

Chart to determine FB

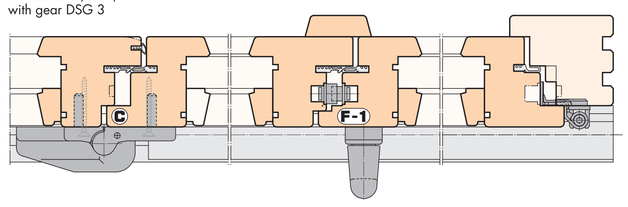
(only for stated frame sizes)

Scheme	x for frame timber width	78	92
321, 330	$FB = \frac{RAB - x}{3}$	22	50
431	$FB = \frac{RAB + x}{4}$	+4	–24
541, 550, 532	$FB = \frac{RAB + x}{5}$	30	2
651, 633	$FB = \frac{RAB + x}{6}$	56	28
761, 770, 743	$FB = \frac{RAB + x}{7}$	82	54

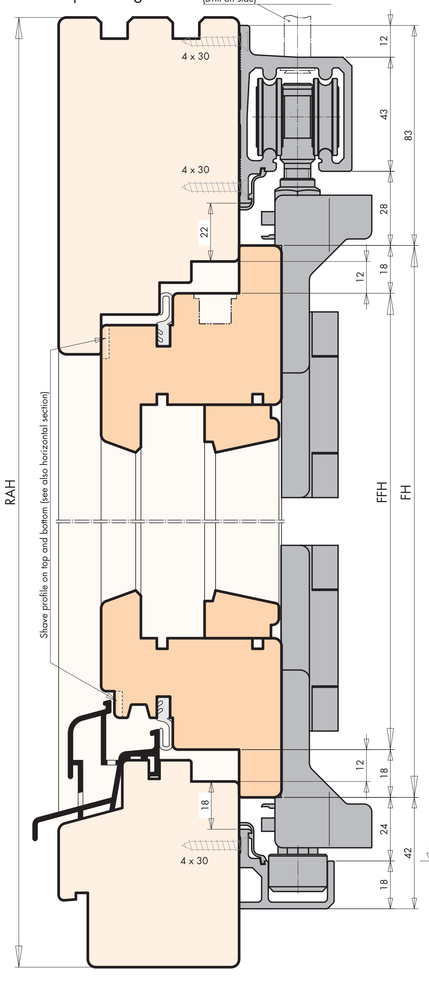
General formular

$$FB = \frac{RAB + [(\text{No. of sashes} - 1) \cdot 26] - (2 \cdot \text{BLR Free dimension})}{\text{No. of sashes}}$$

Scheme 431, 651, and 633
with gear DSG 3

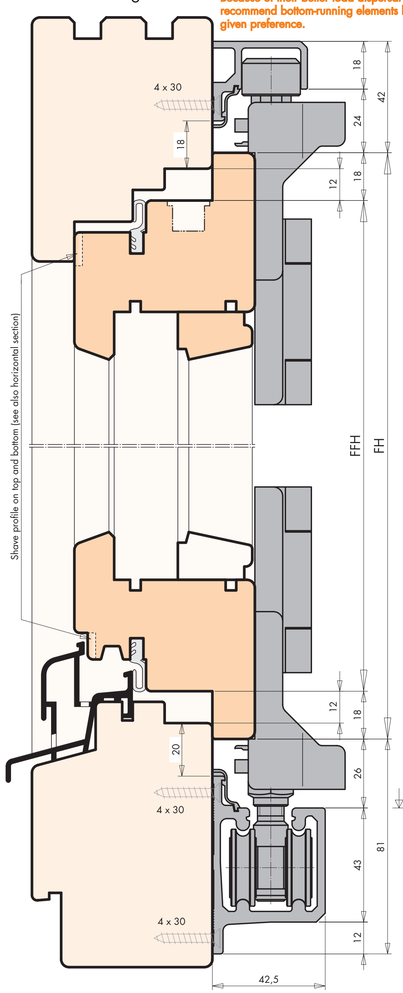


Vertical section
top running



Vertical section
bottom running

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



FS-PORTAL *Hinge side Si-line*

12/18 - 9

Folding-Sliding Door Fittings
for Timber Doors with 12 mm Airgap

Surface TS Look

... with the decisive advantages:

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

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)	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) Components for over rebate sizes 19 - 24 mm see Product Catalogue under FS Accessories.

Under no circumstances should the above size ranges be exceeded.

For the SIEGENIA-AUBI-Fitting FS-PORTAL the information given in DIN 68 121 (timber profiles for windows and doors) is valid.

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
FSgb1003

FSgb1003_3_2006-11/1

2006-11

SIEGENIA AUBI

FSgb1003

FS-PORTAL *12 mm airgap* *Scheme Overview*

Note: All of this schemes can also be made in the opposite hand.
For Scheme 220, 440 and 660 please note: Installation Instruction FSgb1006

1) Access through 1st folding sash
2) e.g. A_5 = Point A mirror image etc.

Scheme 220*
2 Folding sashes
0 Main opening sash[1]

Scheme 321
2 Folding sashes
1 Main opening sash

Scheme 330
3 Folding sashes
0 Main opening sash[1]

Scheme 431
3 Folding sashes
1 Main opening sash

Scheme 440*
4 Folding sashes
0 Main opening sash[1]

Scheme 541
4 Folding sashes
1 Main opening sash

Scheme 550
5 Folding sashes
0 Main opening sash[1]

Scheme 532
3+2 Folding sashes
0 Main opening sash[1]

Scheme 651
5 Folding sashes
1 Main opening sash

Scheme 660*
6 Folding sashes
0 Main opening sash[1]

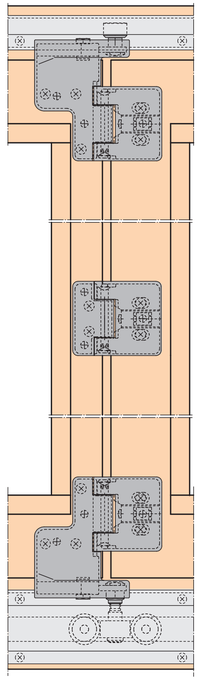
Scheme 633
3+3 Folding sashes
0 Main opening sash[1]

Scheme 761
6 Folding sashes
1 Main opening sash

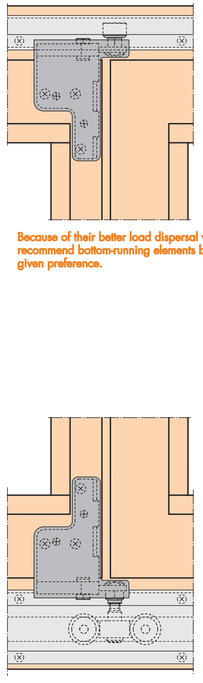
Scheme 770
7 Folding sashes
0 Main opening sash[1]

Scheme 743
4+3 Folding sashes
0 Main opening sash[1]

Section
bottom running (C) 1 : 2,5

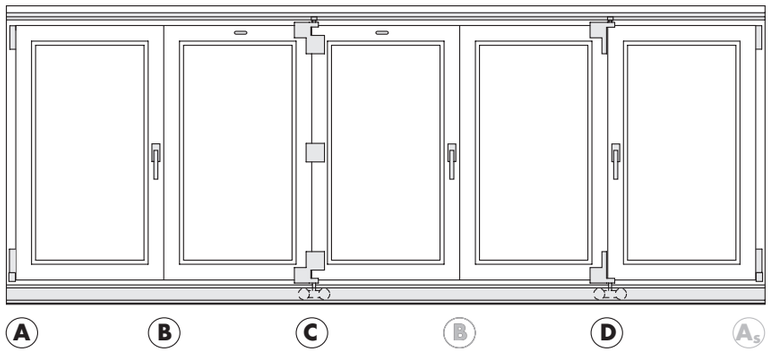


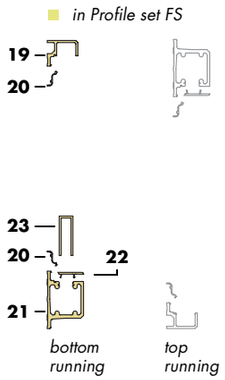
Section
bottom running (D) 1 : 2,5



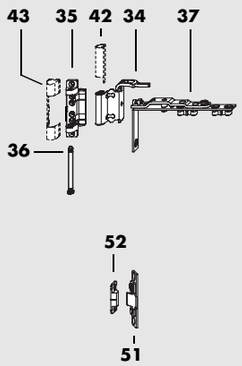
Because of their better load dispersal we recommend bottom-running elements be given preference.

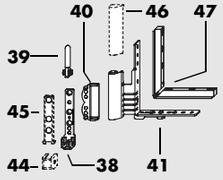
FS-PORTAL 12 mm airgap Assembly (I)





A

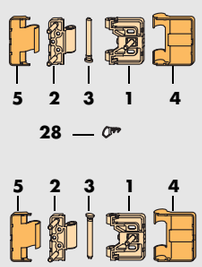


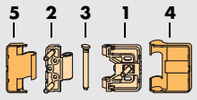


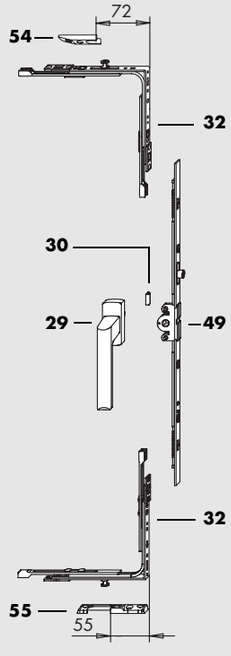
For hingeing with FS hinges and packers .. see product catalogue

B

- *in carton sash hinge FS 17/38 TS*
- *Bag of cover cap sash hinge FS17/38*

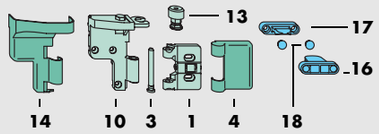


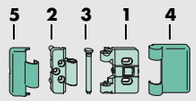


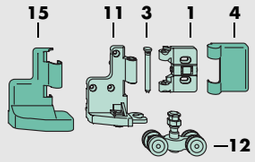


C

- *in carton bogie wheels D FS TS*
- *Bag of cover cap bogie wheels D FS*
- *Bag of supporting piece FS*

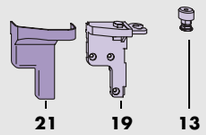


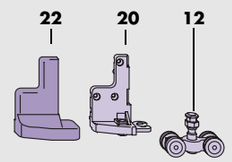


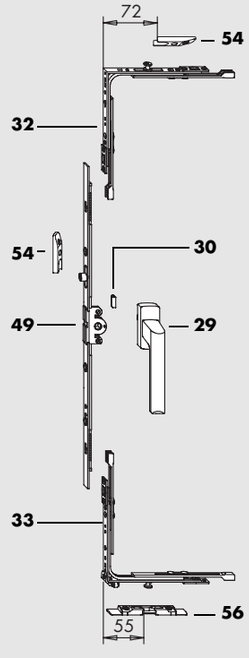


D

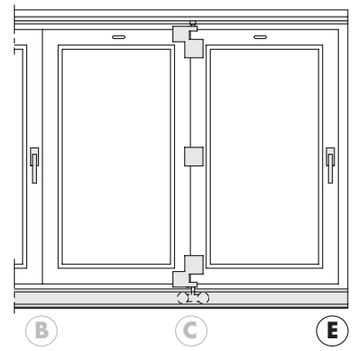
- *in carton bogie wheels FS TS*
- *Bag of cover cap bogie wheels FS*

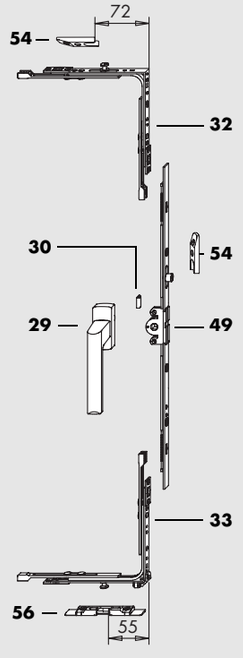




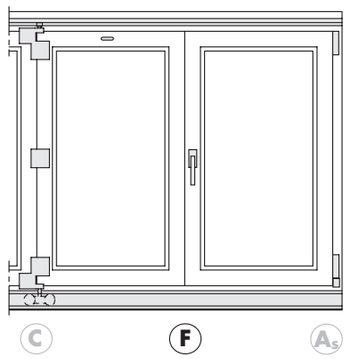


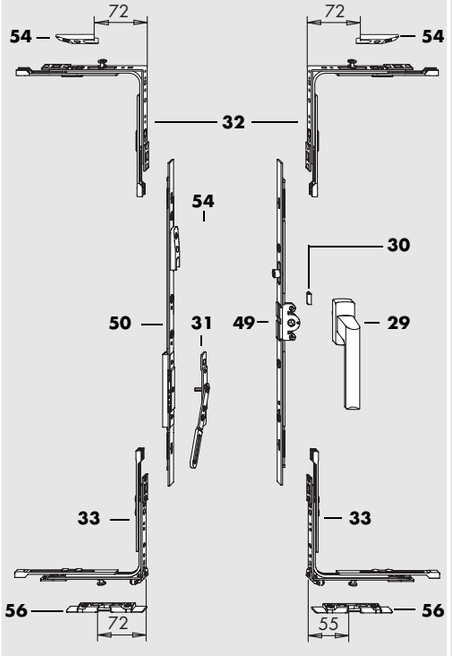
E





F





FS-PORTAL 12 mm airgap Assembly (II)

FS-PORTAL 12 mm airgap Parts List(I) (Surface TS Look)

FS-PORTAL 12 mm airgap Parts List(II) (Surface TS Look)

Pos.	Materialshorttext			Materialnumber silver	RAL 9003 white	dark bronze	mid-bronze	Stück je Schema 321	330	431	541	550	532	651	633	761	770	743
FS PORTAL-fittings																		
1-3	Carton sash hinge FS 17/38 TS	Cross section B		PMFG0030-100010				1	1	1	2	2	2	2	2	3	3	3
4, 5	Bag of cover cap sash hinge 17/38			PMAG0010-025010	PMAG0010-002010	PMAG0010-011010	PMAG0010-031010	1	1	1	2	2	2	2	2	3	3	3
1-3, 10-13	Carton bogie wheels D FS TS	Cross section C		PMLG0030-100010				–	1	1	1	2	1	2	2	2	3	2
4, 5, 14, 15	Bag of cover cap bogie wheels D FS			PMAG0040-025010	PMAG0040-002010	PMAG0040-011010	PMAG0040-031010	–	1	1	1	2	1	2	2	2	3	2
16-18	Bag of supporting piece FS			PMZG0020-021010	PMZG0020-002010	PMZG0020-011010	PMZG0020-031010	–	1	1	1	2	1	2	2	2	3	2
12, 13, 19-20	Carton bogie wheels FS TS	Cross section D		PMLG0020-100010				1	–	–	1	–	1	–	–	1	–	1
21-22	Bag of cover cap bogie wheels FS			PMAG0030-025010	PMAG0030-002010	PMAG0030-011010	PMAG0030-031010	1	–	–	1	–	1	–	–	1	–	1
23-27	Profile set FS	*Size* / *RAB (mm)* 250 / to 2500 350 / 2501 to 3500 450 / 3501 to 4500 700 / 4501 to 6500		PMPG0050-525010 PMPG0060-525010 PMPG0070-525010 PMPG0080-525010	PMPG0050-502010 PMPG0060-502010 PMPG0070-502010 PMPG0080-502010	PMPG0050-511010 PMPG0060-511010 PMPG0070-511010 PMPG0080-511010	PMPG0050-531010 PMPG0060-531010 PMPG0070-531010 PMPG0080-531010	1	1	1	1	1	1	1	1	1	1	1
28	Seal HH0134-02	(17,5 m)		PDPB0030-099010				1	1	1	1	1	1	1	1	1	1	1
Always required																		
29	Handle Si-line FAVORIT			*See price list*				2	2	2	3	3	3	3	3	4	4	4
30	Limitation piece			800768				2	2	2	3	3	3	3	3	4	4	4
31	Handle FAVORIT DSG 11			701010				–	–	1	–	–	–	1	1	–	–	–
32	Corner drive VS S-ES		1	FEUL0090-100010				3	3	5	5	5	5	7	7	7	7	7
33	Corner drive VSU S-ES FH/9		1	FEUL1070-100010				1	1	1	1	1	1	1	1	1	1	1
34	Stay hinge H-12/18-9 DH			704257				2	1	2	2	1	2	2	2	2	1	2
35	Top hinge H-12/18 DH			704202				2	1	2	2	1	2	2	2	2	1	2
36	Top hinge pin Ø 6			704196				2	1	2	2	1	2	2	2	2	1	2
37	Stay H-7/DF ON Stay 7 DF	*for sash without hardware groove* *for sash with hardware groove*		704042 707340				2	1	2	2	1	2	2	2	2	1	2
38	Bottom hinge H-12			FBEL0010-100010				2	1	2	2	1	2	2	2	2	1	2
39	Bottom hinge pin Ø 7	*for Reb. corner hinge*		700600				2	1	2	2	1	2	2	2	2	1	2
40	Filling piece H-12/18			700617				2	1	2	2	1	2	2	2	2	1	2
41	Reb. corner hinge H-12/18-9	*right hand* *left hand*		706664 706688				2	1	2	2	1	2	2	2	2	1	2
43	Cover cap W H			853382	833254	833261	842195	0..2	0..1	0..2	0..2	0..1	0..2	0..2	0..2	0..2	0..1	0..2
44	Cover cap S			844359	834145	834855	842188	0..2	0..1	0..2	0..2	0..1	0..2	0..2	0..2	0..2	0..1	0..2
45	Cover cap EL U			844342	833230	833247	842232	0..2	0..1	0..2	0..2	0..1	0..2	0..2	0..2	0..2	0..1	0..2
46	Cover cap EL O			844335	833216	833223	842225	0..2	0..1	0..2	0..2	0..1	0..2	0..2	0..2	0..2	0..1	0..2
47	Cover cap FEB	*right hand* *left hand*		887042 887233	887158 887349	887165 887356	887219 887400	0..1 0..1	0..1	0..1 0..1	0..1 0..1	0..1	0..1 0..1	0..1 0..1	0..1 0..1	0..1 0..1	0..1	0..1 0..1
48	Distance piece H-12/18	*with continuously milled hardware groove*		862780				0..2	0..1	0..2	0..2	0..1	0..2	0..2	0..2	0..2	0..1	0..2
o.Abb.	Location piece			702543				0..4	0..4	0..4	0..6	0..6	0..6	0..6	0..6	0..8	0..8	0..8
Height dependant parts																		
50	Gear 3	*Size* / *FFH (mm)* / *Dim. G (mm)* Gr. 1 / 840 to 1060 / 420 to 530 Gr. 2 MV / 1061 to 1460 / 530 to 730 Gr. 3 MV / 1461 to 1920 / 730 to 960 Gr. 4/TL / 1880 to 2360 / 940 to 1180	– 1 1 2	706992 707012 707029 707036				2	2	2	3	3	3	3	3	4	4	4
51	Gear DSG 3	*Size* / *FFH (mm)* 80 MV / 840 to 1000 2 / 1001 to 1460 3 / 1461 to 1920 4/TL / 1880 to 2360		705193 705124 705131 705148				–	–	1	–	–	–	1	1	–	–	–
	Concealed centre lock *from FFH 1060 mm*																	
52	Sash part MV concealed with groove Sash part MV concealed without groove			700655 700662				2	1	2	2	1	2	2	2	2	1	2
53	Frame part MV concealed	A0807 *Euro-groove 7/8x4* A1361 *Euro-groove 18/8* A1363 *Euro-rebate 20/8*		873267 873281 873281				2	1	2	2	1	2	2	2	2	1	2
Profile dependant parts																		
55	Striker plate 56	A....		*See profile data sheet*				2...4	2...4	3	3...5	3...5	3...5	4	4	4...6	4...6	4...6
56	Striker plate S-ES	A....		*See profile data sheet*				1	1	1	2	2	2	2	2	3	3	3
57	Tilt lock bearing S-ES FH	A....		*See profile data sheet*				1	1	2	1	1	1	2	2	1	1	1
58	Striker plate	A0767 *for Pos. 51*		711736				–	–	0...2	–	–	–	0...2	0...2	–	–	–

SIEGENIA AUBI®

FS-PORTAL *12 mm airgap* *Packaging Guide*

Pos.	Quantity	Description		Materialnumber silver	RAL 9003 white	darkbronze	midbronze
	1	Sash hinge carton FS 17/38 TS *comprising of:*	Intersection point B	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 caps17/38 *comprising of:*	Intersection point B	PMAG0010-025010	PMAG0010-002010	PMAG0010-011010	PMAG0010-031010
4	3	Cover cap FB, wide 38					
5	3	Cover cap FB, narrow 17					
	1	Carton bogie wheels D FS TS *comprising of:*	Intersection point C	PMLG0030-100010			
1	3	Sash hinge, wide 38 TS					
2	1	Sash hinge, narrow 17 TS					
3	3	Top hinge pin TS					
10	1	Bottom hinge D, right hand TS					
11	1	Bottom hinge D, left hand TS					
12	1	Bogie wheel TS					
13	1	Guide TS					
	1	Bag of cover cap bogie wheels D FS *comprising of:*	Intersection point C	PMAG0040-025010	PMAG0040-002010	PMAG0040-011010	PMAG0040-031010
4	3	Cover cap FB, wide 38					
5	1	Cover cap FB, narrow 17					
14	1	Cover cap ED, right hand					
15	1	Cover cap ED, left hand					
	1	Bag, support FS *comprising of:*	Intersection point C	PMZG0020-021010	PMZG0020-002010	PMZG0020-011010	PMZG0020-031010
16	1	Support D					
17	1	Support F					
18	4	Closure cap	*for support D and support F*				
	1	Carton wheels FS TS *comprising of:*	Intersection point D	PMLG0020-100010			
19	1	Bogie wheel TS					
20	1	Guide TS					
12	1	Bottom hinge, right hand					
13	1	Bottom hinge, left hand					
		Bag, wheel cover caps FS *comprising of:*		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 *comprising of:*	*Size* / *Length (mm)* / *RAB (mm)* 250 / 2500 / to 2500 350 / 3500 / 2501 to 3500 450 / 4500 / 3501 to 4500 700 / 7000 / 4501 to 6500	PMPG0050-525010 PMPG0060-525010 PMPG0070-525010 PMPG0080-525010	PMPG0050-502010 PMPG0060-502010 PMPG0070-502010 PMPG0080-502010	PMPG0050-511010 PMPG0060-511010 PMPG0070-511010 PMPG0080-511010	PMPG0050-531010 PMPG0060-531010 PMPG0070-531010 PMPG0080-531010
23	1	Guide rail					
24	2	Cover rail F					
25	1	Running rail					
26	1	Cover rail L	*Size* / *Length (mm)* 200 / 2000				
27	1…2	Cover strip	*Size* / *Length (mm)* 170 / 1700				

Assembly

Preparation

Pre-drill outer-frame for top hinges H-12 (**38**) and bottom hinges H-12/18 DH (**35**).
Prepare the required sash frame for the drive gear 3 (**49**).
See the specific assembly instructions for FAVORIT Si-line-timber.

Fitting the sash frame

A Fit FAVORIT-parts (**29** to **35**), (**38**), (**41**) and (**49** to **51**) to the sash.
See also the fittings drawing, parts list and the specific assembly instructions, FAVORIT Si-line-timber.

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 illustration on front page and FS PORTAL assembly instructions.

C For Schemes with two loose folding doors (Cross section F) pre-drill for Catch D (**12**) and Catch F (**13**)

D Insert the external weatherseal HH0134-02 (**24**) into the sash, see also cross sections on front page.

E Screw on Sash hinges (**1** and **2**), Hinges D (**10** and **11**) and Hinges (**19** and **20**).
Please note correct orientation of the wide sash hinge (**1**).

F With the Handle (**29**) turned through 90 screw it on to the door, max. torque 2.5 Nm.
Sharply turn the handle downwards to break the centre fixing of the gear.

G For schemes with loose folding doors (Cross section C), screw on Catch D (**16**) and Catch F (**17**).
Lightly oil Catch D (**16**) and Catch F (**17**).

Fitting the outer-frame

A Position the Bottom hinge H-12 (**38**) and Top hinge H-12/18 DH (**35**) and screw on.

B Fit FAVORIT-parts (**37**) and (**52**)
See also the fittings drawing, parts list and the specific assembly instruction, FAVORIT Si-line-timber.

C Cut guiding rail (**23**), two cover rails F (**24**) and running rail (**25**) to size (Length = RAB).
Note: Cut running rail (**21**) to fit across main entrance door.
(The cutout is used to insert the bogie wheels)

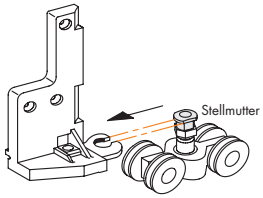
D Bolt on the guiding rail (**23**) and running rail (**25**).
Note: In the area of the folded together sash (sash in fully opened position), up to around 500 mm length screw in all screws, otherwise only every 2nd screw or for the running rail alternately top and bottom.

Final Assembly

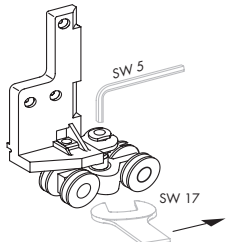
A Slide the Bogie wheels (**12**) into the Running rail (**25**).

B Assemble the row of folding sashes, starting with the sash nearest to the frame.
To install the bogie wheels (**12**) place vent setting blocks into frame rebate to give the correct airgap.
Slide the bogie wheels (**12**) into the support plates of Hinge D (**11**) and Hinge (**20**). With the locating nut in the correct position, see Diag. 1.
Tighten the pin of the bogie wheels (**12**) using allen key SW 5 and tighten locknut with spanner SW 17 see Diag. 2.

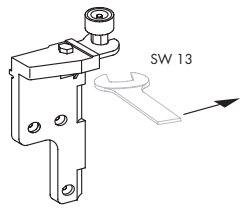
C Slide Guide (**13**) into hinge D (**10**) and hinge (**19**), and tighten with spanner SW13 see Diag. 3.



Diag. 1 Bring locating nut into correct positionand slide in bogie wheels



Diag. 2 Tighten pin L with allen key SW 5 and tighten locknut with spanner SW17



Diag. 3 Slide guide into support plate and tighten with spanner SW13

Final Assembly *(Continued)*

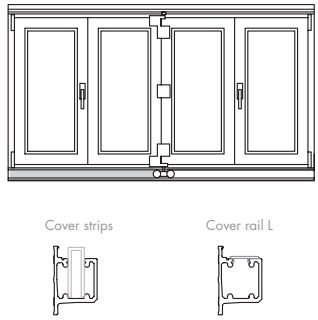
D As required use adjustments. See next page.

E Fit frame part MV (**52**), striker plates (56 or S-ES) (**54** or **55**) and tilt lock bearing S-ES FH (**56**) on the frame so that they will function correctly. See also hardware illustration.

F Clip on all cover caps. Cut to length cover rails F (**24**) and clip on.

G Cut cover rail L (**26**) to length
(Length = from bogie wheels to outer edge of frame or opposite bogie wheels
Clip Cover rail L (**26**) on to the track, see Diag.5

H To protect against ingress of dirt during installation, insert cover strips (**27**) between the individual folding elements, see diag. 5.



Diag. 5 Cover strips and Cover rail L fitting

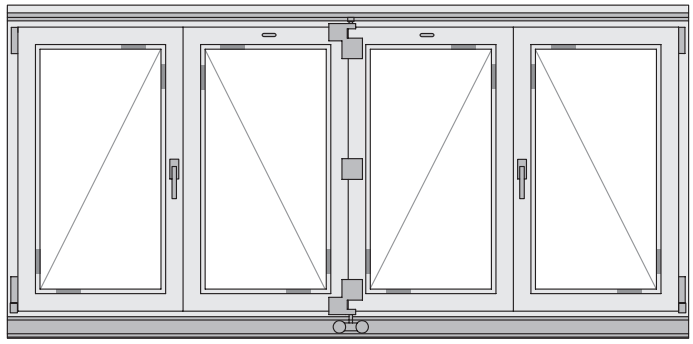
Fixing of the Components

Sash hinges (**1** and **2**): ..... window screw 5 x 40
Hinges D (**10** and **11**): ..... window screw 5 x 40
Catch D (**16**) and Catch F (**17**): ..... window screw 5 x 30
Hinges (**19** and **20**): ..... window screw 5 x 40
Guide rail (**23**) ..... window screw 4 x 30
Running rail (**25**) ..... window screw 4 x 30
Handle Si-line FAVORIT (**29**): ..... Csk. screw M5 x 40, to DIN 965 - 4.8 Order -No. 801048
FAVORIT-components : ..... window screw 4 x 30

Window screws for timber windows, steel transparent zinc coated and sealed (not in product range)

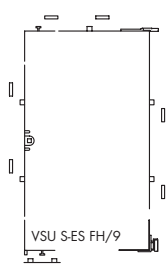
Glazing example Style 431

Suggestion: For stability glaze and wedge as shown in diagram on right.

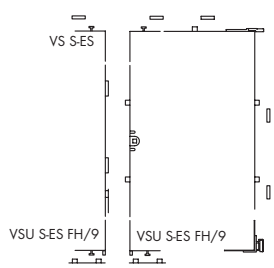


Main opening door with tilt and turn option on request

Schemes
321, 541 and 761



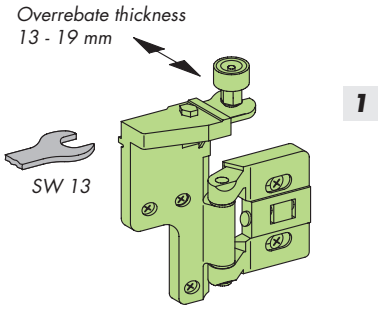
Schemes
431 and 651



Adjustments

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

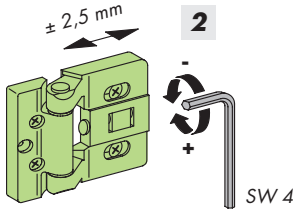
- first install the glass correctly
- the folding sliding elements are clamped horizontal and plumb or the frame is installed into the building



1

Sash presssure via the top hinge

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

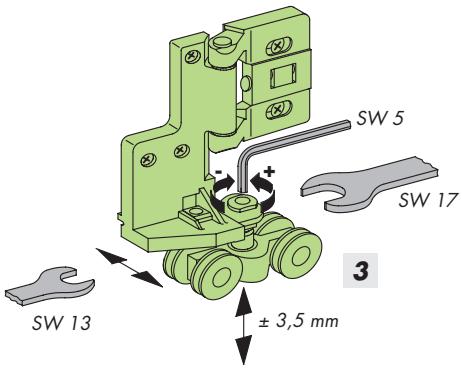


2

Positioning of the Sash hinges

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

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



3

Setting the height of Bogie wheels

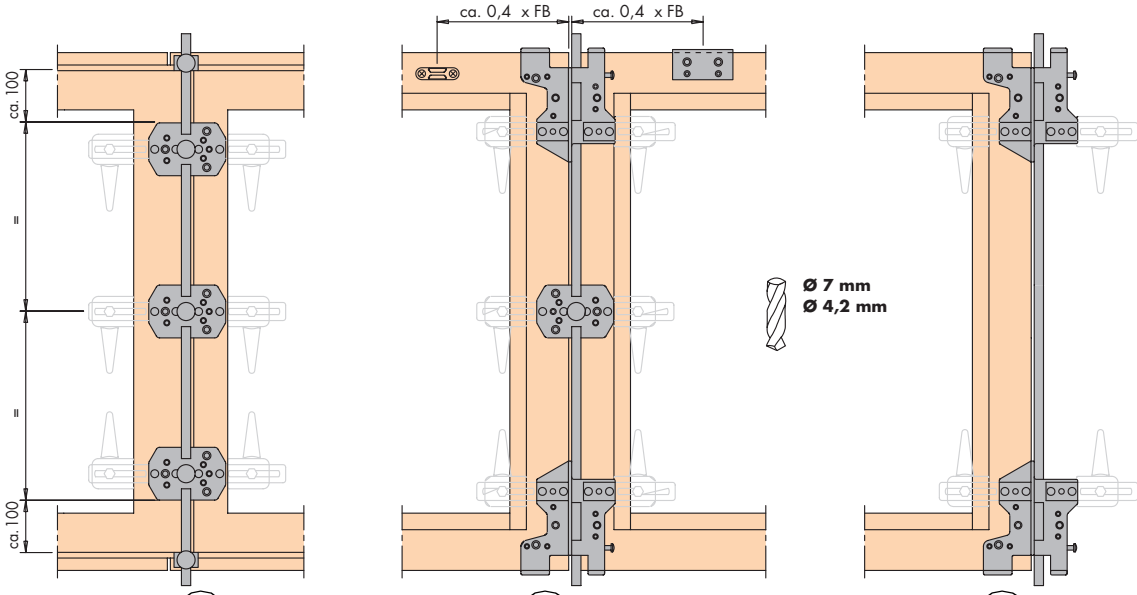
- ***A*** Slacken lock nut SW 17 on the wheels.
- ***B*** Adjust height of sash with 5 mm A/F hexagon socket head key.
  Whilst doing this hold the clamping nut with a 17 mm A/F open ended spanner
- ***C*** Then re-tighten the lock nut SW 17 keeping allen key SW 5 firmly in place.

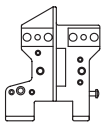
Adjustment options of the FAVORIT-Fittings

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

see Maintenance instruction FAVORIT Si-line-timber.

FS-PORTAL *12 mm airgap* *Assembly Aids*





Jig EB 644-1 — for bottom hinge — **Materialnumber**
Required: 2 off — 143063
Drills: *Ø 7,0* *Ø 4,2*



Jig EB 644-2 17/38 — for sash hinge 17/38
Required: 4 off — 143070
Drills: *Ø 7,0* *Ø 4,2*



Jig FS EB 644-3 — for catches
Required: 1 off — 143087
Drill: *Ø 4,2*



Jig FS EB 644-4 — for drill centring on the guide and running rails
Required: 1 off — 143094
Drill: *Ø 3,5*



Adjusting Rod — for EB 644-1 and EB 644-2
Required: 2 off — 143117



Stop — for Adjusting rod
Required: 2 off — 143100



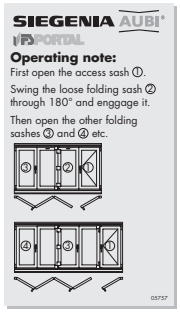
Clamping device — for EB 644-1 and EB 644-2
Required: 12 off — 139202

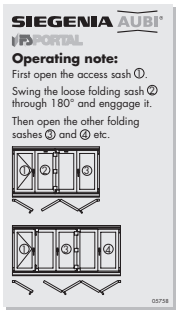
No illustration

Csk. Screw M5 x 16 — for fixing the clamping device
Required: 24 off — 801147

Important Notes

– The recommendations for profile section, Timber quality and design contained in DIN 68 121 (Timber profiles for windows and doors) is applicable to the SIEGENIA-AUBI-FS-PORTAL fittings. The size limitations given on the front page must not be exceeded.
– It is possible that load bearing components can break due to overloading. This could result in a folding sash becoming disengaged and causing serious injury. If due to special circumstances (use in schools, nursuries,etc.)excessive loads can be expected, then precautions must be taken to prevent straining of parts – eg. by fitting a locking handle to prevent unauthorised usage.
Consult your SIEGENIA-AUBI sales advisor if you are unsure about anything in this respect.
– 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 installed for use in aggressive , corrosion promoting air conditions, or on wood containing aggressive additives. If you have any doubts or queries in these cases consult your SIEGENIA-AUBI-sales advisor.
– We can accept no liability in respect of damages or defects arising where the hardware assembly incorporates other products not manufactured by SIEGENIA-AUBI .
– Assemble the hardware components correctly as described in this instruction leaflet. Details given for screw turns and torques are binding. **Do not overtighten screws!**
– Surface treatment must be performed prior to attachment of the hardware. Post treatment could adversely affect the function of fittings; in this case we can accept no liability .
– Please follow the standard techniques for glazing and wedging of glass sealed units within the sash and frame.
– Do not use any acid bonding sealants, as they can cause corrosion of the hardware components.
– Keep all rebates free of deposits and dirt - especially residues of cement or plaster. Avoid the direct effects of wet on the hardware and contact of the hardware with the cleaning materials.
– Affix a clearly visible copy of the user information to one of the folding sashes. The user information stickers can be found in the cartons Bogie wheels FS and D FS.





Liability exclusion

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

Abbreviations

The following abbreviations are used in this document:

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

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