



Pull handles

7a

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Materials, Fixing Options, Safety Clearance

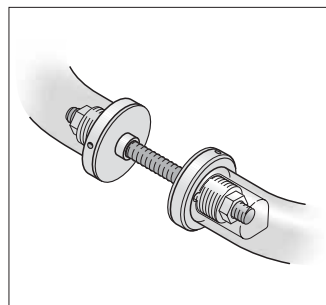
Over the past decade, FSB has added a fully-fledged alternative to its traditional tubular pull-handle range with a comprehensive collection of oval designs. Both sets of designs can be fixed in a wide variety of ways. The traditional range of push/pull pad handles and profiles with brackets has also been further developed.

Materials

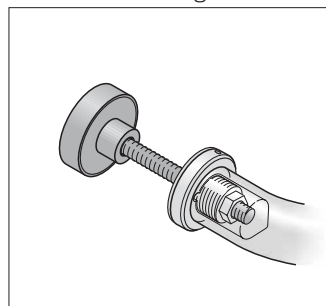
In principle, FSB supplies its entire pull-handle range in either aluminium, stainless steel or brass, with stainless steel being particularly recommended for heavy-duty applications. Aluminium surfaces can easily get blemished in such circumstances, though this 'ageing process' in no way impairs the functioning of the handle. Owing to their tendency to corrode, brass pulls are only offered with a waxed finish. It takes several years before a natural brown protective patina forms on brass handles.

Fixing Scenarios

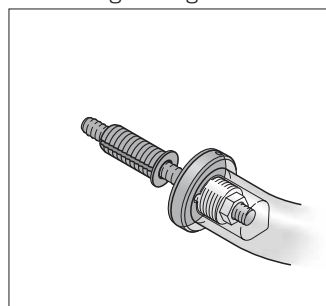
Pulls can be either face or through fixed to doors made of the most diverse of materials. In the case of through-fixing, either a pair of pulls or a single handle can be fitted. FSB has accorded these three fixing options - both-sides through fixing, one-side through fixing - clear identifying symbols that can be found on all relevant product pages. (Examples show fixing for tubular pulls).



back to back fixing



bolt through-fixing

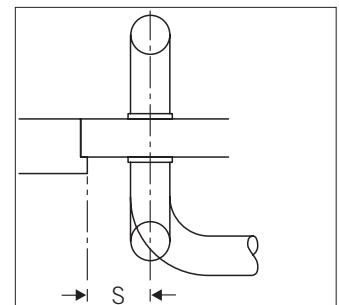


secret single side fixing with expansion plug

As regards the issue of face fixing versus one-side through-fixing, FSB wishes to point out that, on account of the dowel-fastening technique deployed by FSB, face fixing is both aesthetically pleasing and sufficiently durable as a rule. This needs to be qualified, however, in the case of heavy-duty applications, (i.e. in schools, office blocks and other public institutions): here, we emphatically recommend one-side through-fixing, which ensures that the furniture remains fit for use even after years of heavy treatment, since the forces involved are absorbed on both sides of the door.

Safety Clearance (S)

When fitting a handle to the closing face of a door, a safety clearance needs to be allowed for between the handle and the edge of the door and the jamb. The assembly scenario is made more readily comprehensible by the following sketch. Ideally, safety clearances as recommended by FSB should be adhered to. Nevertheless, conditions at the point of assembly are crucial. It is particularly advisable to make use of the shackle-type bracket purpose-designed by FSB for especially narrow stiles, which sets the handle sufficiently far away from the edge.



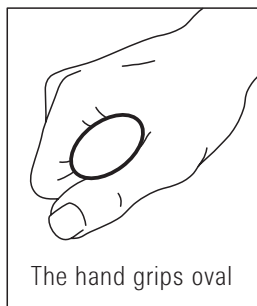
Pull handles Oval series

We kick this section off with a range of oval designs FSB has developed over the past decade as an alternative to traditional pulls of circular cross-section. Adopting the formula 'diagonal + oval = ideal gripping' identified by FSB reduces the amount of effort required to take hold of and operate the handles on entrance doors. The oval styling offers the market a new gripping quality for eye and hand which FSB has had copyright protected. The experience FSB has amassed now allows it to supply almost all its traditional styles both as circular pulls and as optimised-grip oval variants.

A new flattened oval pull series airily and elegantly underpins architectural solutions.

The proven HT modular system for express assembly is likewise now available in oval. Up to a length of 1,500 mm, this kit of brackets and tubes can be put together on site to produce a technically sound and very good looking piece of hardware with little fuss. Where lengths in excess of 1,500 mm are envisaged, FSB recommends factory-welded fittings for reasons of structural strength.

A rich source of new design variants is the HS modular system with oval or circular stainless steel grips and grey anodised brackets in aluminium, each with a choice of two handle cross-sections.



Pull handles Round series

The proven FSB range of tubular pulls has profited from the burst of innovation in the sphere of oval designs. New shapes and brackets have been added.

This is particularly true of the lightweight pull series in 20 mm tubular material, for which a new design-conscious bracket fixture has been developed that FSB has likewise had utility and design patented. Hence, this lightweight pull-handle series in its familiar 'straight, rectangular, triangular and crescent' styles can continue its victorious campaign against the traditional 'heavyweights'.

Other handle systems

The HT Round and HT Oval kits launched by FSB and enthusiastically received by the market have precursors that are still going strong:

R+S

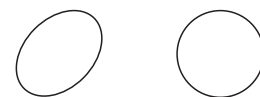
Back when the first grey Manual was published in the early 90s, we introduced a system of tubes and brackets for speedy erection on building sites that was well taken up and has thus been retained:

- aluminium brackets
- tubes in either aluminium or stainless steel

TGS

Towards the end of the 90s, the 4th edition of our grey Manual featured a rapid-assembly range in stainless steel that was likewise well received:

- either circular with a 25 mm diameter or of 25 mm square cross-section
- accessory brackets for visible fixing
- offer of dispatch within 24 hours of order. We've always been up to the challenge so far.



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● New products 06107

Aluminium Bronze
 AluGrey Brass
 Stainless steel Alu + Colour



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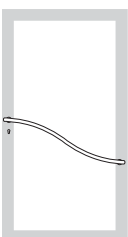
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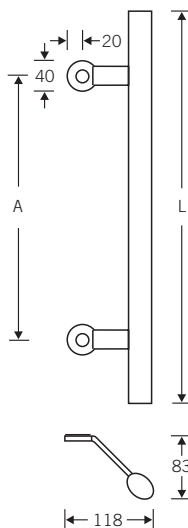


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Pull handles
Oval series

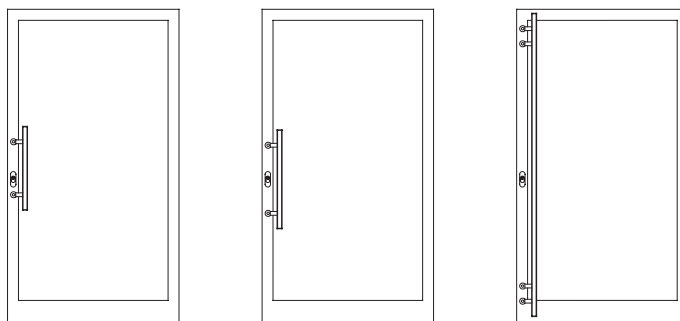


6616

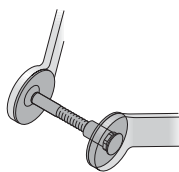
■ Stainless steel

In door pull series FSB 6616 (Ø 40 x 28 mm), fixing is by means of laterally offset strap-type brackets. The fastening and gripping sides are separated from one another and hence protect hands. The innovative combination of fixing strap and pull lends the design an airy, vivacious appearance.

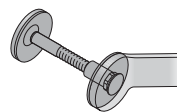
Item nos.	Ø	A	L
6616 35	40 x 28	350	550
6616 45	40 x 28	450	650
6616 99	40 x 28	451–2100	



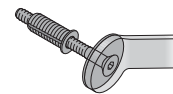
For detailed information on fixing, please turn to page 418.



back to back fixing

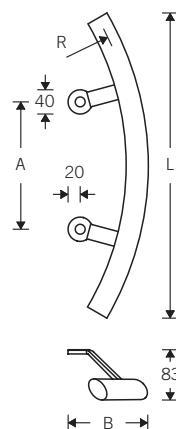


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series

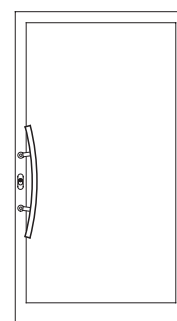
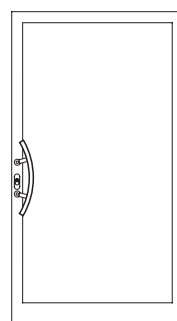


6675

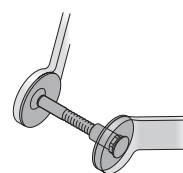
■ Stainless steel

Door pull FSB 6675 takes the offset strap-type brackets from the FSB 6616 series and fuses these with the sweep of the crescent-shaped oval pull (Ø 40 x 28 mm). This pull series is only supplied with A Dimensions of 210 mm and 350 mm.

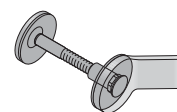
Item nos.	Ø	R	A	B	L
6675 21	40 x 28	485	210	130	504
6675 35	40 x 28	1420	350	130	745



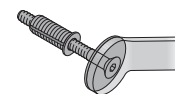
For detailed information on fixing, please turn to page 418.



back to back fixing

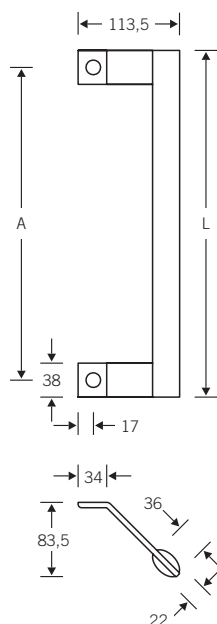


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series



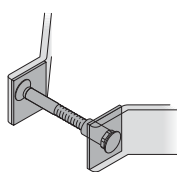
6525

- Stainless steel (Grip)
- Aluminium (Bracket)

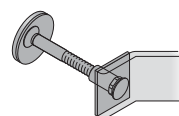
Oval pulls with safe-to-grip strap-type brackets have only hitherto been available in stainless steel. This gap in the range is being closed with publication of the 02103 Manual by means of a design-conscious model in which aluminium oval pulls with A Dimensions of 350 and 450 mm are joined to their fixing straps to great visual effect.

Item nos.	Ø	A	L
6525 35	36 x 22	350	388
6525 45	36 x 22	450	488

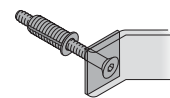
For detailed information on fixing, please turn to page 418.



back to back fixing

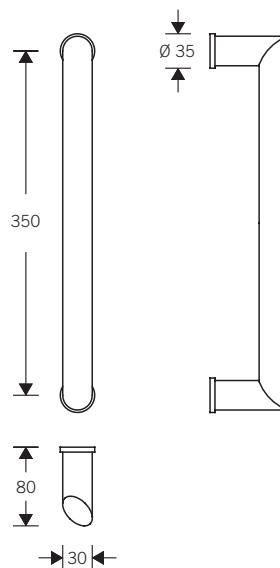


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series



6650

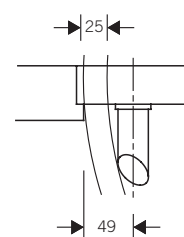
■ Stainless steel

Fixing M8

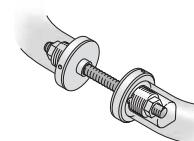
FSB could not resist squeezing all the experience gained in fashioning the 40 x 28 mm oval tube into a smaller diameter. And thus it was that the standard in-line pull FSB 6650 came into being. It features a skewed oval grip 36.5 by 22 mm in diameter affixed to circular brackets.

If so desired, FSB 6650 can also be supplied in other lengths.

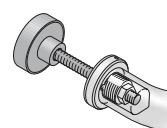
Item nos.	Ø	A	S
6650 38	36 x 22	350	49
6650 99	36 x 22	351–2100	49



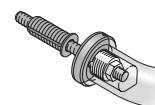
For detailed information on fixing, please turn to page 418.



back to back fixing

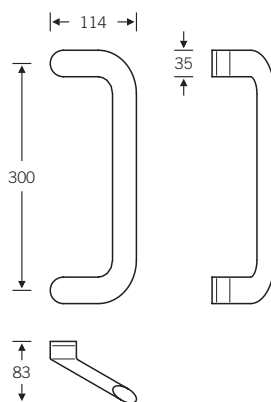
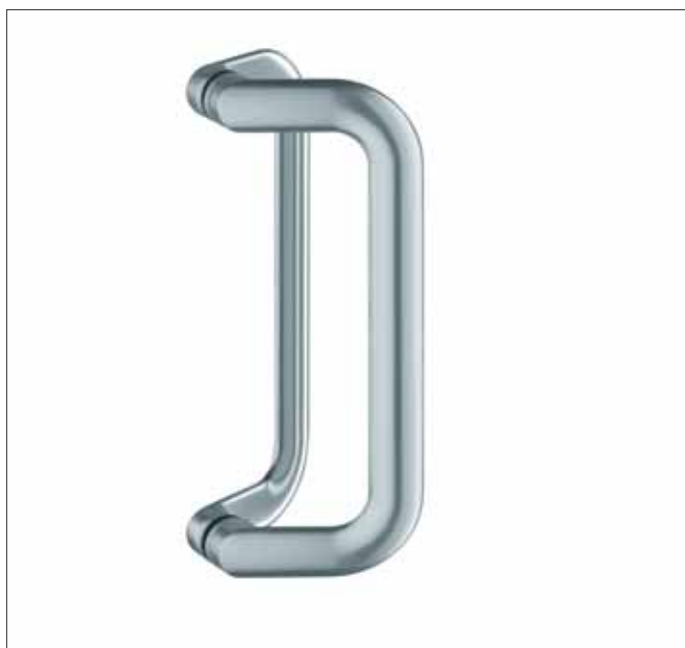


bolt through-fixing



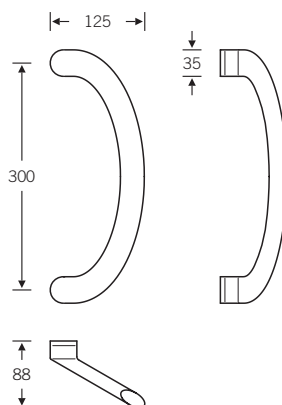
secret single side fixing with expansion plug

Pull handles
Oval series



6533

- Aluminium
- Stainless steel



6534

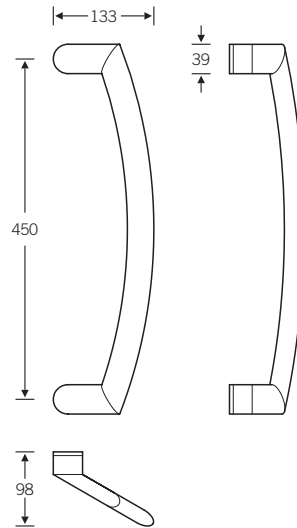
- Aluminium
- Stainless steel

The new flattened oval pull handle series 6533, 6534, 6535 and 6536 see FSB's philosophy of the ovally gripping hand and the diagonal moving arm put to effect in telling manner.

The circular fastening section has been shortened and the grip tilted towards the user by dint of a flattened oval cross-section. The hand therefore enjoys optimum clearance whilst, stylistically, these airy, elegant handles display a decidedly architectural dimension.

Guaranteeing FSB's usual production excellence are the traditional casting technique for aluminium and an innovative internal high-pressure metal forming process for the stainless steel variant.

Pull handles
Oval series

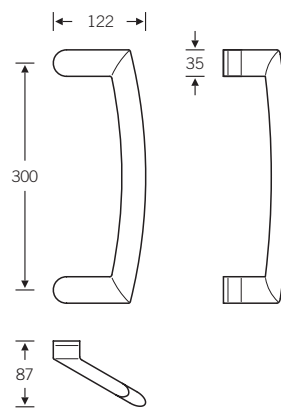


6537

■ Stainless steel

Door pulls 6537 and 6538 are visually related to the 300 mm range of pulls.

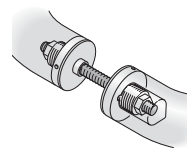
Their 450 mm length allows them to be effortlessly integrated into the closing area, though for technical reasons they are only available in stainless steel.



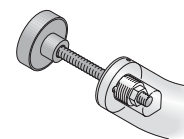
6536

■ Aluminium
■ Stainless steel

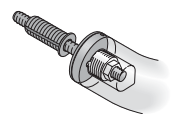
For detailed information on fixing, please turn to page 416.



back to back fixing

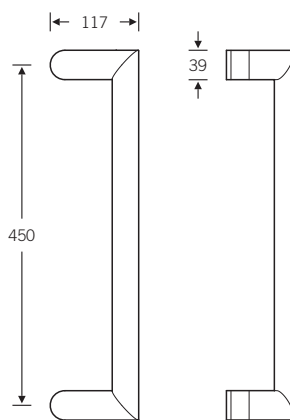


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series

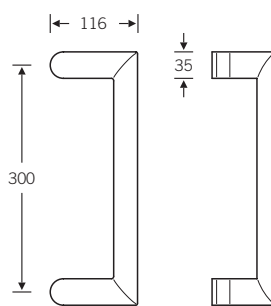
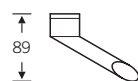


6538

■ Stainless steel

Door pulls 6537 and 6538 are visually related to the 300 mm range of pulls.

Their 450 mm length allows them to be effortlessly integrated into the closing area, though for technical reasons they are only available in stainless steel.

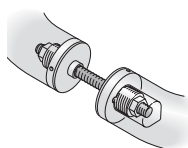


6535

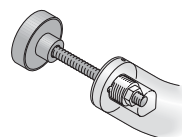
■ Aluminium
■ Stainless steel



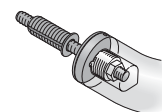
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back to back fixing

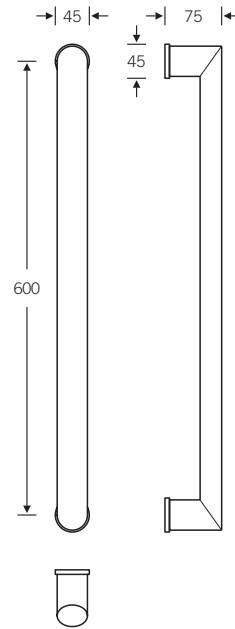


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series

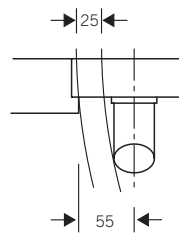


6542

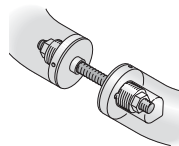
■ Stainless steel

matches FSB lever handle models 1107/1108

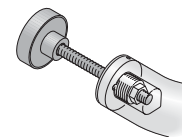
Safety clearance 55 mm



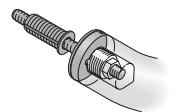
For detailed information on fixing, please turn to page 416.



back to back fixing

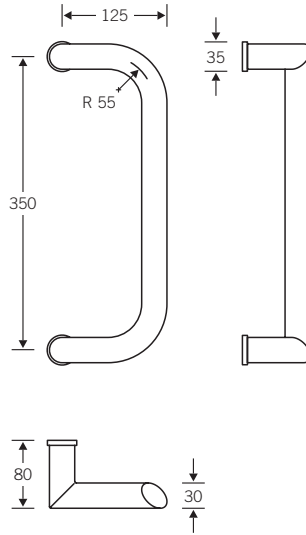


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series



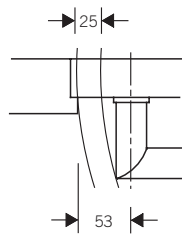
6682

■ Stainless steel

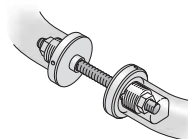
M8 fixing

For the 02103 edition of its Manual, FSB has extended its FSB 6650 series introduced two years ago to embrace U-shaped, circular and triangular variants. In all four cases, the easy-grip oval tube with a diameter of 36 x 22 mm is supported on round fixing brackets.

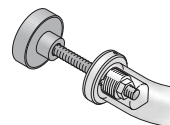
Item nos.	Ø	A	S
6682 38	36 x 22	350	53



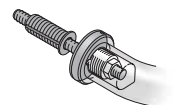
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back to back fixing

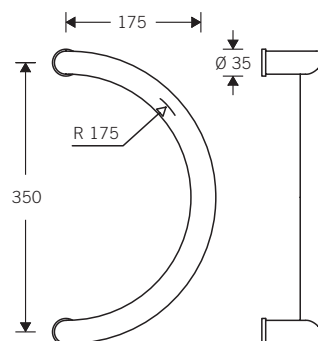


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series

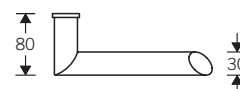


6652

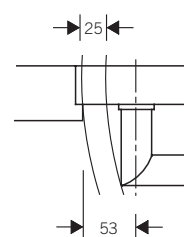
■ Stainless steel

M8 fixing

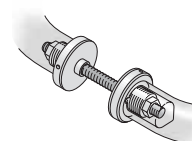
Handle models FSB 6650 (in-line), FSB 6682 (U-shape), FSB 6652 (semicircular) and FSB 6685 (triangular) are living proof that tested designs featuring new oval cross-sections have the edge over their round counterparts both optically and in terms of gripping ergonomics. The hand glides effortlessly around them.



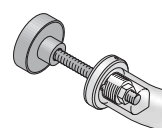
Item nos.	Ø	A	S
6652 38	36 x 22	350	53



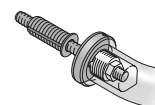
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back to back fixing

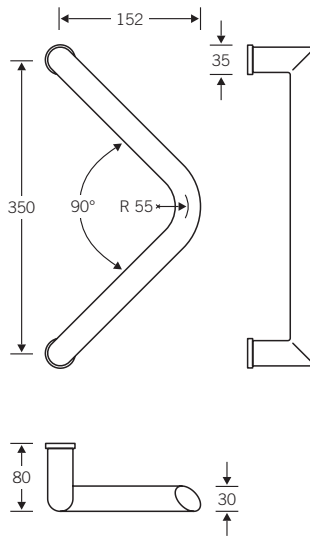


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series



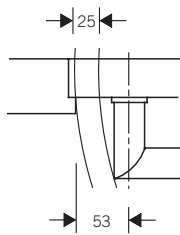
6685

■ Stainless steel

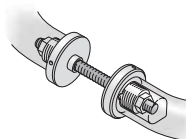
M8 fixing

The triangular tubular pull became a top-seller, echoing as it does the diagonal trussing so commonly to be found on front doors. The new oval-section pull handle 6685 adds ergonomically enhanced gripping qualities to what are already very fine visuals.

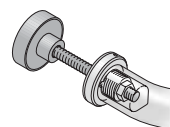
Item nos.	Ø	A	S
6685 38	36 x 22	350	53



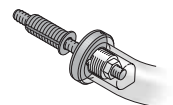
For detailed information on fixing, please turn to page 416.



back to back fixing

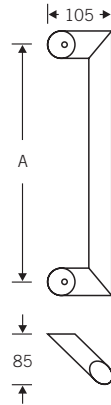


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Oval series

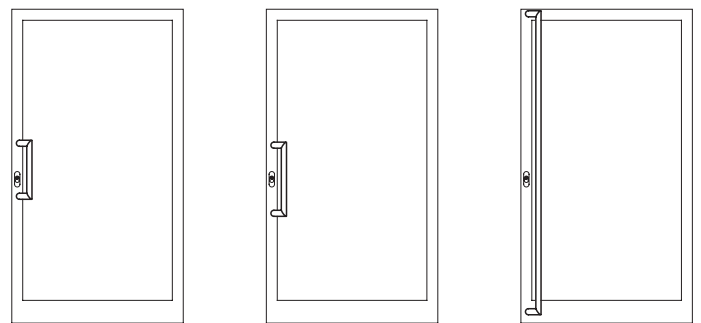
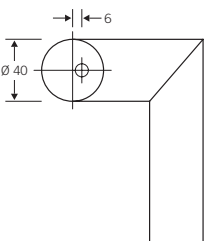


6635

■ Stainless steel

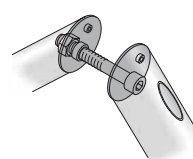
Door pull design FSB 6635 was the first member of the oval family. A hefty oval tube ($\varnothing 40 \times 28$ mm) was required to be ergonomically designed to ensure hands could grip safely and purposefully. This objective was achieved by welding handle and brackets together in a mitre-joint. The upshot was a design in stark contrast to the gentle curves of its tubular counterparts. The market was immediately receptive.

Item nos.	\varnothing	A
6635 38	40 x 28	350
6635 45	40 x 28	450
6635 99	40 x 28	451–2100

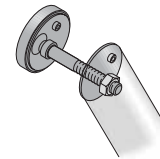


When locating the fixing points, especially on narrow stiles of frame doors, please regard the off-centre location of the threaded holes from the centre of the contact plane of the handle. The measurement's difference is in case of FSB 6635 exactly 6 mm.

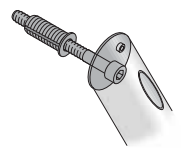
For detailed information on fixing, please turn to page 416.



back to back fixing

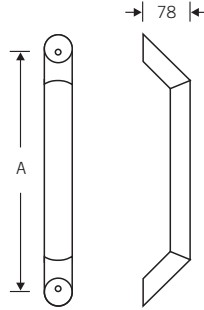


bolt through-fixing



secret single side fixing with expansion plug

Pull handles Oval series

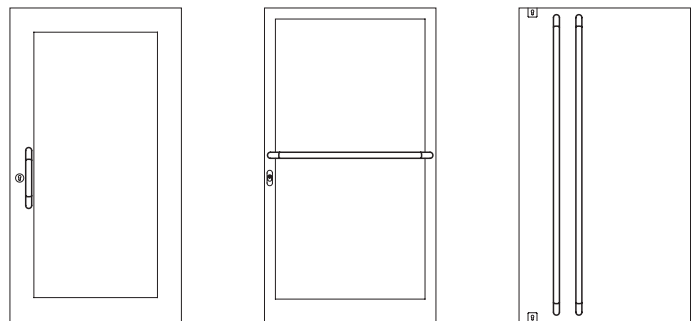
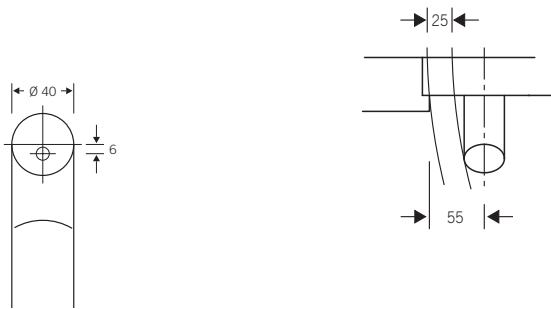


6637

■ Stainless steel

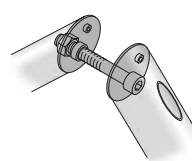
Door pull series FSB 6637 dispenses with the raking of the oval tube (Ø 40 x 28 mm). The pull is aligned with the door front-on whatever its A dimension. Being an in-line pull, attention must always be paid to ensuring sufficient safety clearance from the edge. Extended over the entire door, these pulls add structure to the door panel whilst also protecting it.

Item nos.	Ø	A	S
6637 38	40 x 28	350	55
6637 45	40 x 28	450	55
6637 99	40 x 28	451–2100	55

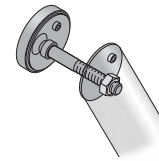


When locating the fixing points, especially on narrow stiles of frame doors, please regard the off-centre location of the threaded holes from the centre of the contact plane of the handle. The measurement's difference is in case of FSB 6637 exactly 6 mm.

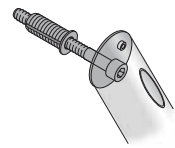
For detailed information on fixing, please turn to page 415.



back to back fixing

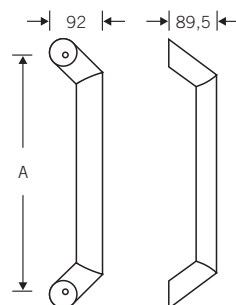


bolt through-fixing



secret single side fixing with expansion plug

Pull handles Oval series

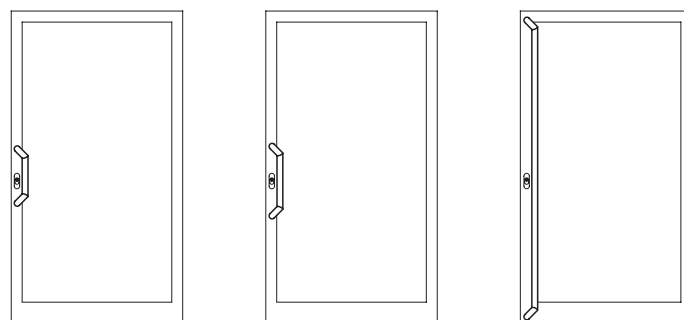
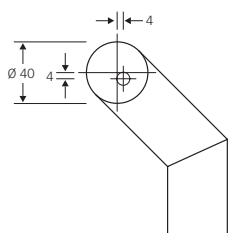


6636

■ Stainless steel

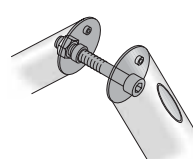
Door pull design FSB 6636 is a variation on the now classic first design FSB 6635. The visual severity of the first model is softened by having the brackets slope towards the grip. The angle between the two is 135°. The new design qualities really come into their own given smaller A dimensions.

Item nos.	Ø	A
6636 38	40 x 28	350
6636 45	40 x 28	450
6636 99	40 x 28	451-2100

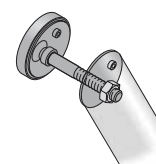


When locating the fixing points, especially on narrow stiles of frame doors, please regard the off-centre location of the threaded holes from the centre of the contact plane of the handle. The measurement's difference is in case of FSB 6636 exactly 4 mm.

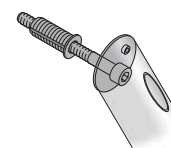
For detailed information on fixing, please turn to page 415.



back to back fixing

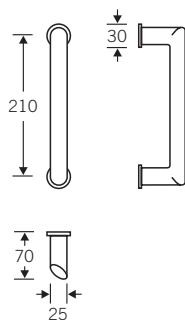


bolt through-fixing



secret single side fixing with expansion plug

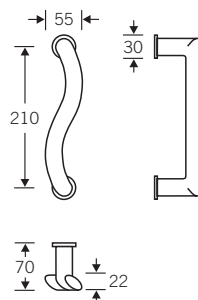
Pull handles
Oval series



6610

- Aluminium natural color
- Stainless steel
- Alu + Colour

Safety clearance 45 mm
Fixing M6



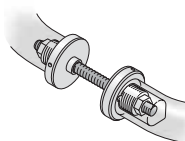
6611

- Aluminium natural color
- Stainless steel
- Alu + Colour

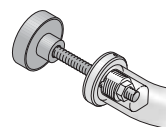
Safety clearance 60 mm
Fixing M6

Illustration r.h., outside view,
handing details, cf. pp. 568ff.

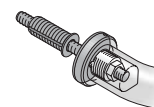
For detailed information on
fixing, please turn to page 417.



back to back
fixing

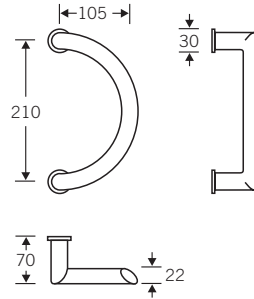


bolt through-fixing



secret single side
fixing with
expansion plug

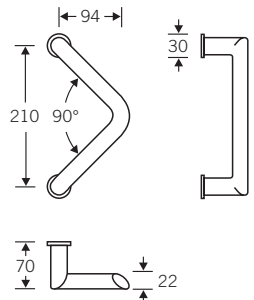
Pull handles
Oval series



6612

- Aluminium natural color
- Stainless steel
- Alu + Colour

Safety clearance 48 mm
Fixing M6

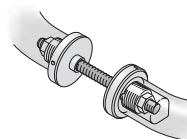


6613

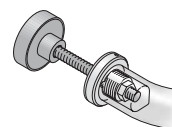
- Aluminium natural color
- Stainless steel
- Alu + Colour

Safety clearance 48 mm
Fixing M6

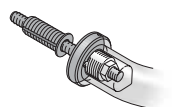
For detailed information on fixing, please turn to page 417.



back to back fixing



bolt through-fixing



secret single side fixing with expansion plug

hs oval modular system

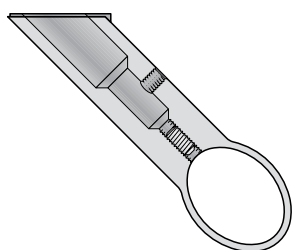


The hs modular system comprising grips and brackets caters in a novel way to individual design aspirations and functional requirements.

The oval grips in stainless steel are supplied in standard lengths of 36.5 x 22 mm and 40 x 28.5 mm as well as in custom lengths as requested.

The matching 45°-crank brackets in aluminium are grey anodised and are securely attached by means of a special-purpose fastening system.

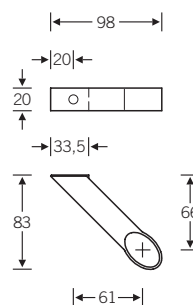
There is scope for variation owing to the differing lengths of grips and the fact that the positioning and number of brackets are freely selectable. The option of providing handle ends with either one or two brackets and positioning central brackets as desired turns every handle into a distinctive feature and an embellishment for main entrance doors.



Once their arrangement and spacing have been established, brackets are firmly secured to the grip by means of recessed fastenings (cf. Fig.).

hs oval modular system

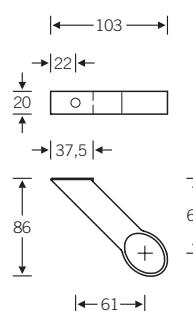
Brackets + Grips



6712

Aluminium
grey anodised

Bracket for grip 6812
Ø 36.5 x 22 mm



6713

Aluminium
grey anodised

Bracket for grip 6813
Ø 40 x 28.5 mm



6812

Stainless steel

Grip
Ø 36.5 x 22 mm

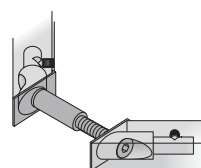
6813

Stainless steel

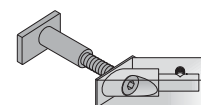
Grip
Ø 40 x 28.5 mm

Item nos.	Grips Ø	length
6812 0450	36.5 x 22 mm	450 mm
0600	36.5 x 22 mm	600 mm
0900	36.5 x 22 mm	900 mm
1800	36.5 x 22 mm	1800 mm
6813 0450	40 x 28.5 mm	450 mm
0600	40 x 28.5 mm	600 mm
0900	40 x 28.5 mm	900 mm
1800	40 x 28.5 mm	1800 mm

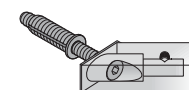
For detailed information on fixing, please turn to page 423.



back to back fixing



bolt through-fixing



secret single side fixing with expansion plug

ht oval modular systems up to 1,500 mm



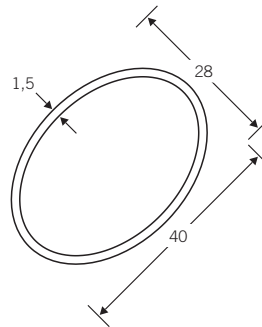
6802

■ Stainless steel

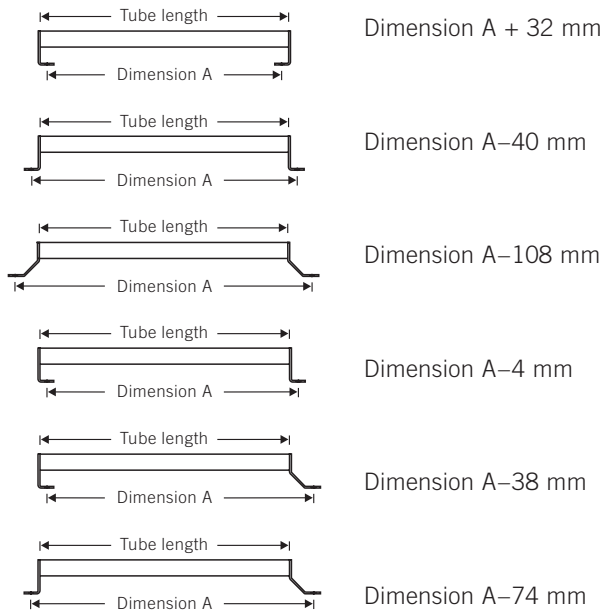
Tube 28 x 40 x 1.5 mm
Stock length 3,000 mm

The ht oval kit enables safety rails, handle systems, hand-rails etc. up to 1,500 mm in length to be cut to size, fabricated and fitted on site with the aid of the appropriate tools.

Where lengths in excess of 1,500 mm are concerned, we would recommend factory welded hardware.



Dimensions:



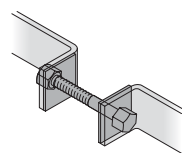
Tube length and A dimension are important for fabrication, fitting and ordering purposes. The A dimension defines the fixing distance from the centre of the borehole for one bracket to the centre of the borehole for the other. Tube length is arrived at by adding or subtracting the differential dimensions given alongside from the A dimension.

FSB recommends reinforcing door pulls from the HT Oval kit that are to be fitted to heavily used doors by means of the accessories available.

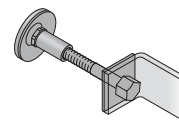
Reference:

When using elements of the HT Oval kit - whether for self-fabrication or as factory-welded parts - attention needs to be paid to structural specifications and conditions locally. This hefty product series is not a substitute for gym bars, neither should it be used as a safety

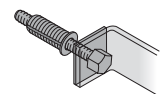
rail at particularly hazardous openings in buildings. If in any doubt, please contact the architect or engineer in charge. For detailed information on fixing, please turn to page 462.



back to back fixing

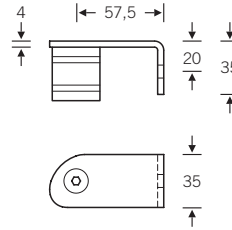


bolt through-fixing



secret single side fixing with expansion plug

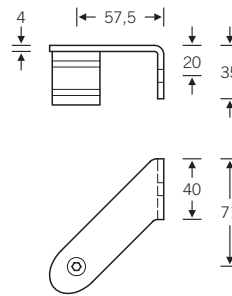
Brackets **ht oval**
modular systems



6735 ..
■ Stainless steel

6735 04 r.h.
6735 05 l.h.

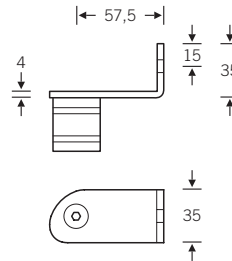
Straight bracket,
angled 90° inwards,
to match oval tube
40 x 28 x 1.5 mm Ø



6736 ..
■ Stainless steel

6736 14 r.h.
6736 15 l.h.

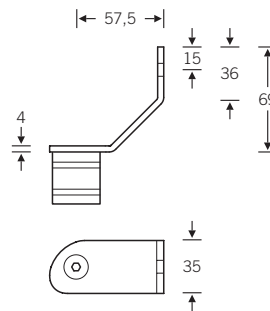
Bracket with 45° cranking,
angled 90° inwards,
to match oval tube
40 x 28 x 1.5 mm Ø



6737 ..
■ Stainless steel

6737 04 r.h.
6737 05 l.h.

Straight bracket,
angled 90° outwards,
to match oval tube
40 x 28 x 1.5 mm Ø



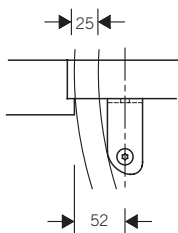
6738 ..
■ Stainless steel

6738 04 r.h.
6738 05 l.h.

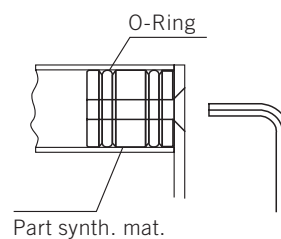
Bracket for swing doors,
to match oval tube
40 x 28 x 1.5 mm Ø

All illustrations r.h

Screw hole Ø 8.5 mm

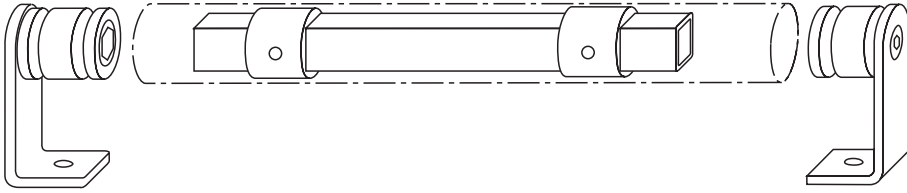


Safety clearance 52 mm

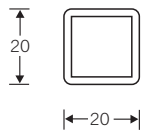
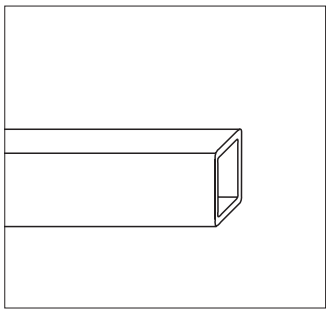


Once the tube has been cut to size (dimensions A + differential measurement), matching brackets are slotted into the tube ends and fastened with screws from the top.

Modular systems ht oval
Accessories



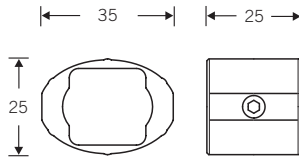
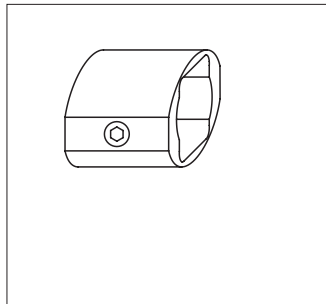
For pull handles from the - modular systems ht oval where robust handling is to be assumed, we would recommend reinforcing them with the accessories as shown on this page.



6801 20

Steel tube hot galvanised

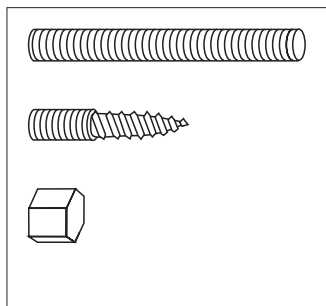
20 x 20 x 2 mm
Stock length 3,000 mm



6739

Synth. mat.

Spacing sleeve with fixing screw



0313 0880 M8 x 80 mm
Steel stud

0316 0840 M8
Steel stud - for timber fixing

0320 0800 M8
Dome nut of stainless steel

For detailed information on fixing, please turn to page 422.

Fixing reference:

Sizing square-section tube: outside length of oval tube minus 100 mm. Then fixing of spacing sleeves with distance 350 mm, afterwards assembling.

ht oval welded
from 1500 to 2100 mm

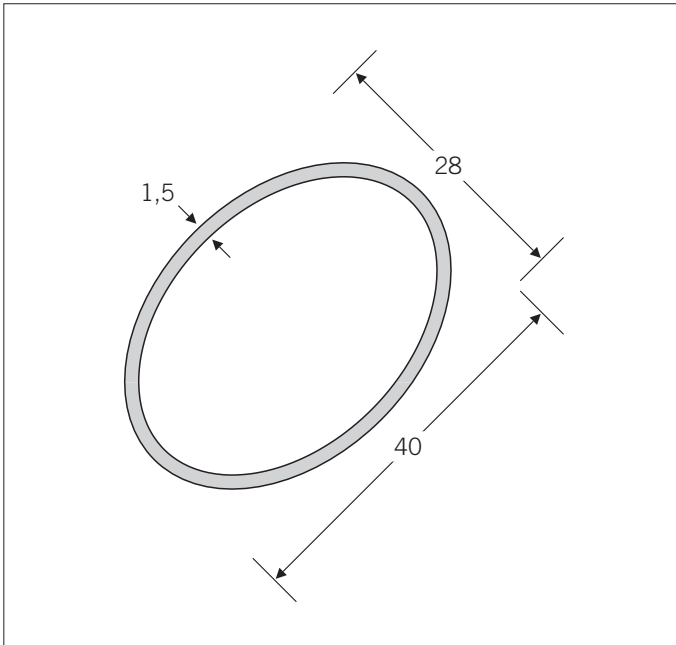


6524

■ Stainless steel

Tube 28 x 40 x 1.5 mm

For reasons of structural strength, we recommend ordering a factory-welded version drawing on the elements of the ht oval kit in cases where the A dimension lies between 1,500 mm and a maximum of 2,100 mm.



45 .. r.h	55 .. l.h	46 .. r.h	56 .. l.h	47 .. r.h	57 .. l.h	48 .. r.h	58 .. l.h
.. 45 r.h	.. 55 l.h	.. 46 r.h	.. 56 l.h	.. 47 r.h	.. 57 l.h	.. 48 r.h	.. 58 l.h

The pulls in the welded series FSB 6524 are produced to order. This involves selecting the combination of brackets desired from the illustration alongside and citing the appropriate code numbers. It is also necessary to state the A dimensions, which defines the fixing distance from the centre of the borehole for one bracket to the centre of the borehole for the other. By adding or subtracting the differential dimensions given on page 408, we calculate the length of the pull at the works prior to welding.

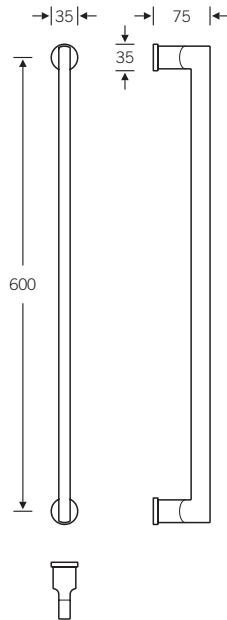
Reference:

When using elements of the HT Oval kit - whether for self-fabrication or as factory-welded parts - attention needs to be paid to structural specifications and conditions locally. This hefty product series is not a substitute for gym bars, neither should it be used as a safety

rail at particularly hazardous openings in buildings. If in any doubt, please contact the architect or engineer in charge.

For detailed information on fixing, please turn to page 422.

Pull handles
Round series

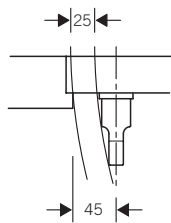


6540

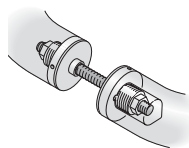
■ Stainless steel

matches FSB lever handle
model 1035

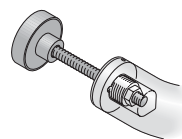
Safety clearance 45 mm



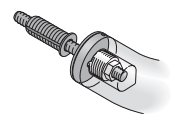
For detailed information on
fixing, please turn to page 416.



back to back
fixing

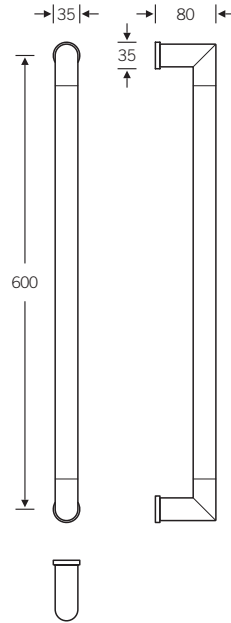


bolt through-fixing



secret single side
fixing with
expansion plug

Pull handles
Round series

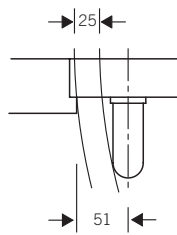


6541

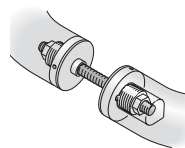
- Stainless steel (grip)
- Aluminium (corners)

matches FSB lever handle
model 1077

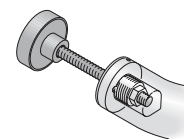
Safety clearance 51 mm



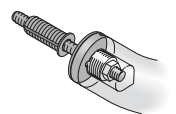
For detailed information on fixing, please turn to page 416.



back to back
fixing

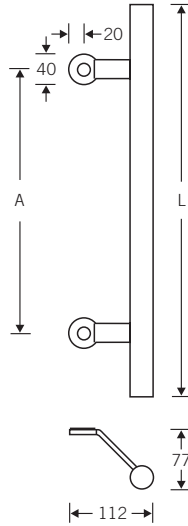


bolt through-fixing



secret single side
fixing with
expansion plug

Pull handles
Round series

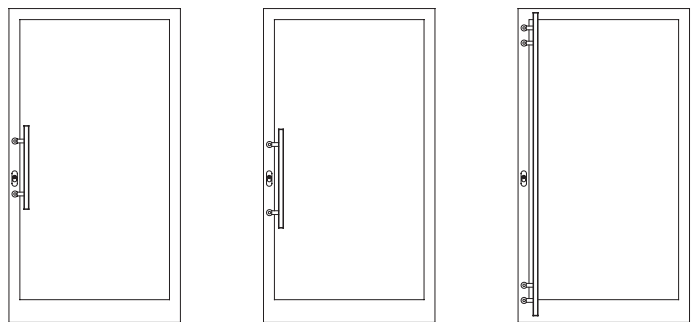


6615

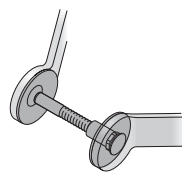
■ Stainless steel

In door pull series FSB 6615 (Ø 30 mm), fixing is by means of laterally offset strap-type brackets. The fastening and gripping sides are separated from one another and hence protect hands. The innovative combination of fixing strap and pull lends the design an airy, vivacious appearance.

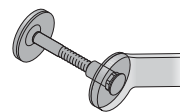
Item nos.	Ø	A	L
6615 35	30	350	550
6615 45	30	450	650
6615 99	30	451-2100	



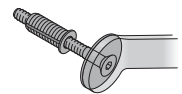
For detailed information on fixing, please turn to page 418.



back to back fixing

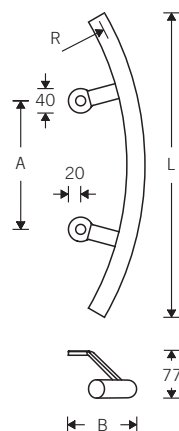


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

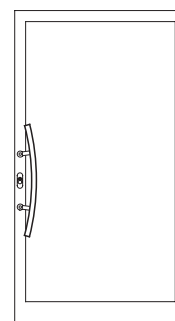
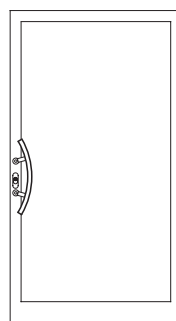


6674

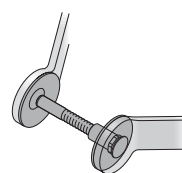
■ Stainless steel

Door pull FSB 6674 takes the offset strap-type brackets from the FSB 6615 series and fuses these with the sweep of the crescent-shaped round pull (Ø 30 mm). This pull series is only supplied with A dimensions of 210 mm and 350 mm.

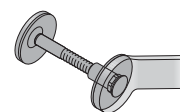
Item nos..	Ø	R	A	B	L
6674 21	30	485	210	126	497
6674 35	30	1420	350	123	742



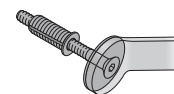
For detailed information on fixing, please turn to page 418.



back to back fixing

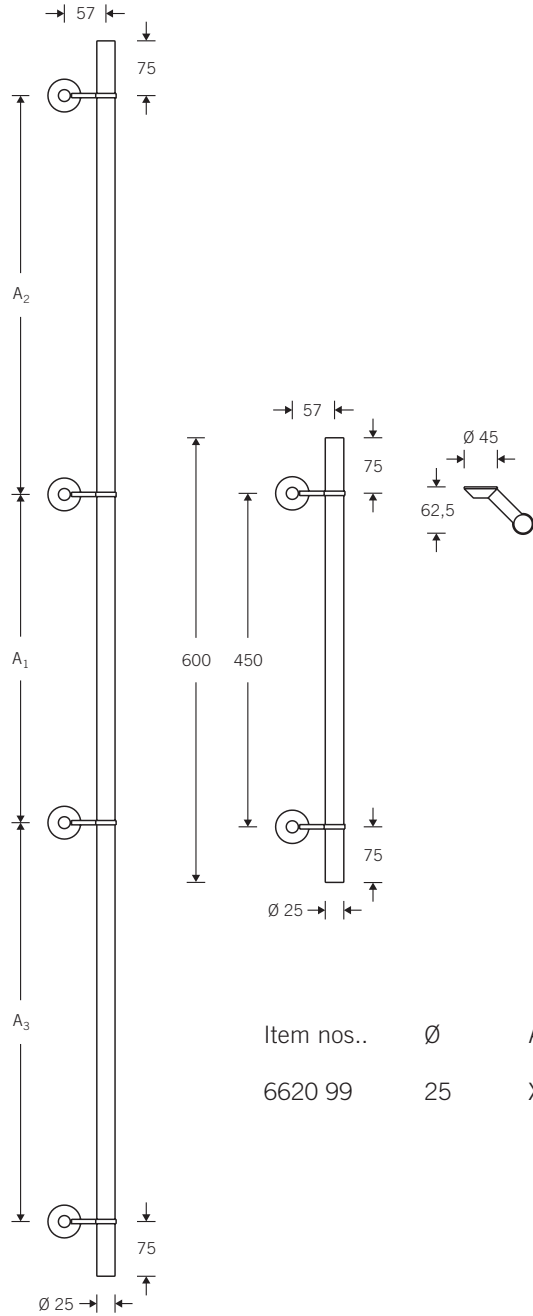


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series



6620 45

Ø 25 mm

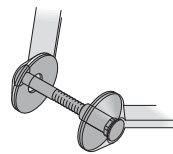
■ Stainless steel

Overall length 600 mm

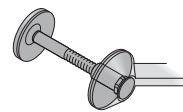
Item nos..	Ø	A1	A2	A3	Ending
6620 99	25	X	X	X	75 mm

The stiles on frame doors have become narrower in recent years. FSB has responded by producing a filigree handle series in stainless steel (Ø 25 mm). The straight bar handle features a clearance between the fixing centre and the centre of the bar of no less than 57 mm. With the curved version, the clearance is a

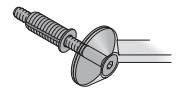
mighty 130 mm. Both are supplied as standard with an A dimension of 450 mm and an overall length of 600 mm. Optionally, they can both extend over the entire door. The standard measurement for the end sections is 75 mm. FSB recommends a distance between brackets of at most 1,200 mm.



back to back fixing



bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series



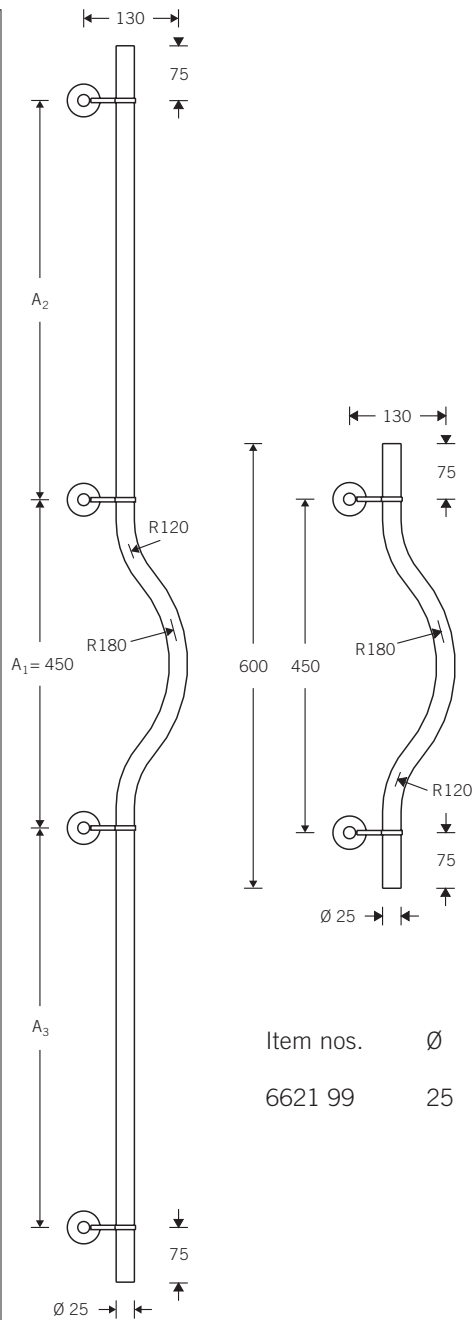
6621 45

Ø 25 mm

■ Stainless steel

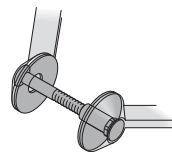
A₁ = 450 mm

Overall length 600 mm

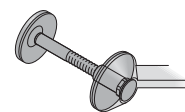


Item nos.	Ø	A1	A2	A3	Ending
6621 99	25	450	X	X	75 mm

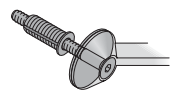
For detailed information on fixing, please turn to page 419.



back to back fixing

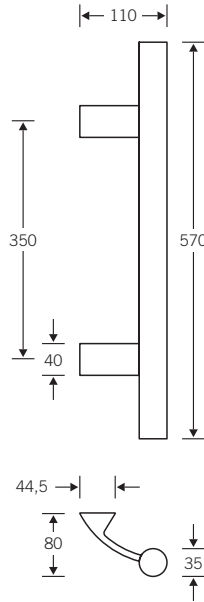


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

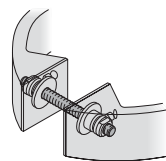


6526

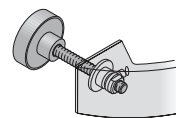
- Aluminium
- Stainless steel
(brackets aluminium)

With the publication of its 02/03 Manual, FSB is supplementing its proven and long-successful in-line pull series in aluminium and stainless steel with a particularly safe-to-grip design featuring heavily cranked fixing points on which the ends of brackets are incorporated into the pull section. The in-line pull sections are supplied with a diameter of 35 mm in either aluminium or stainless steel. The brackets are made of aluminium and are anodised in the metal's natural colour. The standard version has an A dimension of 350 mm and a length of 570 mm. Other A dimensions and lengths are possible.

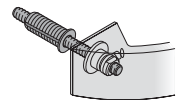
For detailed information on fixing, please turn to page 420.



back to back fixing



bolt through-fixing

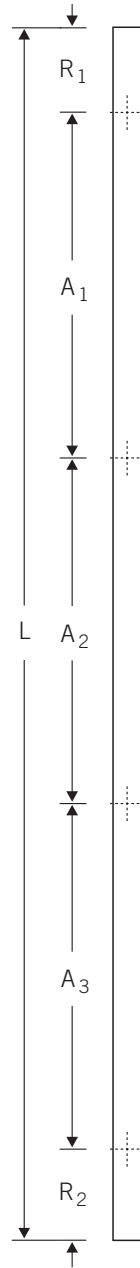
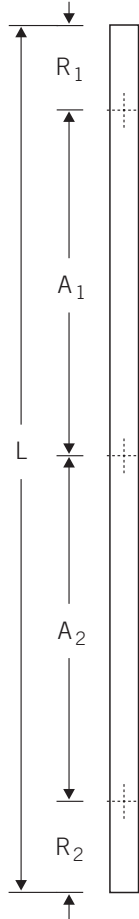
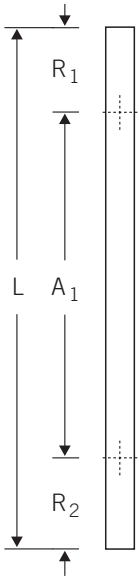
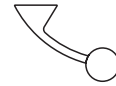


secret single side fixing with expansion plug

Fax copy



6526 Ø 35 mm

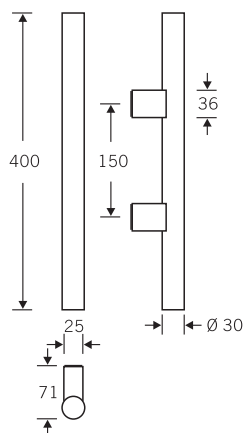


To order custom designs in the pull handle series 6526, please use a copy of this page: First specify the model desired citing the applicable order code above. Then enter the quantity required and overall length in the table below. Then enter details of the distances between brackets and, where applicable, their distance from the end of the handle in mm. To ensure stability, the distance between brackets should not exceed 1,200 mm.

Qte.	Overall length L	Distance between brackets			Edge spacing*		Fixing method
		A ₁	A ₂	A ₃	R ₁	R ₂	

* least. 40 mm

Pull handles
Round series



6642

Ø 30 mm

Brackets

■ Aluminium natural
colour anodised

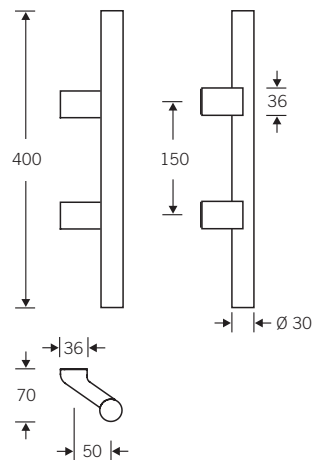
Grip

■ Aluminium or
■ Stainless steel

Standard length 400 mm

Safety clearance 38 mm

Fixing M6



6643

Ø 30 mm

Brackets

■ Aluminium natural
colour anodised

Grip

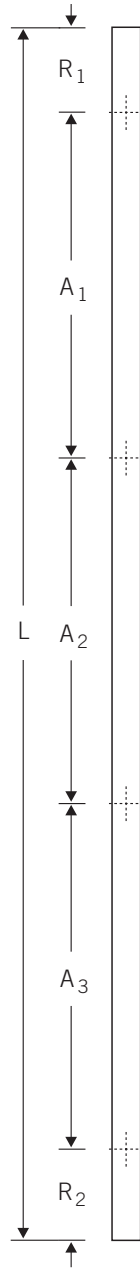
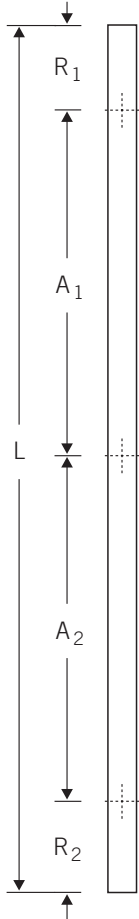
■ Aluminium or
■ Stainless steel

Standard length 400 mm

Fixing M6

For detailed information on
fixing of the pull handles 6642
and 6643, please turn to page
420.

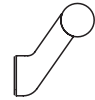
Fax copy



6642 Ø 30 mm



6643 Ø 30 mm



To order custom designs in the pull handle series 6642 or 6643, please use a copy of this page:

First specify the model desired citing the applicable order code above.

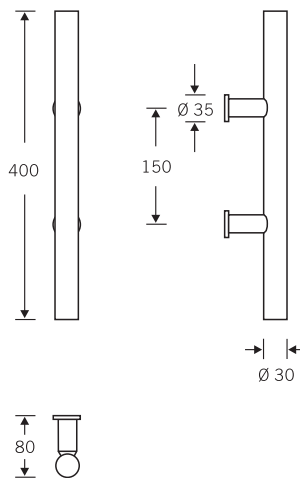
Then enter the quantity required and overall length in the table below.

Then enter details of the distances between brackets and, where applicable, their distance from the end of the handle in mm. To ensure stability, the distance between brackets should not exceed 1,200 mm.

Qte.	Overall length L	Distance between brackets			Edge spacing*		Fixing method
		A ₁	A ₂	A ₃	R ₁	R ₂	

* least. 30 mm

Pull handles
Round series

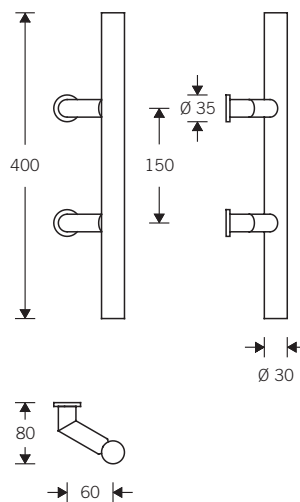


6681

Ø 30 mm

Brackets + Grip
■ Stainless steel

Standard length 400 mm
Safety clearance 38 mm
M8 fixing



6630

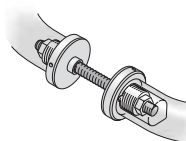
Ø 30 mm

Brackets + Grip
■ Stainless steel

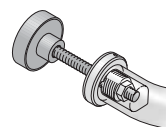
Standard length 400 mm
M8 fixing

For all tubular pulls in stainless steel FSB can supply two customised variants with non-standard ends, one a shallow curvature (10), the other a stepped flat cap (20).

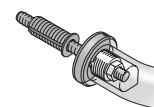
For detailed information on fixing, please turn to page 416.



back to back fixing

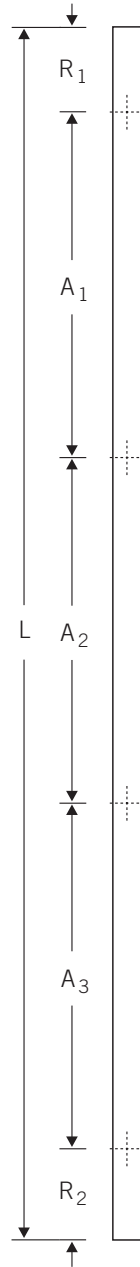
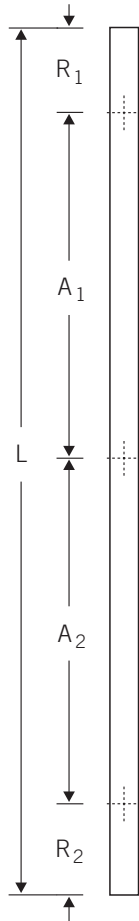


bolt through-fixing

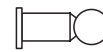


secret single side fixing with expansion plug

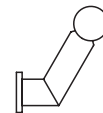
Fax copy



- 6580 Ø 25 mm
- 6681 Ø 30 mm
- 6582 Ø 35 mm
- 6583 Ø 40 mm



- 6529 Ø 25 mm
- 6630 Ø 30 mm
- 6531 Ø 35 mm
- 6532 Ø 40 mm



To order custom designs in the pull handle series 6681 or 6630, please use a copy of this page:

First specify the model desired citing the applicable order code above.

Then enter the quantity required and overall length in the table below.

Then enter details of the distances between brackets and, where applicable, their distance from the end of the handle in mm.

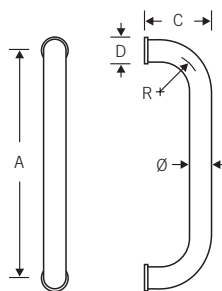
To ensure stability, the distance between brackets should not exceed 1,200 mm.

Finally, please tick the cap required for standard versions with a diameter of 30 Ø.

Qte.	Overall length L	Caps for 6681 and 6630			Distance between brackets			Edge spacing*		Fixing method
		..00	..10	..20	A ₁	A ₂	A ₃	R ₁	R ₂	

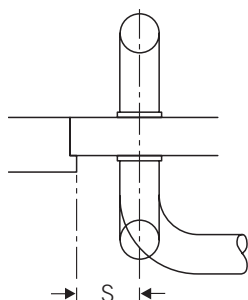
* least. 30 mm

Pull handles Round series



- Aluminium
- Stainless steel
- Bronze
- (only 6670 38, 6602 38)
- Brass
- Alu + Colour

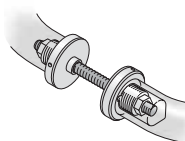
Fixing Ø = 20 mm M6
Ø ≥ 25 mm M8



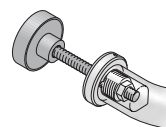
Item nos.	Ø	R	A	C	D	S
6627 34	20	25	200	75	30	45
6670 34	25	40	200	80	35	48
6670 37	25	40	300	80	35	48
6670 38	25	40	350	80	35	48
6602 38	30	55	350	90	35	51
6603 38	35	60	350	95	45	56
6604 38	40	60	350	105	45	65
6670 99	25	40	200-1200	80	35	48
6602 99	30	55	300-1200	90	35	51
6603 99	35	60	300-1200	95	45	56
6604 99	40	60	350-1200	105	45	65

S Safety clearance

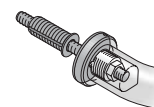
For detailed information on fixing, please turn to page 416 and 417.



back to back fixing

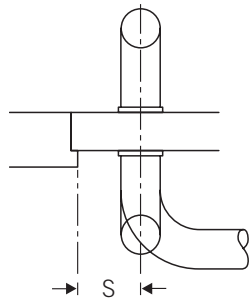
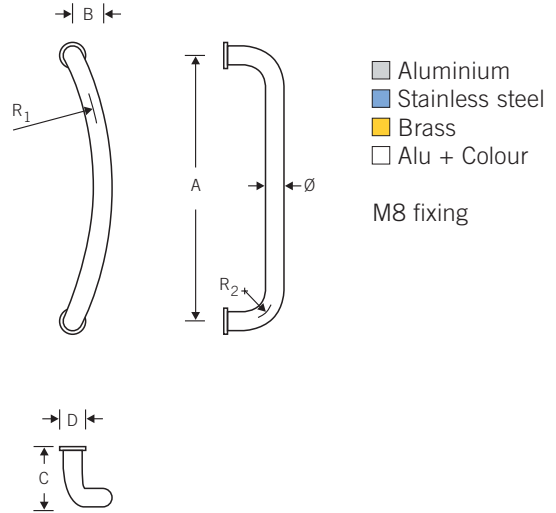


bolt through-fixing



secret single side fixing with expansion plug

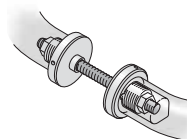
Pull handles
Round series



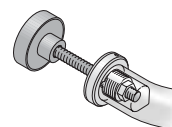
Item nos.	Ø	R1	R2	A	B	C	S
6605 25	25	260	40	250	32	80	45
6605 38	25	260	40	350	68	80	45
6605 50	25	400	40	500	88	80	45

S Safety clearance

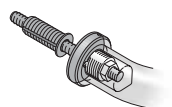
For detailed information on fixing, please turn to page 416.



back to back fixing

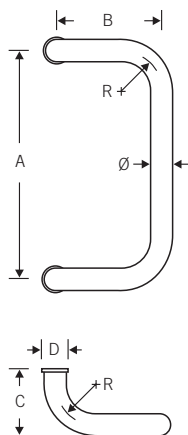


bolt through-fixing



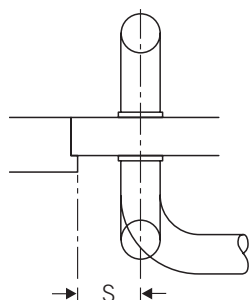
secret single side fixing with expansion plug

Pull handles Round series



- Aluminium
- Stainless steel
- Brass
- Alu + Colour

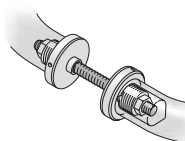
Fixing Ø = 20 mm M6
Ø ≥ 25 mm M8



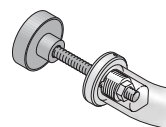
Item nos.	Ø	R	A	B	C	D	S
6660 34	20	25	200	100	75	30	41
6661 34	25	40	200	100	80	35	42
6661 37	25	40	300	100	80	35	42
6661 38	25	40	350	100	80	35	42
6662 38	30	55	350	140	90	35	43
6663 38	35	60	350	140	95	45	45
6664 38	40	60	350	150	120	45	52
6661 99	25	40	200–1200	100	80	35	42
6662 99	30	55	300–1200	140	90	35	43
6663 99	35	60	300–1200	140	95	45	45
6664 99	40	60	350–1200	150	120	45	52

S Safety clearance

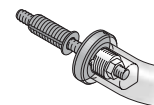
For detailed information on fixing, please turn to page 416 and 417.



back to back fixing

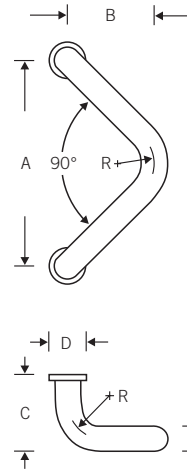


bolt through-fixing



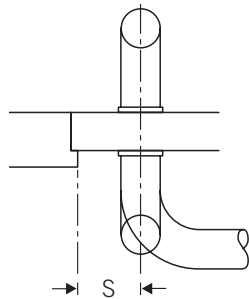
secret single side fixing with expansion plug

Pull handles
Round series



- Aluminium
- Stainless steel
- Brass
- Alu + Colour

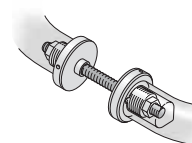
Fixing $\varnothing = 20$ mm M6
 $\varnothing \geq 25$ mm M8



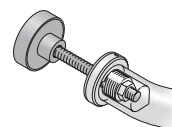
Item nos.	\varnothing	R	A	B	C	D	S
6649 34	20	25	200	90	75	30	41
6679 34	25	40	200	83	80	35	42
6679 37	25	40	300	133	80	35	42
6679 38	25	40	350	158	80	35	42
6623 38	30	55	350	152	90	35	43
6624 38	35	60	350	150	95	45	45
6625 38	40	60	350	150	105	45	49

S Safety clearance

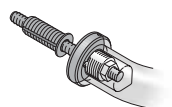
For detailed information on fixing, please turn to page 416 and 417.



back to back fixing

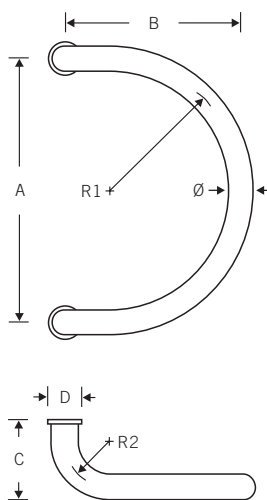


bolt through-fixing



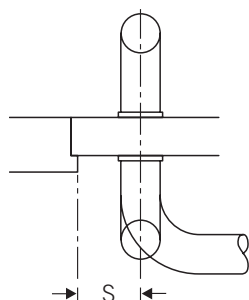
secret single side fixing with expansion plug

Pull handles Round series



- Aluminium
- Stainless steel
- Bronze
- (only 6673 38, 6683 38)
- Brass
- Alu + Colour

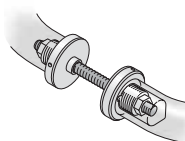
Fixing Ø = 20 mm M6
Ø ≥ 25 mm M8



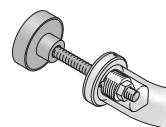
Item nos.	Ø	R1	R2	A	B	C	D	S
6626 34	20	100	25	200	130	75	30	41
6673 34	25	100	40	200	140	80	35	42
6673 37	25	150	40	300	190	80	35	42
6673 38	25	175	40	350	215	80	35	42
6683 38	30	175	55	350	230	90	35	43
6659 38	35	175	60	350	235	95	45	45
6678 38	40	175	60	350	235	120	45	52

S Safety clearance

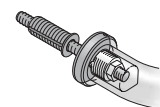
For detailed information on fixing, please turn to page 416 and 417.



back to back fixing

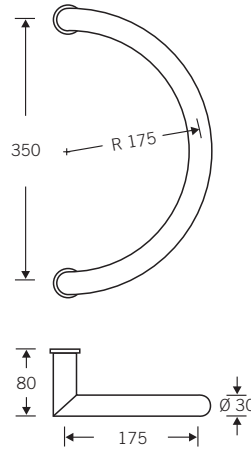


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

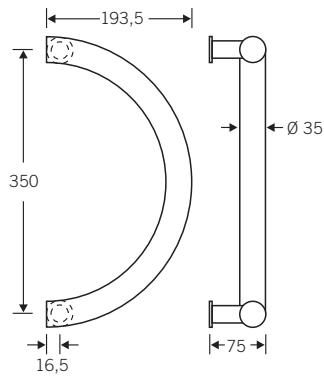


6653 38

Ø 30 mm

■ Stainless steel

Safety clearance 55 mm
M8 fixing



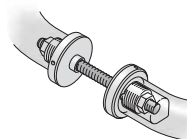
6655 38

Ø 35 mm

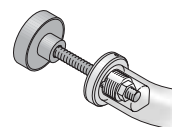
■ Aluminium
■ Stainless steel

Safety clearance 55 mm
M8 fixing

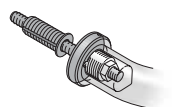
For detailed information on fixing, please turn to page 416.



back to back fixing

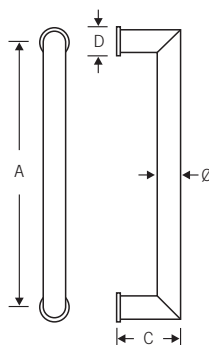


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

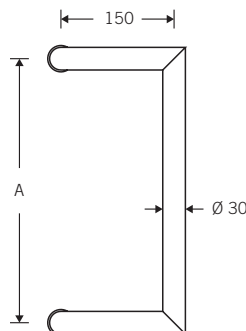


■ Stainless steel

M8 fixing

Item nos.	Ø	A	C	D	S
6606 38	25	350	75	35	50
6669 38	30	350	80	35	55
6607 38	35	350	85	45	57
6609 38	40	350	90	45	60
6609 99	custom length				

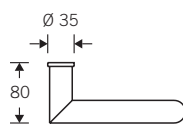
S Safety clearance



6514

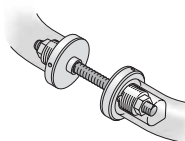
■ Stainless steel

M8 fixing

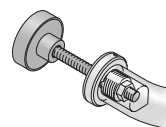


Item nos.	Ø	A	S
6514 38	30	350	55
6514 45	30	450	55

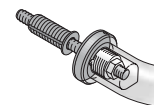
For detailed information on fixing, please turn to page 416.



back to back fixing

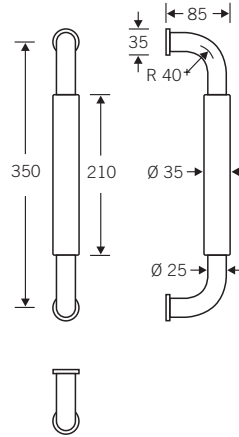


bolt through-fixing



secret single side fixing with expansion plug

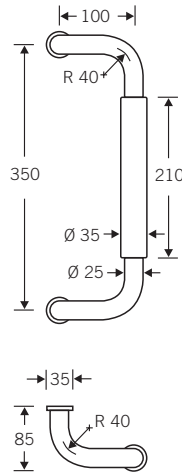
Pull handles
Round series



6608 38

■ Stainless steel 35/25 mm

Safety clearance 50 mm
M8 fixing

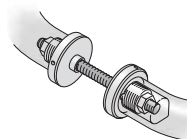


6658 38

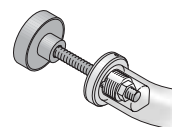
■ Stainless steel 35/25 mm

Safety clearance 42 mm
M8 fixing

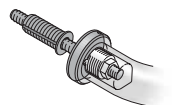
For detailed information on fixing, please turn to page 416.



back to back fixing

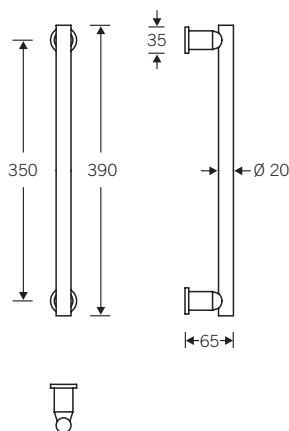


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

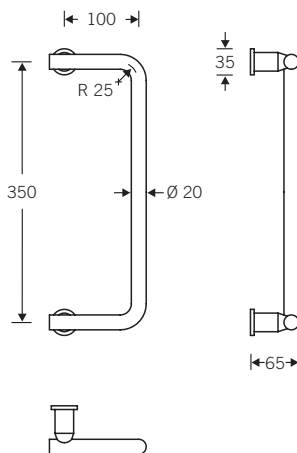


6501 38

Ø 20 mm

- Aluminium
- Stainless steel
- Brass

Safety clearance 49 mm
M8 fixing



6502 38

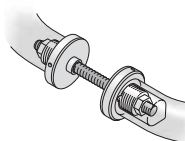
Ø 20 mm

- Aluminium
- Stainless steel
- Brass

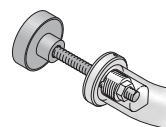
Safety clearance 59 mm
M8 fixing

The “heavyweights” of the long-running standard programme are juxtaposed with a “lighter than air” series of pull handles (20 mm) in several shapes on plain brackets (25 mm).

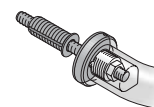
For detailed information on fixing, please turn to page 416.



back to back fixing

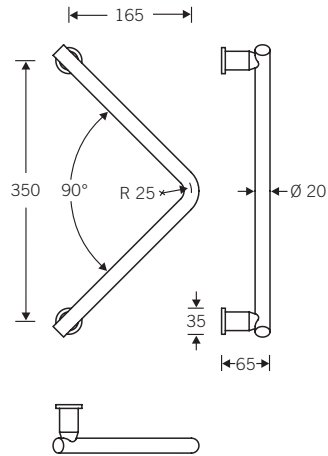


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

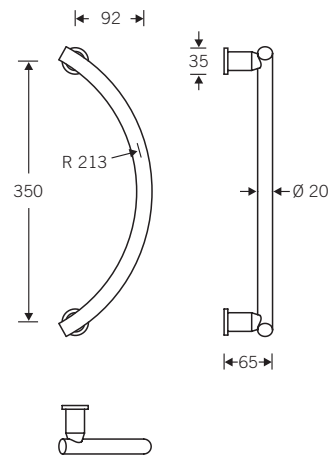


6503 38

Ø 20 mm

- Aluminium
- Stainless steel
- Brass

Safety clearance 59 mm
M8 fixing



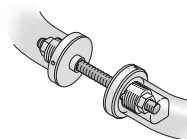
6504 38

Ø 20 mm

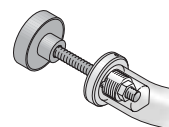
- Aluminium
- Stainless steel
- Brass

Safety clearance 59 mm
M8 fixing

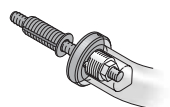
For detailed information on fixing, please turn to page 416.



back to back fixing

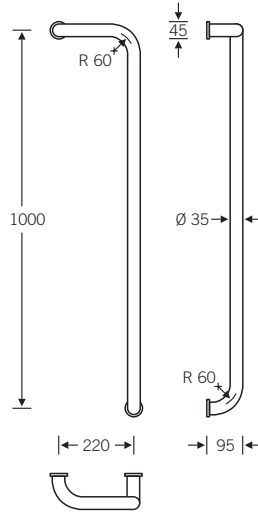


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series



6506 ..

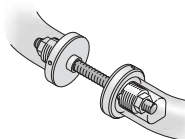
65 r.h | 75 l.h
Ø 35 mm

- Aluminium
- Stainless steel

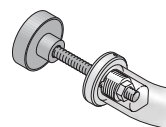
Illustration l.h, outside view
handing details, cf. pp. 568ff.

Safety clearance 47 mm
M8 fixing

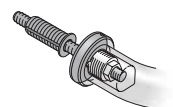
For detailed information on
fixing, please turn to page 416.



back to back
fixing

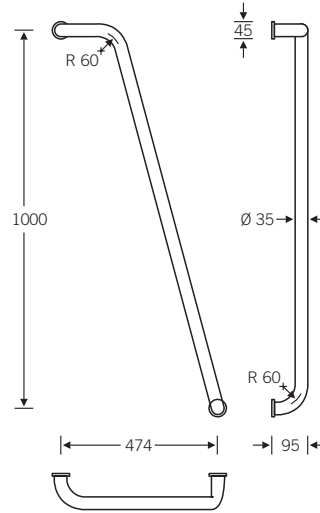
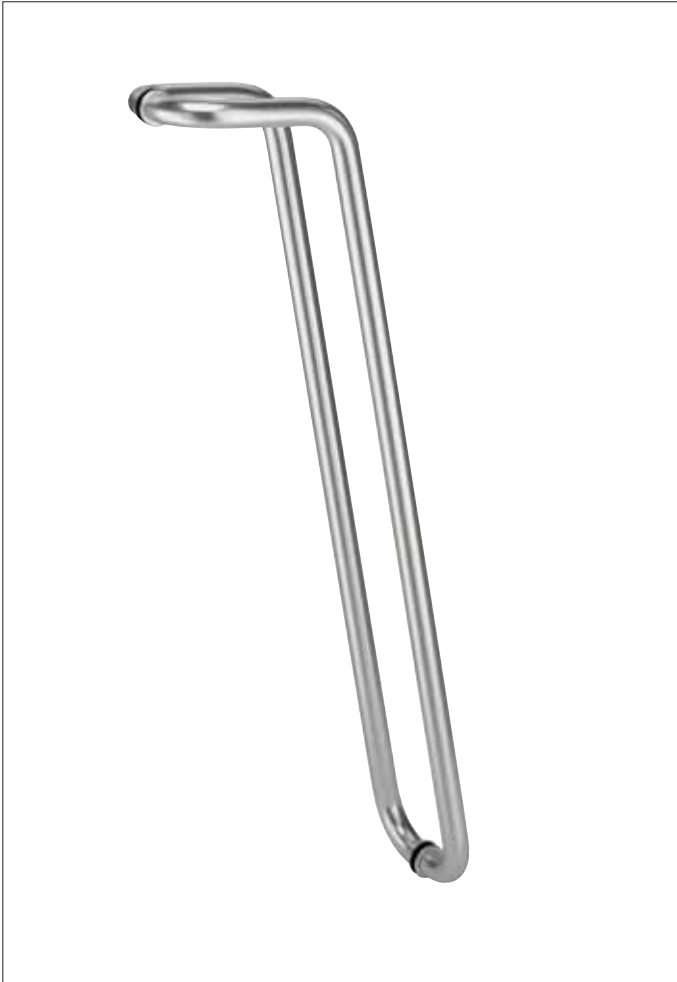


bolt through-fixing



secret single side
fixing with
expansion plug

Pull handles
Round series



6507 ..

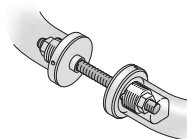
65 r.h | 75 l.h
Ø 35 mm

- Aluminium
- Stainless steel

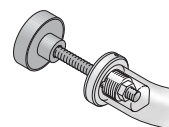
Illustration r.h, outside view
handing details, cf. pp. 568ff.

Safety clearance 47 mm
M8 fixing

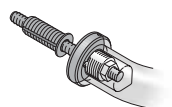
For detailed information on fixing, please turn to page 416.



back to back fixing

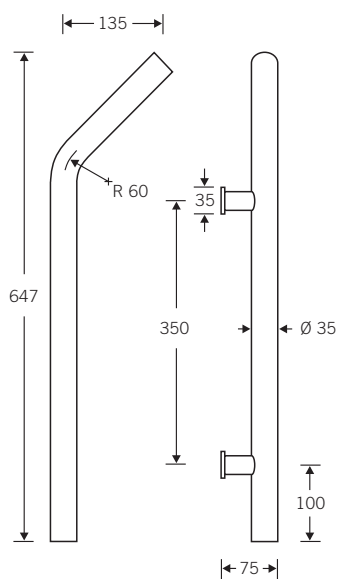


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series



6505 ..

48 r.h | 58 l.h
Ø 35 mm

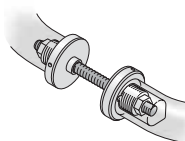
■ Stainless steel

Safety clearance 56 mm
M8 fixing

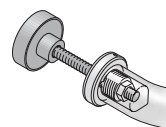
Illustration r.h, outside view
handing details, cf. pp. 568ff.

The graphic qualities of the Y handle are best brought out by fitting it in pairs to double doors.

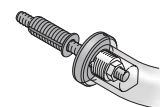
For detailed information on fixing, please turn to page 416.



back to back fixing

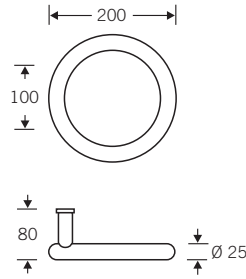


bolt through-fixing



secret single side fixing with expansion plug

Pull handles
Round series

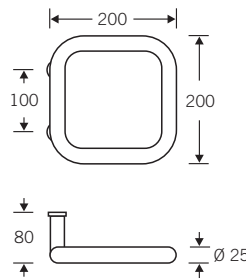


6677 00

Ø 25 mm

■ Stainless steel

Safety clearance 65 mm
M8 fixing



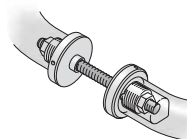
6688 00

Ø 25 mm

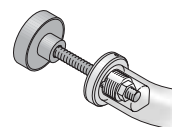
■ Stainless steel

Safety clearance 48 mm
M8 fixing

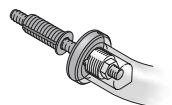
For detailed information on fixing, please turn to page 416.



back to back fixing



bolt through-fixing



secret single side fixing with expansion plug

hs round modular system

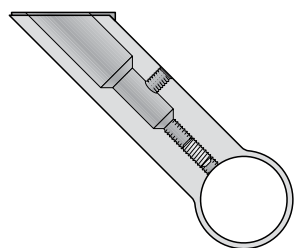


The hs modular system comprising grips and brackets caters in a novel way to individual design aspirations and functional requirements.

The round grips in stainless steel are supplied in standard lengths of 30 mm and 25 mm as well as in custom lengths as requested.

The matching 45°-crank brackets in aluminium are grey anodised and are securely attached by means of a special-purpose fastening system.

There is scope for variation owing to the differing lengths of grips and the fact that the positioning and number of brackets are freely selectable. The option of providing handle ends with either one or two brackets and positioning central brackets as desired turns every handle into a distinctive feature and an embellishment for main entrance doors.

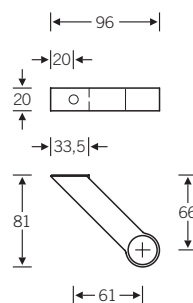


Once their arrangement and spacing have been established, brackets are firmly secured to the grip by means of recessed fastenings (cf. Fig.)

Alignment of brackets is achieved by laying the handle on a flat surface once the first bracket has been fitted and only then fixing the remaining brackets at the desired intervals.

hs round modular system

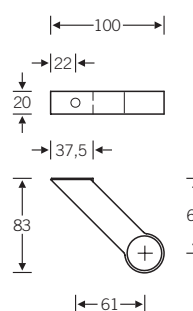
Brackets + Grips



6710

Aluminium
grey anodised

Bracket for grip 6810
Ø 25 mm



6711

Aluminium
grey anodised

Bracket for grip 6811
Ø 30 mm



6810

Stainless steel

Grip Ø 25 mm

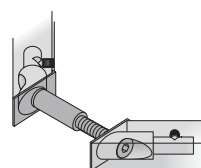
6811

Stainless steel

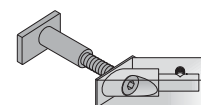
Grip Ø 30 mm

Item nos.	Grips Ø	length
6810 0450	25 mm	450 mm
0600	25 mm	600 mm
0900	25 mm	900 mm
1800	25 mm	1800 mm
6811 0450	30 mm	450 mm
0600	30 mm	600 mm
0900	30 mm	900 mm
1800	30 mm	1800 mm

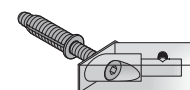
For detailed information on fixing, please turn to page 423.



back to back fixing



bolt through-fixing



secret single side fixing with expansion plug

ht round modular systems up to 1,500 mm



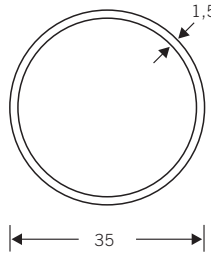
6801

■ Stainless steel

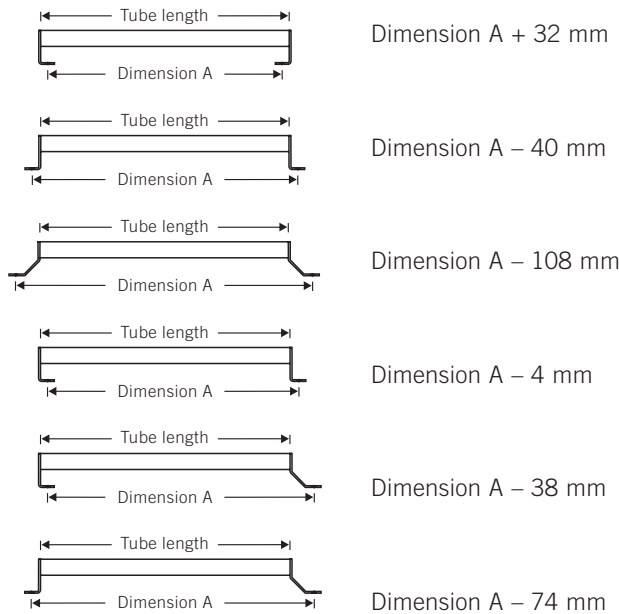
Tube Ø 35 x 1.5 mm
Stock length 3,000 mm

The ht round kit enables safety rails, handle systems, handrails etc. up to 1,500 mm in length to be cut to size, fabricated and fitted on site with the aid of the appropriate tools.

Where lengths in excess of 1,500 mm are concerned, we would recommend factory welded hardware.



Dimensions:



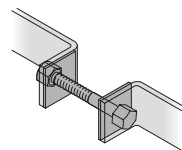
Tube length and A size are important for fabrication, fitting and ordering purposes. The A size defines the fixing distance from the centre of the borehole for one bracket to the centre of the borehole for the other. Tube length is arrived at by adding or subtracting the differential sizes given alongside from the A size.

FSB recommends reinforcing door pulls from the ht round kit that are to be fitted to heavily used doors by means of the accessories available.

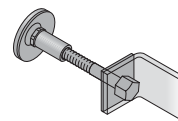
Reference:

When using elements of the ht round kit - whether for self-fabrication or as factory-welded parts - attention needs to be paid to structural specifications and conditions locally. This hefty product series is not a substitute for gym bars, neither should it be used as a

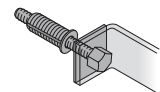
safety rail at particularly hazardous openings in buildings. If in any doubt, please contact the architect or engineer in charge. For detailed information on fixing, please turn to page 462.



back to back fixing

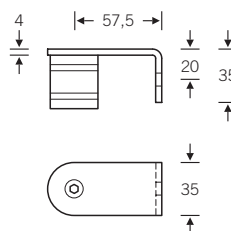


bolt through-fixing



secret single side fixing with expansion plug

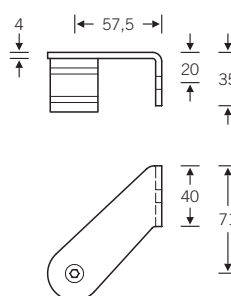
ht round modular systems
up to 1,500 mm



6715

■ Stainless steel

Straight bracket,
angled 90° inwards,
to match tube 35 x 1.5 mm Ø



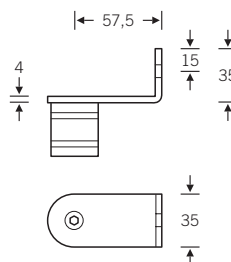
6716 ..

■ Stainless steel

6716 14 r.h
6716 15 l.h

Bracket with 45° cranking,
angled 90° inwards,
to match tube 35 x 1.5 mm Ø

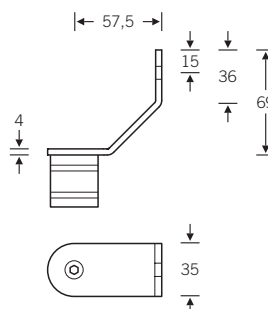
Illustration r.h



6717

■ Stainless steel

Straight bracket,
angled 90° inwards,
to match tube 35 x 1.5 mm Ø

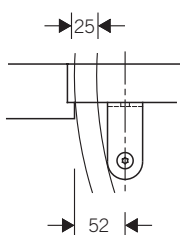


6718

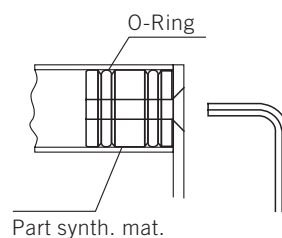
■ Stainless steel

Bracket for swing doors,
to match tube 35 x 1.5 mm Ø

Screw hole Ø 8.5 mm

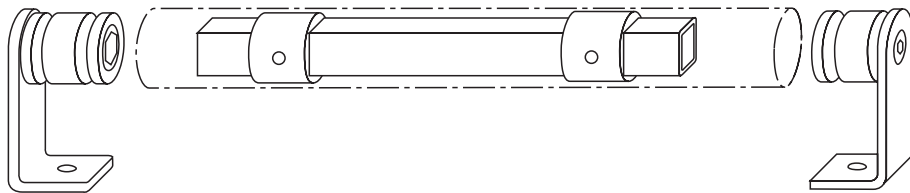


Safety clearance 52 mm

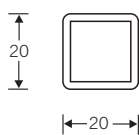
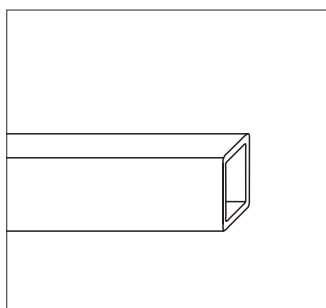


Once the tube has been cut to size (dimensions A + differential measurement), matching brackets are slotted into the tube ends and fastened with screws from the top.

Accessoires
ht round modular system



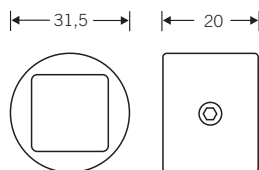
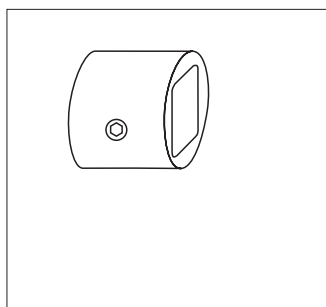
For pull handles from the modular systems HT Round over 1.5 metres long or where robust handling is to be assumed, we would recommend reinforcing the tube with square-section tubing as shown on this page.



6801 20

Steel tube hot galvanised

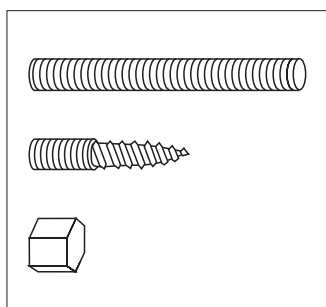
20 x 20 x 2 mm
 Stock length 3,000 mm



6719

Synth. mat.

Spacing sleeve with fixing screw



0313 0880 M8 x 80 mm
 Steel stud

0316 0840 M8
 Steel stud - for timber fixing

0320 0800 M8
 Dome nut of stainless steel

For detailed information on fixing, please turn to page 422.

Fixing reference:

Sizing square-section tube: outside length of oval tube minus 100 mm. Then fixing of spacing sleeves with distance 350 mm.

ht round welded
from 1,500 mm up to 2,100 mm

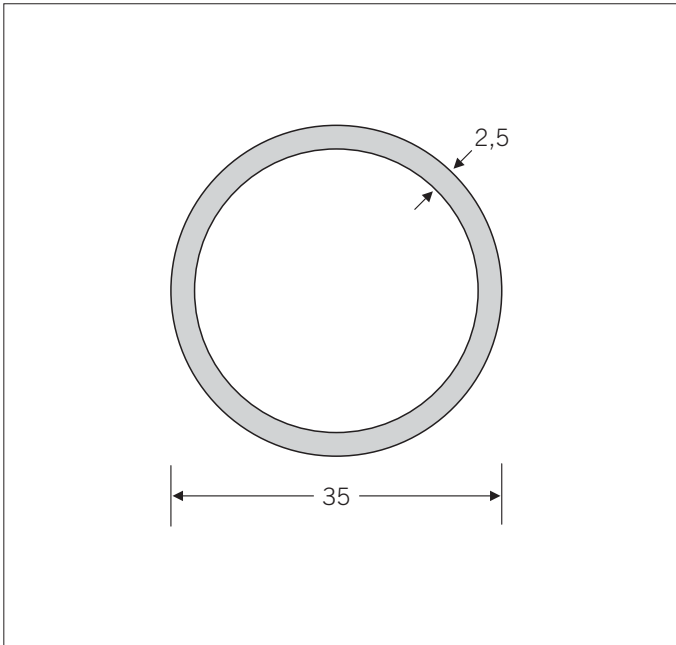


6522

■ Stainless steel

Tube Ø 35 x 2.5 mm

For reasons of structural-strength, we recommend ordering a factory-welded version drawing on the elements of the HT Round kit in cases where the A dimension lies between 1,500 mm and a maximum of 2,100 mm.



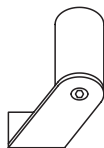
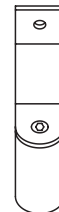
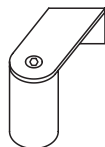
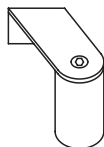
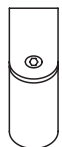
45 ..

46 .. r.h

56 .. l.h

47 ..

48 ..



The pulls in the welded series FSB 6522 are produced to order. This involves selecting the combination of brackets desired from the illustration alongside and citing the appropriate code numbers.

It is also necessary to state the A dimension, which defines the fixing distance from the centre of the borehole for one bracket to the centre of the borehole for the other.

By adding or subtracting the differential dimensions given on page 398, we calculate the length of the pull at the works prior to welding.

.. 45

.. 46 r.h

.. 56 l.h

.. 47

.. 48

Reference:

When using elements of the HT Round kit – whether for self-fabrication or as factory-welded parts – attention needs to be paid to structural specifications and conditions locally. This hefty product series is not a substitute for gym bars, neither should it be used as a

safety rail at particularly hazardous openings in buildings. If in any doubt, please contact the architect or engineer in charge.

For detailed information on fixing, please turn to page 422.

ht round welded
for lengths more than 2,100 mm

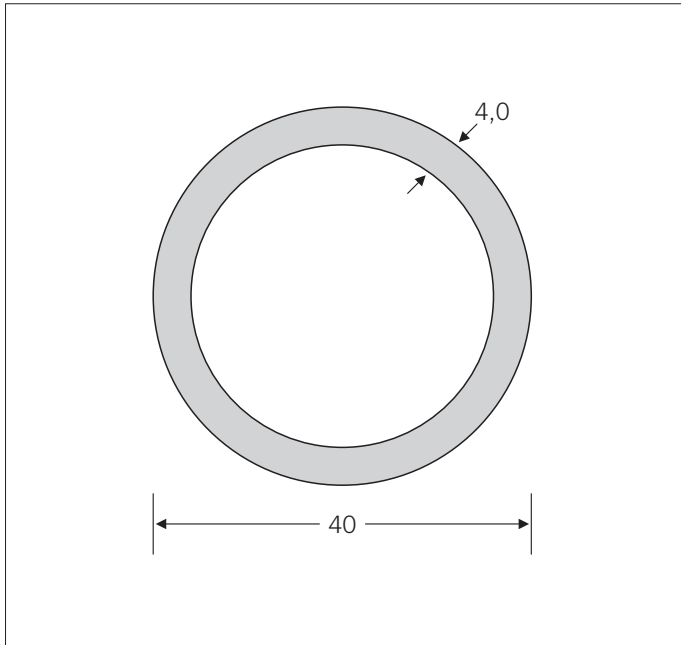


6523

■ Stainless steel

Tube Ø 40 x 4 mm

For requirements where dimension A exceeds 2,100 mm, we can supply a factory-welded version incorporating a sturdy tube cross-section of 40 x 4 mm and in all other respects the design features of the HT Round series.



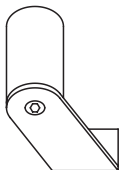
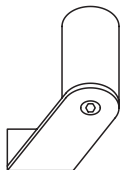
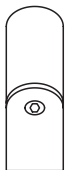
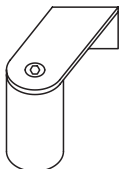
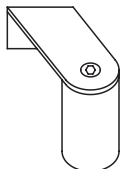
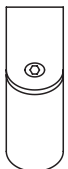
45 ..

46 .. r.h

56 .. l.h

47 ..

48 ..



←40→

←46→

←46→

←40→

←40→

.. 45

.. 46 r.h

.. 56 l.h

.. 47

.. 48

The pulls in the welded larger length series FSB 6522 are produced to order. This involves selecting the combination of brackets desired from the illustration alongside and citing the appropriate code numbers. It is also necessary to state the A dimension, which defines the fixing distance from the centre of the borehole for one bracket to the centre of the borehole for the other. By adding or subtracting the differential dimensions given on page 438, we calculate the length of the pull at the works prior to welding.

Reference:

When using elements of the HT Round kit – whether for self-fabrication or as factory-welded parts – attention needs to be paid to structural specifications and conditions locally. This hefty product series is not a substitute for gym bars, neither should it be used as a

safety rail at particularly hazardous openings in buildings. If in any doubt, please contact the architect or engineer in charge.

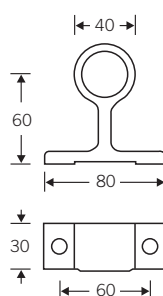
For detailed information on fixing, please turn to page 422.

Pull handles

Modular systems R + S



The "tube and support bracket" package is a kit system that allows the buyer effortlessly to make to measure, put together and fit in place pull handles, hand and towel rails of all types.



6800 04

■ Stainless steel 30 mm Ø
Side 1.5 mm
Stock length 3,000 mm

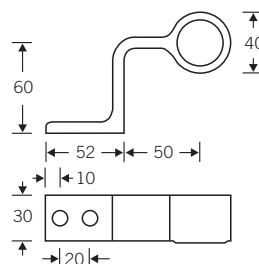
6800 09

■ Aluminium 30 mm Ø
Side 2.0 mm
Stock length 3,000 mm

6707

■ Aluminium natural colour anodised
■ Aluminium dark bronze colour anodised

6707 06 End support
6707 05 Intermediate support

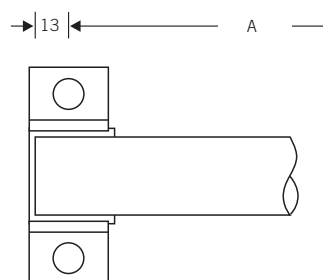


6708

■ Aluminium natural colour anodised
■ Aluminium dark bronze colour anodised

6708 06 End support
6708 05 Intermediate support

The length is established by measuring between bore holes and adding 26 mm (2 x 13 mm). The tube will now fit snugly into its end brackets. Any end play there is can easily be remedied by wedging, recentring, bonding etc., as applicable.



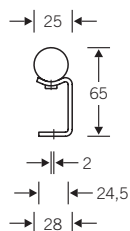
When using elements of the tubes and brackets kit attention needs to be paid to structural specifications and conditions locally. This hefty product series is not a substitute for gym bars, neither should it be used as a safety rail at particularly hazardous openings in buildings.

If in any doubt, please contact the architect or engineer in charge.

Fixing methods brackets:

Screw holes - Ø 5.3 mm for countersunk screws

Pull handles TGS round

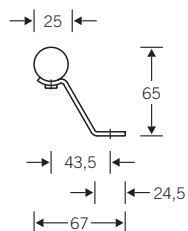
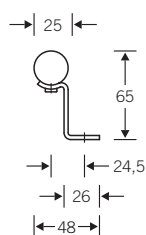


6508

Ø 25 mm

■ Stainless steel

Breadth of brackets 40 mm
Screw hole - Ø 8.5 mm

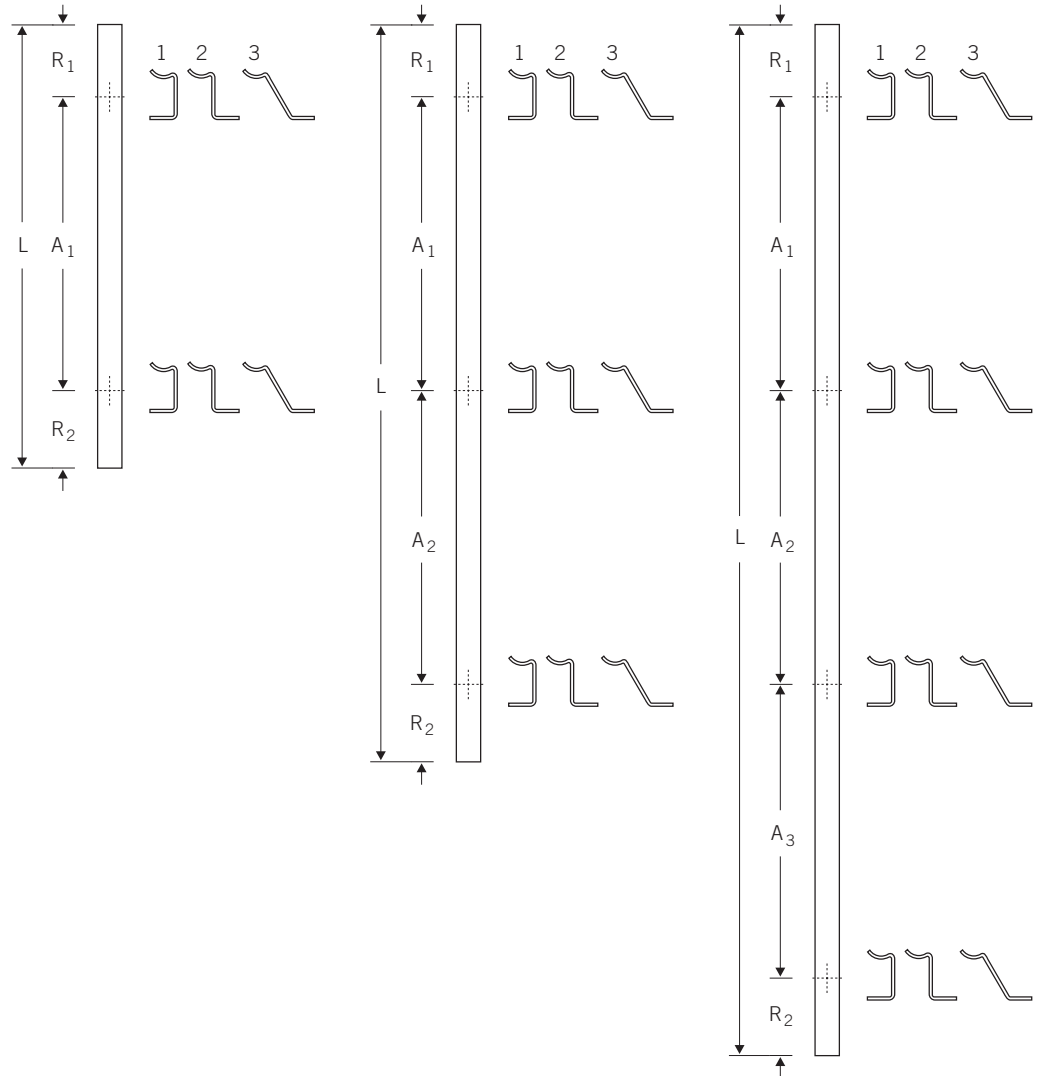
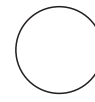


For detailed information on fixing, please turn to page 462, fixing accessories cf. page 422.

Speed and ease of installation were the design brief for the Immediate programme by FSB: The TGS series comprises stainless steel tubes with a diameter of 25 mm and three choices of brackets. We recommend allowing one bracket for each 600 mm of handle.

Please feel free to make enquiries and put FSB's new TGS series to the test. It can be called up any time and is ready and waiting to be assembled in a jiffy.

Fax copy TGS



Where express delivery is required, the TGS series can be precision assembled at the works and prepared for dispatch within 24 hours. Please submit exact measurements, ideally on a copy of the order chart shown here:

First enter number of handles required and overall length.

Then ring the brackets intended for your fixing points (in-line, offset, or diagonally offset) as well as ticking the numbered box.

Finally, specify distances between brackets and edge spacing. For reasons of stability, the distance between brackets should not exceed 600 mm.

Quantity	Overall length L	Type of bracket						Distance between brackets			Edge spacing*	
		1		2		3		A ₁	A ₂	A ₃	R ₁	R ₂
		l.h.	r.h.	l.h.	r.h.	l.h.	r.h.					

* least. 30 mm

Pull handles Wave



6510

30 mm Ø

- Aluminium
- Stainless steel
- Brass

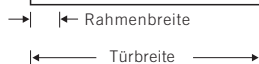
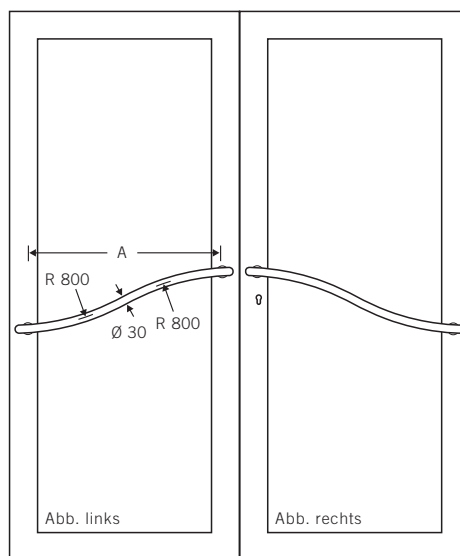
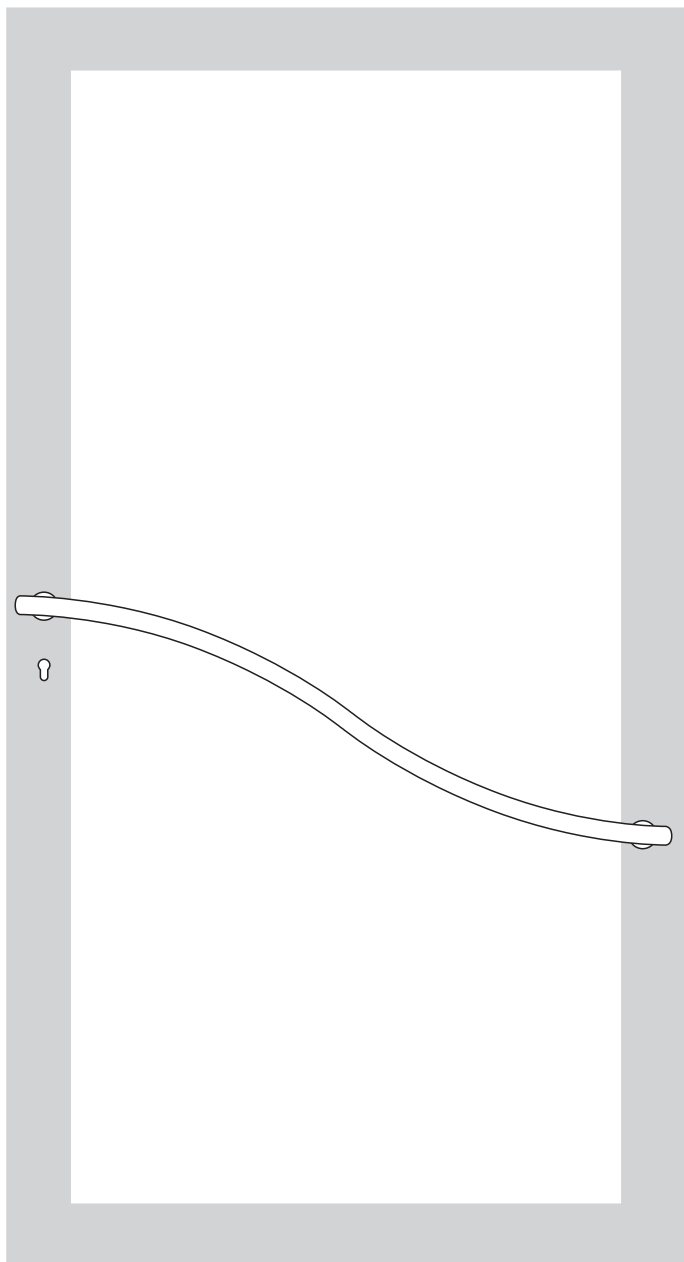
Safety clearance 65 mm for 30 mm handle projection, fixing M8.

The wave handle is offered in aluminium, stainless steel and brass with the following specifications:

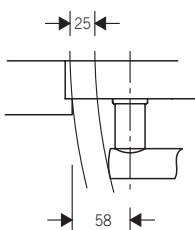
Torsion radius: 800 mm
 Handle diameter: 30 mm
 Bracket diameter: 35 mm

For quoting purposes, we require the following details together with a dimensioned sketch:

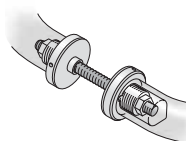
1. Width of door
2. Size A required
3. Frame widths
4. Profile section
5. In case of glass doors: distance of fixing holes from edge



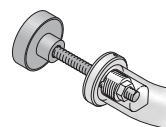
Handing details, cf. pp. 568ff.



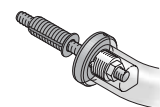
For detailed information on fixing, please turn to page 416.



back to back fixing

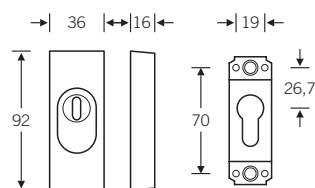


bolt through-fixing



secret single side fixing with expansion plug

Accessories

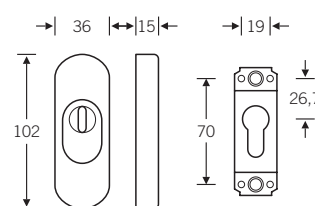


3244

- Aluminium
- Alu + Colour

Suitable for cylinder projections from 8 – 15 mm

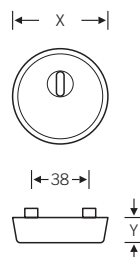
Screw hole \varnothing 3.2 mm



3246

- Aluminium
- Stainless steel
- Brass
- Alu + Colour

Screw hole \varnothing 3.2 mm



7395 1...

- Aluminium
- Alu + Colour
- AluGrey
- Stainless steel
- Bronze
- Brass

For detailed information on page 443.



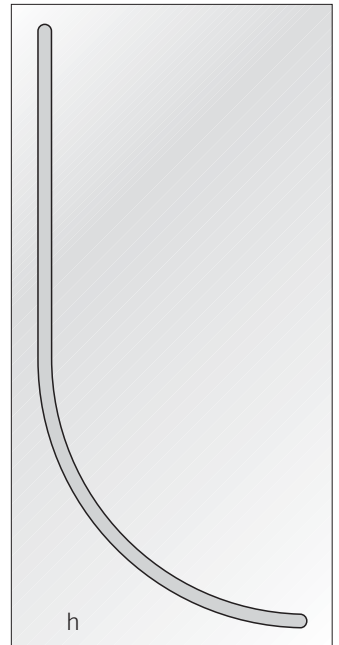
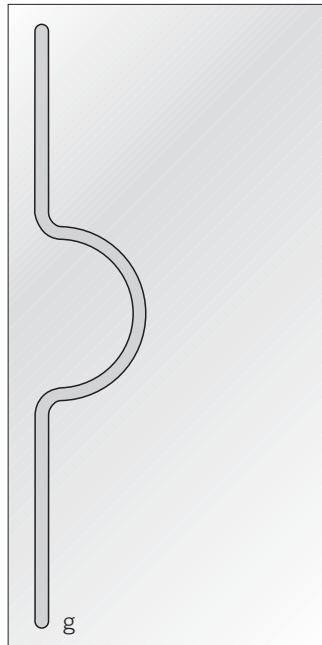
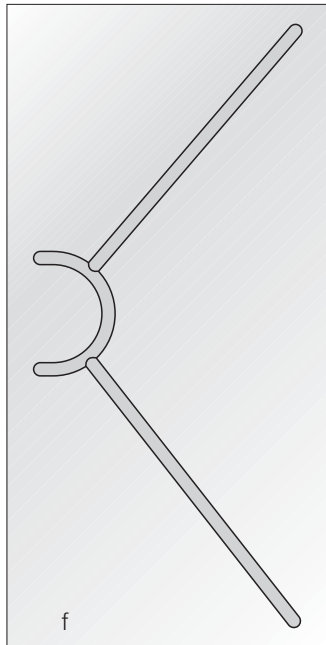
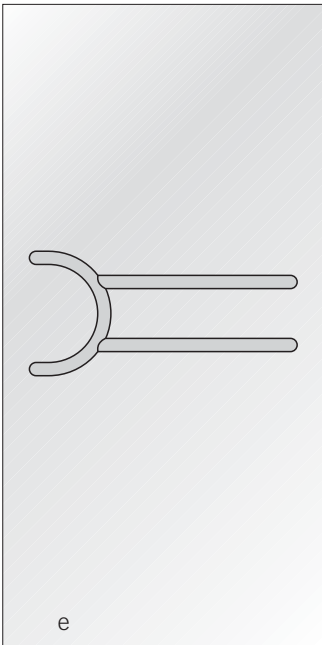
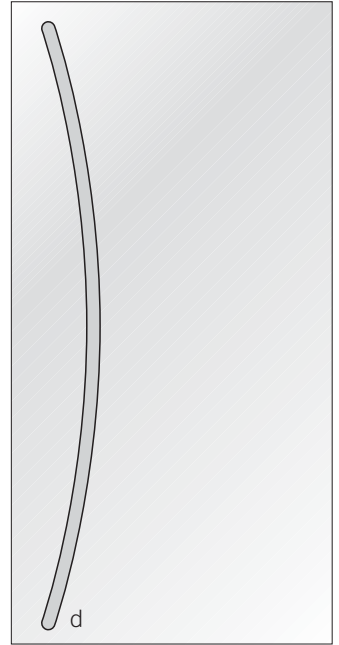
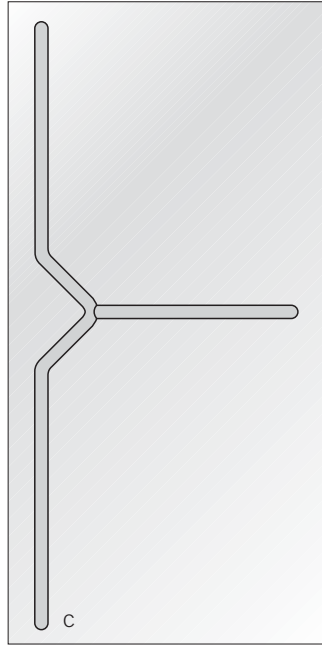
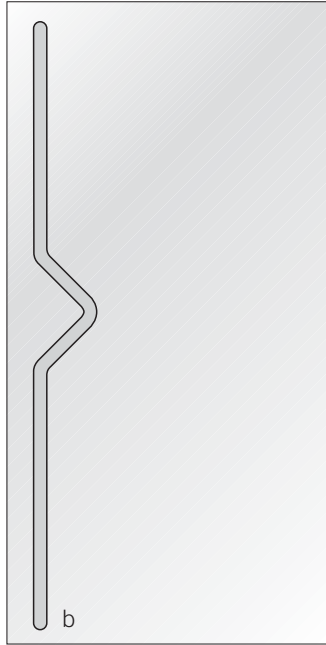
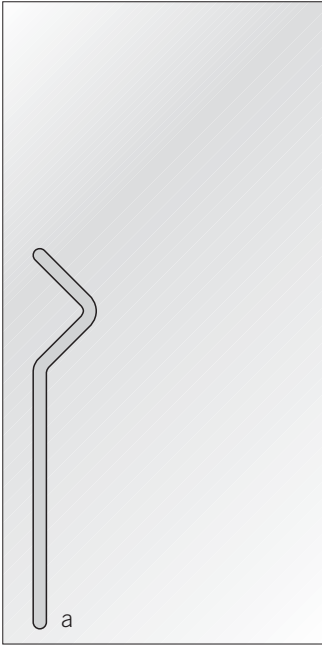
7395 0...

- Aluminium
- Alu + Colour
- AluGrey
- Stainless steel
- Bronze
- Brass

For detailed information on page 443.

Integrated security engineering demands that the external dimensions of an armoured rose be 11 or 16 mm greater than its fixing centres. In particular, this needs to be borne in mind when ordering a mix of hardware.

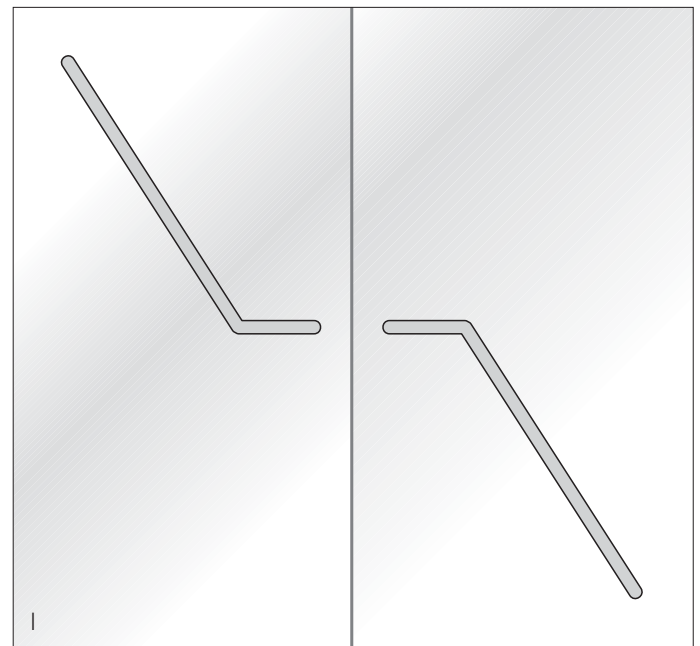
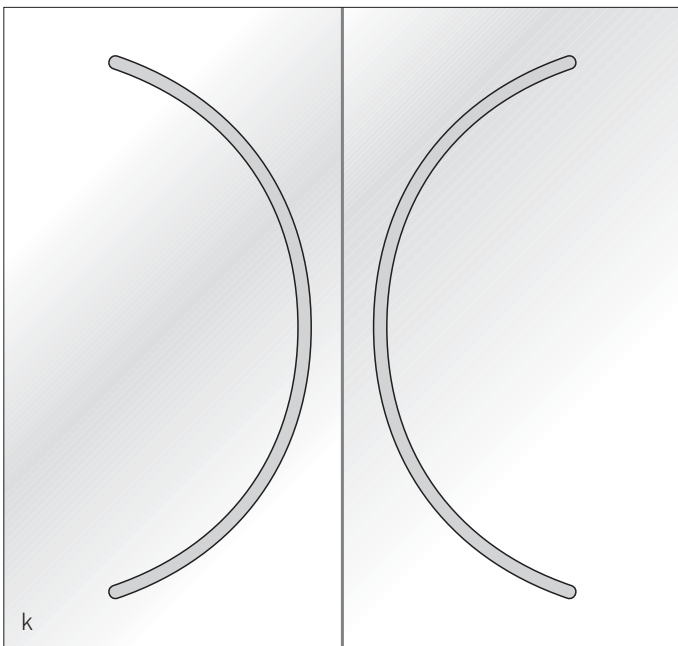
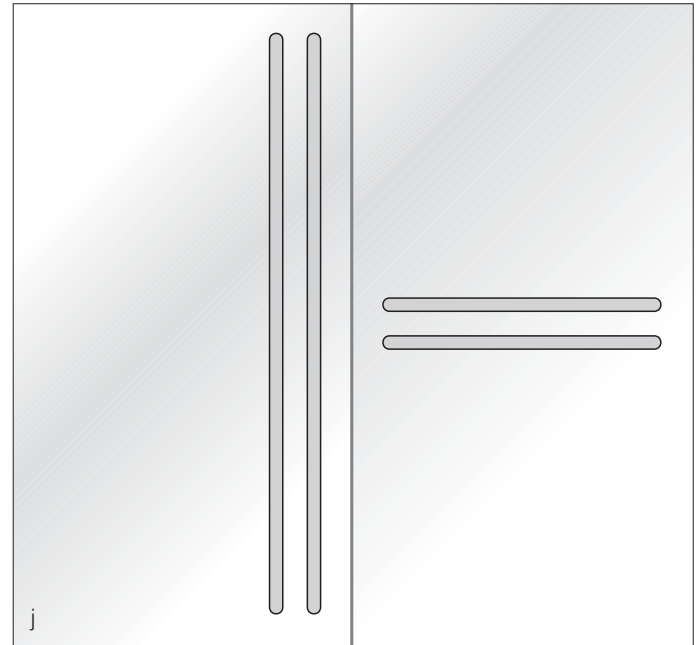
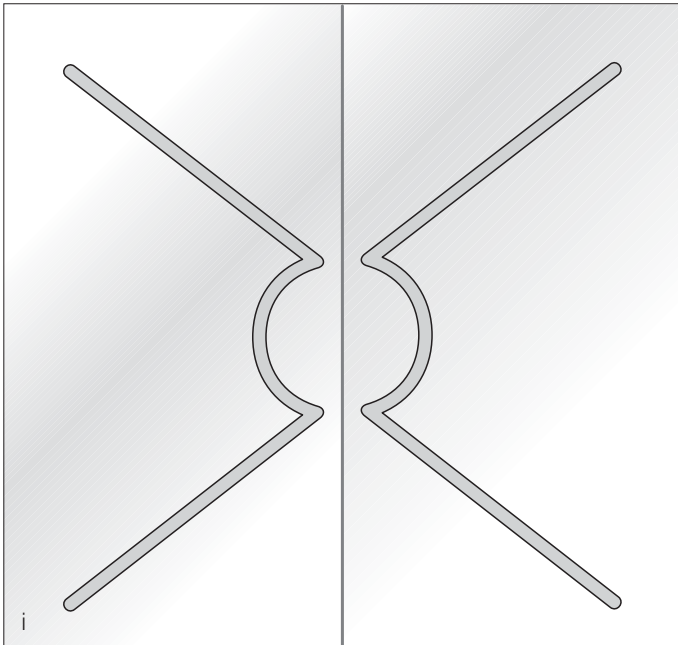
Design proposals
Pull handles Round series



The stainless steel pull handle designs shown here are intended as creative aids for architects, planners, designers, retailers and builder clients alike. Please always give details of the door's type, material and weight. We must have accurate drawings before we can supply quotes or implement orders.

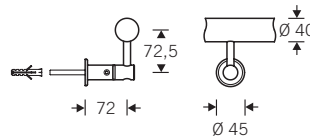
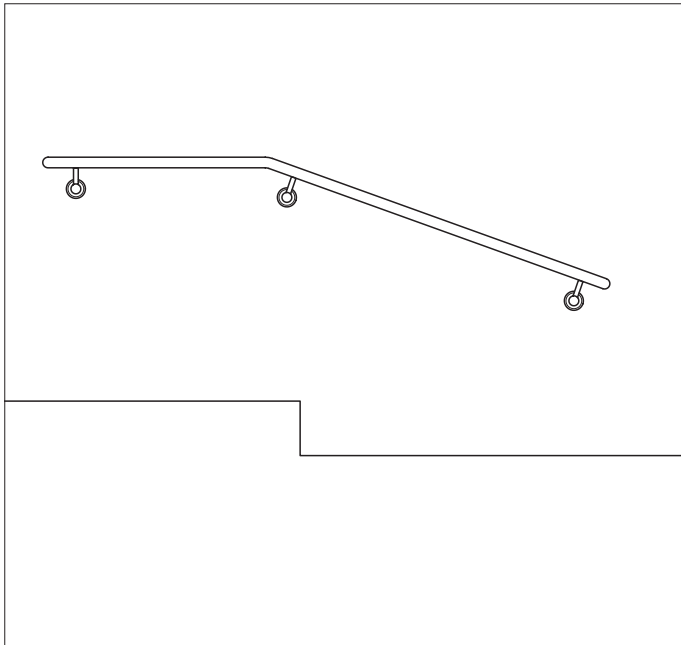
Handing details, cf. pp. 568ff.

Design proposals
Pull handles Round series



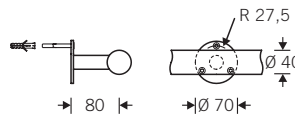
For detailed information on fixing, please consult pp. 414-423.

Hand rail systems



Fixing method 1

6599 9991



Fixing method 2

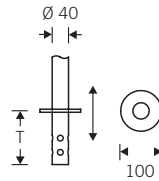
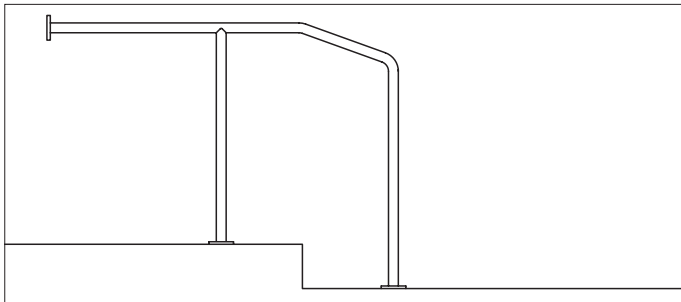
6599 9994

Typ A Stainless steel

Fixing method 1:
Hole for countersunk screw M8

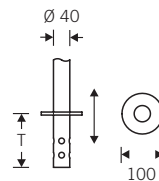
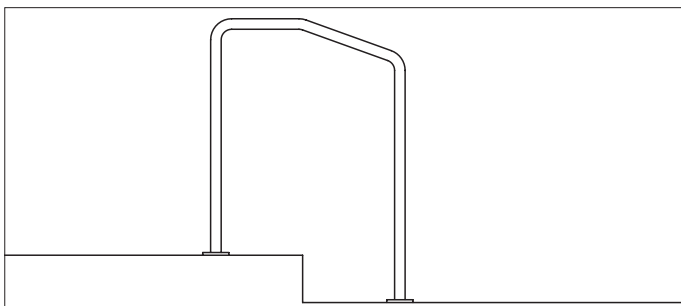
Fixing method 2:
Hole for countersunk screw M6

Screws and dowels are delivered for number of fixing points.



6599 9993

Typ B₁ Stainless steel



6599 9992

Typ B₂ Stainless steel

Fixing reference: First of all the supplied rose has to be shoved on the tubes of the handrail system. Fill up then boreholes in basis with usual constructional resins. Before hardening set up the handrail system. The rose will then be glued to the basis.

Handrail systems

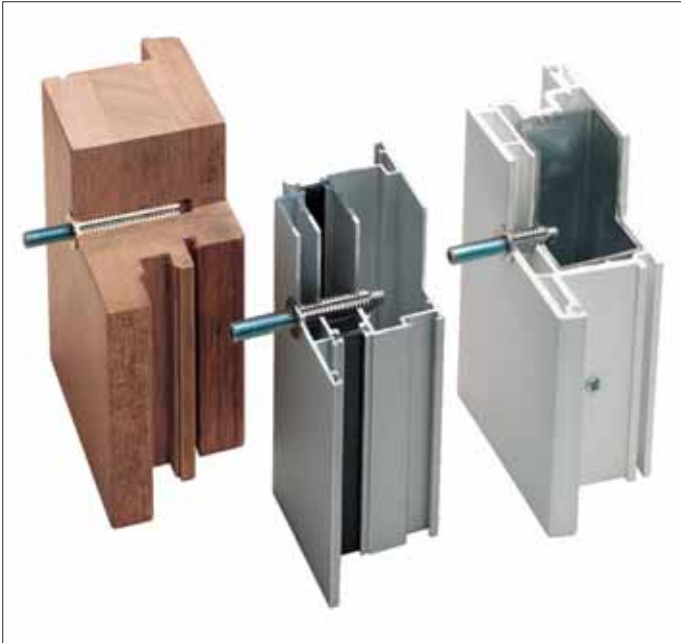
In recent years FSB has occasionally made handrail systems to measures for installation near main-entrance doors. Three typical examples are shown on this page. Unlike serially produced hardware, these custom products are made to order. Responsibility for deployment and fabrication lies with the

ordering party. The variants shown here are merely meant to provide a general impression, which is why no dimensions have been given. Why not send us your specifications - plus dimensions - by fax? We will then scrutinise the details, produce drawings of our own, and submit a quote.

Fixing methods

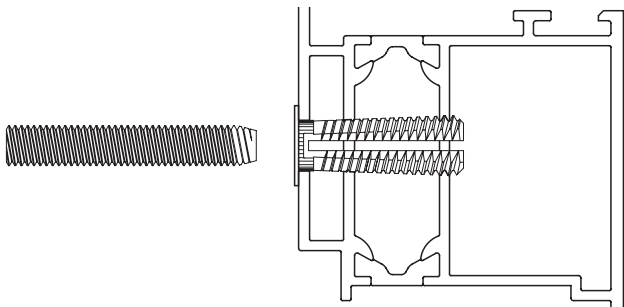
FSB expansion plug	412
FSB clamping rose fastening for pull handles with round necks	413
Borehole dimensions	414
Schematic representation of the fixing methods and accessories for the various pull handles	415

FSB Expansion Plug



FSB's straddling dowel system facilitates practical solutions for single-side concealed fixing of door pulls to timber, aluminium and composite doors whereby it is merely necessary to select the length of dowel to suit a given door thickness or stile design. Plug 20, 34 and 46mm long are available.

What makes FSB's technique so novel is the way it combines an external thread, conical styling and lateral slots to ensure that, once it has been driven in, it straddles to secure the set screw, as the latter is turned, whatever the material or type of stile. Skewing of the plug is prevented by knurling at the top of its shank.



Step 1

Drill holes 10.5 mm in diameter to accommodate the FSB plug (if using a manual drill select a 10mm bit).

Step 2

Once the plug has been driven into the borehole, tighten the set screw, thus causing the dowel's conical surfaces to spread and produce the fixing point for the handle in the stile.



Step 3

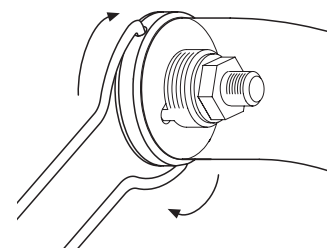
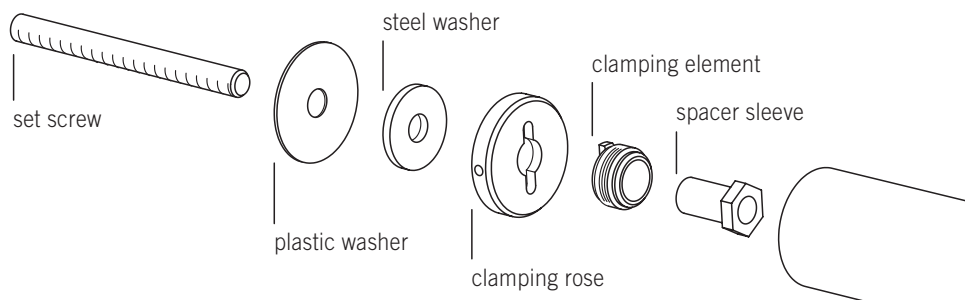
The handle is then fastened to these fixing points.

FSB Clamping Rose Fastening



The FSB clamping rose fastening is a new method of assembling door-pulls whereby the pull is tightened fast against the surface of the door. Visible fixing screws are done away with.

All door pulls with round necks are supplied as female parts with an internal left-handed thread 18 by 1.5 mm (M8 fixing) or 14 by 1.5 mm (M6 fixing). A clamping rose fastening comprises a plastic washer, a steel washer, a clamping element, a rotating rose and a spacer sleeve that are securely held in place by a plastic clip and pre-attached to the end of the handle.



FSB Clamping Rose Fastening

The new FSB clamping rose fastening allows all FSB door pulls with round necks to be screwed tight against the surface of the door by means of an easy-to-operate clamping rose. Radial play allowed for by FSB ensures the necessary tolerances during fitting. Assembly is as follows:

Step 1

First fit into the door the set screw over which the clamping elements are to pass. How this is done depends on whether back to back fixing, bolt through-fixing or secret single side fixing with expansion plug.

Step 2

Then detach the clamping elements from the handle ends by turning them anticlockwise. Remove the plastic clip and slip the plastic washer, the steel washer and the clamping rose and the clamping element over the set screw in that order. Using the spacer sleeve, screw the elements together, ensuring that the clamping rose and clamping element remain free to rotate.

Step 3

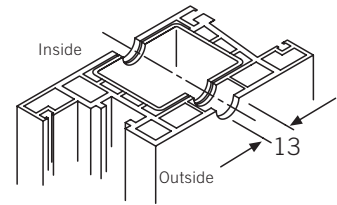
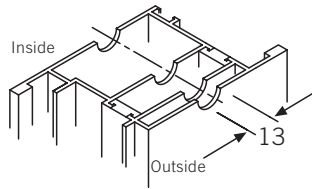
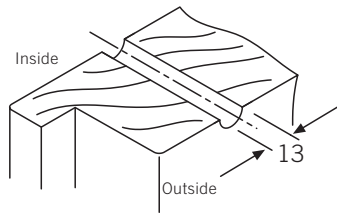
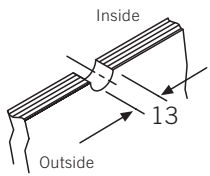
Place the handle on the fixing points and tighten against the door by alternately turning the clamping roses in a clockwise direction.

A turning device for the FSB clamping rose is supplied with the product.

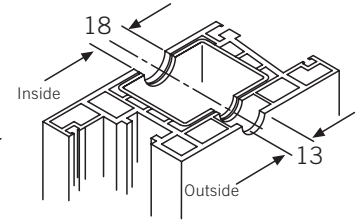
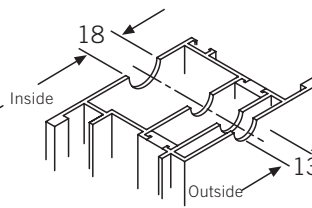
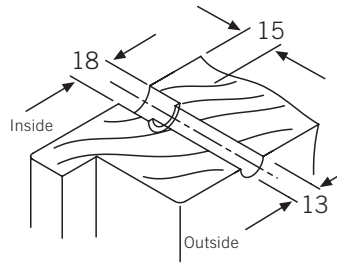
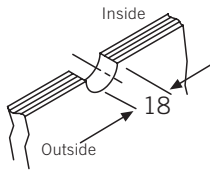
Borehole dimensions

Glas door
Timber door
Metal door
Synth. mat. door

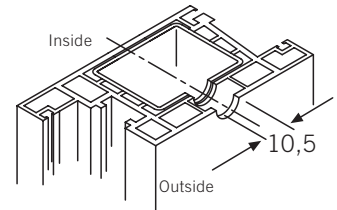
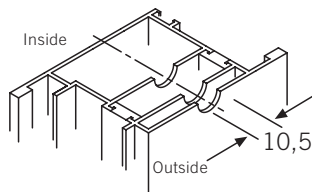
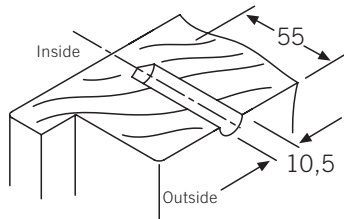
back to back fixing



bolt through-fixing



secret single side fixing
with expansion plug



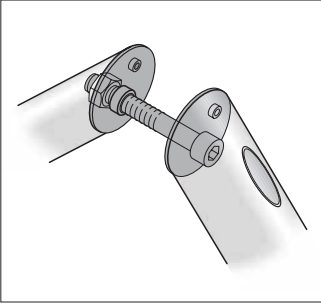
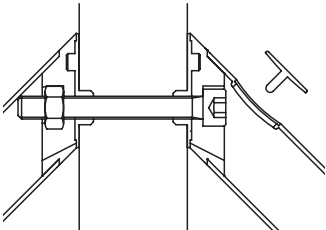
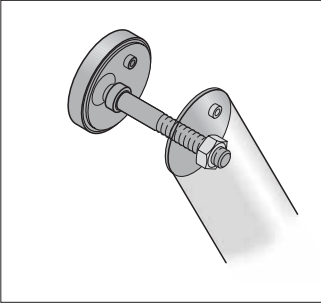
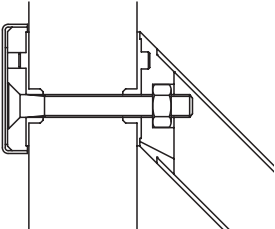
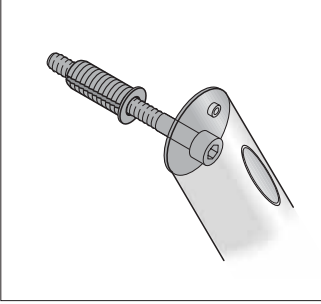
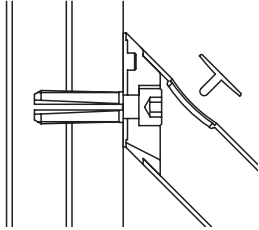
Fixing methods

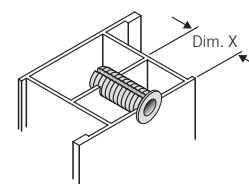
Pull handles

Pull handle series

6635
6636
6637

When selecting and ordering pull handles, please note that the pulls in this series are produced as threaded-part and through-fixing sections.

	Fixing method	Fixing accessories	Item nos.
	back to back fixing	2 each socket head cup screws M8 4 each plastic washers 2 each lids Stainless steel	0582 1008 glass door 8–10 mm 0582 3038 38 – 44 mm 0582 3045 45 – 49 mm 0582 3050 50 – 54 mm 0582 3055 55 – 59 mm 0582 3060 60 – 64 mm 0582 3065 65 – 69 mm 0582 3070 70 – 74 mm 0582 3075 75 – 79 mm 0582 3080 80 – 84 mm
		Borehole Ø 13 mm	
	bolt through-fixing	2 each countersunk screw M8 4 each plastic washers 2 each fixing washers with caps Stainless steel	0582 2008 glass door 8–10 mm 0582 4038 38 – 44 mm 0582 4045 45 – 49 mm 0582 4050 50 – 54 mm 0582 4055 55 – 59 mm 0582 4060 60 – 64 mm 0582 4065 65 – 69 mm 0582 4070 70 – 74 mm 0582 4075 75 – 79 mm 0582 4080 80 – 84 mm
		Borehole Ø 13 mm	
	secret single side fixing with expansion plug	2 each socket head cup screws M8 2 each plastic washers 2 each expansion plugs brass dull nickel finish 2 each lids Stainless steel	0582 0010 Dim. X 10 – 16 mm length of dowel 20 mm 0582 0016 Dim. X 16 – 30 mm length of dowel 34 mm 0582 0024 Dim. X 24 – 44 mm length of dowel 48 mm
		Borehole Ø 10.5 mm	

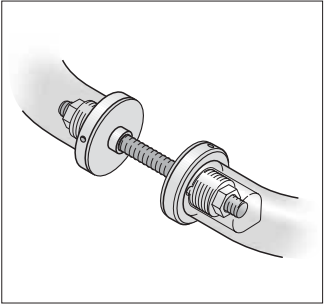
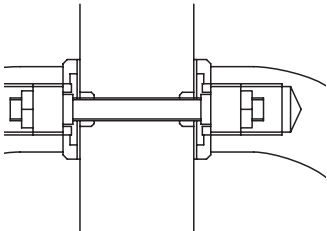
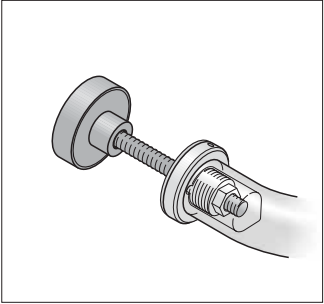
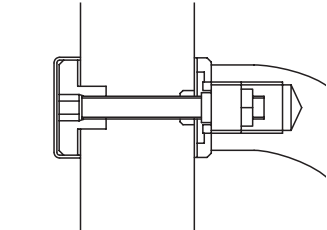
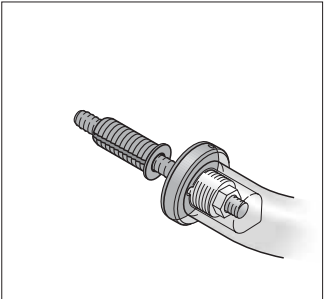
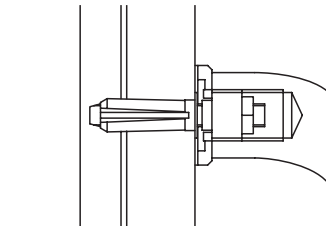


Dim. X = Dim. of chamber

For timber doors the possible max. length of dowel is to be chosen.

Fixing methods

Pull handles

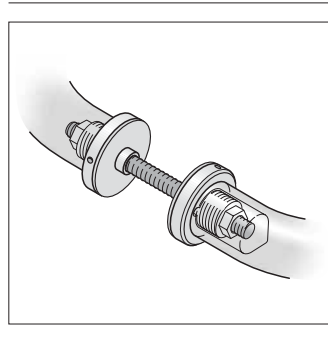
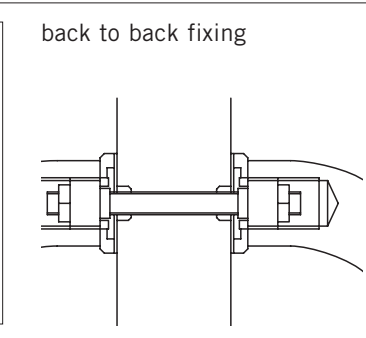
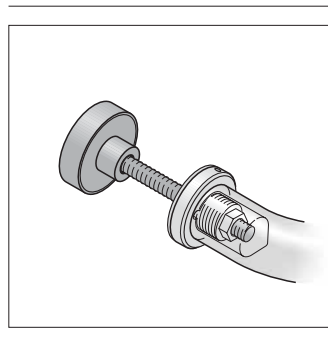
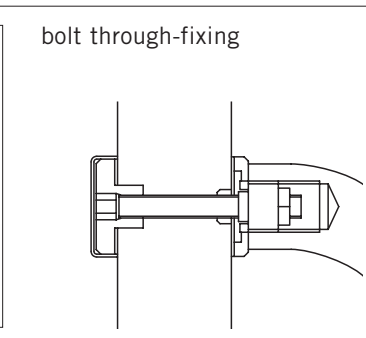
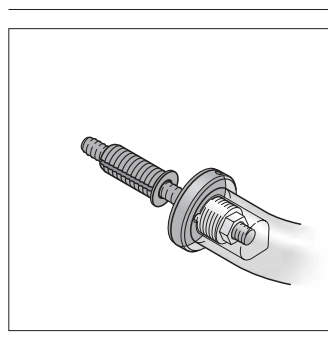
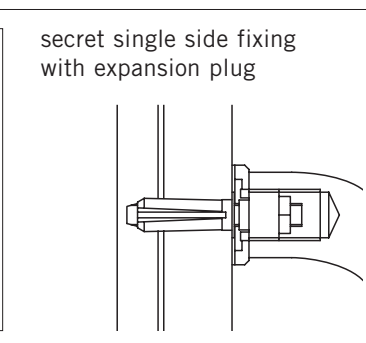
		Pull handle series round M8	
		6108, 6109, 6501, 6502, 6503, 6504, 6505, 6506, 6507, 6510, 6514, 6529, 6531, 6532, 6533, 6534, 6535, 6536, 6537, 6538, 6540, 6541, 6542, 6580, 6582, 6583, 6602, 6603,	6604, 6605, 6606, 6607, 6608, 6609, 6623, 6624, 6625, 6630, 6647, 6650, 6652, 6653, 6655, 6658, 6659, 6661, 6662, 6663, 6664, 6669, 6670, 6673, 6677, 6678, 6679, 6681, 6683, 6688
Fixing method	Fixing accessories	Item nos.	
	back to back fixing	2 each set screws M8	0580 1008 glass door 8–10 mm
		Borehole \varnothing 13 mm	0580 3035 35 – 54 mm
0580 3055 55 – 74 mm			
			0580 3075 75 – 94 mm
	bolt through-fixing	2 each set screws M8	Grip diameter 25/30 mm
		2 each fixing nuts with caps	0580 2308 glass door 8–10 mm
			0580 4335 35 – 44 mm
			0580 4345 45 – 54 mm
			0580 4355 55 – 64 mm
			0580 4365 65 – 74 mm
			0580 4375 75 – 84 mm
			Grip diameter 35/40 mm
			0580 2408 glass door 8–10 mm
		Borehole \varnothing 13/18 mm, please turn to page 414	0580 4435 35 – 44 mm
			0580 4445 45 – 54 mm
			0580 4455 55 – 64 mm
			0580 4465 65 – 74 mm
			0580 4475 75 – 84 mm
	secret single side fixing with expansion plug	2 each set screws M8	0580 0010 Dim. X 10 – 16 mm
		2 each expansion plugs brass dull nickel finish	length of dowel 20 mm
			0580 0016 Dim. X 16 – 30 mm
			length of dowel 34 mm
			0580 0024 Dim. X 24 – 44 mm
			length of dowel 48 mm
		Borehole \varnothing 10.5 mm	

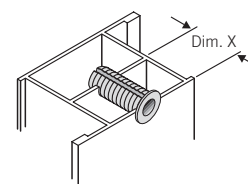
Fixing methods

Pull handles

Pull handle series round M6

6110, 6111, 6112, 6113,
6610, 6611, 6612, 6613,
6619, 6626, 6627, 6649,
6660

	Fixing method	Fixing accessories	Item nos.
	 <p>back to back fixing</p>	<p>2 each set screws M6</p> <p>Borehole \varnothing 13 mm</p>	<p>0580 1208 glass door 8–10 mm</p> <p>0580 3235 35 – 54 mm</p> <p>0580 3255 55 – 74 mm</p> <p>0580 3275 75 – 94 mm</p>
	 <p>bolt through-fixing</p>	<p>2 each set screws M8</p> <p>2 each fixing nuts with caps</p> <p>Borehole \varnothing 13/18 mm, please turn to page 414</p>	<p>Grip diameter 20/25 mm</p> <p>0580 2208 glass door 8–10 mm</p> <p>0580 4235 35 – 44 mm</p> <p>0580 4245 45 – 54 mm</p> <p>0580 4255 55 – 64 mm</p> <p>0580 4265 65 – 74 mm</p> <p>0580 4275 75 – 84 mm</p>
	 <p>secret single side fixing with expansion plug</p>	<p>2 each set screws M6</p> <p>2 each expansion plugs brass dull nickel finish</p> <p>Borehole \varnothing 10.5 mm</p>	<p>0580 0210 Dim. X 10 – 16 mm length of dowel 20 mm</p> <p>0580 0216 Dim. X 16 – 30 mm length of dowel 34 mm</p> <p>0580 0224 Dim. X 24 – 44 mm length of dowel 48 mm</p>



Dim. X = Dim. of chamber

For timber doors the possible max. length of dowel is to be chosen.

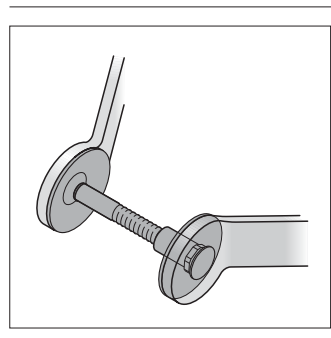
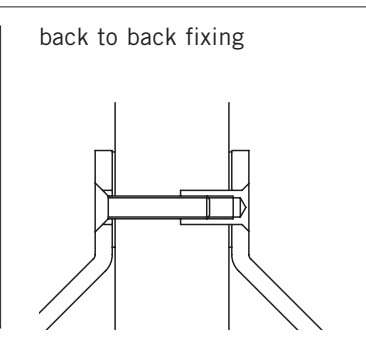
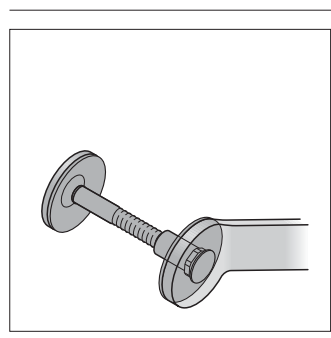
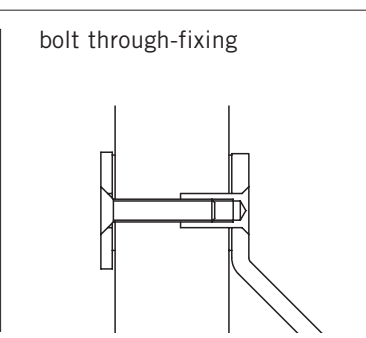
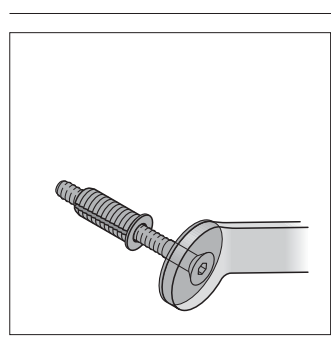
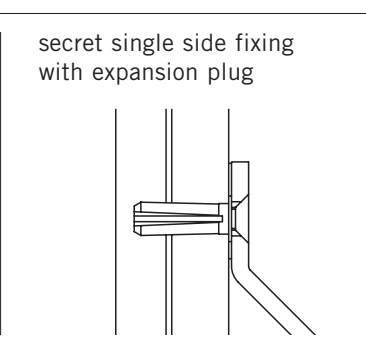
Fixing methods

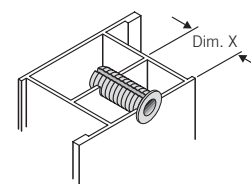
Pull handles

Pull handle series

6525

6615
6616
6674
6675

	Fixing method	Fixing accessories	Item nos.
	 <p>back to back fixing</p>	<p>2 each countersunk screws M8 with sleeve nuts M8 stainless steel 4 each plastic washers</p> <p>Borehole \varnothing 13 mm</p>	<p>0583 1008 glass door 8–10 mm 0583 3034 34 – 43 mm 0583 3044 44 – 53 mm 0583 3054 54 – 63 mm 0583 3064 64 – 73 mm 0583 3074 74 – 83 mm</p>
	 <p>bolt through-fixing</p>	<p>2 each countersunk screws M8 with sleeve nuts M8 stainless steel 2 each washers stainless steel 4 each plastic washers</p> <p>Borehole \varnothing 13 mm</p>	<p>0583 2008 glass door 8–10 mm 0583 4036 36 – 45 mm 0583 4046 46 – 55 mm 0583 4056 56 – 65 mm 0583 4066 66 – 75 mm 0583 4076 76 – 85 mm</p>
	 <p>secret single side fixing with expansion plug</p>	<p>2 each countersunk screws M8 Stainless steel 2 each expansion plugs brass dull nickel finish 2 each plastic washers</p> <p>Borehole \varnothing 10.5 mm</p>	<p>0583 0010 Dim. X 10 – 16 mm length of dowel 20 mm 0583 0016 Dim. X 16 – 30 mm length of dowel 34 mm 0583 0024 Dim. X 24 – 44 mm length of dowel 48 mm</p>



Dim. X = Dim. of chamber

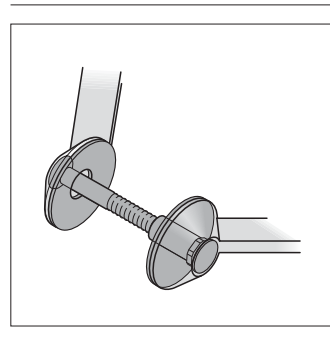
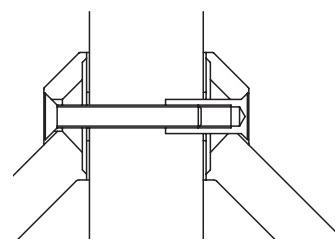
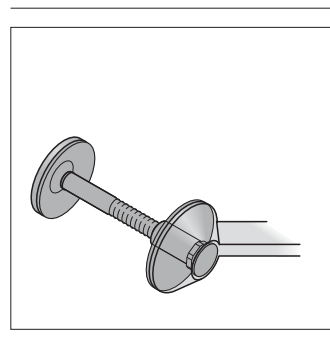
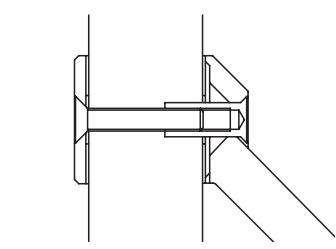
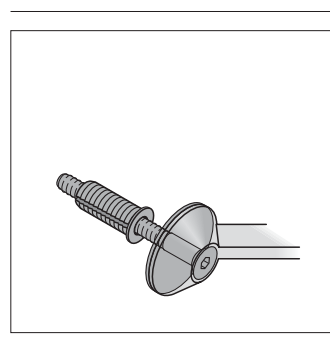
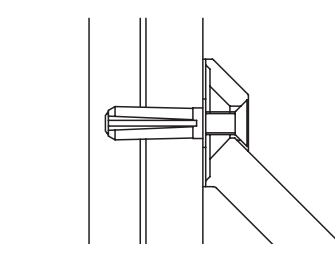
For timber doors the possible max. length of dowel is to be chosen.

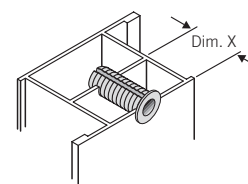
Fixing methods

Pull handles

Pull handle series

6620
6621

	Fixing method	Fixing accessories	Item nos.
	back to back fixing 	2 each countersunk screw M 8 with sleeve nuts M8 Stainless steel 4 each plastic washers Borehole \varnothing 13 mm	0584 1008 glass door 8–10 mm 0584 3035 35 – 44 mm 0584 3045 45 – 54 mm 0584 3055 55 – 64 mm 0584 3065 65 – 74 mm 0584 3075 75 – 84 mm
	bolt through-fixing 	2 each countersunk screw M8 with sleeve nuts M8 Stainless steel 2 each washers Stainless steel 4 each plastic washers Borehole \varnothing 13 mm	0584 2008 glass door 8–10 mm 0584 4035 35 – 44 mm 0584 4045 45 – 55 mm 0584 4055 55 – 65 mm 0584 4065 65 – 75 mm 0584 4075 75 – 85 mm
	secret single side fixing with expansion plug 	2 each countersunk screw M8 Stainless steel 2 each expansion plugs brass dull nickel finish 2 each plastic washers Borehole \varnothing 10.5 mm	0584 0010 Dim. X 10 – 16 mm length of dowel 20 mm 0584 0016 Dim. X 16 – 30 mm length of dowel 34 mm 0584 0024 Dim. X 24 – 44 mm length of dowel 48 mm



Dim. X = Dim. of chamber

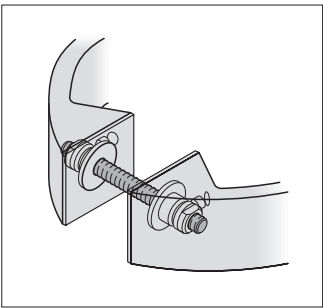
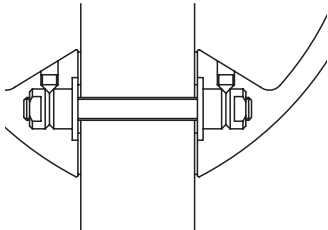
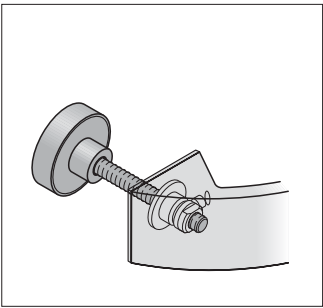
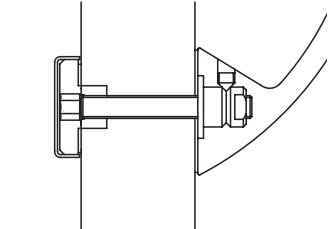
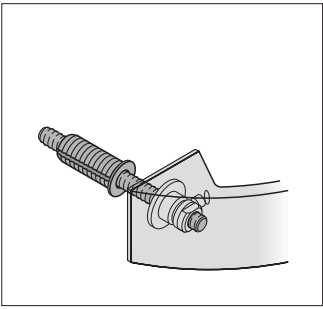
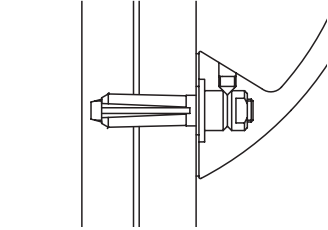
For timber doors the possible max. length of dowel is to be chosen.

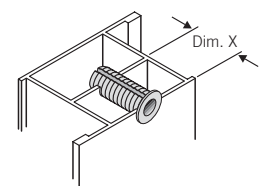
Fixing methods

Pull handles

Pull handle series

6526

Fixing method	Fixing accessories	Item nos.
	<p>back to back fixing</p> 	<p>2 each set screws M8</p> <p>0587 1008 glass door 8–10 mm</p> <p>0587 3035 35 – 54 mm</p> <p>0587 3055 55 – 74 mm</p> <p>0587 3075 75 – 94 mm</p> <p>Borehole Ø 13 mm</p>
	<p>bolt through-fixing</p> 	<p>2 each set screws M8</p> <p>2 each fixing nuts with caps</p> <p>0587 2308 glass door 8–10 mm</p> <p>0587 4335 35 – 44 mm</p> <p>0587 4345 45 – 54 mm</p> <p>0587 4355 55 – 64 mm</p> <p>0587 4365 65 – 74 mm</p> <p>0587 4375 75 – 84 mm</p> <p>Borehole Ø 13/18 mm, please turn to page 414</p>
	<p>secret single side fixing with expansion plug</p> 	<p>2 each set screws M8</p> <p>2 each expansion plugs brass dull nickel finish</p> <p>0587 0010 Dim. X 10 – 16 mm length of dowel 20 mm</p> <p>0587 0016 Dim. X 16 – 30 mm length of dowel 34 mm</p> <p>0587 0024 Dim. X 24 – 44 mm length of dowel 48 mm</p> <p>Borehole Ø 10.5 mm</p>

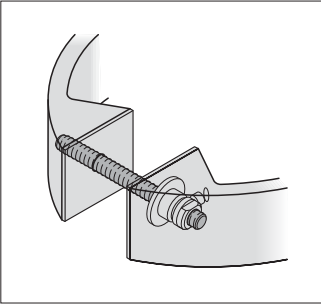
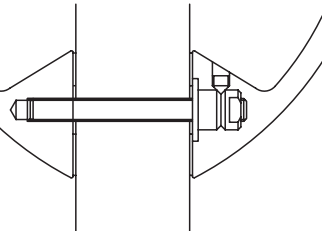
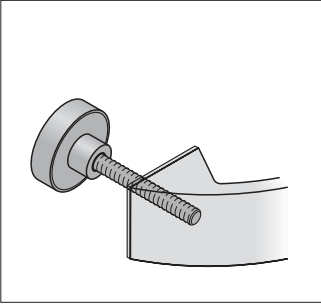
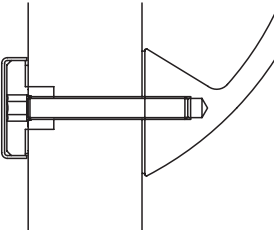
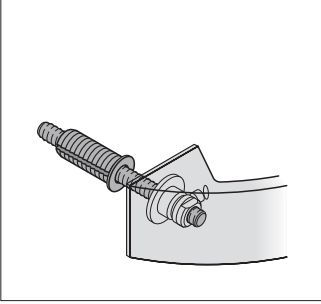
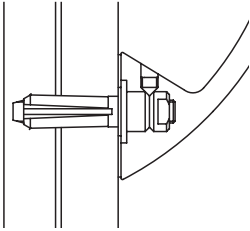


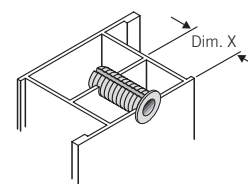
Dim. X = Dim. of chamber

For timber doors the possible max. length of dowel is to be chosen.

Fixing methods

Pull handles

		Pull handle series	
		6110	
		6111	
		6112	
		6113	
		6642	
		6643	
Fixing method	Fixing accessories	Item nos.	
	back to back fixing 	2 each set screws M6	0580 1208 glass door 8–10 mm
			0580 3235 35 – 54 mm 0580 3255 55 – 74 mm 0580 3275 75 – 94 mm
		Borehole \varnothing 13 mm	
	bolt through-fixing 	2 each set screws M6	0580 2208 glass door 8–10 mm
		2 each fixing nuts with caps	0580 4235 35 – 44 mm 0580 4245 45 – 54 mm 0580 4255 55 – 64 mm 0580 4265 65 – 74 mm 0580 4275 75 – 84 mm
		Borehole \varnothing 13/18 mm, look page 414	
	secret single side fixing with expansion plug 	2 each set screws M6	0580 0210 Dim. X 10 – 16 mm
		2 each expansion plugs brass dull nickel finish	length of dowel 20 mm 0580 0216 Dim. X 16 – 30 mm length of dowel 34 mm 0580 0224 Dim. X 24 – 44 mm length of dowel 48 mm
		Borehole \varnothing 10.5 mm	



Dim. X = Dim. of chamber

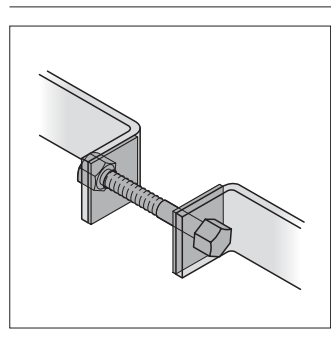
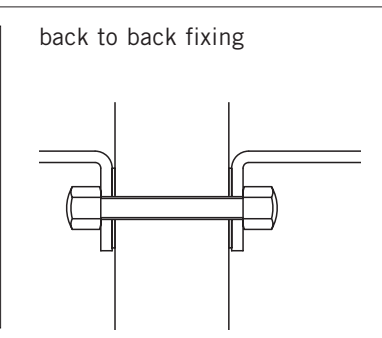
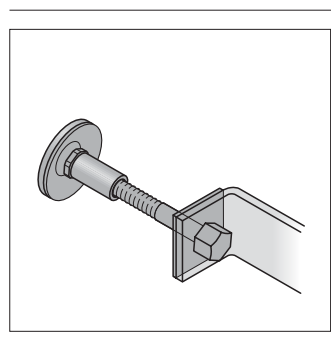
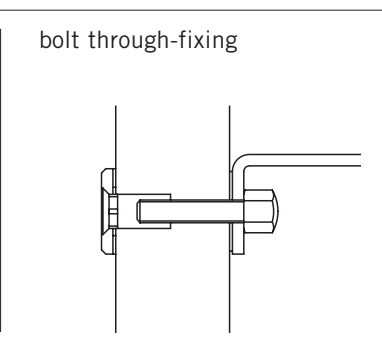
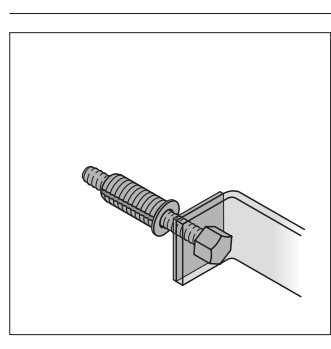
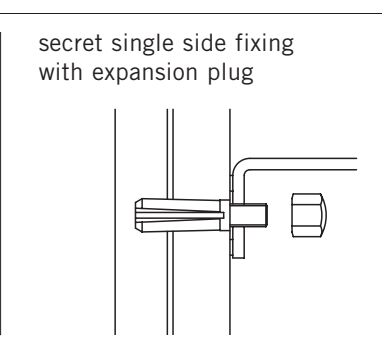
For timber doors the possible max. length of dowel is to be chosen.

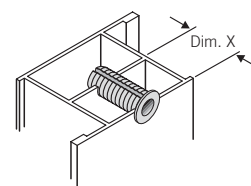
Fixing methods

Pull handles

Pull handle series

ht oval modular systems
 ht round modular systems
 6524
 6522
 6523
 6508

	Fixing method	Fixing accessories	Item nos.
	back to back fixing 	2 each set screws M8 4 each sleeve nuts M8 Stainless steel 4 each plastic washers Borehole \varnothing 13 mm	0585 3035 35 – 39 mm 0585 3040 40 – 44 mm 0585 3045 45 – 49 mm 0585 3050 50 – 54 mm 0585 3055 55 – 59 mm 0585 3060 60 – 64 mm 0585 3065 65 – 69 mm 0585 3070 70 – 74 mm 0585 3075 75 – 79 mm 0585 3080 80 – 84 mm
	bolt through-fixing 	2 each set screws M8 2 each sleeve nuts M8 Stainless steel 2 each sleeve nuts M8 with washers Stainless steel 4 each plastic washers Borehole \varnothing 13 mm	0585 2035 35 – 44 mm 0585 2045 45 – 54 mm 0585 2055 55 – 64 mm 0585 2065 65 – 74 mm 0585 2075 75 – 84 mm
	secret single side fixing with expansion plug 	2 each set screws M8 2 each sleeve nuts M8 Stainless steel 2 each expansion plugs brass dull nickel finish 2 each plastic washers Borehole \varnothing 10.5 mm	0585 0010 Dim. X 10 – 16 mm length of dowel 20 mm 0585 0016 Dim. X 16 – 30 mm length of dowel 34 mm 0585 0024 Dim. X 24 – 44 mm length of dowel 48 mm



Dim. X = Dim. of chamber

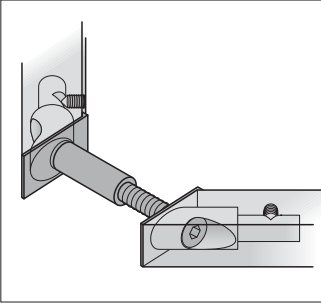
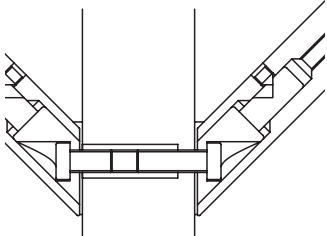
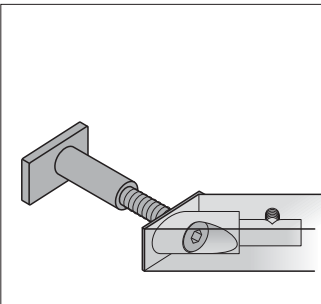
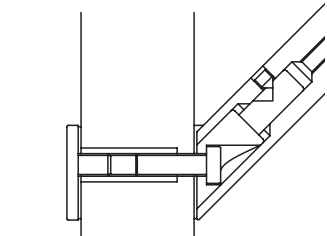
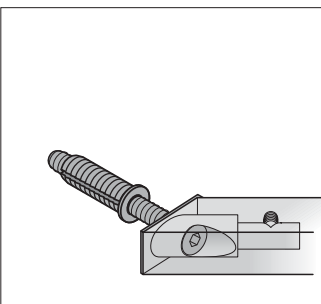
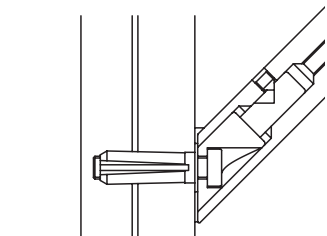
For timber doors the possible max. length of dowel is to be chosen.

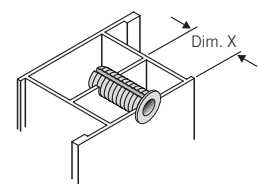
Fixing methods

Pull handles

Pull handle series

6710
6711
6712
6713

	Fixing method	Fixing accessories	Item nos.
	back to back fixing	1 M8 cheese-head screw 1 nut 1 plastic bushing 2 M8 cheese-head screws 1 threaded bushing	0588 1008 glass door 8–10 mm 0588 3035 35 – 44 mm 0588 3045 45 – 54 mm 0588 3055 55 – 64 mm 0588 3065 65 – 74 mm 0588 3075 75 – 84 mm
	Borehole Ø 13 mm		
	bolt through-fixing	1 nut 1 fixing plate 1 plastic bushing 1 M8 cheese-head screw 1 threaded bushing 1 fixing plate	0588 2008 glass door 8–10 mm 0588 4035 35 – 44 mm 0588 4045 45 – 54 mm 0588 4055 55 – 64 mm 0588 4065 65 – 74 mm 0588 4075 75 – 84 mm
	Borehole Ø 13 mm		
	secret single side fixing with expansion plug	1 M8 cheese-head screw 1 expansion plugs brass dull nickel finish	0588 0010 Dim. X 10 – 16 mm length of dowel 20 mm 0588 0016 Dim. X 16 – 30 mm length of dowel 34 mm 0588 0024 Dim. X 24 – 44 mm length of dowel 48 mm
	Borehole Ø 10.5 mm		



Dim. X = Dim. of chamber

For timber doors the possible max. length of dowel is to be chosen.

