



Planning Manual  
System fixings for  
glass constructions

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# DORMA MANET CONSTRUCT

## MANET CONSTRUCT

In modern glass architecture the prevailing objective is invariably to achieve maximum transparency and an airy, light structural appearance through the application of frameless glazing.






With the MANET CONSTRUCT system, the structural load-bearing requirement is effectively minimised through load transmission to the substructure via single-point fixings or by means of a secondary construction such as that provided by the MANET Spider.

Thanks to the wide product range available - single-point fixings in the form of flush mountings, disc mountings, single-point fixings with 3D and axial compensation, plus other structural components - optimum planning accuracy in terms of the static requirements and visual elegance of a glass construction is assured. All the components in the MANET CONSTRUCT system provide for extensively concordant assembly with minimal residual stressing and reliable load transmission to the substructure.

As assembly and installation constitute major contributory factors affecting the safety of the overall system, the MANET CONSTRUCT concept has been deliberately devised to minimise the possibility of error and misalignment. The MANET CONSTRUCT system is essentially a subcategory of the MANET product group and complements the design credentials of MANET CONCEPT by offering an all-encompassing construction system of proven safety.



# Contents

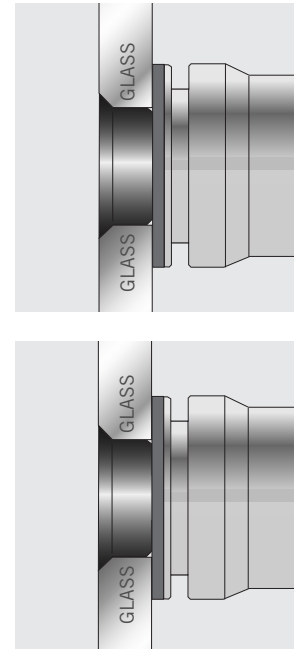
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<div style="border: 1px solid black; padding: 2px; width: fit-content;"> <p>Ungültig</p> <p>Invalid</p> </div>	<p><b>Single-point fixings, Series ER/ESR and EA/ESA</b></p>	 <p>4 - 7</p>
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Subject to change without notice

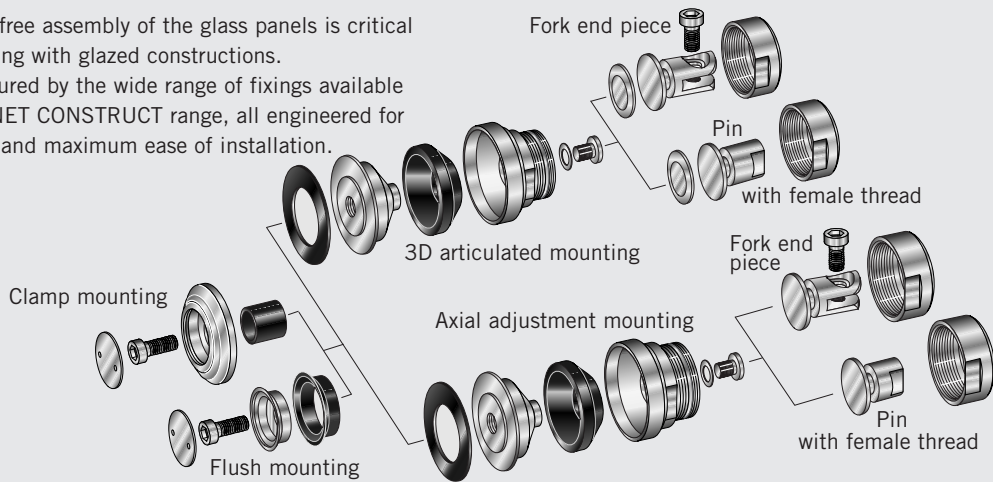
## Single-point fixings

The single-point fixings are supplied in the size 45 series (disc diameter 45 mm) as standard, with other sizes available on application. The range includes clamp mountings for overhead/sloping glazing systems, and flush mountings - preferably used for vertical glazing - and these are available for glass thicknesses of 10 / 12.5 / 17.5 and 21.5 mm. Inaccuracies in the substructure can be neutralised by employing single-point fixings with a 3D articulated joint or an axial compensation feature. Stresses in the glass resulting from deformation/thermal expansion and contraction are reduced by an elastomer joint in the front part of the mounting.

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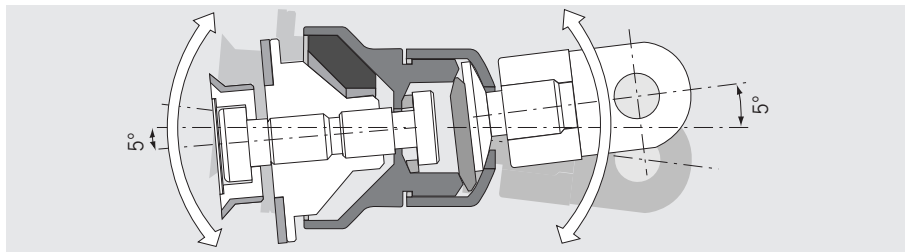
The stress-free assembly of the glass panels is critical when working with glazed constructions. This is ensured by the wide range of fixings available in the MANET CONSTRUCT range, all engineered for excellence and maximum ease of installation.



### 3D articulated mounting

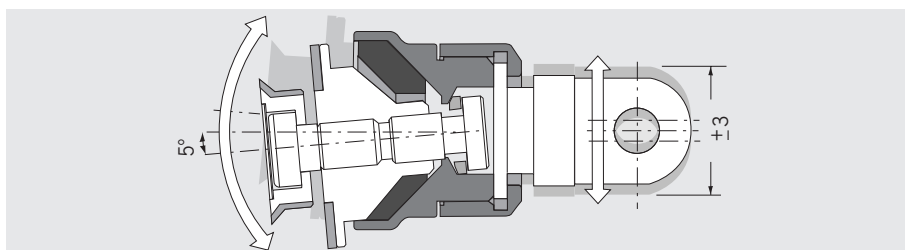
The 3D articulated mounting allows angular adjustments of up to 5° to compensate for inaccuracies in the substructure.

The cap nut fixes the mounting in the required position.



### Axial adjustment mounting

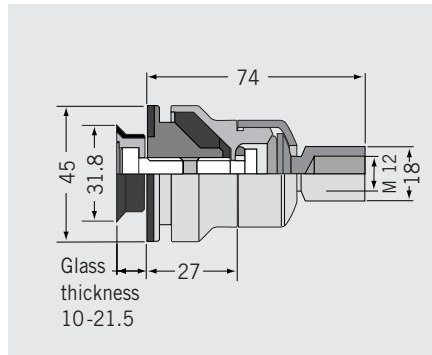
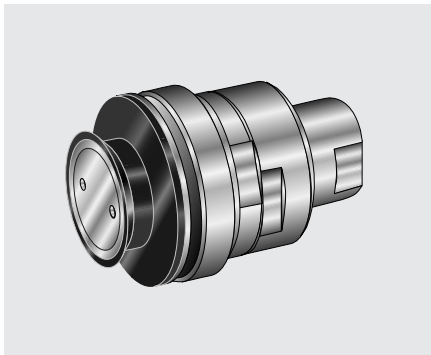
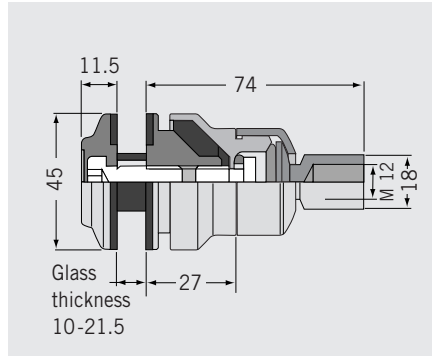
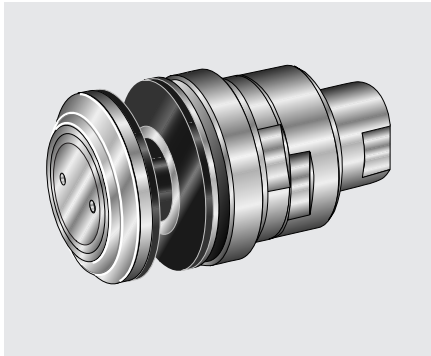
This single-point fixing compensates for drilling tolerances of +/- 3 mm. Here again the cap nut serves to secure the final position.



## 3D articulated mountings, Series ER/ESR

Series ER 3D articulated mountings have a disc diameter of 45 mm. The rear pin is provided with an M12 female thread for fixing the mounting to the substructure. Depending on the substructure concerned, this then mates with for example stud bolts (by others) to DIN 913, bolts, etc. The ESR is the flush version.

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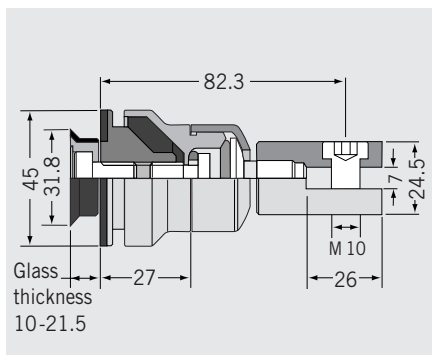
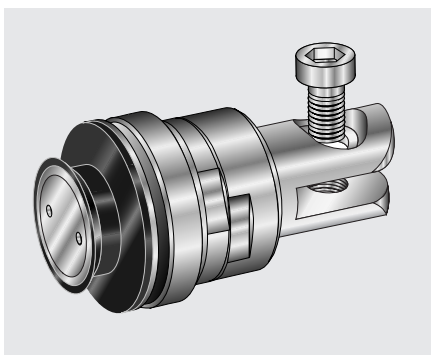
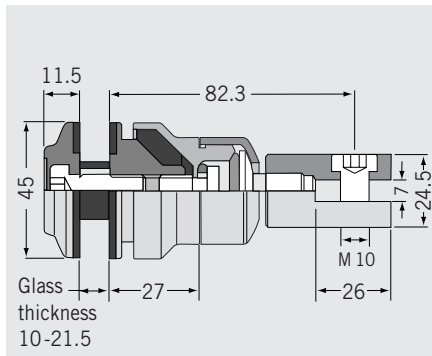
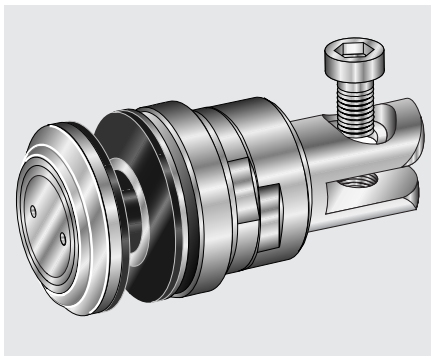
### Order data

Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

Clamp mounting type ER 45  
Art. No. 8.22.155.703.99

Flush mounting type ESR 45  
Art. No. 8.22.115.703.99

If required for connection to a Spider, the Series ER/ESR 3D articulated mountings can also be provided with a matching fork end piece.



Clamp mounting type ER 45 with fork end piece  
Art. No. 8.22.160.703.99

Flush mounting type ESR 45 with fork end piece  
Art. No. 8.22.120.703.99

Other mounting sizes available on application

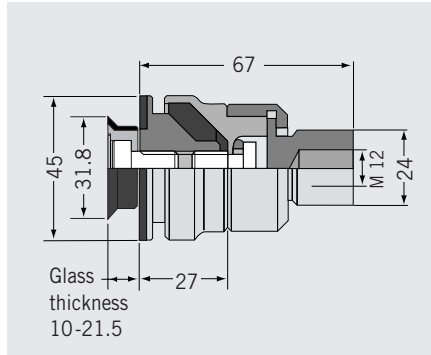
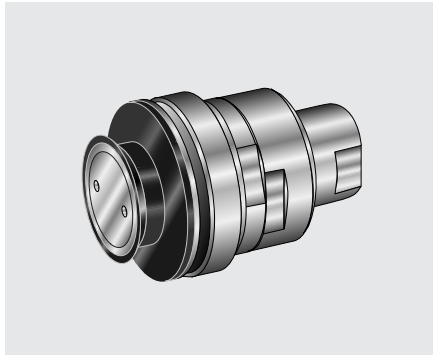
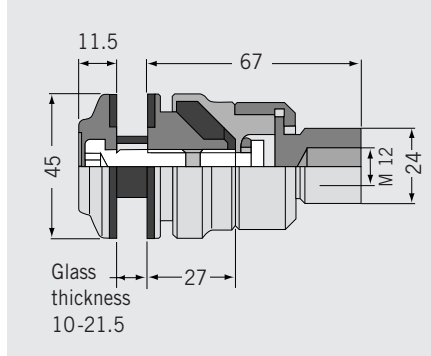
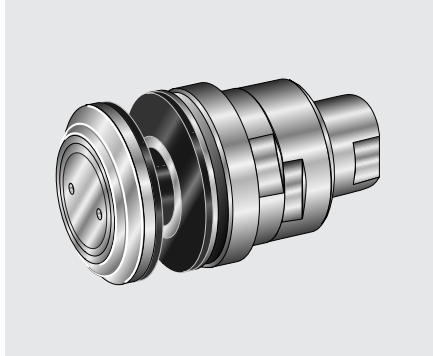


## Axial adjustment mountings, Series EA/ESA

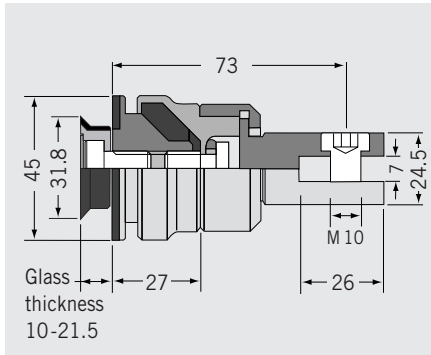
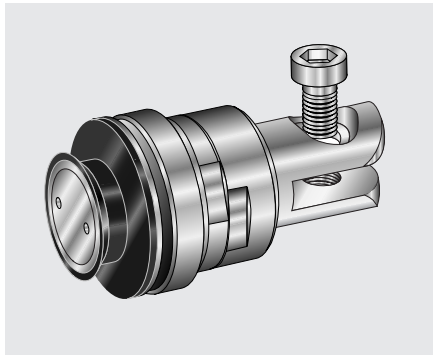
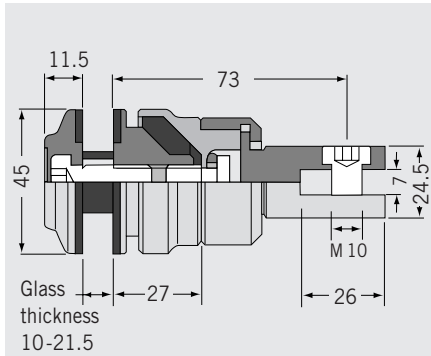
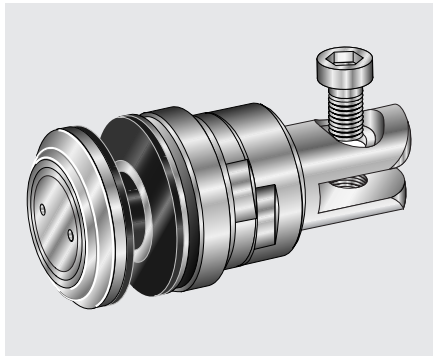
Series EA mountings have an axial compensation feature.

They come as standard with a disc diameter of 45 mm. Here too the rear pin is provided with an M12 female thread for fixing the mounting to the substructure. Depending on the substructure concerned, this then mates with for example stud bolts (by others) to DIN 913, bolts, etc. The ESA is the flush version.

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If required for connection to a Spider, the Series EA/ESA axial adjustment mountings can also be provided with a matching fork end piece.



### Order data

Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

Clamp mounting type EA 45  
Art. No. 8.22.150.703.99

Flush mounting type ESA 45  
Art. No. 8.22.110.703.99

Clamp mounting type EA 45 with fork end piece  
Art. No. 8.22.145.703.99

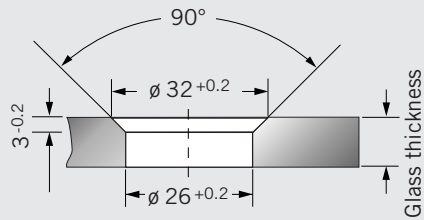
Flush mounting type ESA 45 with fork end piece  
Art. No. 8.22.105.703.99

Other mounting sizes available on application

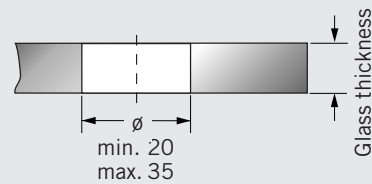
## Glass machining

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Countersunk bore for flush mountings  
(Series 45)



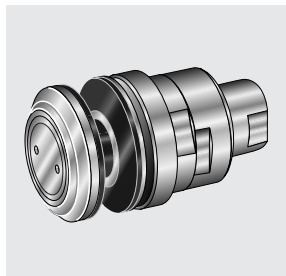
Through-bore for clamp mountings  
(Series 45)



The requisite glass thickness is determined by static analysis.  
Pre-dimensioning service available on application.

## Compensation of tolerances

### Clamp mounting ER/EA



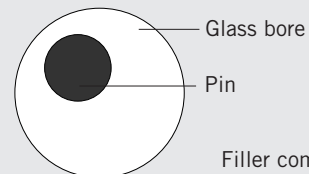
### Glass bore

Tight fit achieved by back-filling with hard-curing compound (e.g. Epple glass filler compound).

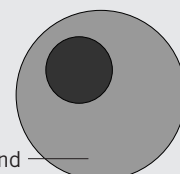
### Caution!

All holes must be filled to produce a tight fit as otherwise the glazing panels may slip under load!

### Assembled and adjusted condition

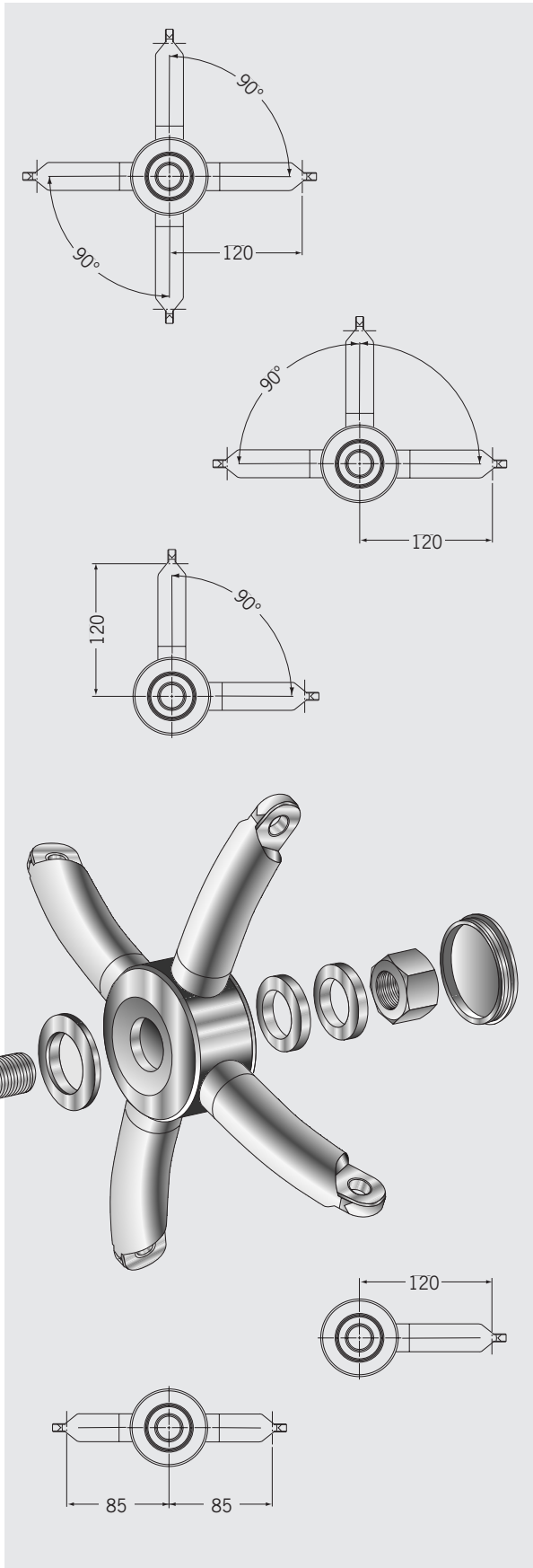


### Fixed condition



# Spiders

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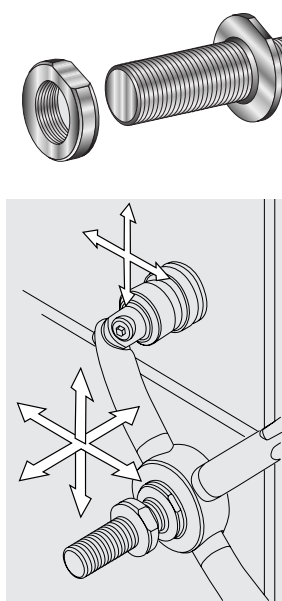


The outstanding design credentials apparent in all MANET products are similarly evident in the structural elements that complement the system.

The MANET CONSTRUCT Spiders, with one to four arms, are beautifully engineered components that offer a distinctive plus in aesthetic elegance.

Building tolerances are absorbed by a 3D articulated joint in the Spider's hub.

Stress-free installation and the combined effects of the elastomer pads in the single-point fixings under load (deformation/expansion/contraction) serve to significantly reduce residual stress peaks in the glass.

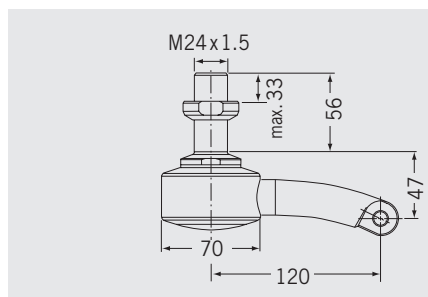
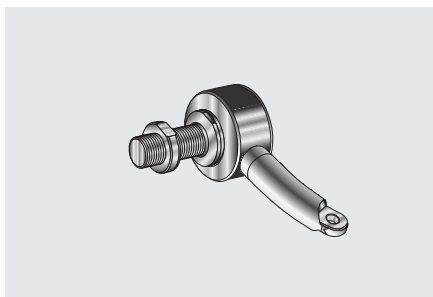
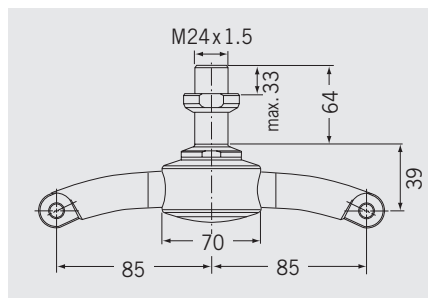
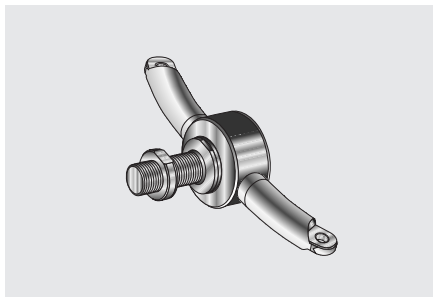
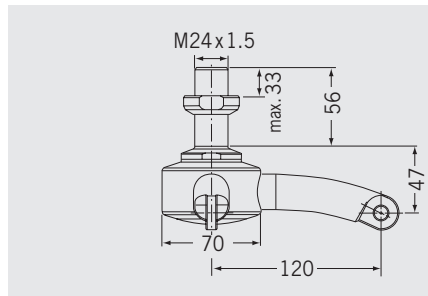
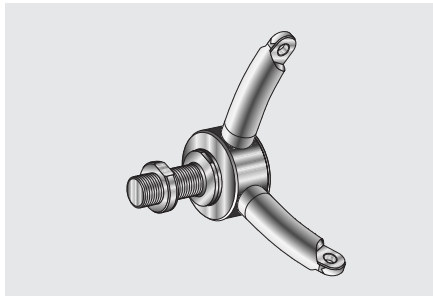
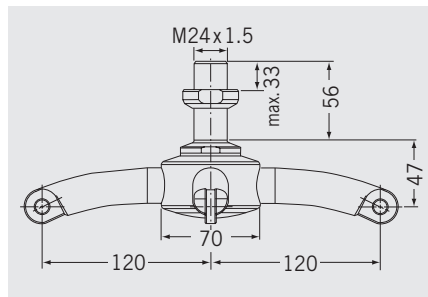
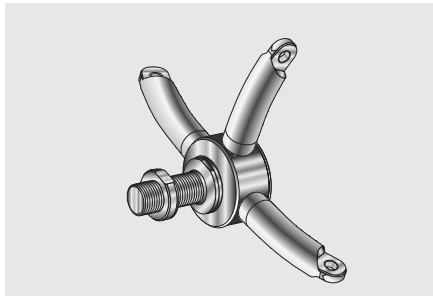
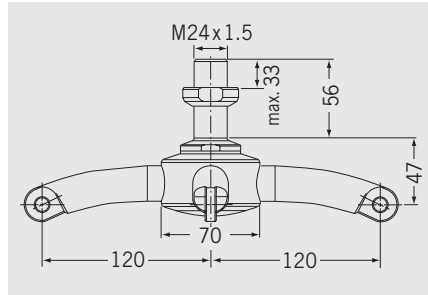
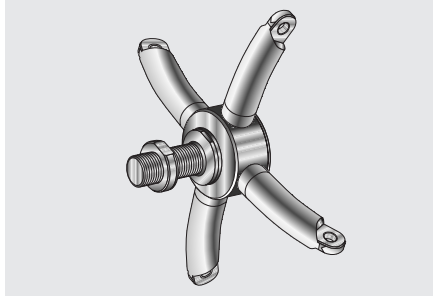




## Spider designs

The Spiders are of modular design with their one to four arms.  
 The hub has a diameter of 70 mm and the Spider has an overall height of approx. 100 mm.  
 It is fixed to the substructure by means of a M24 x 1.5 mm stud bolt (Material: Stainless steel, material no. 1.4404, conforming to DIN EN 10088).

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### Order data

Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

4-arm Spider  
 Art. No. 8.22.184.703.99

3-arm Spider  
 Art. No. 8.22.183.703.99

2-arm Spider 90°  
 Art. No. 8.22.181.703.99

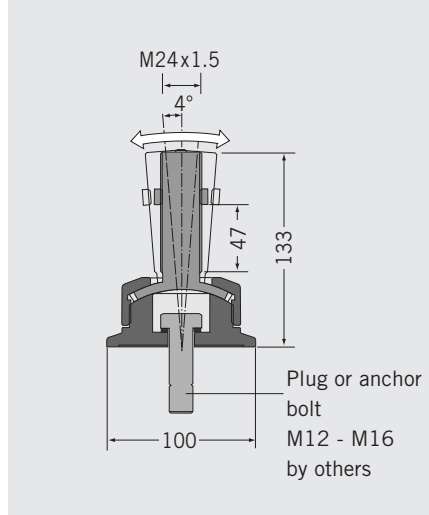
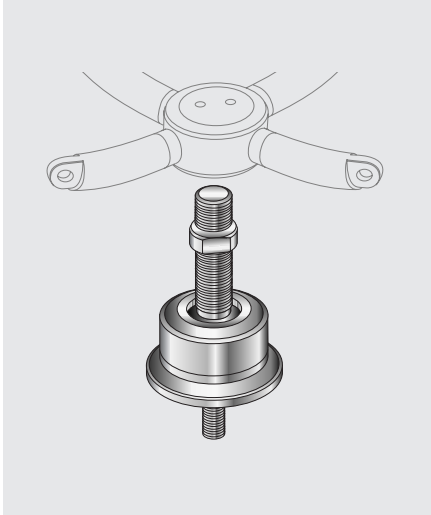
2-arm Spider 180°  
 Art. No. 8.22.182.703.99

1-arm Spider  
 Art. No. 8.22.180.703.99

## Spider adapters/Spider wall fixings

The Spider product range includes special components for connecting the Spiders to the substructure.

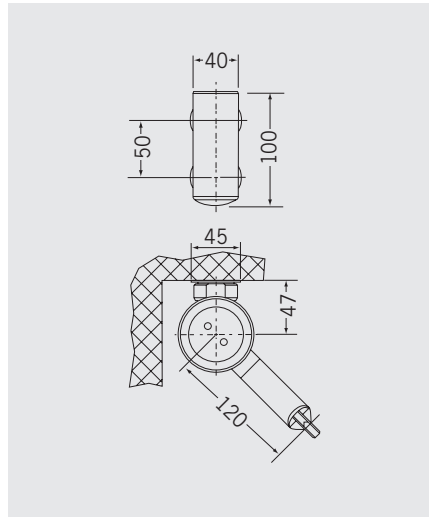
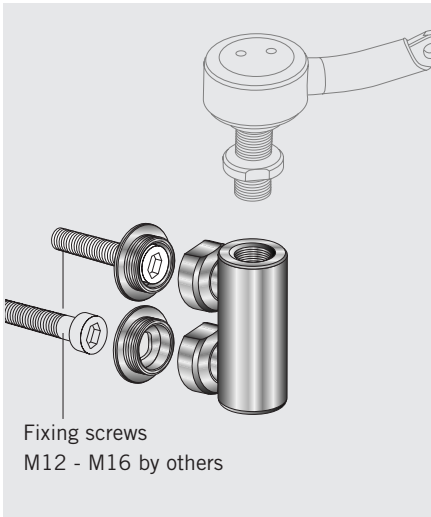
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**Order data**

Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

Adapter  
Art. No. 8.22.197.703.99



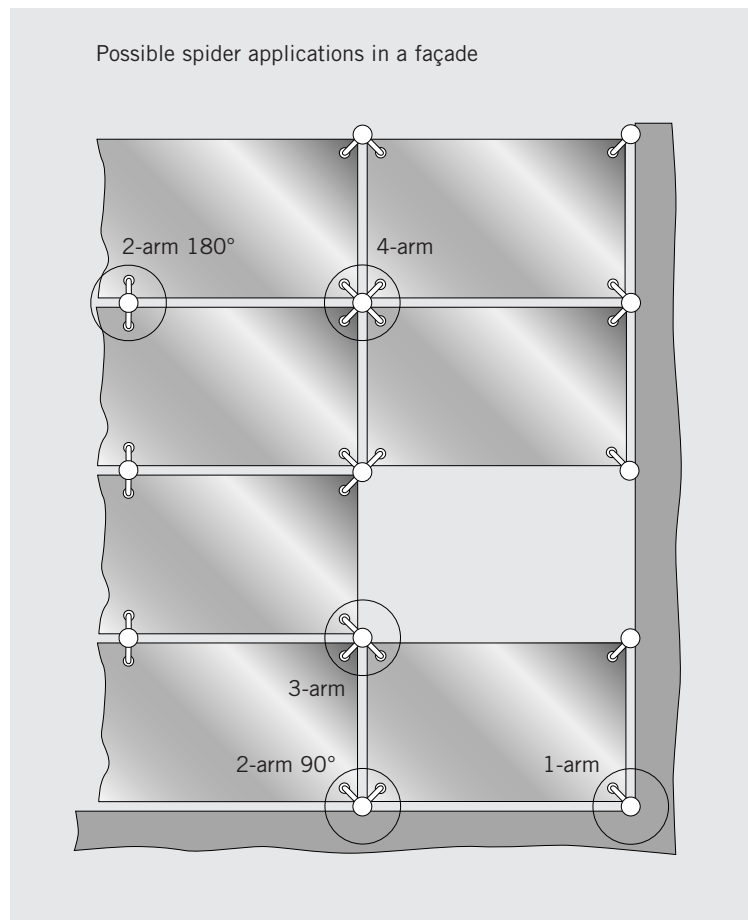
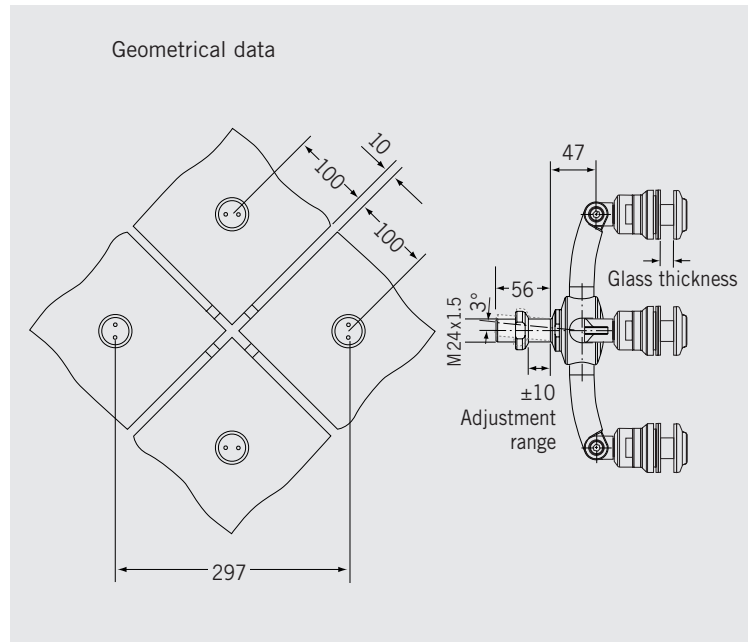
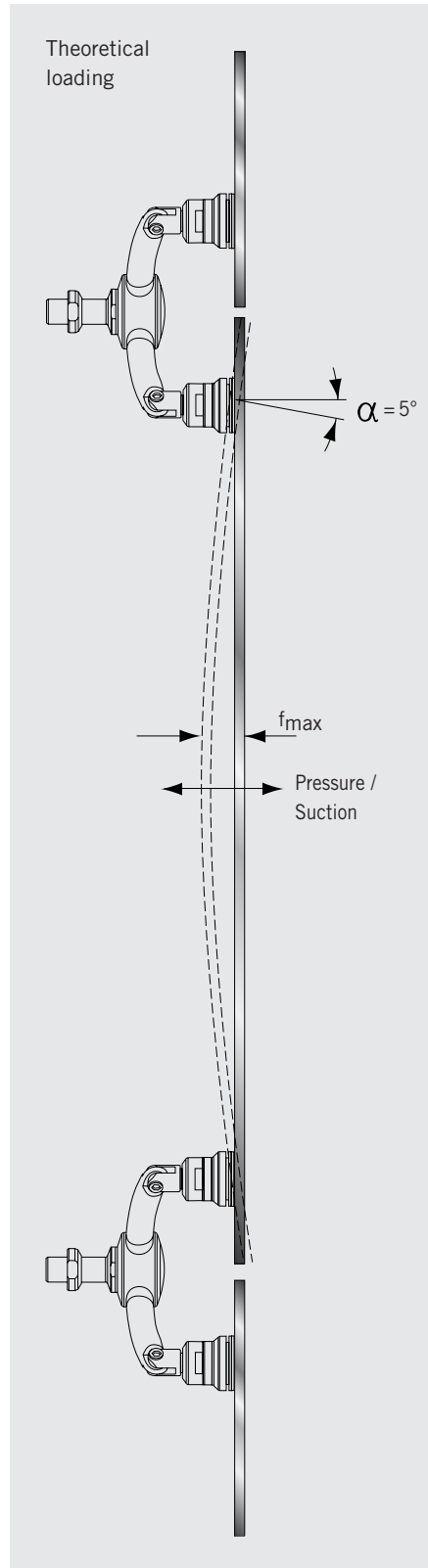
Wall fixing  
Art. No. 8.22.195.703.99

## Spider applications

All the components are designed to ensure extensively stress-free installation and effective load transmission to the substructure whether it be flexible or highly rigid.

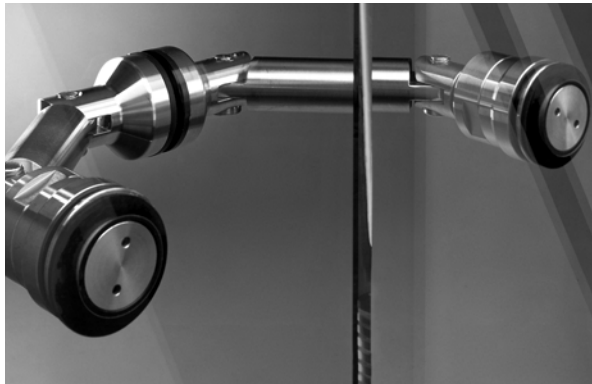
Following rotational and translational compensation to allow for tolerances in the system, the single-point fitting of the spider is locked in position by a screw fixing and clamping bush arrangement.

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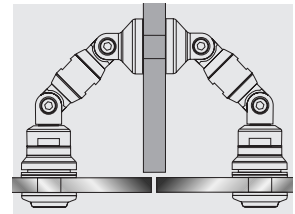


# Connection system

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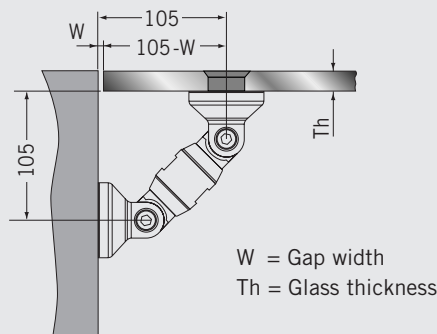


The distinct design concept of the MANET system is also reflected in the connection elements. The components enable the glass panels to be connected at any angle. Building tolerances are neutralised by the adjustable connecting rods.

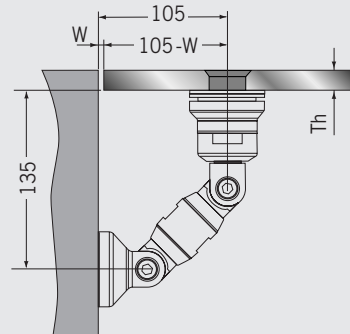


Matches all point fixings  
EA / ESA / ER / ESR.

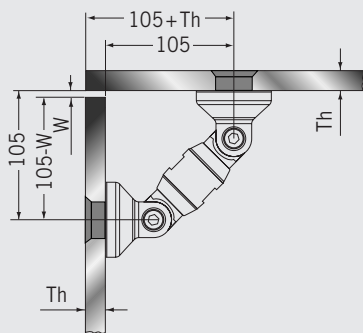
Glass/wall connection with flush mounting and wall fixing (rigid)



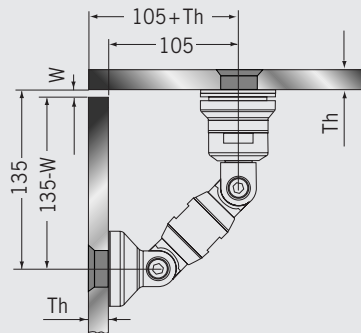
Glass/wall connection with ESA 45 flush mounting and wall fixing (rigid)



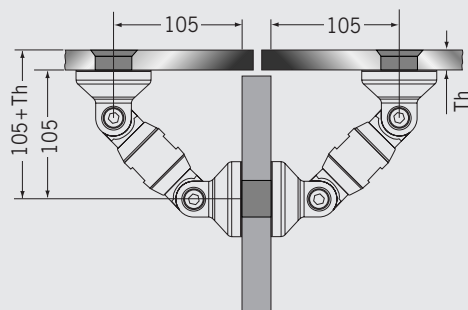
Glass/glass connection with flush mountings (rigid)



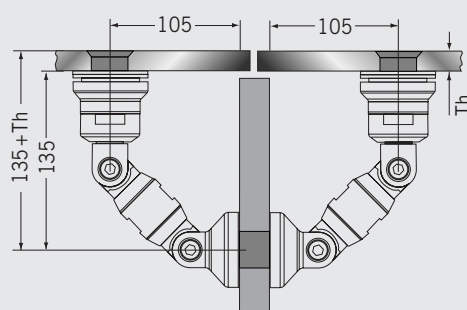
Glass/glass connection with flush mounting (rigid) and ESA 45 axial adjustment type flush mounting



Glass/stiffener connection with flush and dual connection clamp mountings

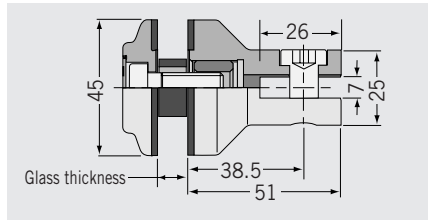
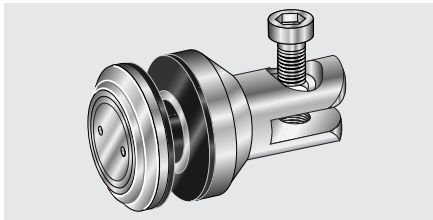


Glass/stiffener connection with ESA 45 axial adjustment type flush mounting and dual connection clamp mounting (rigid)



# Connection components

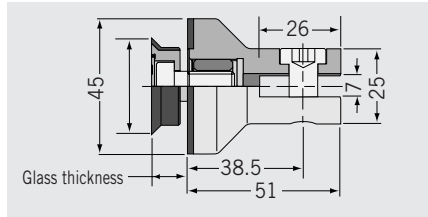
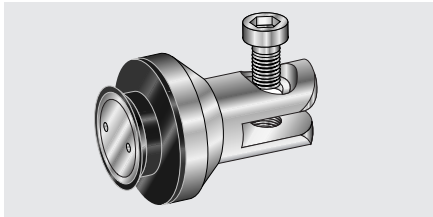
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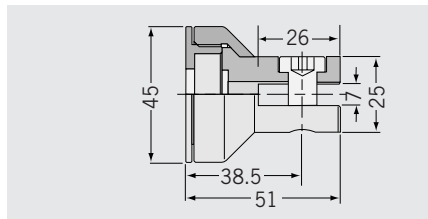
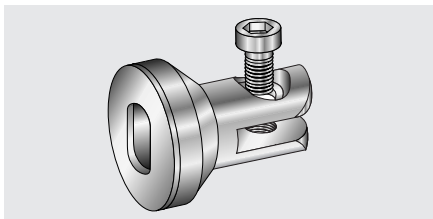
### Order data

Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

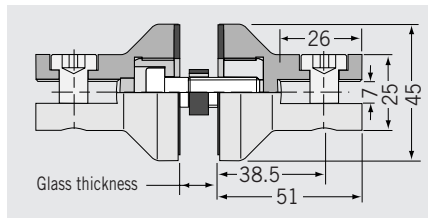
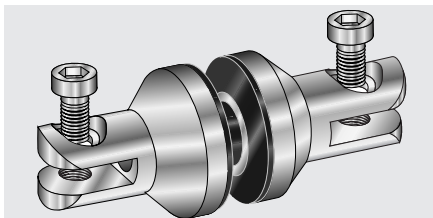
Single-point clamp mounting (rigid)  
Art. No. 8.22.420.703.99



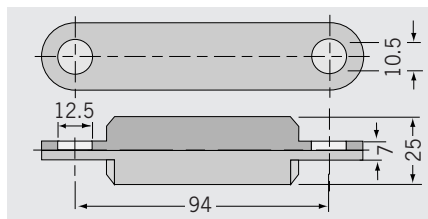
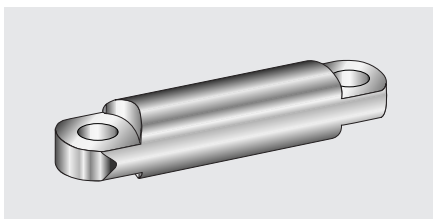
Flush mounting (rigid)  
Art. No. 8.22.405.703.99



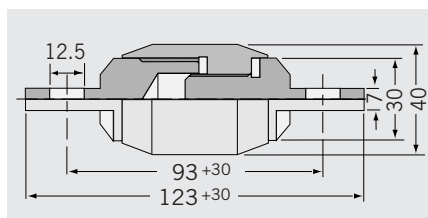
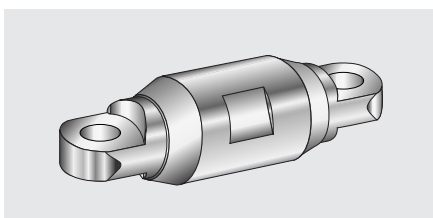
Wall fixing  
Art. No. 8.22.400.703.99



Dual connection clamp mounting  
Art. No. 8.22.440.703.99



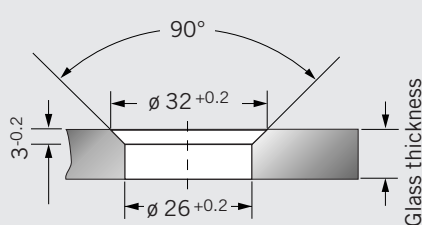
Connecting rod (rigid)  
Art. No. 8.22.400.001.40



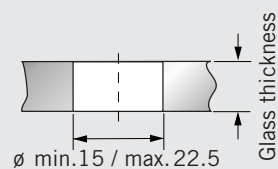
Connecting rod (adjustable)  
Art. No. 8.22.410.703.99

### Glass machining

Countersunk bore for flush mountings

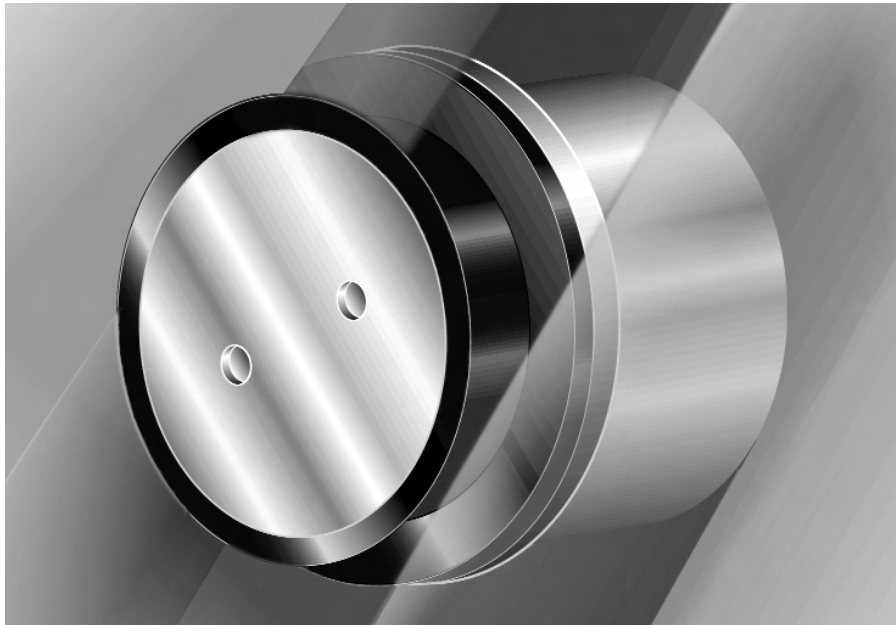


Through-bore for single-point/dual connection clamp mountings





## Single-point fixings MANET CONSTRUCT, Series EV



The MANET Series EV single-point fixings are specifically designed to satisfy exacting public safety requirements. In order to achieve maximum freedom from constraint when fixing the glass panels and minimised stress when installed (i.e. when exposed to external loads), the component design features two independent bearing systems. The integrated elastomer pads not only act as an axial buffer for the absorption of impact or shock loading, but also allow a degree of sprung angular movement. This means that a glass panel can freely deform at the mounting zone when exposed to an external load. The fixing system additionally comprises three different types of bearing location. These are designated as the fixed [F], vertical [V] and floating [L] bearing.

The fixed bearing [F] offers a horizontal tolerance compensation of  $\pm 3$  mm for installation purposes. There is no adjustability in the vertical direction. When it is installed, this bearing type is completely rigid - i.e. fixed. It is equivalent to a tight fitting hole in the substructure.

The vertical bearing [V] also offers a horizontal tolerance compensation of  $\pm 3$  mm for installation purposes. And again there is no adjustability in the vertical direction. When it is installed, the assembly remains adjustable within the  $\pm 3$  mm zone in the horizontal. This eliminates the need for a horizontal oblong hole in the substructure. In order to ensure long-term adaptability, there is also an axial clearance between the bearing components of 0.3 mm.

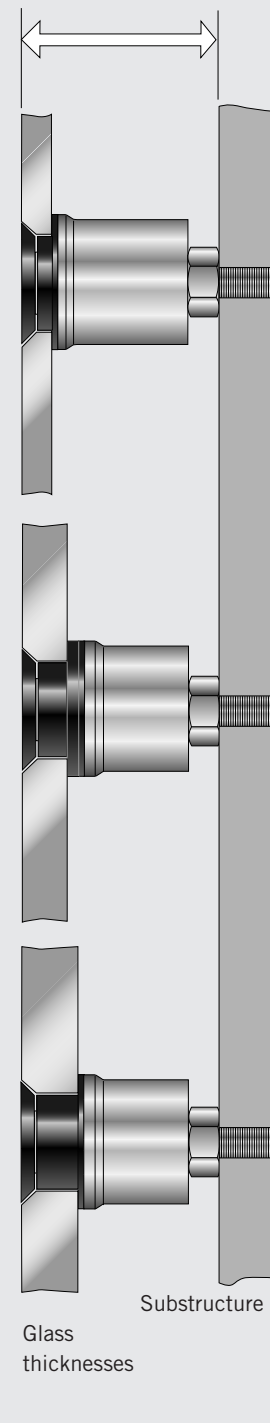
The floating bearing [L] offers a horizontal and a vertical tolerance adjustment of  $\pm 2$  mm for installation purposes.

This design is equivalent to a tolerance hole in the substructure. Again, in order to ensure long-term adaptability, there is an axial clearance between the bearing components of 0.3 mm.

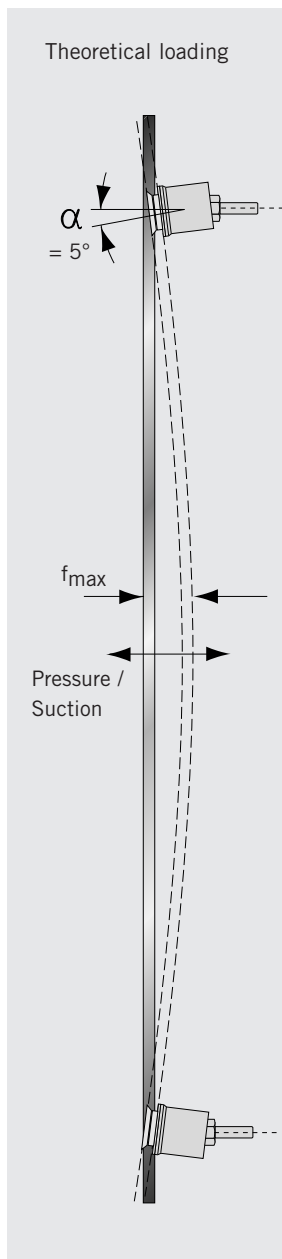
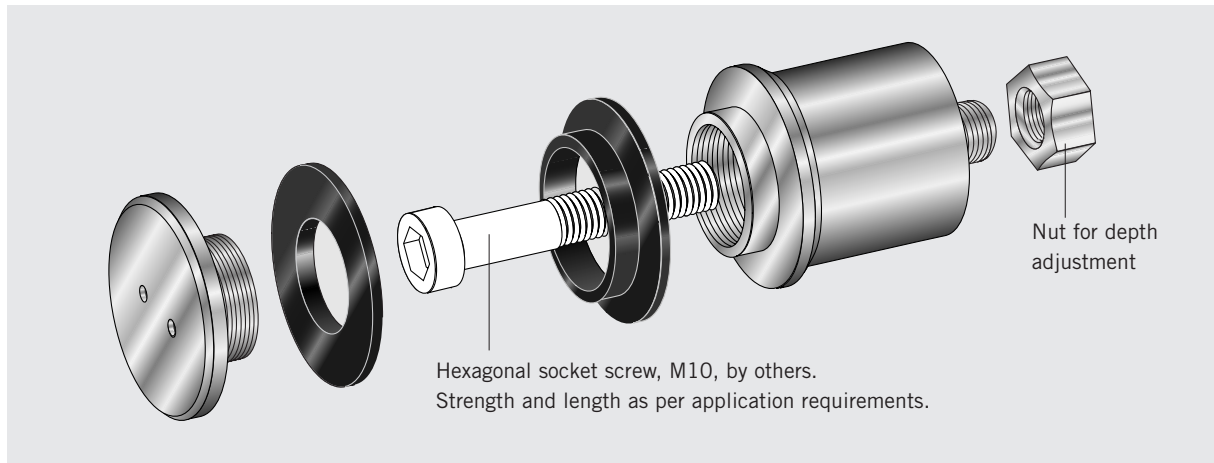
The deadweight load of the glass is transmitted to the fixed and vertical bearings. The horizontal load (wind/impact) is absorbed in the axial direction by all the fixings. Free, unconstrained expansion of the glass panel is ensured under thermal loading by the arrangement of the bearing types within a statically analysed system. Force transmission to the single-point fixing is effected both via the positive lock provided by the glass fixing screw and via the location of the cylindrical glass bore on the cantilever portion of the fixing.

Contact between the stainless steel and glass is prevented by a system of plastic sleeves and rings.

Various glass panel thicknesses can also be combined without problem so that the distance of the external surface of the glass from the substructure remains constant for perfectly flush alignment.



Fitting can be performed exclusively from the front face of the glass panel.

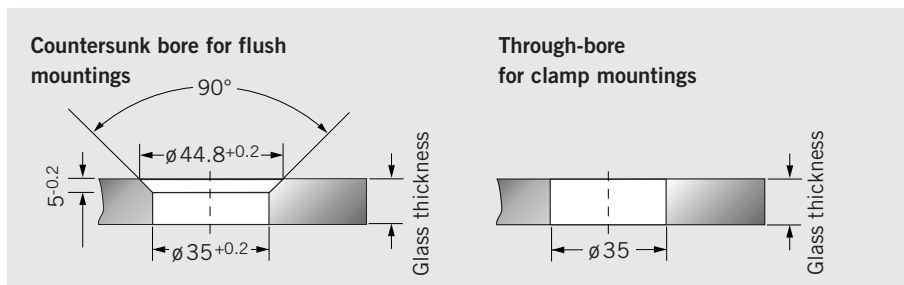


Integrated flexible articulated construction and compensatory elements for stress relief and compensation for building tolerances

**General glass panel bearing arrangement**

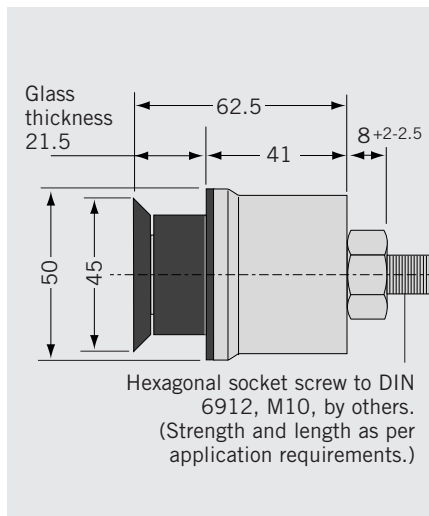
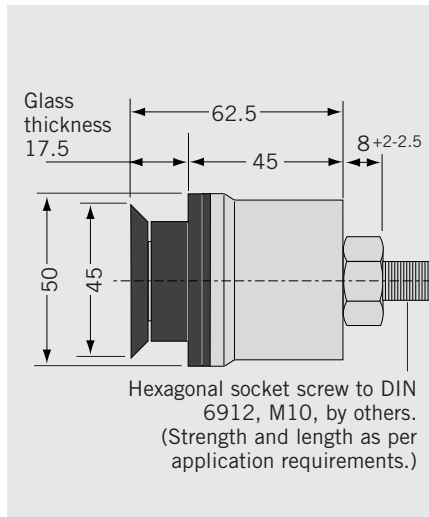
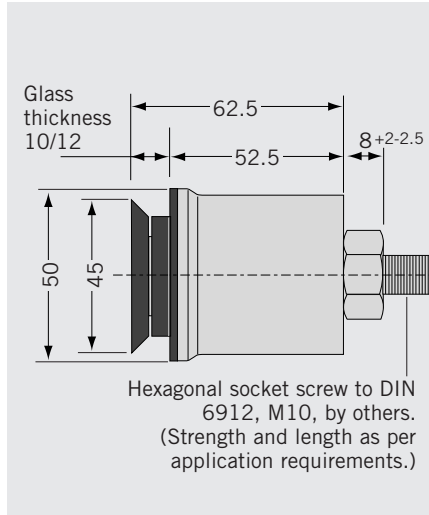
Depending on the loading patterns involved, the arrangement of the single-point fixings may be of critical importance for minimising stress in the glass.

Fixed bearing	Vertical bearing
Floating bearing	Floating bearing



## Single-point fixings, Series EV 45/50

Series EV 45/50 single-point fixings are flush mountings located in countersunk holes in the glass to give an impression of understated elegance. Thanks to optimum deadweight transmission to the substructure, mountings of this type are the preferred solution for vertical glazing systems. The countersunk fitting requires a high level of accuracy and minimal tolerances in mounting/substructure fixing point alignment.



### Order data

Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

#### Glass thickness 10/12 mm

Flush mounting, vertical bearing  
Art. No. 8.22.800.703.99

Flush mounting, fixed bearing  
Art. No. 8.22.810.703.99

Flush mounting, floating bearing  
Art. No. 8.22.820.703.99

#### Glass thickness 17.5 mm

Flush mounting, vertical bearing  
Art. No. 8.22.802.703.99

Flush mounting, fixed bearing  
Art. No. 8.22.812.703.99

Flush mounting, floating bearing  
Art. No. 8.22.822.703.99

#### Glass thickness 21.5 mm

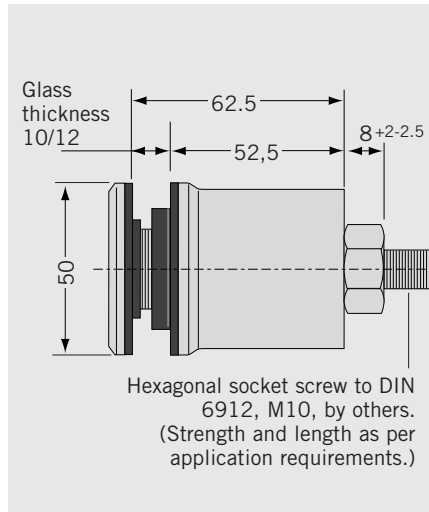
Flush mounting, vertical bearing  
Art. No. 8.22.803.703.99

Flush mounting, fixed bearing  
Art. No. 8.22.813.703.99

Flush mounting, floating bearing  
Art. No. 8.22.823.703.99

## Single-point fixings, Series EV 50/50

Series EV 50/50 single-point fixings are clamp mountings that press onto the glass surface rather than lying flush in a countersunk bore. The relatively large clamp contact area on the glass provides for higher bearing capacities, particularly in the case of damaged laminated safety glass, and thus enhanced safety in sloping and overhead glazing systems.



### Order data

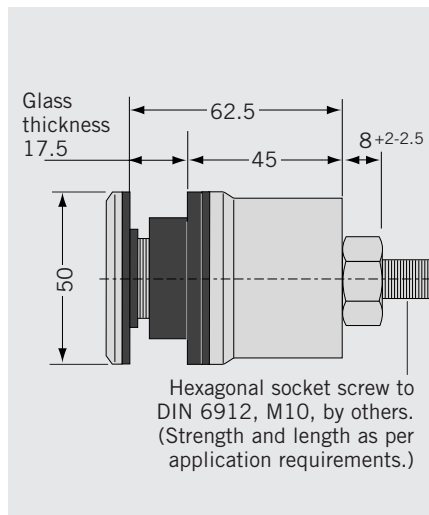
Material: Electro-polished stainless steel, material no. 1.4404, DIN EN 10088

#### Glass thickness 10/12 mm

Clamp mounting, vertical bearing  
Art. No. 8.22.850.703.99

Clamp mounting, fixed bearing  
Art. No. 8.22.860.703.99

Clamp mounting, floating bearing  
Art. No. 8.22.870.703.99

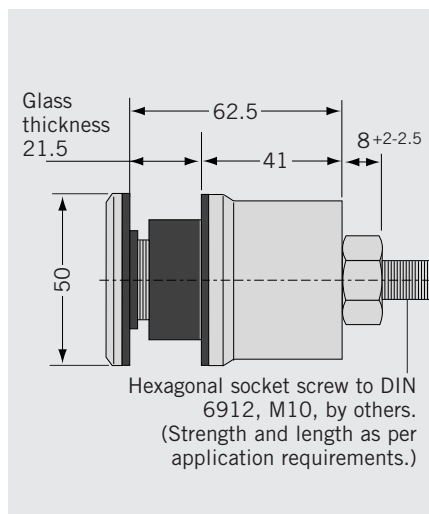


#### Glass thickness 17.5 mm

Clamp mounting, vertical bearing  
Art. No. 8.22.852.703.99

Clamp mounting, fixed bearing  
Art. No. 8.22.862.703.99

Clamp mounting, floating bearing  
Art. No. 8.22.872.703.99



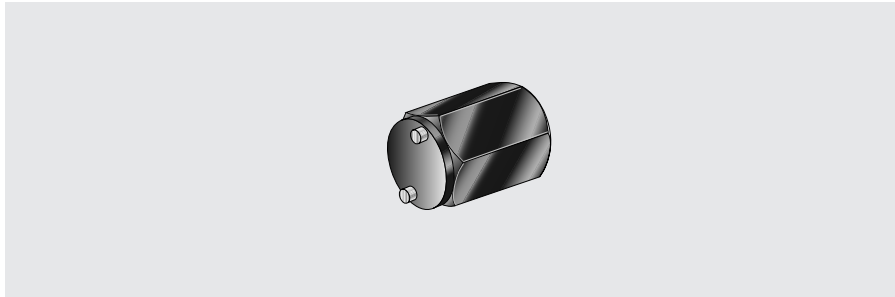
#### Glass thickness 21.5 mm

Clamp mounting, vertical bearing  
Art. No. 8.22.853.703.99

Clamp mounting, fixed bearing  
Art. No. 8.22.863.703.99

Clamp mounting, floating bearing  
Art. No. 8.22.873.703.99

## Tools and accessories

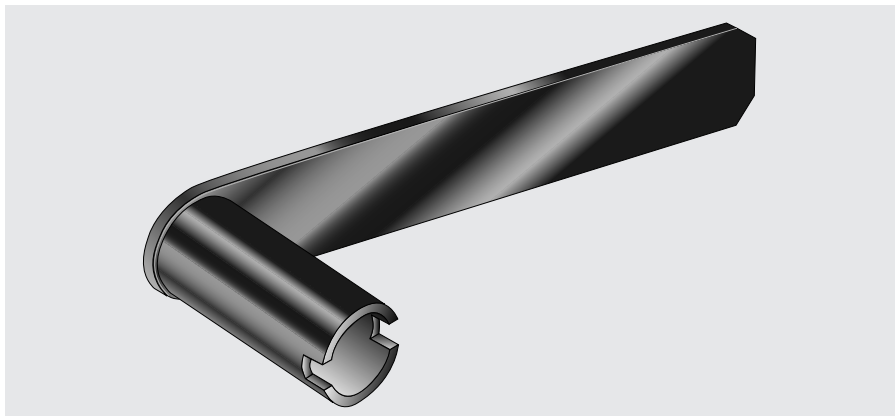


### Order data

Pin wrench insert  
for 19 mm A/F socket  
Art. No. 8.21.134.000.99

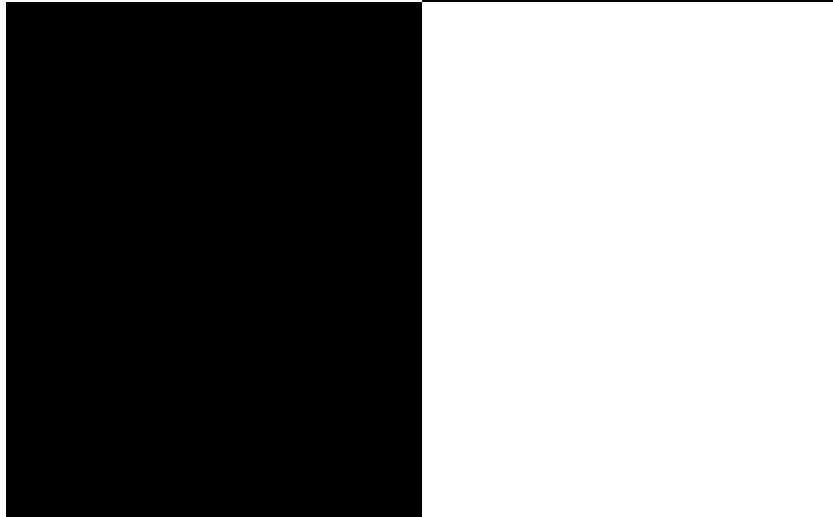


Adjustable pin wrench  
for manual fixing  
operations  
Art. No. 8.21.138.000.99



Slot wrench  
for positional adjustment  
MANET CONSTRUCT  
Series EV  
Art. No. 8.22.899.000.99





Postal address  
DORMA-Glas GmbH  
Postfach 3268  
32076 Bad Salzungen

Location  
Max-Planck-Straße 37-45  
32107 Bad Salzungen

FON ++49(0)52 22/9 24-0

FAX ++49(0)52 22/9 24-999

[www.dorma-glas.com](http://www.dorma-glas.com)