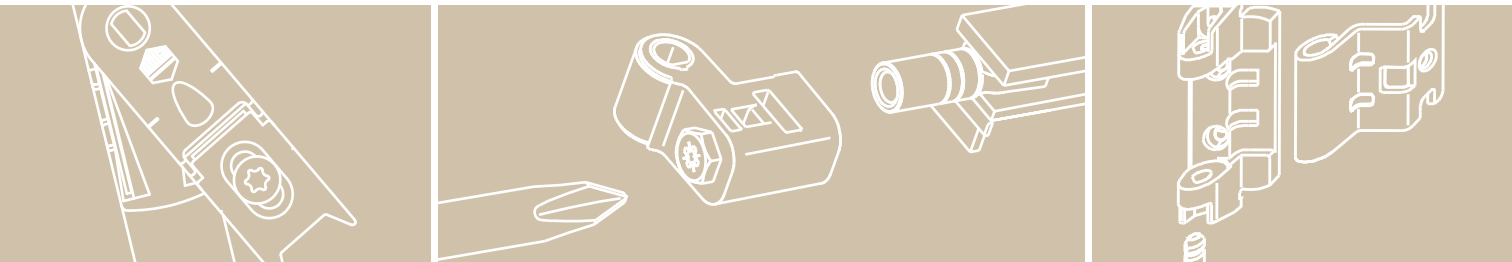


TECHNOLOGY IN MOTION



# MACO MULTI-TREND

TILT- AND TURN-FITTINGS



## Assembly Information

for TIMBER WINDOWS



### System Designation:

**TO > Single Routing**

**DT > Double Routing**

### Glossary of standard terms:

**SRW > Sash Rebate Width**

**SRH > Sash Rebate Height**

**FFH > Fixed Handle Height**

**VHH > Variable Handle Height**

**“All dimensions are in mm“**



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The Single Sash Window	8
The Double Sash Window	22
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## Application Information for Tilt and Turn Windows and Doors

### Maximum Sash Weight

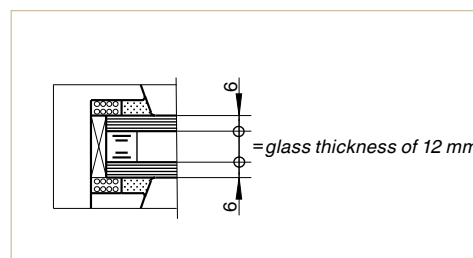
Max. 60 kg	Max. 100 kg	Max. 130 kg
TO hinges not suitable for Half Round Windows with SRH 390 - 500.	Top and Bottom Hinges TO and DT.	Top and Bottom Hinges with Stabilizing Stay. Top and Bottom Hinges DT with Stabilizing Stay.

### Sash Sizes

<b>Max.</b>	SRW	1650	The overall area must not exceed 2.4 m <sup>2</sup> or 130 kg sash weight and a height to width ratio of max. 1 : 1.5.
	SRH	2350	
<b>Min.</b>	SRW	280	With corner element B, Scissor stay size 00 and drive gear size 00.
	SRH	320	
	SRW	350	With corner element B (with the locking cam fitted on the top), Scissor stay size 00 and drive gear size 00.
	SRH	295	

### Diagram for calculating the permissible sash weight.

Glass thickness mm	24	22	20	18	16	14	12	10	8
Glass weight kg/m <sup>2</sup>	60	55	50	45	40	35	30	25	20

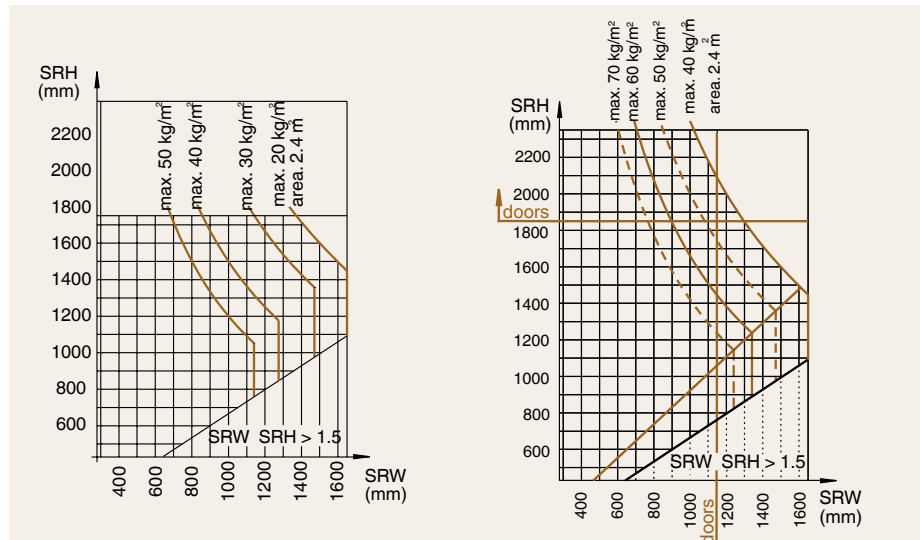



**1mm Glass =2,5 kg/m<sup>2</sup>**

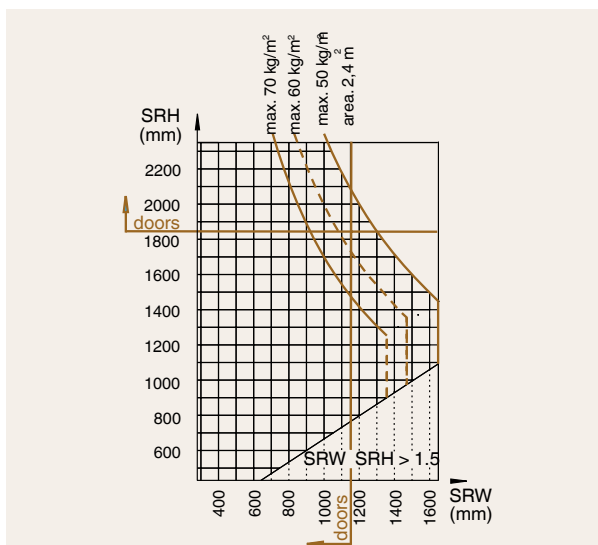


 **Max. 60 kg Sash Weight**

 **Max. 100 kg Sash Weight**



 **Max. 130 kg Sash Weight**



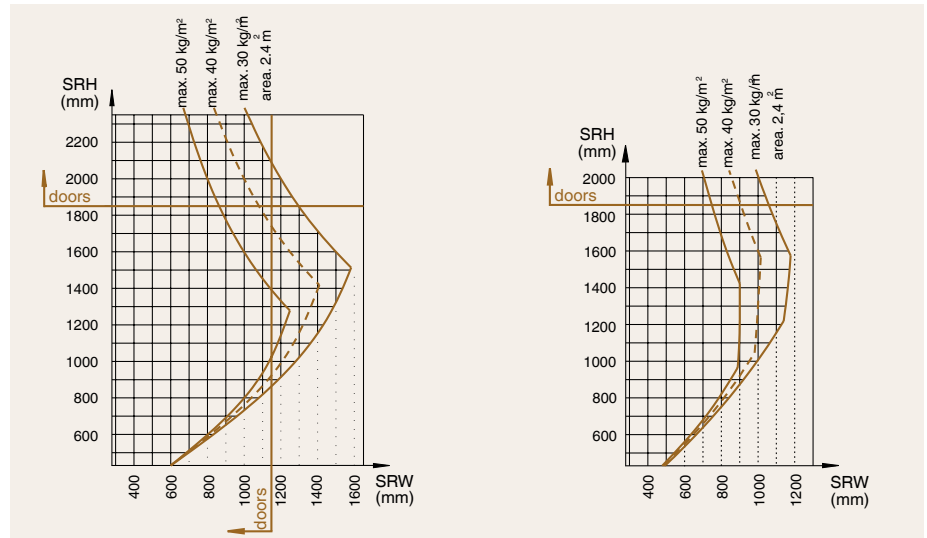
If the glass thickness is under 12 mm and the sash size is within the permissible size range and the height to width ratio does not exceed SRH : SRW 1: 1.5 the window can be produced.



**Angled window**  
**max. 80 kg Sash Weight**



**Half round window**  
**max. 80 kg Sash Weight**

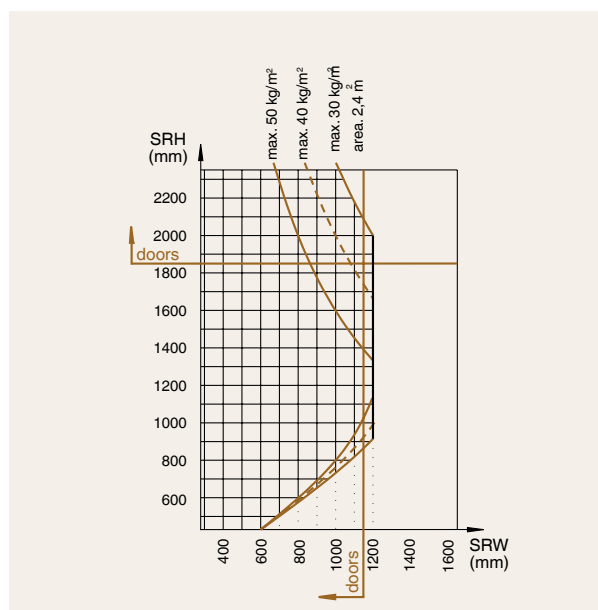


*SRH = Relating to the largest sash height*

*SRH = The start of the arch line*



**Angled window**  
**using half round scissor**  
**max. 80 kg. Sash Weight**



*SRH = Relating to the largest sash height hinge side*



## Fabrication Advice

### Security Information for the assembly of load bearing security components



#### Advice on the MACO-Surface Coating

The MACO-Surface treatment process contains an extra layer of wax that seals the passivation layer. The resulting coating performs well when salt spray tested.

#### Screw Dimensions

For safety and security fittings we recommend 4 x 30 mm countersunk screws with a 7 mm head diameter. For fixing the top and bottom hinges 4 x 40 mm countersunk screws are recommended. Hardwoods with a gross

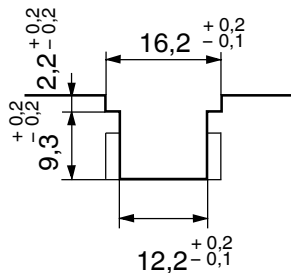
density over 400 kg/m<sup>3</sup> can only be used after consultation with Maco. Please note that you must also contact us if you wish to use shorter screws.

#### The MACO Wax Coating

- Enables a high level of corrosion protection.
- Surface slide is significantly improved.
- More regular surface coating.

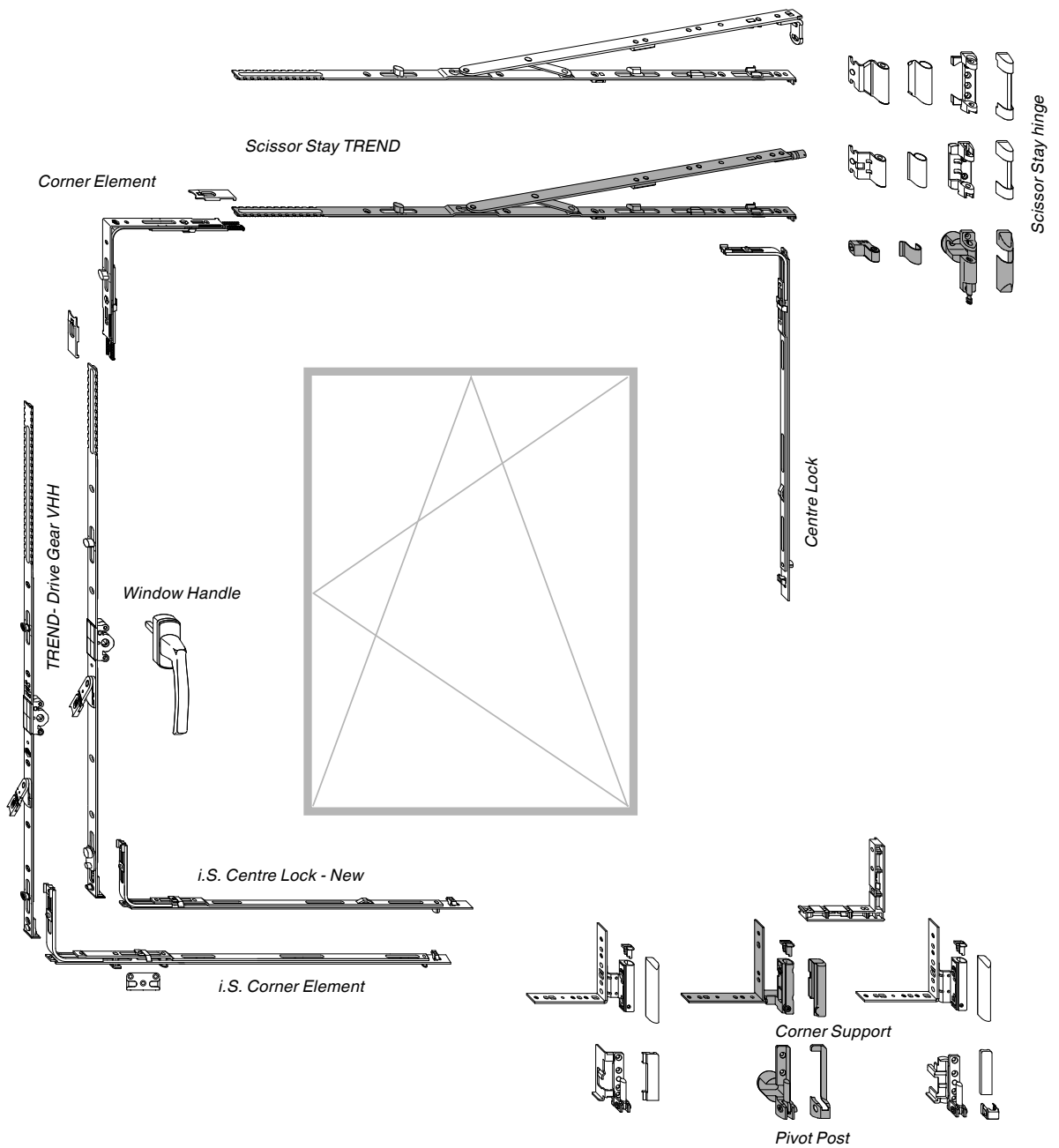
#### Eurogroove

The installation of Tilt and Turn fittings requires a Eurogroove. The Eurogroove detail is shown below:





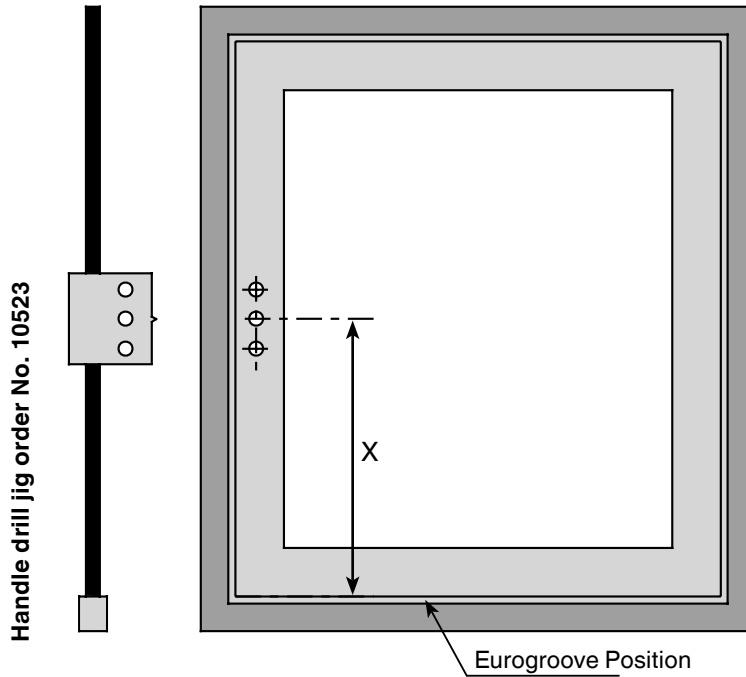
## Tilt First Fittings Overview



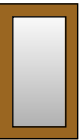




## Sash Preparation Handle Preparation



Dim X	Drive Gear Size
120	00
170	0
300	1
400	2
500	3
600	4
700	5
1050	6
1050	7

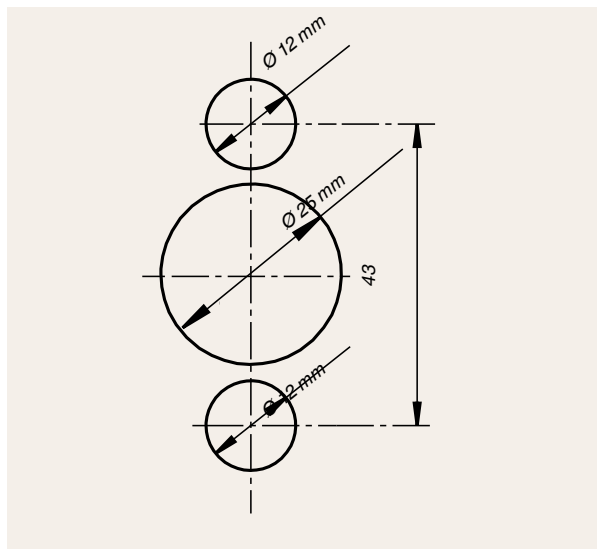


Set the handle drill jig (Order No. 10523) to the corresponding drive gear size. Locate the jig into the eurogroove and drill the 3 mm and 12 mm guide holes.

With VHH drive gear locate the jig into the eurogroove and ensure that the guide line is in the same position as the guide line on the drive gear.

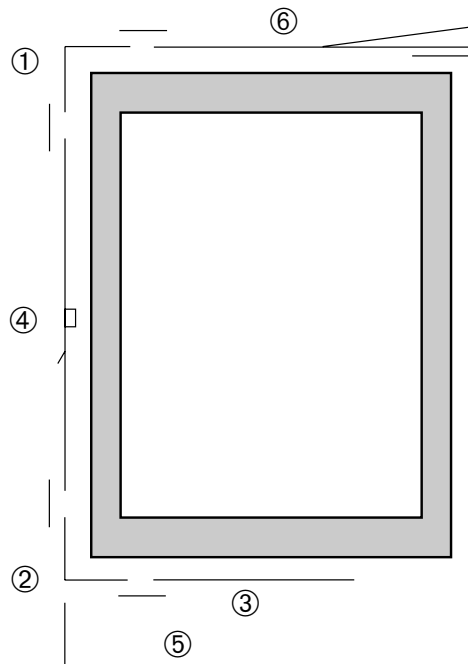
### Drill Centres:

For window handles with 12 mm Lugs





## Mounting the Fittings onto the Sash and Frame



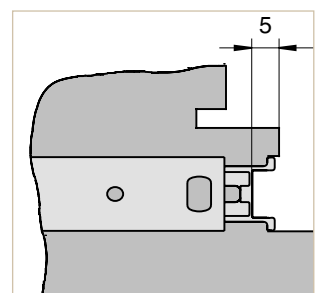
1. Mount **top corner element** ①
2. Cut **FHH drive gear** ② to length and mount. When SRW exceeds 1000 mm\* firstly fit the horizontal centre lock ③. Locate the centre lock as shown in Diag. 1.
- 2.1. With VHH drive gear fit the **lower corner element** before the drive gear.

3. Cut scissor stay ④ to length and mount. When the SRH exceeds 1000 mm\* firstly fit the centre lock ⑤. Locate the centre lock as shown in Diag. 1.
- 3a. TO Scissor Stay Hinge – Locate the stay support arm for the correct handing for left or right handed applications tighten to the central notch as shown in Diag. 2.
- 3b. DT Scissor Stay Hinge – Locate the stay support arm into the scissor stay. With Torx-Key T20 turn 90° to lock into position as shown in Diag. 3.
4. Locate and mount the bottom corner support ⑥. When fixing into the Eurogroove use the appropriate packers.
5. The first operation of the fittings breaks all of the middle fixing clips.

6. With TREND-Drive gears open the sash lifter.

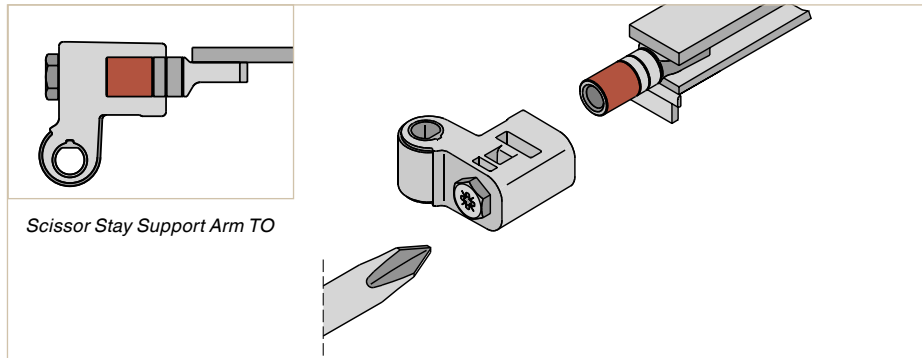
\* MACO recommendation on SRH & SRW over 1000 mm.

Diag. 1

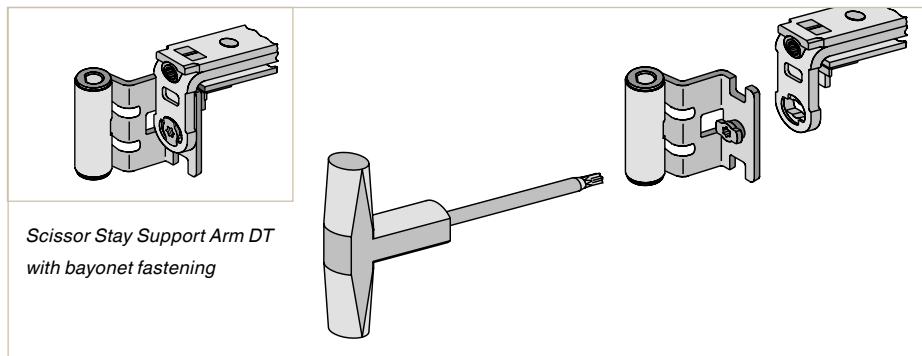




**Diag. 2**

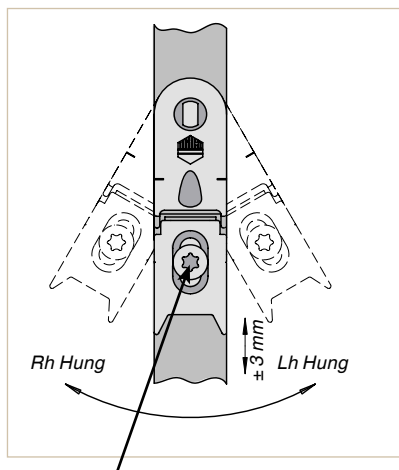


**Diag. 3**



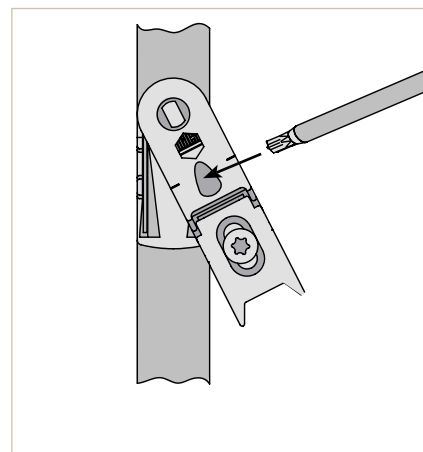
**Attention: Lock stay support arm by turning through 90°!**

**Adjusting the sash lifter**



- Slacken screw with TX 15 Torx Key
- Adjust plate
- Re-tighten screw and open

**Re-setting the sash lifter:**



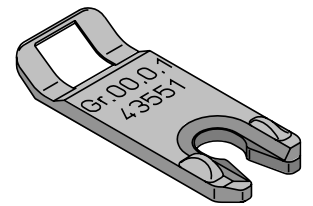
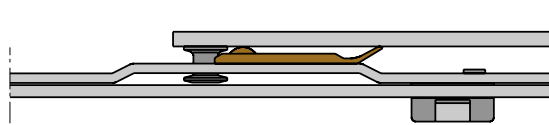
- Press the spring with a TX 15 key
- Move the sash lifter to the other side

With the correct air gap the max amount of lift that the sash lifter should give is 0.5 mm.



### Tilt Restrictor

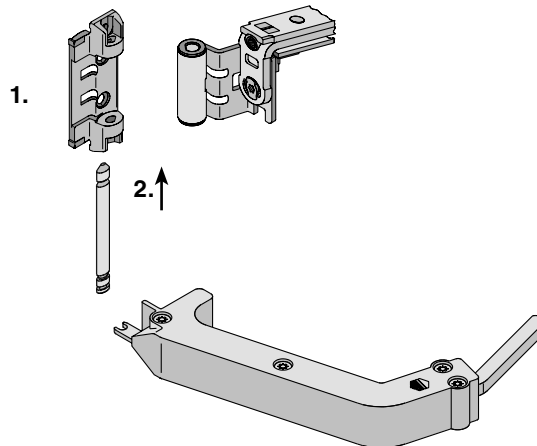
On windows with a sash rebate height under 600 mm a tilt restrictor must be fitted into the scissor stay this prevents the scissor stay clashing with the frame.  
On certain window styles it may be necessary under a SRH of 800 mm.



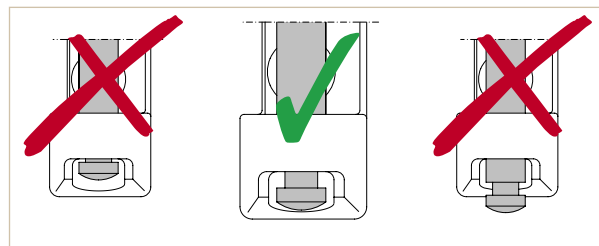
### Hanging the Sash - DT

Locate the sash onto the bottom hinge.

1. Locate the sash onto the bottom hinge and close the sash.
2. Push the scissor stay hinge pin fully in.
3. **An optical check on the position of the scissor stay pin is essential.**  
(See illustration)!



3.



**If Neglected: It is possible for the sash to disengage from the frame!**

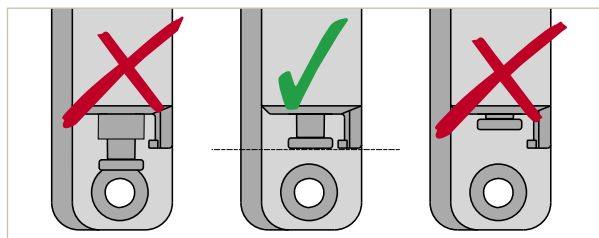
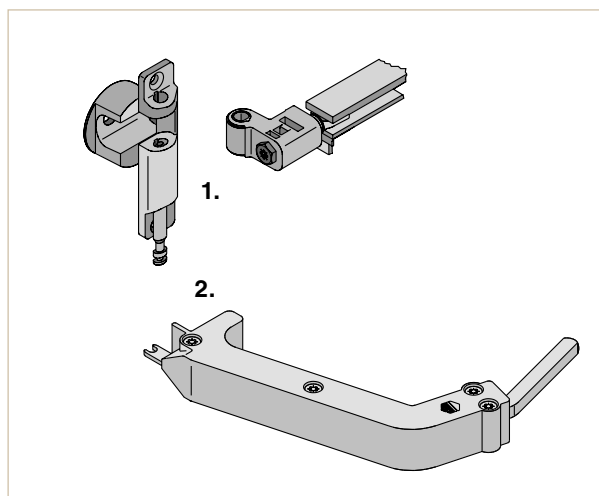


## Hanging the Sash - TO

Locate the sash onto the bottom hinge.

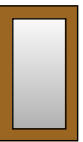
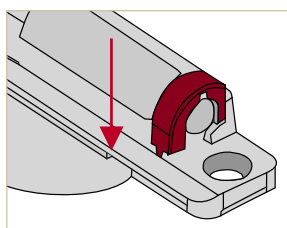
1. Locate the sash onto the bottom hinge and close the sash.

2. **Locate the scissor stay into the back of the hinge and close the sash, push the spindle bar into the hinge (see below)!**



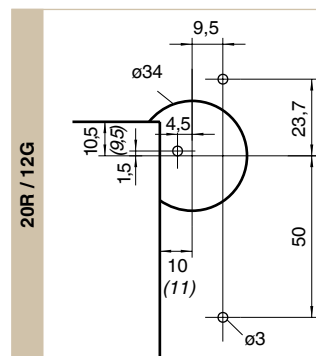
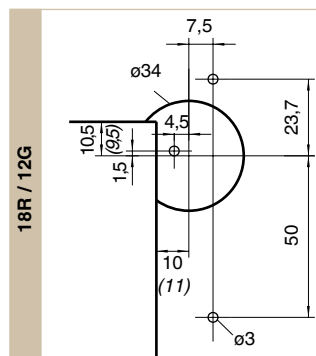
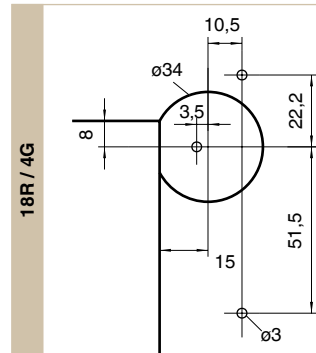
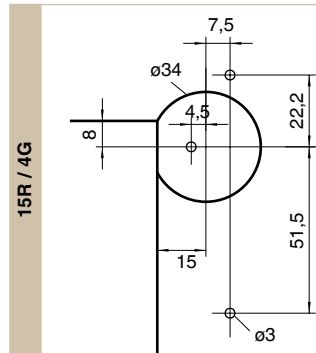
**If Neglected: It is possible for the sash to disengage from the frame!**

3. **Push security clip (See illustration)!**



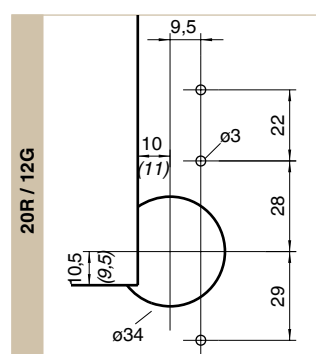
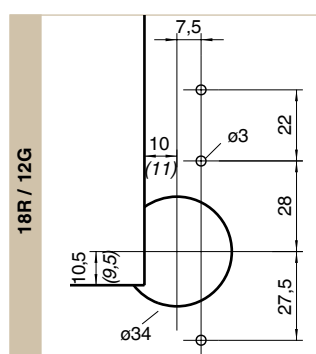
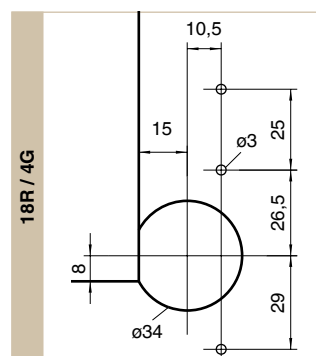
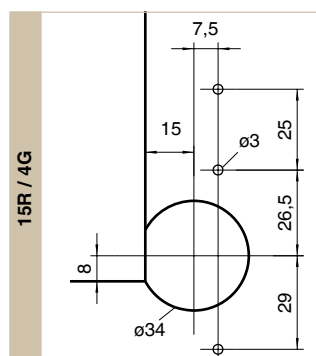


## Assembly of Fittings onto the frame Routing Detail for Scissor Stay Hinge TO 130 kg



Routing Depth 20 mm

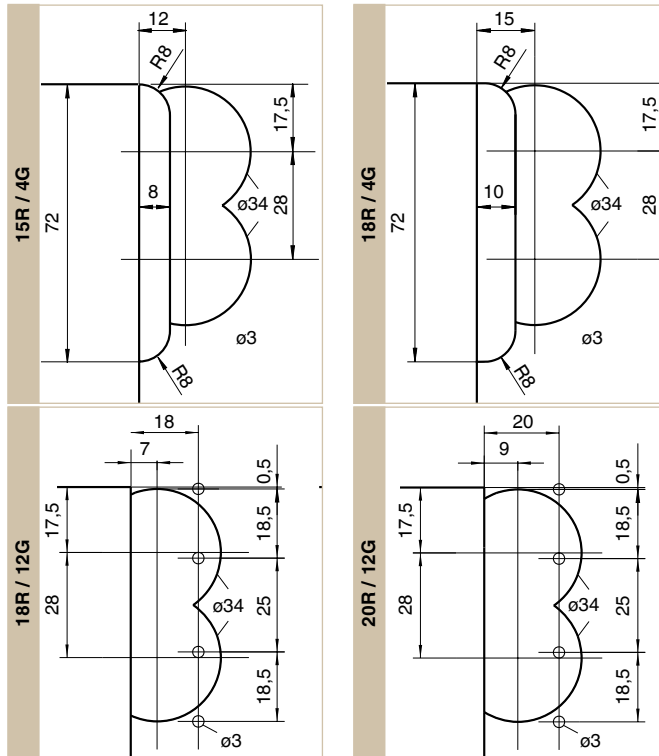
## Routing Detail for Bottom Hinge TO 130 kg



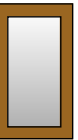
Routing Depth 20 mm



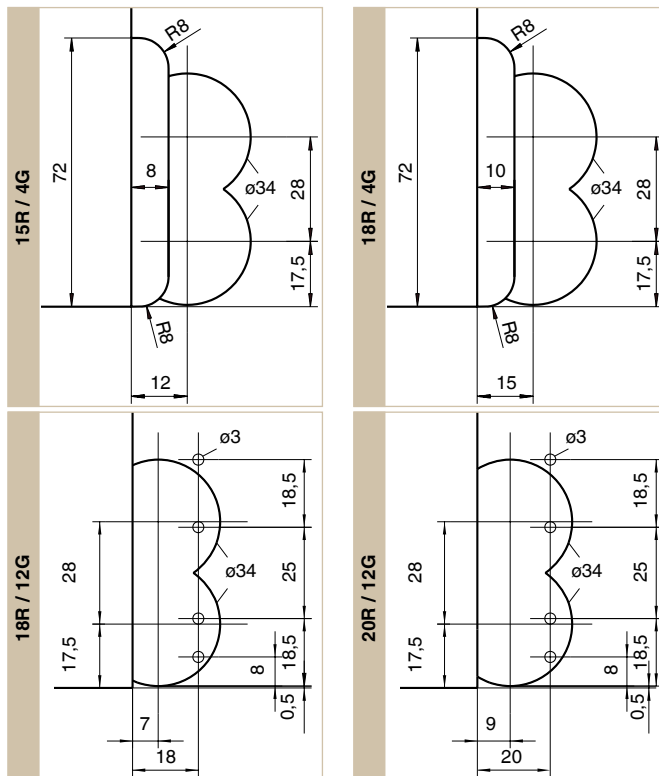
**Routing Detail for Scissor Stay Hinge DT**



Routing Depth 5 mm



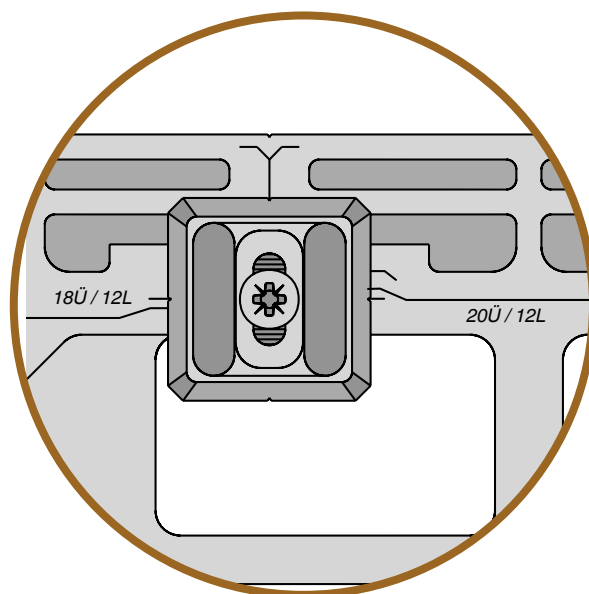
**Routing Detail for Bottom Hinge DT**



Routing Depth 5 mm



## Routing Jig Settings for Top and Bottom Hinges DT



### Order numbers for routing jig DT:

N°	System	Cutter	Guide Ring
20890	all	ø 34	ø 40
52223	4 mm air gap	ø 16	ø 27

### Fitting Top and Bottom Hinges DT:

The routing of the double pot is achieved with a suitable routing machine and drilling 2 holes with a 34 mm Ø. Use the jig unless suitable fabrication machines are available.

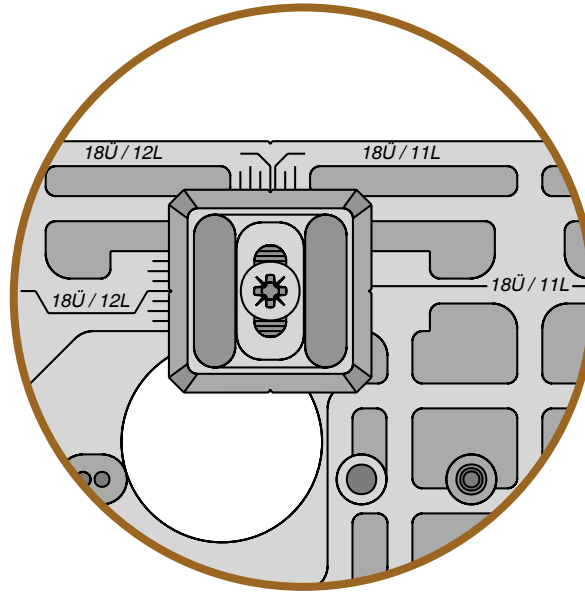
1. Adjust the jig to suit the rebate height.  
(see above)
2. Locate the jig into the corners of the frame and secure in position with the clamps.
3. Route the frame with a 34 mm cutter and 40 mm Ø guide ring.
4. Drill 3 mm Ø pilot holes for the screw fixings.

Use the same jig settings for both top and bottom hinges.





## Routing Jig Settings for Top and Bottom Hinges TO



### Order numbers for routing jig TO:

N°	Rebate	Cutter	Guide Ring
22016	15R / 4G	ø 16	ø 27
21723	15R / 4G	ø 34	ø 40
21724	18R / 4G	ø 34	ø 40
21725	18R / 12G	ø 34	ø 40
24726	20R / 12G	ø 34	ø 40

### Fitting Top and Bottom Hinges TO:

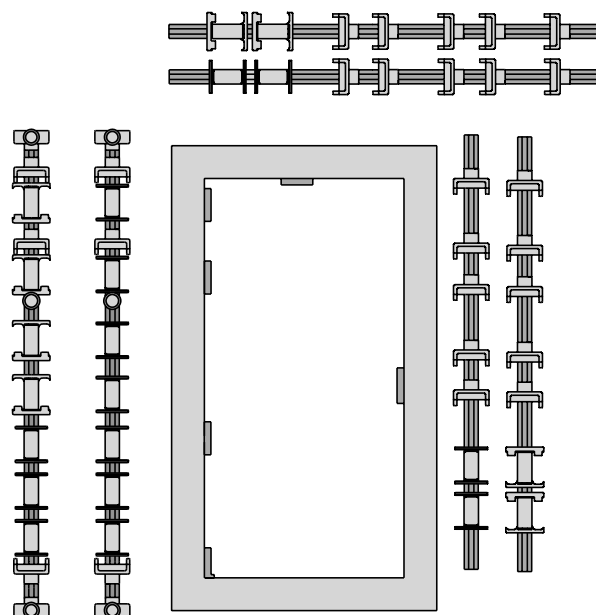
1. Adjust the jig to suit the rebate height and air gap.  
(see above)
2. Locate the jig into the corners of the frame and secure in position with the clamps.
3. Route the frame with a 34 mm Ø cutter and 40 mm Ø guide ring.  
(For JIG Order No. 22016 use a 16 mm Ø cutter and 27 mm Ø guide ring).
4. Drill 3 mm pilot holes for the screw fixings.

Use the same jig settings for both top and bottom hinges.



## Striker Plate Jig Instructions

### Installation for 12 mm Air Gap



**1. Drive Gear:** Extend the jig to size and locate it into the top and bottom corners.

Insert the striker plates and sash lifter into the jig (Calculate the size of the drive gear before positioning and fixing the striker plates).

### 2. Centre Locks:

#### Centre Lock Hinge Side:

Locate the jig into the top corner and insert the striker plate into the jig for the correct size centre lock and fix into position (see drawing on the jig).

#### Centre Lock Horizontal:

Locate the jig into the bottom drive gear corner and insert the striker plate into the jig for the correct size centre lock and fix into position (see drawing on the jig).

#### Scissor Stay Striker Plate:

Locate the jig into the top hinge corner and insert the striker plate into the jig for the correct size scissor stay (see drawing on the jig).

**3. Locate and fix the tilt first striker plate.**

**4. For horizontal tilt lock fit the tilt striker last**

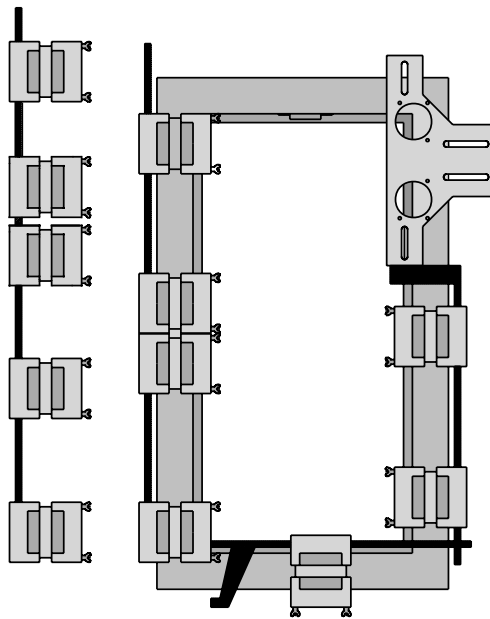
#### Attention:

**All striker plates must be fitted before the Top and Bottom hinges are fitted onto the outer frame!**



## Striker Plate Jig Instructions

### Installation for 4 mm Air Gap



#### 1. Drive Gear:

Set the jig to match the correct size of drive gear locate the jig into the top and bottom corners of the frame.  
Route the outer frame to match the striker plate positions on the drive gear.

#### 2. Centre Locks:

##### Centre Lock Hinge Side:

Adjust the jig to the correct size of centre lock and locate it against the scissor stay hinge, in the top corner and machine the outer frame.

##### Centre Lock Horizontal:

Adjust the jig to the correct size of centre lock and locate it against the drive gear jig and machine the outer frame.

#### 3. Screw all **striker plates** in position.

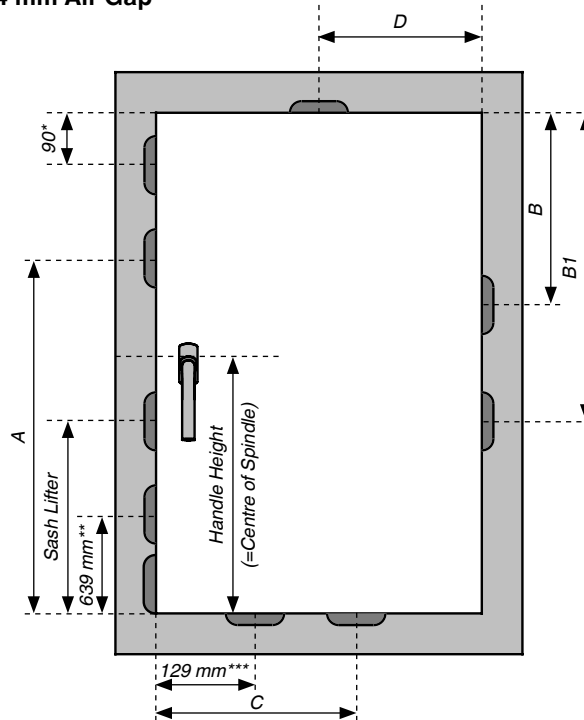
Trend N°	Striker Plate Jigs
10363	Euro flat profile 34940 Drive Gear FHH
10362	Eurogroove and Euroflat Drive Gear FHH
10373	Euro flat profile 34940 Drive Gear VHH
10370	Eurogroove and Euroflat Drive Gear VHH
11030	4 mm Air Gap-Windows
29282	4 mm Air Gap-Doors



### Striker Plate Positions

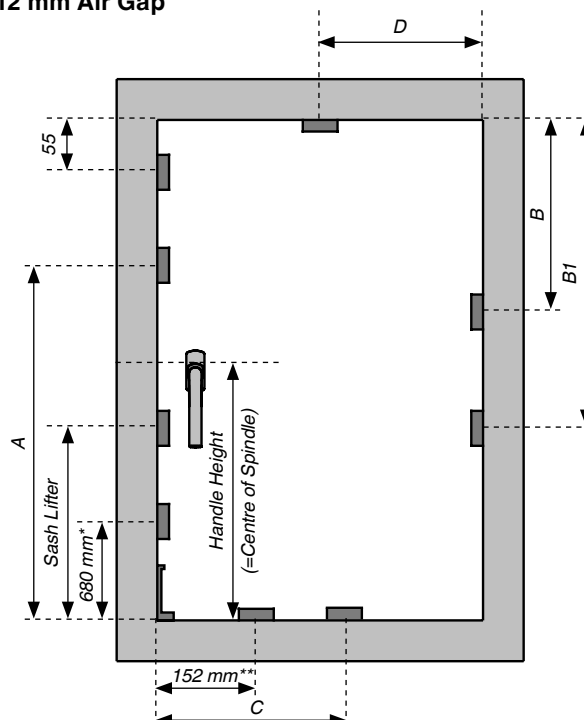
All measurements are taken from the **internal frame corner**:

#### 4 mm Air Gap



\*only with drive gear Gr. 6A, 6, 7  
\*\*only for horizontal tilt locks

#### 12 mm Air Gap

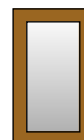


\*only with drive gear Gr. 6A, 6, 7  
\*\*only for horizontal tilt locks



Centre Lock Size	SRW / SRH	C 12L	C 4L	B 12L	B 4L	B1 12L	B1 4L
00	800-1050	379	404	447	412	—	—
0	1051-1250	507	532	575	540	—	—
1	1251-1500	607	632	675	640	—	—
2	1501-1850	807	832	875	840	—	—
3	1851-2350	—	—	675	640	1225	1190

Scissor Stay Size	SRW	D 12L	D 4L
2	800-1050	506	532
3	1051-1300	606	632
4	1301-1500	806	832



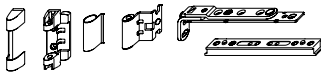
TREND-Gear Size	SRH	Sash Lifter 12L	Sash Lifter 4L	A 12L	A 4L	Handle Height
00	370-430	—	—	—	—	120
0	431-600	—	—	—	—	170
1	601-800	—	—	—	—	300
2	801-1000	277	269	580	539	400
3	1001-1250	377	369	680	639	500
4	1251-1500	477	469	780	739	600
5	1501-1750	577	569	880	839	700
6A	1751-1849	927	919	1230	1189	1050
6+7	1850-2350	927	919	1415	1274	1050

All measurements refer to the centre of the striker plate routed striker plates for 4 mm air gaps are for 48 mm long strikes. Striker plates for 12 Air Gap (not for 34940).

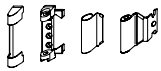
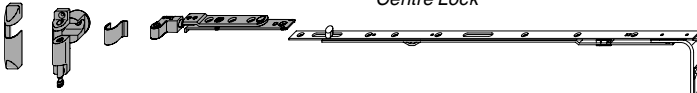


## Tilt Turn Fittings for double sash windows

Scissor Stay Hinge Turn Only Hinge TR



Turn Only Top Hinge Centre Lock

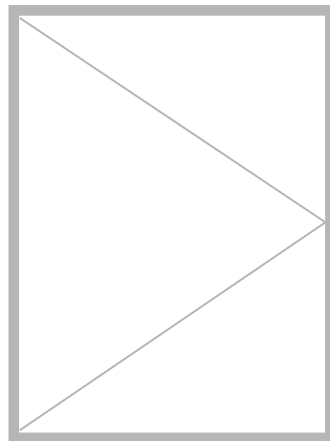
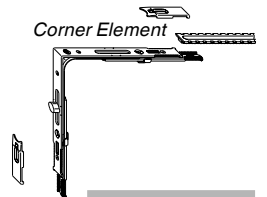
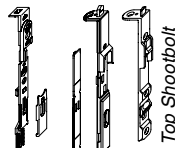


Middle Hinge



Shootbolt Striker Plate

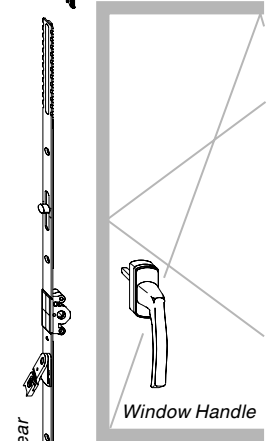
Corner Element



Mullion Drive Gear - Euro Rebate

Top Shootbolt

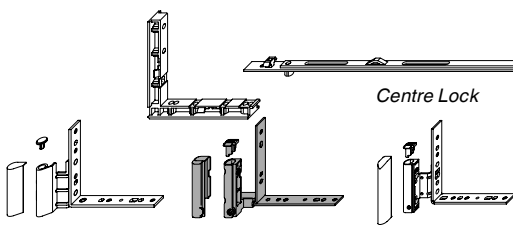
Bottom Shootbolt



Window Handle

Centre Lock

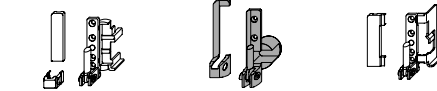
Centre Lock



Shootbolt Striker Plate

i.S. Centre Lock

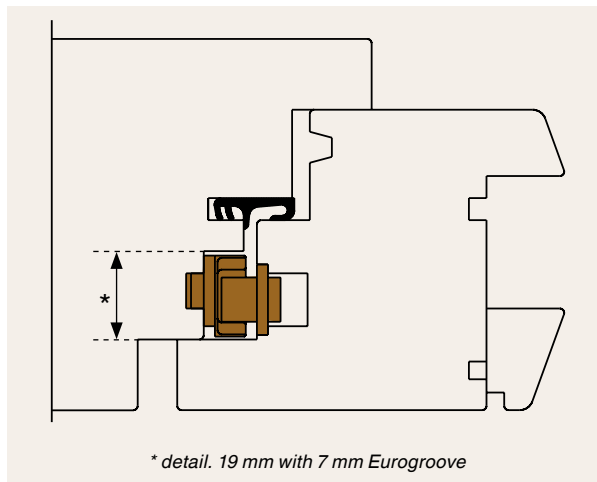
Rebated Corner Support



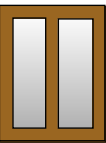
Bottom Hinge



## Installation of 2-Sash Window Fittings Mullion Profile with Eurogroove



1. Mount the **top shootbolt**.
- 1.2 for VHH drive gear mount the **bottom shootbolt**.
2. Mark and cut the **drive gear** to size.



### Finger Operated Shootbolts

#### With 4 mm Air Gap

1. Route for shootbolt and strike with the appropriate jig.
2. Fit the shootbolt and striker plate.

#### With 12 mm Air Gap

1. Position the striker plate with the appropriate jig.
2. Fit the shootbolts.

TREND N°	Jigs for 2-Sash Windows
10496	for Euroflat FHH
10497	for Eurogroove FHH
10499	for Euroflat VHH
10500	or Eurogroove VHH



## Fitting the Middle Hinge

### Rebate Fixing Compression Device:

1. Position the sash into the frame.
2. Compress the gaskets by the required amount.
3. Position and fix the compression device to the sash and frame.

### Routed Compression Device:

1. Use the location jig 10347 to position the compression device onto the sash. A spacer bar is required if the sash has a Eurogroove.
2. Compression device for 12 mm gap use Jig 10347 and drill a 20 mm Ø hole. For 4 mm gap use Jig 20926 to route the frame also use jig 10347 and drill a 20 mm hole.

### Universal Compression Device:

Use the sash and frame locating jig No. 50947.

**ATTENTION:** The sash requires a eurogroove.

## Installation of Turn Only Hinges

1. Locate the turn only hinge into the top corner and screw into position.
2. The turn only stay uses the same hinge as the T&T sash, the sight lines are exactly the same.

## Installation of Shootbolt Striker Plates

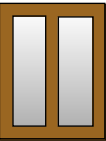
Position striker plate to the centre of the frame. Alternatively striker plate jig No. 21398 is available.



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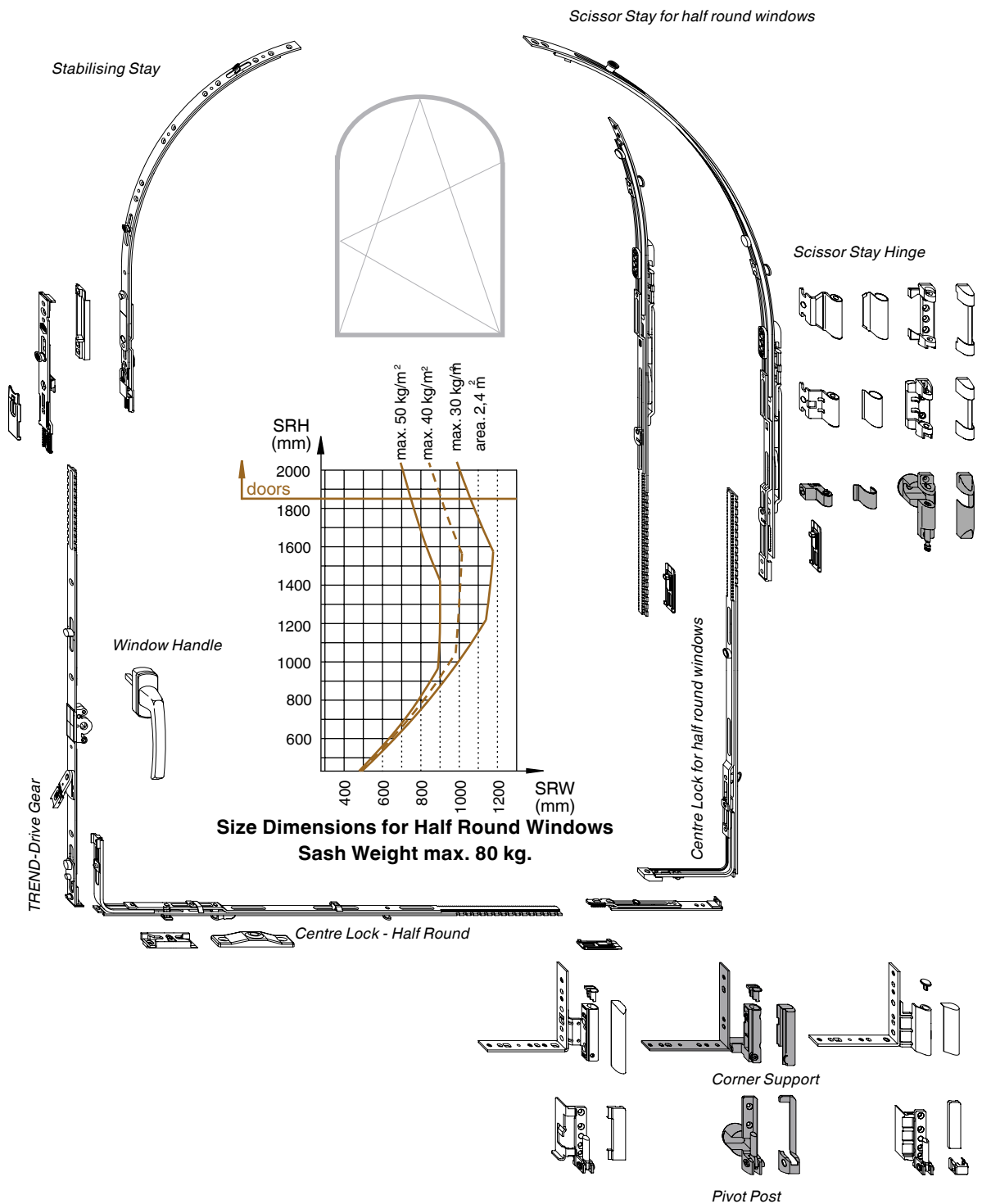


*NOTES:*



# Half Round Fittings

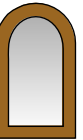
## Turn First Only





## Half Round Size Matrix

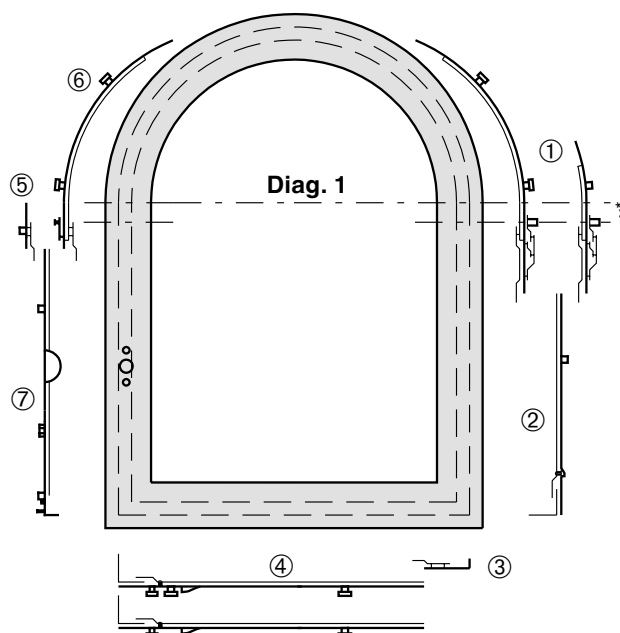
	SRW	370 – 620	620 – 850	850 – 1070	1070 – 1250	
<b>SRH</b>		HR Centre Lock Gr. 1 HR End Piece 180° HR Scissor Stay Gr. 1 SRW 500 Stay Gr. 0 2 Std Striker Plates	HR Centre Lock Gr. 2 HR End Piece 180° HR Scissor Stay Gr. 2 3 Std Striker Plates	HR Centre Lock Gr. 3 HR End Piece 180° HR Scissor Stay Gr. 2 4 Std Striker Plates	HR Centre Lock Gr. 4 HR Stabilizing Stay HR Scissor Stay Gr. 2 5 Std Striker Plates	
<b>390 – 600</b>	<b>Basic Carton</b> <b>Drive Gear Gr. 1A</b> <b>(use without HR</b> <b>End Piece 180°)</b> <b>HR Centre Lock Gr. 1</b>	<b>HH 300</b>  by SRH 500 not with centre lock Gr.1	<b>HH 750</b>	<b>Sash Weight over 80 kg</b> <b>with 12 mm Glass</b> <b>Thickness.</b> <b>SRW-SRH Conflict.</b>		Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 1 Std Striker Plates
<b>600 – 700</b>	<b>Basic Carton</b> <b>Drive Gear Gr. 2A</b> <b>(use without HR</b> <b>End Piece 180°)</b> <b>HR Centre Lock Gr. 1</b>	<b>HH 400</b>	<b>HH 400</b>			Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 1 Std Striker Plates
<b>700 – 800</b>	<b>Basic Carton</b> <b>Drive Gear Gr. 3</b> <b>(use without HR</b> <b>End Piece 180°)</b> <b>HR Centre Lock Gr. 2</b> <b>up to SRH 750 Gr. 1</b>	<b>HH 500</b>	<b>HH 500</b>	<b>900</b>		Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 1 Std Striker Plates
<b>800 – 900</b>	<b>Basic Carton</b> <b>Drive Gear Gr. 4</b> <b>(use without HR</b> <b>End Piece 180°)</b> <b>HR Centre Lock Gr. 2</b>	<b>HH 600</b>	<b>HH 600</b>	<b>HH 600</b>		Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 1 Std Striker Plates
<b>900 – 1000</b>	<b>Basic Carton</b> <b>Drive Gear Gr. 5</b> <b>(use without HR</b> <b>End Piece 180°)</b> <b>HR Centre Lock Gr. 2</b>	<b>HH 700</b>	<b>HH 700</b>	<b>HH 700</b>	<b>1150</b>	Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 1 Std Striker Plates
<b>1000 – 1250</b>	<b>Basic Carton</b> <b>Drive Gear vhh. Gr. 3</b> <b>HR Centre Lock Gr. 4</b> <b>under SRH 1200 Gr. 3</b> <b>Tilt Lock Bolt</b>	<b>HH 550</b>	<b>HH 600</b>	<b>HH 600</b>	<b>HH 600</b>	Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 2 Std Striker Plates
<b>1250 – 1400</b>	<b>Basic Carton</b> <b>Drive Gear vhh. Gr. 3</b> <b>HR Centre Lock Gr. 4</b> <b>Tilt Lock Bolt</b>	<b>HH 700</b>	<b>HH 700</b>	<b>HH 700</b>	<b>HH 700</b>	Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 2 Std Striker Plates
<b>1400 – 1650</b>	<b>Basic Carton</b> <b>Drive Gear vhh. Gr. 4</b> <b>HR Centre Lock Gr. 4</b> <b>Extension Piece 250</b> <b>Tilt Lock Bolt</b>	<b>HH 750</b>	<b>HH 750</b>	<b>HH 750</b>	<b>HH 750</b>	Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 2 Std Striker Plates
<b>1650 – 1830</b>	<b>Basic Carton</b> <b>Drive Gear vhh. Gr. 4</b> <b>HR Centre Lock Gr. 4</b> <b>Extension Piece 400</b> <b>Tilt Lock Bolt</b>	<b>HH 900</b>	<b>HH 900</b>	<b>HH 900</b>	<b>HH 930</b>	Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 3 Std Striker Plates
<b>1830 – 2050</b>	<b>Basic Carton</b> <b>Drive Gear Gr. 6</b> <b>HR Centre Lock Gr.</b> <b>Extension Piece 600</b>	<b>HH 1050</b>	<b>HH 1050</b>	<b>HH 1050</b>	<b>HH 1050</b>	Pivot Post Corner Support Scissor Stay Hinge Scissor Stay Support Arm 1 Sash Lifter Strike Plate 1 Tilt Strike Plate 1 Std Striker Plates



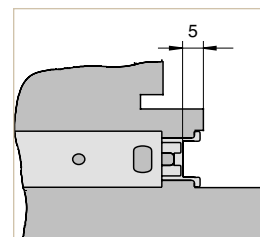
**Using the TREND drive gear, you have to mount the run up wedge and striker plate!**



## Mounting the Fittings onto the Sash



Diag. 2



1. Locate the **scissor stay** ① so that the guide line is positioned at the beginning of the arch. Move the stay into the tilt mode to insert all fixing screws and then reset the scissor stay into the turn position.

6. Crop and fit the **T&T drive gear** ⑦.  
ATTENTION: Only drive gears that have a sash lifter can be used. For drive gear routing see instructions for single sash windows.  
ATTENTION: With TREND-Drive Gear activate the sash lifter.

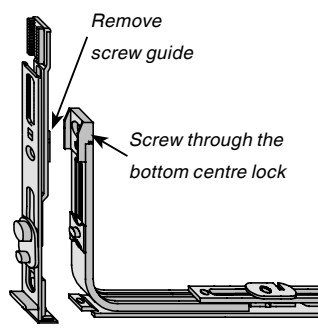
7. For **bottom hinge assembly** (rebate fixing only) see instructions for single sash windows.

8. Position and fit all **striker plates**.

2. Crop and fit the **hinge side centre lock** ② (over 1450 mm SRH, first fit a gear extension). Ensure that the centre lock locates as shown in Diag. 2.
3. Fit the **bottom conversion piece** ③.
4. Crop and fit the **bottom centre lock** ④ (Diag. 2 & 3).
5. Fit the **drive gear end piece** ⑤ or **stabilizing stay** ⑥ (if required).  
ATTENTION: The guide line must be positioned 25 mm below the start of the arch (Diag. 1)!

*	x
TO	25 mm
DT	44 mm

Diag. 3

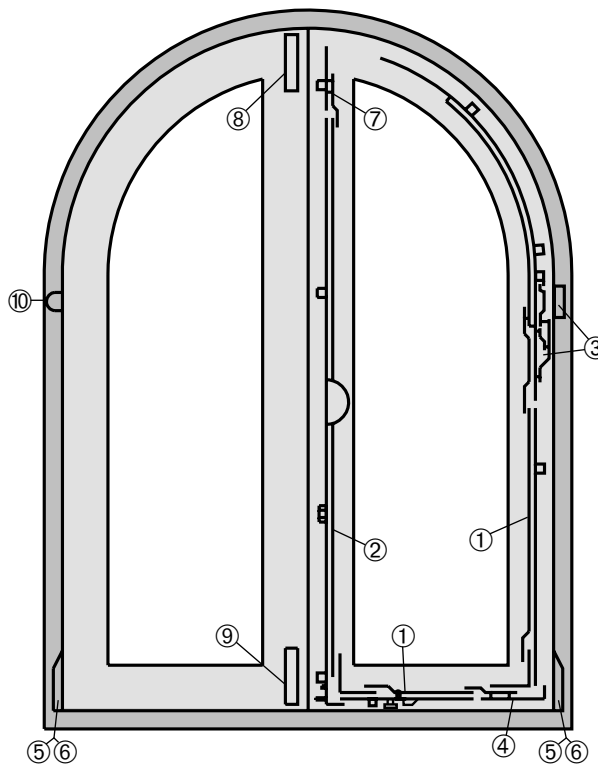




## Half Round Windows with Two Sashes

### Turn First Only

Measure the SRH to the top of the arch to determine the most suitable drive gear.



- |  |                                  |                                   |
|--|----------------------------------|-----------------------------------|
| ① centre lock<br>half round                                      | ④ conversion piece<br>half round | ⑦ top end piece half round        |
| ② drive gear   | ⑤ pivot post                     | ⑧ shootbolt top                   |
| ③ scissor stay –half round<br>(stabilizing stay not<br>suitable) | ⑥ corner support                 | ⑨ shootbolt bottom                |
|  |                                  | ⑩ turn only hinge – half<br>round |

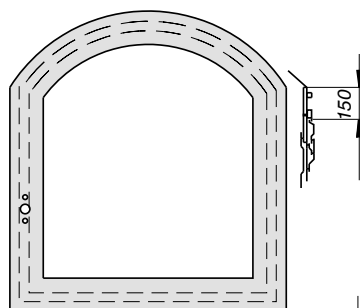


## Half Round Fittings Applied to Sectional and Angled Windows

### Sash Assembly

**Fitting Instructions** see Half Round instructions (Page 28).

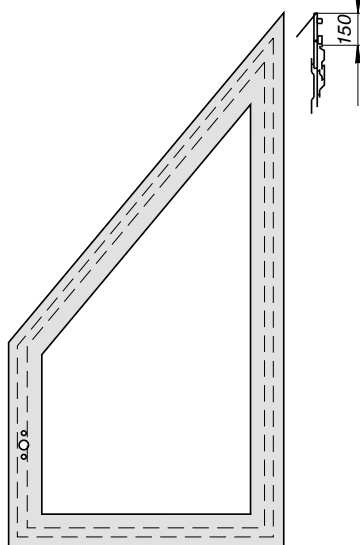
#### Horizontal Top Centre lock



##### Sectional – and Wide Arch Windows

When the arch length exceeds 1000 mm use the angled window corner element with a 600 mm gear extension to gain a locking point along the arch.

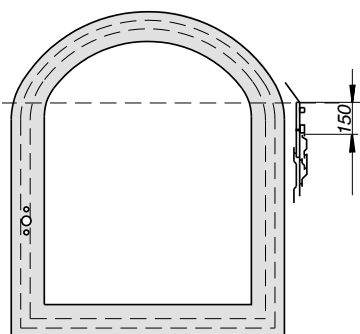
Only scissor stays Gr. 0 & 1 are suitable!  
The guide line must be positioned 150 mm below the weld.



##### Angled Windows over 50° and under -15°

Only scissor stays Gr. 0 & 1 are suitable!  
The guide line must be positioned 150 mm below the corner.

**Attention: No locking points can be positioned along the angle!**



##### Sectional half round window

You can use as a centre lock the half round scissor stay Gr.2 or the half round stabilizing stay.

On segmental or angled windows you can only use the half round scissor stays Gr. 0 or 1.

**Note:** the range of application is reduced by 150 mm.



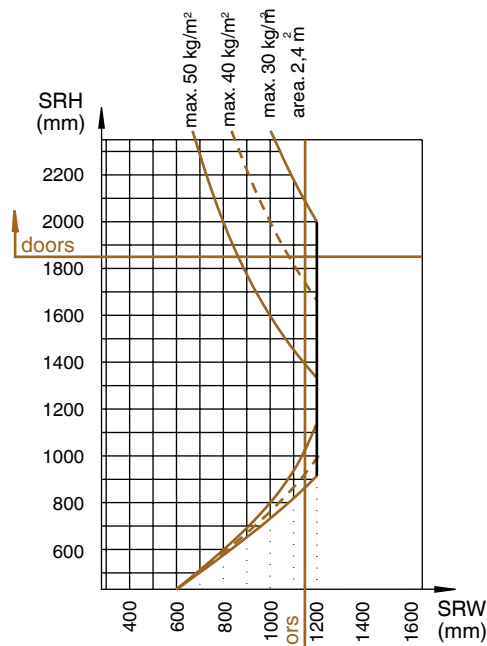
## Frame Assembly

Position the striker plates on the curved edge by marking the cam position on the frame. For other striker positions see instructions for single sash windows.

For bottom hinge assembly see instructions for single sash windows. The scissor stay hinge jig must be manually positioned!

## Size Dimension

### Use of Half Round Scissor Stays on Angled Windows.



Sash rebate height relates to the eurogroove position at the top of the arch.



On angled windows from  $-1^{\circ}$  to  $-15^{\circ}$  use the fittings for half round windows (see page 26).

## Angled Window Fittings

### Turn First Only

*Rebated scissor stay for angled windows*

*Scissor Stay - Angled*

*Corner element for angled windows*

*Scissor Stay Hinge*

*TREND-Drive Gear*

*Window Handle*

*Centre lock for half round and angled windows*

**Size Dimension for Angled Windows**  
Sash Weight max. 80 kg.

SRW (mm)	SRH (mm) - max. 50 kg/m²	SRH (mm) - max. 40 kg/m²	SRH (mm) - max. 30 kg/rh
400	~1000	~1000	~1000
600	~1200	~1200	~1200
800	~1400	~1400	~1400
1000	~1600	~1600	~1600
1200	~1800	~1800	~1800
1400	~2000	~2000	~2000
1600	~2200	~2200	~2200

max. 50 kg/m<sup>2</sup>  
max. 40 kg/m<sup>2</sup>  
max. 30 kg/rh  
area: 2.4 m<sup>2</sup>

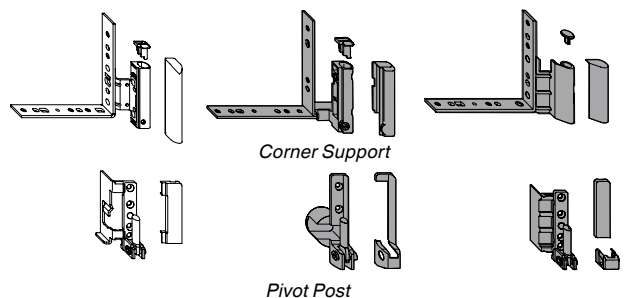
doors

SRH (mm)

SRW (mm)

90°  
50°  
0°  
-15°  
180°

**Note:**  
The lifting wedge is not required when using TREND-Drive Gear!



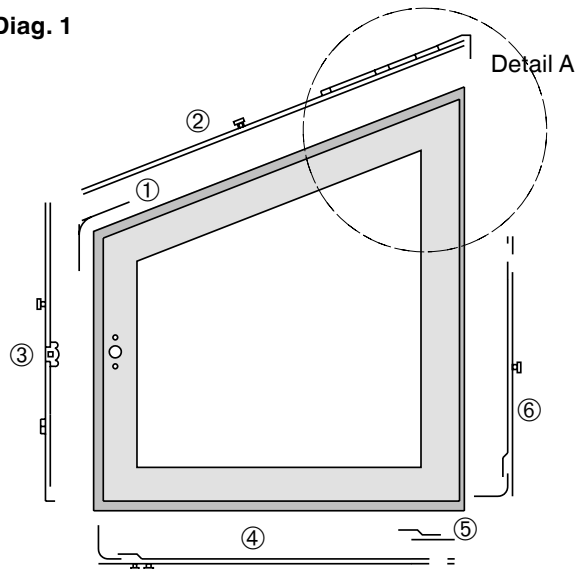




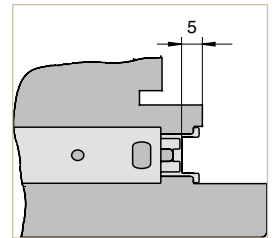


## Fittings onto the Sash

Diag. 1



Diag. 2

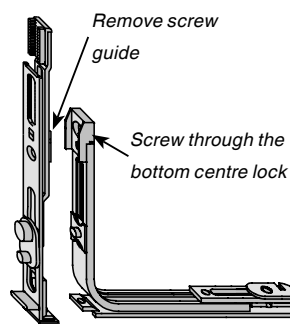


1. Crop and fit the **hinge side centre lock ⑥** (if SRH is over 1000 mm). Ensure that the centre lock is located as shown in Diag. 2.

2. Fit the **bottom conversion piece ⑤** (over 1000 mm SRH).
3. Crop and fit the **bottom centre lock ④** (Diag. 2 & 3).
4. Fit **Corner element A for angled windows ①** adjust it to suit the corner angle!
5. Crop and fit the **T&T drive gear ③**.  
ATTENTION: Only drive gears that have a sash lifter can be used. For drive gear routing see instructions for single sash Windows.

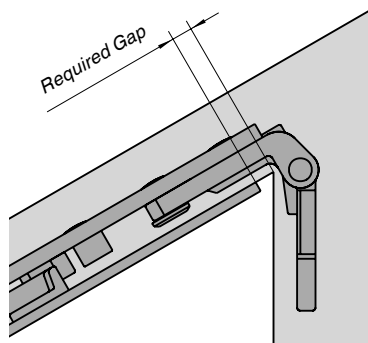
6. Cut and fit **scissor stay ②**.  
ATTENTION: For correct positioning of the scissor stay please refer to Detail A.

Diag. 3

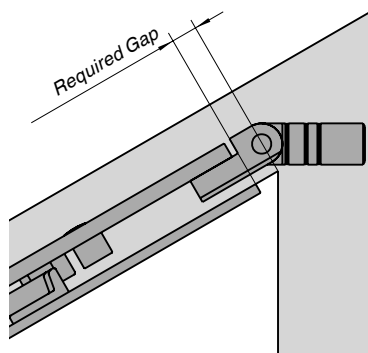




**Detail A:** Gap between edge of stay and eurogroove



Scissor Stay Hinge DT			
Stay Angle	Required Gap	Stay Angle	Required Gap
50°	0,6	15°	2,5
45°	1,2	10°	2,5
40°	1,7	5°	2,4
35°	2,1	0°	2,3
30°	2,3	-5°	2,0
25°	2,5	-10°	1,8
20°	2,5	-15°	1,4



Scissor Stay Hinge TO			
Stay Angle	Required Gap	Stay Angle	Required Gap
50°	2	15°	6
45°	3	10°	6
40°	4	5°	7
35°	4	0°	—
30°	5	-5°	8
25°	5	-10°	9
20°	6	-15°	9





### Turn Only Sash:

Instructions and guidelines for the T&T fittings also apply to turn only fittings (Application, drilling and machining). This also applies to the gap between the edge of the scissor stay and eurogroove.

Required gap between the edge of the scissor stay and sash corner on angled turn only windows.

Scissor Stay Hinge DT			
Stay Angle	Required Gap	Stay Angle	Required Gap
50°	12,1	15°	14,0
45°	12,7	10°	14,0
40°	13,2	5°	13,9
35°	13,6	0°	13,8
30°	13,8	-5°	13,5
25°	14,0	-10°	13,3
20°	14,0	-15°	12,9

Scissor Stay Hinge TO			
Stay Angle	Required Gap	Stay Angle	Required Gap
50°	2	15°	6
45°	3	10°	6
40°	4	5°	7
35°	4	0°	7
30°	5	-5°	8
25°	5	-10°	9
20°	6	-15°	9



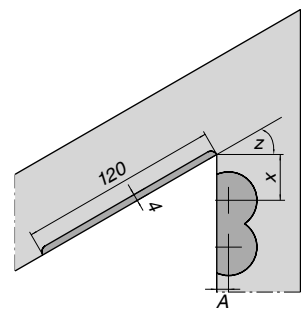
## Scissor Stay Hinge Drilling

The maximum angle is 50°.

Remove the front edge of the profile to a depth of 4 mm as shown. This ensures that the scissor stay does not clash with the frame.

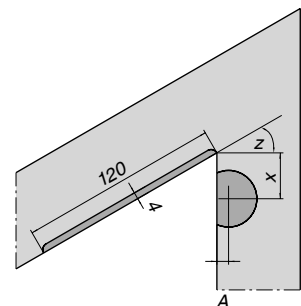
Scissor Stay Hinge DT (Diag. 1)	
Rebate Height	Dim. A
18 mm	7
20 mm	9
Stay Angle	Dim. X with 12 mm Air Gap
50°	36,2
45°	33,5
40°	31
35°	29,5
30°	28
25°	26,5
20°	25,5
15°	25
10°	24
5°	23,5
0°	23
-5°	23
-10°	22,5
-15°	22,5

Diag. 1



Scissor Stay Hinge TO (Diag. 2)			
Stay Angle	Dim. X with 12 mm Air Gap	Stay Angle	Dim. X with 12 mm Air Gap
50°	16	50°	27,5
45°	14	45°	24
40°	13	40°	21
35°	11	35°	18

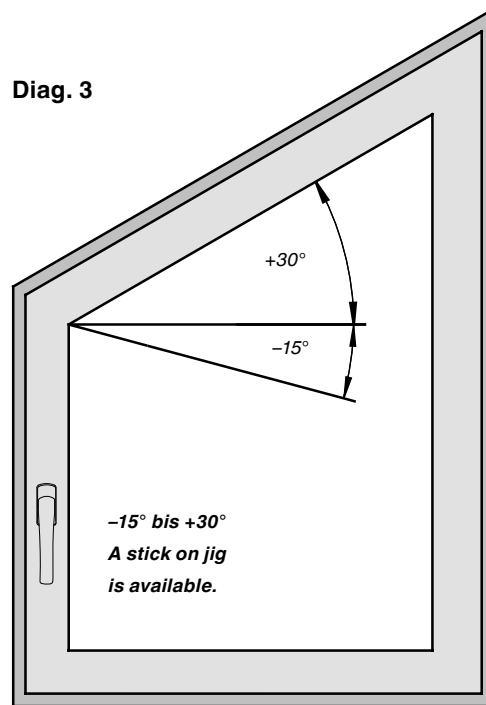
Diag. 2





## Assembly of Sash and Frame

Diag. 3



### Application for Scissor Stay Drill Jig: (see Diag. 3):

The drill jig can be used with slope angles between -15° and 30°. For windows with a slope angle greater than 30° remove the locating blocks from the jig and position it so that it aligns as shown above.

### Attention!

If the jig cannot be located as specified do not compensate by removing the yellow blocks, use spacer bars to reposition the jig in the correct position.

**Striker plates:** Position the striker on the angle by marking the position of the strike on the frame. For other striker positions see instructions for single sash windows or position them by marking the position of the strike on the frame.

For **bottom hinge** assembly see instructions for single sash windows. The scissor stay hinge jig for both TO and DT must be manually positioned.

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*NOTES:*



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