



# EPCO GLASS FITTINGS SYSTEM



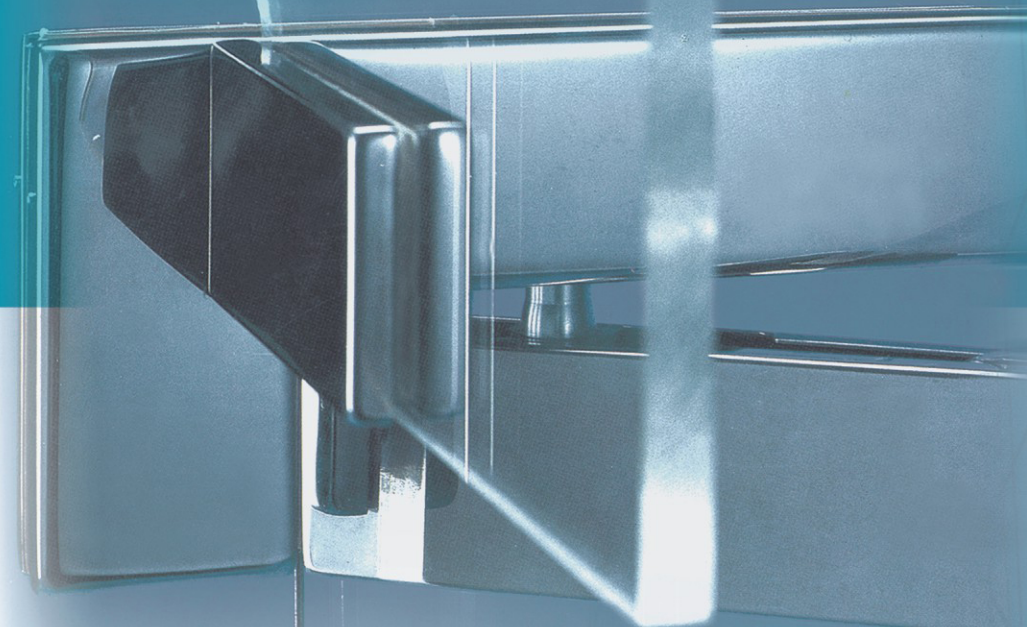
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PATCH FITTINGS, RAILS,  
LOCKS AND ACCESSORIES FOR  
TEMPERED GLASS ENTRANCES



## Typical toughened glass assemblies with fittings and locks

86 = Floor spring  
 PK = Lock keeper  
 PF = Centre hung door fittings  
 800 = Transom closer  
 (see technical information 800 series for details)  
 PL = Lock

### Maximum door weight

max. door weight : 80 kg  
 max. door width : 1100 mm

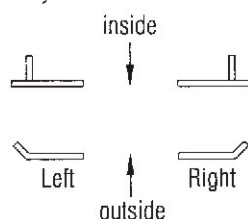
For door weights up to 120 kg and widths up to 1400 mm, door rails should be used (see Technical Information rail system 4).

### Torque for fixing screws

Screws M6 : 10 Nm (4 mm) \*  
 Screws M6 : 15 Nm (5 mm) \*  
 Screws M8 : 20 Nm (5 mm) \*

Please note : If angle fittings or fin fittings are used :

"Left" or "Right" have to be determined in any case by view from outside and above.



\*allen key size

### Cover finishes :

\*M - Aluminium, mill finish  
 \*N - Aluminium, silver anodized  
 \*78 - Aluminium, dark bronze anodized  
 \*SP -Stainless, polished  
 \*SS -Stainless, stain  
 \*BP - Brass, polish  
 \*GP - 24K Gold plated

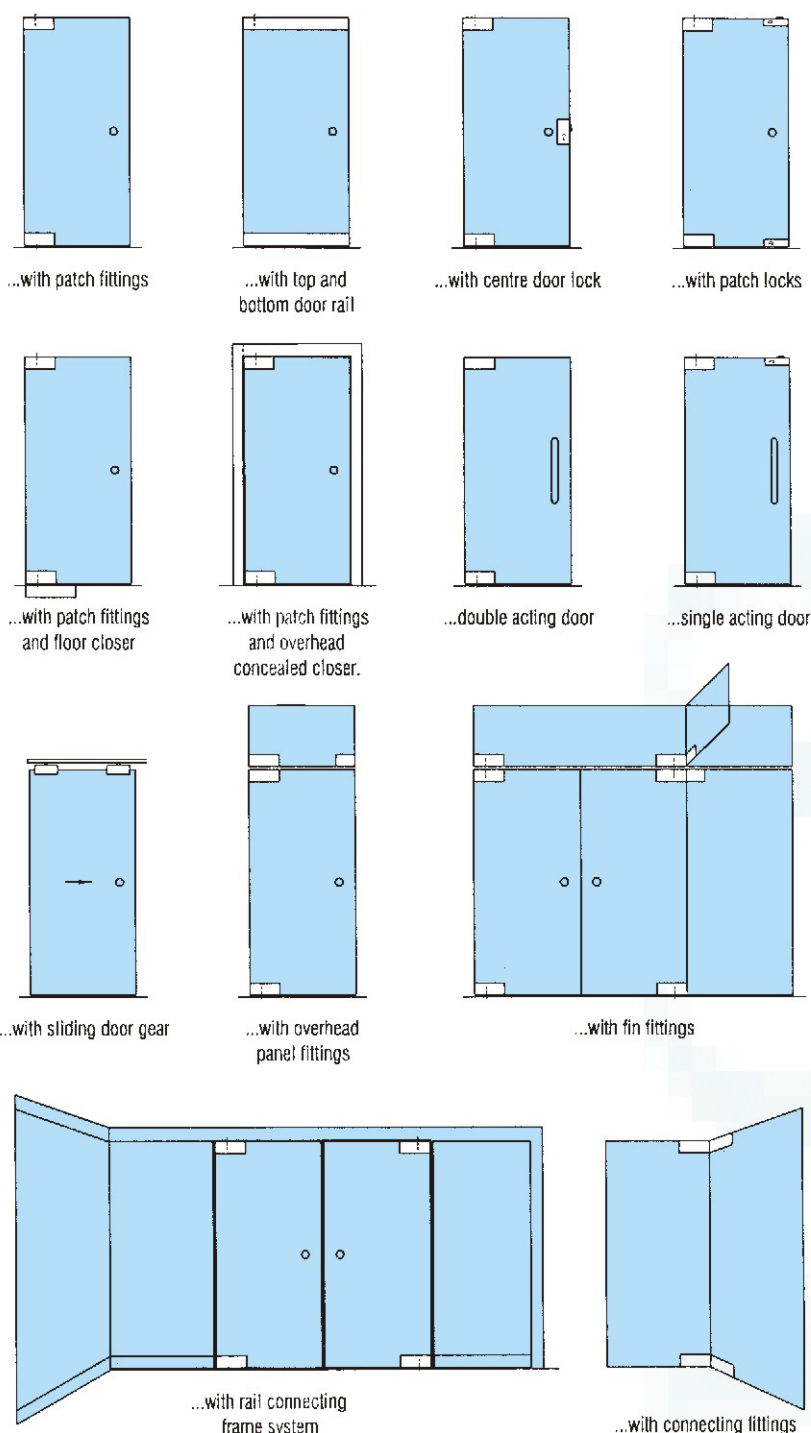
### Glass weight :

glass thickness	glass weight	weight including hardware kg/m <sup>2</sup>
8	20	25
10	25	30
12	30	35

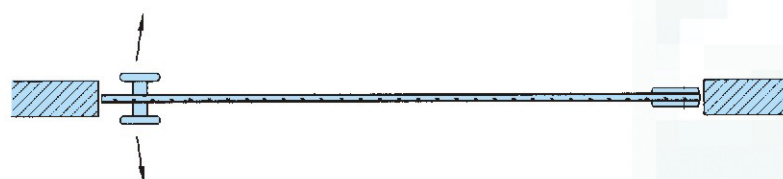
### Door types :

(use information given in your correspondence with - EPCO - Glass)

## The System



### Double acting door





### Installation dimensions

X : 7- 10 mm

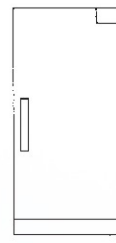
Y : 2- 4 mm

Z : 3- 5 mm

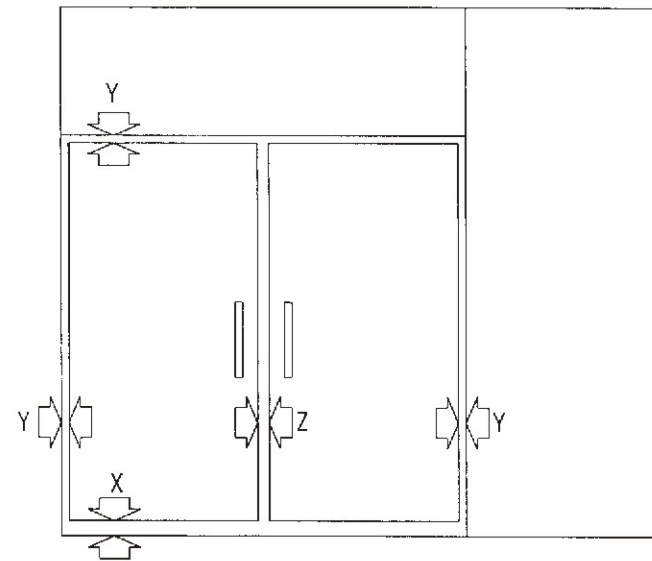
### Typical examples of tempered glass entrance assemblies



Type A

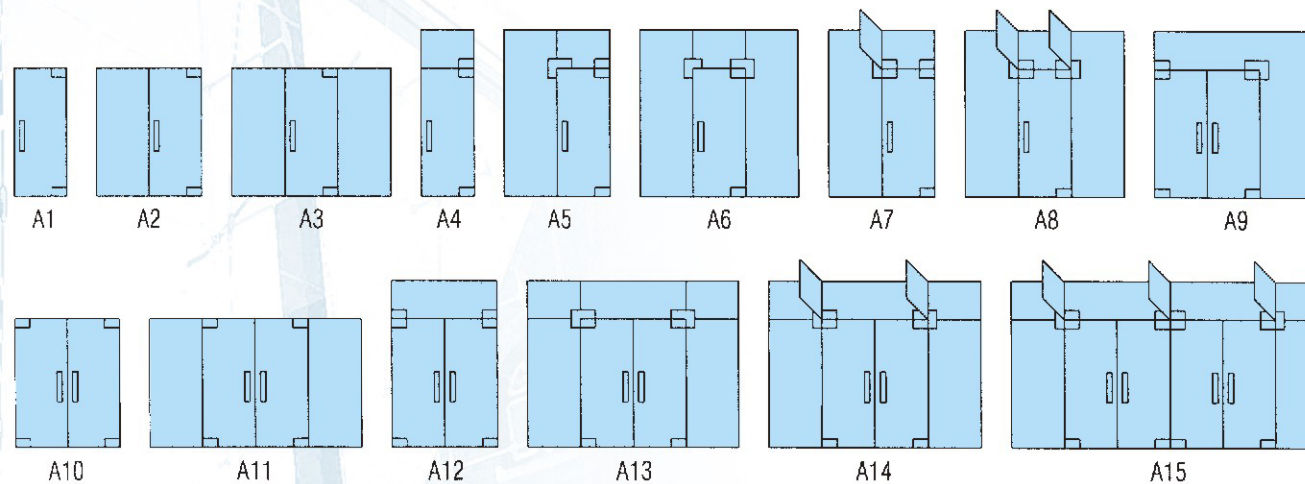


Type B

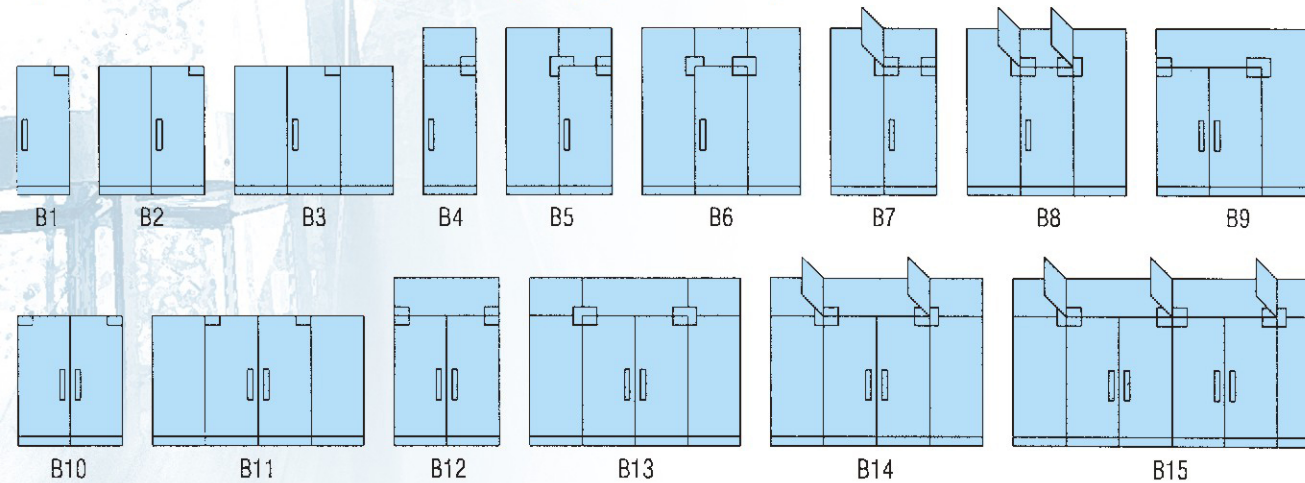


### Door Type

Type A - Patches fitted at top and bottom corners

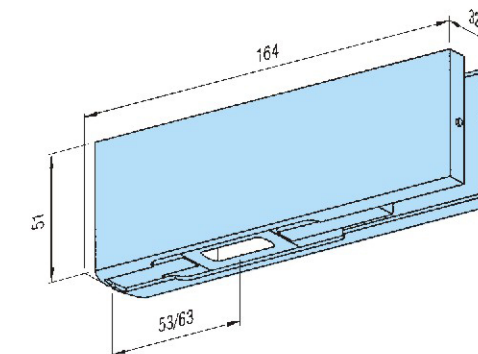


Type B - Full width rail fitted along bottom edge only, patch fitted at top corner.

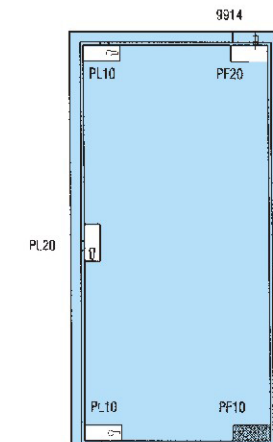


### PF10 BOTTOM FITTING

with insert for EPCO floor spring spindle.



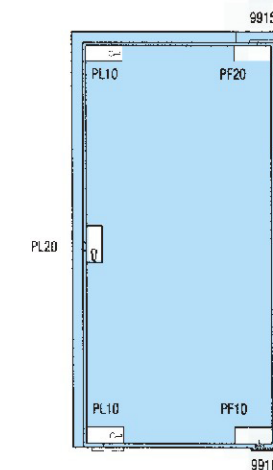
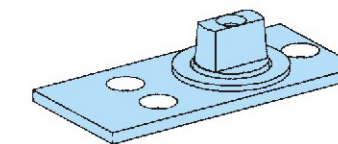
\*with 70mm(2-3/4") pivot point available (USA type)



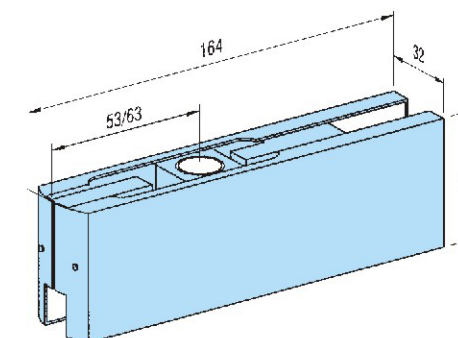
### 9916 FLOOR BEARING PIVOT

(with flat tapered spindle)

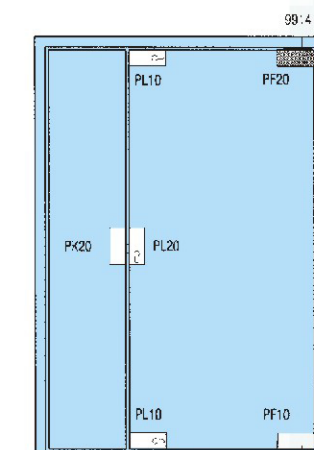
Also available with extended spindle inserts increments of 5 mm, up to 10mm.



### PF20 TOP FITTING



\*with 70mm(2-3/4") pivot point available (USA type)



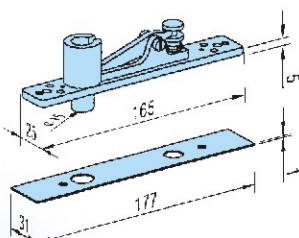


## UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

### 9914-15 TOP CENTRE

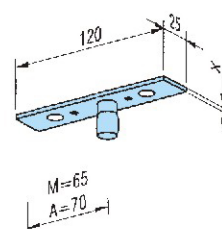
with  $\phi 15$ mm pivot  
with cover plate



### 9915 PIVOT

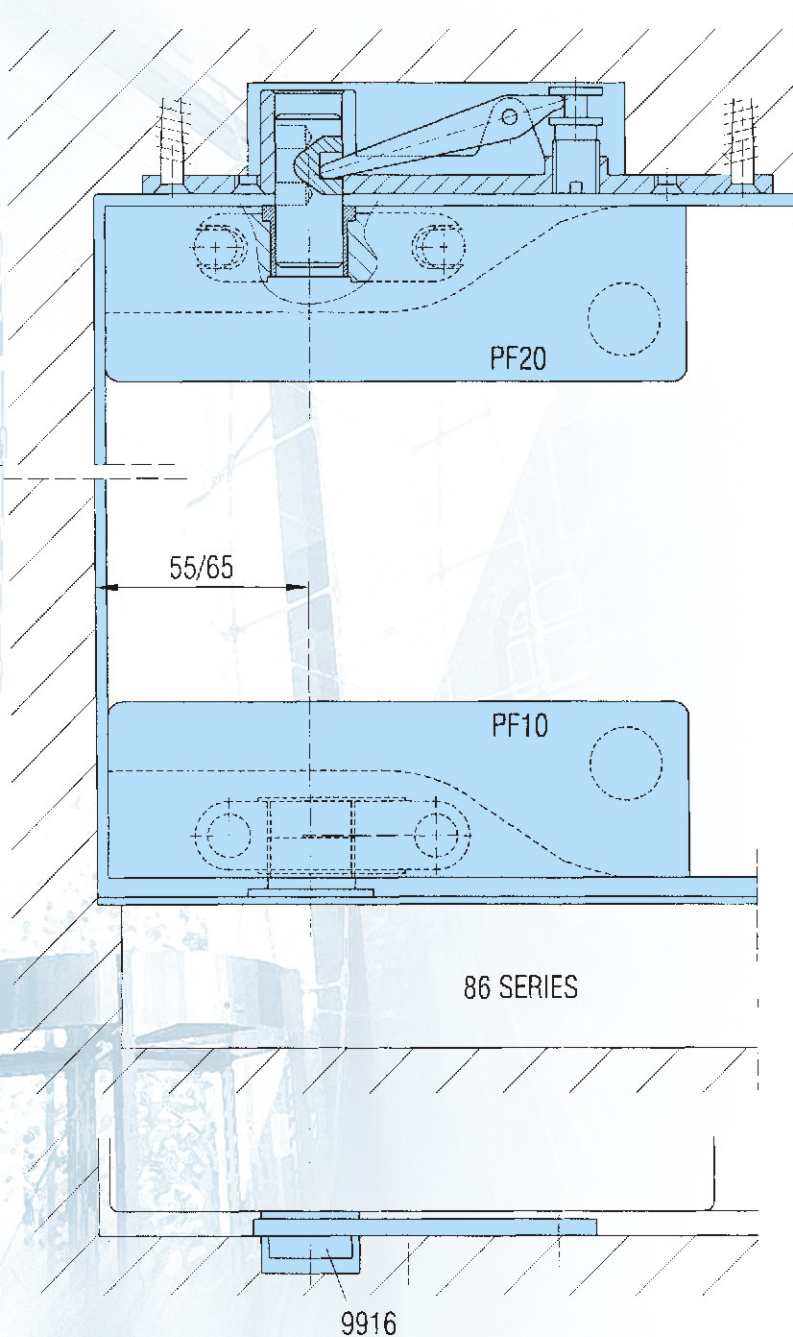
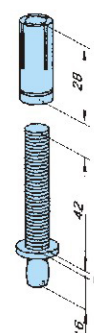
with fixing plate,  $\phi 15$ mm pivot

TYPE	MATERIAL	X
9915-AL	ALUMINIUM	6
9915-SS	STAINLESS	3

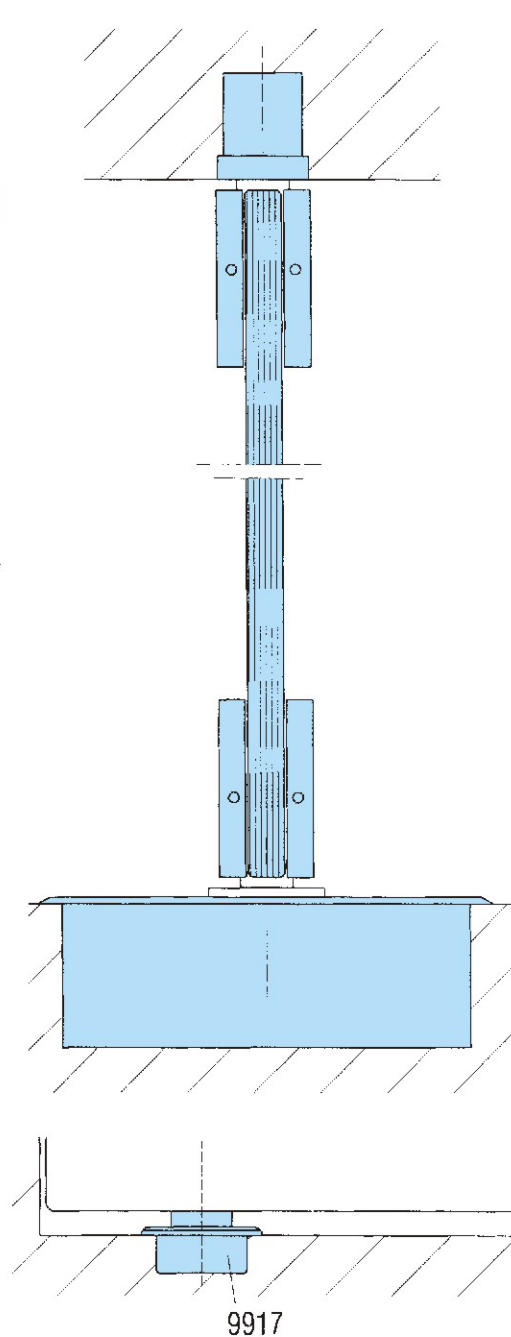


### 9919 PIVOT

$\phi 15$ mm with plug



9916



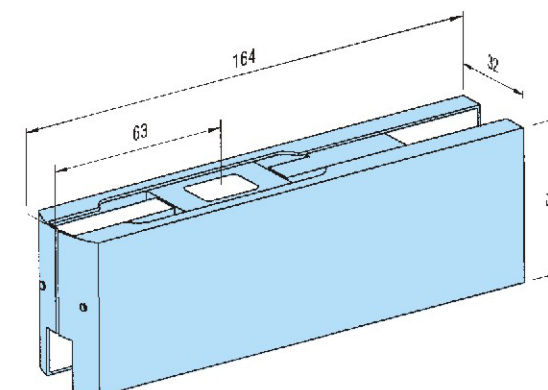
9917

## UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

### PF21 TOP FITTING

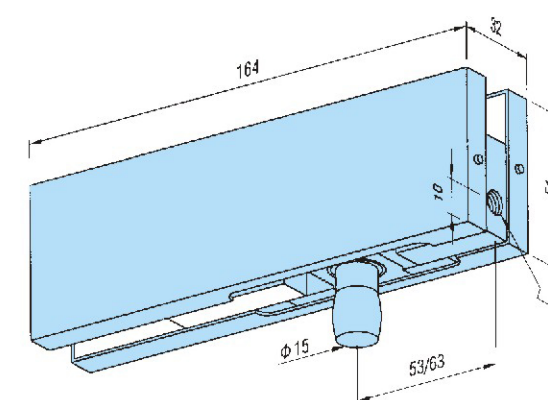
for overhead concealed closer series



\*with 70mm(2-3/4") pivot point available (USA type)

### PF30 TRANSOM FITTING

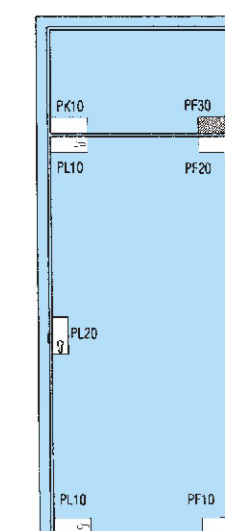
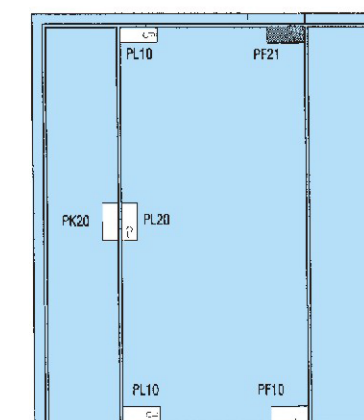
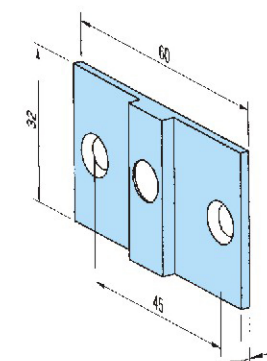
with pivot  $\phi 15$ mm, M8 tapped hole,



\*with 70mm(2-3/4") pivot point available (USA type)

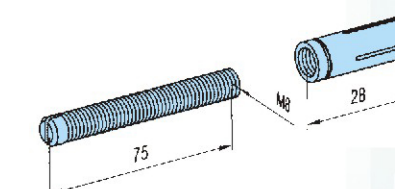
### 9920 ALUMINIUM FIXING PLATE

for transom fitting PF30



### 9921 THREADED ROD

M8 with plug for transom patch PF30



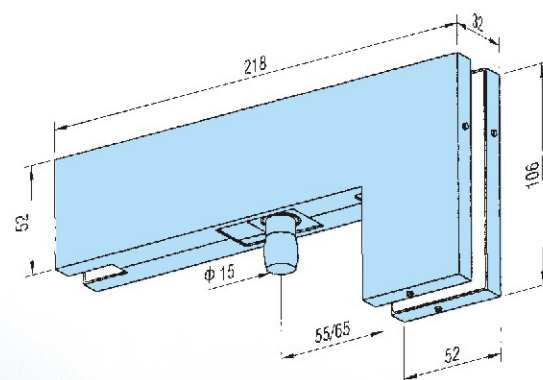


## UNIVERSAL PATCH FITTINGS

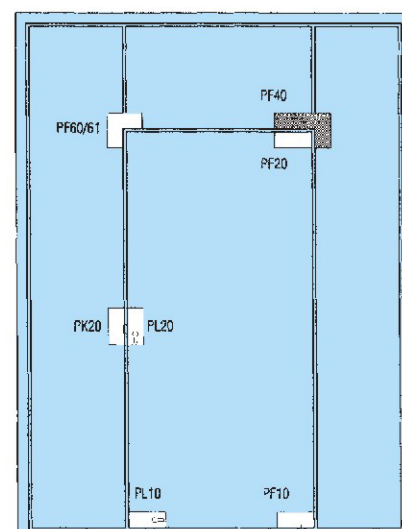
Suitable for 10mm or 12mm glass thickness

### PF40 TRANSOM SIDEPANEL FITTING

with pivot  $\varnothing 15\text{mm}$

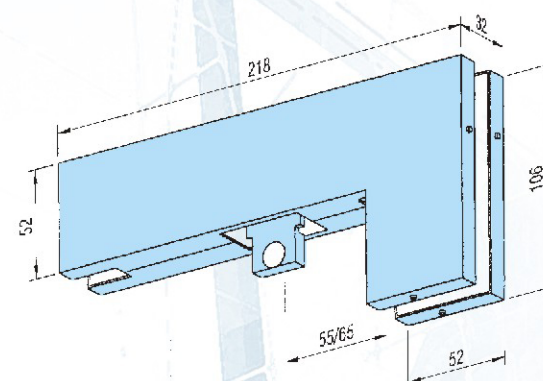


\*with 70mm(2-3/4") pivot point available (USA type)

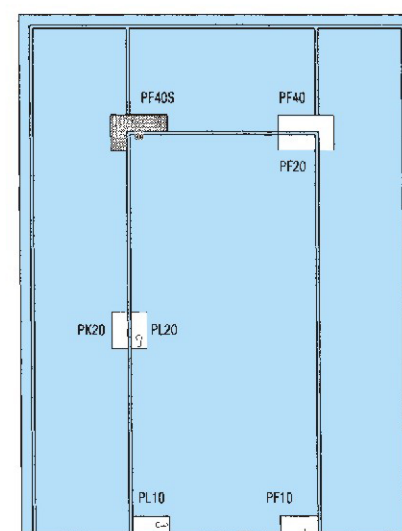


### PF40S TRANSOM SIDEPANEL FITTING

with stop insert for single action door

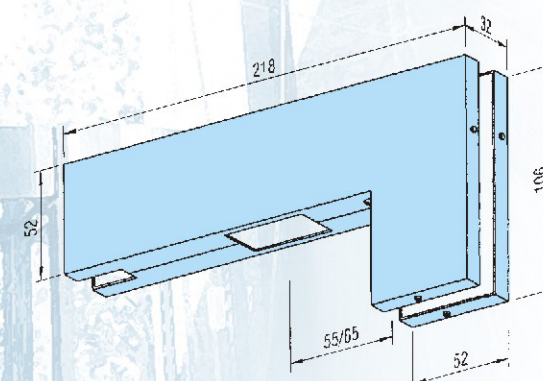


\*with 70mm(2-3/4") pivot point available (USA type)

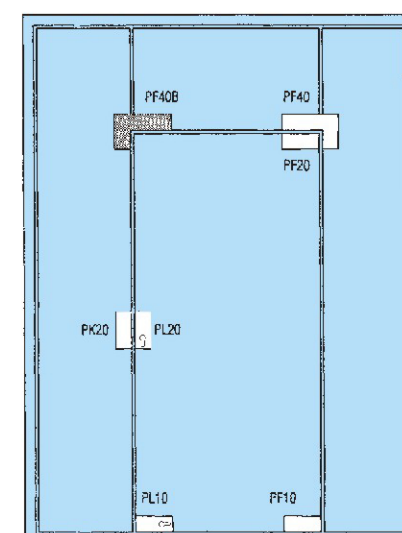


### PF40B TRANSOM SIDEPANEL FITTING

with blank insert for double action door

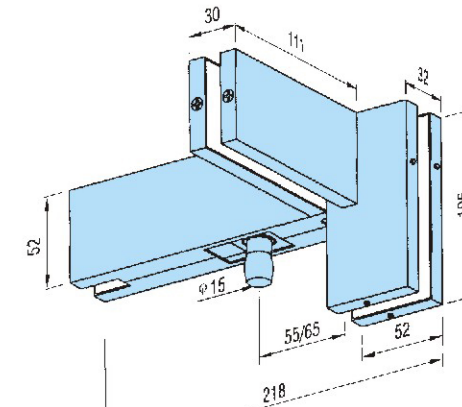


\*with 70mm(2-3/4") pivot point available (USA type)

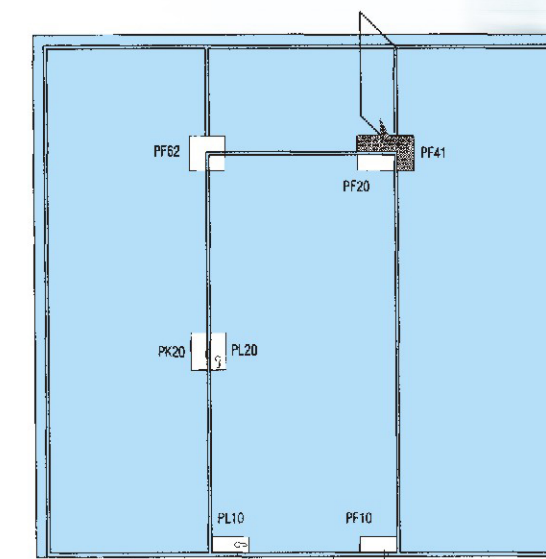


### PF41 TRANSOM SIDEPANEL FITTING

with fin, pivot  $\varnothing 15\text{mm}$  (left hand fin as illustrated),



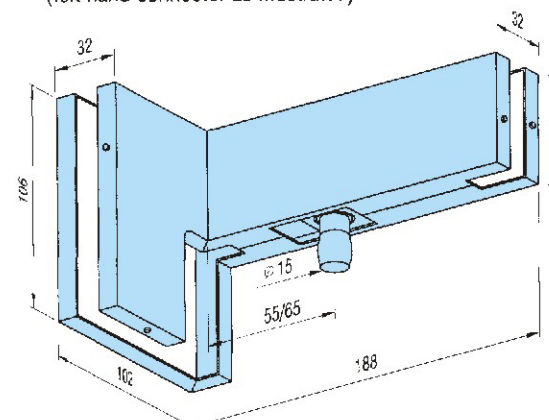
\*with 70mm(2-3/4") pivot point available (USA type)



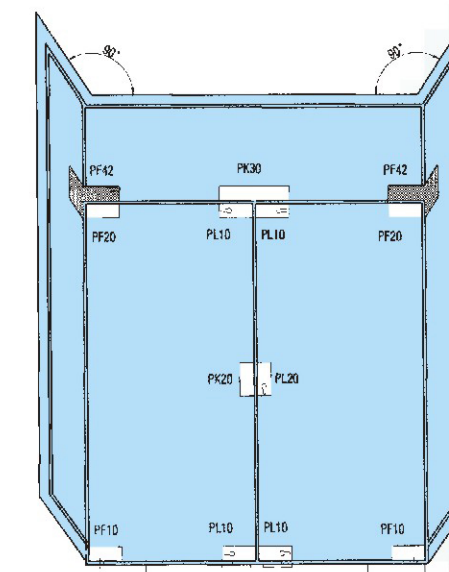
### PF42 OVERPANEL PATCH FITTING

angled inside, pivot  $\varnothing 15\text{mm}$ , 90°

(left hand connector as illustrated)



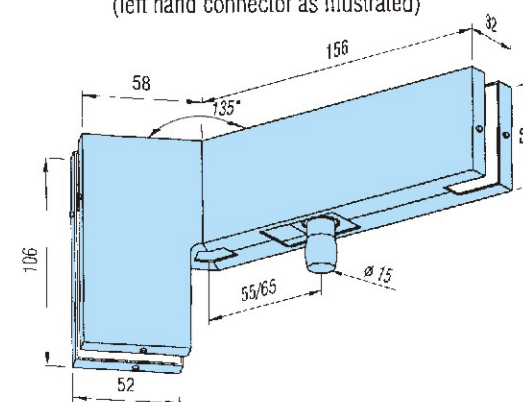
\*with 70mm(2-3/4") pivot point available (USA type)



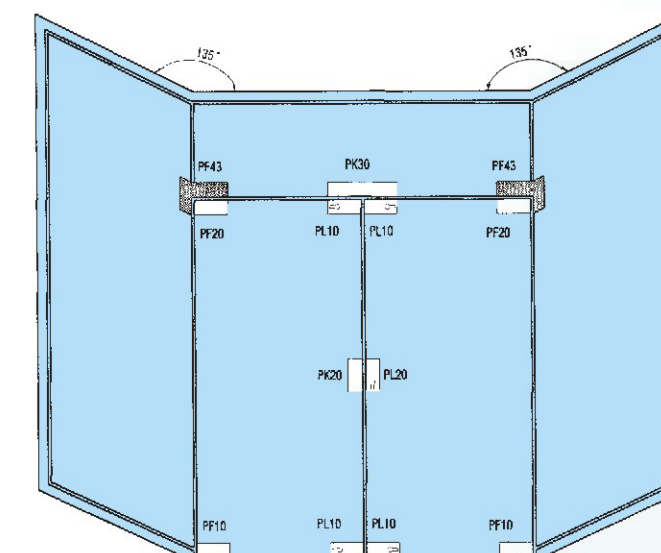
### PF43 OVERPANEL PATCH FITTING

angled inside, pivot  $\varnothing 15\text{mm}$ , 135°

(left hand connector as illustrated)

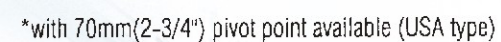


\*with 70mm(2-3/4") pivot point available (USA type)

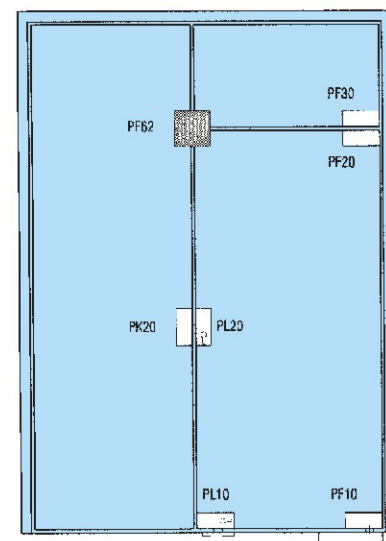
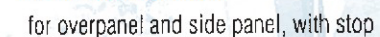




with two pivots  $\varnothing 15\text{mm}$

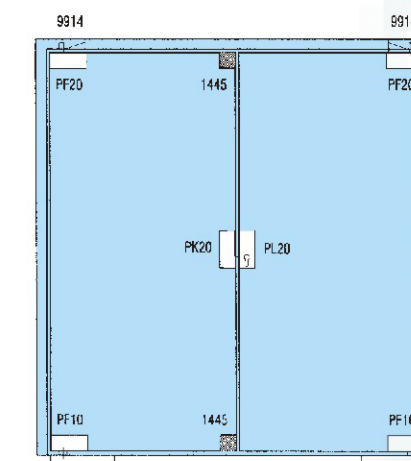


overpanel and side panel, for double or single action doors with one stop insert and two blanking inserts



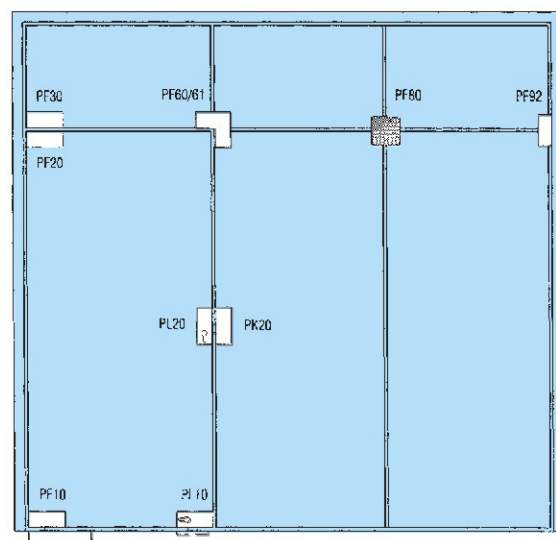
Suitable for 10mm or 12mm glass thickness

with two stop inserts and two blanking inserts

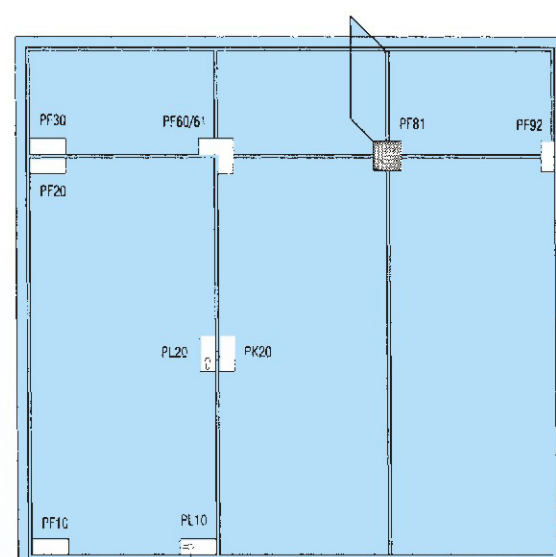




A 3D perspective diagram of a rectangular plate. The front face is a square with side length 106. The depth of the plate is 32. The top edge of the front face is labeled 106, the left edge is labeled 106, and the depth edge is labeled 32.

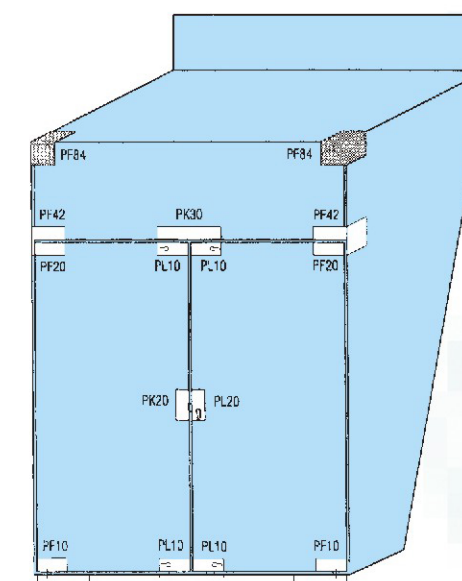
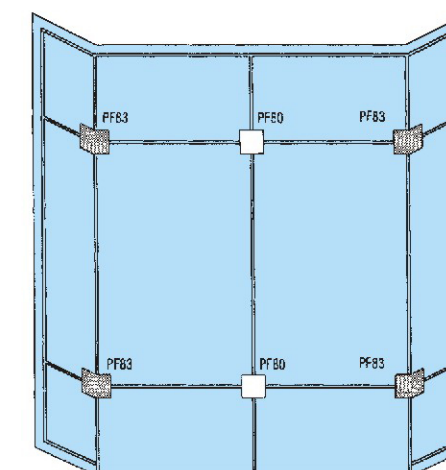


Technical drawing of a stepped block. The dimensions are: 106 (total width), 32 (top step width), 30 (middle step width), 52 (bottom step width), and 111 (total height).

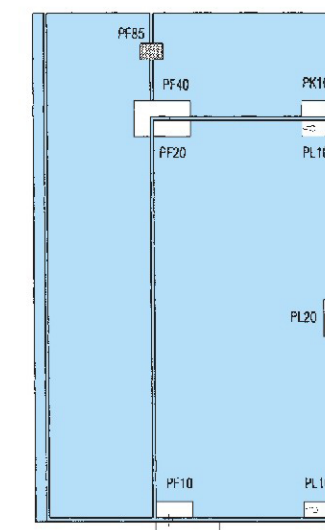


Technical drawing of a 3D L-shaped object. The dimensions are: top horizontal edges 68 and 63, bottom horizontal edges 32 and 32, and vertical edge 106.

The diagram shows a three-panel folding door system. It consists of six rectangular panels, each labeled 'PF82'. The panels are arranged in two rows of three. The top row of panels is connected by a horizontal track, and the bottom row is also connected by a horizontal track. Vertical tracks connect the panels in each column, allowing them to fold and extend. The entire system is shown within a frame that represents the door's opening.



Technical drawing of a rectangular prism (box) with dimensions: length 70, width 32, height 50, and a base thickness of 6.





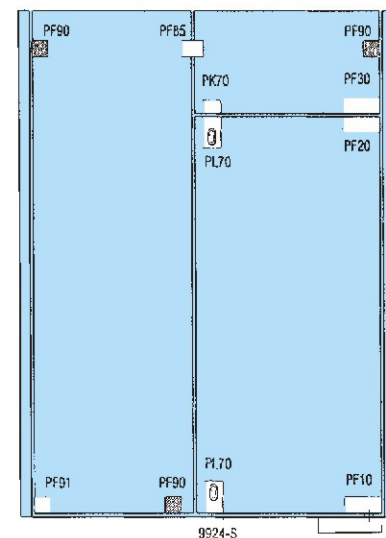
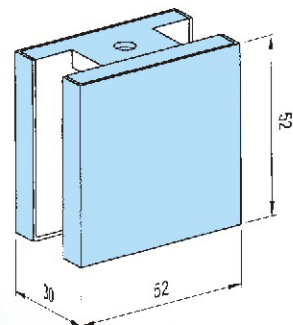
## UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

## UNIVERSAL PATCH FITTINGS

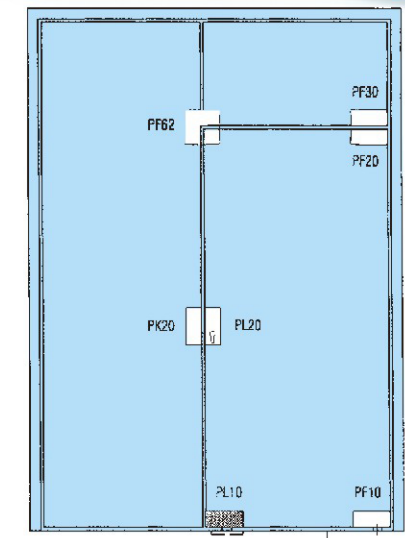
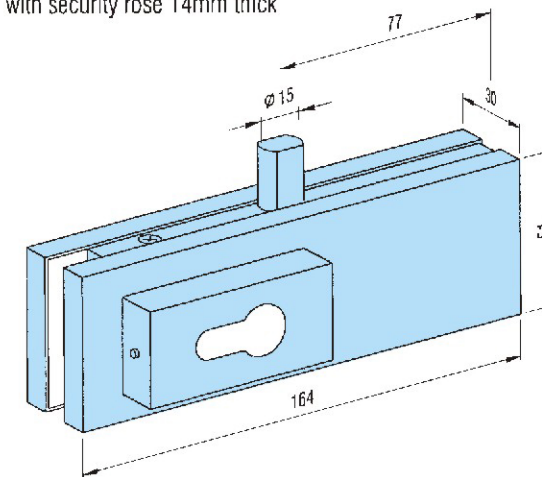
Suitable for 10mm or 12mm glass thickness

PF90 SCREW ON FITTING



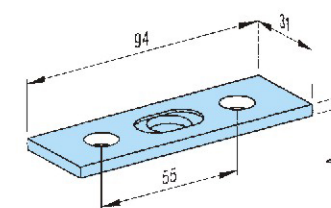
PL10 CORNER LOCK

europile cylinder, single throw, bolt projection 20mm, with security rose 14mm thick

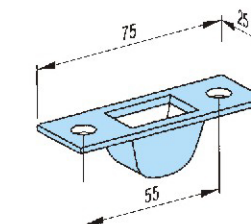


9924N LOCK KEEPER PLATE

stainless steel, two parts, adjustable  $\pm 5$ mm

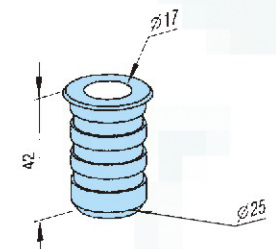


9923S EASY CLEAN SOCKET



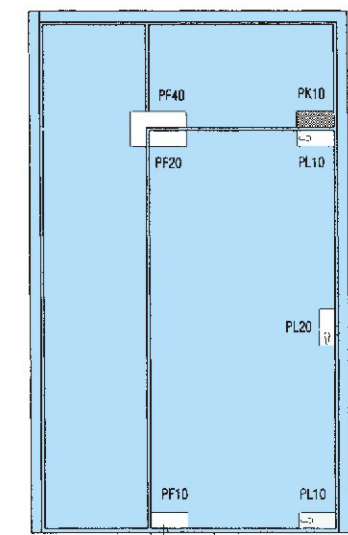
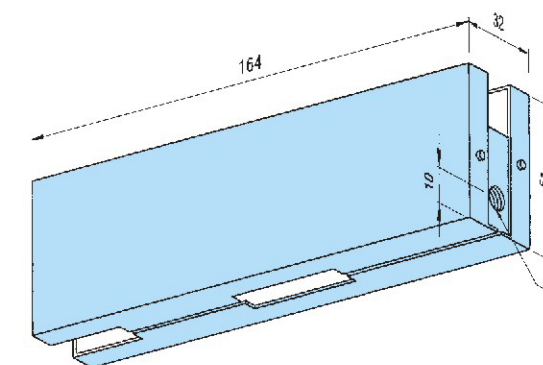
9927 FLOOR SOCKET

aluminum, with spring and plastic stopper, dirt protection

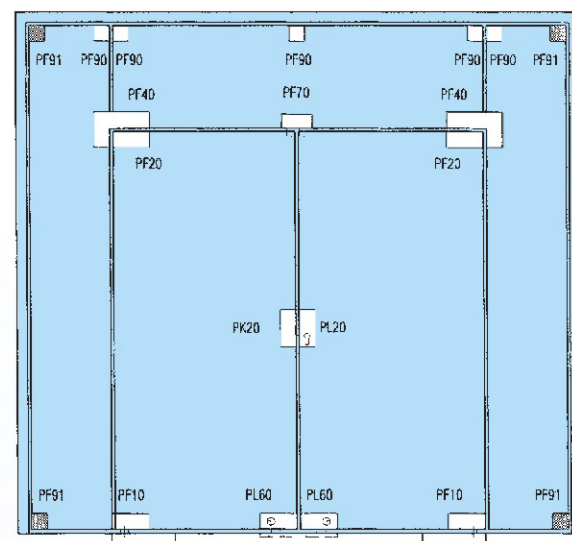
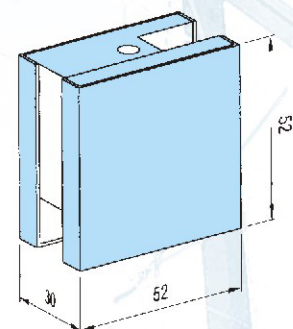


PK10 LOCK KEEPER BOX

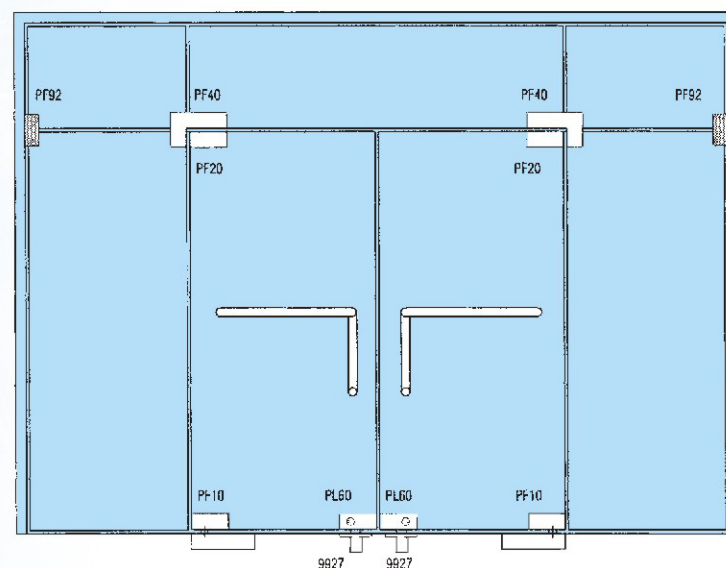
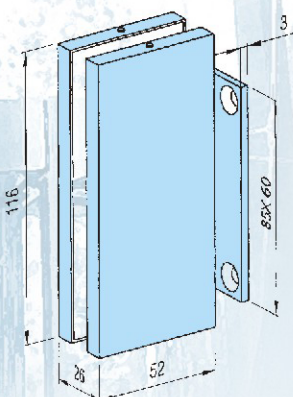
for overpanel (to suit PL10)



PF91 CORNER FITTING



PF92 SIDE CONNECTOR  
with fixing plate





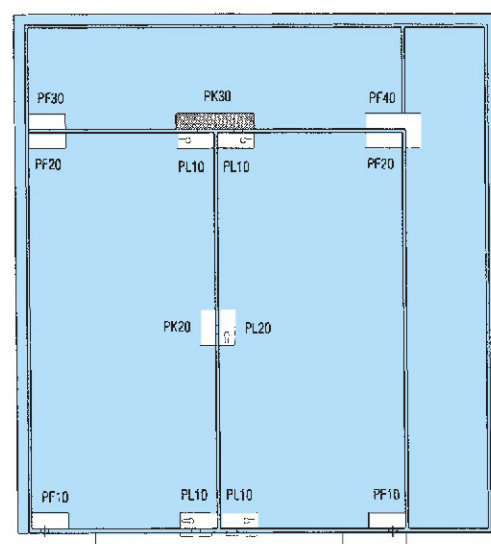
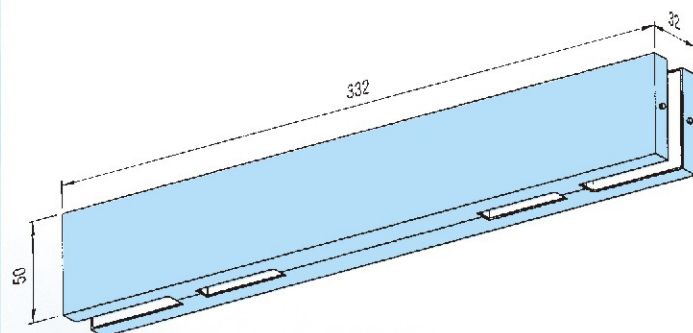
## UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

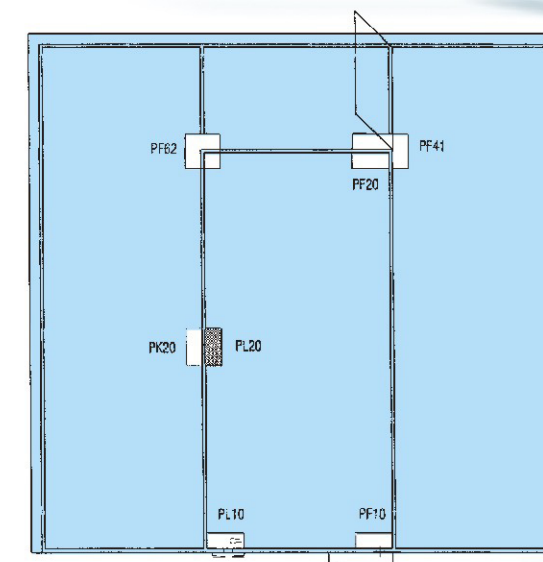
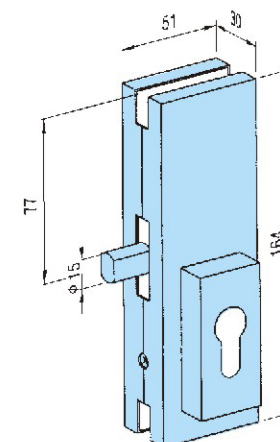
## UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

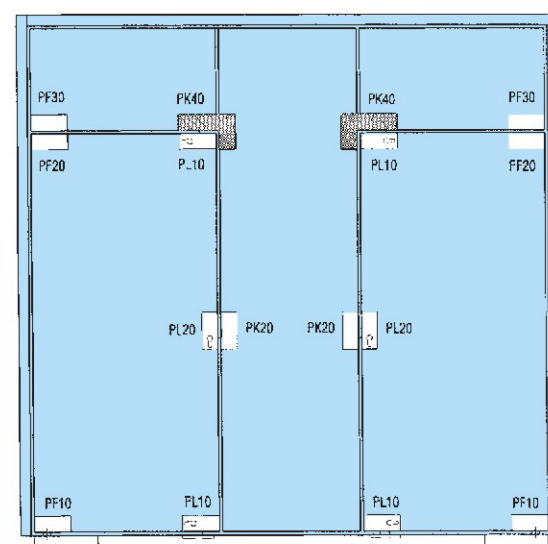
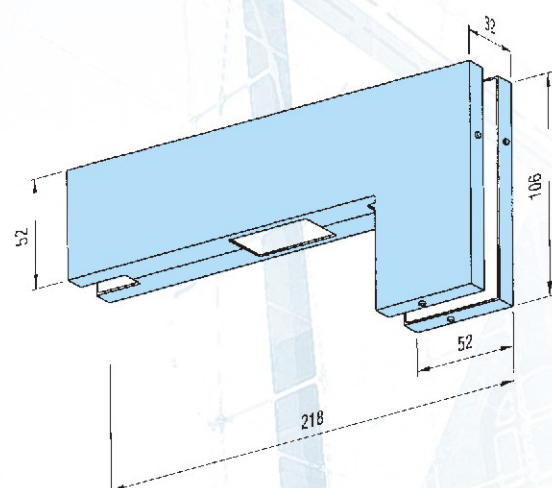
PK30 DOUBLE OVERPANEL LOCK KEEPER  
(to suit PL10)



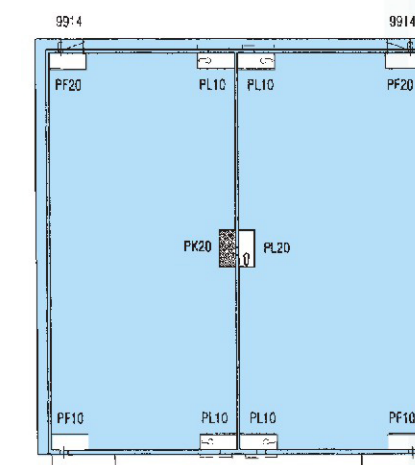
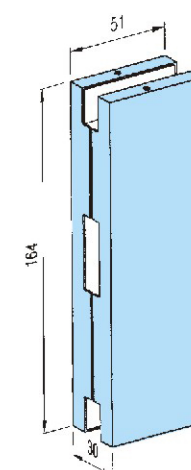
PL20 CENTRE PATCH LOCK



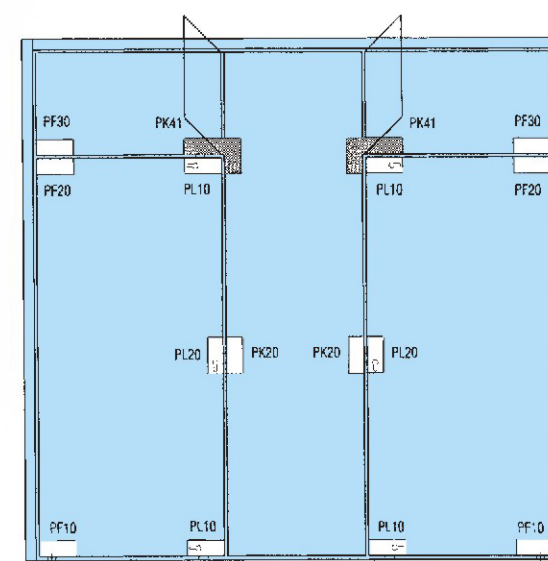
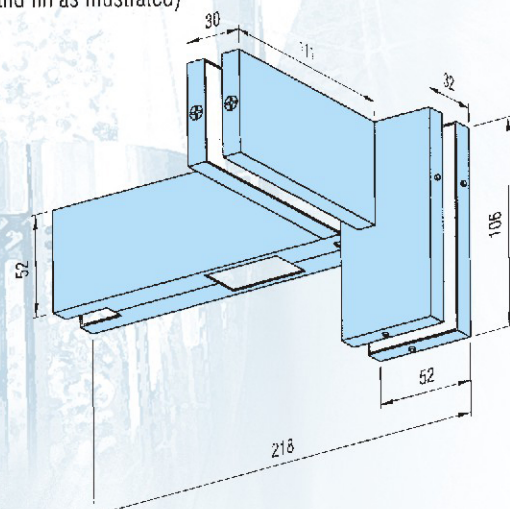
PK40 CORNER OVERPANEL LOCK KEEPER  
(to suit PL10)



PL20 CENTRE LOCK KEEPER

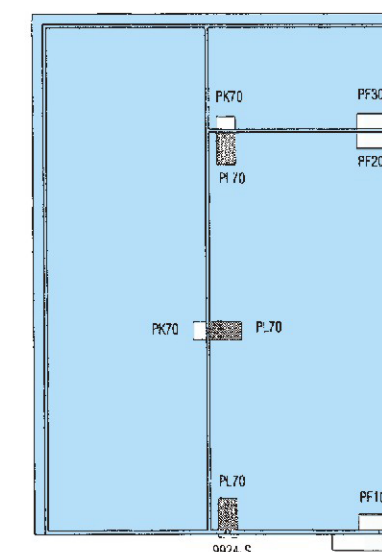
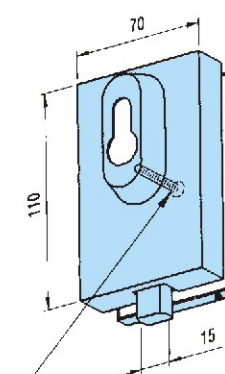


PK41 TRANSOM SIDEPANEL KEEPER BOX  
with fin (to suit PL10)  
(left hand fin as illustrated)



PL70 CORNER LOCK

for vertical or horizontal installation,  
stainless bolt, double throw dead  
lock, 20mm throw



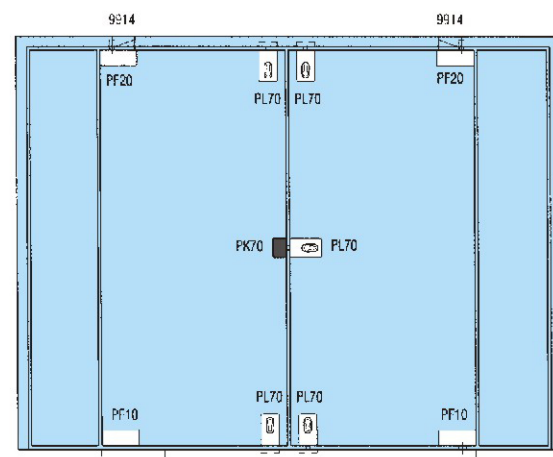
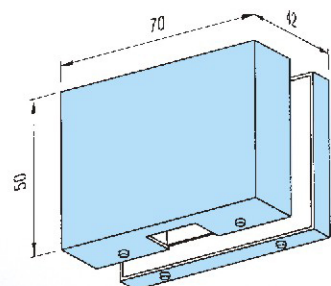
Patented for high security



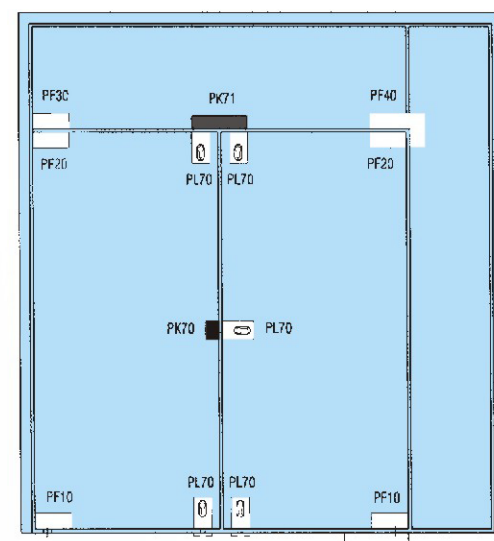
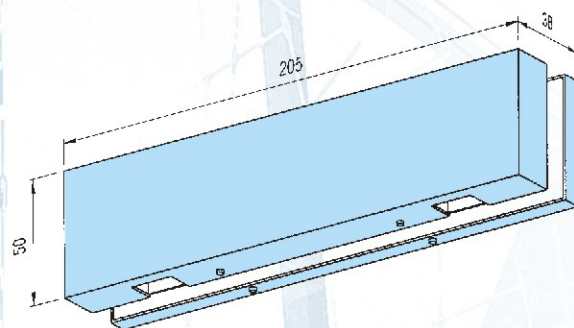
## UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

**PK70 STRIKE BOX**  
(to suit PL70)

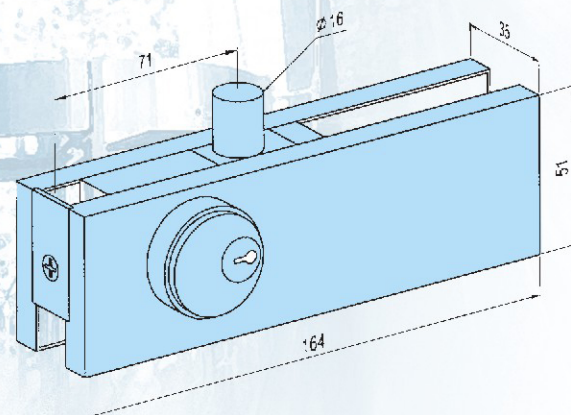


**PK71 DOUBLE STRIKE BOX**  
(to suit PL70)



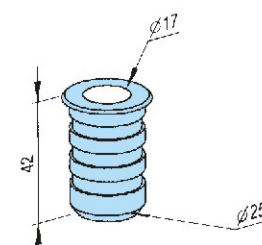
**PL60 CORNER LOCK**

with 1-5/32" mortise cylinder with standard schlage keyway set screws for cylinders are accessible from end of door (USA type)

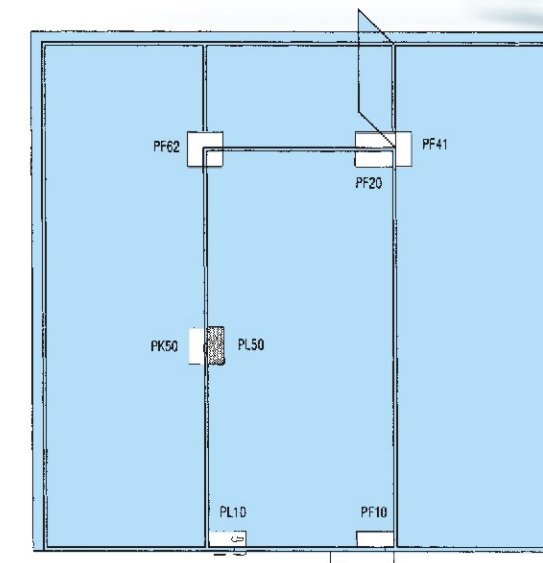
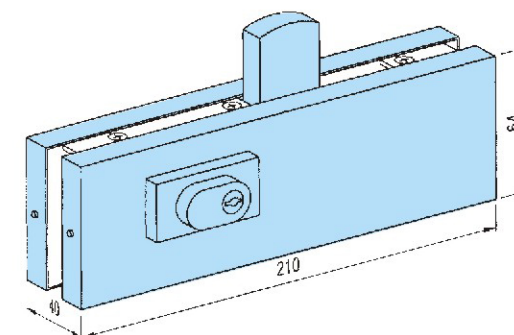


**9927 FLOOR SOCKET**

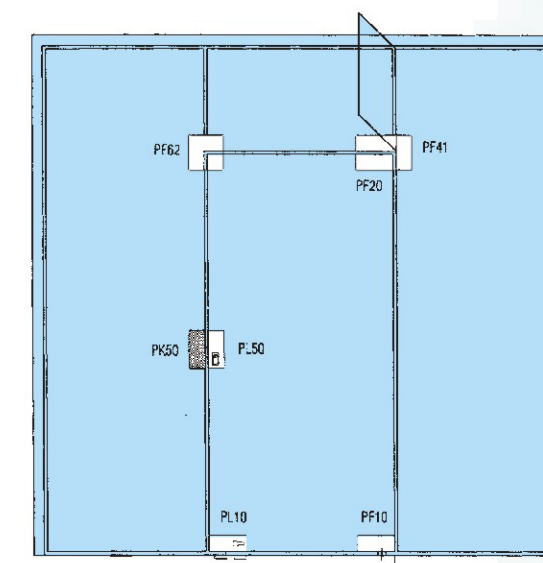
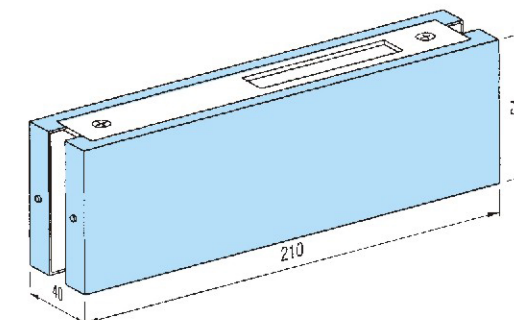
aluminum, with spring and plastic stopper, dirt protection



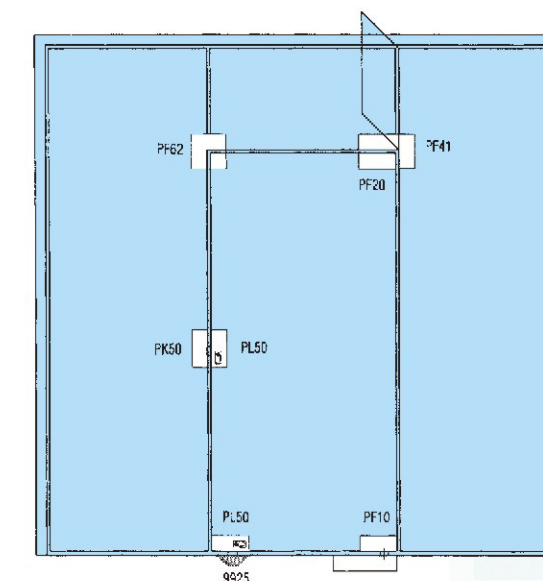
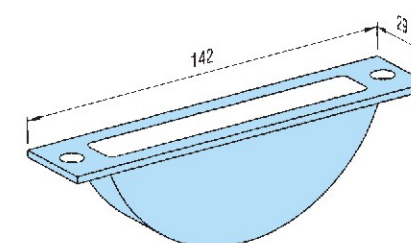
**PL50 PATCH LOCK HOUSING**  
with cover cups (Australia type)  
(prepared for lockwood 590)



**PK50 LOCK KEEPER BOX**  
(to suit PL50)  
(Australia type)



**9925 EASY CLEAN SOCKET**  
(for PL50)



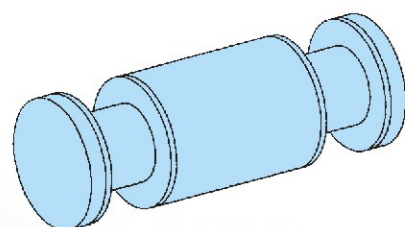


# UNIVERSAL PATCH FITTINGS

Suitable for 10mm or 12mm glass thickness

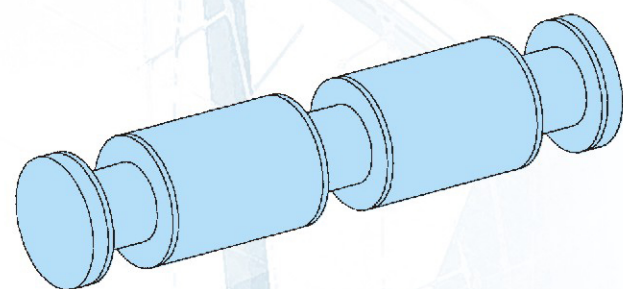
## 13001 SINGLE PULL HANDLE FIXINGS

Ø 20mm hole prep. required stainless



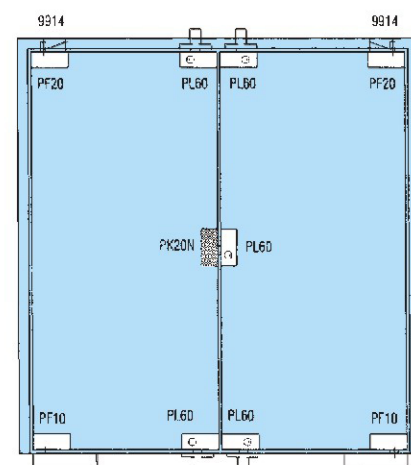
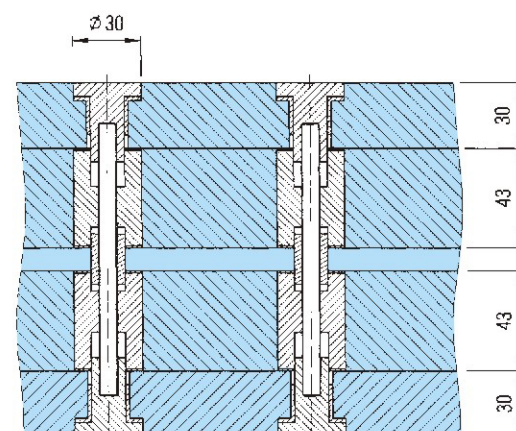
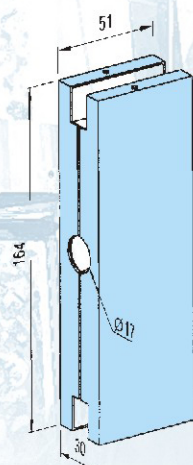
## 13002 BACK TO BACK PULL HANDLE FIXINGS

Ø 20mm hole prep. required stainless

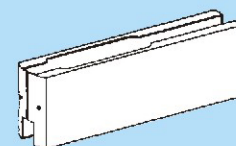
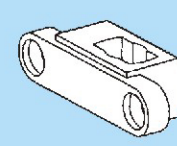
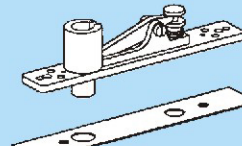
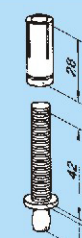
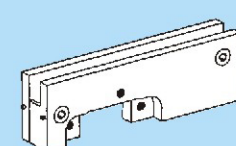
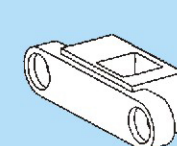
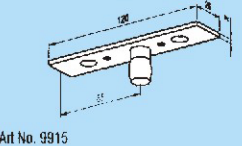
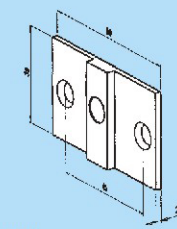

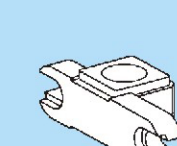
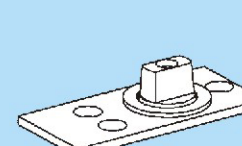
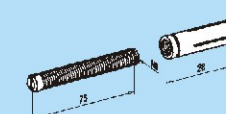
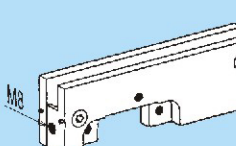
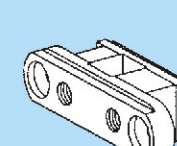
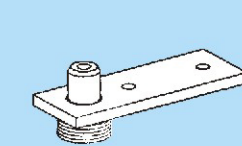
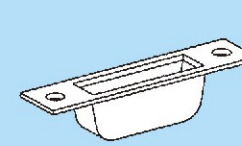

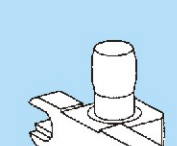
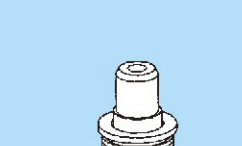
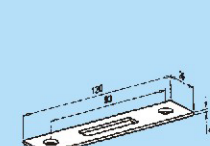
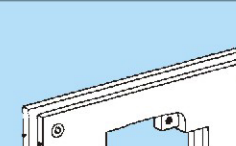

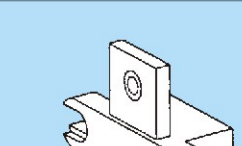
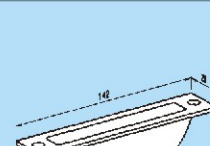


## PK20N CENTRE LOCK KEEPER

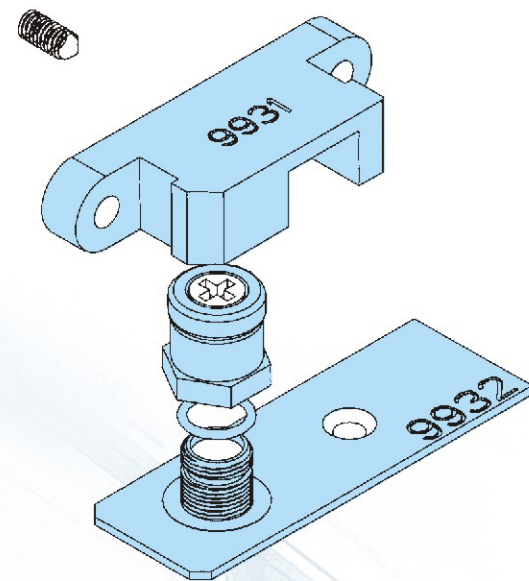
(to suit PL60)



# ACCESSORIES

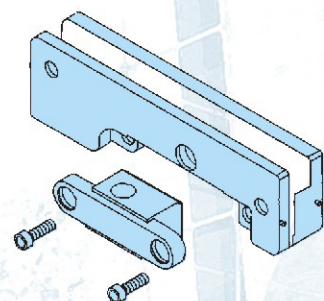
 <p>Art No. 9902 Cover caps for Art No. 9901 top and bottom patch (PF10 and PF20)</p>	 <p>Art No. 9903 Stainless steel bottom insert C TYPE for crown floor hinge N TYPE for new star floor hinge M TYPE for mab floor hinge R TYPE for ryobi floor hinge</p>	 <p>Art No. 9914 Top centre with <math>\varnothing</math> 15mm pin</p>	 <p>Art No. 9919 Pivot with threaded rod including brass wall plug</p>									
 <p>Art No. 9901 Universal - base fitting for door top and bottom (PF10 and PF20)</p>	 <p>Art No. 9904 Stainless steel bottom insert (square spindle) for MAB floor hinge for ARMOR 400 floor hinge</p>	 <p>Art No. 9915 Pivot with fixing plate, <math>\varnothing</math> 15mm pin</p> <table><tr><th>TYPE</th><th>MATERIAL</th><th>X</th></tr><tr><td>9915-AL</td><td>ALUMINIUM</td><td>6</td></tr><tr><td>9915-SS</td><td>STAINLESS</td><td>3</td></tr></table>	TYPE	MATERIAL	X	9915-AL	ALUMINIUM	6	9915-SS	STAINLESS	3	 <p>Art No. 9920 Aluminium fixing plate for transom fitting PF30</p>
TYPE	MATERIAL	X										
9915-AL	ALUMINIUM	6										
9915-SS	STAINLESS	3										
 <p>Art No. 9907 Cover caps for Art No. 9908 overpanel fitting (PF30)</p>	 <p>Art No. 9906 Top insert with nylon bush</p>	 <p>Art No. 9916 Heavy duty floor pivot bearing (with flat tapered spindle) door weight max : 200kgs</p>	 <p>Art No. 9921 Threaded rod zinc plate, with brass wall plug</p>									
 <p>Art No. 9908 Universal - case fitting for overpanel fitting (PF30) with M6 tapped hole at side</p>	 <p>Art No. 9906 Stainless steel top insert (square spindle) specialize for transom closer EPCO 800</p>	 <p>Art No. 9917 Floor pivot bearing with round pivot <math>\varnothing</math> 14mm, and cover plate; height adjustable by 5mm door weight max : 100kgs</p>	 <p>Art No. 9923 Easy clean sockets (Available in bright chrome finish) &amp; brass colour finish, for PL10 patch lock</p>									
 <p>Art No. 9910 Cover caps for Art No. 9911 overpanel and sidepanel fitting (PF40)</p>	 <p>Art No. 9909 Pivot insert for overpanel fitting</p>	 <p>Art No. 9918 Floor socket with round pivot <math>\varnothing</math> 14mm and <math>\varnothing</math> 24 door weight max : 100kgs</p>	 <p>Art No. 9924 Lock keeper plate for PL10 corner lock stainless steel</p>									
 <p>Art No. 9911 Base fitting for overpanel and sidepanel fitting (PF40)</p>	 <p>Art No. 9930 Blank insert for PF40 actas connector purpose</p>	 <p>Art No. 9929 Stop insert for PF40 single action door</p>	 <p>Art No. 9925 Easy clean socket for PL50 patch lock</p>									



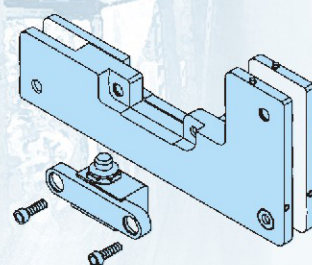


9931 Stainless insert for 9901  
9932 Adjustable pivot for internal swing door

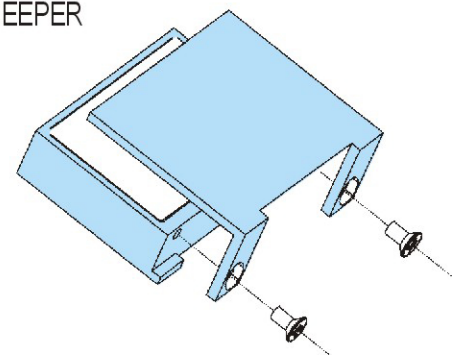
9901B  
Universal base fitting with bearing insert



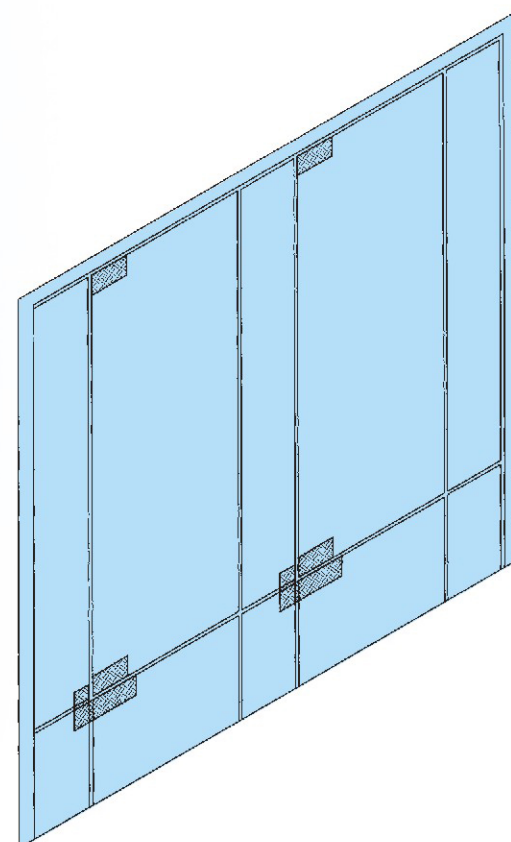
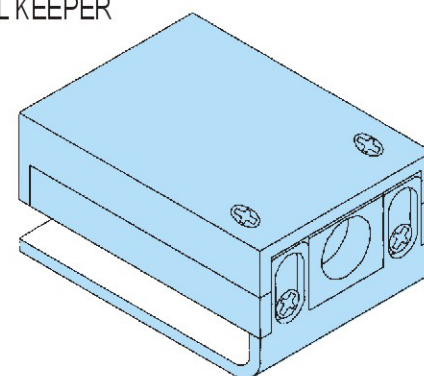
9911B  
Base fitting with pivot insert for bottom sidepanel  
maximum door weight : 80kg



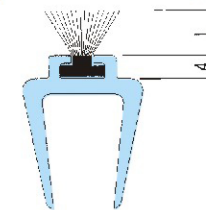
1445 - UK  
UPPER KEEPER



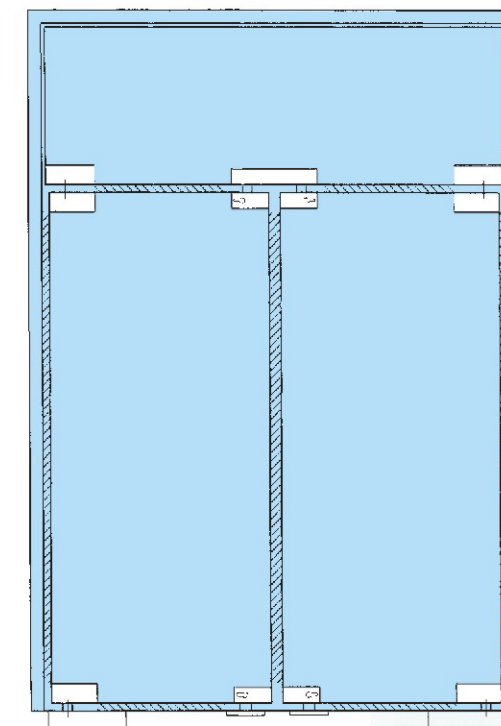
1445 - CK  
CENTREAL KEEPER



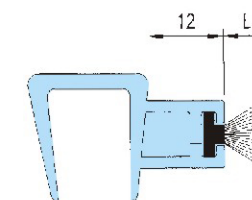
- Supplied in 2200mm(87") stock lengths



Code No.	Glass Thick	Weather Strip High(L)
PU1006	10mm(3/8")	6mm(1/4")
PU1008	10mm(3/8")	8mm(5/16")
PU1010	10mm(3/8")	10mm(3/8")
PU1206	12mm(1/2")	6mm(1/4")
PU1208	12mm(1/2")	8mm(5/16")
PU1210	12mm(1/2")	10mm(3/8")

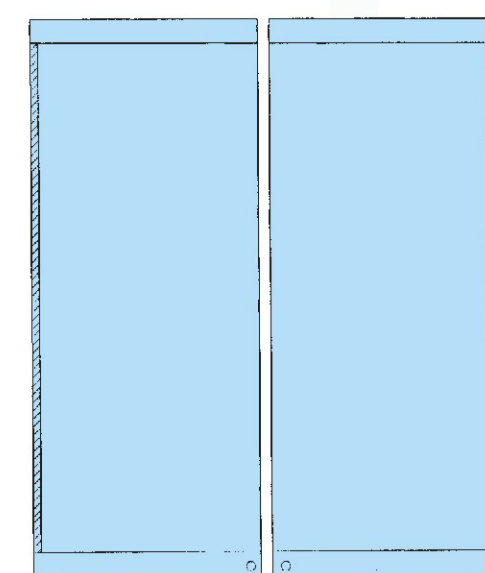


- Supplied in 2200mm(87") stock lengths.



Code No.	Glass Thick	Weather Strip High(L)
PF1010	10mm(3/8")	10mm(3/8")
PF1013	10mm(3/8")	13mm(17/32")
PF1020	10mm(3/8")	20mm(13/16")
PF1210	12mm(1/2")	10mm(3/8")
PF1213	12mm(1/2")	13mm(17/32")
PF1220	12mm(1/2")	20mm(13/16")

Auto Door or Sliding Doors.

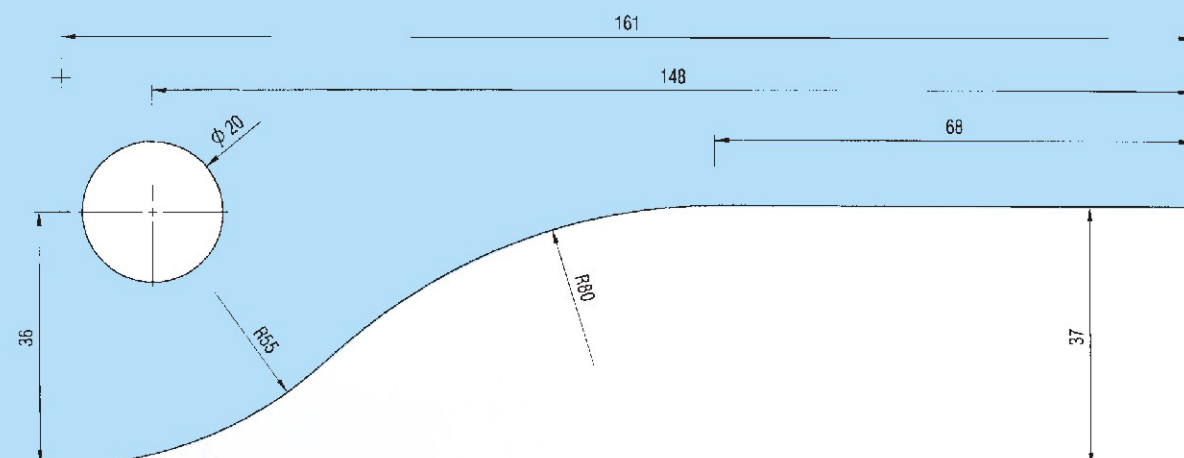




## GLASS PREPARATION

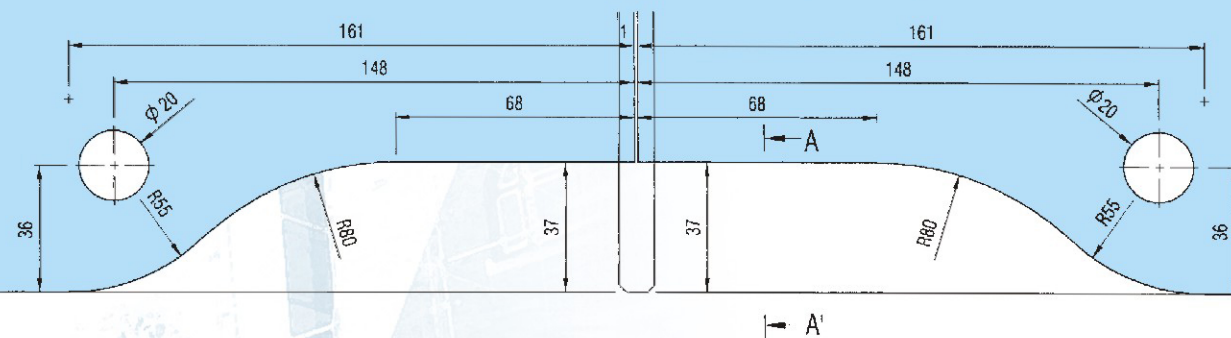
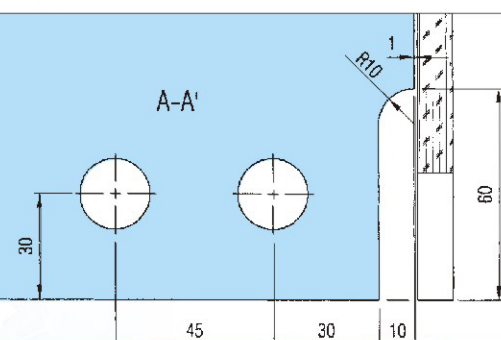
PF10 PF20 PF21 PF30

Scale 1:1



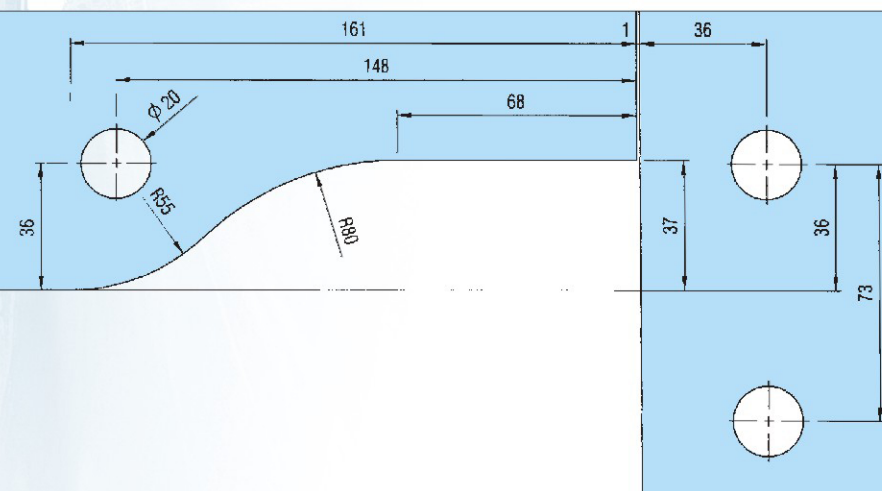
PF51

Scale 1:2



PF40

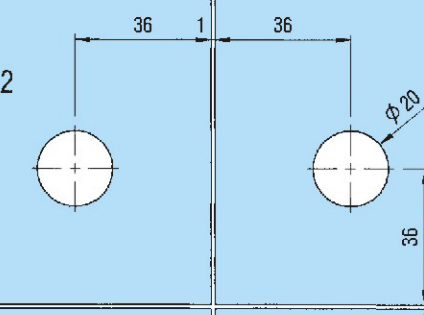
Scale 1:2



## GLASS PREPARATION

PF80

Scale 1:2



PF60 PF61

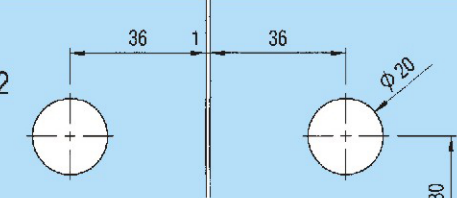
PF62

Scale 1:2



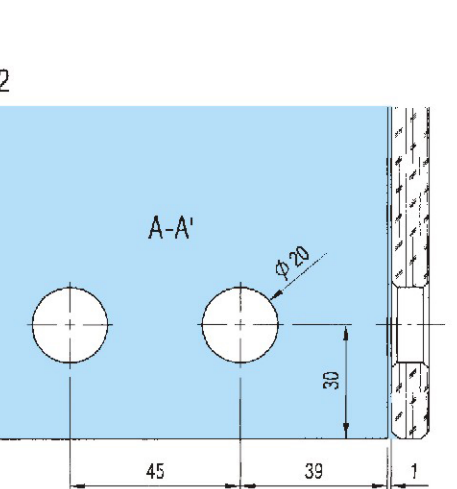
PF70

Scale 1:2

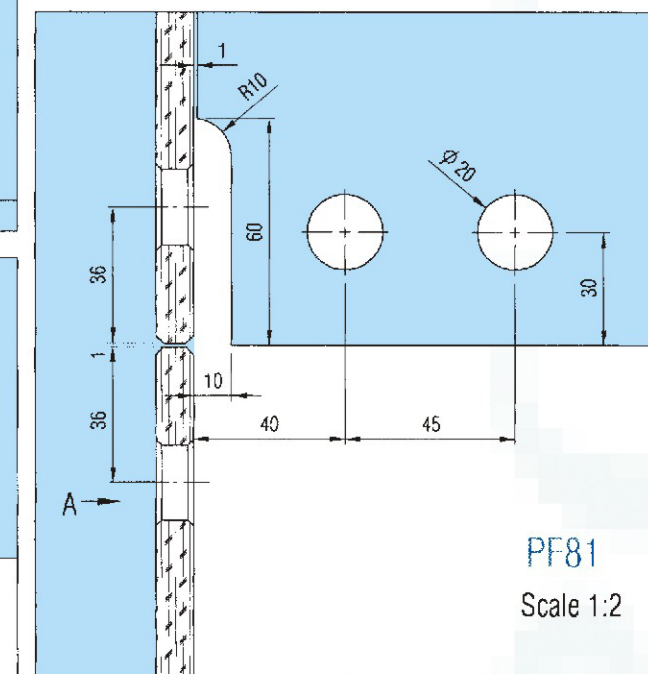


PF71

Scale 1:2



A



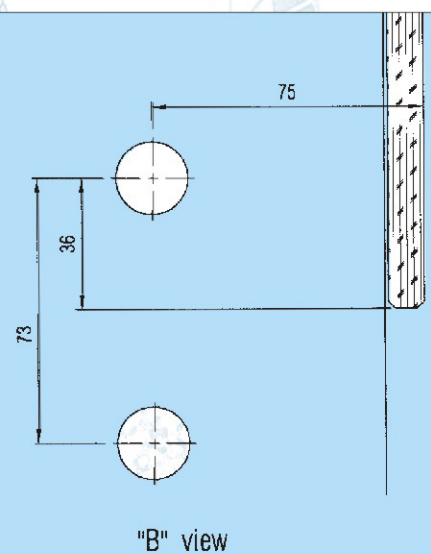
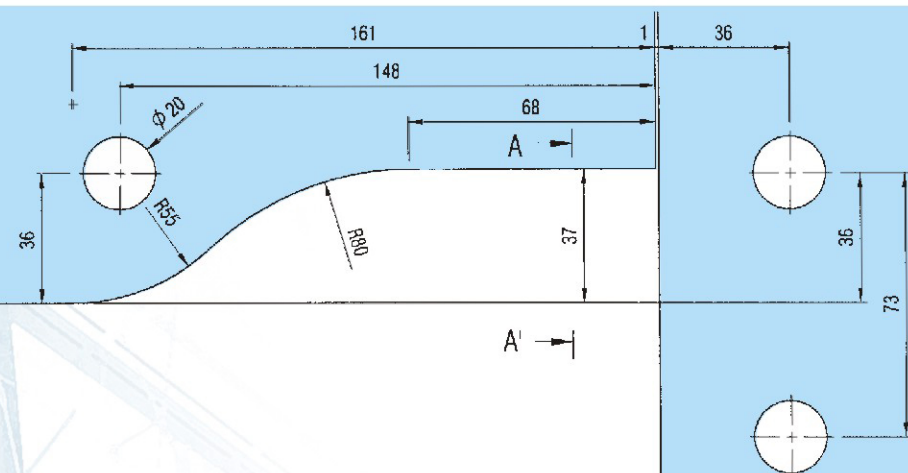
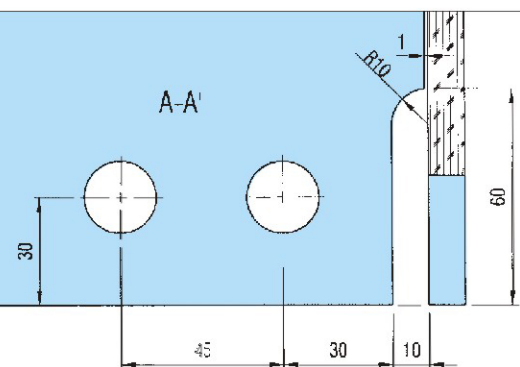
PF81

Scale 1:2

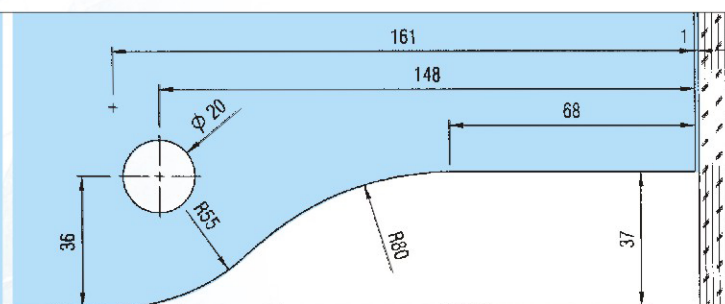


## GLASS PREPARATION

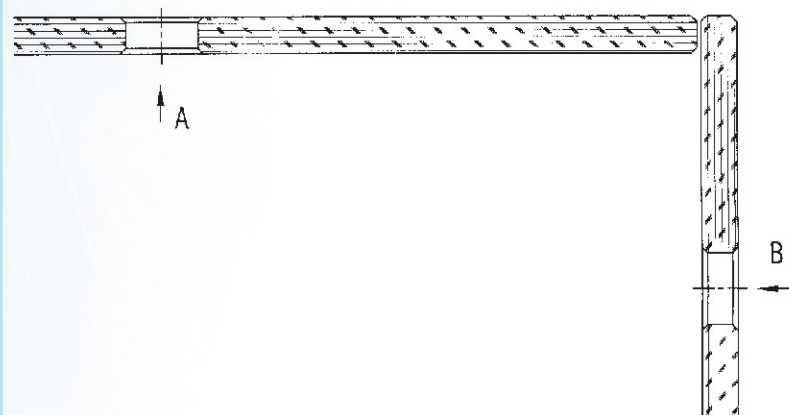
PF41  
Scale 1:2



PF42  
Scale 1:2

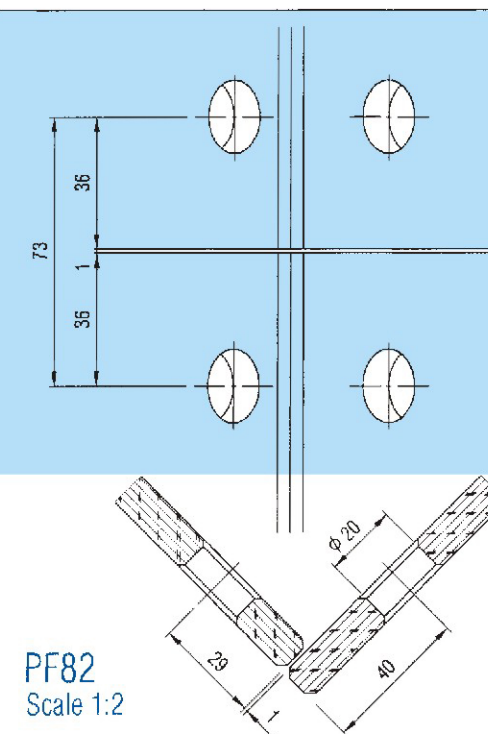


"A" view

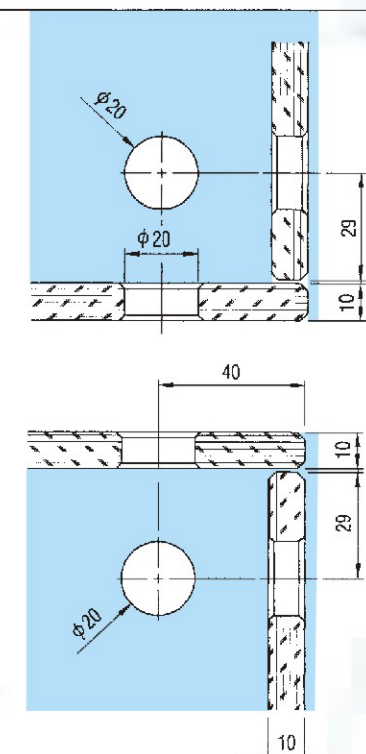


## GLASS PREPARATION

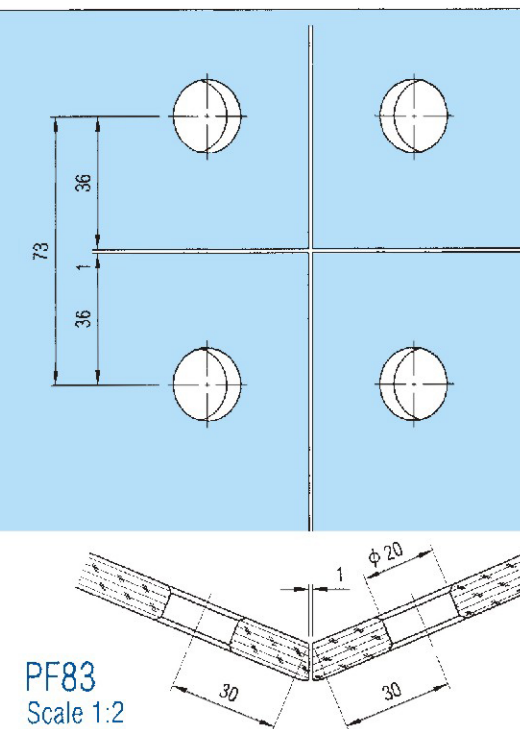
PF82  
Scale 1:2



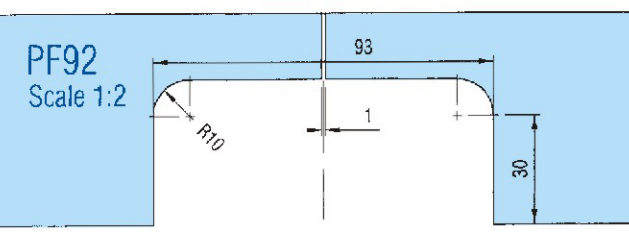
PF84  
Scale 1:2



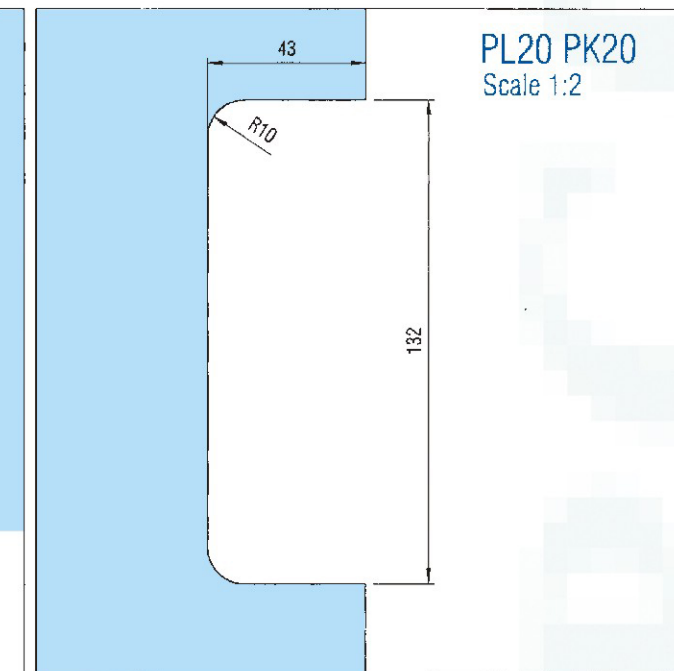
PF83  
Scale 1:2



PF92  
Scale 1:2

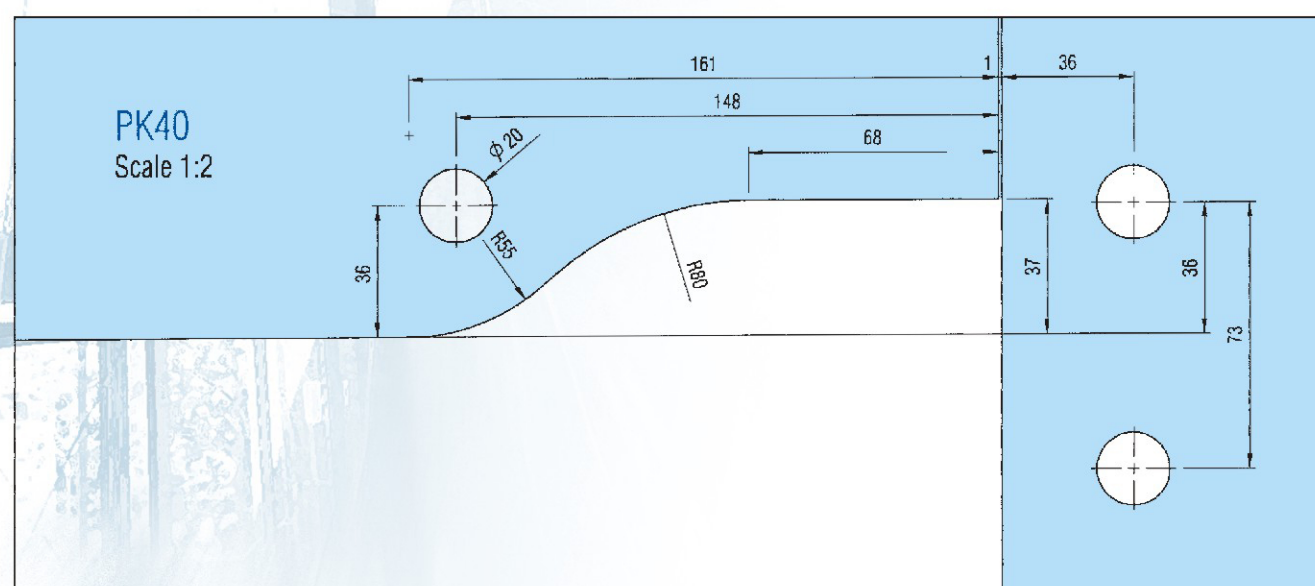
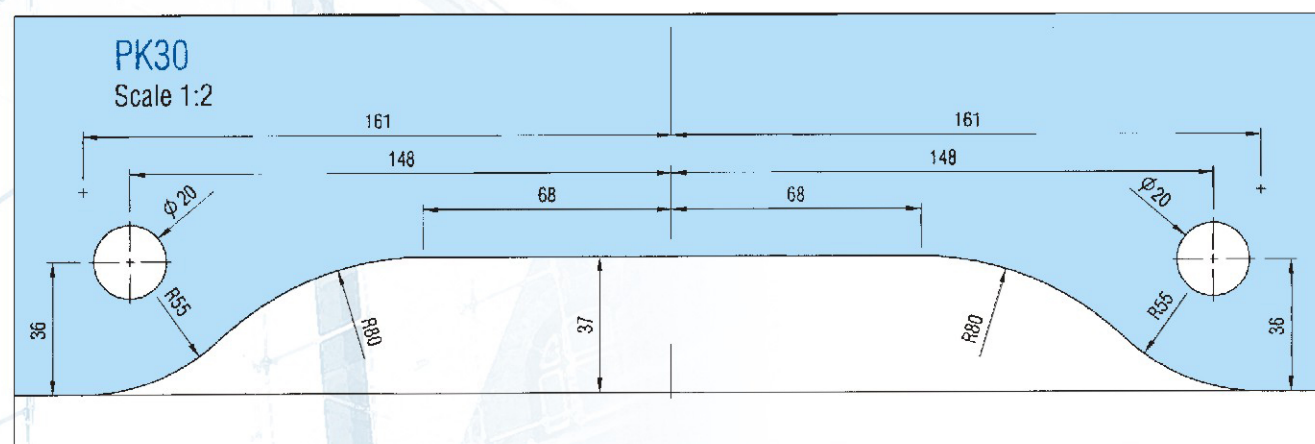
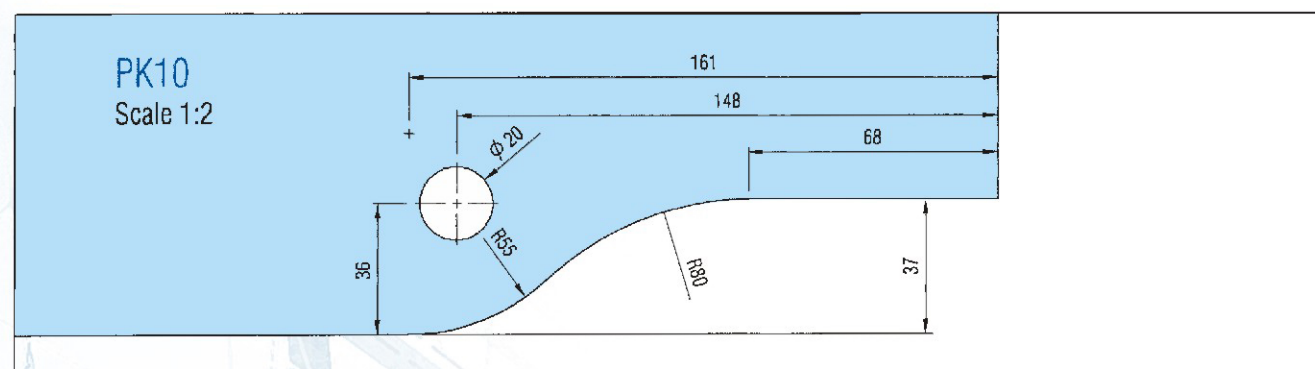
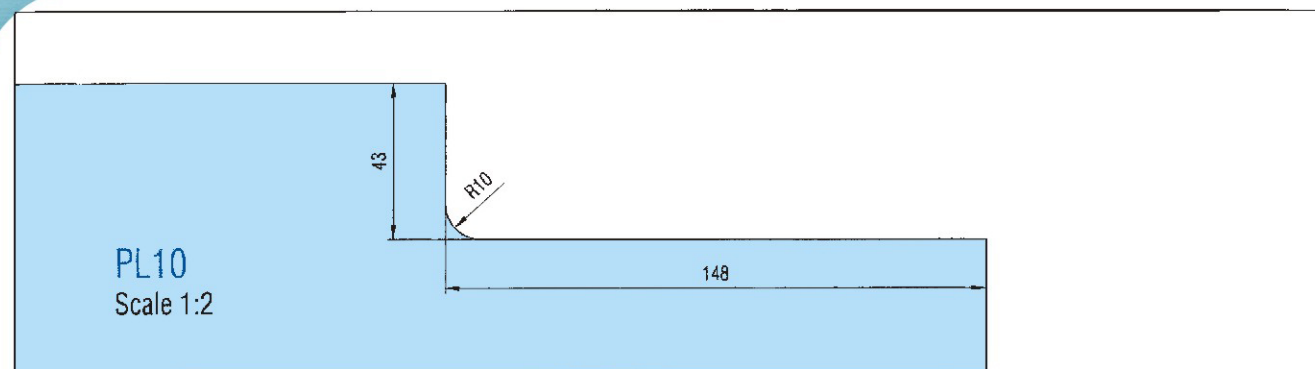


PL20 PK20  
Scale 1:2

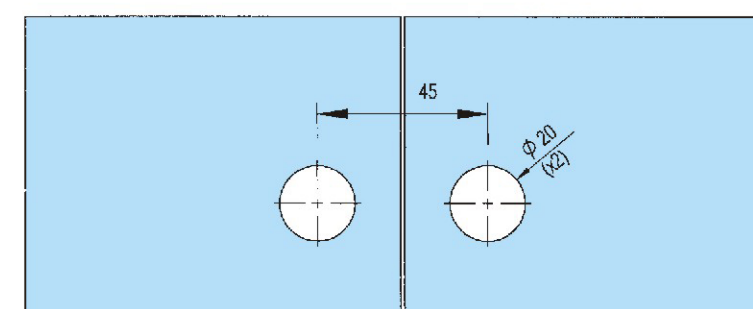
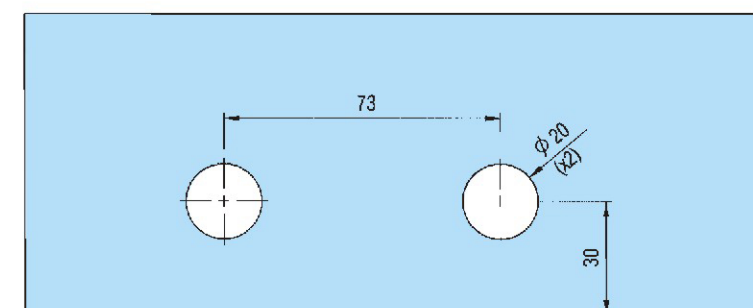
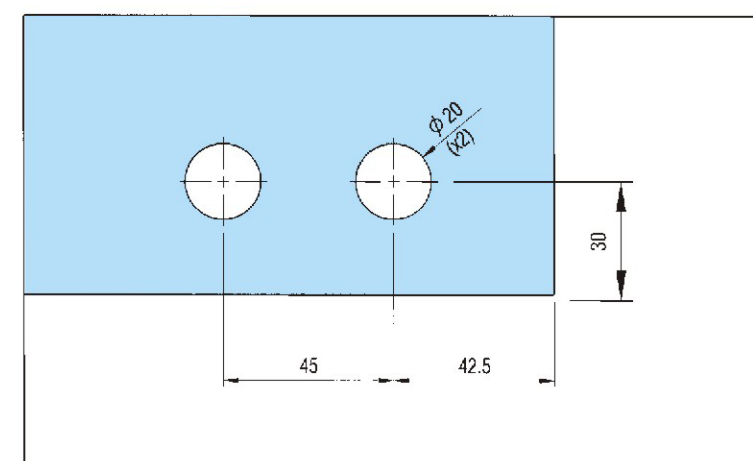
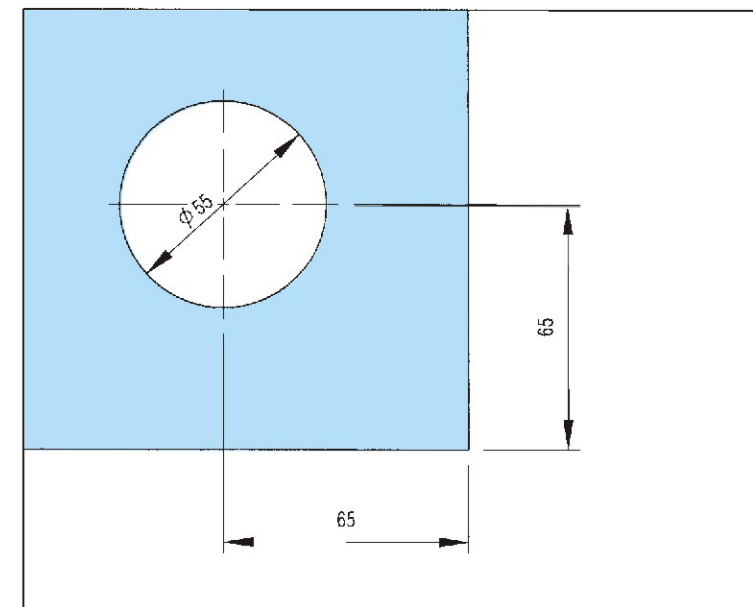




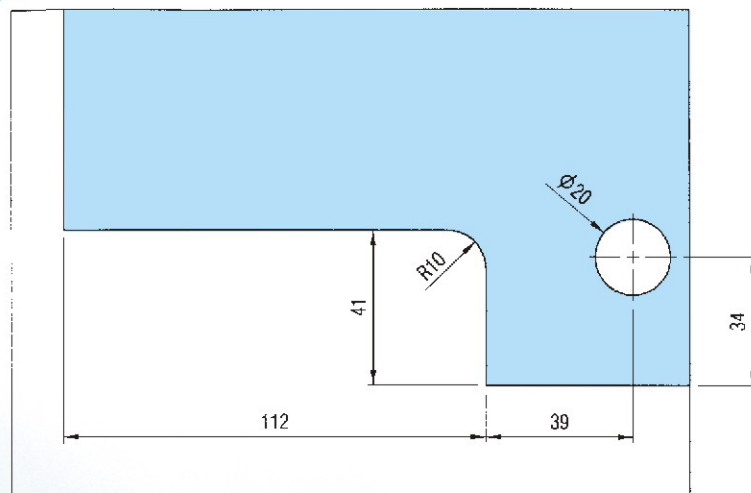
## GLASS PREPARATION



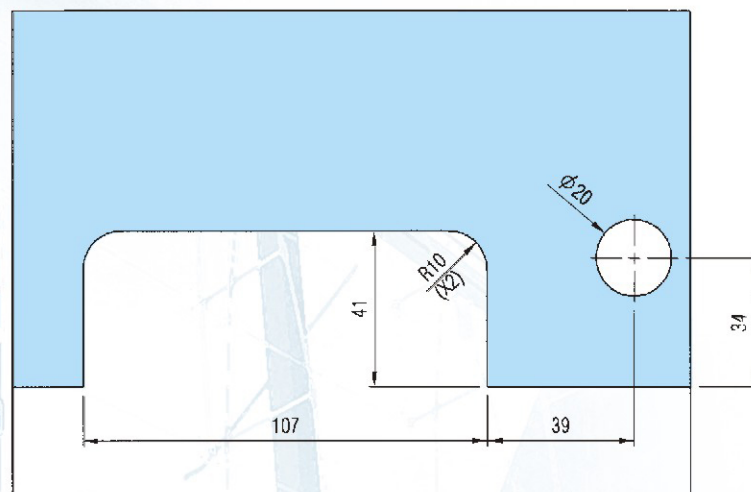
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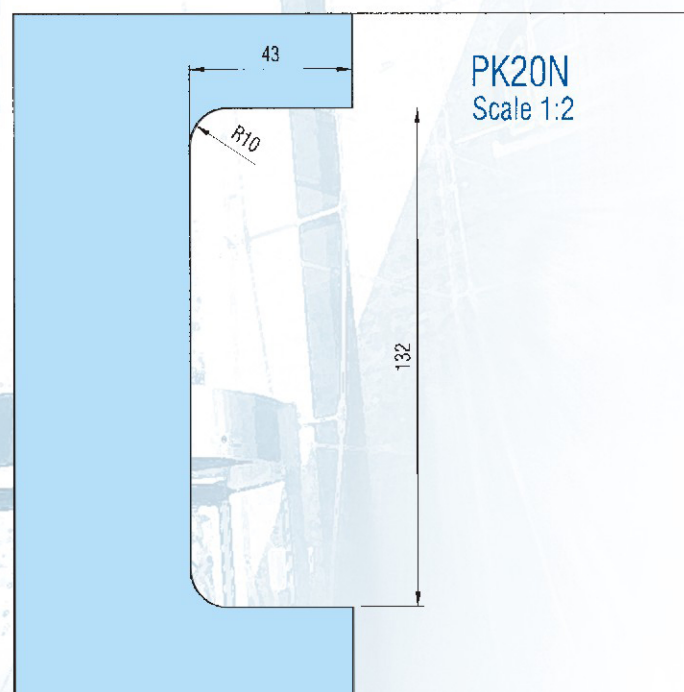




PL60  
Scale 1:2



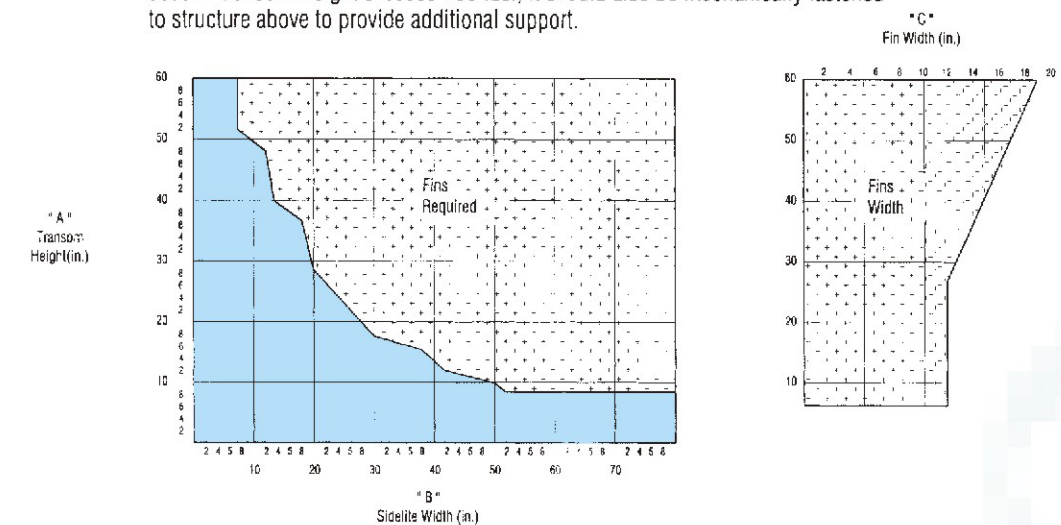
PL60  
Scale 1:2  
Cutting for central lock position



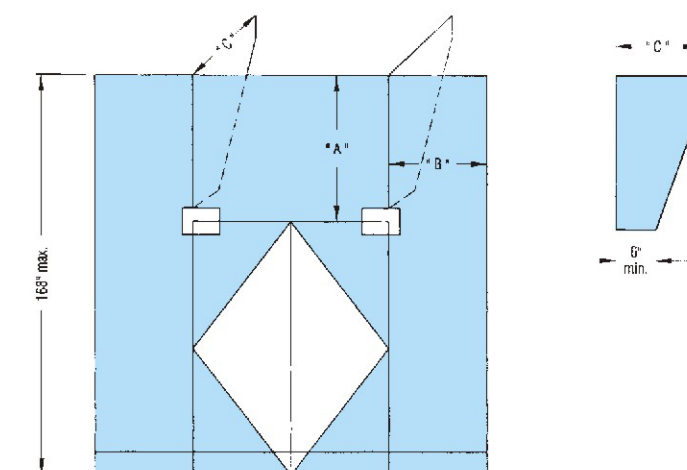
PK20N  
Scale 1:2

Risk of excessive deflection increases as the distance from the door upper pivot to structure increases. To reduce deflection, glass fins mounted perpendicular to the glass wall should be employed. Refer to the graph below for fin usage recommendations.

Note: When fins are used they must always be mechanically fastened to adequate support. We recommend that fittings, or "pinning" through back to back angles be used. If transom weight exceeds 100 lbs., it should also be mechanically fastened to structure above to provide additional support.



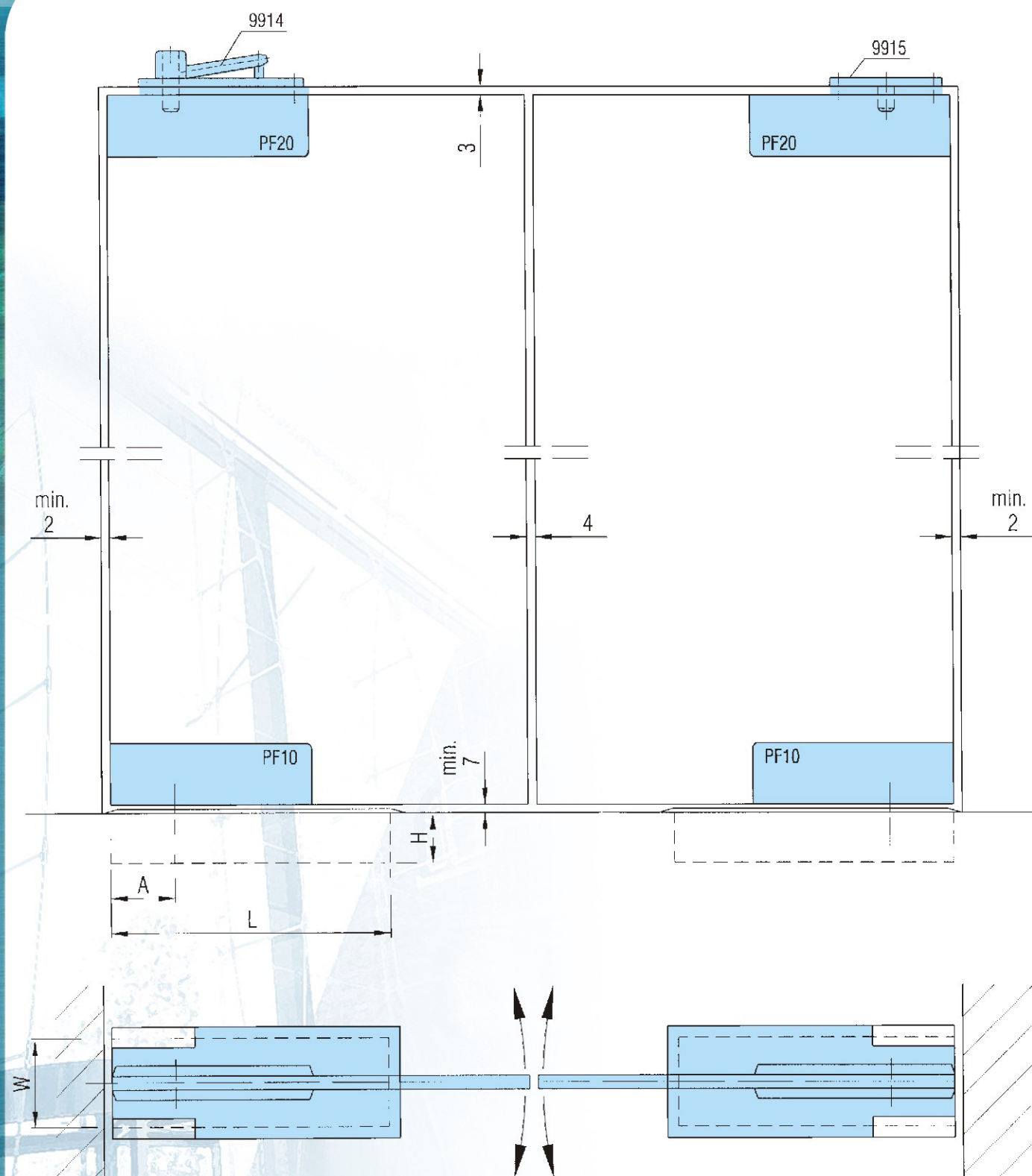
Note: This graph constitutes our general recommendations only. Individual situation and site conditions may require additional support to adequately reduce deflection.



To use the graph, determine the height of the transom (dimension "A") as well as the width of the sidelite (or total width to nearest support point in the case of multiple sidelites) (dimension "B") as shown in the elevation. Locate the intersecting point of these two grids on the graph. If this intersecting point falls within the grey area of the graph, fins are required. Next, determine fin top width (dimension "C") on the scale by matching transom height (dimension "A").

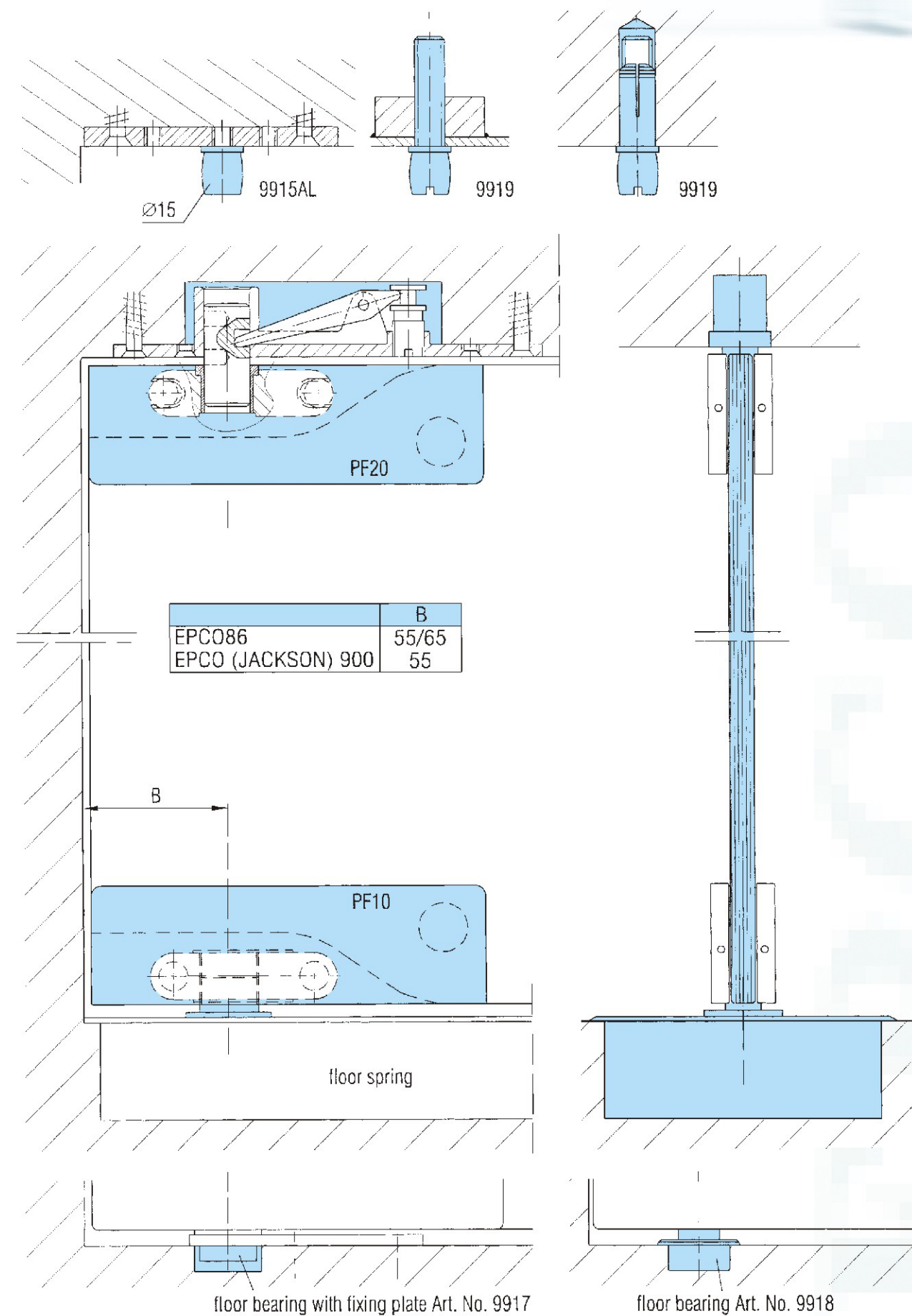


## Planning details for double acting doors



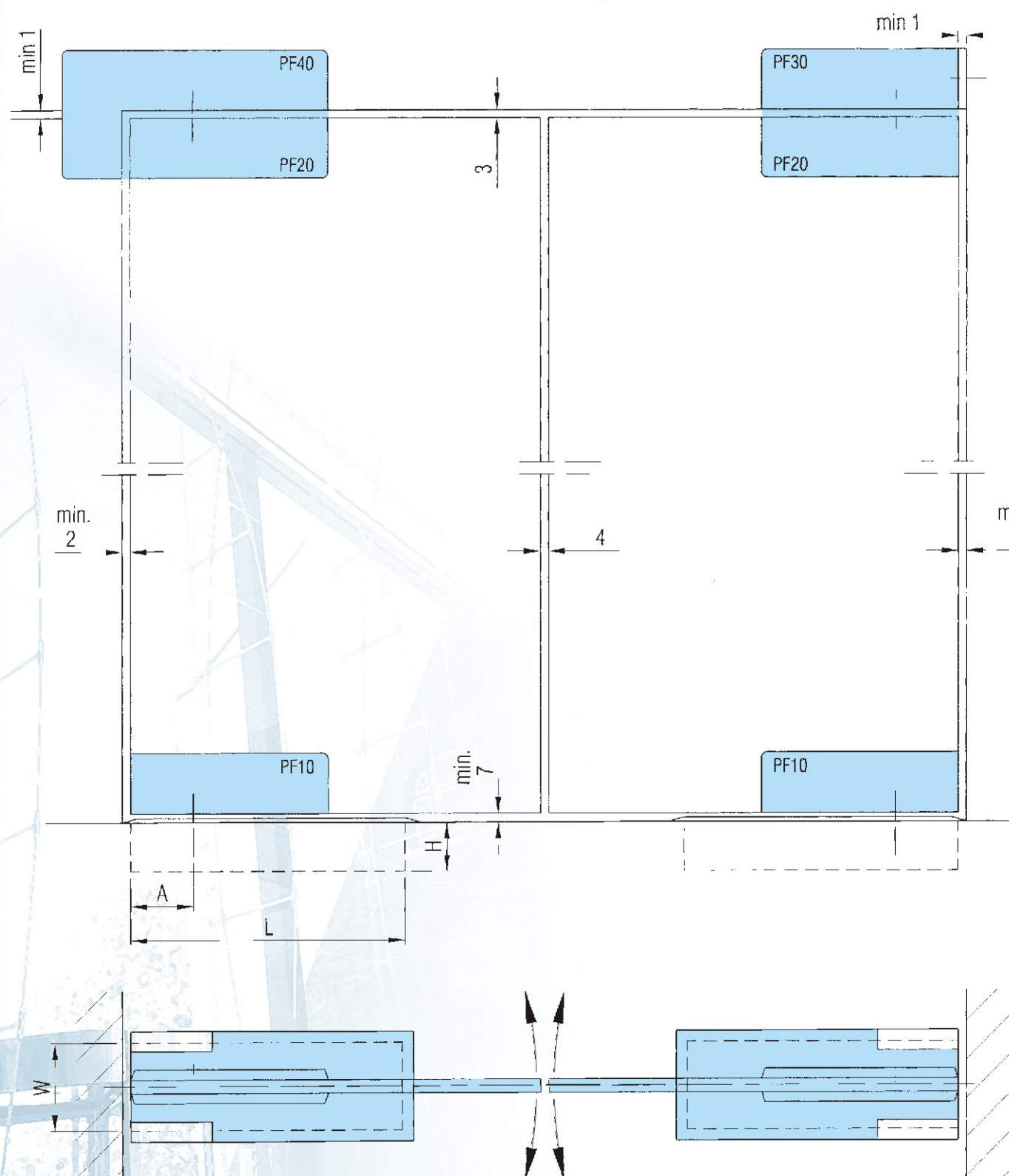
### Floor closer - measurements

	L	W	H	A
EPC086	306	108	40	51-57
EPC0 (JACKSON) 900	308	76	60	45-51





## Planning details for double acting doors with overhead panel

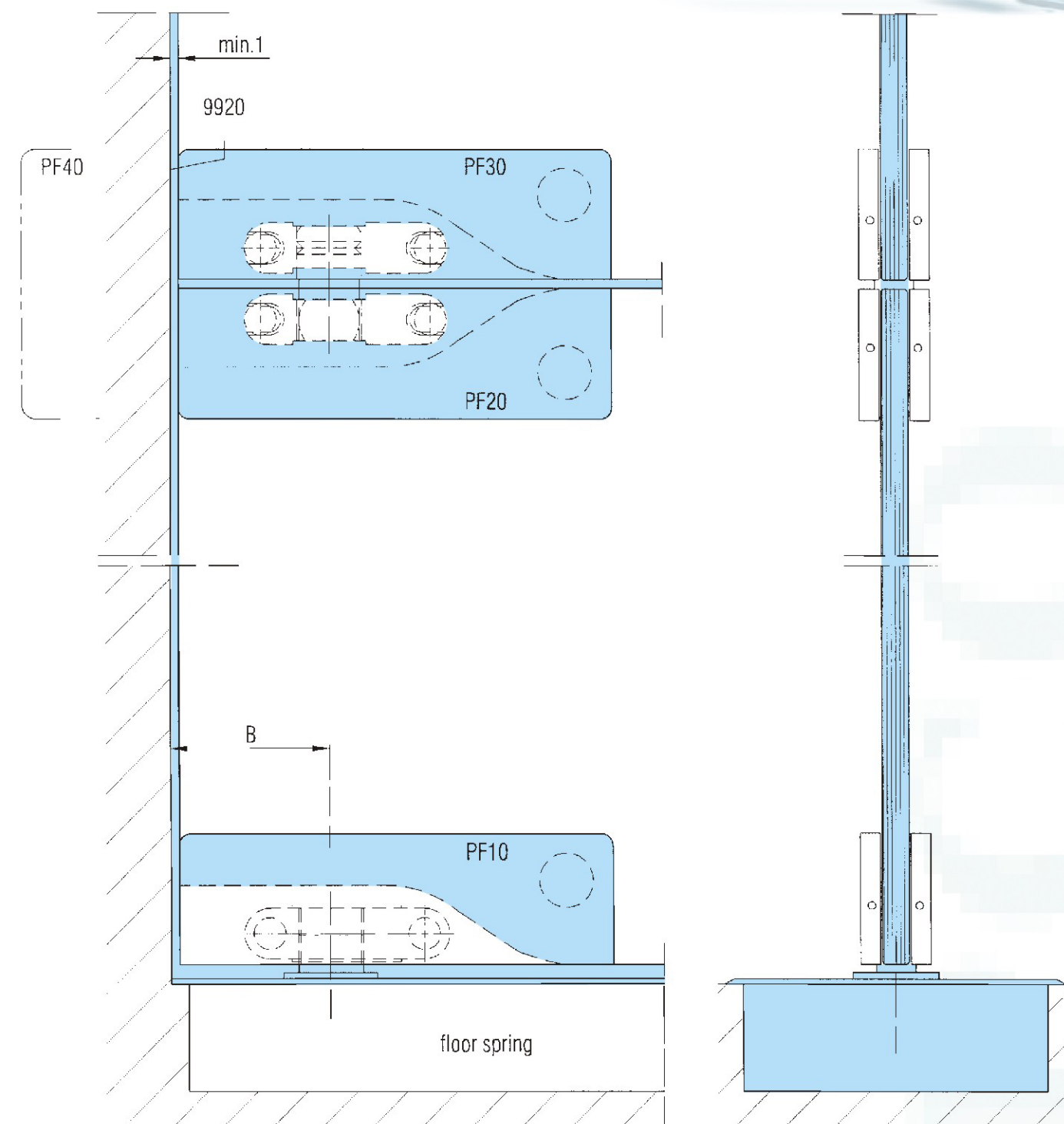


Floor closer - measurements

	L	W	H	A
EPC086	306	108	40	51-57
EPCO (JACKSON) 900	308	76	60	45-51

## Planning details

for double acting doors with overhead panel



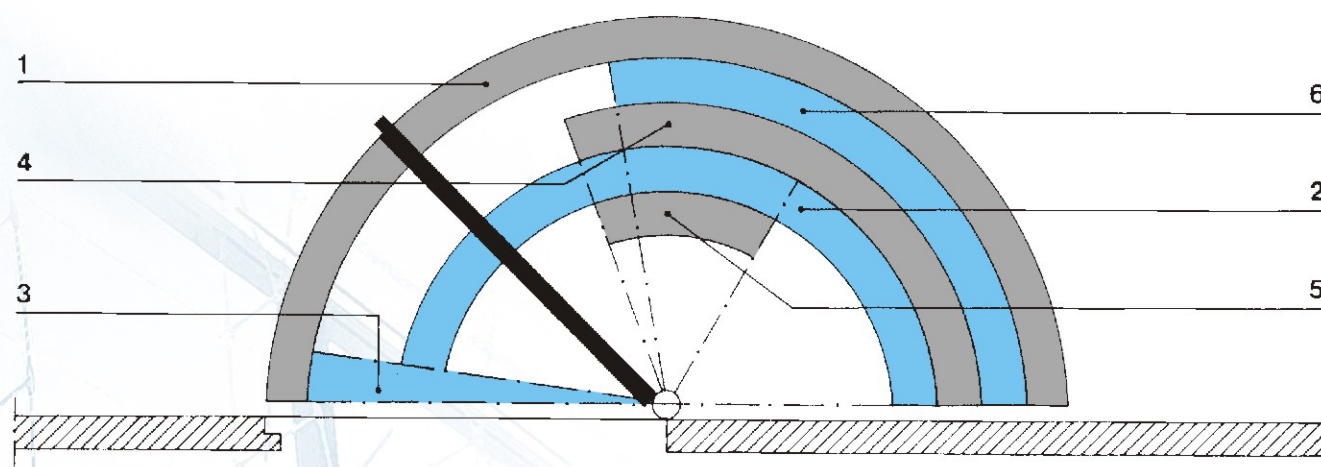
	B
EPC086	55/65
EPCO (JACKSON) 900	55



## DOOR CONTROL

Nowadays, almost every door is equipped with a device whose duty is to close the door itself automatically.

Since the introduction of modern and more sophisticated door closers, the closing action has improved in such a way to justify the terms "door control" instead of "door closing", even though the devices have kept their traditional name of "door closers"



- |   |                                     |
|---|-------------------------------------|
| 1) Opening range 180°                             | 4) back check 70° to 180°           |
| 2) Closing speed 180° to 15°                      | 5) Ideal hold open area 70° to 120° |
| 3) Either latching speed last 15° or slowing-down | 6) Delayed closing action up to 70° |

The main features a door-closer is nowadays required are displayed in the above-diagram.

Of course not always all features are necessary at the same time.

Along the opening swing 1) the device is required to oppose the lowest resistance.

Along the closing path [area 2), 165° approx] the device must give out power enough to allow the door to be closed with reasonably uniform speed and in the final section [area 3), 15° approx] either a latching speed (faster) or a slowing down (for double swing doors) is required.

If the idleness of the door is particularly high, it is advised that, beyond 70° opening, the device performs a back-check action, to prevent the door from being flung open too fast (area 4).

Sometimes the door is to be held in the open position, usually in the area 5).

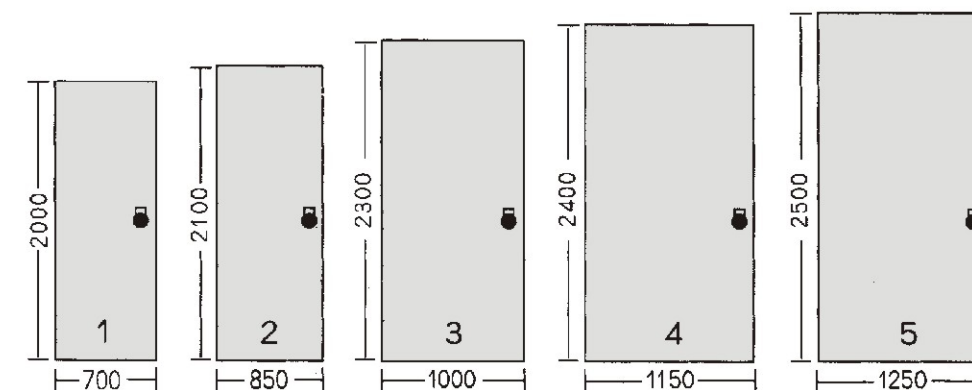
Along the path, sometimes a delayed closing action may be required, so that an individual in a wheelchair or walker may pass through the opening without having to struggle with the opening force of the door. delayed action on a door slows closing till 70° by perhaps 20 seconds (area 6).

## How to select a door closer

### Door Dimension

The width of the door is the main factor determining the choice of a closer size, as it represents the length of the lever to be offset by the closer's power. For all door closer's series precise references are given between closers' size and doors' dimension.

In case of particular height or weight of the door, or draft environmental area, select more stronger size.



### Opening range of the door

For many door closers different fitting locations are given, according to the opening degree.

It is however advisable to fit the door closer in the position allowing 180° opening.

In order to limitate the opening of the door, a door stop on the floor shall be installed.

Back check will prevent the door from damage due to abrupt stop.

### Type of closer

There are two kinds of closers in general:

surface and concealed.

Of course, in the choice of the closer, control requirements and the whole door geometry shall be taken into consideration.

- A. Single acting doors: on existing doors a surface closer shall be the right solution. Since closers should close doors and not ruin designs, the use of a tiny closer, capable to add sleekness and form to the door is strongly advisable. (Series 1000, 2000, 3000).

In case you have to specify door closers for new design doors, the advisable solution should be a concealed closer, in the floor (series 86,900) or in the lintel (series overhead 800, Jackson 21)

- B. Double acting doors: in this case door closers shall be of the concealed type, either in floor or in lintel.

Provided that the lintel is suitable, the use of an overhead concealed closer (series 5000) is always preferable.

Otherwise a floor hinge (series 7000) shall make.

### Climate and ambient conditions

All EPCO closers are filled with a special mineral viscostatic oil, which has purposely been studied. Such oil makes seasonal adjustments unnecessary.

The use of heavier duty door closers is advisable in following cases:

- Exterior doors, when subject to strong winds.
- High frequency doors (as banks, shops, dptm stores)
- Schools and public buildings.
- Bars and Mc. Donald's



## TECHNICAL INFORMATION

- ☐ Closer units available in three strengths
- ☐ Control options NO HOLD, HOLD OPEN 90° & HOLD OPEN 105°
- ☐ 130° Backcheck
- ☐ Compact size
- ☐ Closing & Latching control valves.
- ☐ Self-adhesive labels 'DO NOT DRILL THIS AREA'
- ☐ 70mm Pivot Point fixing bracket

## TECHNICAL DATA

DOOR WIDTH	CLOSER SIZE	CLOSING FORCE In Nm (kpm)	HOLD OPEN 90° PRODUCT CODE
Up to 750mm	2	16 (1.6)	802-90
751 to 950mm	3	25 (2.5)	803-90
951 to 1150mm	4	33 (3.3)	804-90

SHIPPING WEIGHT 4.46KG

The EPCO 86 is a double action floor spring which has been specially developed for the aluminium and tempered glass door industries.

This unit is intended to complement our internationally acclaimed 800 concealed overhead door closer by giving the shopfitting industry the option of a EPCO quality floor spring designed for their particular purpose.

The 86 has many of the features of the other EPCO closers with the addition of reduced depth and an array of new accessories designed for the aluminium door fabricator and tempered glass door manufacturer.

## Technical details

- Length 306mm x width 108mm x depth 40mm
- Maximum opening angle 130° in each direction (for doors opening upto 130° door stop must be fitted)
- Closing from 130° under total hydraulic control.
- Built in cushioned backcheck from 85° prevents damage to doors in windy conditions or where the door swing is limited to 90°.
- Total mechanism immersed in high quality hydraulic fluid ensuring smooth operating even under differing temperature conditions.
- Pressure relief valve to protect mechanism if subjected to rough use or adverse weather conditions.
- Closing force: 16, 25, 33Nm for wide selection.
- Maximum door width 1100mm, maximum door weight 120kg.
- Adjustment in cement box, 7mm length x 10mm width x 4mm height.
- Cover plate, stainless steel.

## Technical data:

Door leaf width (hinge side of door) mm	Closing size	Closing force Nm	Hold open 90 code number
up to 750 mm	2	16	862-90
751 to 950 mm	3	25	863-90
951 to 1100 mm	4	33	864-90

## GUARANTEE

EPCO floor spring are guaranteed for 3 years from the date of manufacture against in material and workmanship. This guarantee is void if the product has been incorrectly installed or damaged in use. Claims for damage incurred or work done thereon will not be accepted.

## Specification

EPCO 86 Double action floor spring. Thermoconstant, total mechanism to be immersed in hydraulic fluid. Floor spring to open to 130° and close under full hydraulic control. Suitable for doors upto 1100mm wide, weighing 120kg. Specify with order. Non hold open or hold open 90°.

## Special options:

Hold open 85°

Hold open 105°

Brass cover plate

A = Controlled closing range 130°-0°

B = Controlled closing range 130°-15°

• = Hold-Open positions of 85°, 90° or 105°



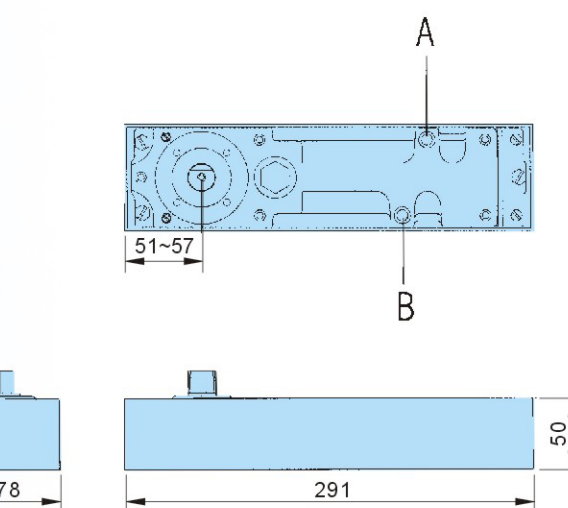
### 76 Series

Medium duty  
for door weight 150kg and door width up to 1200mm

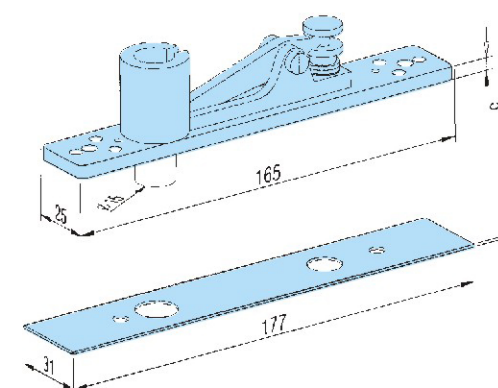
- **Universal application**  
Left hand, right hand single and double action doors.
- **Full hydraulic control**  
Provided by two valve screw.  
A) Closing range 70° ~ 0°  
B) Delayed action range 175° ~ 70°
- **Backcheck zone**  
Prevents damage to outward opening doors or swing is limited to 90°
- **Adjustment**  
Within zinc plated cement box length 6mm, height 4mm.
- **Spindle insert extension**  
Up to 50mm, suitable for all types of doors.
- **Special order options**  
Hold open 85°, 105° and 120°
- **Cover plates**  
Universal for left hand, right hand single and double action doors.  
Three finishes available.  
Stainless steel.  
Polished brass and B.M.P. (bronze).

### Technical Data

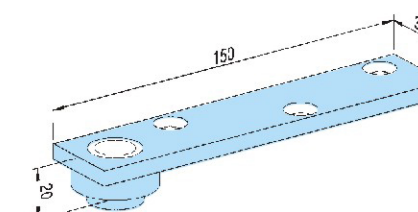
Spring strength	Standard	
Closing force in Nm, approx	28	
Standard doors <sup>1)</sup> up to 1200mm	●	
Non-handed, for single & double action doors	●	
Closing speed variable by valve adjustment	●	
Backcheck, mechanical	●	
Delayed action variable by valve adjustment	●	
hold-open point	90°	○
	105°	○
Dimensions in mm	Length	291
	Width	78
	Height	50
● Yes ○ Option		
<sup>1)</sup> For applications involving particularly high or heavy doors, and doors which have to close against wind or draught conditions, the EPCO JACKSON 900 floor spring should be selected.		
Products Code		
Non- hold open	76-NH0-ACC	
With hold open 90°	76-90-ACC	



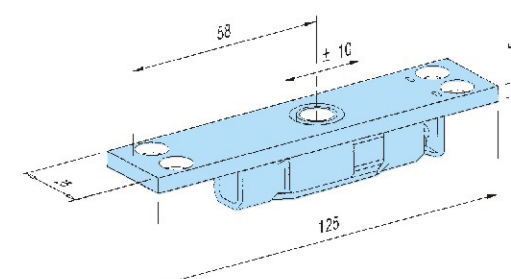
### for Aluminium and Steel doors



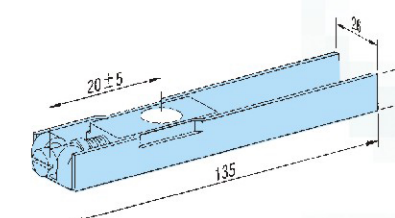
Art. No. 9914-15  
Top centre with Ø 15mm Pin  
Die cast  
Art. No. 99145-15, Steel



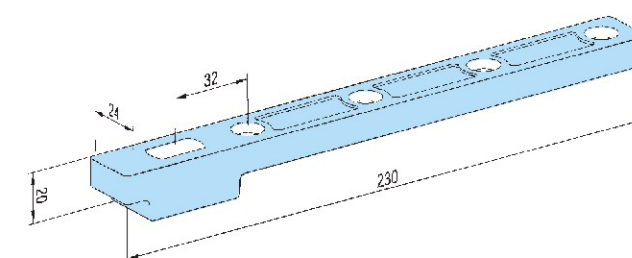
Art. No. 9962  
Door [portion]  
Die cast



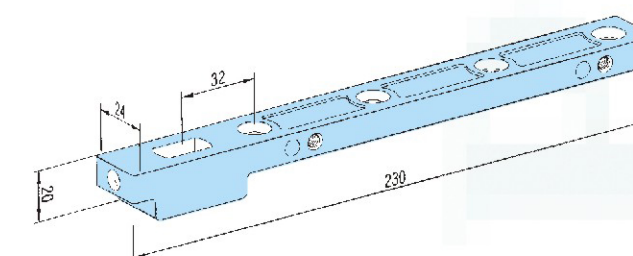
Art. No. 9966  
Door [portion]  
Steel



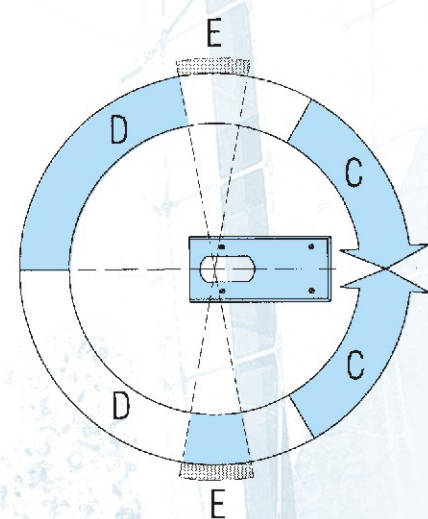
Art. No. 9964  
Door [portion]  
Adjustable lower part steel



Art. No. 9968  
Drop forged steel, zinc-plated  
for door weights up to 300kg



Art. No. 9970  
Drop forged steel, zinc-plated  
adjustable to various frame  
profiles.



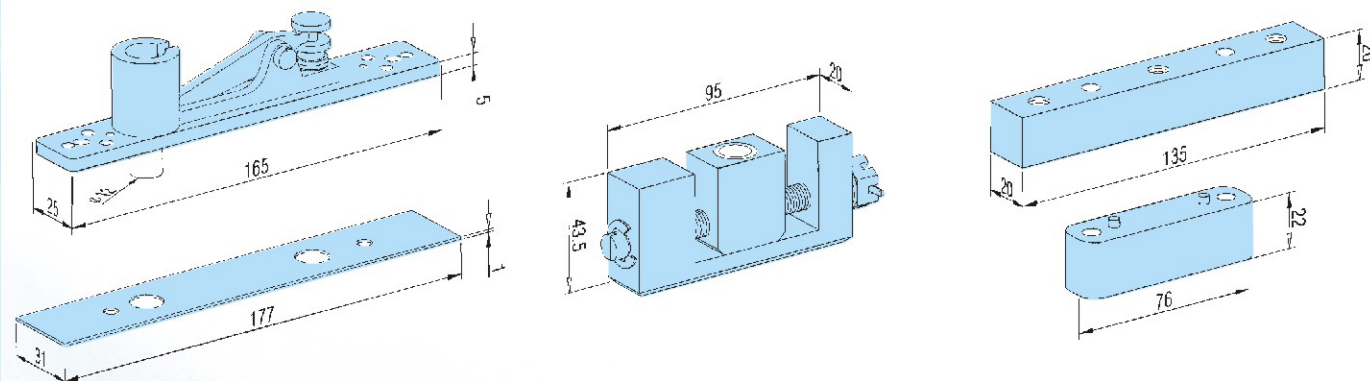
- C) Controlled closing with adjustable speed 70° ~ 0°  
D) Delayed action range (approx 175° ~ 70°)  
E) Mechanical backcheck

### GUARANTEE

EpcO floor springs are guaranteed for 3 years from the date of manufacture against defect in material and workmanship. This guarantee is void if the product has been incorrectly installed or damaged in use. Claims for damage incurred or work done thereon will not be accepted.



#### for Plastic and Tempered glass doors ( GD accessories )

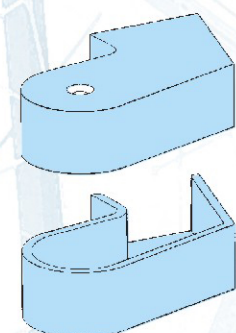


Art. No. 9914-12  
Top centre with  $\varnothing 12$ mm Pin

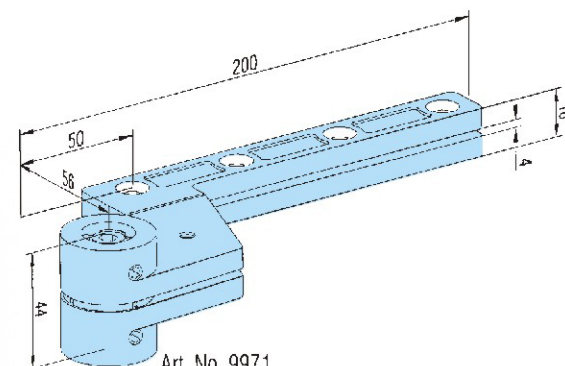
Art. No. 9960  
Lower part for screw fixing to  
toughened glass door rail.

Art. No. 9961  
Forged steel bottom arm fixing to  
toughened glass, door bottom rail.

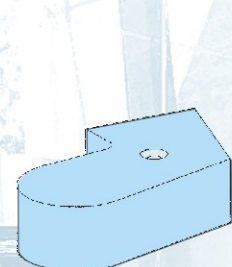
#### for Single action timber door



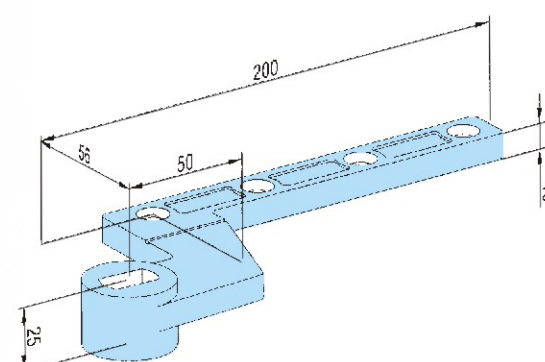
Art. No. 9971  
Cover caps for Top centre  
Set, of 2



Art. No. 9971  
Cover caps for Top centre  
Set, of 2



Art. No. 9972  
Cover caps for  
Bottom arm.



Art. No. 9965  
Forged steel bottom arm.

### The adjustable floor spring universal in application with a unique combination of functions

Designed for especially high and heavy doors, the Jackson 900 series is suitable for door weight up to 650 kg and door width up to 1400 mm, and also door which constantly have to close against high wind pressure.

Universal suitability for center pivoted and left or right hand pivoted with 36 mm or 16 mm offset.

- UL listed meets UL 288
- Meets all requirements of ANSI 156.4
- Meets Singapore standard 332:

1988 APPENDIX E: Fire-resistance tests



#### Technical Data:

Closing force variable (Closing moment approx. 9-54Nm)	SIZE
For especially high and heavy doors, Capable of handling door weight up to	1-6
Doors width $\leq 1400$ mm	650
	KG
Non handed unit suitable for both single action and double action doors	•
For fire doors, SISIR reference available	•
Closing force variable by adjusting screw	•
Closing speed variable $180^\circ - 0^\circ$ by adjusting screw	•
Tapered roller bearing design, Closing efficiency	>80%
Six Interchangeable spindle system 10-38mm	•
Temperature stabilized fluid	•
3° Door centering adjustment	•
Bubble level port design	•
Built-in variable back check at $90^\circ$	•
Cover plate fixing on spring body	•
Fixed position hold open $90^\circ$	•
at a door angle of $120^\circ$	•
Selective delayed action	•
Dimensions of cement box in mm	Length 308
	Width 76
	Height 60

• Yes    ◦ Option

Size (1)	Closing force Nm	Door widths	No. of turn	Direction
1	9Nm	750mm	4	↻
2	13Nm	850mm	2	↻
3	18Nm	950mm	—	—
4	26Nm	1100mm	3	↻
5	37Nm	1250mm	8	↻
6	54Nm	1400mm	15	↻

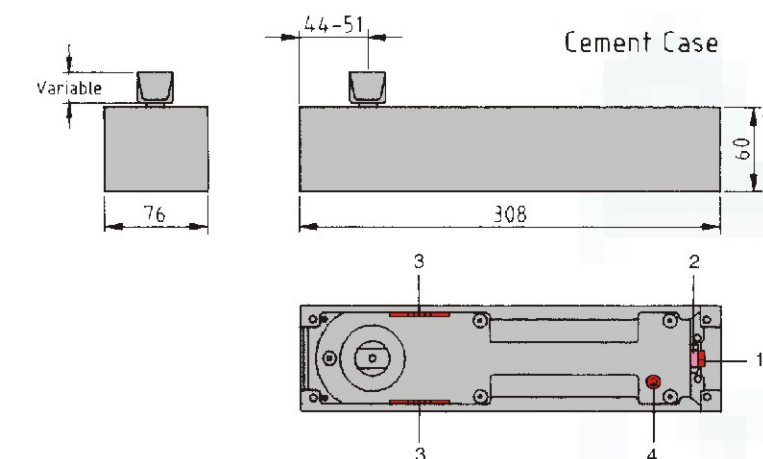
(1) Size 3 is preset in factory.

1. Adjusting screw for setting the spring size
2. Dual speed control screw for latch & closing speeds ( $180^\circ - 0^\circ$ )
3. Door centering adjustment  $\pm 3^\circ$
4. Bubble level port

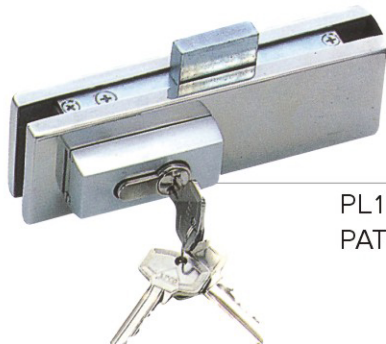
#### EPCO JACKSON 800 SERIES

- Thin slab • 50mm deep
- For medium door weight up to 250kg
- For door width up to 1100mm
- Closing force variable size 1-4

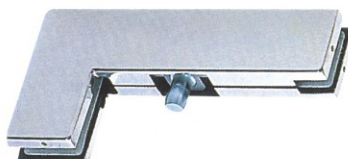
MADE IN GREAT BRITAIN







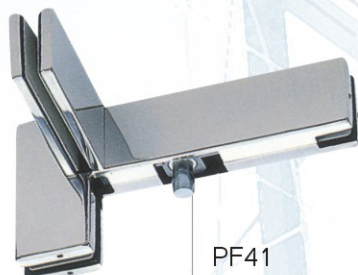
PL10  
PATCH LOCK



PF40  
TRANSOM SIDEPANEL  
FITTING



#86 FLOOR SPRING



PF41  
TRANSOM SIDEPANEL  
FITTING WITH FIN



PF10  
BOTTOM PATCH  
FITTING



PF20  
TOP PATCH FITTING

## TEST REPORT [ 測試報告證書 ]

藝高牌地彈簧、玻璃夾，通過新加坡標準局  
(PSB) 500,000 次耐久測試

PSB is established as a statutory and testing authority by an Act of Parliament, the PSB Act No. 1 of 1996.

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PSB Singapore

7701838  
1996-04-23  
Page: 1/2  
Fax: 7703903

**SUBJECT:**  
Cyclic test on floor mounted door closer submitted by EPCO Architectural Hardware Pte Ltd on 1996-02-15.

**TESTED FOR:**  
EPCO Architectural Hardware Pte Ltd  
107A, Jalan Kembangan  
Singapore 419146

**DESCRIPTION OF SAMPLE:**  
Components of door leaf assembly were said to be of the following:-

Component	Brand	Overall Dimension (mm)	Weight (kg)
1) Floor Spring 863-90 25Nm	EPCO	308 x 108 x 40	-
2) Patch Fitting PF-10	EPCO	186 x 52 x 31	0.60
3) Patch Fitting PF-20	EPCO	186 x 52 x 31	0.66
4) Tempered Glass Door	-	1000 x 2000 x 12 thick	98.0

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Singapore Productivity and Standards Board PSB Building 2, 301, North Canal, Singapore 199815. Telephone: 2786616. Facsimile: 2786617. Telex: 937 112.

5) The door closer @ 25 Nm  
500,000 cycles. The door closer --  
undue wear or damages on any part of the --  
could impair its reliability of functioning.

**Result of Test:**

Floor Spring 863-90 25 Nm	Opening moment (at an opening angle of 5 degrees)	Closing moment (at an opening angle of 5 degrees)
At 5,000 cycles	33.1 Nm	25.7 Nm
At 500,000 cycles	32.3 Nm	24.9 Nm

Examination of door closer and patch fittings after completion of 500,000 cycles

Functioning of door closer and patch fittings remained satisfactory. No evidence of undue wear or damages on any part of the assembly or other defects which could impair its reliability of functioning.

Mah Poh Hui  
Testing Officer

Joseph Chng  
Assistant Head (Fire Technology)  
Mechanical Test Centre