

Horizontal section
Scheme 431

*The jigs are set for 4 mm
May be adjusted by gluing on shims
(max. 4 mm) See overlap.

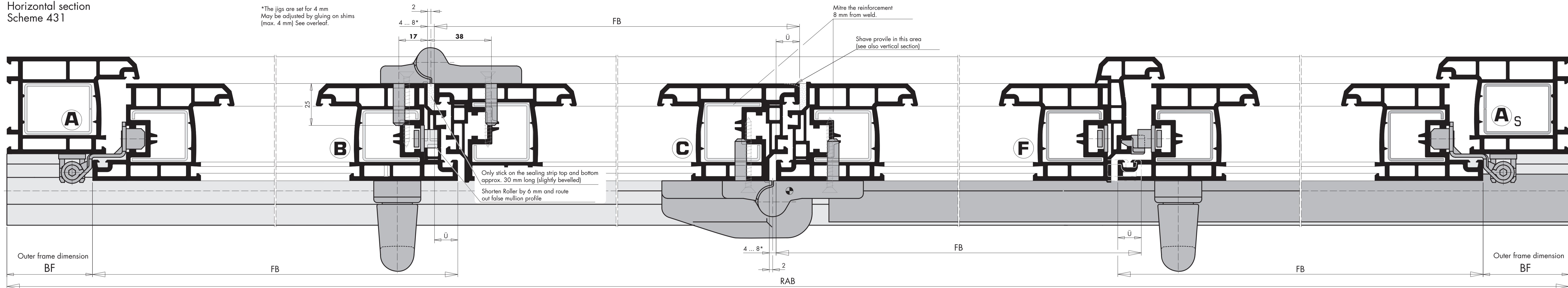


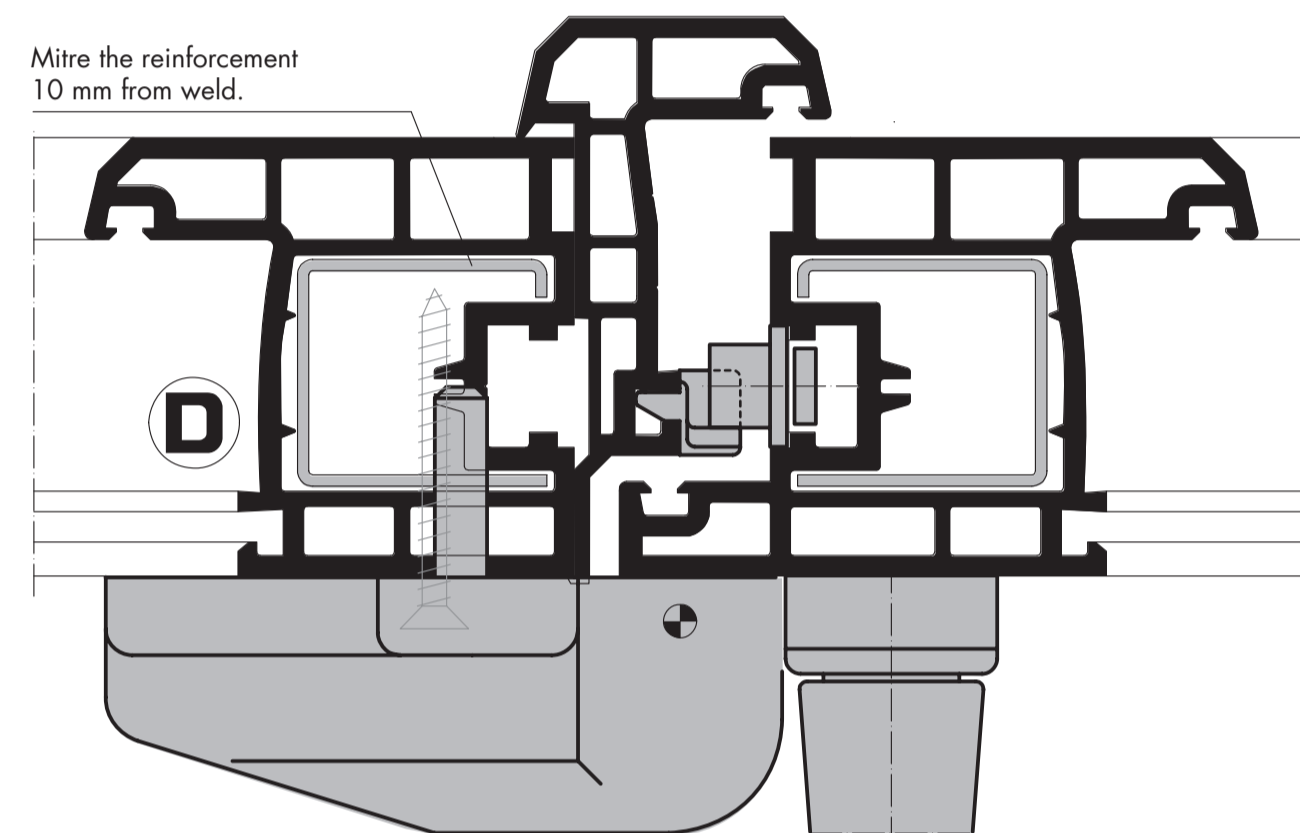
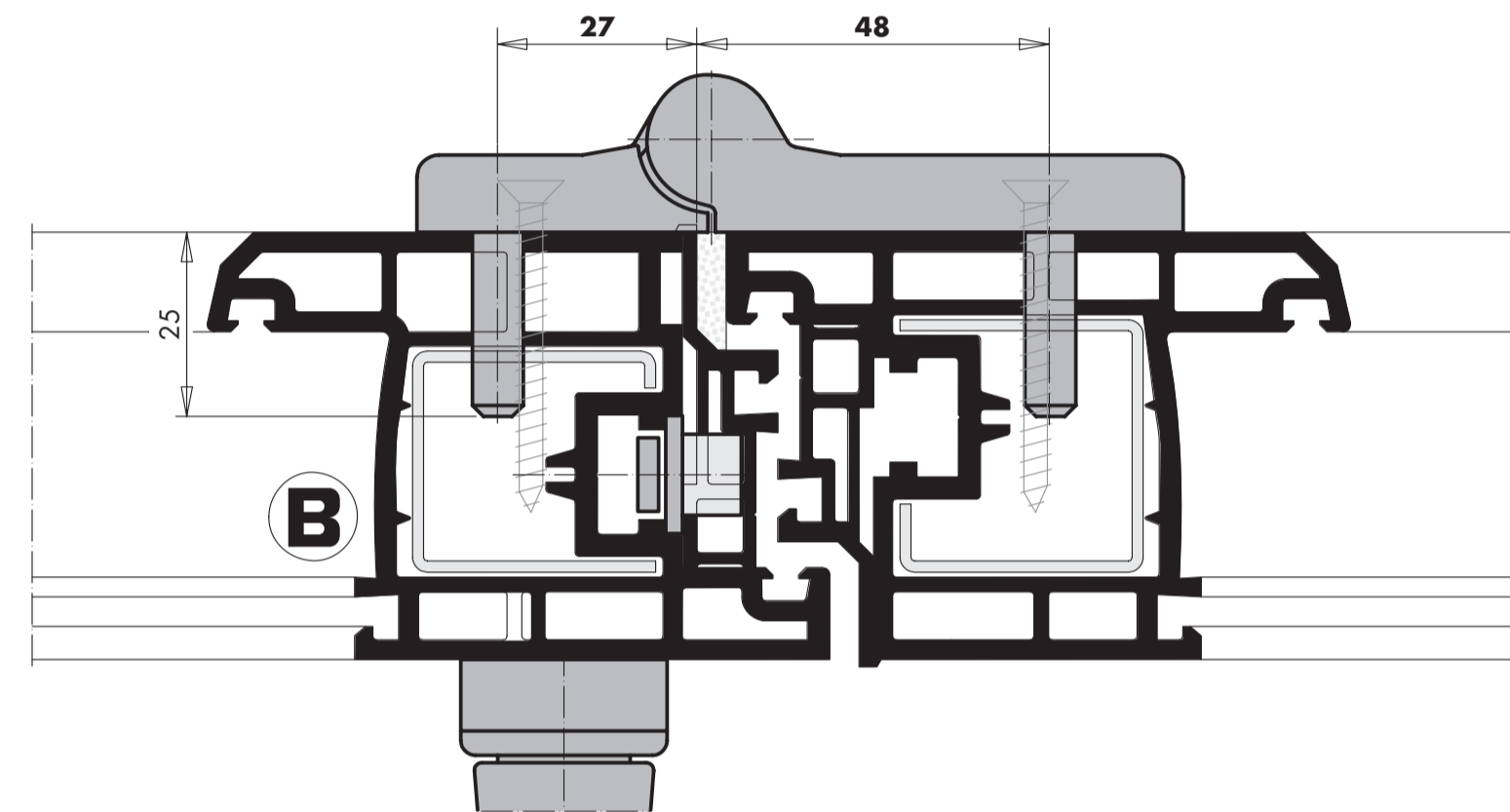
Chart to determine FB

Scheme	FB =
321, 330	$\frac{RAB + (2 \cdot \bar{U}) - (2 \cdot BF)}{3}$
431	$\frac{RAB + (3 \cdot \bar{U}) - (2 \cdot BF)}{4}$
541, 550, 532	$\frac{RAB + (4 \cdot \bar{U}) - (2 \cdot BF)}{5}$
651, 633	$\frac{RAB + (5 \cdot \bar{U}) - (2 \cdot BF)}{6}$
761, 770, 743	$\frac{RAB + (6 \cdot \bar{U}) - (2 \cdot BF)}{7}$

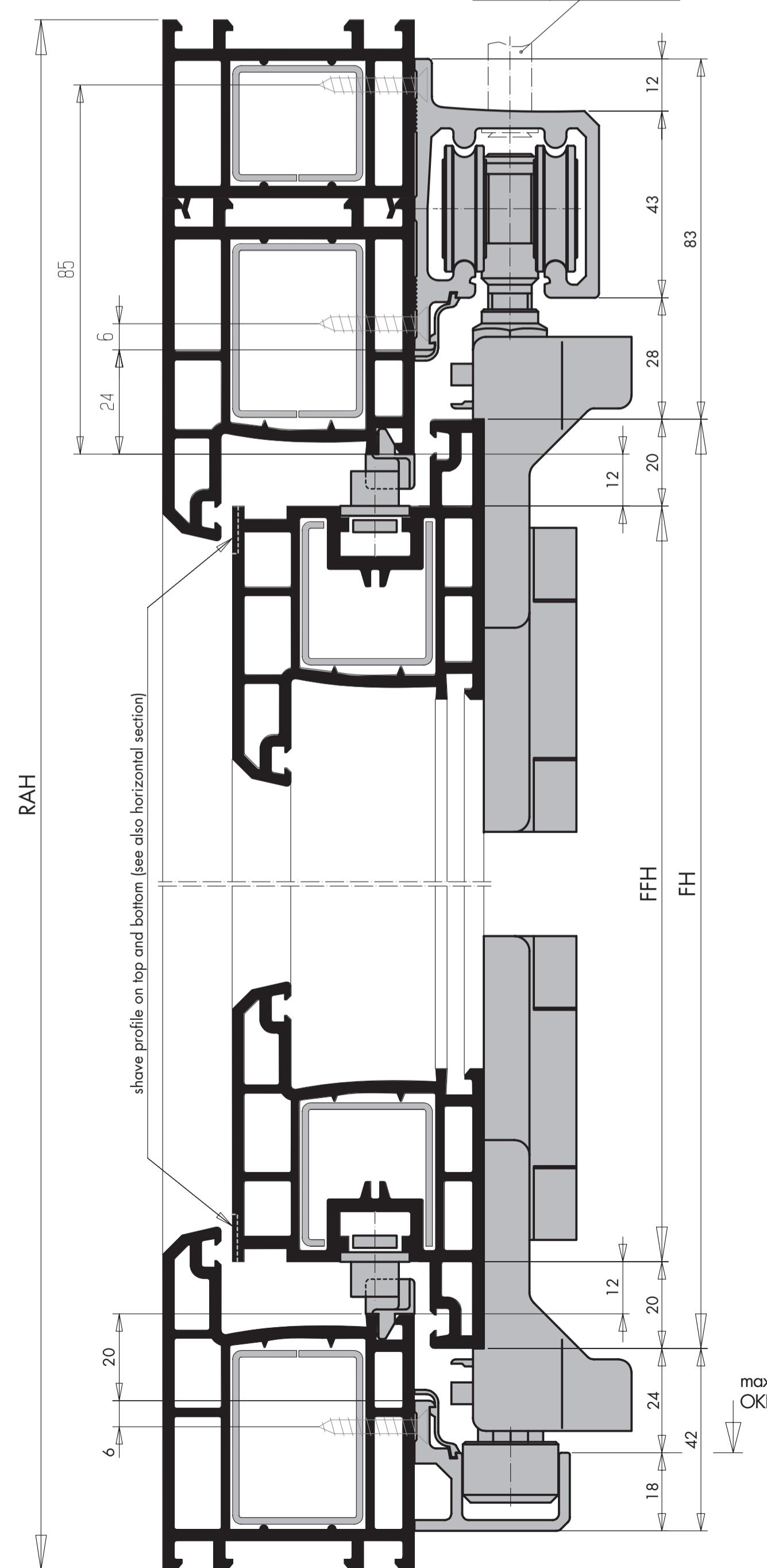
General formula

$$FB = \frac{RAB + [(No. \text{ of sashes} - 1) \cdot \bar{U}] - (2 \cdot BF)}{\text{No. of sashes}}$$

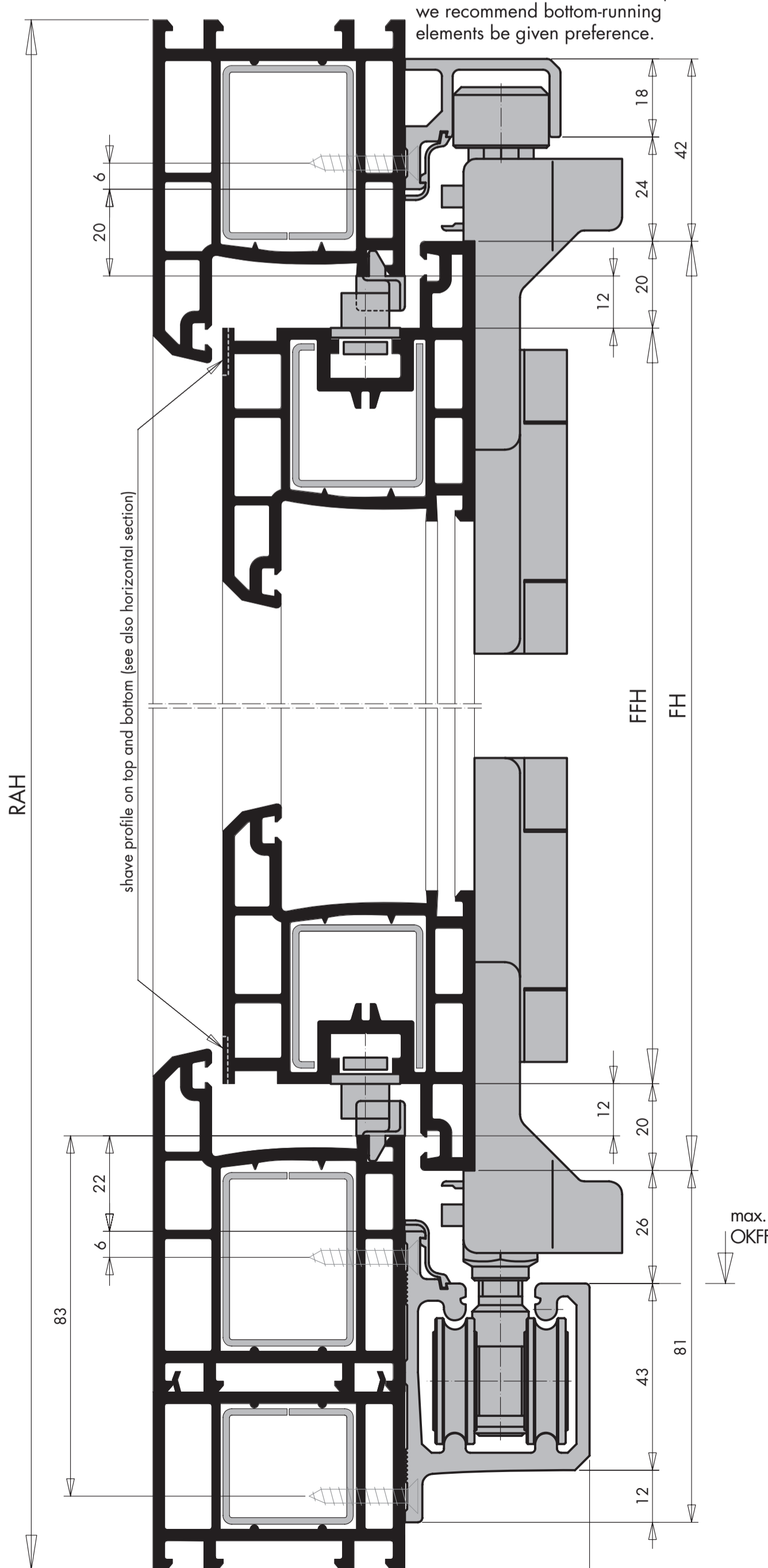
\bar{U} = Overlap
BF = Outer frame dimension



Vertical section
top running



Vertical section
bottom running



FS-PORTAL KF Hinge Side Spline

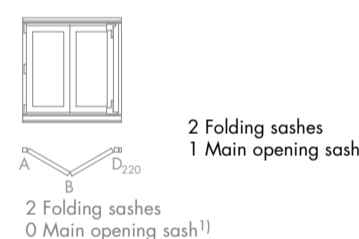
Folding-Sliding Door Fittings
for PVC Elements with 12 mm Airgap

Surface TS Look



FS-PORTAL KF 12 mm Airgap Scheme Overview

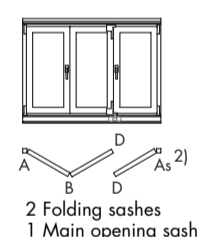
Scheme 220



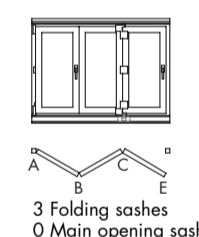
Note: All of this schemes can also be made in the opposite hand.
For Scheme 220, 440 and 660 please note: Different sash widths required! Request profile related drawing!

- Access through 1st folding sash
- e.g. As = Point A mirror image etc.

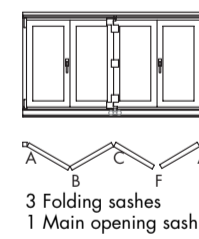
Scheme 321



Scheme 330



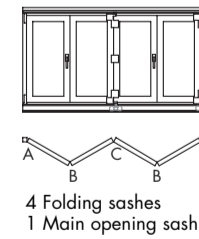
Scheme 431



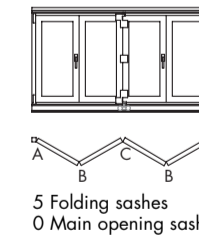
Scheme 440



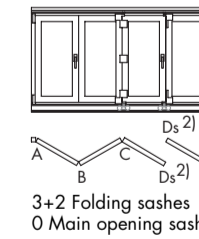
Scheme 541



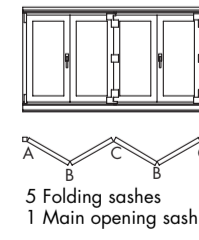
Scheme 550



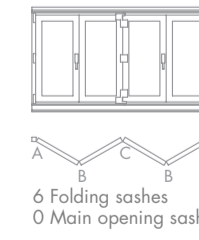
Scheme 532



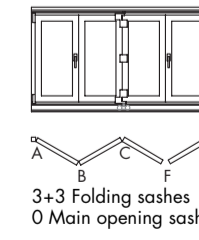
Scheme 651



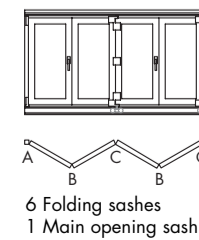
Scheme 660



Scheme 633



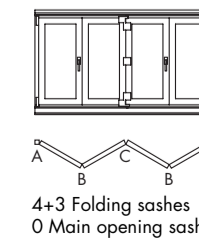
Scheme 761



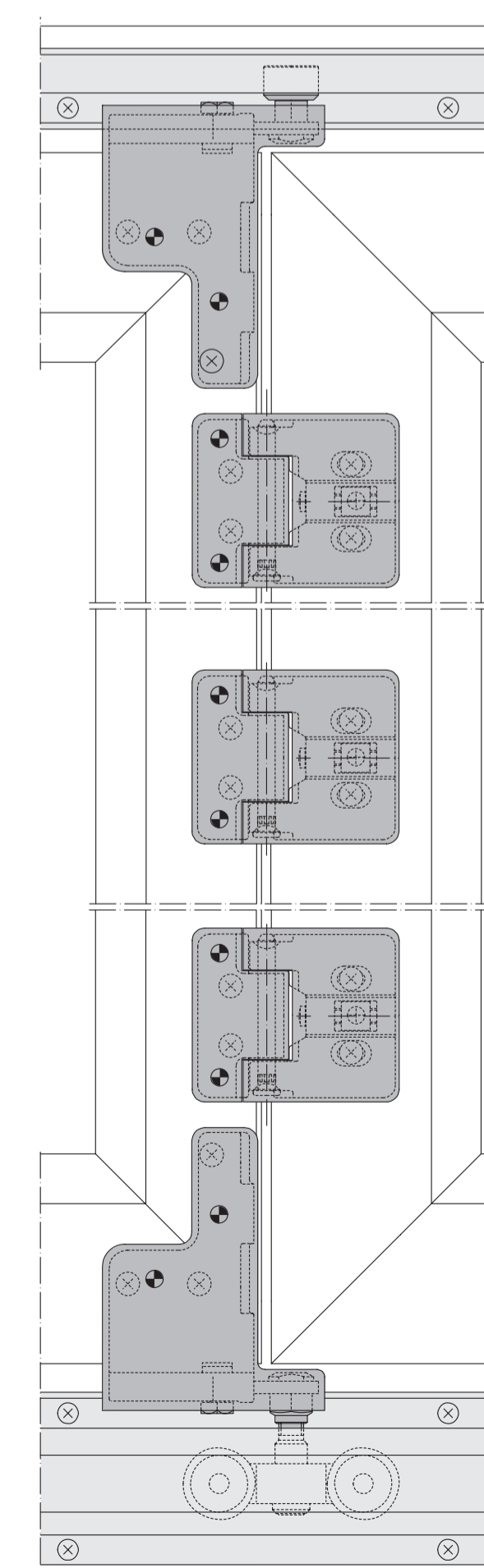
Scheme 770



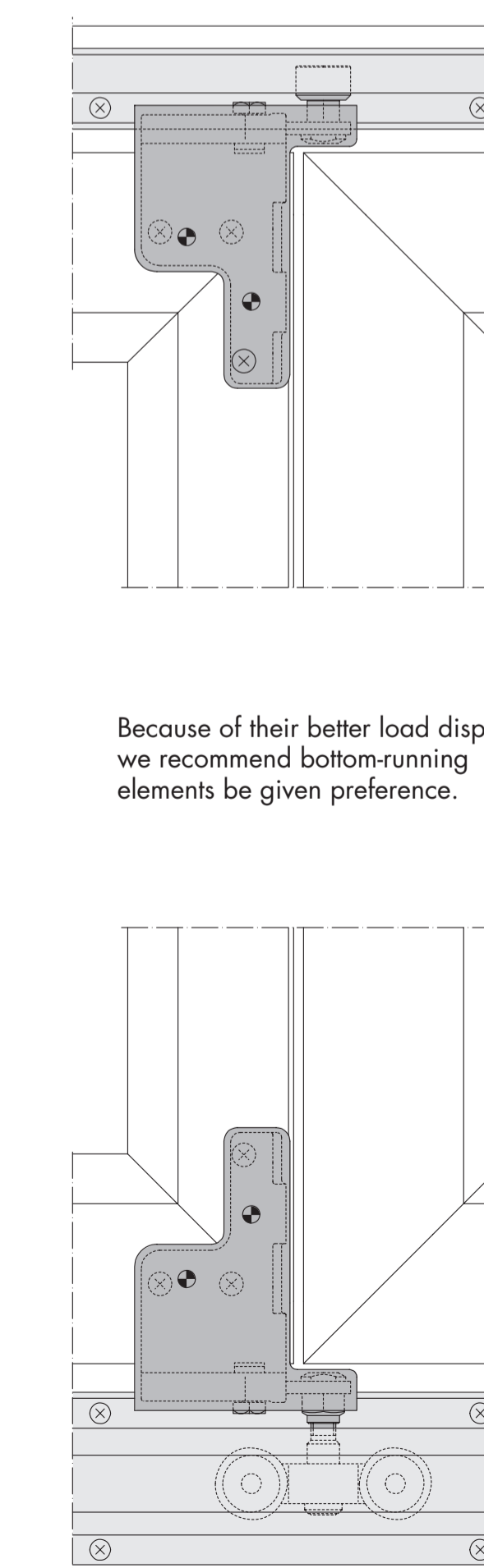
Scheme 743



Section bottom running 1:2,5



Section bottom running 1:2,5



Because of their better load dispersal we recommend bottom-running elements be given preference.

... with the decisive advantages:

- top or bottom running with the same profile sets
- sturdy track with minimal threshold height
- multiple sash options
- smooth sliding action provided by ball bearing raced bogie wheels
- efficient installation

Size Range

Sash width (mm)	330 ¹⁾ to 900
Sash height (mm)	840 to 2360
Overall frame width (mm)	determined by sash width and selected scheme
Sash weight (kg)	max. 80
Standard gear backset (mm)	16
Backset lockable drivegear (mm)	25 to 40
variable handle height (mm)	420 to 1180
Over rebate size range (mm)	13 to 24 ²⁾

¹⁾ Please note the opening door sash width should be larger than 600 mm
²⁾ For over rebate sizes 19-24mm see Product Catalogue under FS PORTAL Accessories

The above size limitations are valid for SIEGENIA-AUBI FS-PORTAL KF fittings.

Because of their better load dispersal we recommend bottom-running elements be given preference. The recommendations of the profile company must also be considered, in particular with respect to sash size, max number of sashes, sash weight and distance between locking points.

Where special preparation and manufacturing guidelines exist, then these should be expressly adhered to.

Advice for calculating sash widths

To rationalise the door preparation, the size matrix shows all sashes to be the same width. This leads to over-folding of the door sashes so that they stack parallel at approx 95°.

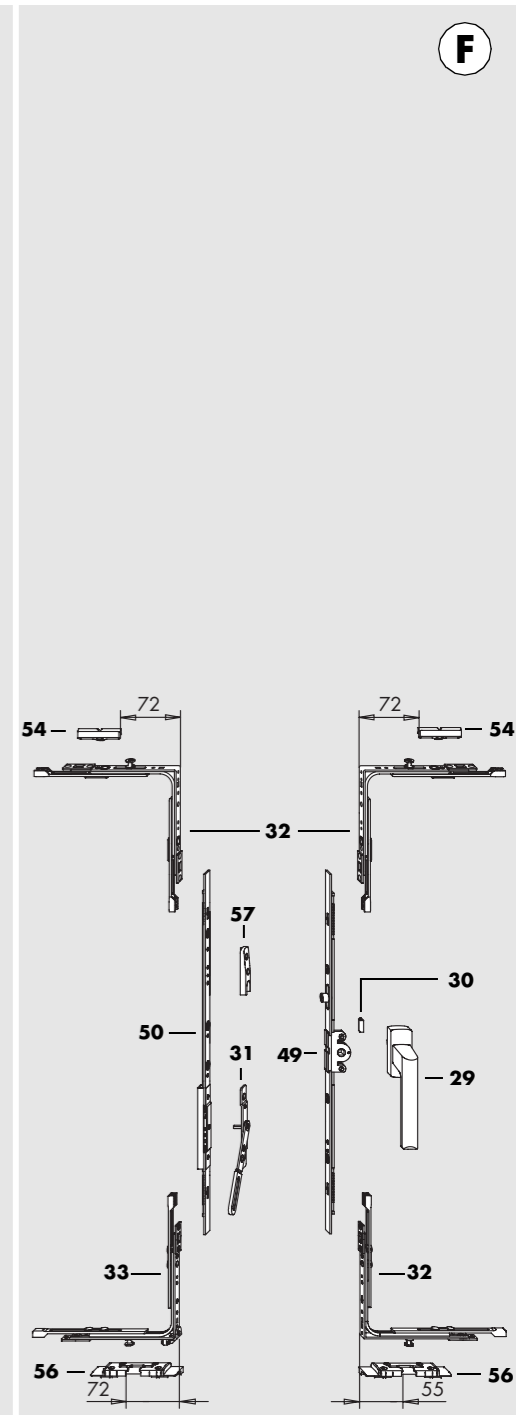
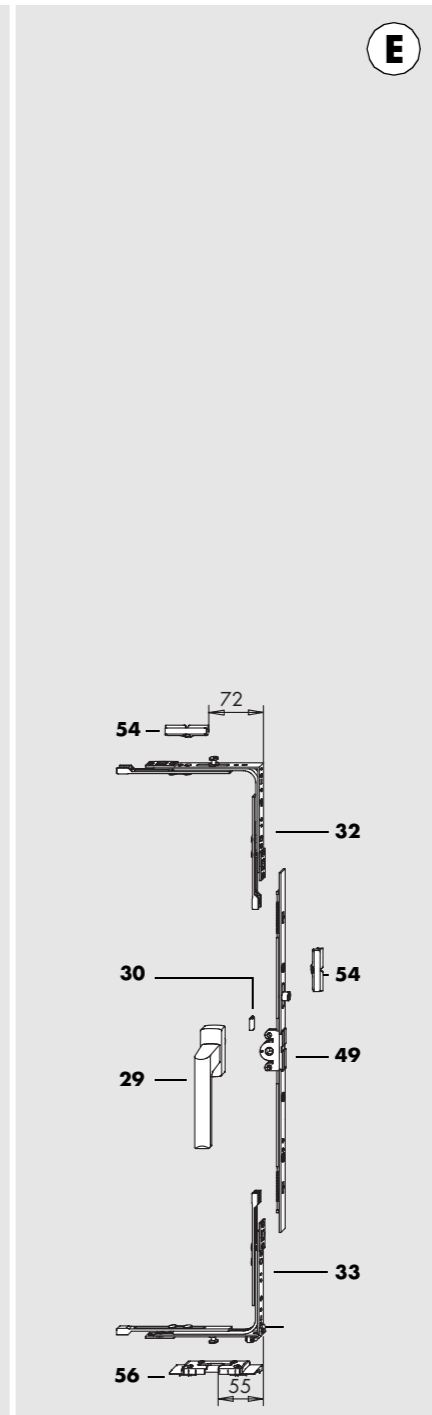
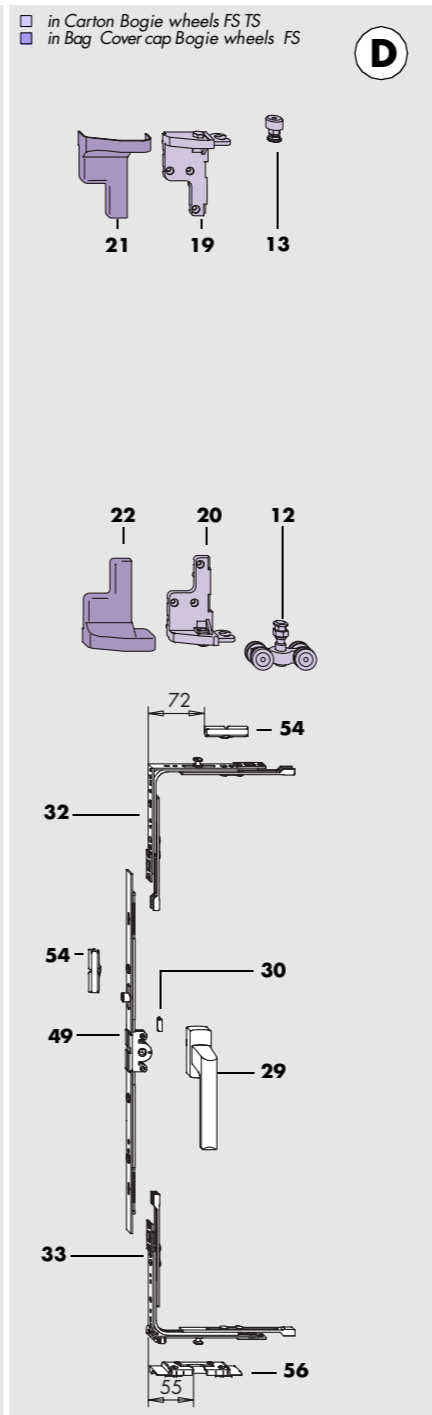
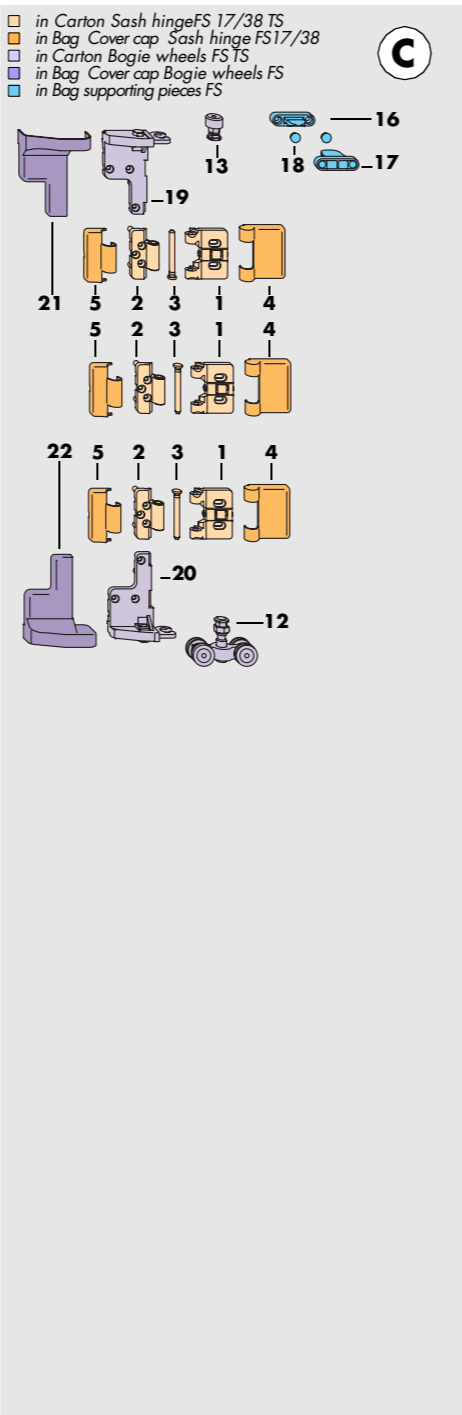
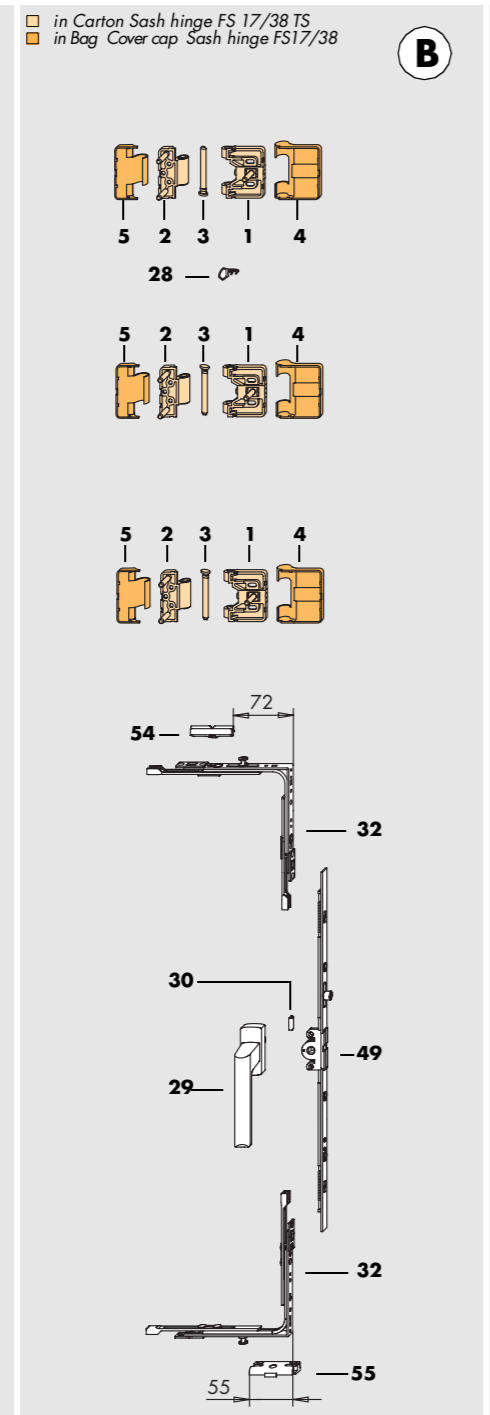
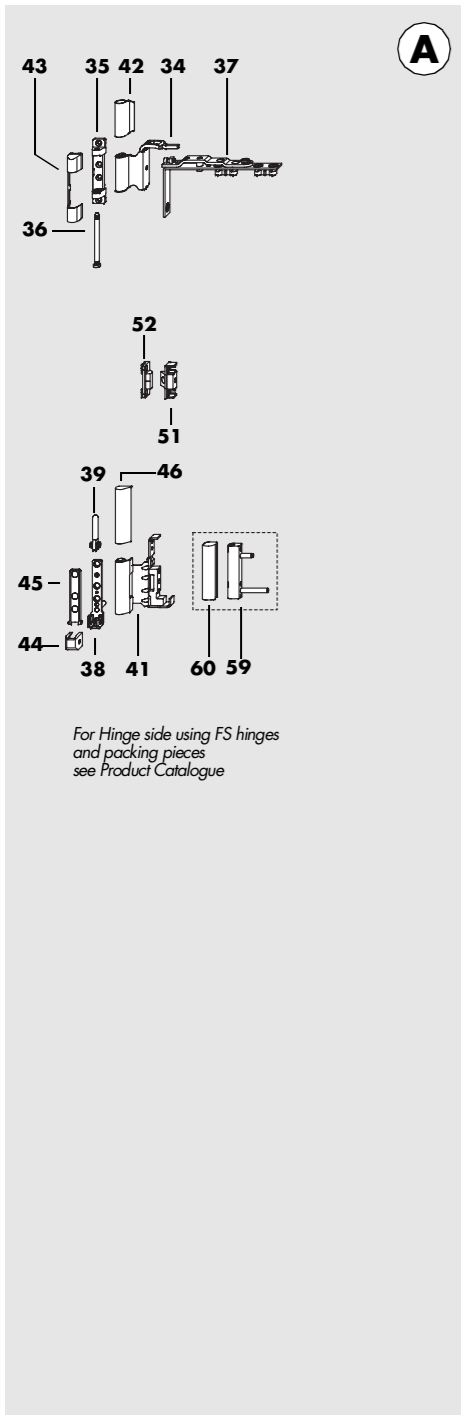
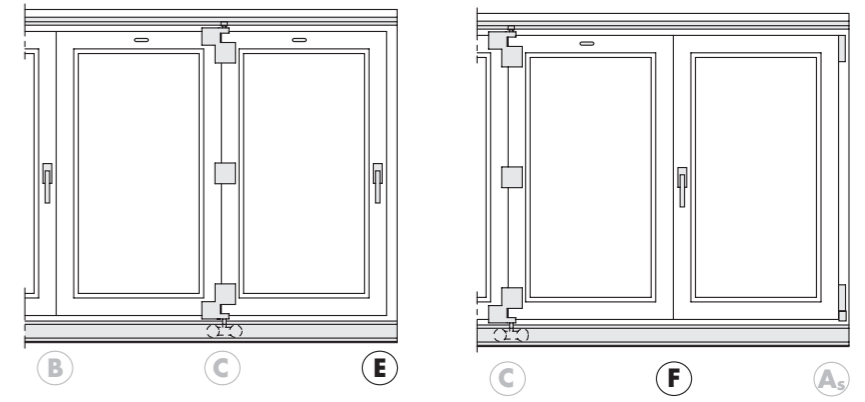
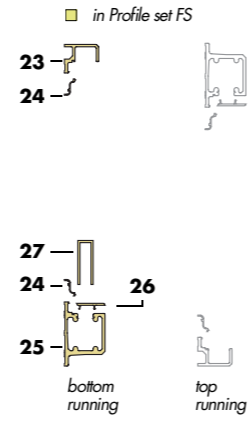
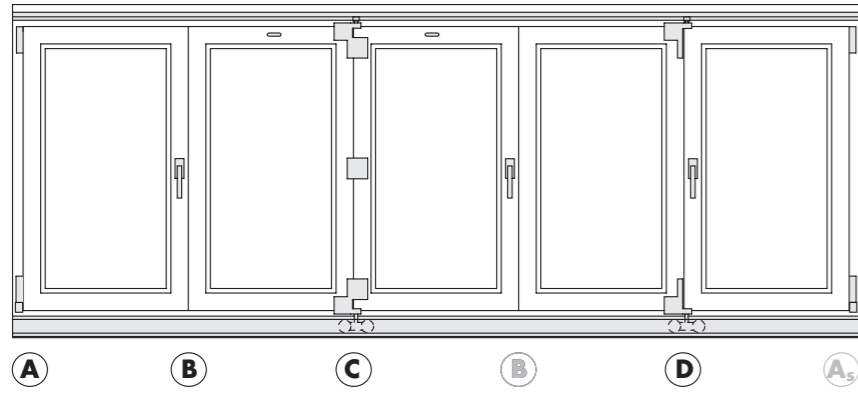
The following three options can apply if it is planned to stack the folded door sashes against a wall at 90°:

- Prepare the hinge points of the door sashes at differing widths.
- At cross section A use type FS packing pieces with the FAVORIT-DF components of the FS sash hinges. This reduces the over-folding.
- Use a wider vertical outer-frame section, possibly with an add-on profile, and a flat form of handle.

Installation Instructions
FSgb4013

FS-PORTAL KF Assembly (I)

FS-PORTAL KF Assembly (II)



FS-PORTAL KF Packaging Guide

Pos.	Quantity	Description	Materialnumber			
			silver	RAL 9003 white	darkbronze	midbronze
	1	Sash hinge carton FS 17/38 TS <i>comprising of:</i>	PMFG0030-100010			
1	3	Sash hinge, wide 38 TS				
2	3	Sash hinge, narrow 17 TS				
3	3	Top hinge pin TS				
	1	Bag, sash hinge cover caps 17/38 <i>comprising of:</i>	PMAG0010-025010	PMAG0010-002010	PMAG0010-011010	PMAG0010-031010
4	3	Cover cap FB, wide 38				
5	3	Cover cap FB, narrow 17				
	1	Sash hinge carton FS 27/48 TS <i>comprising of:</i>	PMFG4020-100010			
1	3	Sash hinge, wide 48 TS				
2	3	Sash hinge, narrow 27 TS				
3	3	Top hinge pin TS				
	1	Bag, sash hinge cover caps 27/48 <i>comprising of:</i>	PMAG0020-025010	PMAG0020-002010	PMAG0020-011010	PMAG0030-031010
4	3	Cover cap FB, wide 48				
5	3	Cover cap FB, narrow 27				
	1	Sash hinge carton FS 17/38 TS <i>comprising of:</i>	PMFG0030-100010			
1	3	Sash hinge, wide 38 TS				
2	3	Sash hinge, narrow 17 TS				
3	3	Top hinge pin TS				
	1	Bag, sash hinge cover caps 17/38 <i>comprising of:</i>	PMAG0010-025010	PMAG0010-002010	PMAG0010-011010	PMAG0010-031010
4	3	Cover cap FB, wide 38				
5	3	Cover cap FB, narrow 17				
	1	Carton wheels FS TS <i>comprising of:</i>	PMLG0020-100010			
12	1	Bogie wheel TS				
13	1	Guide TS				
19	1	Bottom hinge, right hand				
20	1	Bottom hinge, left hand				
	1	Bag, wheel cover caps FS <i>comprising of:</i>	PMAG0030-025010	PMAG0030-002010	PMAG0030-011010	PMAG0030-031010
21	1	Cover cap E, right hand				
22	1	Cover cap E, left hand				
	1	Bag, support FS <i>comprising of:</i>	PMZG0020-021010	PMZG0020-002010	PMZG0020-011010	PMZG0020-031010
16	1	Support D				
17	1	Support F				
18	4	Closure cap <i>for support D and support F</i>				
	1	Carton wheels FS TS <i>comprising of:</i>	PMLG0020-100010			
12	1	Bogie wheel TS				
13	1	Guide TS				
19	1	Bottom hinge, right hand				
20	1	Bottom hinge, left hand				
	1	Bag, wheel cover caps FS <i>comprising of:</i>	PMAG0030-025010	PMAG0030-002010	PMAG0030-011010	PMAG0030-031010
21	1	Cover cap E, right hand				
22	1	Cover cap E, left hand				
	1	Profile set FS	Size	Length (mm)	RAB (mm)	
			250	2500	to 2500	PMPG0050-525010
			350	3500	2501 to 3500	PMPG0060-502010
			450	4500	3501 to 4500	PMPG0070-502010
			700	7000	4501 to 6500	PMPG0080-502010
	<i>comprising of:</i>					
23	1	Guide rail				PMPG0050-511010
24	2	Cover rail F				PMPG0060-511010
25	1	Running rail				PMPG0070-511010
26	1	Cover rail L	Size	Length (mm)		PMPG0080-511010
			200	2000		
27	1...2	Cover strip	Size	Length (mm)		
			170	1700		

Assembly

Preparation

Pre-drill the outer frame for bottom hinge KF Ø 6 x 24/3 **(38)** and top hinge KF Ø 6 x 12 DH **(35)**.
Prepare the sash for the drive gear 3 **(49)**.
See also the specific assembly instructions for FAVORIT KF.

Fitting the sash frame

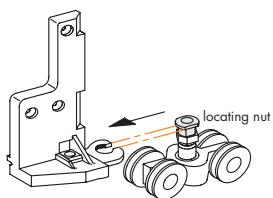
- A** Fit FAVORIT parts **(29 to 34)**, **(37)**, **(41)** and **(49 to 51)** to the sash. See also the fitting drawings, parts list and the specific assembly instructions FAVORIT KF.
- B** Corresponding Folding sashes should be laid in pairs and pre-drilled for the Sash Hinges **(1 and 2)**, Hinges D **(10 and 11)** and Hinges **(19 and 20)**. See also the front page and FS-PORTAL KF jigs.
- C** At cross section(s) C pre-drill for Catch D **(16)** and Catch F **(17)**, see also jig page.
- D** Screw on Sash Hinges **(1 and 2)** Hinges D **(10 and 11)** and Hinges **(19 and 20)**. Please note the correct orientation of the wide sash hinge **(1)**.
- E** With the handle **(29)** in the horizontal position, screw to door max.torque 2,5 Nm. Sharply turn the handle downwards to break the centre fixing of the gear.
- F** At cross section(s) C screw on the Catch D **(16)** and Catch F **(17)**. Lightly grease the Catches D **(16)** and F **(17)**.

Fitting the outer-frame

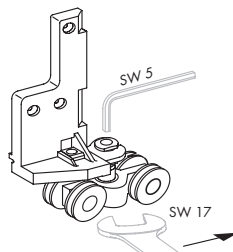
- A** Position the bottom **(38)** and Top hinge **(35)** and screw on.
- B** Cut to length the Guide rail **(23)**, two Cover rails F **(24)** and Running rail **(25)** (Length=AB).
Note: Cut Running rail **(25)** to fit across main entrance door.
- C** For bottom running doors, relieve the Guide rail **(23)** for the top hinge KF Ø 6 x 12 DH **(32)** see drg 1.
- D** Screw on the Guide rail **(23)** and Running rail **(25)**.
Note: In the area of the folded together sash (sash in fully opened position), screw in all screws, otherwise only every 2nd screw or for the running rail alternately top and bottom.

Final Assembly

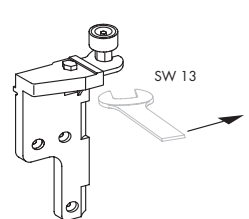
- A** Slide the bogies **(12)** into the Running rail **(25)**.
- B** Assemble the row of sashes ,beginning with the one nearest to the outerframe.
To install the Bogies **(12)** insert 12 mm high vent setting blocks into the frame rebate to give the correct airgap.
Slide the Bogies **(12)** into the support plates of Hinge D **(11)** and Hinge **(20)**, ensuring that the locating nut is in the correct position. see drg. 1.
Holding the pin of the Bogie **(12)** with allen key SW 5, tighten the locknut with spanner SW 17, see drg.2.
- C** Slide Guide **(13)** into Hinge D **(10)** and Hinge **(19)** and tighten with spanner SW 13, see drg 3.



Drg 1 With the locating nut in the correct position, slide in Bogie



Drg 2 Hold pin with allen key SW 5 and tighten locknut with spanner SW 17

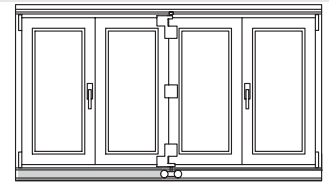


Drg 3 Slide Guide into support plate and tighten with spanner SW 13

FS-PORTAL KF Assembly Instructions (II)

Final Assembly (continued)

- D** As required use adjustments. See next page.
- E** Mount the Frame piece MV (52), Tilt striker (56 or S-ES) (54 or 55) and Tilt lock bearing S-ES FH (56) in the correct positions on the frame. See the fitting diagram.
- F** Clip on all cover caps. Cut cover rails F (24) to length and clip on, ensure rails clear the top hinge KF Ø 6 x 12 DH (35) when using the bottom running system.
- G** Cut cover rail L (26) to length see diag 5.
Cover rail L (26) should be clipped on for the length of the main opening door.
- H** To protect against ingress of dirt during installation, insert cover strips (27) between the individual folding elements. See diag 5.



Cover strips

Cover rail L



diag 5 Cover strips and Cover rail L fitting

Fixing of the Components

Sash hinges (1 and 2):	..... window screw	5 x *
Hinges D (10 and 11):	..... window screw	5 x *
Catch D (16) and Catch F (17):	..... window screw	5 x *
Hinges (19 and 20):	..... window screw	5 x *
Guide rail (23)	..... window screw	4 x *
Running rail (25)	..... window screw	4 x *
Handle Si-line FAVORIT (29):	Csk screw	M5 x 40, to DIN 965 - 4.8 Order -Nr. 801048
FAVORIT-components:	..... window screws	4 x *

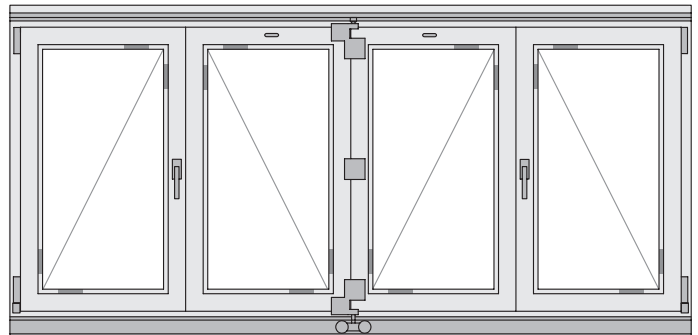
* The length of the fixing screws must be matched to the profile system.

Note: The fixing screws for load bearing components, such as bottom hinges D (10 and 11) bottom hinges (19 and 20), guiding rail (23) and running rail (25) must be screwed into the relevant reinforcing profile.
The reinforcing profiles for the sash, at intersection point C and D, must be mitred when cutting to size distance 10 mm.

Window screws for plastic windows, steel transparent zinc coated and sealed (not supplied).

Glazing example style 431

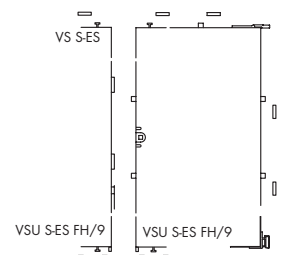
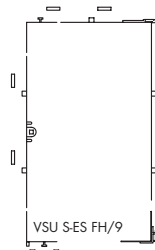
Suggestion: For stability, glaze and wedge as shown in the diag on the right.



Main opening door with tilt and turn option on request

Schemes
321, 541 and 761

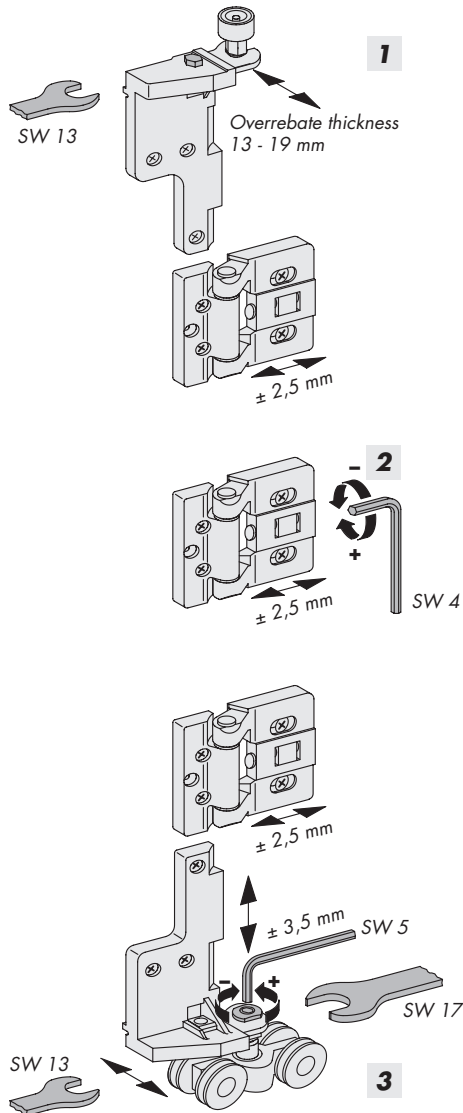
Schemes
431 and 651



Adjustments

If required, the variety of adjustments listed below can be used.
For correct adjustment it is recommended that:

- first install the glass correctly
- the folding sliding elements are clamped horizontal and plumb or the frame is installed into the building



1

Sash pressure via the top hinge

- A** Loosen the lock nut SW13
- B** Firmly press the sash against the frame.
- C** Tighten the locking nut.

2

Positioning of the Sash hinges

Tip: Slacken sash hinges in order, adjust and re-tighten.

- A** Slacken both set screws.
- B** Adjust the gap with allen key SW 4 .
- C** Re-tighten setscrews.

3

Setting the height of Bogie wheels

- A** Slacken lock nut SW 17 on the bogie wheels.
- B** Adjust the height of the sash by using allen key SW 5 whilst holding the lock nut in place with spanner SW 17.
- C** Then re-tighten the lock nut keeping allen key SW5 firmly in place.

Adjustment options of the FAVORIT-Fittings

- Side adjustment through the stay and frame hinges
- Closing pressure in the stay
- Height adjustment in the sash hinge
- Sash closing pressure from eccentric rollers

see Maintenance instruction FAVORIT-KF.

FS-PORTAL KF Assembly Aids

Note:

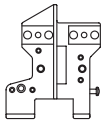
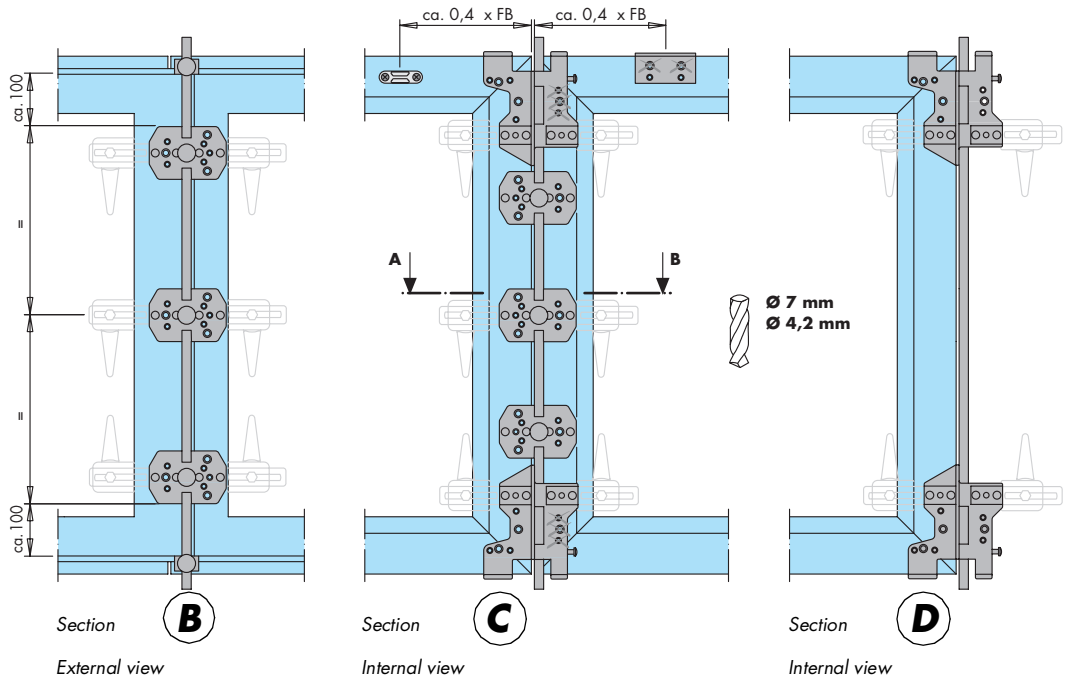
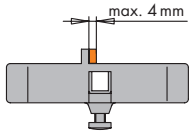
The jigs are set for a sash gap of 4mm.

For different profile systems corresponding packers up to a max of 4mm can be added.

See section A - B and front page Section B.

Section A - B

only Jig EB 644-2 shown



Jig EB 644-1

for bottom hinge

Material number

Requirement: 2 off

143063

Drill: Ø 7,0
Ø 4,2



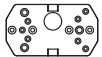
Jig EB 644-2 17/38

for sash hinge 17/38

143070

Requirement: 6 off

Drill: Ø 7,0
Ø 4,2



Jig EB 644-2 27/48

for sash hinge 27/48

PAHG0020-521010

Requirement: 3...6 off

Drill: Ø 7,0
Ø 4,2



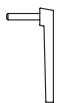
Jig EB 644-3

for support

143087

Requirement: 1 off

Drill: Ø 4,2



Jig EB 644-4

for centring drill for guide and running rail

143094

Requirement: 1 off

Drill: Ø 3,5



Adjusting rod

for EB 644-1 and EB 644-2

143117

Requirement: 2 off



Stop

for adjusting rod

143100

Requirement: 2 off



Clamping device

for EB 644-1 and EB 644-2

139202

Requirement: 12 off

No illustration

M5 x 16 csk. head screw

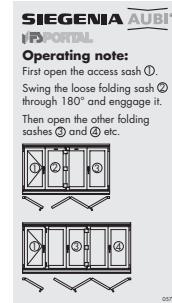
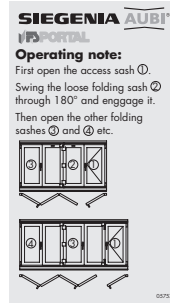
for fixing the clamping device

801147

Requirement: 24 off

Important notes

- Please consult our Product information „Sliding hardware for sashes in doors and windows.“
- The size ranges specified on Page 1 apply to the SIEGENIA-AUBI FS-PORTAL KF hardware.
In addition to this the details given by the profile manufacturer or the system owner also apply, **particularly on possible limitations on sash dimensions**, max. number of sashes per element, sash weight and the spacing of locking elements. Where specific manufacturing regulations or working guidelines exist, these must be expressly observed. The screwing speeds and torques given are obligatory.
- It is possible that bearing components can break due to excessive strain. This could cause the window to drop out of the frame and potentially cause serious injuries. If due to special circumstances (use in schools, nurseries etc.) excessive strain on bearing components can be expected, fatigue of these components must be prevented **e.g.** by fitting a lockable handle to prevent unauthorised use.
In the event of doubt please consult your SIEGENIA-AUBI representative.
- The fittings described in the technical instructions are manufactured from steel, are galvanised and treated with a special coating. The parts meet the DIN EN 1670 standard. They must not be used in environments with aggressive, corrosion promoting air. In such cases please consult your SIEGENIA-AUBI representative.
- We can accept no liability in respect of any damages or defects arising where the hardware assembly incorporates products not made by SIEGENIA-AUBI.
- Install the hardware components correctly as described in these Assembly Instructions. The screwing speeds and torques given are obligatory. **Do not over-tighten the screws!**
- The surface treatment of folding - sliding elements must be performed **before** the hardware is assembled on the window. Post treatment could adversely affect the effective functioning of the components, in which case we are not obliged to provide any warranty.
- Please follow the standard techniques for packing and wedge the sealed glazing units within the sash/frame.
- Do not use any acid hardening sealants, as these can lead to corrosion of the hardware components.
- Keep all rebates free from dirt and debris - especially residues of cement or plaster. Avoid the direct effect of moisture on the hardware and contact of the hardware with cleaning agents.
- Affix a clearly visible operating sticker (sliding direction DIN left or DIN right) onto the fitted folding - sliding sash.
The operating sticker can be found in the FS Bogie carton.



Liability exclusions

We accept no liability in respect of any damages or malfunctions caused by the hardware or the folding - sliding elements fitted with them, as a result of incorrect or inappropriate specifications or other information provided by the customer, failure to follow these assembly instructions, wilful damage or negligence or misuse or alteration or repair of or an exertion of excessive force to the hardware by the user or customer

Abbreviations

The following abbreviations are used in this document:

BLR	Frame to sash clearance	FFH	Sash rebate height	RHB	Frame wood width
BS	Hinge side	FH	Sash height	S	Stay
D/DF	Side hung sash	FS	Fold & slide	S-ES	System security
DH	With turn restraint	H	Wood	U	Bottom
DSG	Slave sash drive gear	HH	Lift and slide-timber	VS	Locking side
E/EL	Btm Hinge	L	Running rail	VSU	Locking side btm.
EB	Drill jig	MV	Centre lock	W	Stay hinge
ED	Side hung hinge	O	Top		
F	Folding sash	OKFF	Finished floor level		
FB	Sash width	ON	Without hardware groove		
FEB	Rebate corner hinge	RAB	Frame width		
FFB	Sash rebate width	RAH	Frame height		