

Walls

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Walls

Regulations / Wall types

General information

Regulations

The installation of Schörghuber special doors depends on the door function and has to follow the particular installation manual

Especially for Fire- and Smoke-Protection-Doors the regulations of the approval certificate and the test certificate have to be followed.

Regardless of the technical possibilities and options of the approval certificate the configuration of the walls / bearings has to follow the needs of the static requirements (in consideration of the door weight and the type of the fastening) on site.

Solid walls

- Masonry acc. to DIN 1053, part 1
Minimum width 115 mm
Pressure resistance 12
Standard mortar of the mortar group II
- Reinforced concrete acc. to DIN 1045, part 1
Minimum width 100 mm
Material strength class at least B 15

Lightweight partition wall systems (steel and wooden stud walls)

- DIN 4102, part 4, section 4.10, table 48 and 49 (issue 3 '94)
- Lightweight partition wall systems acc. to the general construction supervision test certificate (ABP) of the manufacturer, thickness ≥ 95 mm
- Firewall systems acc. to the general construction supervision test certificate (ABP) of the manufacturer, for example Fermacell-, Knauf-, Promat-, Lafarge-, Rigips-Systeme

Gasblock concrete wall

- Gasblock concrete or shaped brick acc. to DIN 4165, material strength class 4
Minimum width 115 mm*
- Gasblock concrete boards
Minimum width 115 mm*
Material strength class at least G 4 respectively GP 4

Solid gypsum wall

- Solid gypsum wall acc. to DIN 18163, part 1
Minimum width 80 mm

Fixed glazing

➔ Index 9, fixed glazings

Special connecting walls T 30

- Bearing made of masonry acc. to DIN 1053 $\geq F 90A$
Minimum dimensions 240 x 300 mm, acc. to DIN 4102, part 4, table 41
- Bearing made of reinforced concrete acc. to DIN 18806, part 1, $\geq F 90A$
Minimum dimensions 180 x 180 mm, acc. to DIN 4102, part 4, table 31
- Covered structural steel element $\geq F 60A$
Minimum dimensions 50 x 50 x 4 mm, acc. to DIN 4102, part 4, table 95
- Covered wooden structural element $\geq F 60B$
Minimum dimensions 120 x 120 mm, acc. to DIN 4102, part 4, table 80 to 84

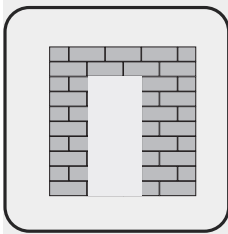
Special connecting walls T 90

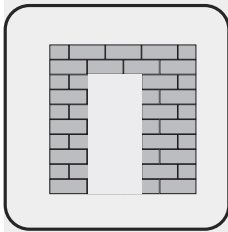
- Bearing made of masonry acc. to DIN 1053 $\geq F 90A$
Minimum dimensions 240 x 300 mm, acc. to DIN 4102, part 4, table 41
- Bearing made of reinforced concrete acc. to DIN 18806, part 1, $\geq F 90A$
Minimum dimensions 180 x 180 mm, acc. to DIN 4102, part 4, table 31
- Covered structural steel element $\geq F 120A$
Minimum dimensions 50 x 50 x 4 mm, acc. to DIN 4102, part 4, table 95

Special connecting walls F 30, F 90

➔ Index 9, fixed glazings

* up to 175 mm max. door weight 100 kg





Walls

Steel frames

Overview T 30, T 90 and RS

Special wooden doors

	Wall anchor fastening	Weld anchor fastening	Screw fastening	Propeller anchor fastening	Cap anchor fastening	Face screw fastening	Trapezoid anchor fastening	Adapter fastening	Slide anchor fastening	Installation in hallways	Projecting installation > 35 ≤ 100mm
Masonry ≥ 115 mm acc. to DIN 1053	①	①	①	②			①	①		①	①
Reinforced concrete ≥ 100 mm acc. to DIN 1045/1045	①	①	①	②			①	①		①	①
Gasblock concrete wall ¹⁾ gasblock concrete ≥ 115 m	①	①	①	②			①	①		①	②
Lightweight partition wall systems with steel studs ≥ 95 mm ≥ F 60A acc. to DIN 4102 or ABP		②	②	②	②	②	②	②		②	②
Lightweight partition wall systems with steel studs ≥ 95 mm ≥ F 60B acc. to DIN 4102 or ABP AB		②	②	②			②	②		②	②
Lightweight partition wall and firewall systems with steel studs ≥ 95 mm ≥ F 90A acc. to AB		①	①	②	①	②	①	①		①	②
Covered structural steel element ≥ F 60A acc. to DIN 4102 or ABP		②	②	②			②	②			
Covered structural steel element ≥ F 120A acc. to DIN 4102 or ABP		①	①	②			①	①			
Covered wooden structural element ≥ F 60 acc. to DIN 4102		②	②				②	②			②
Solid gypsum wall acc. to DIN 18163									②		
F 30 Glazing Z-19.14-180 respectively RS Glazing Type 25 V, PA 73 mm											
F 90 Glazing Type 90 V, PA 110 mm Z-19.14-1521											

① T 30, T 90, RS ¹⁾ with additional wall bracket

② T 30, RS

③ T 90

Door set configurations (with/without top panel/fanlight, etc.) are subject to the frame and its installation ➔ index 5

Walls

Wooden frames

Overview T 30, T 90 and RS

	Wooden wrap-around frame		Wooden block frame			Solid wooden frame					Solid wooden block frame		
	Screw fastening	Screw fastening	Screw anchor fastening ≤ 25 mm	Screw anchor fastening ≤ 35 mm	Projecting installation > 35 ≤ 100 mm	Screw fastening	Screw anchor fastening ≤ 35 mm	Wall anchor fastening ≤ 25 mm	Installation in front of wall opening	Projecting installation > 35 ≤ 100 mm	Screw fastening	Projecting installation > 25 ≤ 100 mm	Projecting installation > 35 ≤ 100 mm
Masonry ≥ 115 mm acc. to DIN 1053	①	①	③	②	②	②	②	②	②	②	②		②
Reinforced concrete ≥ 100 mm acc. to DIN 1045	①	①	③	②	②	②	②	②	②	②	②		②
Gasblock concrete wall ¹⁾ ≥ 115 mm acc. to DIN 4165	①	①	③	②	②	②	②		②	②	②		②
Lightweight partition wall systems with steel studs ≥ 95 mm ≥ F 60A acc. to DIN 4102 or ABP	②	②		②	②	②	②		②	②	②	②	
Lightweight partition wall systems with wooden studs ≥ 95 mm ≥ F 60B acc. to DIN 4102 or ABP	②	②		②	②	②	②		②	②	②	②	
Lightweight partition and firewall systems with steel studs ≥ 95 mm ≥ F 90A acc. to ABP	①	①		②	②	②	②		②	②	②	②	
Covered structural steel element ≥ F 60A acc. to DIN 4102 or ABP	②	②		②	②	②	②		②	②	②		②
Covered structural steel element ≥ F 120A acc. to DIN 4102 or ABP	①	①		②	②	②	②		②	②	②		②
Solid gypsum wall acc. to DIN 18163	②	②				②							
Covered wooden structural element ≥ F 60B acc. to DIN 4102	②	②		②	②	②	②		②	②	②	②	
F 30 Glazing Z-19.14-180 respectively RS Glazing Type 25 V, PA 73 mm						②							
F 90 Glazing Type 90 V, PA 110 mm Z-19.14-1521						③							

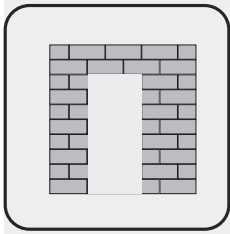
① T 30, T 90, RS

¹⁾ with additional wall bracket

② T 30, RS

③ T 90

Door set configurations (with/without top panel/fanlight, etc.) are subject to the frame and its installation ➔ index 5



Walls

Solid wall

Installation

4.3

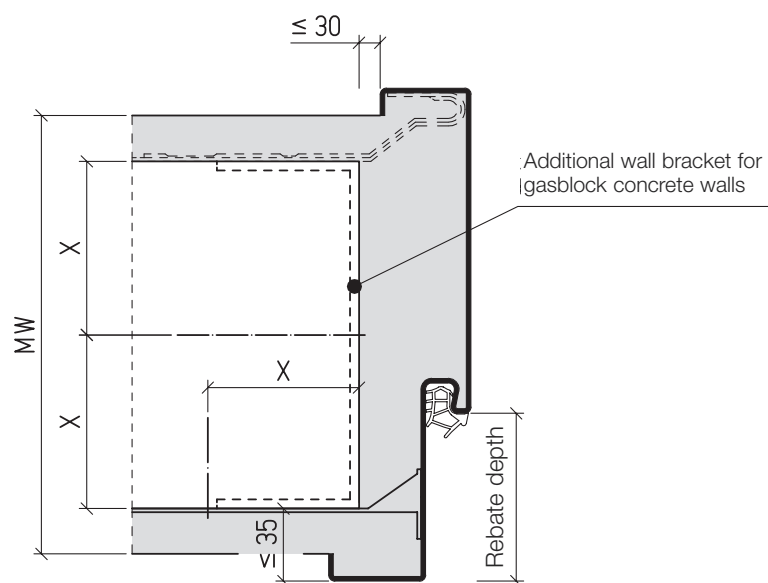
Frame fastening – steel frames

There is a variety of possibilities of how to fasten steel frames in solid walls. In general a nail/dowel anchor is used to fasten the frame in solid walls. As installation support four clamping anchors are enclosed with every frame.

Also allowed is the use of wall anchors, which have to be grouted in existing wall openings.

Additional fastening methods are for example weld anchor, propeller anchor or screw fastening. The cavities between wall and steel frame have to be filled completely with mortar in order to guarantee a positive tie to the wall.

Standard fastening – steel frames



2-leaf door sets with steel frame are reinforced at the lintel with additional propeller anchors at three spots.

Special wooden doors

Walls

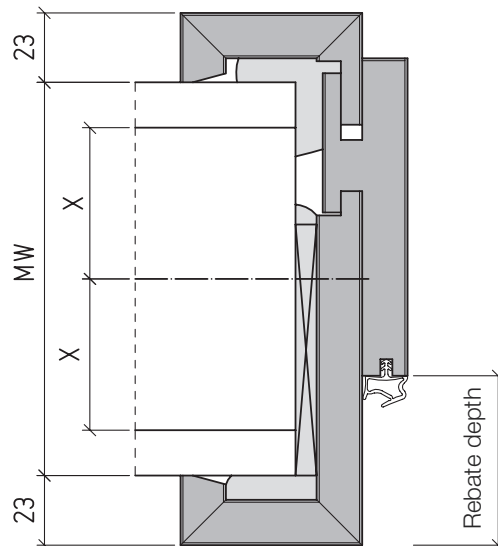
Solid wall

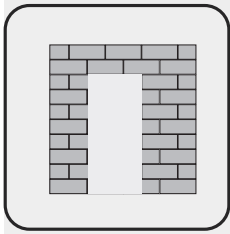
Installation

Frame fastening – wooden frames

In general wooden frames are mounted in standard installation with screw fastening. Solid wooden frames can also be delivered with wall anchor in order to be grouted in existing wall openings. The dowels and screws, necessary for the standard installation, need to be provided by the customer. Depending on the door function the wooden frames are delivered with the necessary pilot holes.

Besides the mechanical fastening, the remaining cavities between frame and wall need to be filled completely. For Schörghuber door sets the cavities between wooden wrap-around and wooden block frames and the wall can be stuffed with mineral wool (material class A) or filled completely with 2-K-PU-foam (except T 90). The cavities of solid wooden frames need to be stuffed with mineral wool material class A (melting point $>1000^{\circ}\text{C}$) and the joint has to be sealed with a permanent elastic material (e.g. silicone). Under certain, exactly defined conditions the frame cavities of solid wooden frames can, depending on their function, be filled with 2-K-PU-foam.





Walls

4.3

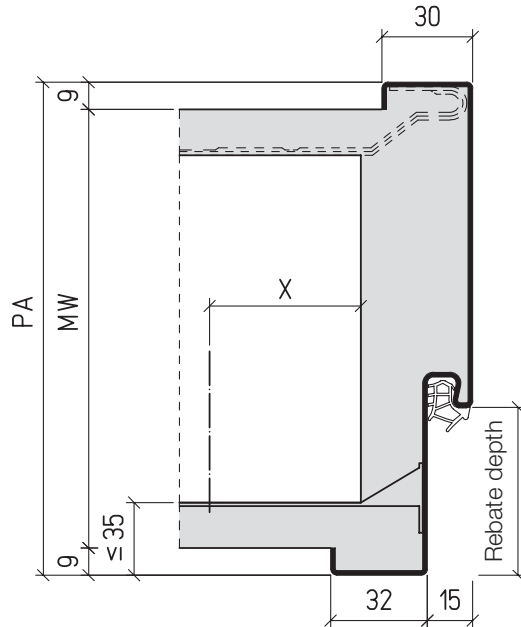
Solid wall

Installation

Special wooden doors

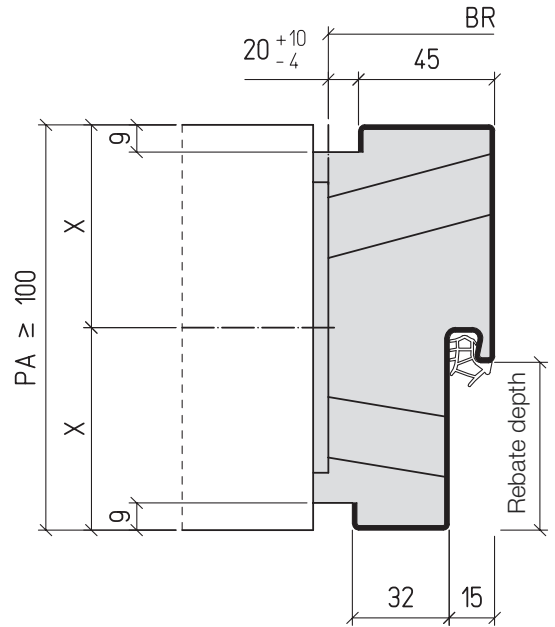
Nail/dowel anchor fastening

Steel wrap-around frame
Concrete, masonry, gasblock concrete¹⁾



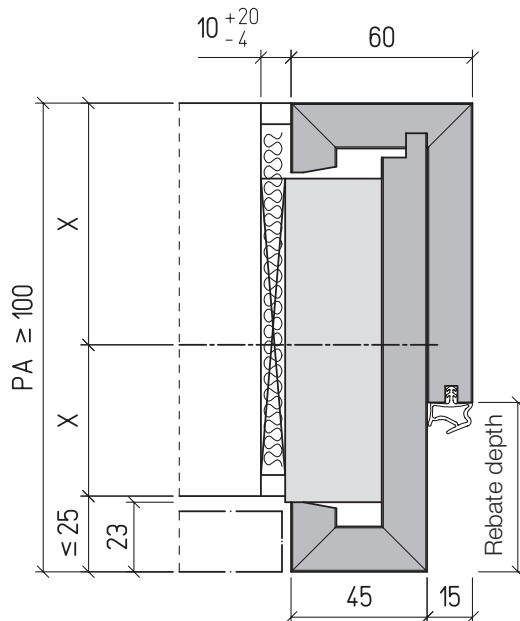
Weld anchor fastening

Steel block frame
Concrete, masonry, gasblock concrete¹⁾



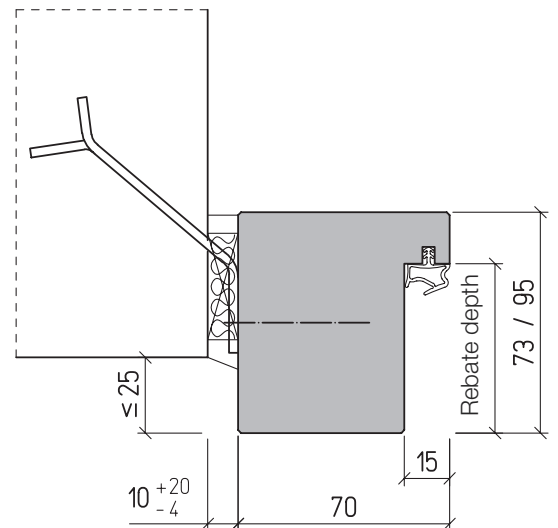
Screw fastening

Wooden block frame
Concrete, masonry, gasblock concrete¹⁾



Wall anchor fastening

Solid wooden frame
Concrete, masonry



X-Measure

Concrete, Masonry	$\geq 50,0$ mm
Gasblock concrete T 30, T 90	$\geq 87,5$ mm
Gasblock concrete T 30, RS	$\geq 57,5$ mm
	up to 100 kg door weight
Gasblock concrete RS	$\geq 75,0$ mm

¹⁾ T 30, T 90 and RS
with additional wall bracket

Walls

Gasblock concrete wall

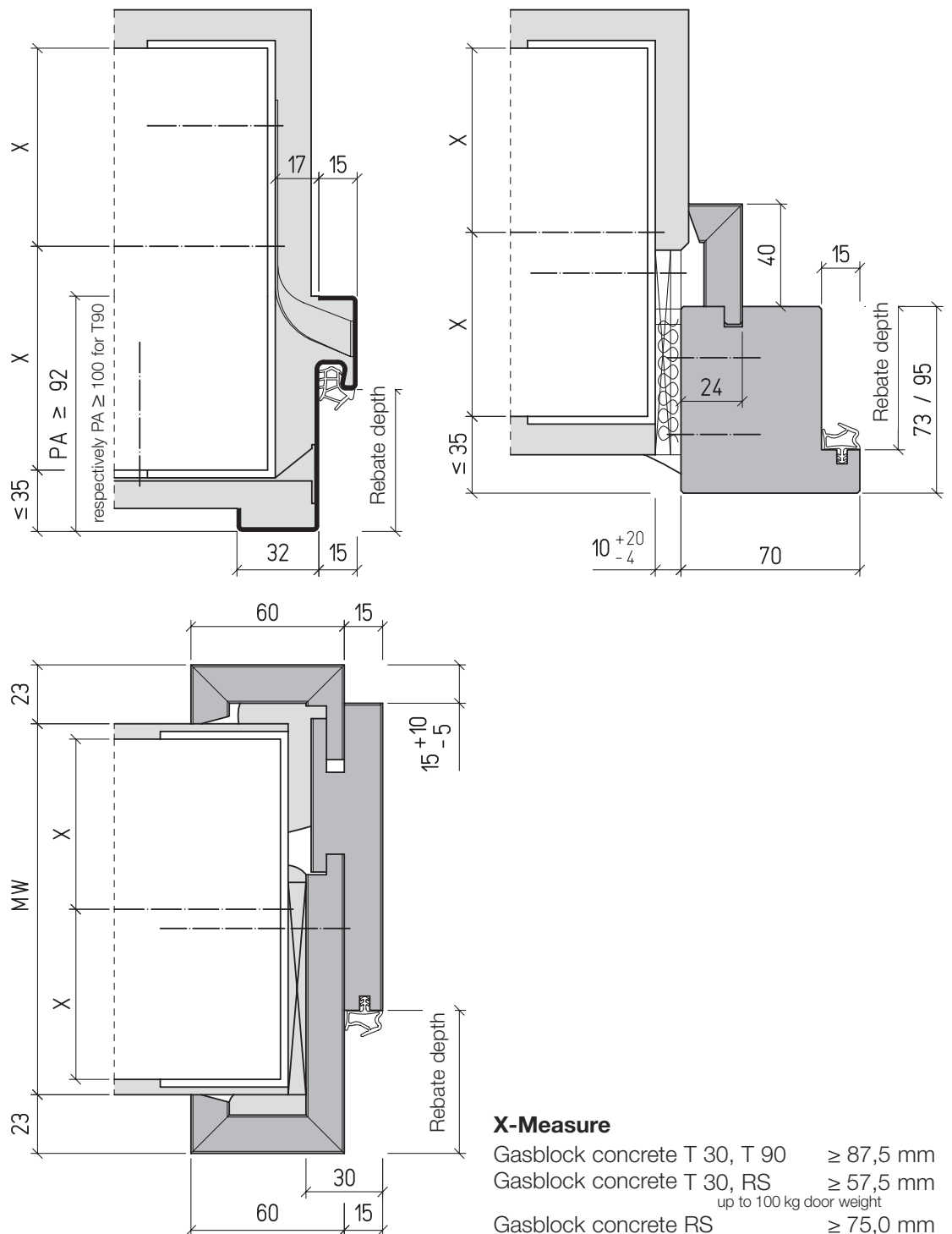
Installation

Frame fastening

A wall is considered a gasblock concrete wall, if it consists of cellular concrete blocks or shaped bricks according to DIN 4165 respectively cellular concrete boards, at least material strength class G 4 respectively GP 4.

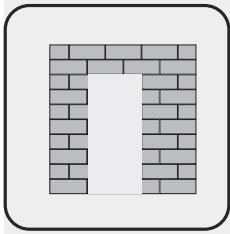
Schörghuber special doors can also be installed in gasblock concrete walls. Regarding the door function, the installation of Fire-Protection-Doors (T 30 and T 90) in at least 175 mm thick walls is approved. For T 30/RS and a door weight of up to 100 kg a wall thickness of 115 mm or more is approved.

All frames are prepared as for solid walls and screwed onto an additionally wall bracket, dowelled to the wall jamb. During the installation of the wall bracket, the X-Measure has to be regarded.



Special wooden doors





Walls

4.5

Gypsum plasterboard wall

Installation in steel stud walls

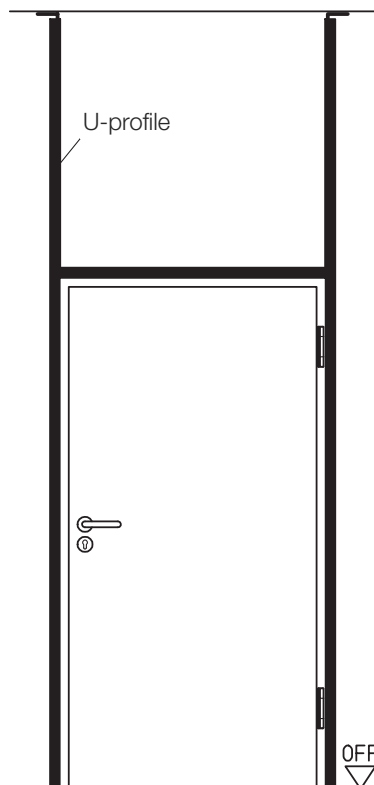
Frame fastening – steel frames

Steel frames in gypsum plasterboard walls are fastened with cap anchors. The steel frames are mounted by screwing the cap anchors to a 2 mm thick steel post (u-profile), which reaches from the slab to the unfinished floor or with a hollow steel profile, according to the static requirements on site. The face cavities behind the backbends need to be filled with joint filler if the door set is rated fire and/or smoke protective. The remaining cavities between frame and wall need to be stuffed completely with mineral wool (material class A). In order to meet sound insulation requirements the frame cavities need to be stuffed completely with mineral wool (material class A). The joints between wall and frame need to be sealed with a permanent elastic material (e.g. silicone)

Frame fastening – wooden frames

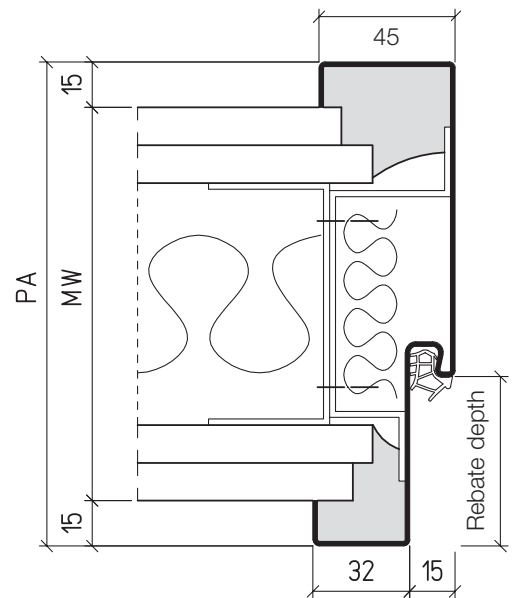
Wooden frames are mounted using the screw fastening method. A covering of the wall jamb with gypsum plasterboards is not necessary for wooden wrap-around frames (except T 90) and wooden block frames with quirk. The cavities between the wooden wrap-around frames and the wall can be stuffed with mineral wool (material class A) or filled completely with 2-K-PU-foam (except T 90). Wooden block and solid wooden frames need to be stuffed with mineral wool material class A (melting point >1000° C) and sealed with a permanent elastic material (e.g. silicone). Under certain, exactly defined, conditions the frame cavities of wooden block and solid wooden frames can, depending on their function, be filled with 2-K-PU-foam.

Special wooden doors

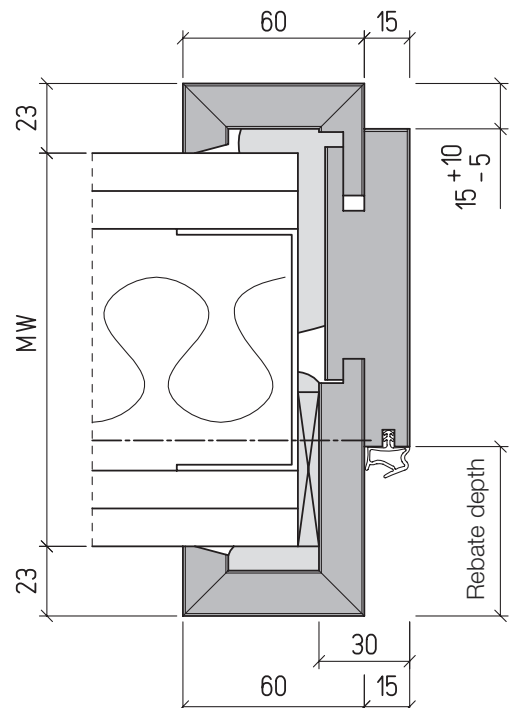


2-leaf door sets have to be screwed to a horizontal u-profile at the lintel with three additional cap anchors.

Standard steel frame



Standard wooden wrap-around frame, 3-parted T 30 and RS

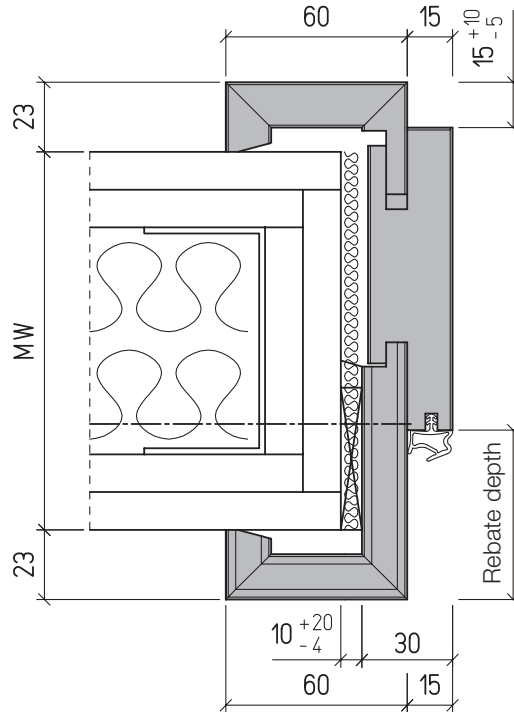


Walls

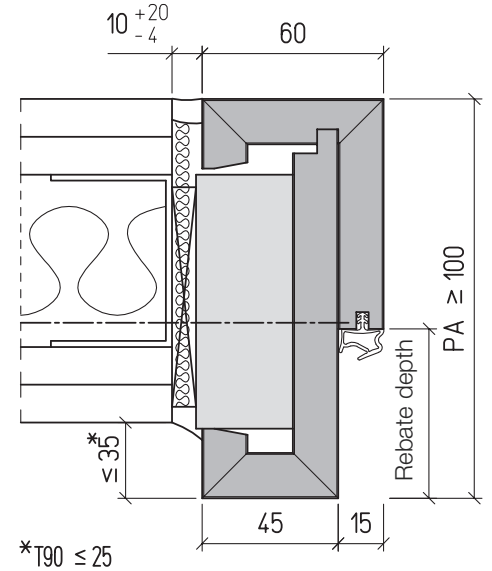
Gypsum plasterboard wall

Installation in steel stud walls

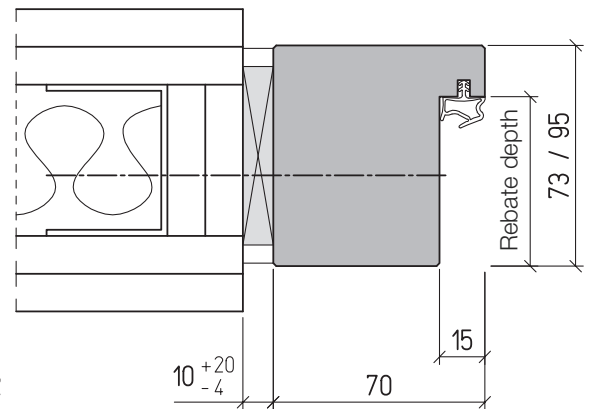
T 90 Wooden wrap-around frame



Wooden block frame

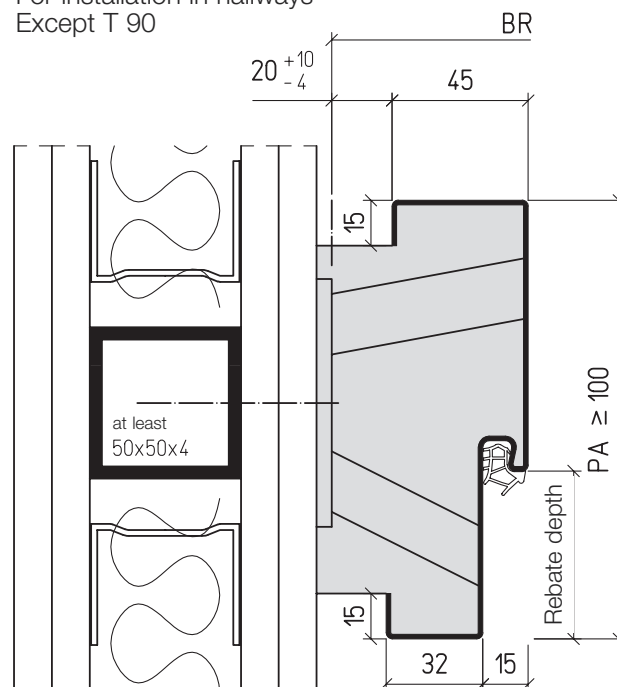


Solid wooden frame with screw fastening



Steel block frame

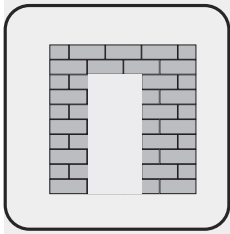
For installation in hallways
Except T 90



For the installation in hallways a hollow steel profile (at least 50 x 50 x 4 mm or according to static requirements) has to be integrated and anchored to the ceiling and floor during the erection of the gypsum plasterboard wall.

Installation T 90 → page 557

Allow enough space for handles and door closer.



Walls

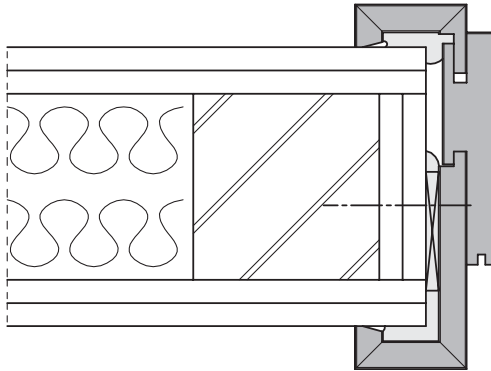
4.5

Gypsum plasterboard wall

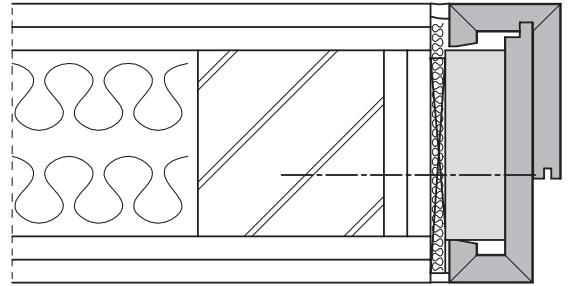
Installation in wooden stud walls

For the installation of Schörghuber Fire- and Smoke-Protection-Doors (except T 90) in wooden stud walls the same premises as for steel stud walls are valid. The construction of the wall needs to follow the guidelines of DIN 4102, part 4, table 49 \geq F 60 B. Important for the installation is the general procedure to cover the wall jamb with the same material as the rest of the wall

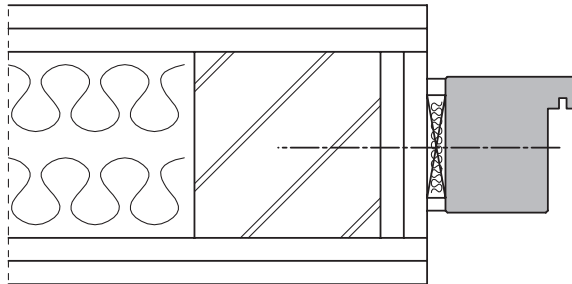
Wooden wrap-around frame



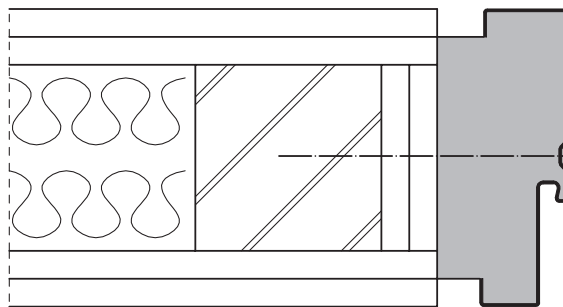
Wooden block frame



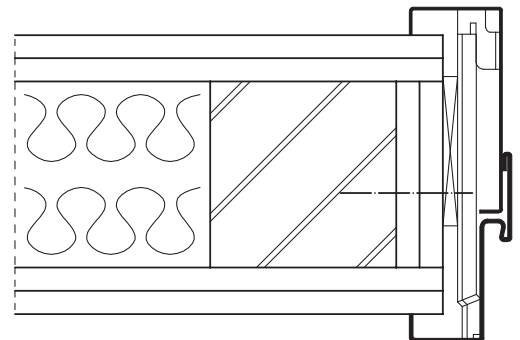
Solid wooden frame



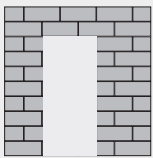
**Steel block frame
with screw fastening**



Trapezoid anchor fastening



Special wooden doors



Lightweight partitioning walls and firewalls Installation T 90

For the installation of 1- and 2-leaf Schörghuber T 90 door sets, types 8 N/24 N, 80-1/80-2 and 91 N/92 N the following lightweight partitioning walls and firewalls F 90 A are approved. Door sets with steel frames are as well allowed as wooden wrap-around and block frames.

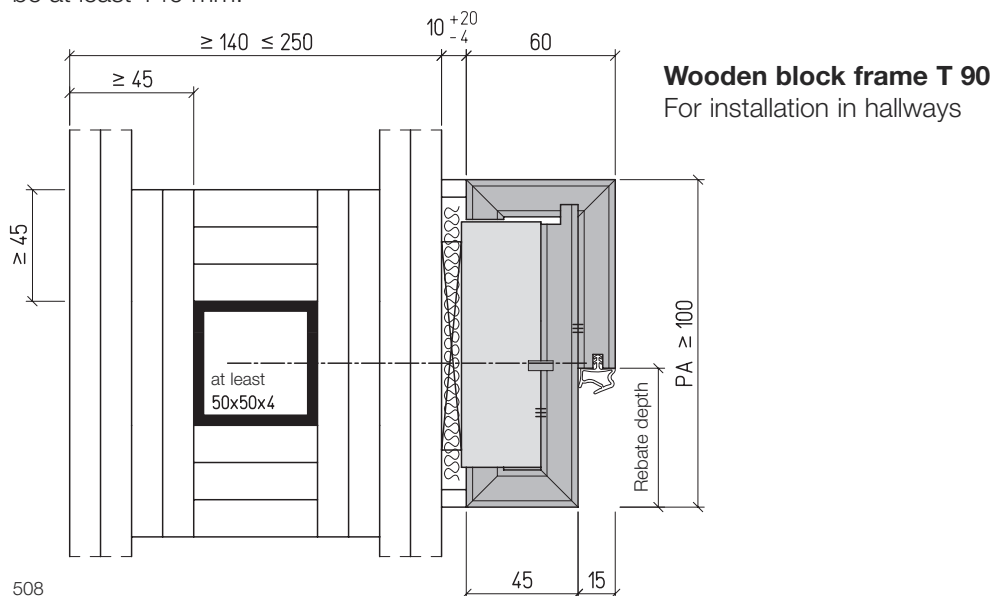
Wall description	Wall thickness	Official approval
Stud walls according to DIN 4102, part 4, table 48, \geq F 90	\geq 100 mm	DIN 4102
Rigips firewall TB	130 mm	IBMB Braunschweig, PZ.-Nr. 3179/1670
Rigips firewall SB	166 mm	IBMB Braunschweig, PZ.-Nr. 3178/1754
Knauf firewall W 131	176 mm	IBMB Braunschweig, PZ.-Nr. 3853/5913
Knauf firewall W 132	161 mm	IBMB Braunschweig, PZ.-Nr. 3689/3124
Fermacell firewall	226 mm	IBMB Braunschweig, PZ.-Nr. 3414/3002
Promat Type 450.81	140 mm	EMPA Dübendorf, PZ.-Nr. 44553/1
Promat Type 450.90	155 mm	IBMB Braunschweig, PZ.-Nr. 851242/1
Promat Type 450.95	142 mm	IBMB Braunschweig, PZ.-Nr. 3914/6193
Knauf K 231/232	200 mm	IBMB Braunschweig, PZ.-Nr. 82 116
Knauf K 233	115 mm	IBMB Braunschweig, PZ.-Nr. 82 002
Knauf K 234	140 mm	IBMB Braunschweig, PZ.-Nr. 3447/4089
Fermacell 1 S 31	95 mm	MPA Nordrhein-Westfalen, PZ.-Nr. 2305 4 3979
Fermacell 1 S 32	\geq 120 mm	MPA Nordrhein-Westfalen, PZ.-Nr. 81470 a
Knauf W 112	\geq 100 mm	IBMB Braunschweig, PZ.-Nr. 3422/7503
Fermacell walls, similar to DIN 4102, part 4, table 48	\geq 95 mm	IBMB Braunschweig, G.-Nr. 94 8880 (table 48 a)

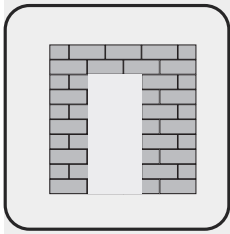
Additional wall types on request

Frame fastening

Steel frames in standard installation are fastened with cap anchors and the cavities have to be filled completely with mortar. Wooden frames are screwed on to the wall and the cavities are stuffed completely with mineral wool (material class A, melting point $>$ 1000°).

An **installation in hallways** is possible with either a steel frame with weld anchor fastening or with a wooden block frame. Therefore a square-cut hollow steel profile, covered with gypsum plaster boards on every side, with the minimum dimensions of 50 x 50 x 4 mm or more, depending on the static requirements needs to be integrated into the wall. The wall thickness must be at least 140 mm.





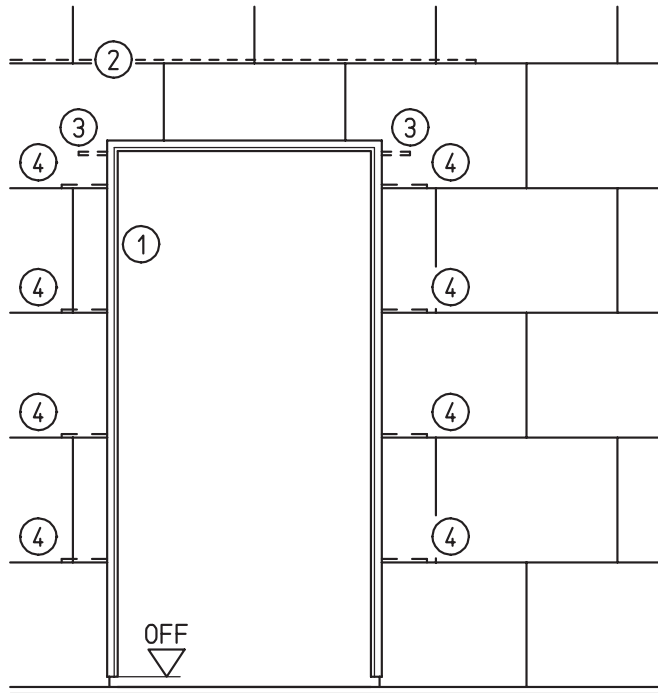
Walls

4.6

Solid gypsum wall

Installation, steel frames

A solid gypsum wall is a wall made of gypsum boards, according to DIN 18163, part 1 (With a thickness of 80, 100 and 120 mm).

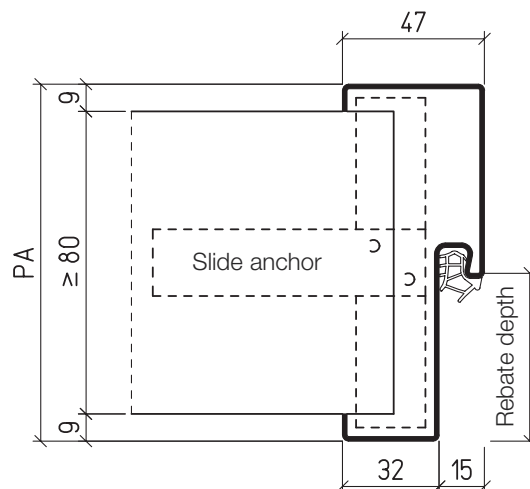


- ① Frame
- ② Groove band, 3 m
- ③ Groove band on both sides, at least 125 mm
- ④ Slide anchor

Frame fastening

The steel frames for this wall type are equipped with slide anchors, which are mounted at the height of the gypsum board joints during the installation. Frame and wall need to be reinforced with groove bands above the lintel. The cavities of the frame need to be filled with joint filler on three sides (lateral and below) and above the lintel with mineral wool (material class A).

Steel wrap-around frames



Walls

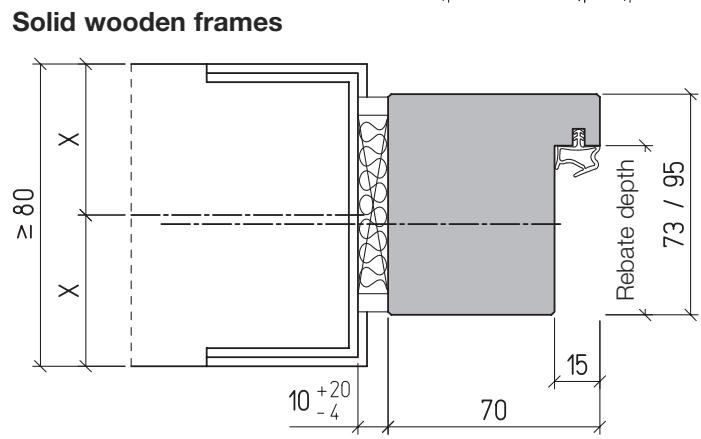
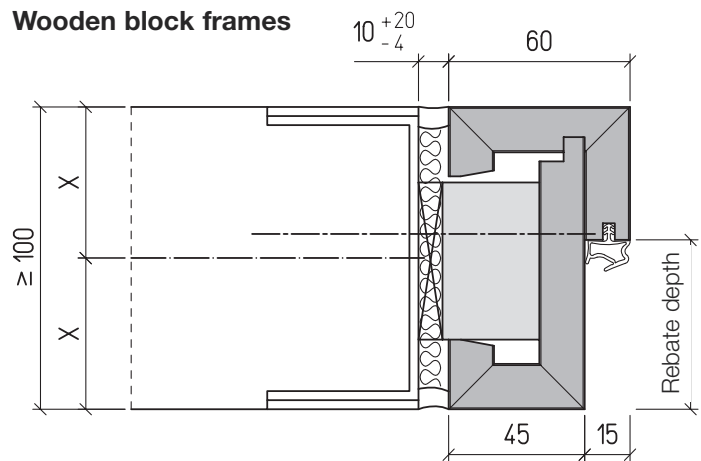
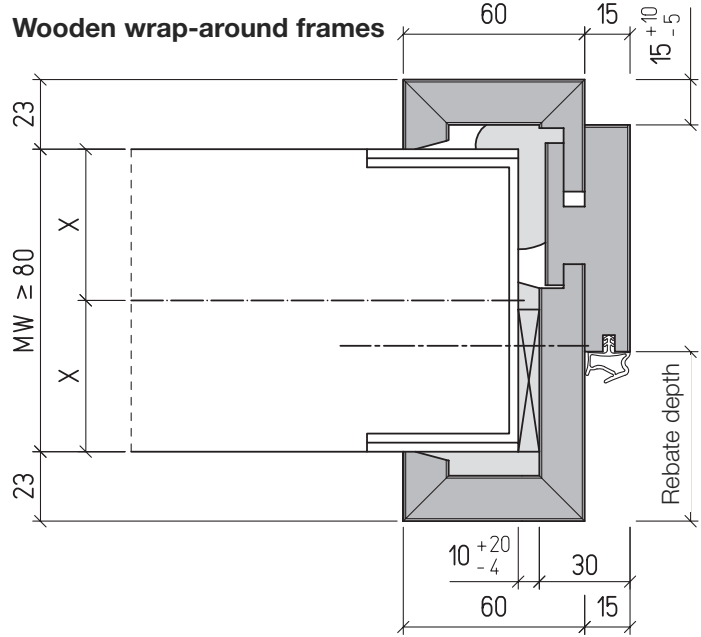
Solid gypsum wall

Installation, wooden frames

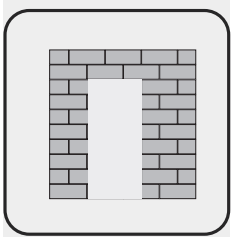
Frame fastening

Wooden frames are mounted onto an additional wall bracket in the jamb and fastened with self-drilling screws (screw fastening).

The cavities between wooden wrap-around and wooden block frames and the wall are filled completely with 2-K-PU-foam and for solid wooden frames the cavities between the frame and the wall are stuffed completely with mineral wool (material class A).

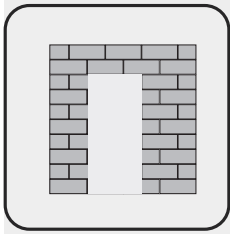


X-Measure
Solid gypsum $\geq 40,0$ mm



Special wooden doors





Walls

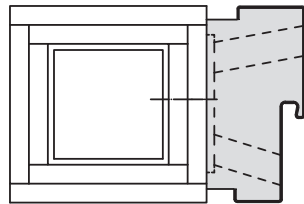
Special connecting walls

Steel and wooden frames

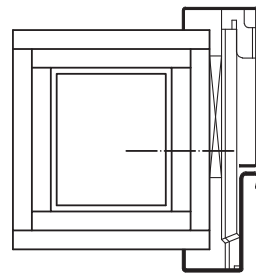
Connection to a covered structural steel element (≥ F 60 A)

Not T 90

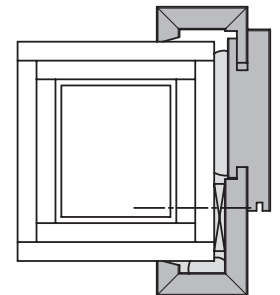
Steel block frame with weld anchor fastening
also with screw fastening or propeller anchor fastening



Trapezoid anchor fastening

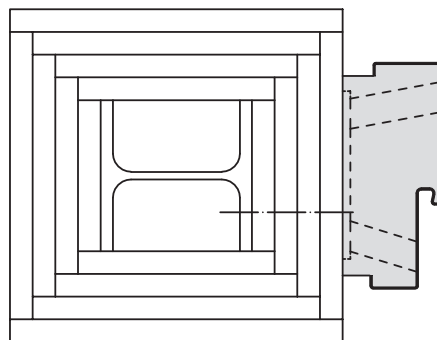


Wooden wrap-around frame

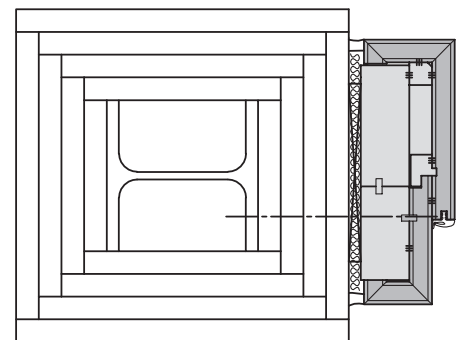


Connection to a covered structural steel element (≥ F 120 A)

T 90 Steel block frame with weld anchor fastening
also with screw anchor fastening



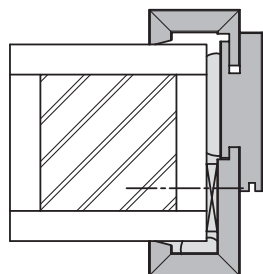
T 90 Wooden block frame



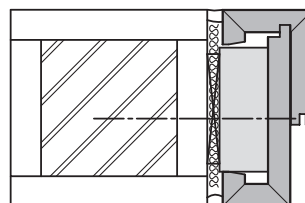
Connection to a wooden structural element (≥ F 60 B)

Not T 90

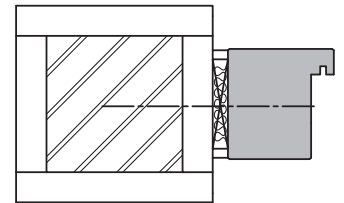
Wooden wrap-around frame



Wooden block frame



Solid wooden frame



Dimensions of the structural elements

Covered structural steel elements according to DIN 4102, part 4, table 89 and 95 at least F 60 A. Wooden beams according to DIN 4102, part 4, table 80 to 83.

The proportion of the structural elements has to be dimensioned according to the static demands on site.

Walls

Installation instructions

Installation of steel frames and wooden frames

Installation and filling of the cavities of steel and wooden frames

Frames	Complete filling of the construction joint for installation in solid walls	Door function															
		T 30	T 60	T 90	RS	SD 32	SD 37	SD 42	SD 45	SD 48	SD 50	WK 2	WK 3	PB	DT	NT	VT
Steel	with mortar	●	●	● ³⁾	●	●	●	●	●	●	●	●	●	● ⁵⁾	●	●	●
	with mineral wool	● ¹⁾			● ¹⁾	● ¹⁾	● ¹⁾	○				● ¹⁾	● ¹⁾	○ ⁵⁾			○ ¹⁾
	with 2-K-PU-foam					○	○					○	○	○ ⁵⁾			○
Wooden wrap-around	with mineral wool	○	●	●	○	○	○	●	●	●	●	○	○				○
	with 2-K-PU-foam	●			●	●	●	○	○			●	●				●
Wooden block solid wooden	with mineral wool	●	● ²⁾	●	● ⁴⁾	○	○	●	●	●	●	○	○				○
	with 2-K-PU-foam	○			●	●	●	○				●	●				●

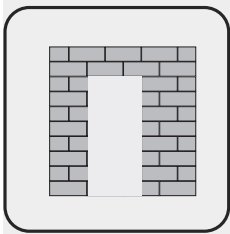
Frames	Complete filling of the construction joint for installation in gypsum plasterboard walls	Door function															
		T 30	T 60	T 90	RS	SD 32	SD 37	SD 42	SD 45	SD 48	SD 50	WK 2	WK 3	PB	DT	NT	VT
Steel	with mortar	○	○	● ³⁾	○	○	○	●	●	●	●	○	○	● ⁵⁾		●	○
	with mineral wool	●			●	●	●					●	●	○ ⁵⁾			●
	with 2-K-PU-foam					○	○					○	○	○ ⁵⁾			○
Wooden wrap-around	with mineral wool	○	○	●	○	○	○	●	●	●	●	○	○				○
	with 2-K-PU-foam	●			●	●	●	○				●	●				●
Wooden block solid wooden	with mineral wool	●	○	● ⁴⁾	●	○	○	●	●	●	●	○	○				○
	with 2-K-PU-foam				●	●	●					●	●				●

Irrespective of the filling of the frame cavities, a mechanical fastening is necessary, depending on the door function and the door weight. Mineral wool of material class A has to be used for Fire- and Smoke-Protection-Doors.

- 1) Standard for frames for installation in existing walls (trapezoid anchor or adapter fastening)
- 2) T 60 only with wooden block frame
- 3) The cavities of T 90 frames for installation in existing walls (trapezoid anchor or adapter fastening) have to be filled with GKF and joint filler
- 4) T 90 only with wooden block frame or folded wooden frame
- 5) Frame with separate lead inlay or with special radiation protection mortar filling

● = Standard
○ = On request

- T 30 = T 30 Fire-Protection
- T 60 = T 60 Fire-Protection
- T 90 = T 90 Fire-Protection
- RS = Smoke-Protection
- SD 32 = Sound-Insulation Rw,P 32 dB
- SD 37 = Sound-Insulation Rw,P 37 dB
- SD 42 = Sound-Insulation Rw,P 42 dB
- SD 45 = Sound-Insulation Rw,P 45 dB
- SD 48 = Sound-Insulation Rw,P 48 dB
- SD 50 = Sound-Insulation Rw,P 50 dB
- WK 2 = Burglar-Protection WK 2
- WK 3 = Burglar-Protection WK 3
- WK 4 = Burglar-Protection WK 4
- PB = Radiation-Protection
- DT = Bullet-Resistant M 3
- NT = Wet Room
- VT = Solid Core



Special wooden doors

