



Planning Manual System fixings for glass constructions

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 optimum planning accuracy 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 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

	Page
Single-point fixings, Series ER/ESR and EA/ESA	4 - 7
Spiders	8 - 11
Connection system	12 - 13
Single-point fixings, Series EV	14 - 17
Tools and accessories	18

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.







Pin with female thread

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. Clamp mounting Clamp mounting Clamp mounting Clamp mounting

Flush mounting

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.



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.



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









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



Compensation of tolerances

Clamp mounting ER/EA

Glass bore



Tight fit achieved by backfilling 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!



Spiders



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 singlepoint fixings under load (deformation/expansion/ contraction) serve to significantly reduce residual stress peaks in the glass.





85



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).









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







M24x1.5

70 --

‡8

max.

-120

56

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.





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.



Connection system



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 ESA 45 flush mounting and wall fixing (rigid)





Glass/stiffener connection with flush and dual connection clamp mountings

Th



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



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





Connection components















LÇ.

Glass thickness

26

mhr

-26 mlr

38.5

-51

Wall fixing Art. No. 8.22.400.703.99

Dual connection clamp

Art. No 8.22.440.703.99

mounting

Order data

Material: Electro-polished

no. 1.4404, DIN EN 10088

Art. No. 8.22.420.703.99

Flush mounting (rigid) Art. No. 8.22.405.703.99

stainless steel, material

Single-point clamp

mounting (rigid)



51



93 +30 123 +30

12.5

Connecting rod (rigid) Art. No. 8.22.400.001.40

Connecting rod (adjustable) Art. No. 8.22.410.703.99



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



ł

Single-point fixings, Series EV

Single-point fixings MANET CONSTRUCT, Series EV



The MANET Series EV singlepoint 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.



Glass thicknesses



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



Single-point fixings, Series EV

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.





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.



Tools and accessories





Postal address DORMA-Glas GmbH Postfach 3268 32076 Bad Salzuflen

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

FON ++49(0)5222/924-0

FAX ++49(0)5222/924-999

www.dorma-glas.com