

**Title: Roller rail clamp mounting for the attachment
 of roller rails for sliding door systems**

Description

The invention relates to a roller rail clamp mounting for the
5 attachment of roller rails for sliding door systems according
to the generic part of patent claim 1. In this case, roller rail
clamp mountings have a double function, on the one hand,
they serve for locating the roller rail, having generally a
circular section, at the roller rail clamp mounting; on the
10 other hand, the roller rail clamp mounting serves for
connecting to a supporting construction, which may for
example consist of a counter-plate, likewise being locatable
in a clamping manner at the roller rail mounting and being
itself positively connectable to further parts of the
15 supporting construction. It is to be understood that a
“supporting construction” is not only the possible
connection to a stationary construction element, for
example to masonry or to a metal construction, but also for
example the glass pane of a sliding door.

20 The document DE 100 35 956 C2 discloses a roller rail
clamp mounting, in which the clamping device, embracing
the roller rail with the roller rail reception of the roller rail
clamp mounting, consists of a roller rail clamp, which is
locatable at the circumferential surface of the roller rail by

means of a roller rail set screw while reducing the diameter of the roller rail reception. The clamping connection between the roller rail clamp mounting and the supporting construction requires a second set screw, whereby a
5 counter-plate, which is displaceably guided within a groove of a connector plate of the roller rail clamp mounting, is a component of the supporting construction, such that in this regard reference is being made to the scope of the disclosure of DE 100 35 956 C2.

10 In comparison to DE 100 35 956 C2, the document DE 101 39 167 C1 includes an improved further development insofar as, in this case, a single clamping device positively clamps the roller rail clamp mounting to both the roller rail and the supporting construction. This is
15 achieved by means of a single headless screw, which, coaxially in relation to the longitudinal axis of the roller rail, passes through the wall of the roller rail clamp mounting and is locatable at a frontal surface of the clamping component. Moreover, the headless screw acts on a
20 spreading component consisting of two wedges, which are displaceable in relation to each other, whereby the diameter of the roller rail reception is likewise changed. However, when using the above mentioned wedges, there is a risk that the wedges, on account of the self-retention
25 thereof, do not disengage from one another, such as to interfere with the reliable disengagement of the connection.

On the basis of the state-of-the-art according to DE 101 39 167 C1, it is an object of the invention to improve the roller rail clamp mounting species with regard to the embodiment of the clamping component.

- 5 The invention solves of the given problem with the characteristics according to claim 1.

Further embodying characteristics are subject matter of the dependent claims.

- According to the teaching of the invention, a clamping
10 component formed as a disc, being supported with minor play in a circular reception of the roller rail clamp mounting, is rotated in the reception through the action of a screw, a surface of the disc oriented towards the roller rail being formed such that the disc, while being rotated, enters the
15 region of the roller rail reception with portions of the above mentioned surface, i.e. reduces the diameter of the roller rail reception in a known manner, and thus abuts at the circumferential surface of the roller rail. The plane surface of the disc, oriented opposite to the roller rail, leans in this
20 case on the supporting construction, which, as disclosed in DE 100 35 956 C2, may consist of a counter-plate, for example, being displaceably guided with play in a groove of the connector plate.

As the counter-plate, which is guided in the groove of the connector plate, presents a plane surface, the disc is formed in that the surface, oriented towards the supporting construction, is likewise a plane surface, such that, if there
5 is positive abutment of the plane surface of the counter-plate and of the plane surface of the disc, the play within the groove is eliminated, and the counter-plate is clamped to the connector plate of the roller rail clamp mounting. Advantageously, the surface of the disc oriented towards
10 the roller rail, at least in the region of one segment of the surface, presents a concave curvature corresponding to the envelope curvature of the roller rail, said curvature being designed in that a corresponding abutment of the disc at the roller rail is achieved with the connection being
15 released.

It has proven to be advantageous to form the disc such that it presents, for example, two concave curvatures, the surface of the disc oriented towards the roller rail in the region of two segments presenting one concave curvature,
20 which corresponds to the envelope curvature of the roller rail, such that, with the clamping component being released, the curvature of one segment and, with the clamping component being clamped, the curvature of the other segment corresponds to the envelope curvature of
25 the roller rail. This means in practical operation that the disc, on account of the concave curvature disposed in the

first segment, with the connection being released, is abutting at the roller rail such that it does not spontaneously rotate, even though, on the one hand, a displacement of the roller rail in the roller rail clamp mounting and a displacement of the counter-plate in relation to the connector plate of the roller rail clamp mounting is possible. However, during the process of clamping there will be a temporary line contact between the disc and the roller rail, which will progress to a surface contact on account of the disposition of the second curvature in the second segment of the surface of the disc, when in its clamped position.

In further advantageous embodiment of the invention, the disc is formed in that it presents a cut-out, and one frontal surface of the cut-out is formed by a locating projection, which limits the cut-out. The screw, causing the rotational movement, is locatable against said locating projection, which preferably forms integral part of the disc; said locating projection presenting, as a reinforcement in this region, a shoulder which is oriented against the roller rail.

As a result of the above described concave curvature of the surface of the disc oriented towards the roller rail and of the intended reduction of the diameter of the roller rail reception achieved by the rotational movement of the disc, the width of the circumferential surface of the disc changes

along the perimeter of the disc, the disc presenting the widest circumferential surface on the side opposite to the locating projection. The above mentioned characteristic refers to the embodiment of the disc when it cooperates
5 with a roller rail having a circular section; when using a roller rail having a differently formed section, a corresponding adaptation of the surface of the disc oriented towards the roller rail is required.

Basically, the disc forming the clamping component can
10 consist of suitable material; however, preferably a suitable metal should be used, i.e. the disc can be made from a casting, from a tempered forging, or the like.

The invention will now be explained in more detail, reference being made to one embodiment example, in
15 which:

Figure 1: shows a view of a roller rail clamp mounting in the lateral view.

Figure 2: illustrates a lateral view to Figure 1.

Figure 3: shows a top view on the roller rail clamp
20 mounting without roller rail.

Figure 4: shows a perspective lateral view to Figure 3.

Figure 5: shows the section A-A according to Figure 3, a counter-plate being added.

Figure 6: shows a perspective section through the roller rail clamp mounting according to Figure 5.

Figure 7: shows a view of the clamping component.

Figure 8: shows a lateral view to Figure 7.

5 Figure 9: shows a perspective illustration of the clamping component.

A roller rail clamp mounting 1, with the roller rail reception 4 thereof extending more than half around the perimeter of the roller rail 2, embraces a roller rail 2. As an integral part
10 a connector plate 7 is conformed to a wall 6 of the roller rail clamp mounting 1, which plate presents grooves 25 into which engages a flange 26 of a counter-plate 24 forming a supporting construction 3. A clamping component 5, formed as a disc 12, is rotatably supported in a
15 breakthrough 8 forming an aperture 11 (see Figure 2), which breakthrough passes through the wall 6 of the roller rail clamp mounting 1 and through the connector plate 7. The circular disc 12 has a cut-out 20 such that a frontal surface 9 shaped as a locating projection 21 is formed on
20 the disc 12. A screw 10, passing through the wall of the roller rail clamp mounting 1, coaxially in relation to the longitudinal axis of the roller rail 2, is locatable against the locating projection 21. The locating projection 21 itself has

a shoulder 22, which is wider in the direction of the roller rail 2.

The surface 13 of the disc 12, oriented towards the supporting construction 3, i.e. in the embodiment example
5 a surface 13 oriented towards a plane surface 27 of the flange 26 of the counter-plate 24, is formed as a plane surface as well. In the embodiment example, an opposite surface 14 of the disc 12 oriented towards the envelope curvature 16 of the roller rail 2, in the region of the segment
10 15 situated on the opposite side of the locating projection 21, has a concave curvature 17 adapted to the envelope curvature 16 of the roller rail 2, as well as additionally in the region of a second segment having the reference 18, has another concave curvature 19 adapted to the envelope
15 curvature 16 of the roller rail 2. The two curvatures of the surface 14 of the disc 12 are harmonized such that the first curvature 17 of the surface 14 of the disc 12 abuts at the envelope curvature 16 of the roller rail 2 when the connection is released, and the second curvature 19 abuts
20 at the envelope curvature 16 of the roller rail 2 when the clamping component 5 is clamped. The orientation of the aforementioned concave curvatures in the region of the surface 14 of the disc 12 results in a modified circumferential surface 23 over the circumference of the
25 disc 12, whereby, as can be seen in the Figures 8 and 9, the circumferential surface 23 of the disc 12 presents a

larger width B in the region opposite to the locating projection 21.

References

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| | 1 | roller rail clamp mounting |
| | 2 | roller rail |
| | 3 | supporting construction |
| 5 | 4 | roller rail reception |
| | 5 | clamping component |
| | 6 | wall of the roller rail clamp mounting |
| | 7 | connector plate |
| | 8 | breakthrough |
| 10 | 9 | frontal surface of the clamping component |
| | 10 | screw |
| | 11 | aperture |
| | 12 | disc |
| | 13 | surface |
| 15 | 14 | surface |
| | 15 | segment |
| | 16 | envelope curvature |
| | 17 | curvature of the surface of the disc |
| | 18 | segment |
| 20 | 19 | curvature of the surface of the disc |
| | 20 | cut-out |
| | 21 | locating projection |
| | 22 | shoulder |
| | 23 | circumferential surface |
| 25 | 24 | counter-plate |
| | 25 | grooves |
| | 26 | flange |
| | 27 | plane surface |

B width

Patent claims

1. A roller rail clamp mounting (1) for the attachment of roller rails (2) for sliding door systems at a supporting construction (3) consisting of glass, masonry or the like, which positively embraces the roller rail (2) with an integral roller rail reception (4), a clamping component (5) being disposed at the roller rail clamp mounting (1) and locating the roller rail (2) against the roller rail reception (4), which component, when actuated, changes the diameter of the roller rail reception (4), and a breakthrough (8) is disposed in the wall (6) of the roller rail clamp mounting (1), as well as in a connector plate (7) integrally conformed to the roller rail clamp mounting (1) at the side oriented towards the supporting construction (3), in which breakthrough the clamping component (5) is embedded, which, when actuated, positively clamps the roller rail clamp mounting (1) both to the roller rail (2) and to the supporting construction (3) or to add-on parts of the latter, the clamping action of the clamping component (5) being achieved by means of a screw (10), coaxially in relation to the longitudinal axis of the roller rail (2) passing through the wall (6) of the

- 5 roller rail clamp mounting (1) and being locatable against a frontal surface (9) of the clamping component (5), characterized in that the clamping component (5) is rotatably supported within the breakthrough (8) of the roller rail clamp mounting (1) and of the connector plate (7) and can be clamped by means of the screw (10) between the roller rail (2) and the supporting construction (3).
- 10 2. A roller rail clamp mounting according to claim 1, characterized in that the breakthrough (8) is formed as a circular aperture (11) and the clamping component (5) is formed as a disc (12) embedded in the aperture (11).
- 15 3. A roller rail clamp mounting according to claim 1 and 2, characterized in that the surface (13) of the disc (12) oriented towards the supporting construction (3) consists of a plane surface, and the surface (14) of the disc (12) oriented towards the roller rail (2), at least in the region of one segment (15) of the surface (14), presents a concave curvature (17) corresponding to the envelope curvature (16) of the roller rail (2).
- 20 4. A roller rail clamp mounting according to claim 1 and 2, characterized in that, oriented towards the roller rail (2) the surface (14) of the disc (12) in the
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5 region of two segments (15, 18) presents a concave curvature (17, 19) corresponding to the envelope curvature (16) of the roller rail (2), such that, with the clamping component (5) being released, the curvature (17) of the one segment (15), and, with the clamping component (5) being clamped, the curvature (19) of the other segment (18) corresponds to the envelope curvature (16) of the roller rail (2).

10 5. A roller rail clamp mounting according to any of the claims 1 to 4, characterized in that the disc (12) presents a cut-out (20) and in that a frontal surface (9) of the cut-out (20) is formed by a locating projection (21) delimiting the cut-out (20).

15 6. A roller rail clamp mounting according to claim 5, characterized in that the locating projection (21) forms integral part of the disc (12).

20 7. A roller rail clamp mounting according to claim 5 and 6, characterized in that the locating projection (21) presents a shoulder (22) oriented against the roller rail (2).

8. A roller rail clamp mounting according to any of the claims 1 to 7, characterized in that the width (B) of the circumferential surface (23) of the disc

(2) changes along the course of the disc's circumference and in that the disc (12) presents the widest circumferential surface (23) at the side opposite to the locating projection (21).

- 5 9. A roller rail clamp mounting according to any of the claims 1 to 8, characterized in that the supporting construction (3) consists of a counter-plate (24) being able to be clamped to the connector plate (7) of the roller rail clamp
- 10 mounting (1).
10. A roller rail clamp mounting according to any of the claims 1 to 9, characterized in that the disc (12) is made from metal.