476 Glass-door hardware
483 Glass-door hinges
485 Glass-door knobs
487 Flush pulls for glass doors
488 Glass-door holder
Glass has always been versatile both as a means of design and as a shaping material in architecture. Glass doors carry this role into the sphere of interior design – be it in Public Project buildings, select interior finishes or residential ventures. Glass doors create points of focus in renovation and modernisation jobs; sliding glass doors allow the best use to be made of floor space, furthermore.
Glass has always played a versatile role both as a means of design and as a shaping material in architecture. Glass doors carry this role into the sphere of interior design.

They create more light, link up spaces and are conducive to a great sense of roominess. The innate transparency of glass doors means that great care needs to be taken when designing hardware for them, moreover. It is the lock, handles and hinges, after all, that turn a glass door into a design factor.

Reflecting the formal and material coherence of all FSB handle collections, Series 13 4220 glass-door fittings are also to be available with panic functions D and E and as a fire-safety variant.

Glass-door fittings to match system jambs

We would like to draw attention in this respect to a lockset plate for glass doors (13 4224) developed in cooperation with Ingenhoven Architects that, as well as being extremely compactly dimensioned and operating without handle roses, can be fitted flush with the door jamb (assuming the latter is to the DIN standard), hence scoring highly all-round in visual terms too. Our glass-door fittings are, moreover, ideally complemented by components produced by Gira (ITS 30 installation system for partition systems), Mabeg (Comform wayfinding system) and Inotec (ITS 30 escape-route lighting system) in proportions to match. Please request detailed product information from the respective makers.

Mention should also be made of a delightful design detail in 13 4224 Series glass-door fittings: the dividing line on the grip section of lever handle 1078 is aligned with the edge of the lockset plate.

If so desired, the lockset plates on glass doors and their companion lever handles can also be powder-coated in any colour from the RAL colour chart to match their door jambs.
Fittings in the 13 4220/13 4223 Series can additionally be fitted either with or without lever/lever rose sets, thus providing scope for the use of lever/lever sets with heavy-duty AGL® bearings on heavy and/or large-format glass doors. It is also, moreover, possible to incorporate FSB ASL® bearing in rose hardware for conventional residential construction and for private users.

Completing the FSB collection of fittings for glass doors are hinges to match. All hardware variants covered in this section can be combined with virtually any FSB lever-handle model.

Reworking older buildings: sliding doors!

Rooms in older buildings and, in particular, postwar housing were often of a size to suit the prevailing functional and budgetary requirements. The configurations arrived at are seldom still in step with the times, necessitating modernisation work that can occasionally make great demands of planners and clients.

Using space efficiently with sliding doors

This applies in particular where spaces cannot easily be enlarged for structural or budget reasons or on account of the floor plan. Hence, as well as being an ideal means of serving smaller spaces, sliding doors also act to generally enhance floor-space efficiency: they allow alternative/better use to be made of the area usually traversed by conventional doors. FSB's flush pulls for sliding doors constitute an ideal planning option both where considerations of space are concerned and in the context of DIN EN 18040. They make everyday life easier for wheelchair or walking-frame users as well as minimising the risk of a door being blocked by a person lying prostrate in an emergency.

FSB addressed the problems involved for house building and select interior finishing some considerable time ago. The range we came up with comprises a series of self-standing flush pulls for flush doors in a variety of shapes with either open or enclosed recesses as well as variants with matching locks inclusive of a bolting action for bathroom and WC doors (cf. page 372 ff.). The extensive product range has since been augmented by solutions for glass doors corresponding in shape and material to our flush-door recessed pulls. These flush pulls are straightforwardly fitted into perforations in the glass 70 mm in diameter adopting an astutely conceived screw or clamp fastening technique. They render gluing or other makeshift remedies superfluous and are easy for fabricators and door specialists to handle. These flush pulls are available in versions for glass thicknesses of 8, 10 and 12 mm. You will find them on page 487.
Compact glass-door fitting

13 4224

Compact, rectangular glass-door fitting with heavy-duty glass-door lock (DIN 18251-1, Class 4)

PC 72 mm, 8 mm self-tightening follower in steel with polyamide retaining ring

Latch bolt in a combination of plastic/pressure die casting, sound-damped

Bolt head as bright nickel-plated casting, heavy-duty bearing for lever handle in aluminium/stainless steel, Teflon-coated, to suit FSB lever handles

shown here: DIN RH

The lever handle shown has been randomly selected for illustrative purposes. The fitting can in fact be combined with almost any FSB lever-handle model.

Please advise on handing when ordering
Compact strike box
for double glass doors

13 4224

Compact, rectangular strike box to match glass-door fitting
13 4224 042 (RH) | 13 4224 052 (LH)
shown here: DIN LH

Please advise on handing when ordering

fsb.de/134224
Glass-door hardware

Rectangular glass-door fitting with heavy-duty glass-door lock (DIN 18251-1, analogous to Class 4)

PC 72 mm, 8 mm self-tightening follower in steel with polyamide retaining ring

Latch bolt in a combination of plastic/pressure die casting, sound-damped

13 4220 041 (RH) | 13 4220 051 (LH)
PC keyway, bolt head as bright nickel-plated casting, handle shank in glass-fibre-reinforced polyamide, to suit FSB lever handles

13 4220 042 (RH) | 13 4220 052 (LH)
PC keyway with lifter assembly, bolt head as bright nickel-plated casting, prepared for fitting rose sets with FSB ASL® bearings and FSB heavy-duty hardware with AGL® bearings in a rose variant

shown here: DIN RH

The lever handle shown has been randomly selected for illustrative purposes. The fitting can in fact be combined with almost any FSB lever-handle model.

Please advise on handing when ordering

* not in Bronze
Strike box
for double glass doors

Compact, rectangular strike box to match glass-door fitting
13 4220 041 (RH) | 13 4220 051 (LH)
13 4220 042 (RH) | 13 4220 052 (LH)
shown here: DIN LH

Please advise on handing when ordering
Glass-door hardware
for fire and panic doors

13 4220

- Door thickness 24 mm
  - 13 4220 09001 (RH)
  - 13 4220 09002 (LH)
  - Fire-safety variant
  - 13 4220 09003 (RH)
  - 13 4220 09004 (LH)
  - with APE panic function
  - 13 4220 09005 (RH)
  - 13 4220 09006 (LH)
  - with APD panic function

- Door thickness 10 mm
  - 13 4220 09015 (RH)
  - 13 4220 09016 (LH)
  - Fire-safety variant
  - 13 4220 09007 (RH)
  - 13 4220 09008 (LH)
  - with APD panic function
  - 13 4220 09009 (RH)
  - 13 4220 09010 (LH)
  - with APE panic function

Rectangular glass-door fitting with heavy-duty glass-door lock (DIN 18250, analogous to Class 4)

PC keyway with lifter assembly, bolt head as bright nickel-plated casting, prepared for fitting rose sets and FSB heavy-duty hardware with AGL® bearings in a rose variant shown here: DIN RH

fsb.de/134220

The lever handle shown has been randomly selected for illustrative purposes. The fitting can in fact be combined with almost any FSB lever-handle model.

Please advise on handing when ordering
Glass-door hardware

13 4223

Round-cornered rectangular glass-door fitting with heavy-duty glass-door lock
(DIN 18251-1, analogous to Class 4)

PC 72 mm, 8 mm self-tightening follower in steel with polyamide retaining ring

Latch bolt in a combination of plastic/pressure die casting, sound-damped

13 4223 041 (RH) | 13 4223 051 (LH)
PC keyway, bolt head as bright nickel-plated casting, handle shank in glass-fibre-reinforced polyamide, to suit FSB lever handles

13 4223 042 (RH) | 13 4223 052 (LH)
PC keyway with lifter assembly, bolt head as bright nickel-plated casting, prepared for fitting rose sets with FSB ASL® bearings and FSB heavy-duty hardware with AGL® bearings in a rose variant

shown here: DIN RH

The lever handle shown has been randomly selected for illustrative purposes. The fitting can in fact be combined with almost any FSB lever-handle model.

Please advise on handing when ordering.
Strike box
for double glass doors

13 4223

Round-cornered rectangular strike box to match glass-door hardware
13 4223 041 (RH) | 13 4223 051 (LH)
13 4223 042 (RH) | 13 4223 052 (LH)

shown here: DIN LH

Please advise on handing when ordering
Straight-cornered glass-door hinge

**13 4228**

- **VARIANT** glass-door hinge in matt chromium-plated steel to match FSB finish Aluminium 0105 or Stainless Steel, with receiver to match Series 13 4220 and 13 4224 glass-door hardware

**Technical information page 489ff.**

**VARIANT heavy-duty hinges**

- 13 4228 00101 for glass doors in rebated timber, steel or aluminium frames
- 13 4228 00103 for glass doors in rebated steel frames
- 13 4228 00102
- 13 4228 04104 | 05104 (RH) | 13 4228 05104 (LH) for glass doors in rebated timber-casing and block frames

**Loading capacity:**

- 60 kg, 2 hinges
- 90 kg, 3 hinges

**Glass-door hinges are prepared at the works for glass 8 and 10 mm thick**

For further technical information, see page 493f.
Round-cornered glass-door hinge

13 4227

VARIANT glass-door hinge in matt chromium-plated steel to match FSB finish Aluminium 0105 or Stainless Steel, with receiver
to match Series 13 4223 glass-door hardware

VARIANT heavy-duty hinges
13 4227 00101 for glass doors in rebated timber, steel or aluminium frames
13 4227 00103 for glass doors in rebated steel frames
13 4227 00104 (RH) | 13 4227 05104 (LH) for glass doors in rebated timber-casing and block frames

Loading capacity:
- 60 kg, 2 hinges
- 90 kg, 3 hinges

Glass-door hinges are prepared at the works for glass 8 and 10 mm thick
For further technical information, see page 493f.
Door knobs for glass doors

23 0802
23 0802 00007
Aluminium  X = 77 mm
Stainless Steel  X = 73 mm
Bronze  X = 72 mm
Brass  X = 72 mm
Borehole Ø 13 mm

23 0844
23 0844 00007
Design: Jasper Morrison
Borehole Ø 13 mm

Fixed or “dead” knobs
With glass doors, door knobs are fitted directly as a rule and are not free to rotate. No locks are fitted. Sets are assembled by fitting female knobs to either end of an 8 mm square spindle.

fsb.de/230802
fsb.de/230844
Door knobs for glass doors

Technical information page 489 ff.

<table>
<thead>
<tr>
<th>Model</th>
<th>Material</th>
<th>Diameter</th>
<th>Borehole Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 0828</td>
<td>23 0828 00007</td>
<td>Aluminium Ø = 50 mm</td>
<td>Ø 13 mm</td>
</tr>
<tr>
<td>23 0828</td>
<td>Stainless Steel Ø = 55 mm</td>
<td>Ø = 55 mm</td>
<td>Ø 13 mm</td>
</tr>
<tr>
<td>23 0828</td>
<td>Bronze Ø = 50 mm</td>
<td>Ø 50 mm</td>
<td>Ø 13 mm</td>
</tr>
</tbody>
</table>

Fixed or “dead” knobs

With glass doors, door knobs are fitted directly as a rule and are not free to rotate. No locks are fitted. Sets are assembled by fitting female knobs to either end of an 8 mm square spindle.
Flush pulls for glass doors

Technical information page 489 ff.

#### 13 4256

<table>
<thead>
<tr>
<th>Product Code</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 4256 00100</td>
<td>8 mm</td>
<td>16 mm</td>
</tr>
<tr>
<td>13 4256 00200</td>
<td>10 mm</td>
<td>18 mm</td>
</tr>
<tr>
<td>13 4256 00300</td>
<td>12 mm</td>
<td>20 mm</td>
</tr>
</tbody>
</table>

Glass thickness = B, width overall = A

**open variant**

Pair for either side of the door

Perforation in glass Ø 70 mm

No adhesives required, back-to-back fixing with 3.9 mm-Ø countersunk screws supplied

#### 13 4256

<table>
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<tr>
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<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 4256 00100</td>
<td>8 mm</td>
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<td>13 4256 00200</td>
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</tr>
<tr>
<td>13 4256 00300</td>
<td>12 mm</td>
<td>20 mm</td>
</tr>
</tbody>
</table>

Glass thickness = B, width overall = A

**enclosed variant**

Pair for either side of the door

Perforation in glass Ø 70 mm

No adhesives required, back-to-back fixing with 3.9 mm-Ø countersunk screws supplied
Door holder for glass doors

13 4230

Product Code | B      | A      |
-------------|--------|--------|
13 4230 000  | 8 mm   | 27 mm  |
13 4230 010  | 10 mm  | 29 mm  |
13 4230 012  | 12 mm  | 31 mm  |

Glass thickness = B, width overall = A

fsb.de/134230
### Technical information

#### Fittings for glass doors

**Lever/lever sets to match glass-door locks**

As well as supplying its own glass door fittings, FSB can also – with few exceptions – adapt its entire range of lever handles/doorknobs to glass door fittings commonly marketed by its competitors. This entails minor technical modifications regarding the handle connection and fixing procedure. To rule out any misunderstandings, detailed information concerning the lock (e.g. maker’s name and product code) is required when ordering lever handles and doorknobs for glass door locks.

Please order well in advance to allow for the requisite modifications. We cannot supply these items from stock.

**Door pulls for glass doors**

Door pulls of round or oval cross-section can be used in a great variety of ways either as a means of operating glass doors or as a design feature with protective properties and have fastenings specifically intended for back-to-back or face fixing respectively.

FSB can either make use of existing custom solutions for glass doors or develop bespoke fixing solutions and handle designs. The standard fixing solutions for glass doors and the pull handle models variously available are shown on page 499ff.

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**Compact glass-door fitting 13 4224**

The FSB glass-door fitting 13 4224 terminates flush with any DIN frame, thus visually unifying frame and hardware. Door frames that are not to the DIN specification can, of course, also be used – though the flush-frame effect cannot then be guaranteed. The furniture can also be used in conjunction with partition systems.

The glass door’s transparency is underscored by the tight dimensions of the lock cover, which at 170 × 89 mm is some 10 per cent smaller than in standard glass-door furniture. This paring-down was achieved by developing a special-purpose lock that is every bit as rugged and functional as larger models as well as being suitable for all sizes of glass door.

We have additionally developed a special heavy-duty bearing for heavily frequented doors in the form of a bushing in Teflon-coated stainless steel that wholly envelops the handle neck whilst also dependably withstands the mechanical forces exerted on large-format glass doors.

**Variants:**

- with keyways
- without keyways

---

**Order details for 13 4220 | 13 4223 | 13 4224**

Lever handles do not form part of the scope of delivery with glass-door fittings. When ordering, please furnish the following information specifying that the hardware is for glass doors:

- the lever-handle model wanted
- whether the hardware is to incorporate standard, FSB ASL® or AGL® heavy-duty bearings
- the DIN handing

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**Variants for 13 4220 | 13 4223**

- with keyways
- without keyways

---

**Dimensional details for 13 4220 | 13 4223 | 13 4224**

Dimensional details assuming glass 8 mm thick. Glass-door fittings and their strike boxes are prepared at the works for glass 8 and 10 mm thick (13 4224 to order).
Door measurements pursuant to DIN 18101

Approximate carcass dimensions: 750 × 2000 mm, 875 × 2000 mm, 1000 × 2000 mm
Frame rebate dimensions: 716 × 1983 mm, 841 × 1983 mm, 966 × 1983 mm
Standard glass dimensions: 709 × 1972 mm, 834 × 1972 mm, 959 × 1972 mm

Approximate carcass dimensions: 750 × 2125 mm, 875 × 2125 mm, 1000 × 2125 mm
Frame rebate dimensions: 716 × 2108 mm, 841 × 2108 mm, 966 × 2108 mm
Standard glass dimensions: 709 × 2097 mm, 834 × 2097 mm, 959 × 2097 mm
**Lever-handles specified**

Glass-door fittings in the 13 4220 041/051 and 13 4223 041/051 Series require dedicated lever-handle pairs with a shorter shank on one side.

This will be specified by our in-house Sales staff when you place your order.

C> Standard

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**Bearings**

Glass-door fittings in the 13 4220 042/052 and 13 4223 042/052 Series (rose-set variants) can be supplied with either standard, AGL® or FSB ASL® bearings.

C> AGL®

C> FSB ASL®

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**Profile cylinder**

For aesthetic reasons, profile cylinders 27.5 mm long in both directions are recommended for all glass-door fittings owing to the comparatively small cylinder projections achieved.
Glass-door fittings in the 13 4224 042/052 Series require dedicated lever-handle pairs with non-standard spindle projections. This will be specified by our in-house Sales staff when you place your order.

The bearing elements in the 13 4224 042/052 Series take the form of a rugged bushing in Teflon-coated stainless steel that wholly envelops the handle neck whilst also dependably withstanding the mechanical forces exerted on large-format glass doors.

For aesthetic reasons, profile cylinders 25 or 27.5 mm long in both directions are recommended for all glass-door fittings owing to the comparatively small cylinder projections achieved.

The suitability of 25/25 mm profile cylinders for locking systems needs to be assessed on a case-by-case basis.
 Receivers and their position relative to the hinge reference line also determine the positioning of boreholes in the glass door. This should most particularly be borne in mind in the case of FSB heavy-duty hinges 13 4227 00101 and 13 4228 00101.
VARIANT heavy-duty hinge for glass doors in rebated timber, steel or aluminium frames

- designed for wholly glazed doors with standard vertical borehole layout
- for glass 8 and 10 mm thick
- non-twist threaded pin
- concealed, maintenance-free axial/radial sliding bearing
- can be combined with receiver:
  - for block frames VX 7501 3D
  - for casing frames VX 7502 3D
  - for slimline block frames VX 7505 3D
  - for steel frames VX 7611 3D
  - for aluminium frames VX 7521 3D
- non-handed

VARIANT heavy-duty hinge for glass doors in rebated steel frames

- designed for wholly glazed doors with standard vertical borehole layout
- for glass 8 and 10 mm thick
- non-twist threaded pin
- concealed, maintenance-free axial/radial sliding bearing
- can be combined with receiver
  - VX 7608/120 3D
- non-handed

VARIANT heavy-duty hinge for glass doors in rebated steel frames

- designed for wholly glazed doors with standard vertical borehole layout
- for glass 8 and 10 mm thick
- non-twist threaded pin
- non-handed

VARIANT heavy-duty hinge for glass doors in rebated timber-casing and block frames

- designed for wholly glazed doors with standard vertical borehole layout
- for glass 8 and 10 mm thick
- for receiver Series V 3600, V 3610, V 3630, V 3650, V 3690 and clamping blocks V 3604 and V 3607
- DIN handing needs to be specified

For further information on hinges, receivers, frame fastening elements etc., please consult the latest SIMONSWERK Manual.