



Planning, Installation and Service Instructions

**for T30-2, T90-2 Fire-Proof Doors/ Flaps
and MZ 53-2 Multiple-Purpose Doors**

RIEXINGER
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Dear Customer,

We're glad you selected a product from our company.

Please check the delivery for completeness before starting work.

Please remember that not only the information in the installation instructions, but also DIN 18093 (installing fire-proof doors in fire-proof masonry or concrete walls) apply.

Two-leaf fire-proof and smoke-tight doors always have to be equipped with door closers and closing cascade control.

Instructions for painting:

Our casings and the door leaves have a high-quality powdered primer coat as standard equipment (VOB Part C, DIN 18360 3.1.14).

It has to have a good cover coating to guarantee good protection against corrosion.

Please bear the following in mind when painting over: The surfaces have to be reground and clean.

Then paint over with one layer of a 2 component PUR solvent lacquer.

You can also use a 2 component primary coat containing solvent for an intermediate layer and finish it with commercially available synthetic resin varnishes that are compatible with zinc.

Please remember the following when welded:

The welding seams have to be weld scale deslagged, cold galvanised and primed.

Approved fasteners:

Dowels approved by general building supervision

- steel straddling dowel $\geq$ M8
- plastic $\geq$ $\varnothing$ 10

Connecting electrical components:

Authorised electricians should connect electrical equipment such as door drives, motorised locks, door closers with electromechanical locking mechanisms, etc. in conformity with VDE regulations.

Technical modifications reserved.

1) General Information

This instruction is annex 00 for fire-proof doors for the general technical approvals below.

door type	fire protection permit no.	smoke control DIN 18095	noise protection ISO 140 /717	burglary security DIN V ENV 1627
MZ 53-2	–	P-120002238-22	16230388/7	–
E-S 10/53	–	P-120002238-22	16230388/7	12000 2312-020
T30-2 N22/50	Z-6.14-1511	P-BWU03-I 17.67.14	16230388/8	21226191
T30-2 N22	Z-6.14-1204	17705 18265/2	16214831/1	–
T90-2 N29	Z-6.20-1919	Z-6.20-1919	17530836/2	–
T90-2 N39	Z-6.13-389	Nr. 30484	17530836/2	–

2) Wall Types

door type	fire protection permit no.	wall types and wall thicknesses (in mm)				
		masonry stone pres- sure strength ≥ 12	concrete strength class ≥ C12/15	F90 assembly wall DIN 4102 T4 Table 8	cellular concrete stone strength class ≥ G 4.4	cellular concrete slabs strength class ≥ G 4.4
MZ 53-2	–	≥ 115*	≥ 100*	≥ 100*	≥ 175*	≥ 150*
E-S 10/53	–	≥ 115	≥ 100	–	–	–
T30-2 N22/50	Z-6.14-1511	≥ 115***	≥ 100***	≥ 100***	≥ 175	≥ 150
T30-2 N22	Z-6.14-1204	≥ 115	≥ 100	≥ 100	≥ 175	≥ 150
T90-2 N29	Z-6.20-1919	≥ 175	≥ 140	≥ 100**	≥ 175	≥ 150
T90-2 N39	Z-6.13-389	≥ 240	≥ 140	–	≥ 240	≥ 175

* These are recommended wall thicknesses. If the wall is thicker or thinner, the wall's structural engineering or stability has to be certified.

** Other F90 assembly walls in conformity with the general building supervision test certificate (refer to the approval).

*** Wall thicknesses are driven by the door size.

3) Installing into Masonry and Concrete

- 3.1 Assemble the frame (if not welded) (Chapter 6). Unhinge the door leaf and mount the rain guard (if any) (Chapter 15).
- 3.2 Unbend the shackles horizontally: once inward (scuncheon) and once outward (front side). Afterwards, insert the frame into the opening (Figure 1.0). Fasten the shackles with its approved straddling dowels and screws. Please ensure that the frame profiles do not get twisted when they are fastened.
- 3.3 Optional: Use special shackles to fasten any concealed mounting for exposed masonry. For positions of anchorage points refer to Figure 1.0.
- 3.4 For all other anchor positions, shapes or installation models see DIN 18093.

Important: only approved with plastered wall (refer to Figure 1.4, above).

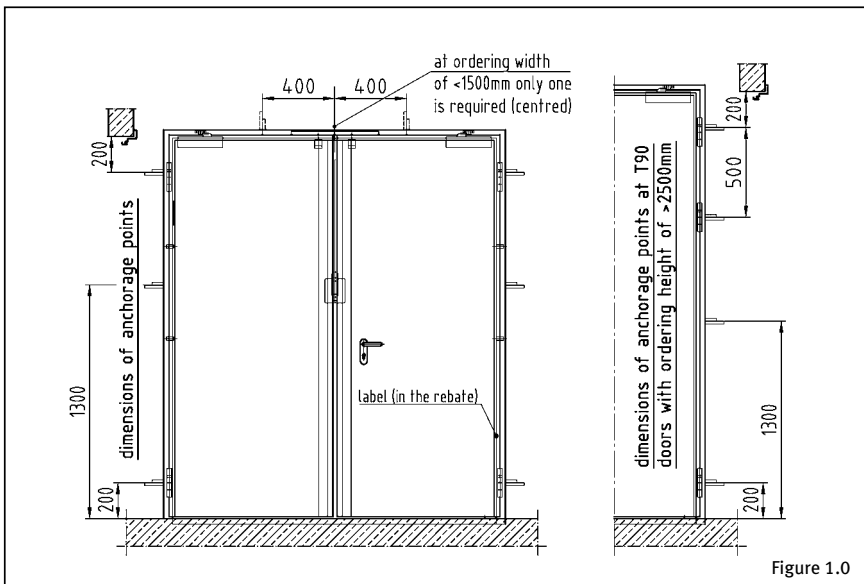


Figure 1.0

3 Installing into Masonry and Concrete

- 3.5 Align the frame to rule mark and wedge vertically and horizontally. Fasten the frame on the hinge side and hinge the door leaf (grease the steel hinge bars) (Figure 1.2). Align and fasten the lock side according to the door leaf and crop hinges wherever necessary, refer to chapter 3.9 if necessary (check 4 mm gap). Fasten the plate and handle with screws (Figure 1.1).

Note: The threshold may be removed after mounting. If it is mounted without the floor recess for the frame, another anchor should be mounted at 60 ± 20 mm off the TEFF on both longitudinal frame rods (not with multi purpose doors).

- 3.6 Slightly pretense the helical hinge with the attached round bar and lock with stop bolt. The fire-proof and smoke-tight door has to close by itself from any position. Place washers to adjust door height (Figure 1.2).

Note: Depending on the opening direction of the door, the spring billet of the upper helical hinge in the active or passive door leaf ist insertable from above or below.

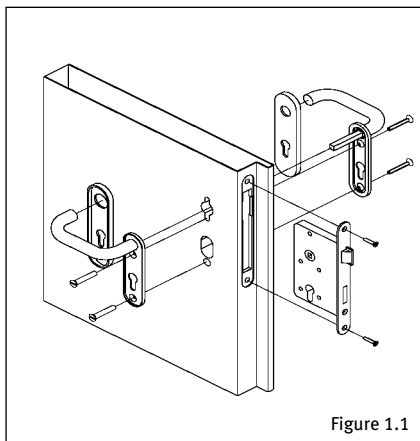


Figure 1.1

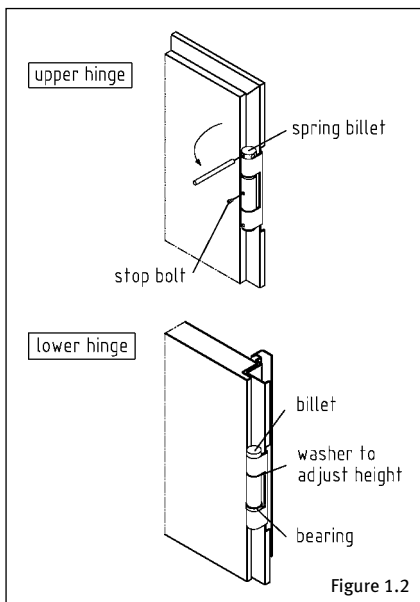


Figure 1.2

3) Installing into Masonry and Concrete

- 3.7 Press the rubber seal into frame groove (3 sides on the door/4 sides on the flap) by hand so that the frame sealing wedge meets at the corners (avoiding substantial tension) (Figure 1.3). Check how the latch and bar catch and file the closing opening in the frame if needed.

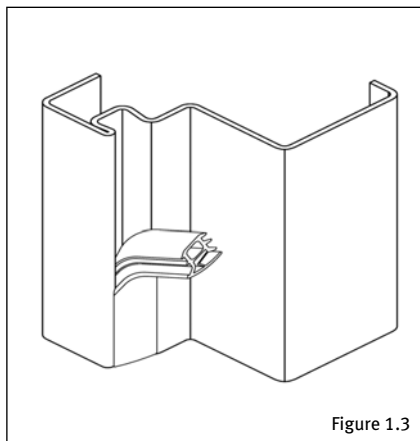


Figure 1.3

- 3.8 Back-fill the whole frame with mortar (mortar group ≥ 2) or approved Novoform Riexinger mineral wool formed parts (T30-1 N2/50 and T30-2 N22/50). If mounted with dowels, the shackles of the masonry anchor should be completely plastered (refer to figure below).

Important: Only open the door after the mortar has hardened and remove the spacer between the door leaf and frame.

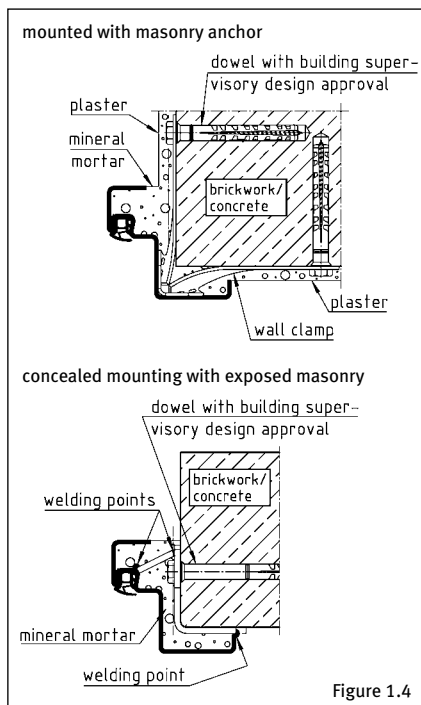
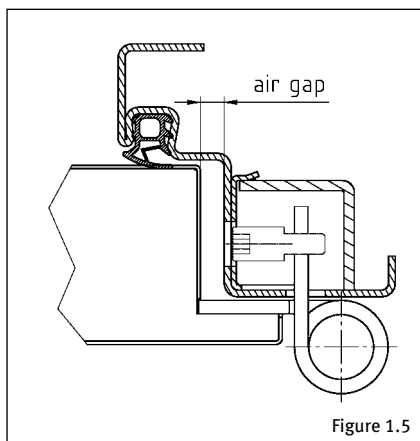


Figure 1.4

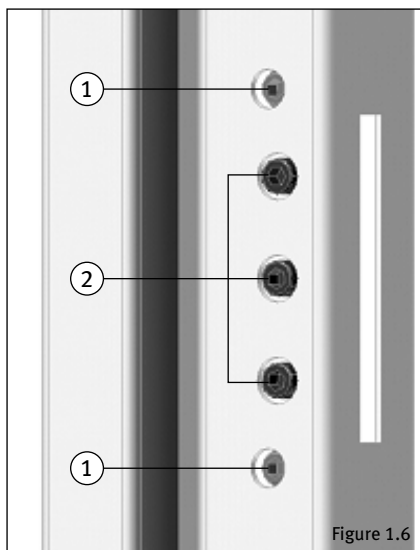
3) Installing into Masonry and Concrete

3.9 The design with a 3-D belt (E-S 5 and E-S 10 doors and optional with MZ doors). These special belts can be adjusted in 3 dimensions, which means that you can use adjusting screws to excellently align the door leaf after assembly.

You can use an Allen key (SW 5) to adjust the air gap between the door leaf and frame in the rebate with screws (1) (Figure 1.5).



You can use the 3 screws (2) to adjust the air gap between the door leaf and frame in the frame facing. Use the screws (2) also to fasten the door leaf on the frame (Figure 1.6).



4) Installing into Cellular Concrete

fire barrier	wall thickness at (in mm)	
	cellular concrete plan or block stones DIN 4165 (strength class ≥ 4)	reinforced cellular concrete slabs with general technical approval, mounted upright or horizontal (strength class $\geq$ G 4.4)
T30-2	≥ 175	≥ 150
T90-2 N29	≥ 175	≥ 150
T90-2 N39	≥ 240	≥ 175
At wall thickness up to 200 mm only approved with wall-overlapping frames		

Cellular concrete is installed as described in Chapters 3, 3.1 - 3.9.

- 4.1 If a counterframe is used, the basic frame is mounted as described and the counterframe is screwed together with the basic frame (Figure 2.0).
- 4.2 The basic frame is predrilled in the rubber seal groove. Use the supplied drill screws to screw on the counterframe and weld onto the anchoring brackets on the exterior wall surface.
- 4.3 Mount the door closers as per Chapter 19.

Important: When screwing the two frames together, make sure that they are mounted flush on the joint.

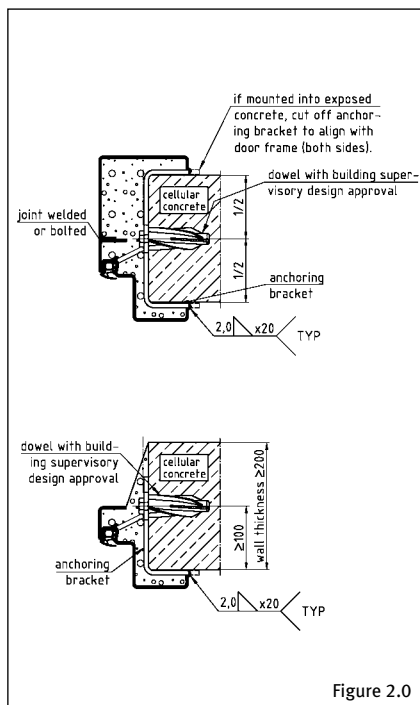


Figure 2.0

5) Installing into a F90 Assembly Wall

Installing T30, T90 and MZ doors in conformity with DIN 4102 Part 4, Table 48 (3/94)

- 5.1 Make sure that the U-shaped profile of the wall (Figure 3.0) consists of 2 mm (or 50 x 50 x 4 mm square tubes with T90 (N29) doors) on three sides (on the lock and hinge side and transverse on top). This can be checked through the perforation of the profile. The scuncheon may not be planked on the face.
- 5.2 Screw the frame together (if not welded) (Chapter 6.0). Unhinge the door leaf.
- 5.3 Make any recesses on the wall planking that may be needed for the protection boxes.
- 5.4 Back-fill the frame with gypsum plasterboard strips (Figure 3.0) and insert into the opening of the assembly wall as per rule mark.
- 5.5 Align the frame vertically and horizontally and screw with the supplied 6.3 x 60 drilling screws through premanufactured holes into the wall. Hinge the door leaf (grease the steel hinge bars). Align the lock side frame with the door leaf and then fasten.
- 5.6 Remove any lower mounting aid angle after mounting.
- 5.7 The basic frame is predrilled in the rubber seal groove. Screw the counterframe with the supplied 3.9 x 32 drill screws.
- 5.8 Screw the counterframe with the supplied 6.3 x 60 drilling screws through premanufactured holes into the wall.
- 5.9 Insert the rubber seal into frame groove (3 sides on the door/4 sides on the flap) (avoiding substantial tension) (Figure 1.3). Check how the latch and bar catch and file the closing opening in the frame wherever necessary. Then grease the latch slightly.
- 5.10 Mount the door closers as per Chapter 19.

Important: Make sure that the two frames are mounted flush when screwing on.

5) Installing into a F90 Assembly Wall

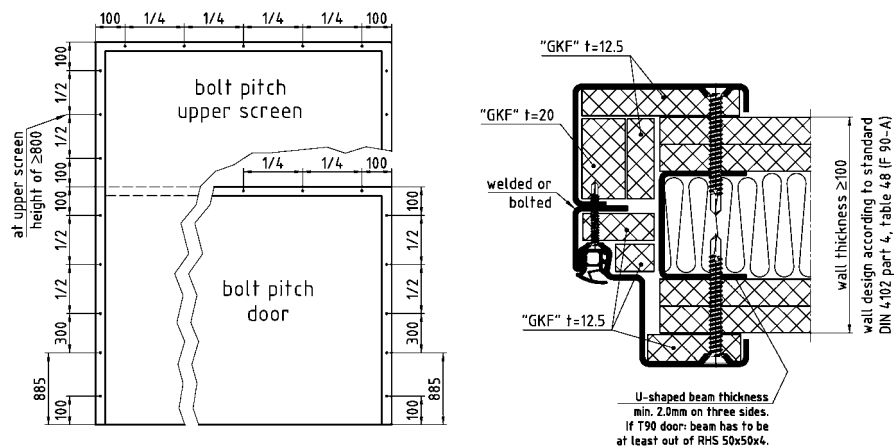


table of wall heights
depending on wall thickness

	wall thck. (mm)	wall height (m)
A	100-105	≤ 4,00
B	125-130	≤ 5,50
C	150-155	≤ 6,50

(according to DIN 18153)

frame and counter frame
have to be filled
completely with gypsum
plasterboard strips.

Figure 3.0

6) Screw Connected Frame

- 6.1 Screw frame elements with connecting and angle brackets. Screw the M8 lock nuts by hand (Figure 4.0).

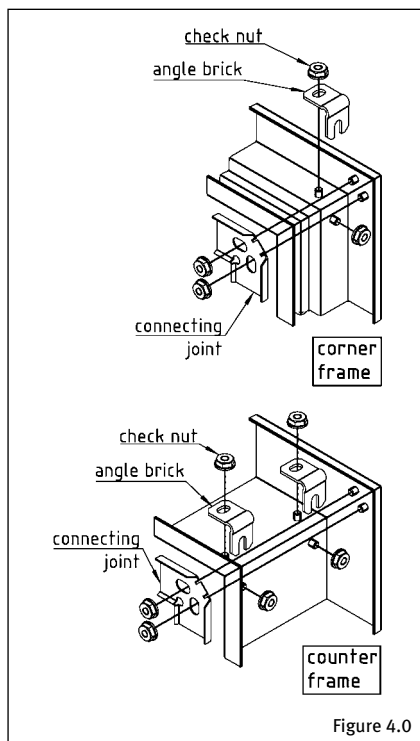


Figure 4.0

- 6.2 Mount the threshold angle to the longitudinal frame components so that the mitre cut is properly joined on the corners (Figure 4.1).
- 6.3 Tighten the M8 lock nuts for connecting and angle brackets (max. 15 Nm).

Note: The frame can additionally be welded on the corners.

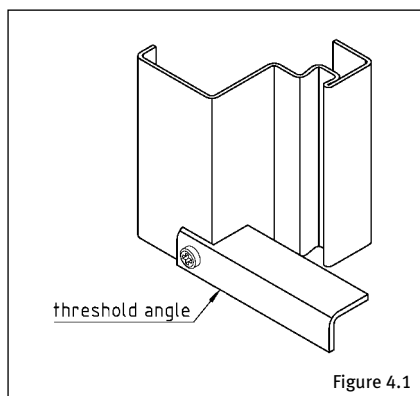
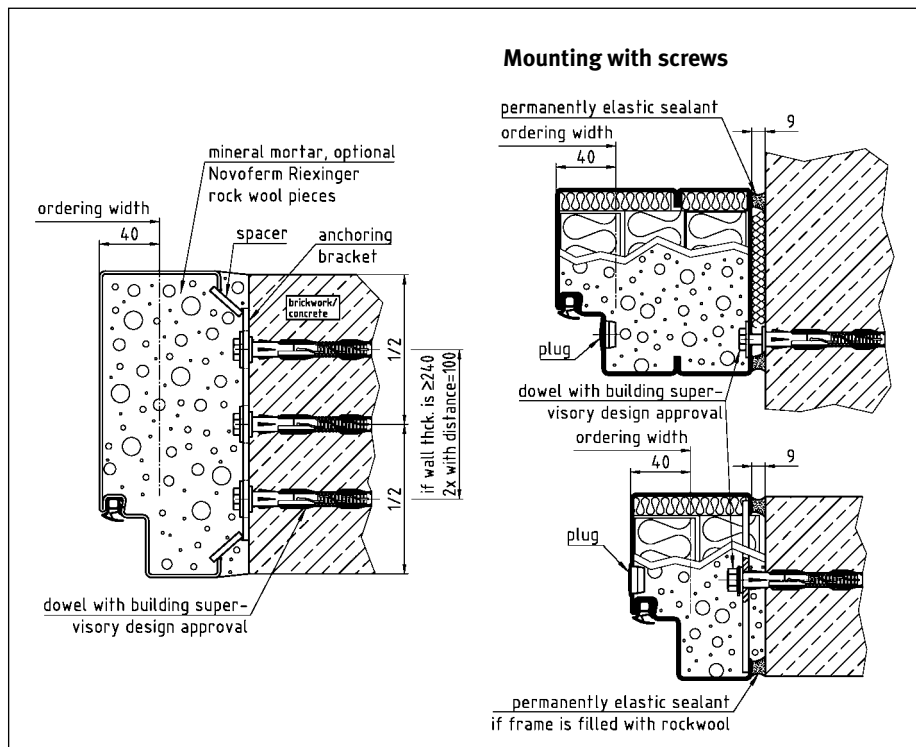


Figure 4.1

7) Installing a Block Frame

- 7.1 Fasten the shackle in the scuncheon as per positions (Figure 1.0).
 - 7.2 Screw the frame together (refer to Chapter 6.0) and insert into the opening.
 - 7.3 Align the frame to rule mark, wedge vertically and horizontally and weld onto the shackles. Hinge the door leaf. Align the lock side according to the door leaf and weld the remaining shackles and frame together.
- If they are mounted with screws, align the frame to rule mark and wedge vertically and horizontally. Afterwards, drill the dowel hole and fasten the frame via dowel. Back-fill relevant fastening points.
- 7.4 Crop the hinges wherever necessary (check air gap).
 - 7.5 Refer to Chapter 3 for further procedure.



8) Installing a Closed Frame

- 8.1 Mount the frame (refer to Chapter 6). Unbend the shackles (not the wall clamps) horizontally and insert the frame into the opening.
- 8.2 Unbend the wall clamps horizontally (Figure 6.0).
- 8.3 Refer to Chapter 3 for further procedure.

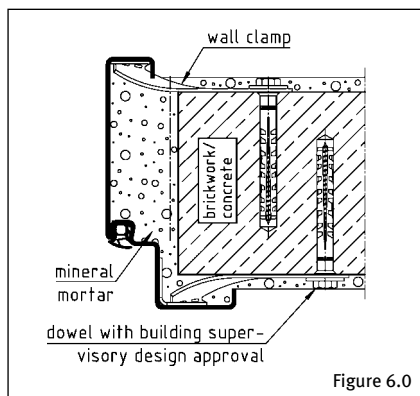
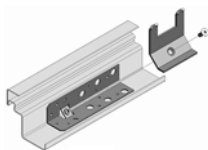


Figure 6.0

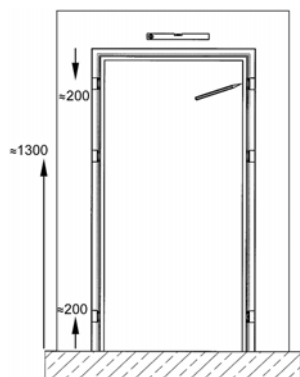
9) Installing a Corner Frame (Screwed)

Installing of corner frame with screwed wall connection at following door types: MZ 53-2, T30-2 N22/50, T30-2 N22, T90-2 N29. Permitted up to ordering size of 2500 x 2500 mm.

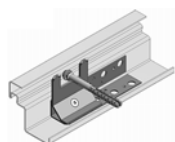
- 9.1 Fasten mounting bracket with tapping screw onto the wall clamp.



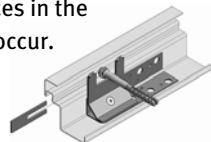
- 9.1.1 Insert the frame into the opening
9.1.2 Align the frame
9.1.3 Mark out the dowel hole
9.1.4 Remove the frame
9.1.5 Drill the dowel hole



- 9.2 Mount the dowel and screw in the masonry with a 5 mm gap between the screw head and the wall.

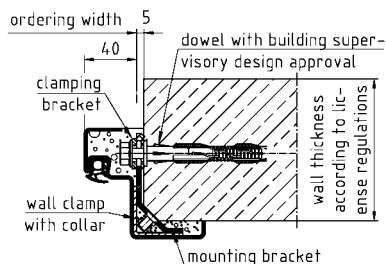


- 9.3 Insert the 3 mm clamping bracket and screw frame together. Add additional 2 mm brackets between the mounting bracket and masonry if tolerances in the masonry occur.

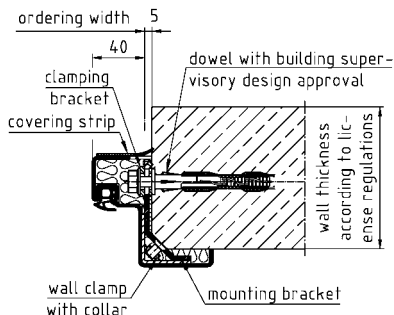


- 9.4. Refer to Chapter 3 for further procedure.

The view mounted and back-filled in the cross-section.



Optional with mineral wool formed part with self-adhesive covering strip.



10) Back-filling Frames with Mineral Wool Formed Parts

Important: Only approved with Novoferm Riexinger mineral wool formed parts!

- 10.1 Insert the 44 x 13 mineral wool formed part into the frame mirror.
- 10.2 Hold the 55 x 40 step profile on the frame, mark out and cut out the recesses for protection boxes, hinge brackets and frame fastenings.
- 10.3 Insert the step profile.
- 10.4 Mount the frame and door element as per Chapters 3 and 6.
- 10.5 After mounting, glue on the supplied self-adhesive covering strip with the rubber lip as shown in Figure 1 to seal the door frame against the masonry.

➔ With corner frames and counterframes or block frames, unpack the supplementary packages and trim and insert profiles depending upon the wall thickness as required.

➔ Back-fill any gap through masonry tolerances between the mineral wool and masonry when mounting the door with the 90 x 10 profile.

➔ Always make sure that the complete frame is back-filled with Novoferm Riexinger mineral wool formed parts because otherwise the licence is rendered invalid.

The frame can only be back-filled with mineral wool formed parts with T30 and multiple-purpose doors (not with T30-2 N22)!

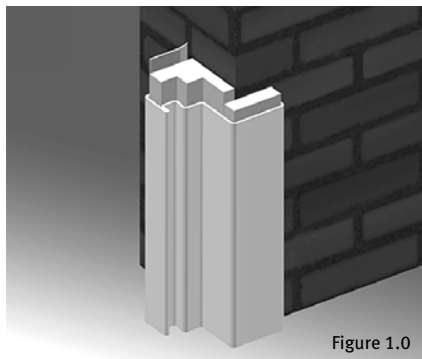


Figure 1.0

Corner frame

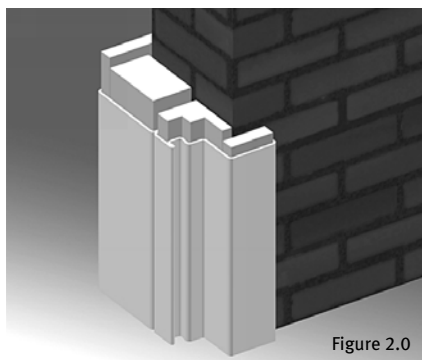


Figure 2.0

Corner frame with counterframe

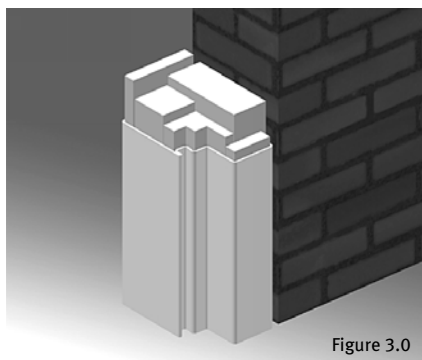


Figure 3.0

Block frame

11) Installing an Upper Screen

- 11.1 Mount the frame (Chapter 6).
Insert the cross beam for the upper screen as per Figure 7.0 and set height. Fasten the cross beam onto the frame with the supplied drill screws.
- 11.2 Procedure as per Chapter 3. Refer to Figure 7.1 for the height of the fastening points with doors that have an upper screen.
- 11.3 Insert and align the upper screen into the mounted frame. Fasten the upper screen onto the frame and cross beam with the supplied drill screws.
- 11.4 Further procedure as per Chapter 3.

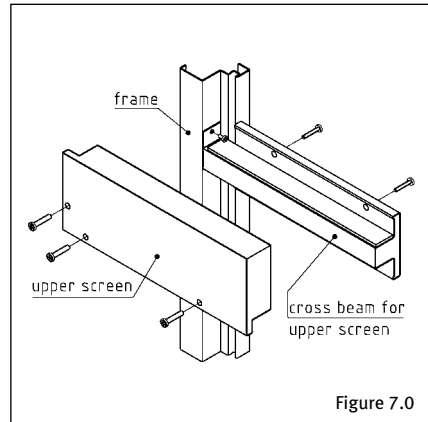


Figure 7.0

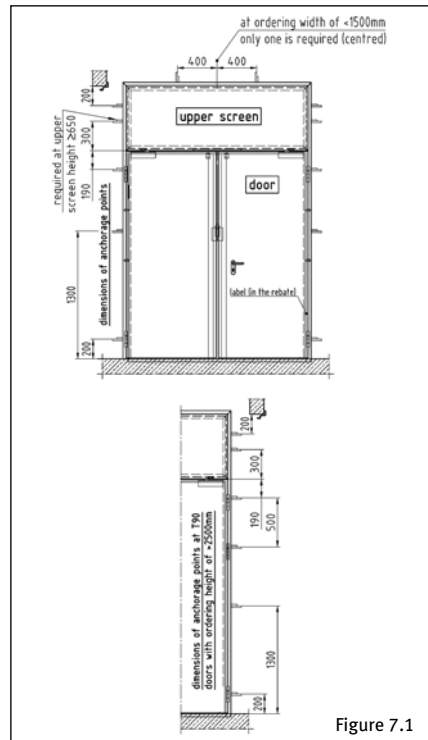


Figure 7.1

12) Information on Smoke Control Doors

- 12.1 Mount as per Chapter 3.
- 12.2 Mount the automatic door seal as per Chapter 18.
- 12.3 Mount the door closer as per Chapter 19.

air gap ± 1 mm	hinge side and top 4 mm each; lock side 5 mm and bottom T30 = 5 mm / 10 mm; T90 = 10 mm
label	door has to have the correct label for smoke control
lock	in conformity with DIN 18250 or DIN 18251 parts 1, 2 and 3
door handle	in conformity with DIN 18273

Cylinder locks have to be used if door has smoke control requirements.

door type	fire protection DIN 4102 permit no.	smoke control DIN 18095 permit no.
MZ 53-2	–	P-120002238-22
E-S 10/53	–	P-120002238-22
T30-2 N22/50	Z-6.14-1511	P-BWU03-I 17.67.14
T30-2 N22	Z-6.14-1204	17705 18265/2
T90-2 N29	Z-6.20-1919	Z-6.20-1919
T90-2 N39	Z-6.13-389	30484

Important: The frame has to be sealed against the wall on one side (preferably the hinge side between the wall and frame) on three sides with permanently elastic sealing materials.

13) Information on Burglary-resistant doors

	wall types and thickness (in mm)		air gap in mm (tolerance ± 1 mm)	
door type	masonry stone pressure strength ≥ 12	concrete strength class $\geq C12/15$	hinge side	transverse on top / bottom
E-S 10/53	≥ 115	≥ 100	4	7 / 5
T30-2 N22/50	≥ 115	≥ 100	4	7 / 5

Note: Basic dimensions max. B 2500 x H 2500

Mount as per Chapter 3.

➡ The door hinges in Chapter 3.5 have to have additional hinge lock devices (with a threaded pin) which are screwed in completely.

➡ The door has to be equipped with a security plate in conformity with DIN 18257, at least class ES 1.

➡ The cylinder lock has to satisfy the requirements of DIN 18252, class P2 BZ and close flush with the security plate on the outside (engaging side). The pulling guard built into the cylinder lock is not necessary if it is already built into the security plate.

➡ Make sure when closing the lock that the bar closes out in two stages and catches at least 15 mm into the frame.

Label: the door has to have a separate label for burglary security

14) Mounting a Door Drive (such as ED 200, CD 400)

For Dorma ED 200, CD 400 and other door drives with general technical approval.

Mounting Dorma ED 200 (opposite side of the hinge)

- 14.1 Fasten the baseplate onto the frame with countersunk screw (4) (Figure 10.0).
- 14.2 Drill holes for screws with dowels (1+3) with the aid of the baseplate.
- 14.3 Use plastic discs as spacers between the baseplate + wall.

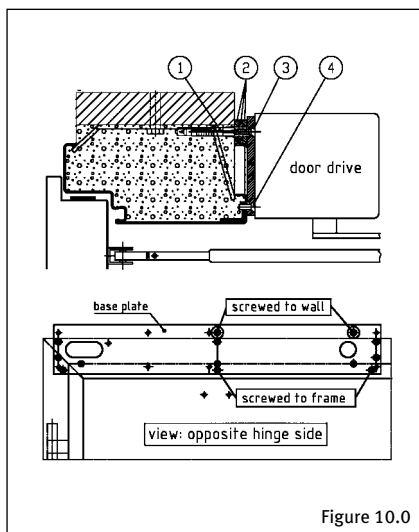


Figure 10.0

Mounting Dorma CD 400 (hinge side)

- 14.4 Fasten the baseplate onto the wall with screws and dowels (Figure 10.1).
- 14.5 Ensure dimension 53 between the upper edge lintel and lower drillhole.
- 14.6 Mount the sliding rail onto the door leaf (Important: use the 41.6 mm long extension bush).

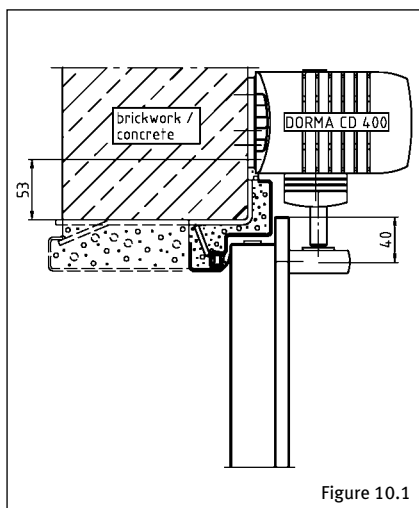


Figure 10.1

➔ Further procedure as per the manufacturer's mounting instructions

Important: This can only be mounted in functional unity with an approved electrical door opener (feedback contact needed).

15) Mounting the Rain Guard

Attach the rain guard (standard aluminium) onto the cross frame component as per Figure 11.0.

Important:

- ➡ The rain guard has to be mounted before mounting the frame.
- ➡ The rain guard cannot be mounted on doors with door closers on the hinge side.

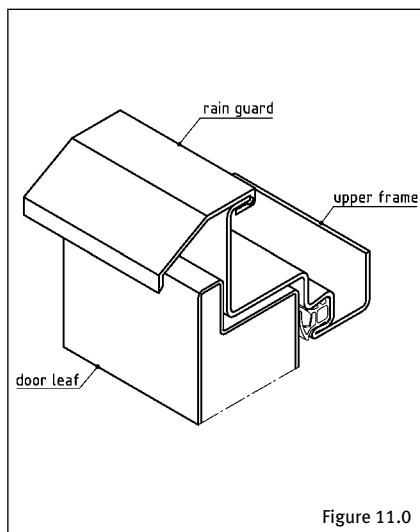
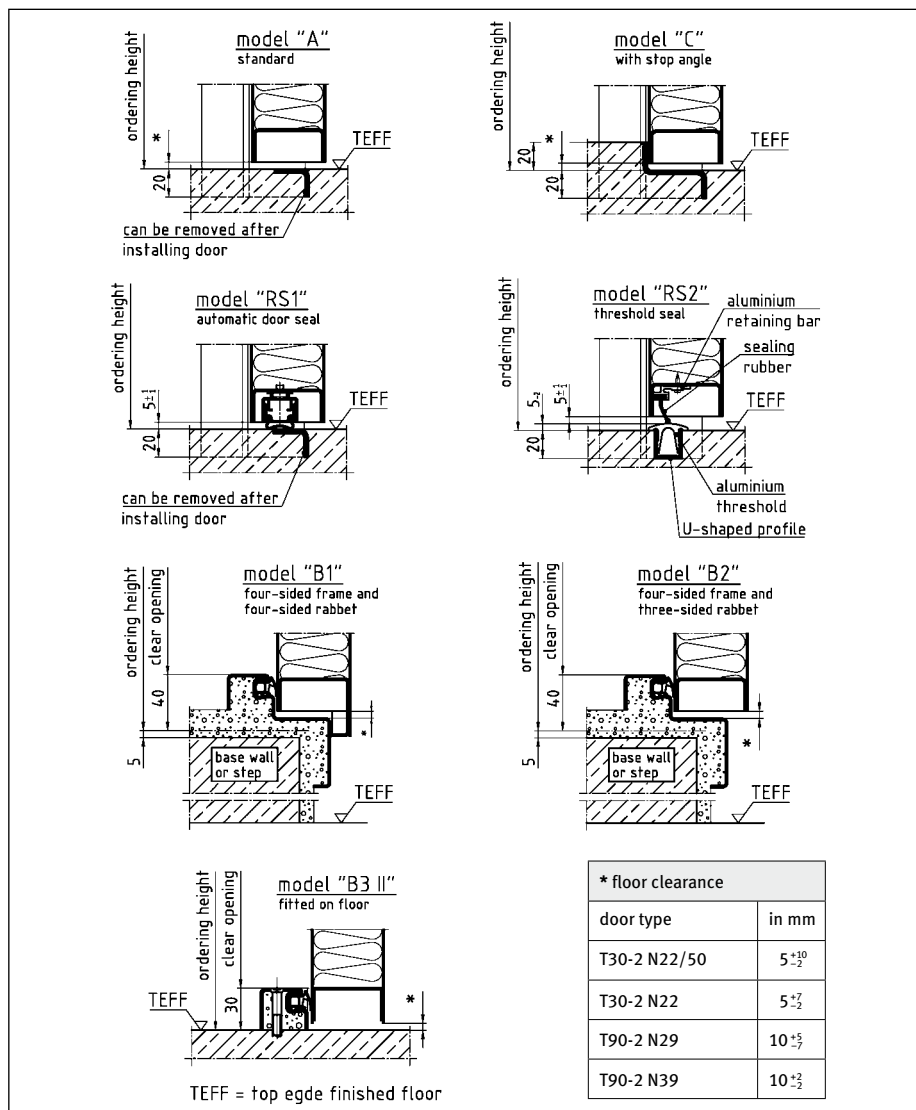


Figure 11.0

16) Threshold Models



Note: Threshold A can be removed after mounting.

For different technical specifications of threshold please contact www.riexinger.com

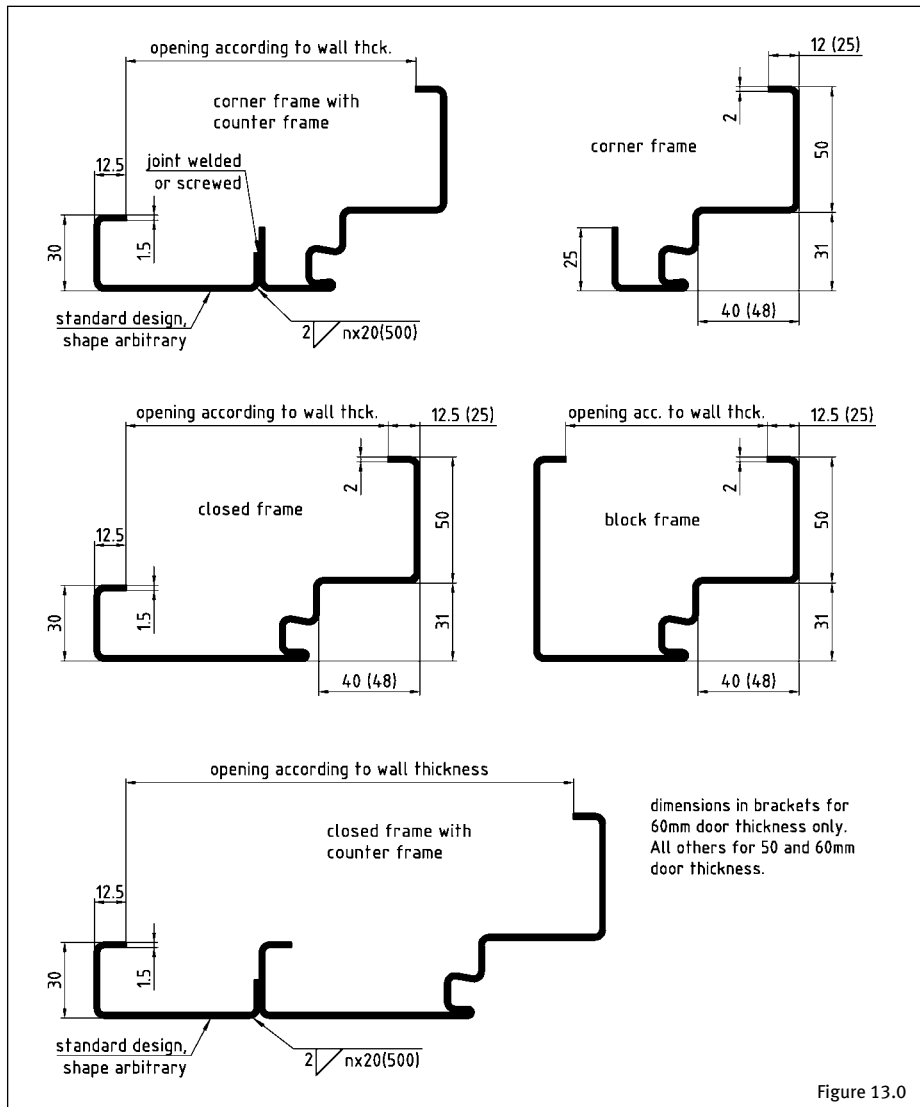


Figure 13.0

Important: If mounted in exposed concrete / masonry the opening has to be made + 5 mm to fit the shackles.

18) Automatic Door Seals

- 18.1 Insert the automatic door seal through the prefabricated opening in the door leaf ensuring that the two retaining screws catch into the T-groove.
- 18.2 Insert the automatic door seal until it lies against the opposite side (the unit may also be shortened).
- 18.3 Afterwards glue on the plastic cover (with substantial pressure).
- 18.4 Optional fasten the automatic door seal with a steel metal plate and two self-cutting screws.

Important: The automatic door seal may only be adjusted after finishing the floor and cleaning the construction site.

Note: A seal is only as good as your floor. You will get optimum sealing with smooth and flat (even slanted) floors. Avoid high contact pressure because high pressure causes greater wear and tear on the seal profile, mechanism und fastening.

Smoke control doors: The floor surface has to be firm, smooth and flat with smoke control doors. The floor may not have any lower or higher sections such as joints not filled to be flush. Carpeted floor cannot be used. A metallic rail may be set onto the floor covering that is sealed downwards.

- 19.1 Fasten the mounting plate in the prefabricated threads on the door/ flap leaf as per Figure 15.0. If there are not any thread holes, drill them using the template on the door closer. **Watch mounting side.**
- 19.2 Further procedure as per the door closer mounting instructions.
- 19.3 The door closer has to be adjusted to ensure that the door closes by itself from every angle of opening.

Important: Only use door closers in conformity with DIN 18 263 Part 1 or DIN EN 1154.
The helical hinge has to be slightly pretensed.

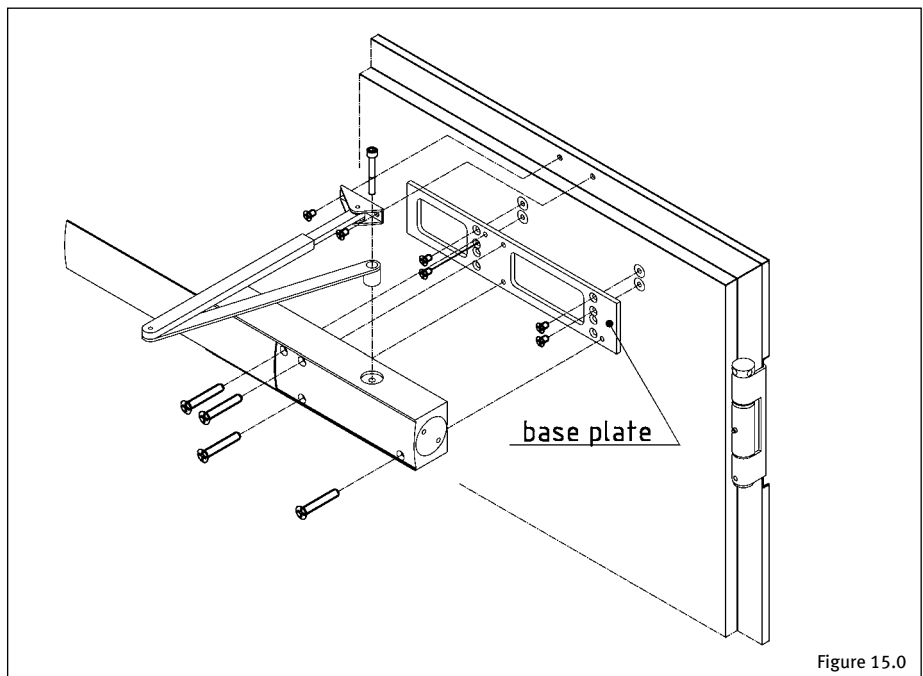


Figure 15.0

20) Mounting the Closing Cascade Control

- 20.1 Open both leaves of the installed door and fasten the back squares in the prefabricated threads on the two door leaves (Figure 8.0).
- 20.2 Fasten the positioning arm on the frame.
- 20.3 Adjustment and further procedure as per the mounting instruction of the closing cascade controls.

Important: Refer to the mounting instructions for the door closer if the closing cascade control is built-in.

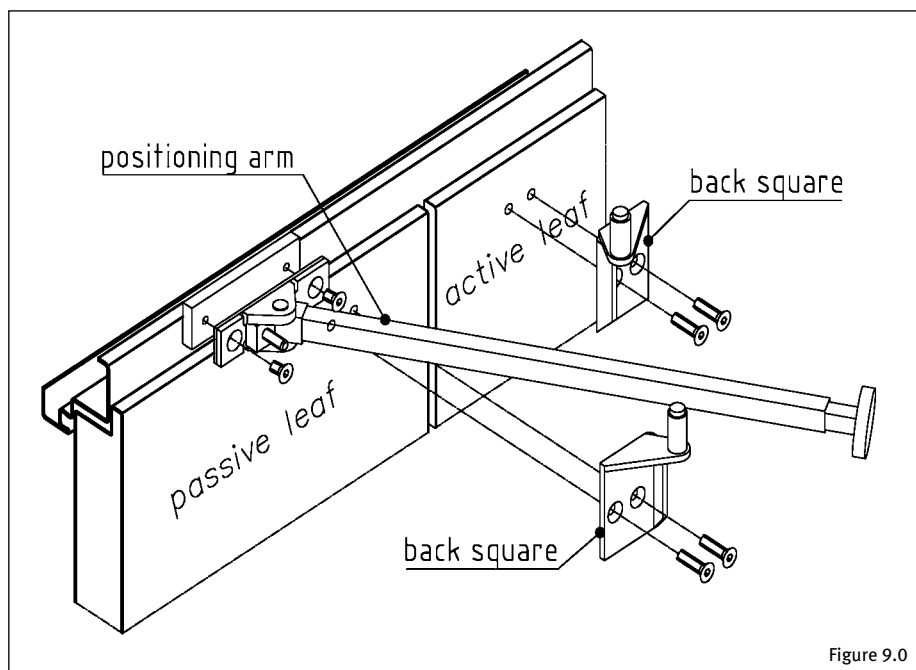


Figure 9.0

The notifications of the Berlin Institute for Construction Engineering (DIBt) dated June / 1995

Mounting contacts -reed contacts-

These contacts can be mounted subsequently if the contacts are screwed or riveted onto the door/flap leaf or the frame.

Leading cables on the door leaf

Cables can be led on the door/flap leaf, although they should be led in tubes (cable ducts).

Installing visual door viewer

You can build visual door viewers into T30 fire barriers (Figure 16.0).

Mounting signs

You can mount signs on the door/flap leaf by screwing, riveting or gluing them on ensuring that the screws or rivets do not penetrate the door/flap leaf.

Supplementing corner frames

You can form closed frames by adding supplementary frames to corner frames. The wall thickness gives the opening of the supplementary frame (Figure 16.1).

Important: Please ensure that the supplementary frames are completely back-filled with mortar.

Mounting the door protection bars

You can mount door protection bars using any required reinforcement sheets. The screws or rivets needed for fastening may not penetrate the door/flap leaf (Figure 16.2).

Mounting panic bars

You can mount panic bars subsequently if the manufacturer has provided suitable fastening points. Only use panic bars with a suitability certificate.

Mounting kicking and edge guards

Kicking and edge guards made of strips with a max. width of 250 mm may be mounted. The strips can be fastened by screwing, riveting or gluing them on, although the screws or rivets may not penetrate the door/flap leaf. The maximum strip thickness is 1.5 mm. Please consider weight of door leaf (Figure 16.3).

Gluing strips on glass panes

You can glue strips made of wood, plastic, aluminium or steel onto glass panes at any form or position.

21) Approved Changes to Fire-Proof Doors

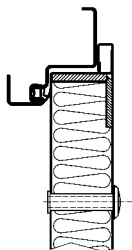


Figure 16.0

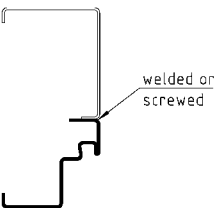


Figure 16.1

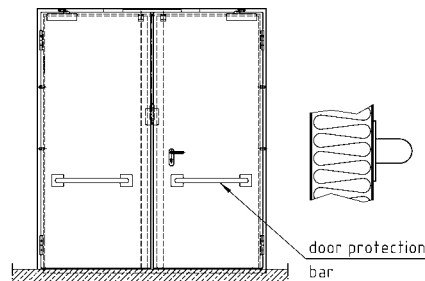


Figure 16.2

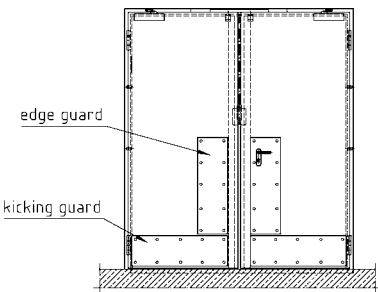


Figure 16.3

Service and safety test for components that should be serviced on a regular basis and periodically tested:

component	design
hinges	disassemble, clean and grease steel hinge bolts
ball thrust bearing	replace bearing with new one if damaged (broken rings, defective cover or broken/lost balls)
door closers	check function: the door has to close from any position (the latch has to catch) adjustment: as per door closer mounting instructions
handle fittings	check function: the handle has to be horizontal when resting due to the lock's spring force (check fastening)
lock (motive wing)	latch functioning: has to catch 5 mm in the striking plate in the stationary wing (latch spring force 2.5 N – 4.0 N) bar functioning: has to close out 2-turn
snapping rebate driving bar (stationary wing)	check function: has to catch at least 5 mm into the cross component of the frame and the handle of the reversing drive has to always be vertical due to spring force (slightly grease the head of the bar in its guide)
locking bar	has to catch 5 mm in the frame recess
closing cascade control	check function: the spring force has to make the positioning arm go to the set position when opening the door leaf while the active leaf has to exactly encounter the positioning arm with its back square and stay there when closing. The passive leaf has to catch the positioning arm with its back square when closing and release the active leaf so that it can also close by itself. Both leaves have to be locked now. adjusting: Slightly grease the foot of the controller and replace the unit if the spring is weak. Refer to the door closer service instructions if the closing cascade control is built in.
foaming construction material	check whether the strips are still undamaged (replace if damaged)

22) Service and Safety Test

Note: Only original parts should be used to replace damaged or non-functional components (fittings, accessories, rubber seals, or glass, etc.)

Fire barriers should be checked on a regular basis (as per the testing rules of the German federal states).

We recommend only having the manufacturer or an authorised specialised company carrying out repairs and annual tests to guarantee fire protection.

If equipping fire barriers with locking devices, they have to be installed according to the manufacturer's specific instructions. A general technical approval for locking devices is required. DIBt guidelines apply.

Officially accepting locking mechanisms:

The operator has to ensure that locking mechanisms are officially accepted after completing assembly, but before putting them into service where they are used. Only the skilled technicians of the system manufacturer, those authorised by the manufacturer or skilled technicians of a testing office specified for it may carry out the official acceptance test.

The operator has to constantly keep the system in operation and checked at least once a month for correct functioning.

Beyond this, the operator should make a test to ensure that all units co-operate correctly without defects and do service work at least once a year. These tests and service work may only be carried out by a skilled technician or someone trained in this technology.

The scope, results and time of the periodic tests should be recorded in the test log and stored on the premises of the operator.

The installation instructions should be given to the operator together with the permit.

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