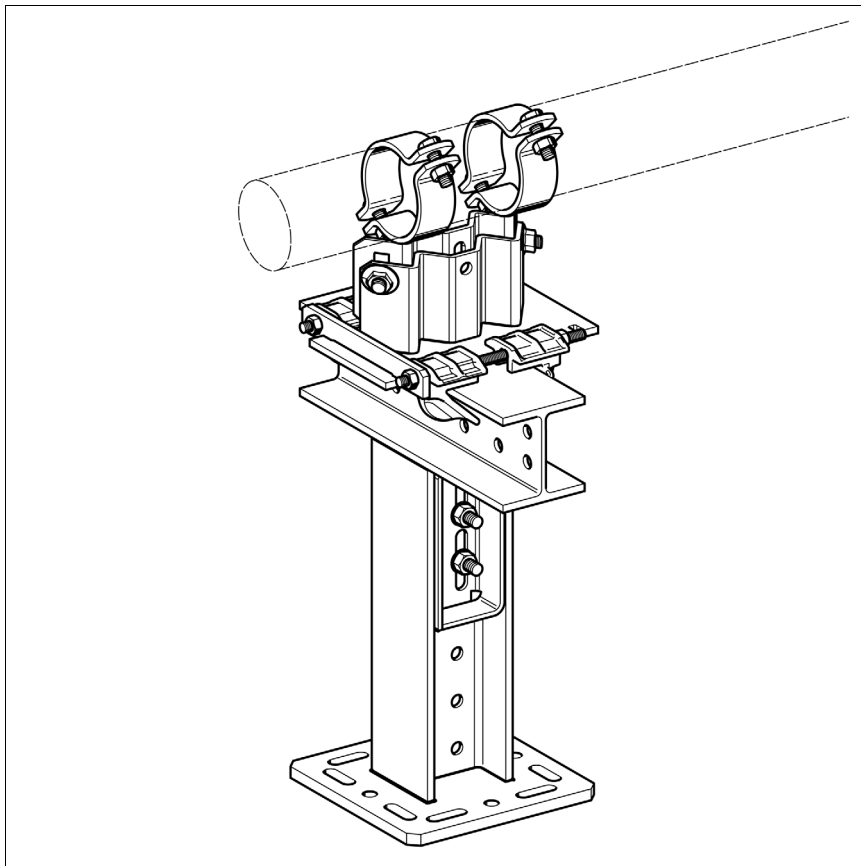
Connection to wall with 4 Heavy Load Anchors M12. Fastening to the horizontal Beam Bracket TKO by means of the End Support STA

### Beam Bracket TKO:

Connection of vertical to horizontal Beam Bracket TKO with Assembly Set P2.



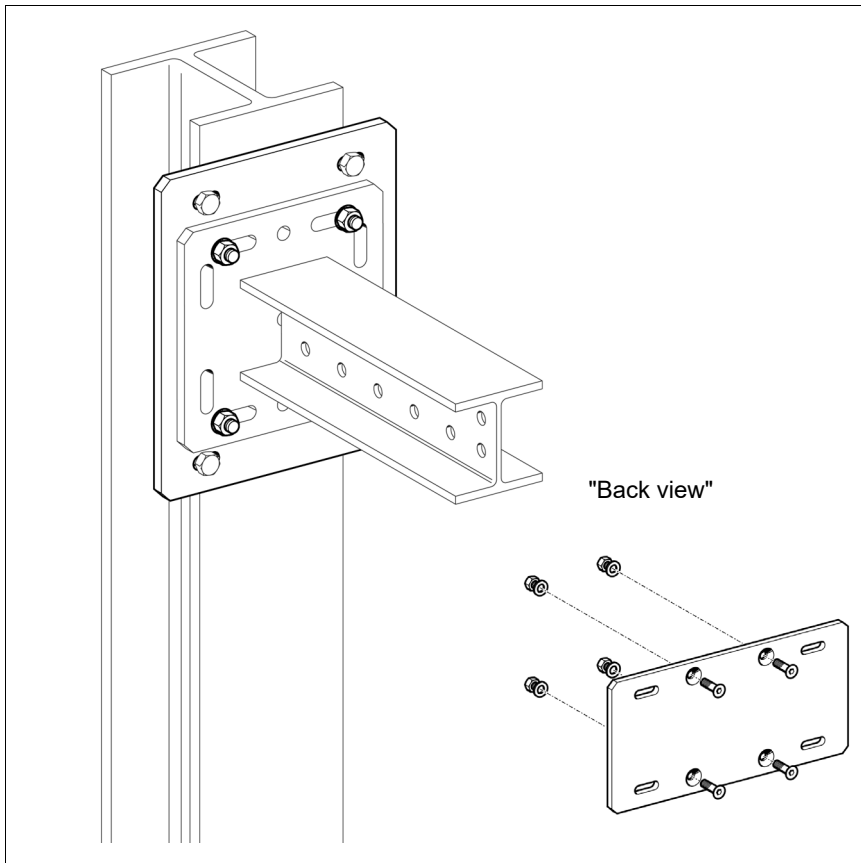
## Structural Elements 100/120: T-Adapter TA and Adapter Plate AP



### T-Adapter TA:

Built upright or overhead, T-Adaptors in various dimensions enable the direct connection of one or several Pipe Supports.

Before tightening the bolt connections (included in scope of delivery), slots allow an easy height adjustment.



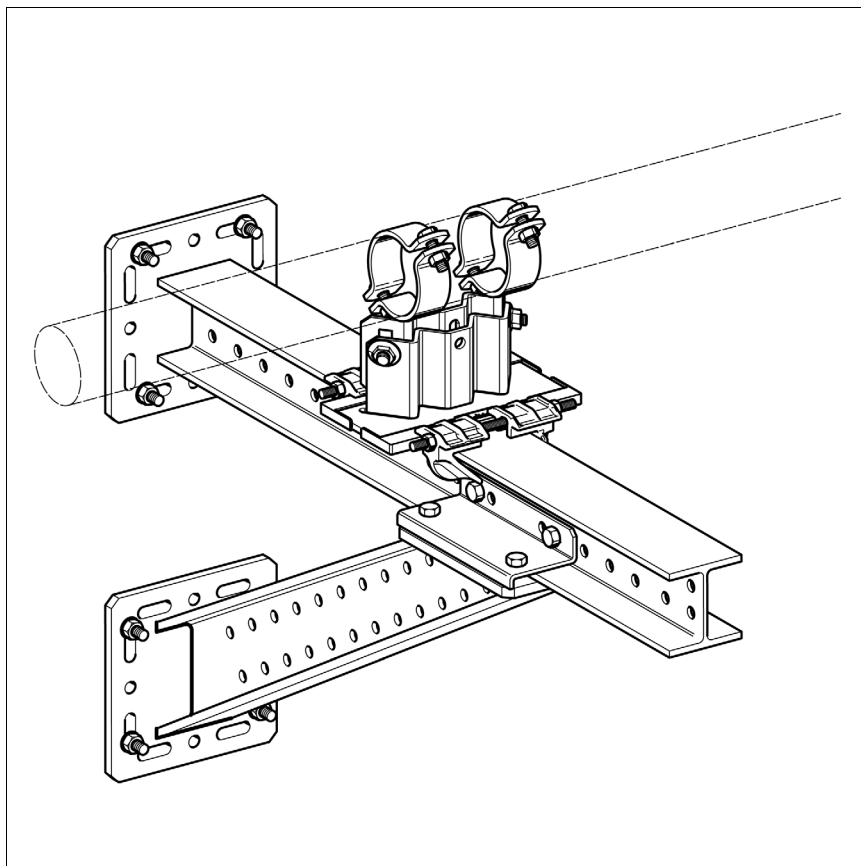
### Adapter Plate AP:

For fixation of a Beam Bracket TKO or other Component with Sikla-Mounting Plate 220x220 to an existing Bracket with flange width > 120 to max. 300 mm.

### Installation process:

1. Bolt Adapter Plate together with Mounting Plate (connecting elements in the scope of delivery)
2. On site connection with Assembly Set P to the Beam or Heavy Load Anchors to the building structure (at requested centre distance)



**Structural Elements 100/120: Angled Beam Bracket SKO****Angled Beam Bracket SKO:**

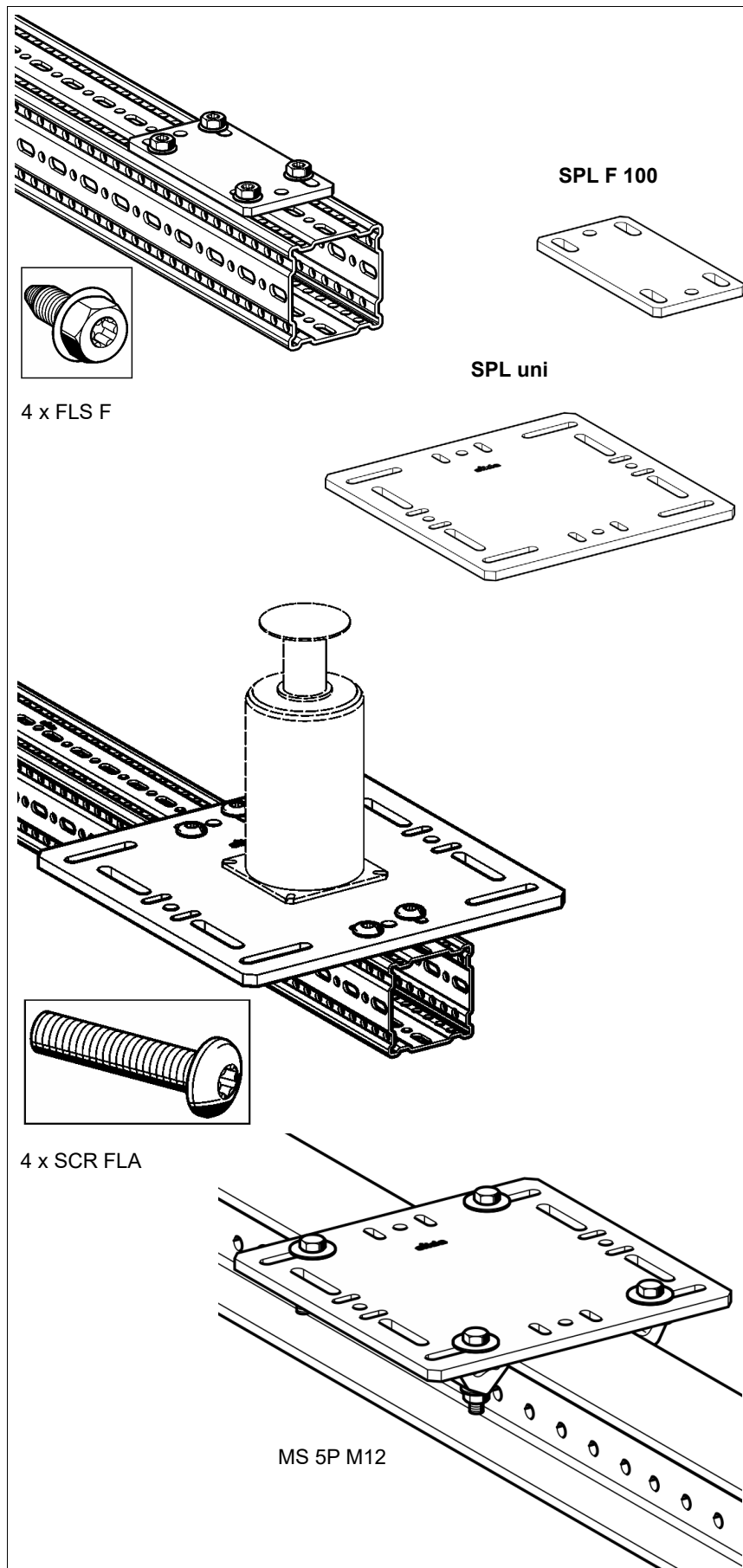
As brace support for cantilevers or reinforcement of frame structures; installation angle 30° or 60°. Lateral bracing also possible

Mounting Plates 220x220 placed at the end of an Angled Beam Bracket SKO allow the form-closed connection to Beam Brackets TKO 100 or TKO 120 through Bracket Plates FV 100/120.





## Special parts: assembly by means of Welding Plate SPL



### Welding plates SPL:

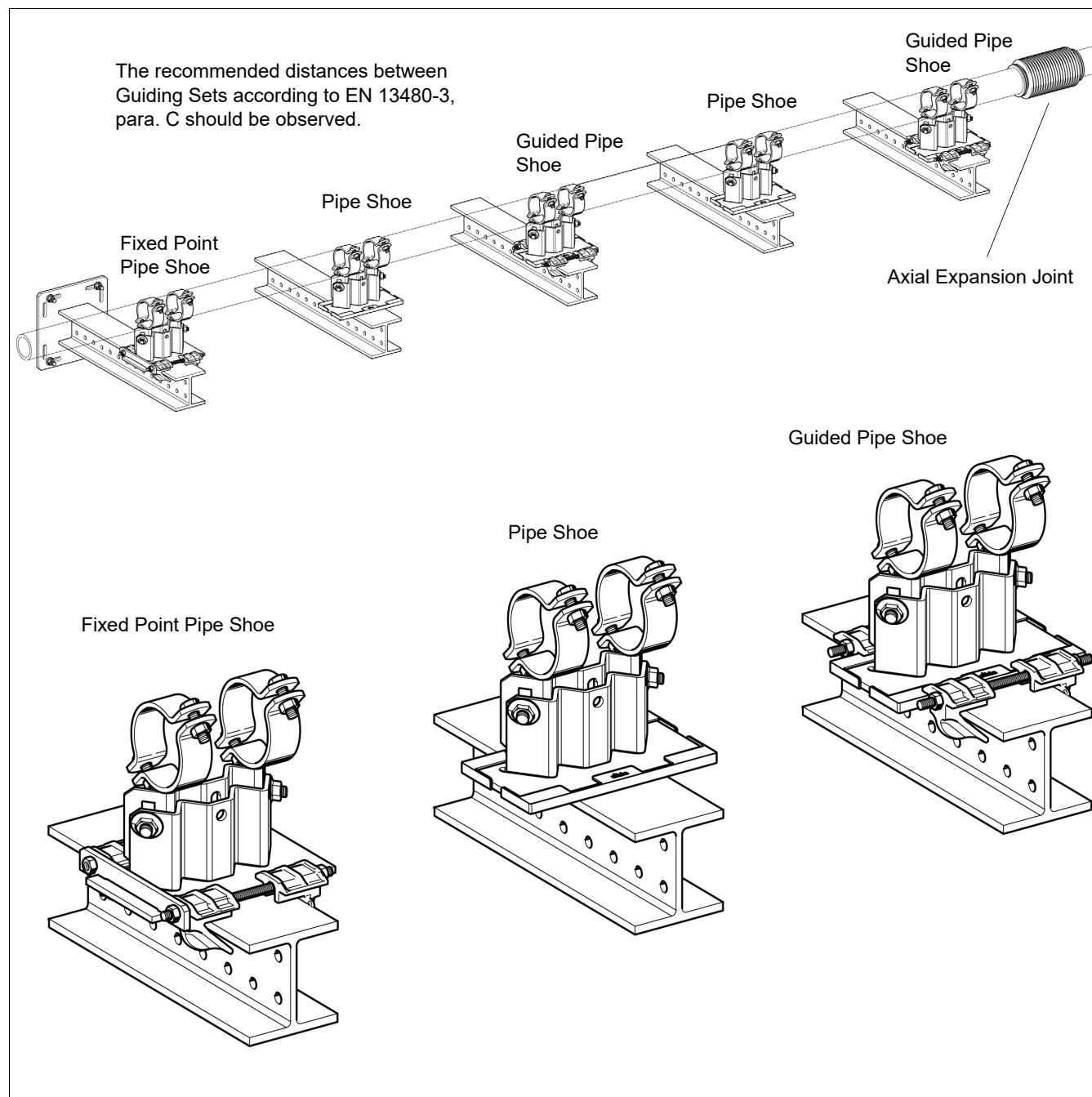
Where a pipe support assembly component (e.g. a spring hanger) must be welded to the supporting steelwork, Welding Plates **SPL F 100** and **SPL uni** can be used.

For assembly, the components are welded to the Welding Plates, which are in turn either fastened to siFramo beam sections or clamped to Simotec beam sections.

The Welding Plates' hole spacings are optimized for simple connection to siFramo and Simotec systems.



## Pipe Shoes: Arrangement of Guided Pipe Shoe Supports



### Example for pipe installation:

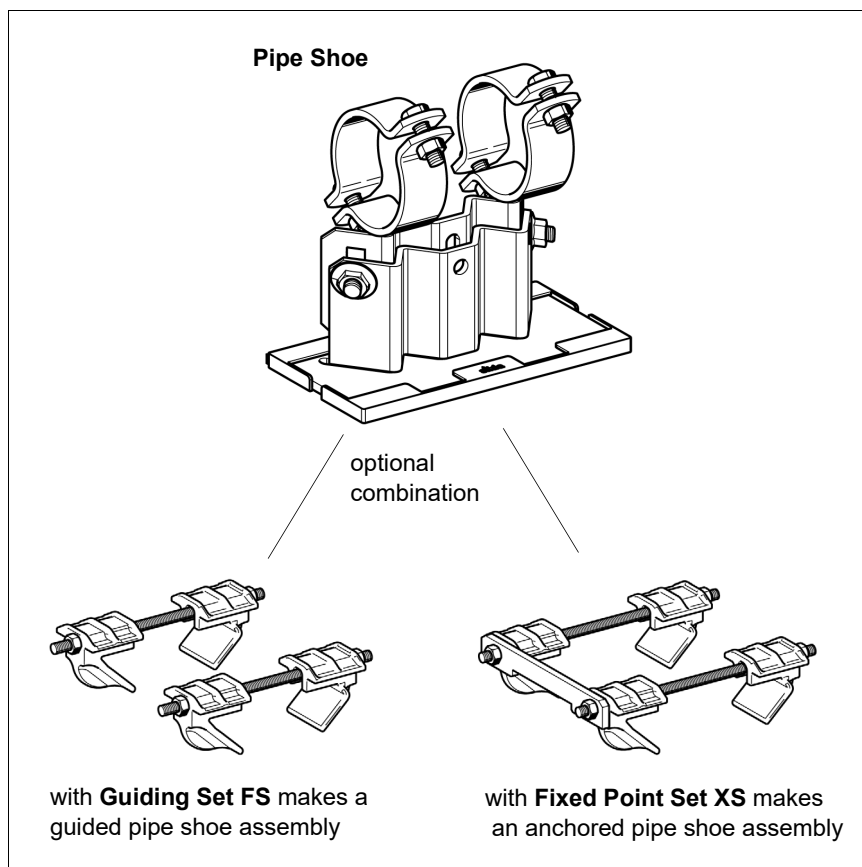
For the pipe support

- 1 Fixed Point
- 2 Sliding Supports
- 2 Guiding Supports

are used.

An axial compensator has to be used to adjust the linear expansion of the pipe due to a change in temperature. Guiding Sets have to be installed directly before and after an axial compensator is attached. Observe the installation instructions of the expansion joint manufacturer.

## Pipe Shoes: Delivery option and assembly

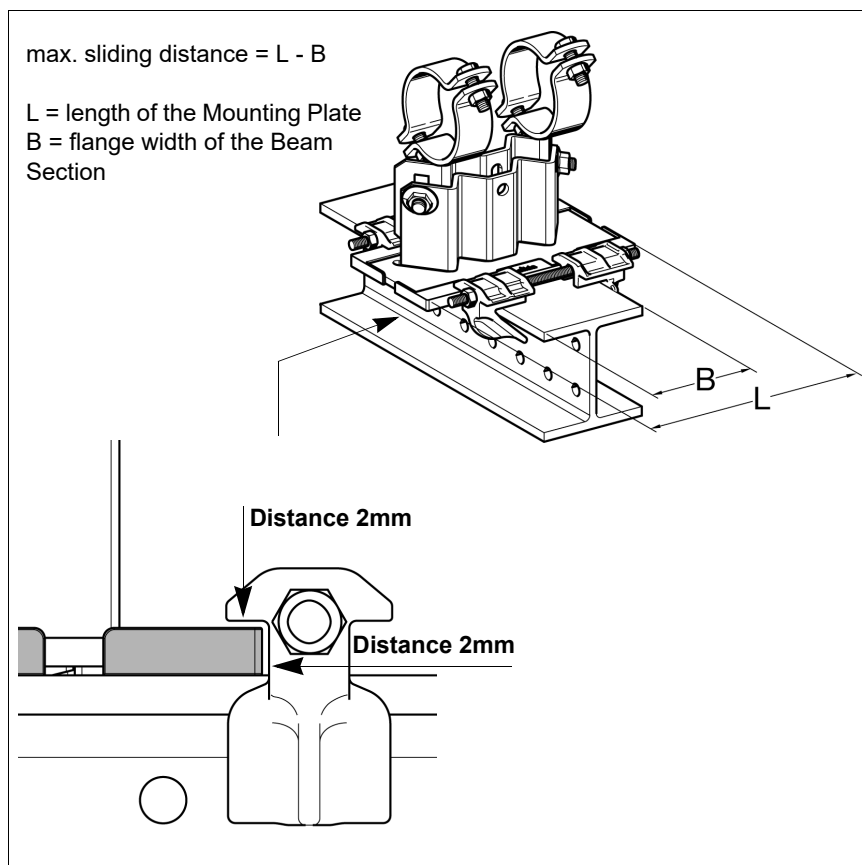


### Delivery option:

Combine the Pipe Shoe with a **Guiding Set FS** or **Fixed Point Set XS**; either a guided pipe shoe or anchored pipe shoe can be assembled.

### Caution!

► Depending on the flange width, the correct type of either Fixed Point Set FS or XS should be attached.



### Assembly of Clamping Hooks with Guided Pipe Shoes:

To allow movement of the pipe shoe base plate on the supporting Beam, all 4 Clamping Hooks have to be mounted such that a 2mm clearance to the pipe shoe base plate is maintained.

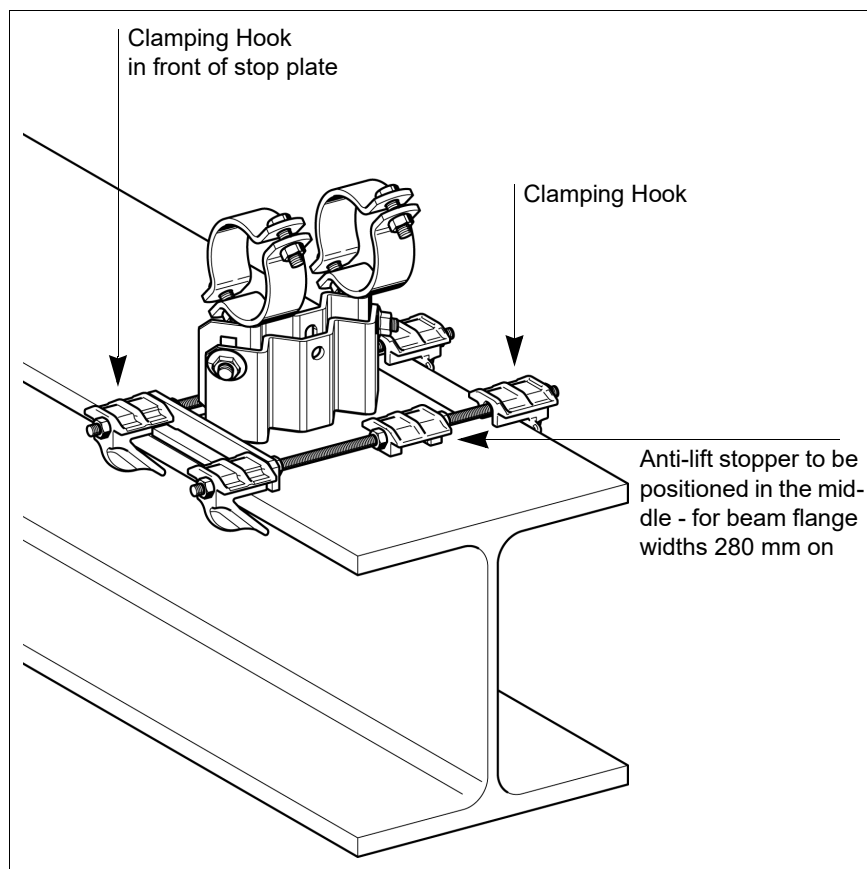
### Frictional force with Sliding and Guiding Supports:

The coefficient of static friction  $\mu_0$  depends on the consistence of the surface consistency.

For Simotec Supports with Sliding Plates PA on hot-dipped galvanised Beams  $\mu_0 = 0.2$ .



## Pipe Shoes: Assembly on wide flange Beams and sloping pipes

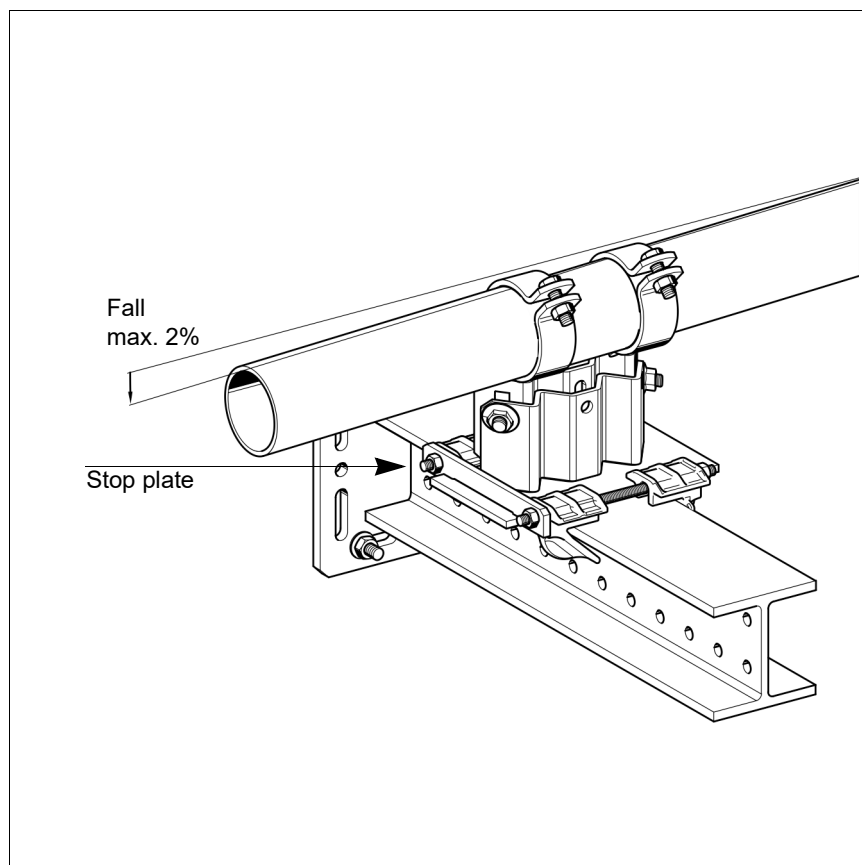


### Wide Flange Beams:

When assembling Fixed Point Pipe Shoes to Beams with a flange width 200 mm and wider, the front Clamping Hooks have to be mounted in front of the stop plate and to the outside edge of the Pipe Shoe base plate.

This means that the opposing Clamping Hook is then also still arranged above, and to the outer edges of the Pipe Shoe base plate, for beams with a flange width up to 220 mm.

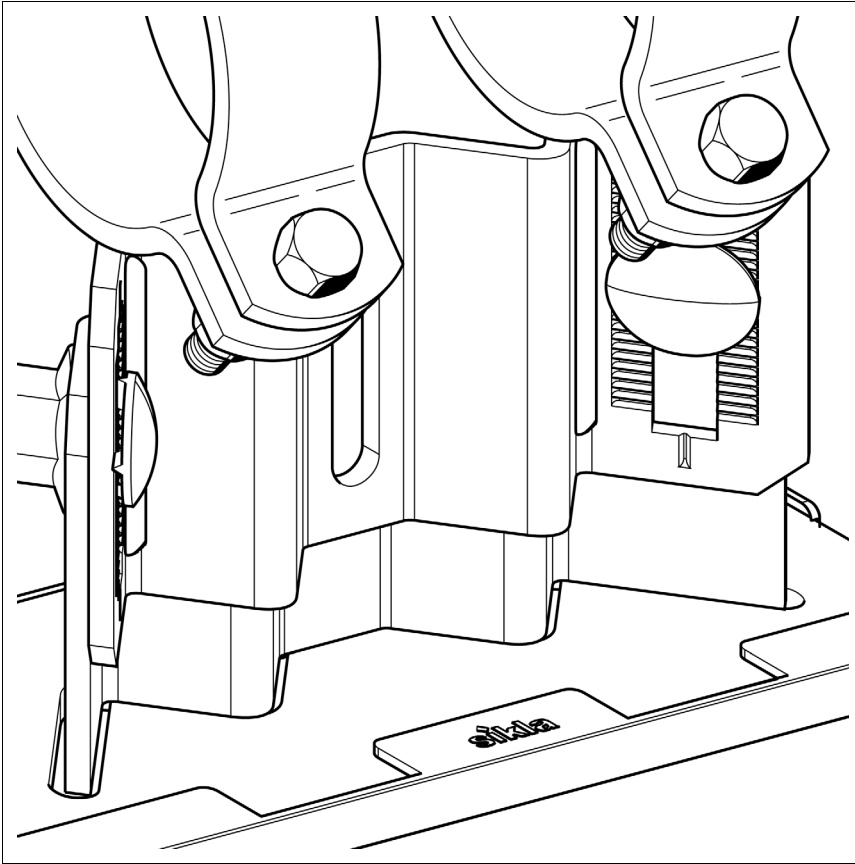
For Beams with a flange width from 280mm, the anti-lift stoppers are additionally installed to the centre-section of the beam on both outer edges of the Pipe Shoe base plate.



### Assemblies with a pipe gradient:

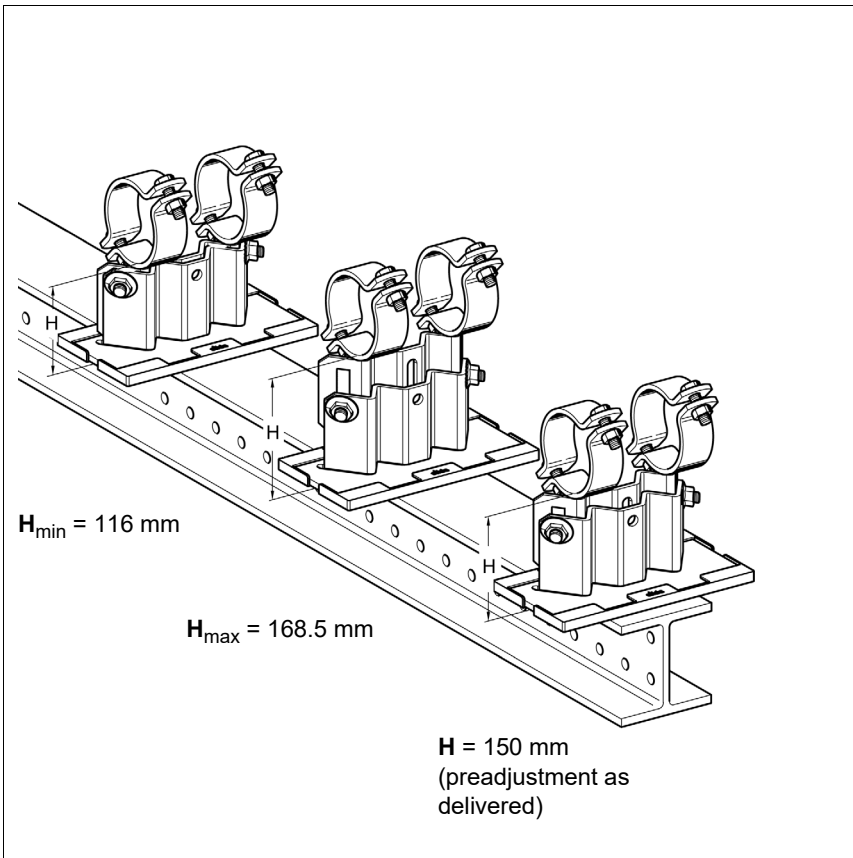
Fixed Point Pipe Shoe must be installed with the front stopper plate section on the lower pipe-fall side required of the Pipe Shoe base plate.

## Pipe Shoes: Adjustable Height



### HV-Supports:

These pipe shoes allow fine height adjustment based on 3 basic height settings



Height **H** is always measured from TOS (Top of Steel) to BOP (Bottom of Pipe).

### Setting range

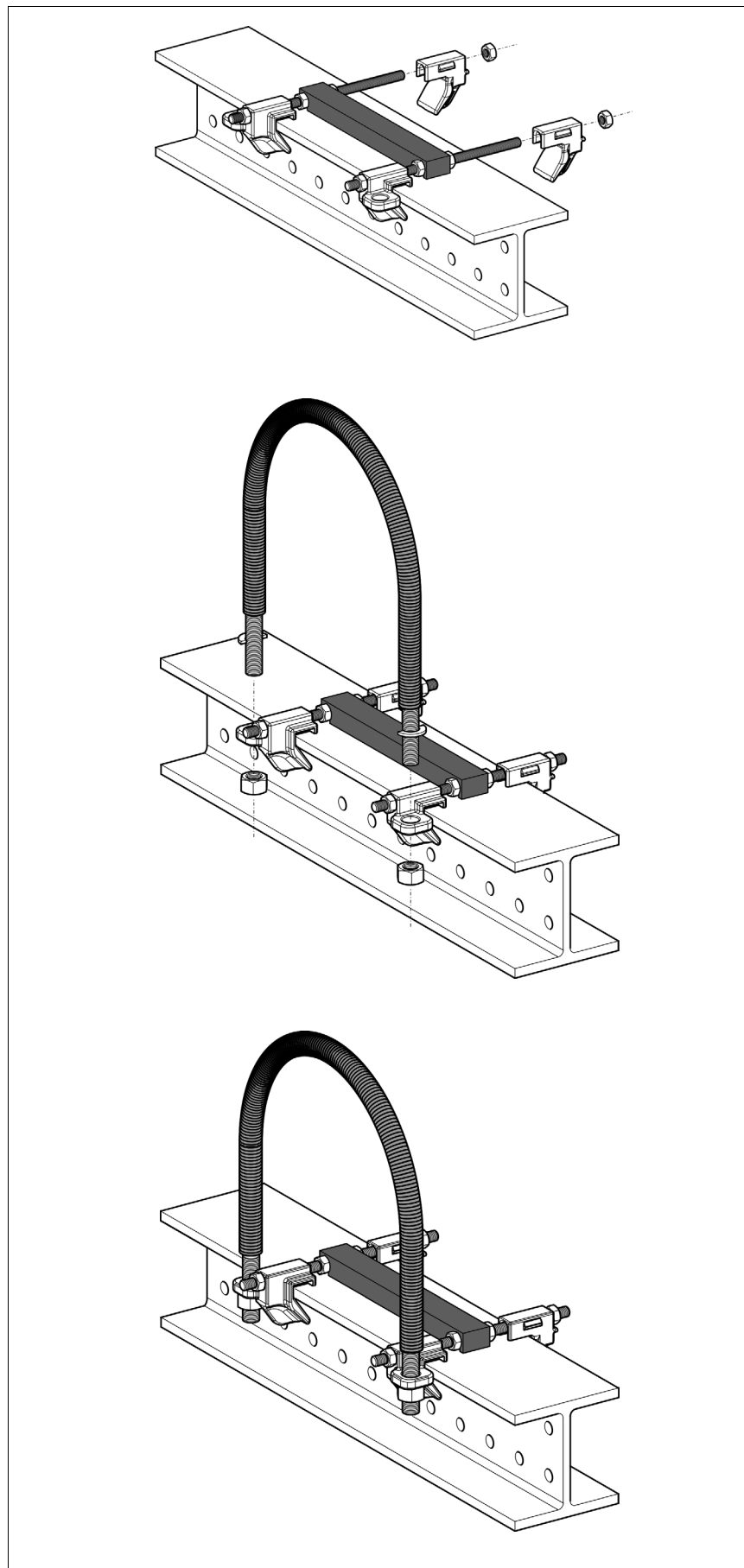
HV 090: 88.5 ... 113.5 mm

HV 150: 116 ... 168.5 mm (pict.)

HV 200: 171 ... 223.5 mm



## Supports: Assembly process



### Mounting example

#### Guided Support FR - H 020:

First put the pre-assembled unit (delivery state) consisting of 2 clamping hooks, 2 threaded rods, 6 hexagon nuts and bearing block on the beam. Depending on the beam width it is possible to adapt the position of the bearing block by adjusting the 4 hexagon nuts.

Fix the support by mounting the 2 clamping hooks and 2 hexagon nuts now (also belonging to delivery state).

After installation of the pipe the U-bolt with pre-assembled sheath is to be screwed into the both anterior clamping hooks. The sinusoidal split sheath ensures an electro-chemical separation at any time.

In case of linear expansion the pipe slides directly on the PA bearing block.

