















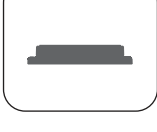


# Installation and Operating Instructions

## Suspension System


SYSPEND 180-MAX

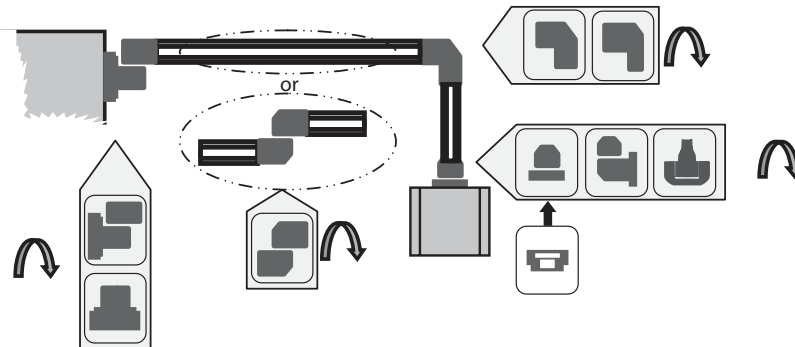
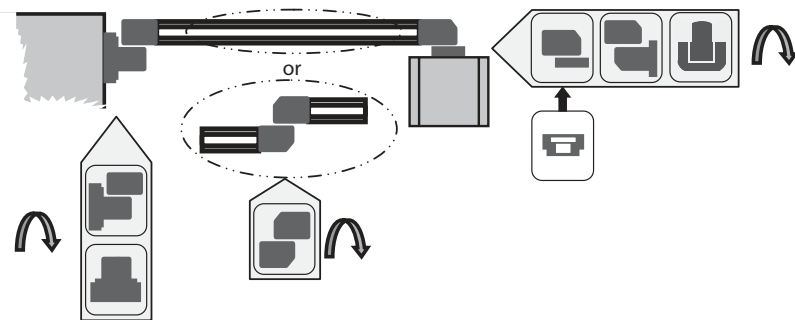
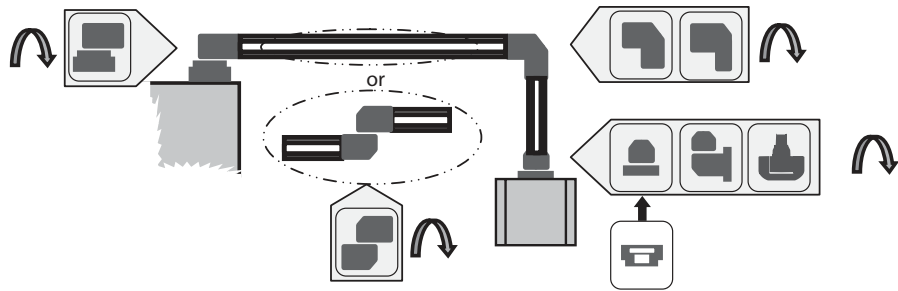
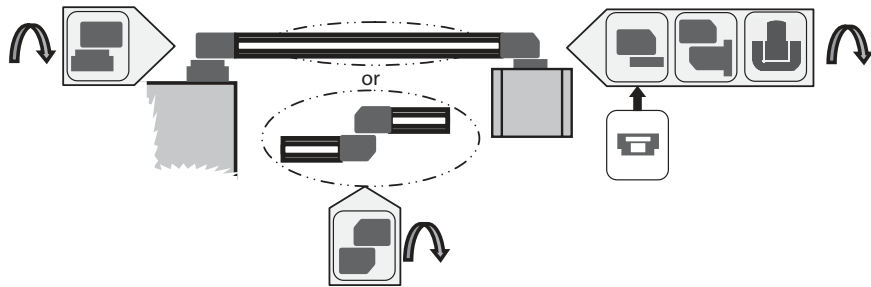
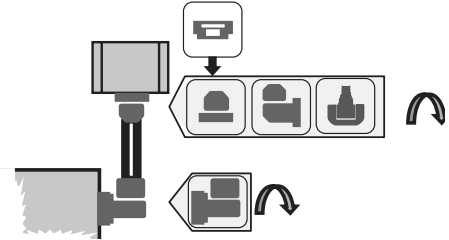
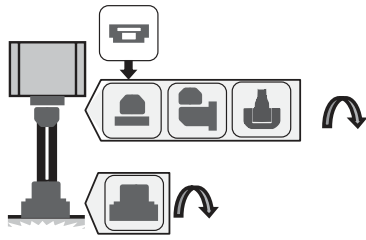


### Component pictograms

	Narrow Adapter		Rotatable Elbow		Wall Flange
	Flange Coupling		Reduction Elbow		Rotary Base
	Flange Elbow Coupling		Intermediate joint		Turn / Tift coupling S /
	Vertical Panel Coupling		Set-Up Joint		Turn / Tift coupling W /
	Horizontal Panel Coupling		Vertical Wall Joint		Adapter plate VESA 75/100 /
	Elbow		Horizontal Wall Joint		

## Application examples

 = This component can either be mounted on the wall or be operated as a standing unit.



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## Indication and Use of the instructions

The sequence of the chapters is not necessarily the operation or assembly sequence.  
Not all chapters apply for each component.

### Indication:

- Pick out the pictogram for the corresponding component shown on the title page
- You will see in the chapters pictograms for which the mounting step applies
- Mounting starts with the plant, machine or wall mounting and the corresponding chapter

## Safety instructions

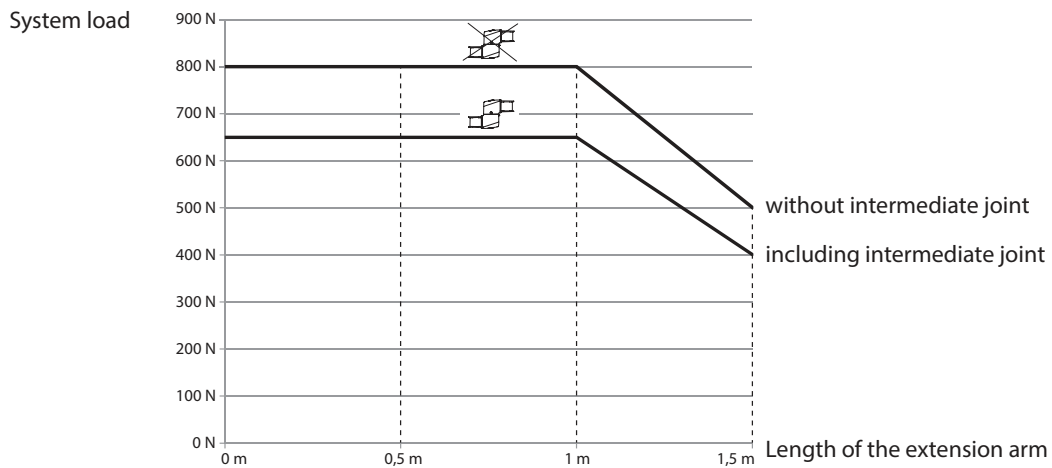
-  ▶ Do not reach into the tubes  
Attention
-  ▶ The excessive crushing, stretching and bending of power lines has to be avoided.  
Attention
-  ▶ The power line system has to be checked for abrasion points regularly.  
Attention
-  ▶ Mounting or the electrical connection of the power line system must be carried out by a qualified electrician.  
Attention
-  ▶ Do not damage seals during installation as otherwise the technical characteristics cannot be complied with.  
Attention
-  ▶ When using panel coupling components, always ensure that the stability of the mounting surface is suitable for mounting.  
Attention
-  ▶ The coupling components are designed for mounting centrally on the control enclosure.  
Off-center installation is not permitted.  
Attention
-  ▶ The tightening torques of the screw connections should be inspected on a regular basis.  
Attention

## Mechanical Data

### Material:

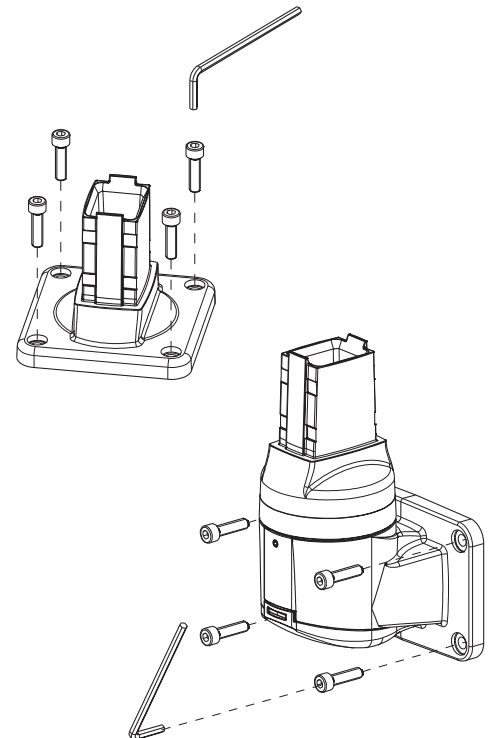
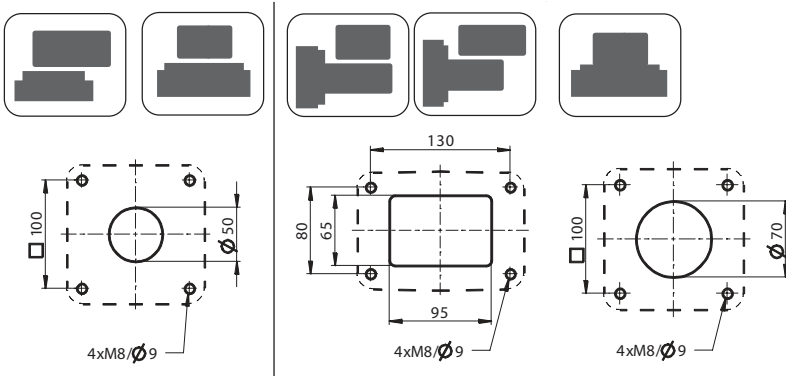
Components	GD-AI
Seals	CR (Neoprene) / NBR
Plastic	POM
Protection class	IP 65

## Load diagram for static load capacity SYSPEND 180-MAX



## Installation and adjustment

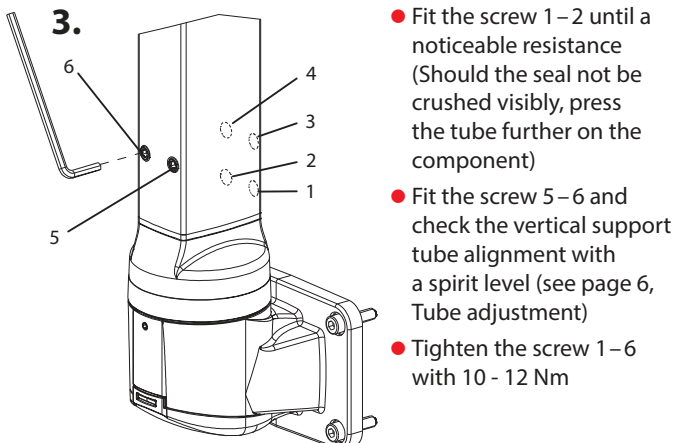
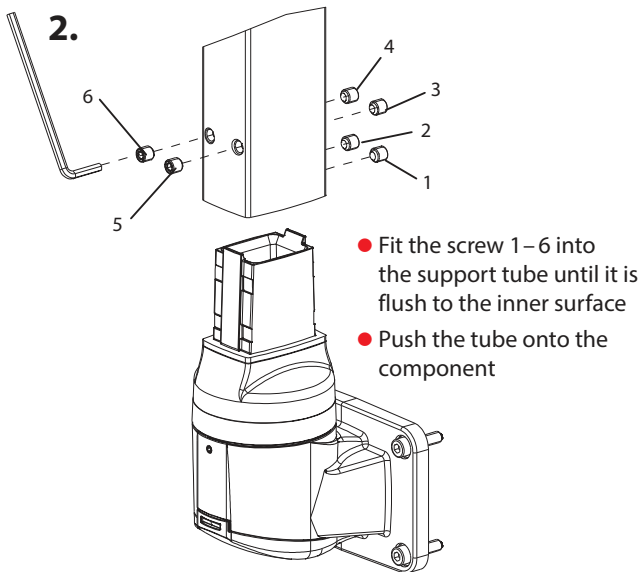
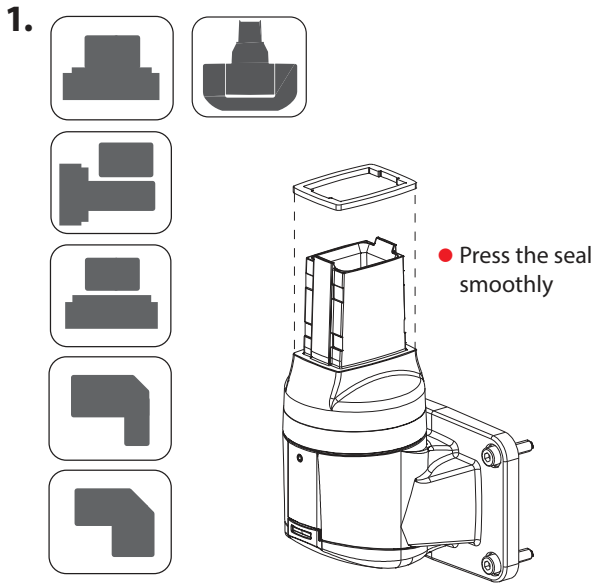
### ① Mounting to plant or machine



Caution: The mounting surface must be smooth and flat.  
If not avoided, it is possible that problems of load, adjustment and protection class arise.

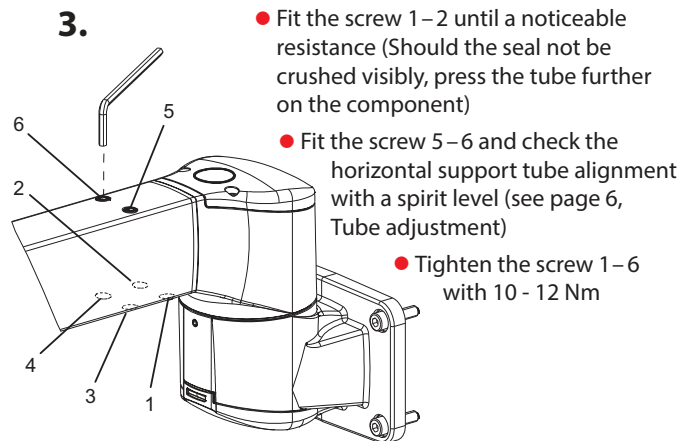
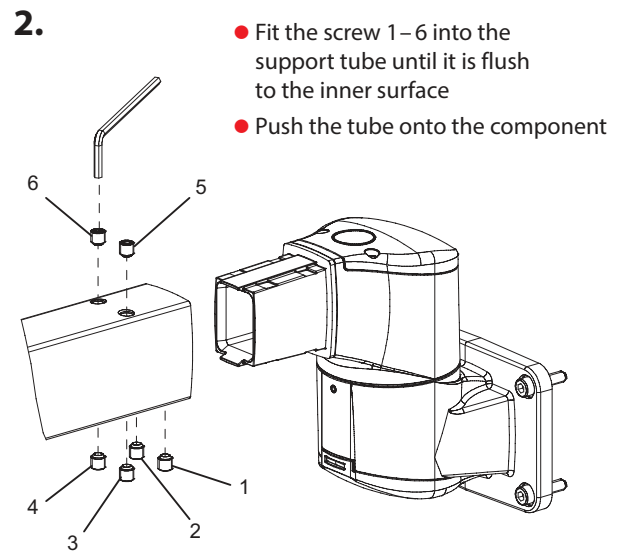
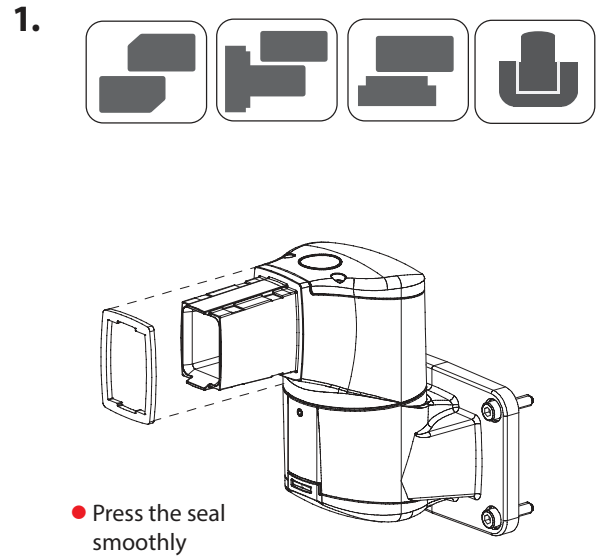
## ② Tube mounting vertically

Indication: Mounting of the component "Vertical Wall Joint" is illustrated below.



## ③ Tube mounting horizontally

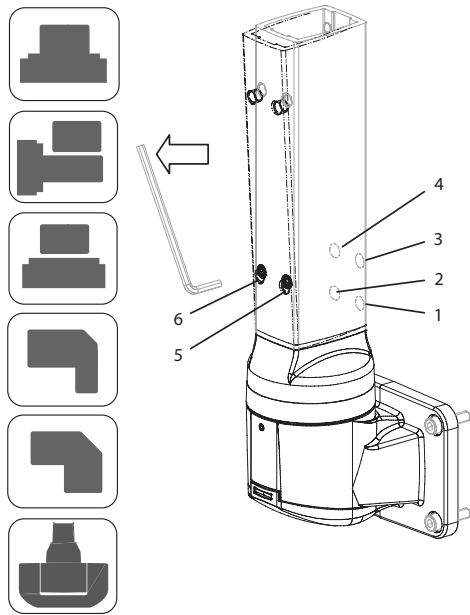
Indication: Mounting of the component "Horizontal Wall Joint" is illustrated below.



#### ④ Vertical tube adjustment (also possible later)

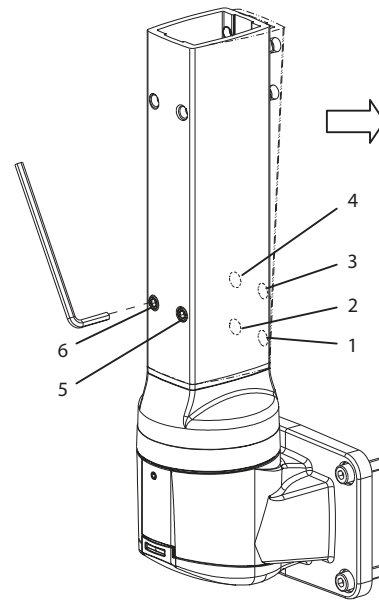
Indication: Adjustment of the component "Vertical Wall Joint" is illustrated below.

##### Left adjustment



- Loosen the screw 3-6
- Tighten the screw 5-6 until the desired position is reached
- Tighten the screw 3-6 with 10 - 12 Nm

##### Right adjustment

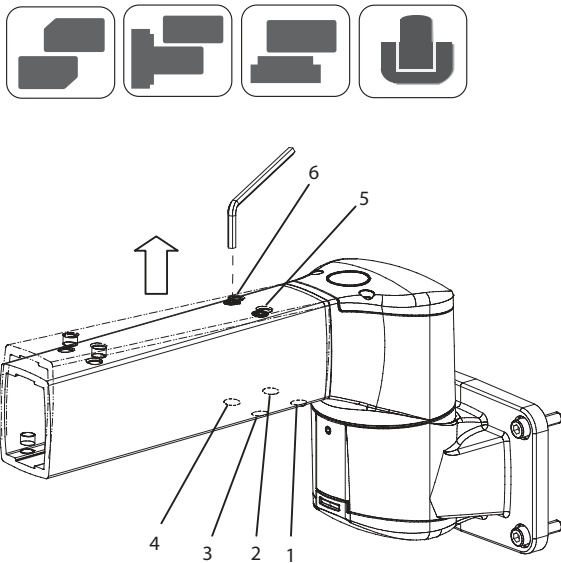


- Loosen the screw 3-6
- Tighten the screw 3-4 until the desired position is reached
- Tighten the screw 3-6 with 10 - 12 Nm

#### ⑤ Horizontal tube adjustment (also possible later)

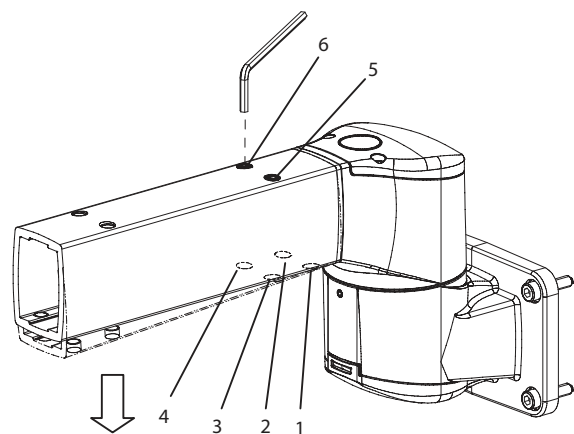
Indication: Mounting of the component "Horizontal Wall Joint" is illustrated below.

##### Upward adjustment



- Loosen the screw 3-6
- Tighten the screw 5-6 until the desired position is reached
- Tighten the screw 3-6 with 10 - 12 Nm

##### Downward adjustment



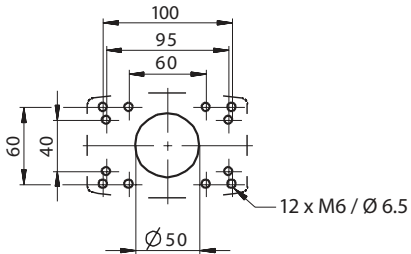
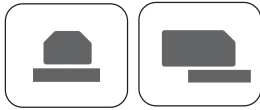
- Loosen the screw 3-6
- Tighten the screw 3-4 until the desired position is reached
- Tighten the screw 3-6 with 10 - 12 Nm

## Mounting to enclosure

### 1. Mounting to control enclosure by using coupling or elbow coupling

Indication: Mounting of the component "Flange Coupling" is illustrated below

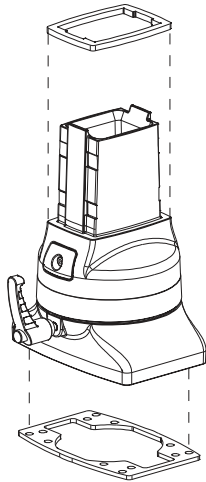
1.



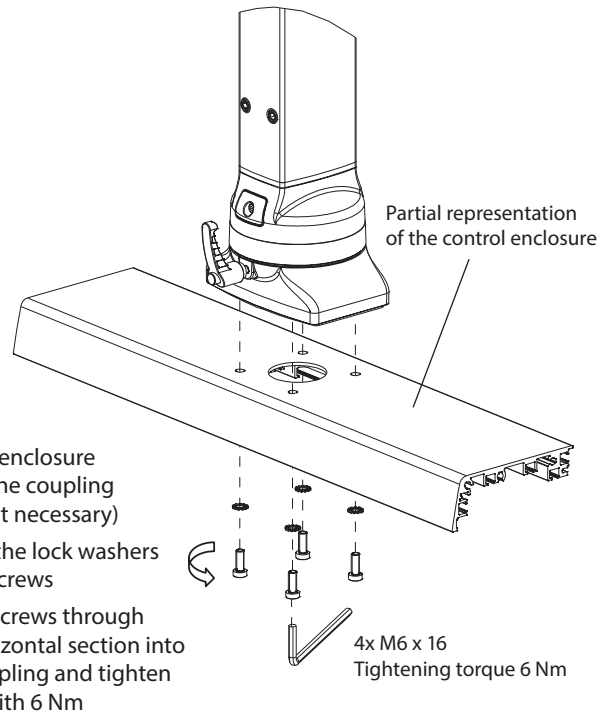
At least 4 bolting points must be used:

- 100 x 60
- 95 x 40
- 60 x 60

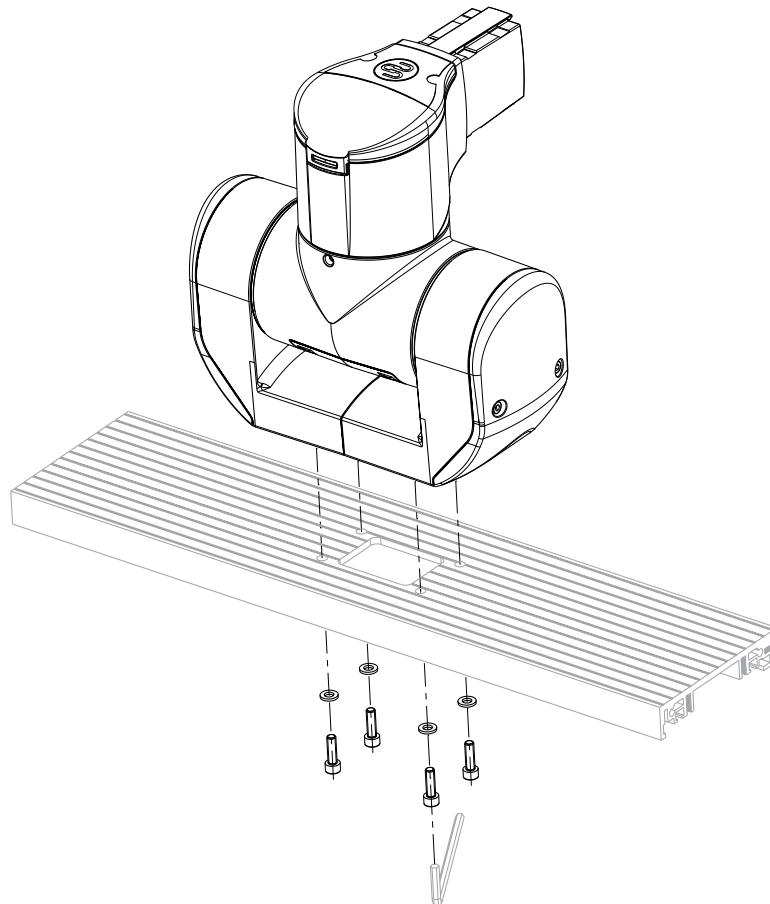
- Press the seal smoothly
- Tube mounting see page 5
- Tube adjustment see page 6



2.

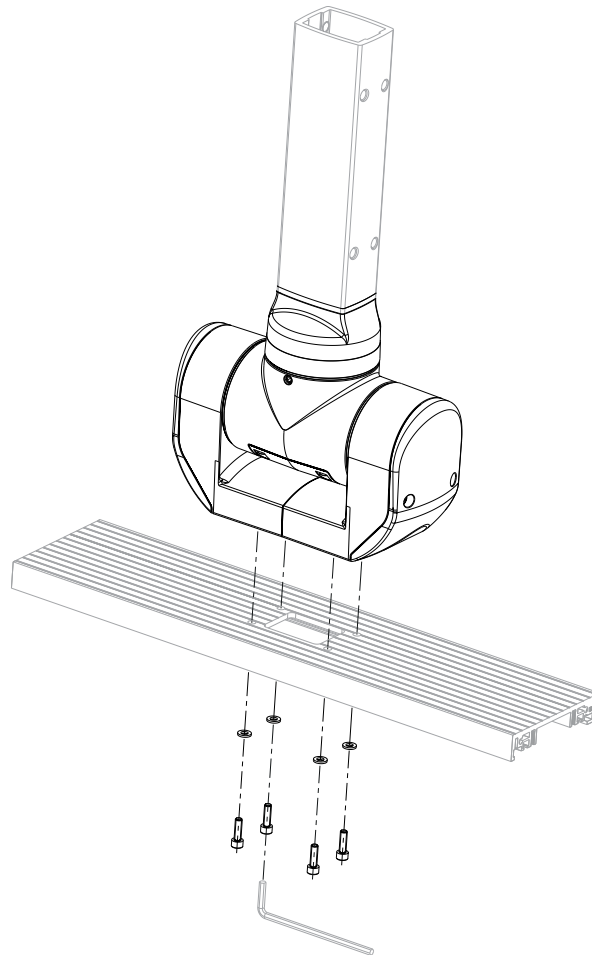


### 2. Turn/tilt coupling W



4x M6 x 16 or 4x M6 x 25  
Tightening torque 6 Nm

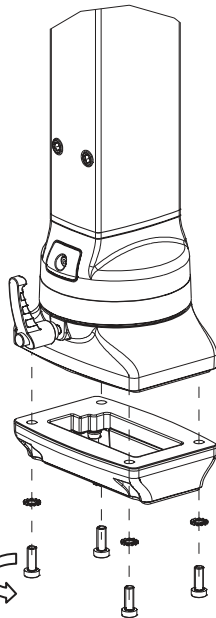
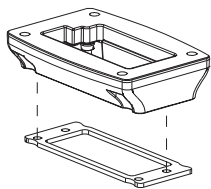
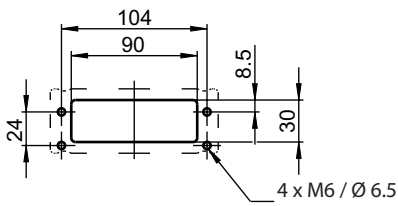
### 3. Turn/tilt coupling S



4x M6 x16 or 4x M6 x 25  
Tightening torque 6 Nm

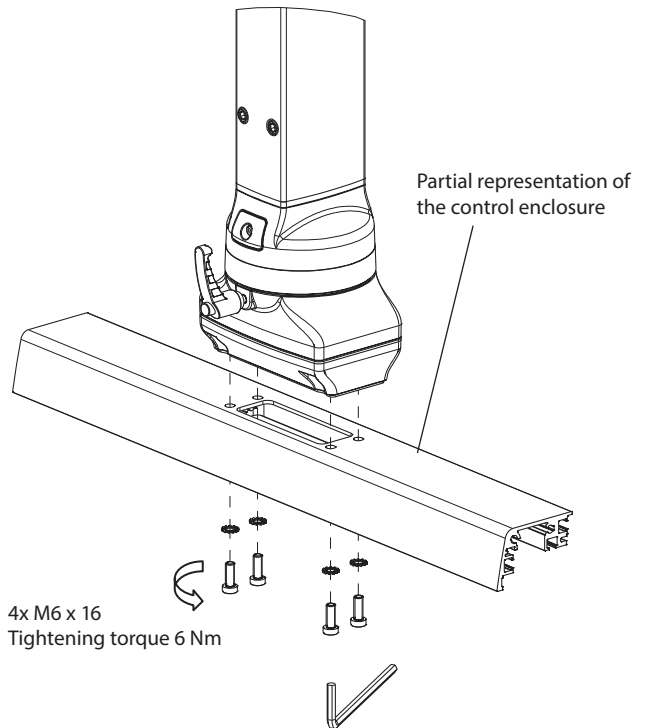
### 4. Mounting to control enclosure by using narrow adapter

Only use in conjunction with Flange Couplings and Flange Elbow Couplings.



4x M6 x 16  
Tightening torque 6 Nm

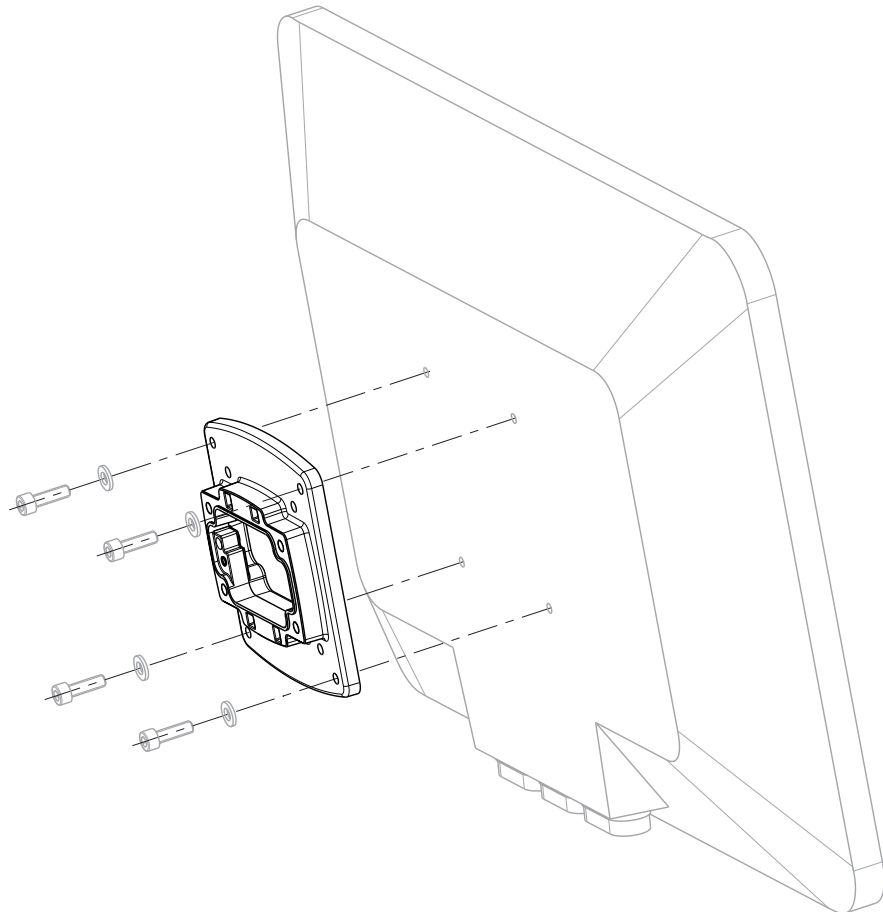
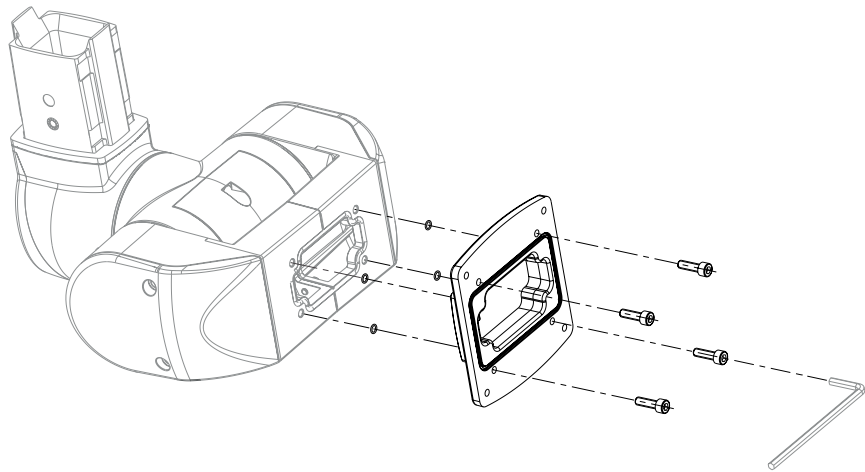
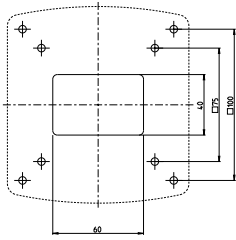
- Adhere the seal to the underside of the adapter
- Mount the adapter with lock washers and screws to the coupling



4x M6 x 16  
Tightening torque 6 Nm

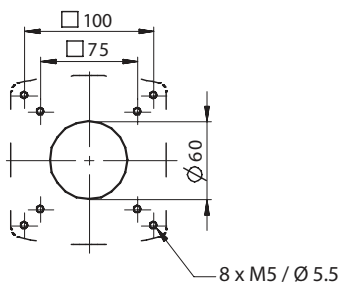
- Lift the enclosure under the coupling (support necessary)
- Attach the lock washers to the screws
- Fit the screws through the horizontal section into the coupling and tighten them with 6 Nm

5. Mounting to control enclosure by using adapter plate VESA 75/100)



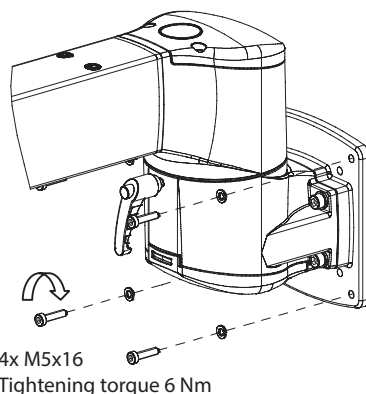
## 6. Mounting to control enclosure by using panel coupling

Indication: Mounting of the component "Horizontal Panel Coupling" is illustrated below



At least 4 bolting points must be used:

- 100 x 100
- 75 x 75

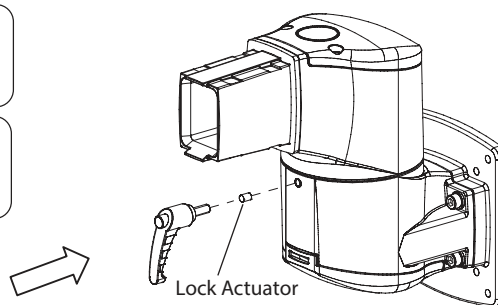
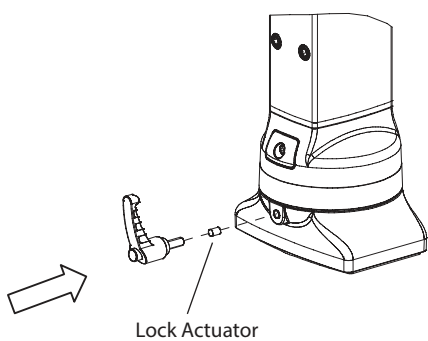


- Mount the panel coupling with lock washers and screws



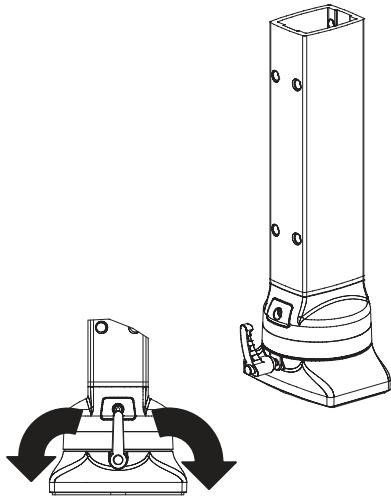
▶ When using panel coupling components, always ensure that the stability of the mounting surface is suitable for mounting.

## Screwing the clamping lever

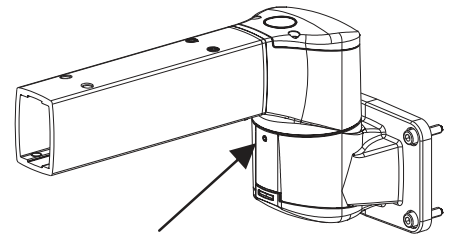
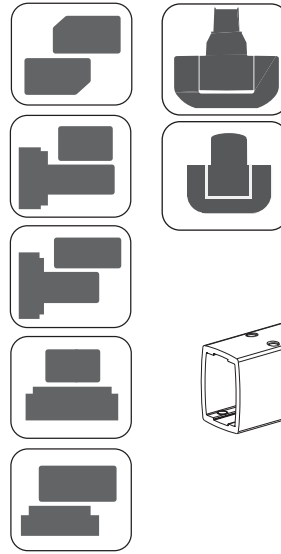


- Insert the Lock Actuator in the threaded bore
- Screw the clamping lever

## Modification of firmness



- Adjust the clamping lever to increase or decrease resistance
- Factory preset to optimum torque setting

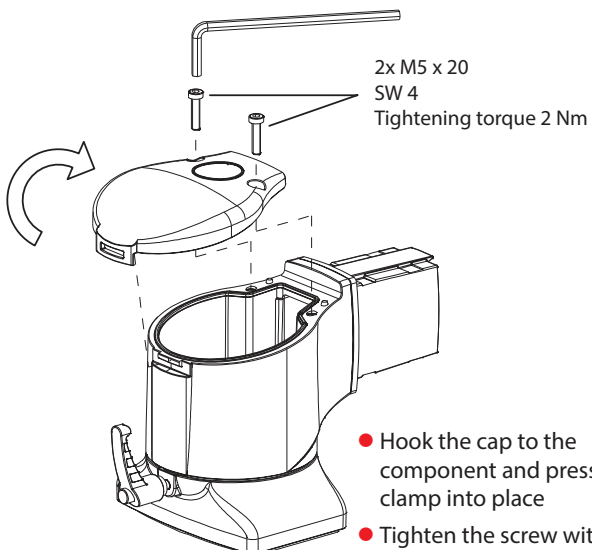
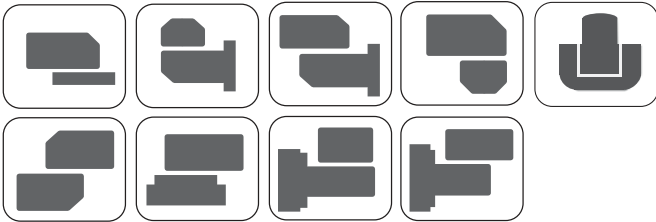


Adjustment screw M6

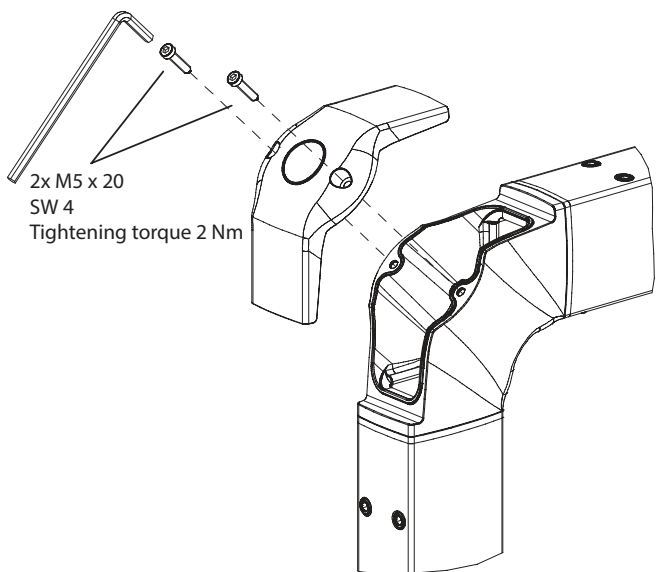
- Adjust screw to increase or decrease resistance
- Factory preset to optimum torque setting

## Joint cap mounting and dismounting

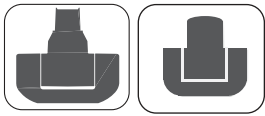
Indication: Mounting and dismounting of the component "elbow coupling" is illustrated below



Indication: Mounting and dismounting of the component "elbow" is illustrated below

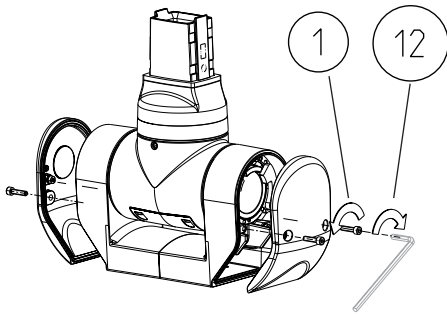


## Attitude of the tightness of torque (M) and the tilt angle limitation

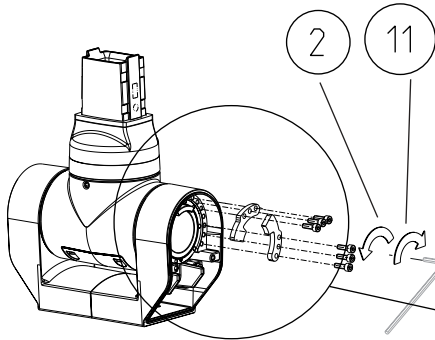
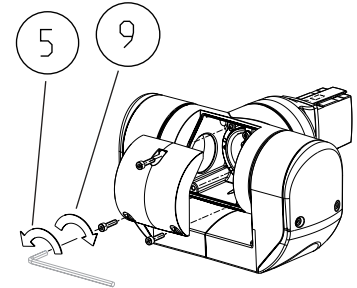


Turn / tilt coupling

Indication: The attitude is illustrated using the component DNK 5 as an example.

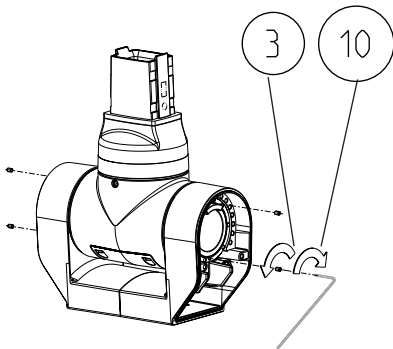
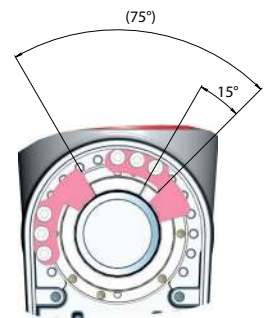
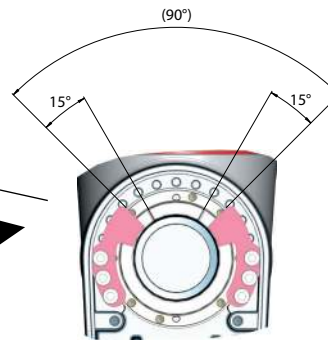


Unscrew the cover Pos.1/ Pos.5  
Mount the cover Pos. 9 / Pos.12

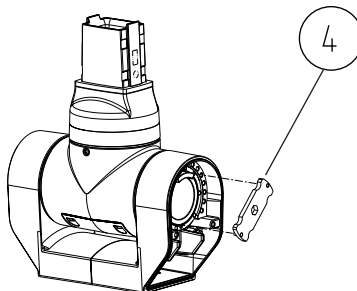
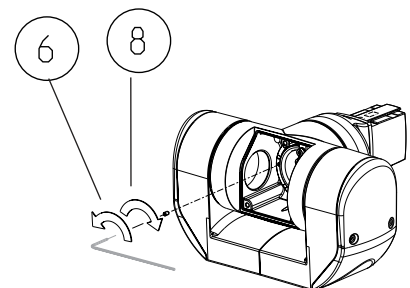


Unscrew the tilt angle limiter Pos.2  
Mount the tilt angle limiter Pos. 11

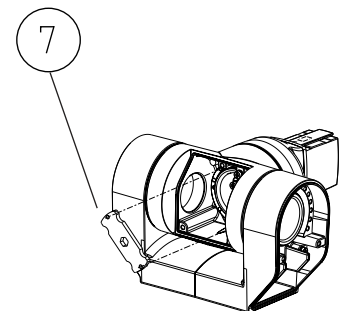
Application examples for tilt angle limiter



Unscrew the threaded pin M4 Pos. 3 / Pos. 6 /  
Screw the threaded pin M4 Pos.8/ Pos. 10



Loosen threaded nut with tool item  
no. 980 5422 000. Pos. 4 / Pos. 7 max. 1  
revolution anticlockwise. Set the desired inclination  
moment Pos.4 / swing torque Pos.7 by tightening the  
threaded sleeve / nut

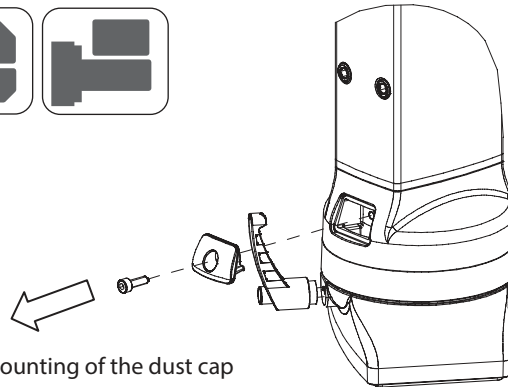
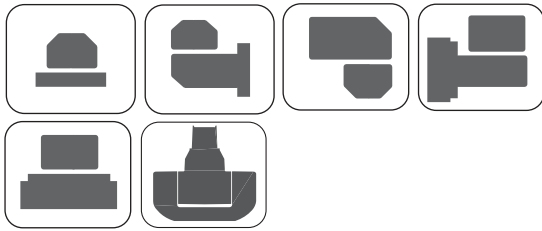


## Accessories

Article number	Type
S1MRL	Rotation Limiter

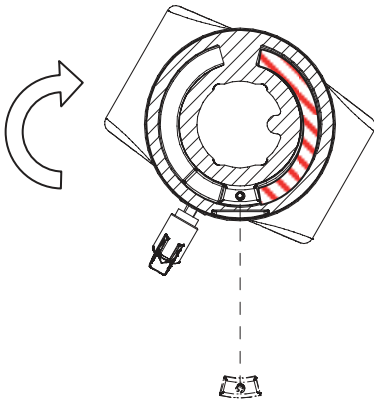
Indication: Mounting of the rotation limiter is illustrated below by the component "coupling".

1.



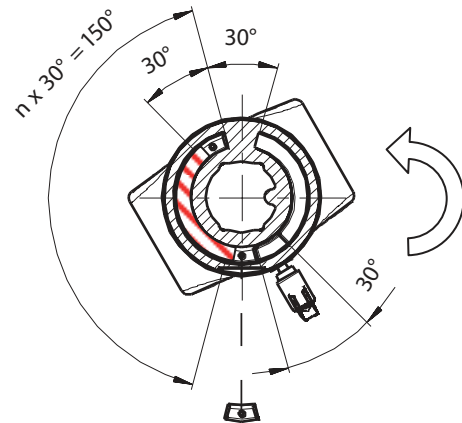
● Dismounting of the dust cap

2a.



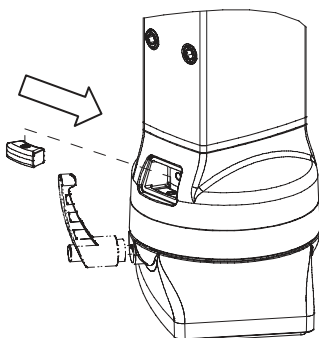
● In order to limit the rotation to the left, turn the bottom of the coupling to the right

2b.



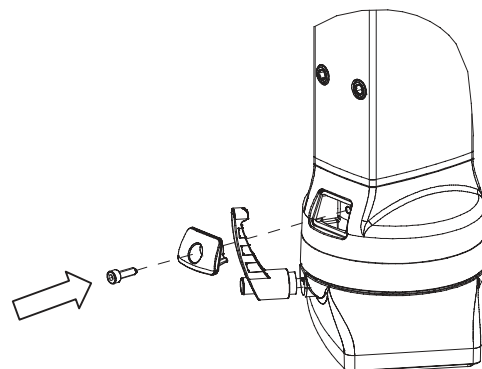
● In order to limit the rotation to the right, turn the bottom of the coupling to the left

3.



● Insert rotation limiter

4.



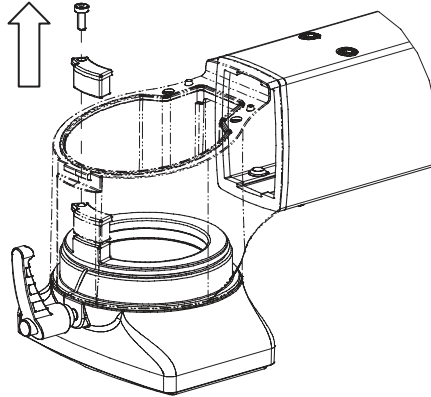
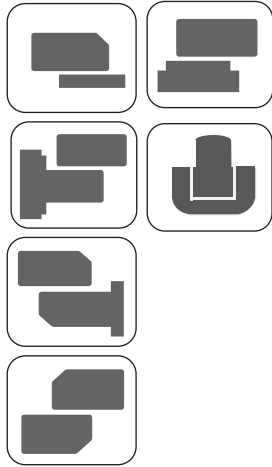
● If the desired limitation is set, the dust cap must again be fitted

Once fitted the rotation limiters can be removed at any time

Article number	Type
S1MRL	Rotation Limiter

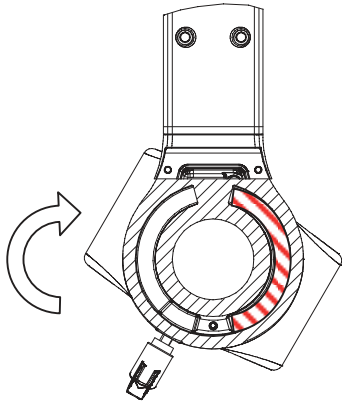
Indication: Mounting of the rotation Limiter is illustrated below by the component "elbow coupling".

1.



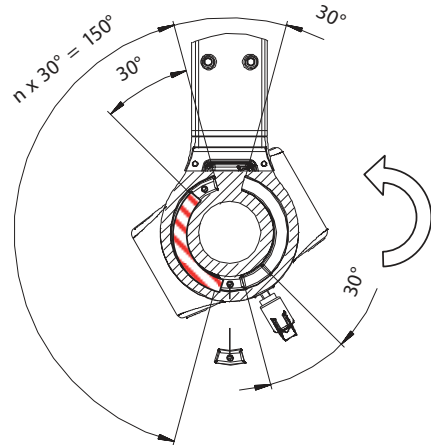
- For removal of cover, see page 9
- Unscrew the locking tappet and remove it

2a.



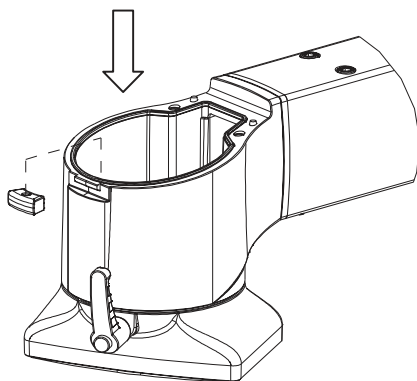
- In order to limit the rotation to the left, turn the bottom of the coupling to the right

2b.



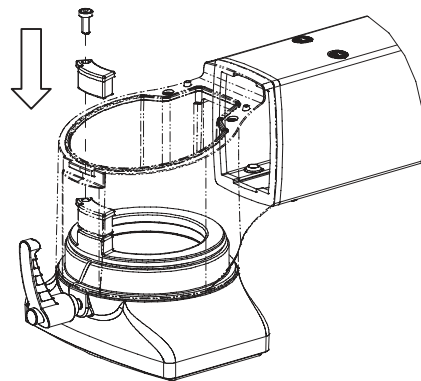
- In order to limit the rotation to the right, turn the bottom of the coupling to the left

3.



- Insert rotation limiter

4.

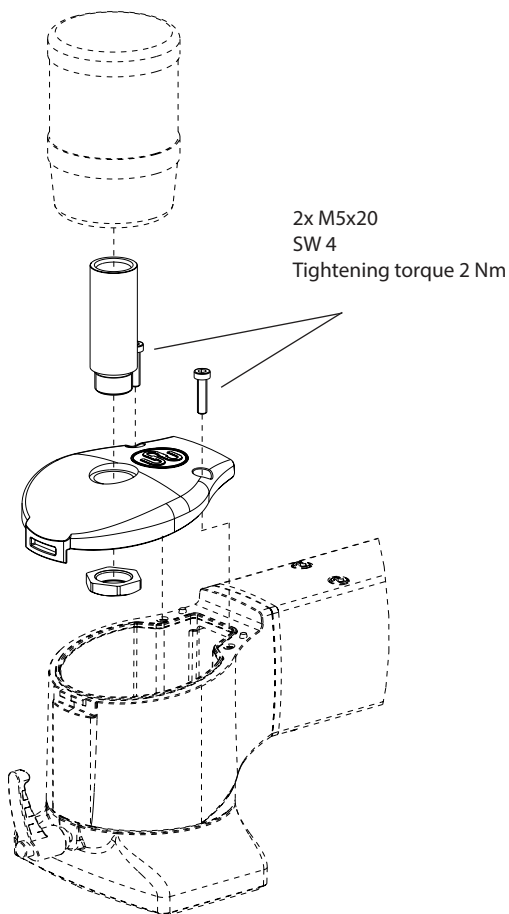
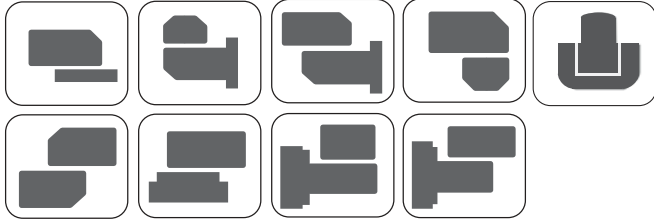


- If the desired limitation is set, the dust cap must again be fitted
- Fit the cover again as described, see page 9

Once fitted the rotation limiters can be removed at any time

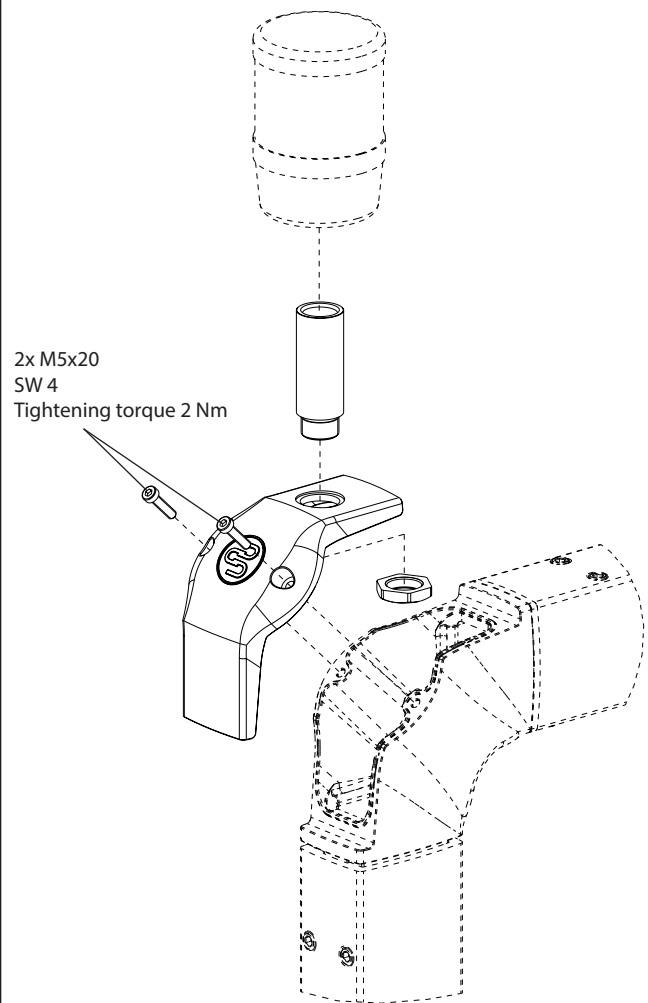
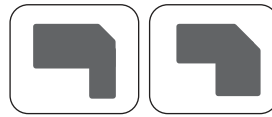
## Accessories

Article number	Type
S1MSLAR	Set of signal lamps Joint cap RAL 9006



- For removal of cover (if required) see page 9
- Insert the signal lamp connecting tube into the suitable shaft and fix it with nut SW27
- Screw the signal lamp part on the connecting tube
- Refit the cover again on the component

Article number	Type
S1MSLAA	Set of signal lamps Elbow cap RAL 9006
S1MSLARE	Set of signal lamps Reducing elbow cap RAL 9006

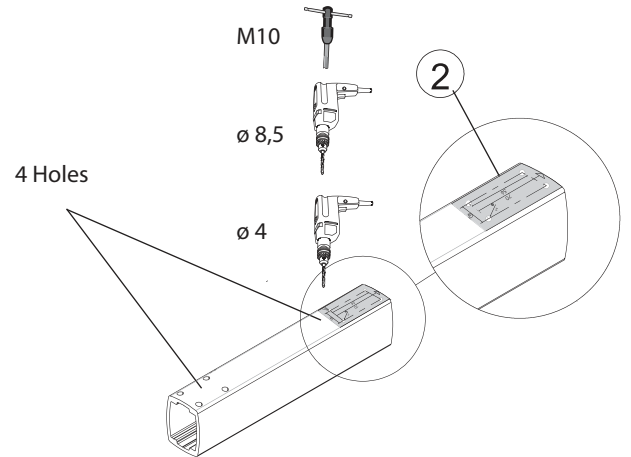
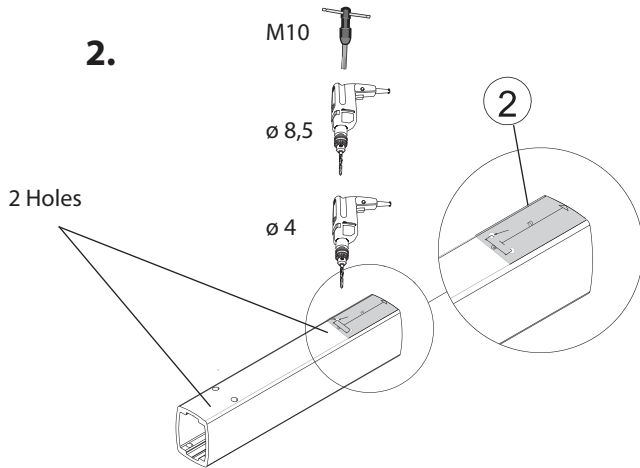
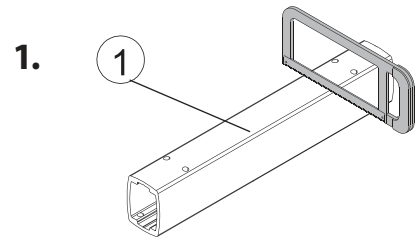
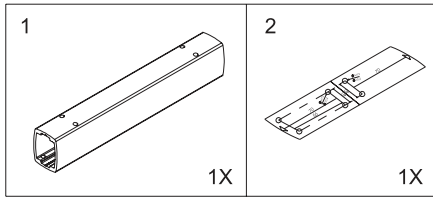


- For removal of cover (if required) see page 9
- Insert the signal lamp connecting tube into the suitable shaft and fix it with nut SW27
- Screw the signal lamp part on the connecting tube
- Refit the cover again on the component

The German version is the original Installation and Operating Instructions.

If this manual appears in other languages, it is simply the translation of the original Installation and Operating Instructions.

## Tube Cutoff



## Earthing

The design of the protective conductor system must be in accordance with UL Standard UL 508A paragraph 14.

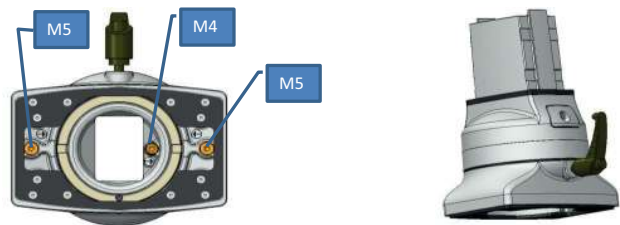
Fixing positions for earth screws



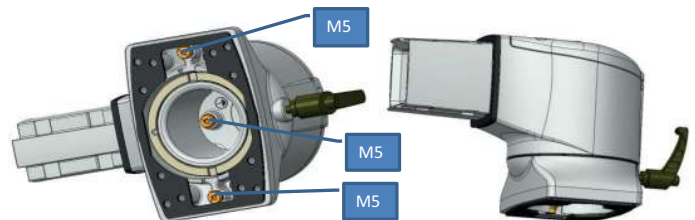
Narrow Adapter  
S1MA, S1MAG



Flange Coupling  
S1MFC, S1MFCG

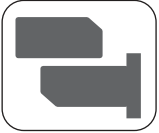
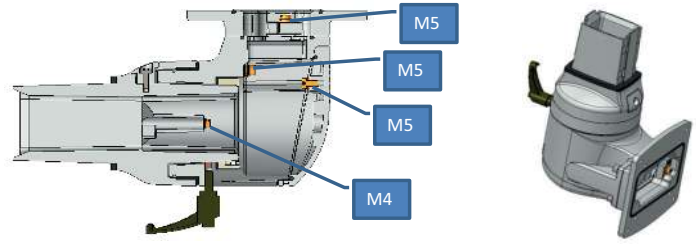


Flange Elbow Coupling  
S1MFEC, S1MFECG

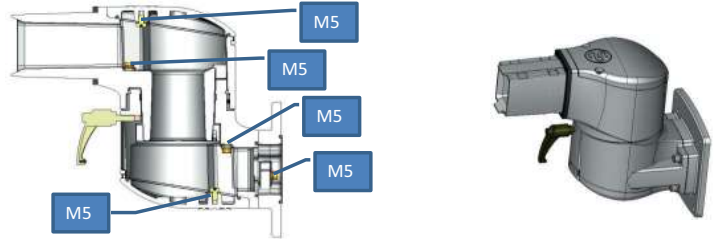




Vertical Panel Coupling  
S1MPCV, S1MPCVG



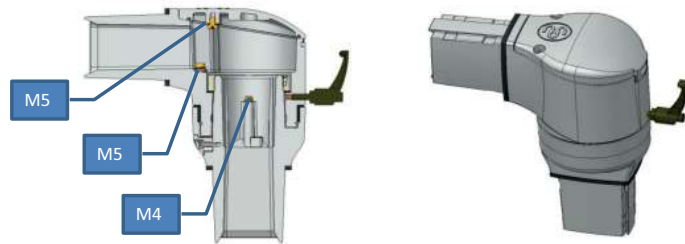
Horizontal Panel Coupling  
S1MPCH, S1MPCHG



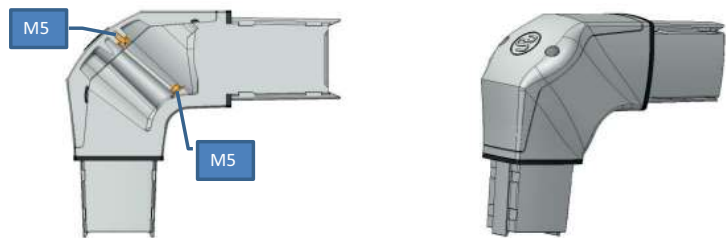
Elbow  
S1ME, S1MEG



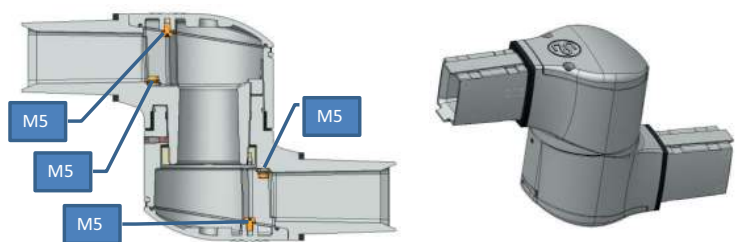
Rotatable Elbow  
S1MER, S1MERG



Reduction Elbow  
S1MRE

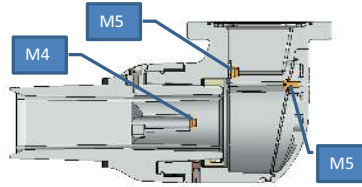


Intermediate Joint  
S1MIJ, S1MIJG

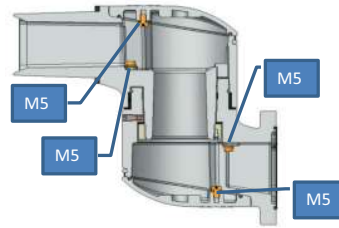




Vertical Wall Joint  
S1MWJV, S1MWJVG



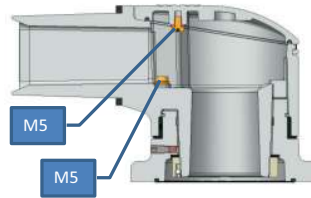
Horizontal Wall Joint  
S1MWJH, S1MWJHG



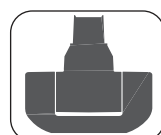
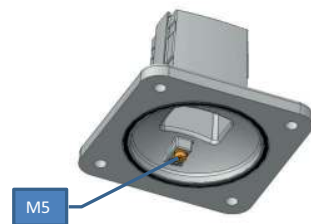
Rotary Base  
S1MTBB, S1MTBBG



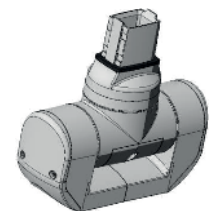
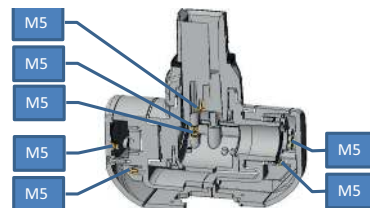
Set-Up Joint  
S1MSJ, S1MSJG



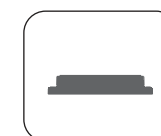
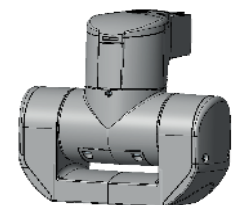
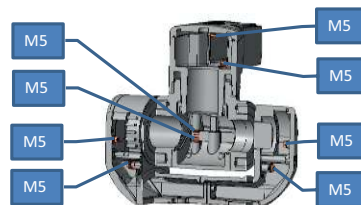
Wall Flange  
S1MWF, S1MWFG



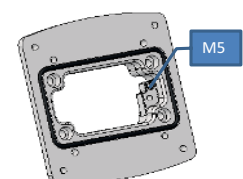
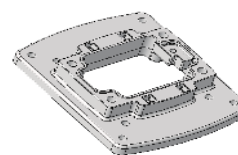
Turn / tilt coupling S  
S1MSCV



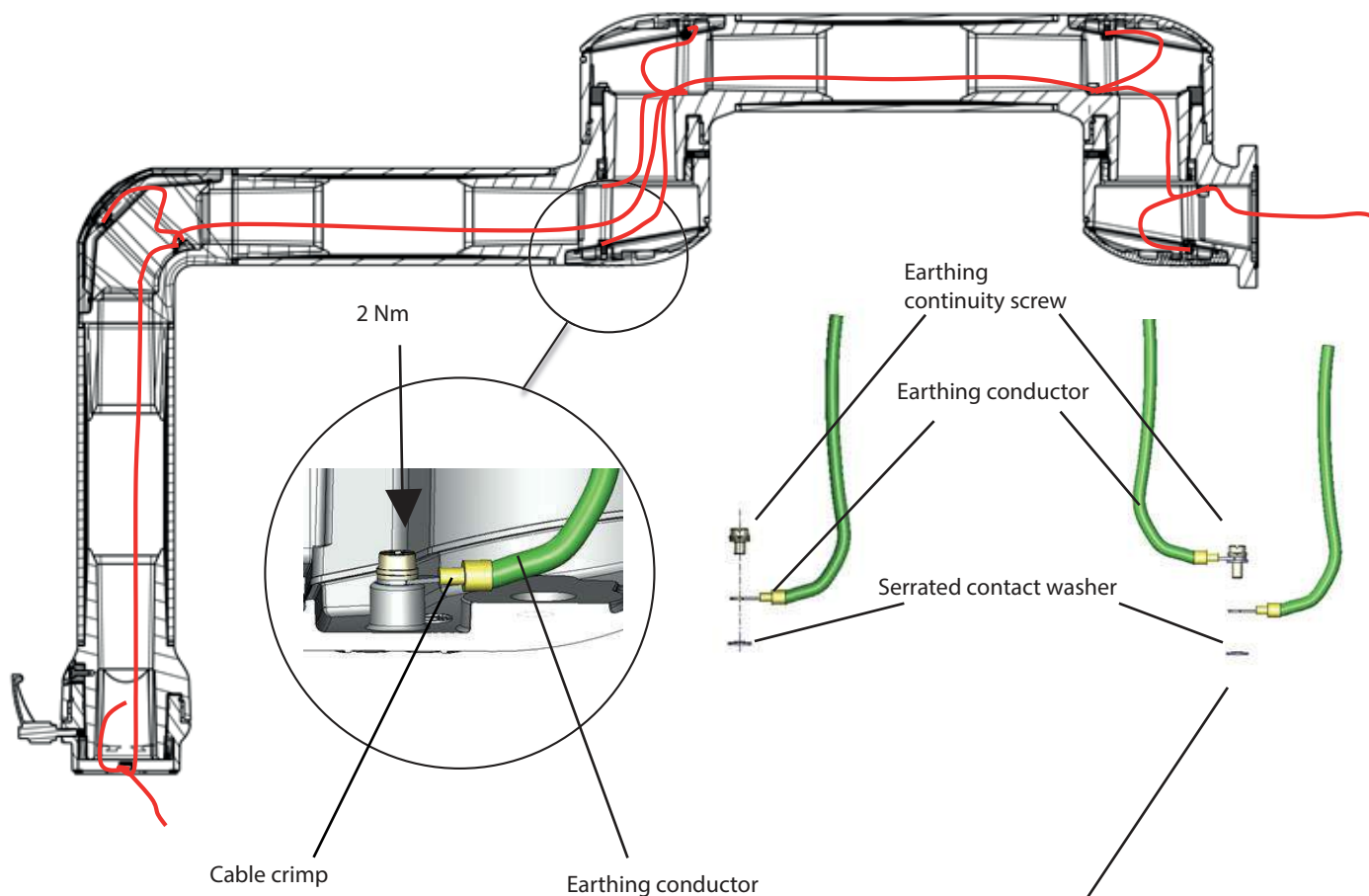
Turn / tilt coupling W  
S1MSCH



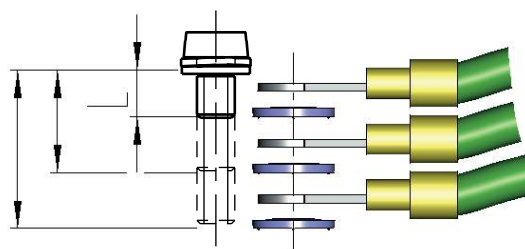
Adapter plate VESA 75/100  
S2MVAP



## Earthing example



The included screw can only be used for a crimp type socket.



Screw length (L) must be suitable for the amount of crimps being used!!  
A serrated washer must separate each cable crimp!

As it is a suspension system with moving parts, it should be ensured that the chosen cable length permits these movements.

The original operating and installation instructions are the German language version.  
Other languages are a translation of the original operating and installation instructions.