



## TURN-TILT WINDOWS



# A11.14 LINK ARMS AND HINGES

01.07.2017



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LINK ARMS AND HINGES

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**CONTENTS**

<b>1. General</b> .....	A11.14.03
<b>2. Size range</b> .....	A11.14.04
<b>3. Chrono visible hinges</b> .....	A11.14.05
3.1. Hinges	A11.14.05
3.2. Preparations	A11.14.06
<b>4. Chrono Invision Pro hinges</b> .....	A11.14.07
4.1. Hinge set for frame groove 14/18 mm	A11.14.07
4.2. Hinge set for frame groove 10/14 mm	A11.14.08
4.3. Vent weight up to 200 kg	A11.14.09
4.4. Installation of hinges	A11.14.10
4.5. Adjustment of hinges	A11.14.12
<b>5. Chrono Invision Go hinges</b> .....	A11.14.14
5.1. Hinge set for frame groove 14/18 mm	A11.14.14
5.2. Hinge set for frame groove 10/14 mm	A11.14.15
5.3. Installation of hinges	A11.14.16
5.4. Adjustment of hinges	A11.14.18

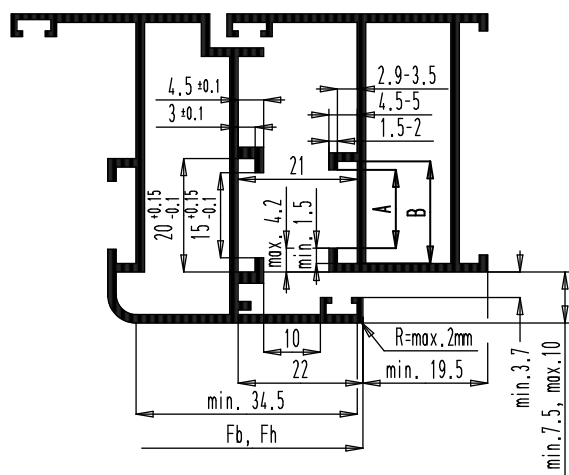


# 1. General

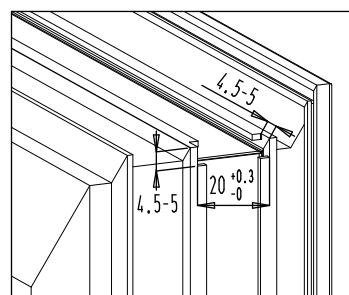
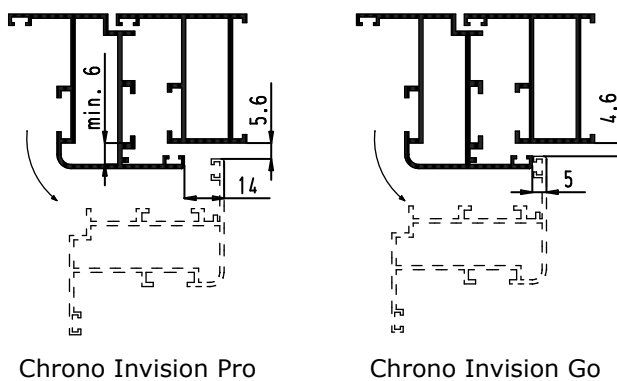
- The totally clampable Chrono turn and tilt system is available with visible hinges and with concealed hinges.
- The concealed hinges offer the following advantages:
  - The concealed hinges have the advantage that the hinges are invisible when the window is closed.
  - The possibility to use a narrow frame profile: aesthetic aspect and glass surface will be larger.
  - The cleaning of the window frames will be easier because all the corners are easily accessible.
  - Colour-independent, so reducing stock and increasing cost effectiveness.
  - No need to remove the inner gasket to mount the hinges. A better acoustic, wind and water tightness is obtained.
  - The fully concealed hinges can not be damaged or spoilt during transport, installation or other work to the building.
- The concealed hinges are available in two different versions:
  - Chrono Invision Pro: fully concealed clampable hinges, which can carry vent weights up to 170 kg.
  - Chrono Invision Go: fully concealed clampable hinges, which can carry vent weights up to 90 kg.
- Link arms:
  - For good stability and operation of the window there are, dependent of the vent width, 2 or 3 sizes of link arms. The two biggest link arms are provided with a pre-locking pull-in wedge to ease closing from the tilt position.
  - The link arm is provided with an anti slam shut device (click system) to avoid unintended closing of the window in the tilt position.
  - For assembly purposes the link arm is kept in the turn position by a snap-off pin until the first operation.
  - A special self-drilling screw ensures solid and dimensionally accurate fixing of the link arm.
- All parts are made of non-corroding materials.

## Profile dimensions

- Chrono hardware is available to suit a frame groove of 14/18 mm or a frame groove of 10/14 mm.



	Frame groove 14/18 mm	Frame groove 10/14 mm
A	14 ± 0.5	10 ± 0.5
B	18 ± 0.5	14 ± 0.5



Cut out vent profile



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## LINK ARMS AND HINGES

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### 2. Size range

#### Chrono

- Size range with connection piece set:
  - Vent width: 450-1700 mm.
  - Vent height: 600-2400 mm.
- Size range for vent heights > 2400 mm:
  - Vent width: 671-1200 mm.
  - Vent height: 2401-2800 mm.
- Vent weight: max. 130 kg.
- Ratio of vent width  $F_b$  / vent height  $F_h$  = max. 1,5.
- Size range with lockcase:
  - Vent width: 450-1700 mm.
  - Vent height: 685-2400 mm.

#### Chrono Invision Pro

- Size range with connection piece set:
  - Vent width: 460-1700 mm.
  - Vent height: 600-2400 mm.
- Size range for vent heights > 2400 mm:
  - Vent width: 671-1200 mm.
  - Vent height: 2401-2800 mm.
- Vent weight:
  - $F_b < 670$  mm: max. 130 kg.
  - $F_b > 670$  mm: max. 170 kg.
- Vent weight up to 200 kg: see page A11.14.09.
- Ratio of vent width  $F_b$  / vent height  $F_h$  = max. 1,5 (< 130 kg).  
Ratio of vent width  $F_b$  / vent height  $F_h$  = max. 1 (> 130 kg).
- Size range with lockcase:
  - Vent width: 460-1700 mm.
  - Vent height: 685-2400 mm.

#### Chrono Invision Go

- Size range with connection piece set:
  - Vent width: 460-1300 mm.
  - Vent height: 600-2400 mm.
- Size range for vent heights > 2400 mm:
  - Vent width: 671-1200 mm.
  - Vent height: 2401-2800 mm.
- Vent weight: max. 90 kg.
- Ratio of vent width  $F_b$  / vent height  $F_h$  = max. 1,2.
- Size range with lockcase:
  - Vent width: 460-1300 mm.
  - Vent height: 685-2400 mm.

#### Remarks

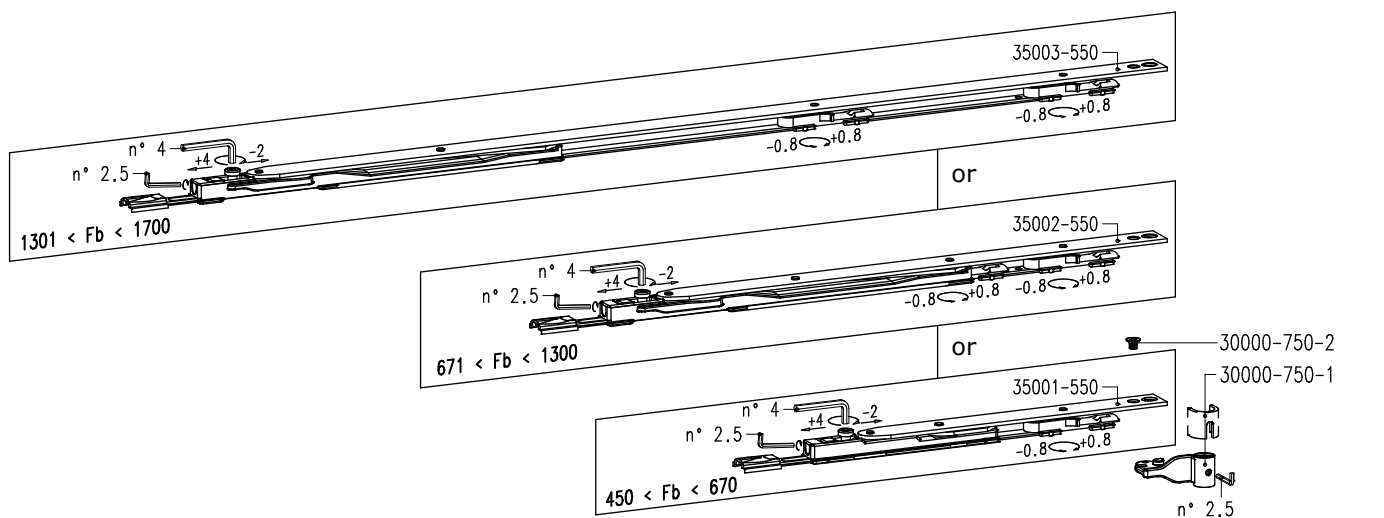
- Dimensions out of standard range on request!



### 3. Chrono visible hinges

#### 3.1. Hinges

- By default the hinges can carry vent weights up to 90 kg. For weight > 90 kg and/or a vent width > 1400 mm the reinforcement set n° 35140-790 must be placed.
- When ordering please indicate the following:
  - link arm n° 35001-550, 35002-550 or 35003-550 (dependent of the width)
  - set non-colour fixed hinge parts n° 35140-12
  - set colour fixed hinge parts n° 35140-10
  - reinforcement set n° 35140-790 (vent weight > 90 kg and/or Fb > 1400 mm)



**Link arm n° 35001-550, 35002-550 or 35003-550**

**Set non-colour fixed hinge parts n° 35140-12**

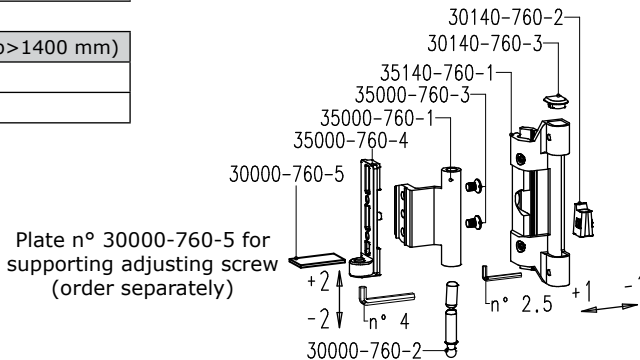
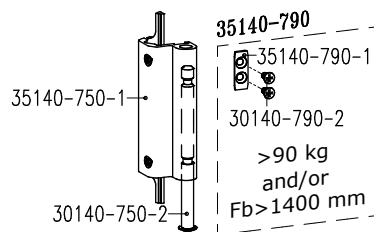
1	30000-750-2	screw top hinge
1	30000-760-2	hinge pin bottom hinge
1	30140-750-2	hinge pin top hinge
1	30140-760-2	adjustment bearing piece bottom hinge
2	35000-760-3	screw bottom hinge
1	35000-760-4	clamping plate bottom hinge

**Set colour fixed hinge parts n° 35140-10**

1	30000-750-1	vent part top hinge
1	35000-760-1	vent part bottom hinge
1	35140-750-1	frame part top hinge
1	35140-760-1	frame part bottom hinge
1	30140-760-3	cap bottom hinge

**Reinforcement set n° 35140-790 (>90 kg and/or Fb>1400 mm)**

1	35140-790-1	reinforcement set
2	30140-790-2	screw





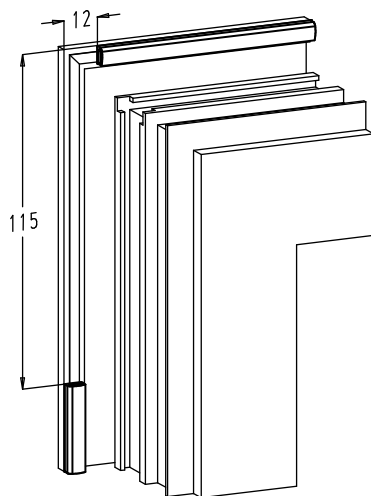
## LINK ARMS AND HINGES

### Remarks

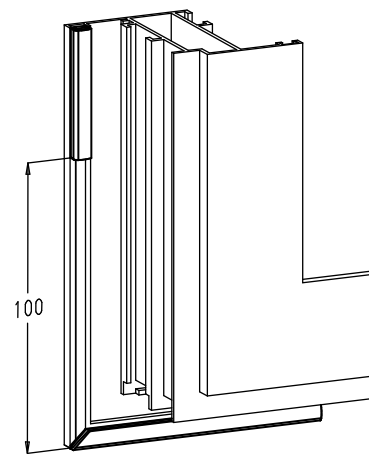
- The adjustable hinges have been tested in accordance with the standards of windows. Therefore the hinges can not be used for balcony doors with a door function.
- For windows with vent weights from 130 kg to 170 kg we recommend Chrono Invision Pro hinges.

## 3.2. Preparations

### Seals top and bottom hinge



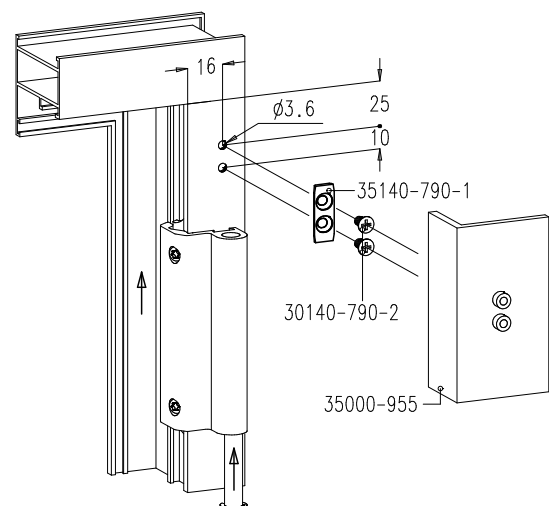
top hinge



bottom hinge

### Reinforcement set

- For windows with vent weight > 90 kg and when  $F_b > 1400$  mm the reinforcement set n° 35140-790 must be used to reinforce the adjustable top hinge.
- The M4x10 thread forming screws must fix into at least 6 mm of aluminium.
- Drilling jig n° 35000-955 is available for drilling the holes.



### Maintenance

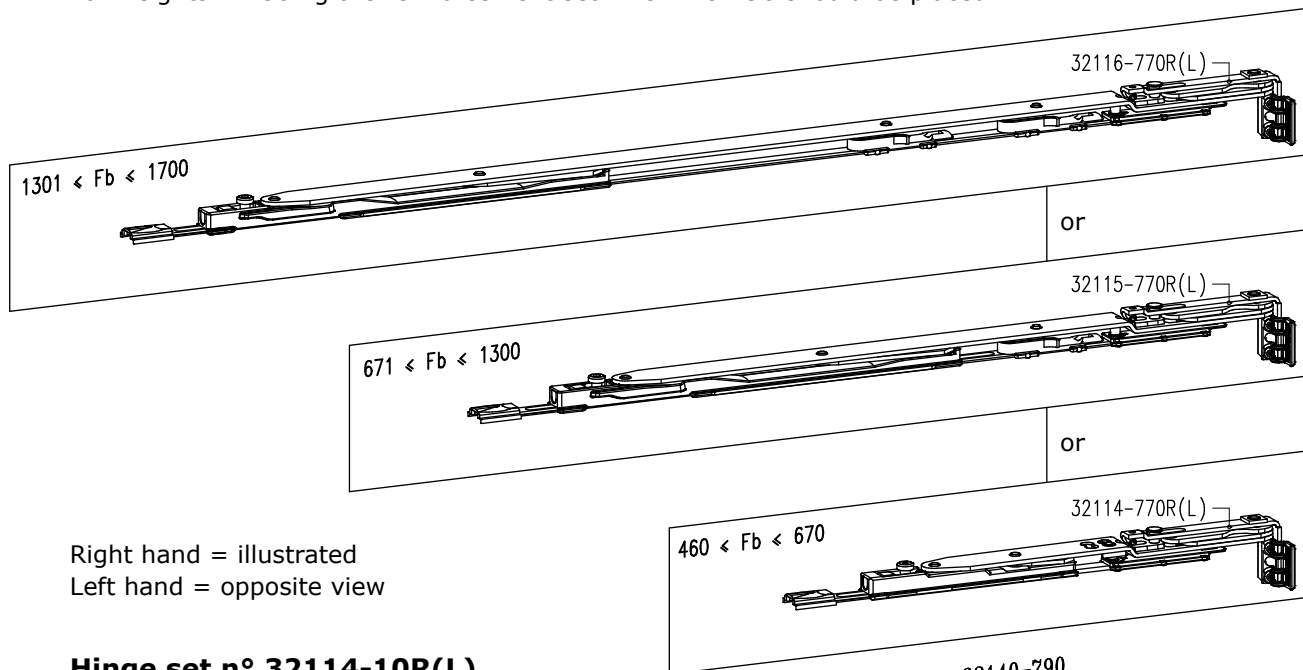
- Lubricate the adjustment bearing piece of the bottom hinge.
- You will find more information in the maintenance instructions.



## 4. Chrono Invision Pro hinges

### 4.1. Hinge set for frame groove 14/18 mm

- For a good stability and operation of the window there are three different hinge sets for Chrono Invision Pro.
- For weights > 130 kg the reinforcement set n° 32140-790 should be placed.



Right hand = illustrated  
Left hand = opposite view

#### Hinge set n° 32114-10R(L)

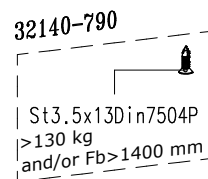
Fb = 460-670 mm

#### Hinge set n° 32115-10R(L)

Fb = 671-1300 mm

#### Hinge set n° 32116-10R(L)

Fb = 1301-1700 mm



Hinge set n° 32114-10R(L)		
1	32114-770R(L)	link arm
1	32114-780R(L)	bottom hinge

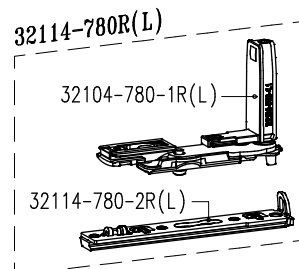
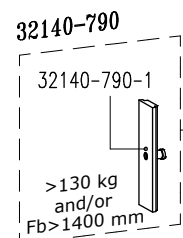
or

Hinge set n° 32115-10R(L)		
1	32115-770R(L)	link arm
1	32114-780R(L)	bottom hinge

or

Hinge set n° 32116-10R(L)		
1	32116-770R(L)	link arm
1	32114-780R(L)	bottom hinge

Reinforcement set n° 32140-790 (>130 kg and/or Fb>1400 mm)		
1	32140-790-1	reinforcement piece
1	St4.2x13Din7504P	drilling screw

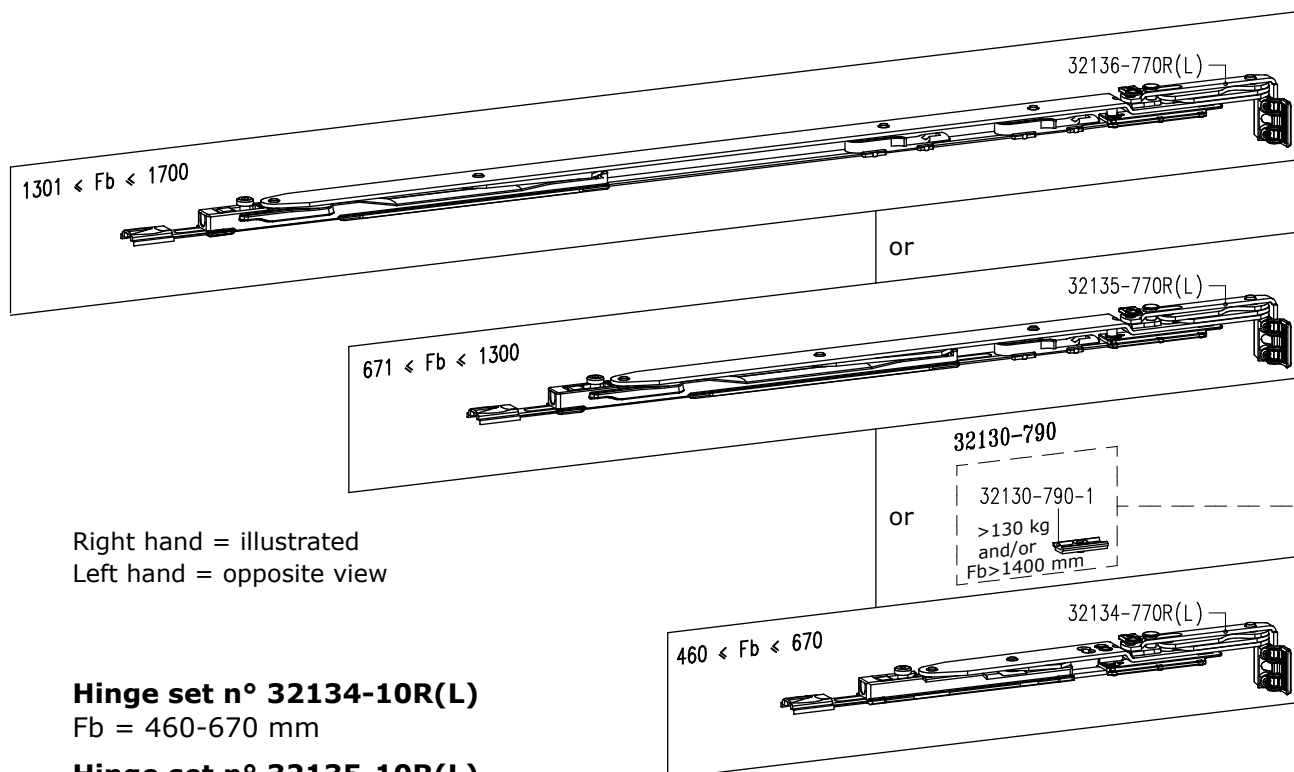




## LINK ARMS AND HINGES

**4.2. Hinge set for frame groove 10/14 mm**

- For a good stability and operation of the window there are three different hinge sets for Chrono Invision Pro.
- For weights > 130 kg the reinforcement set n° 32130-790 should be placed.



Right hand = illustrated  
Left hand = opposite view

**Hinge set n° 32134-10R(L)**

Fb = 460-670 mm

**Hinge set n° 32135-10R(L)**

Fb = 671-1300 mm

**Hinge set n° 32136-10R(L)**

Fb = 1301-1700 mm

Hinge set n° 32134-10R(L)		
1	32134-770R(L)	link arm
1	32134-780R(L)	bottom hinge

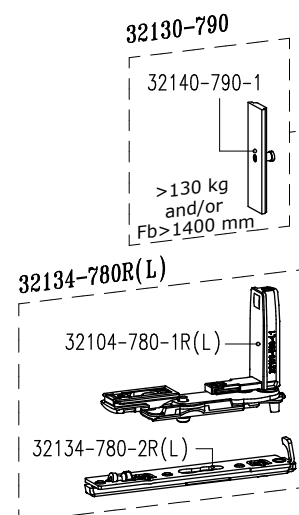
or

Hinge set n° 32135-10R(L)		
1	32135-770R(L)	link arm
1	32134-780R(L)	bottom hinge

or

Hinge set n° 32136-10R(L)		
1	32136-770R(L)	link arm
1	32134-780R(L)	bottom hinge

Reinforcement set n° 32130-790 (>130 kg and/or Fb>1400 mm)		
1	32140-790-1	reinforcement piece
1	32130-790-1	stop





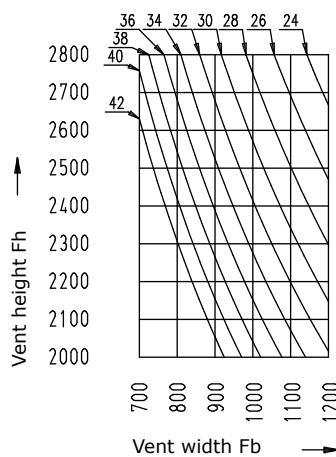


### 4.3. Vent weight up to 200 kg

#### Size range

- On request the Invision Pro hinges for turn-tilt windows can be used for vent weights up to 200 kg.
- Vent dimensions:
  - Vent width Fb = 700-1200 mm.
  - Vent height Fh = 2000-2800 mm.
- Vent weight: max. 200 kg.
- Ratio vent width Fb / vent height Fh = max. 1.
- The profiles must be suitable for this vent weight and these vent dimensions. Information should be requested from the profile supplier!

#### Glass table



Glass thickness without air gap	
mm	kg/m <sup>2</sup>
10	25
12	30
14	35
16	40
18	45
20	50
22	55
24	60
26	65
28	70
30	75
32	80
34	85
36	90
38	95
40	100
42	105

#### Specifications of the fittings

- Handle, base sets, centre locking sets and rod selection in accordance with the chapters A11.09 to A11.12.
- Following items are required:
  - Hinge set n° 32115-10L or R (frame groove 14/18 mm) or n° 32135-10L or R (frame groove 10/14 mm).
  - Reinforcement set n° 32140-790 (frame groove 14/18 mm) or n° 32130-790 (frame groove 10/14 mm).
  - Window stay n° 35140-902.
  - When handle with fork: reinforcement piece n° 30000-691 or 30000-692 for handle.

#### Additional specifications

- Correct installation of the hinges as described in this chapter.
- Adjustment of the hinges as described in this chapter.
- The vent and the frame must be assembled in accordance with the specifications of the profile supplier.
- The glazing must be done in accordance with the specifications of the profile supplier.
- Make sure that the frame profile is strongly fixed at the hinge side so that it can't rotate or move.
- General specifications for installation and maintenance of the fittings.



LINK ARMS AND HINGES

4.4. Installation of hinges

**A** Fixing vent part of bottom hinge

②  $F_b > 1400 \text{ mm}$   
and/or  
 $F_g > 130 \text{ kg}$

Fixing vent part of bottom hinge

④ CLICK

right

left

INSIDE

INSIDE

**B** Installation of link arm and corner transmission on the vent

CLICK

⑤

⑥

**C** Positioning and fixing link arm on the vent

n° 4

⑨

⑧

0 mm

0 mm

Remove retaining piece

Remove positioning clips after assembly

⑩

**D** Fixing frame part of the bottom hinge on the frame profile

⑪ Press right into corner

n° 2.5

n° 2.5

**E** Assembly of vent and frame

⑫



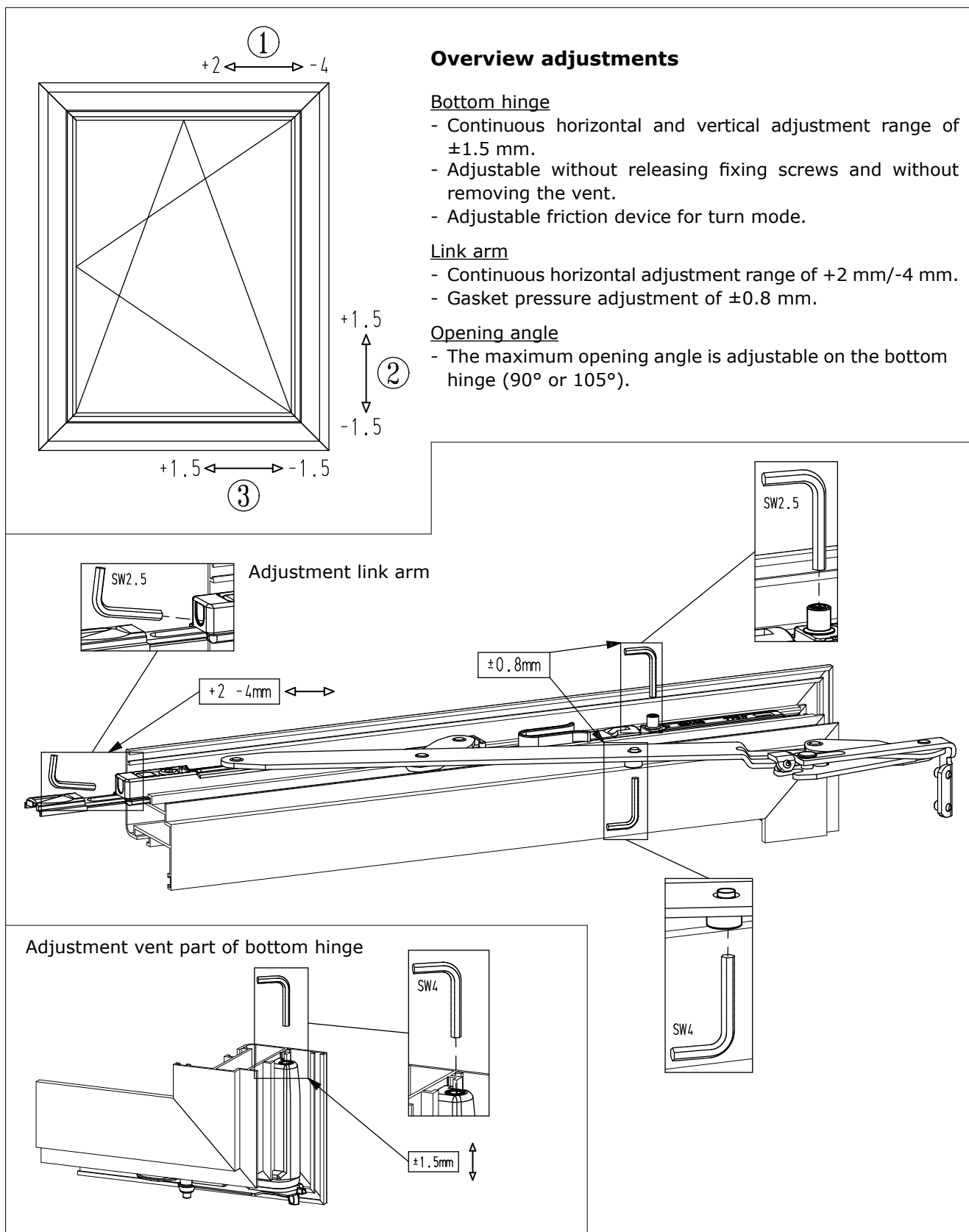
LINK ARMS AND HINGES

<p><b>F</b> Installation link arm (vent) on frame profile</p>	<p><b>14</b> Fixing link arm</p> <p>n° 2.5 Frame groove 14/18 mm</p> <p>n° 2.5 Frame groove 10/14 mm</p>	
<p><b>G</b> Fixing of the drilling screw (reinforcement set 170 kg)</p> <p>Fg &gt; 130 kg and frame groove 14/18 mm</p>	<p>Fixing of the stop (reinforcement set 170 kg)</p> <p>Press right into corner</p> <p>Fg &gt; 130 kg and frame groove 10/14 mm</p>	<p><b>H</b> Installation of the reinforcement plate</p> <p>Vent weight &gt; 130 kg</p>
<p><b>I</b> Fixing of the link arm on the frame profile</p> <p>Press right into corner</p>		<p>Turn position to tilt position</p>



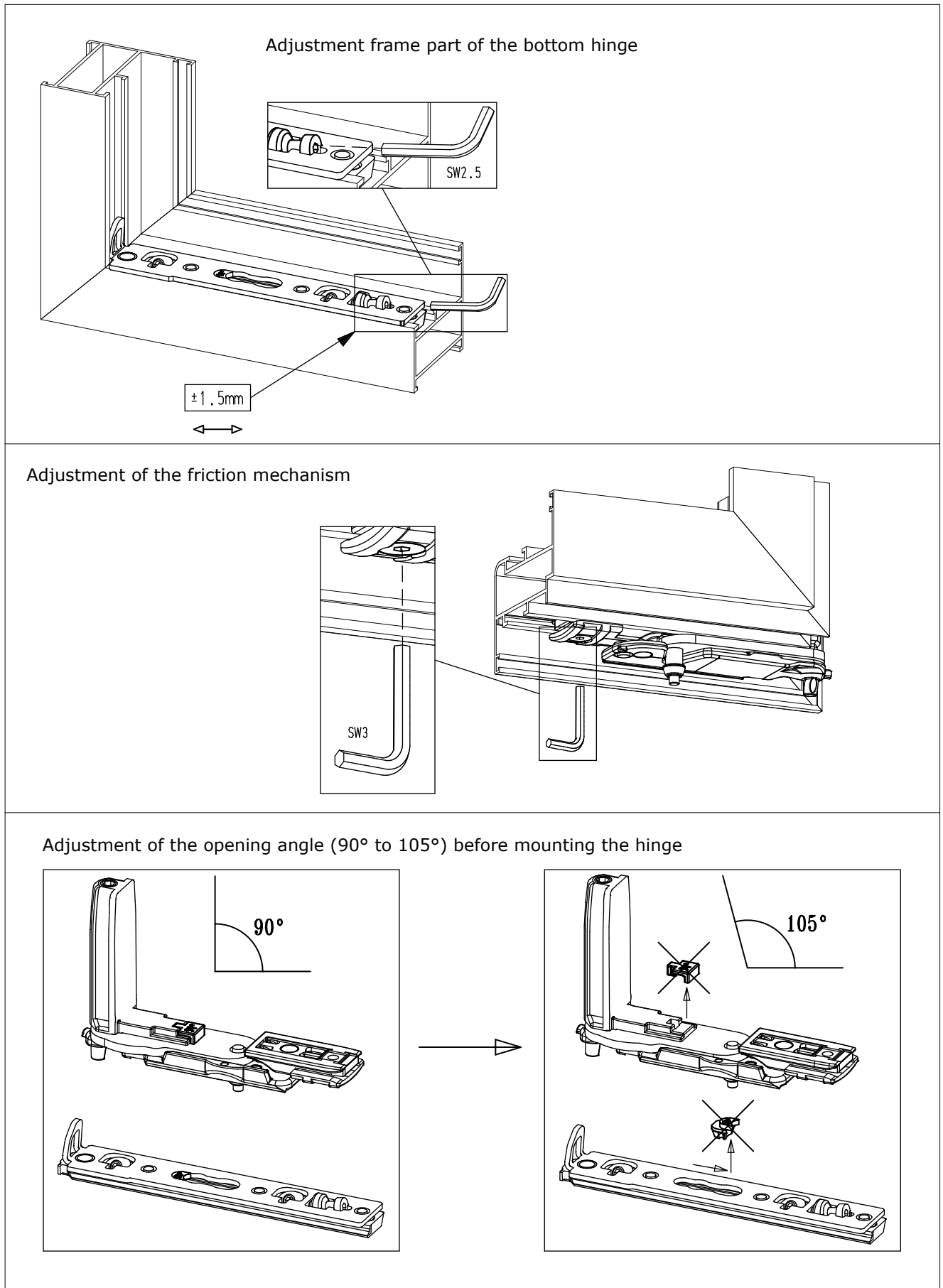
LINK ARMS AND HINGES

4.5. Adjustment of hinges





LINK ARMS AND HINGES

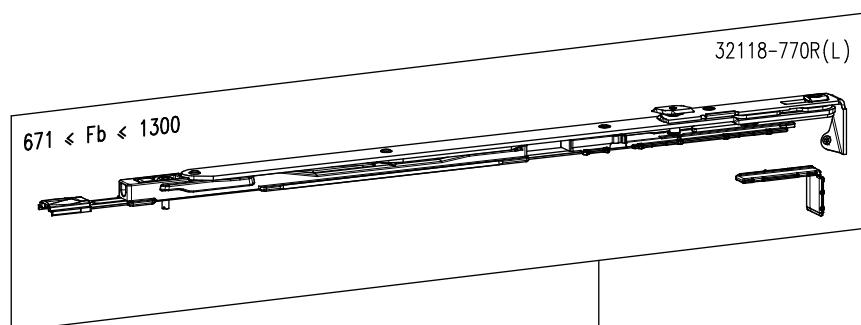




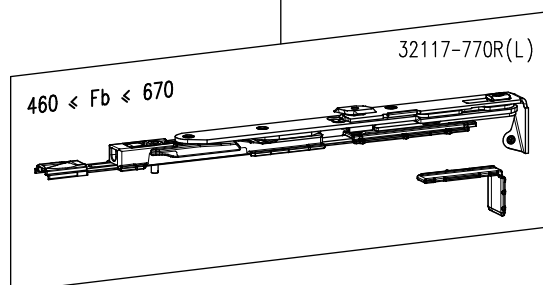
## LINK ARMS AND HINGES

**5. Chrono Invision Go hinges****5.1. Hinge set for frame groove 14/18 mm**

- For a good stability and operation of the window there are two different hinge sets for Chrono Invision Go.
- Vent weight = max. 90 kg.



or



Right hand = illustrated  
Left hand = opposite view

**Hinge set n° 32117-10R(L)**

Fb = 460-670 mm

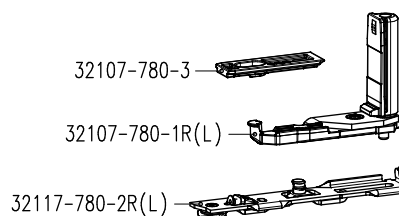
**Hinge set n° 32118-10R(L)**

Fb = 671-1300 mm

Hinge set n° 32117-10R(L)		
1	32117-770R(L)	link arm
1	32107-780-1R(L)	vent part bottom hinge
1	32117-780-2R(L)	frame part bottom hinge
1	32107-780-3	guiding piece bottom hinge

or

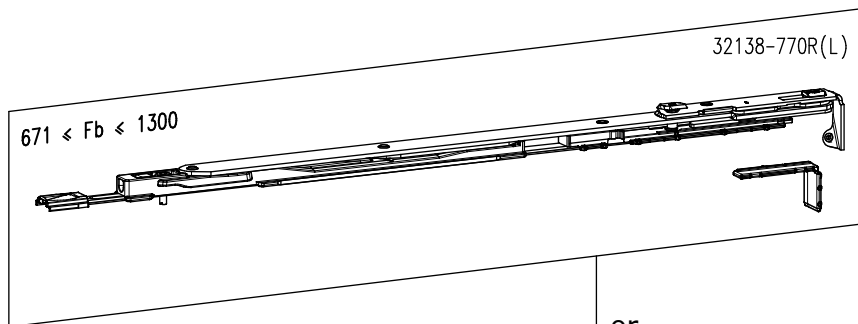
Hinge set n° 32118-10R(L)		
1	32118-770R(L)	link arm
1	32107-780-1R(L)	vent part bottom hinge
1	32117-780-2R(L)	frame part bottom hinge
1	32107-780-3	guiding piece bottom hinge



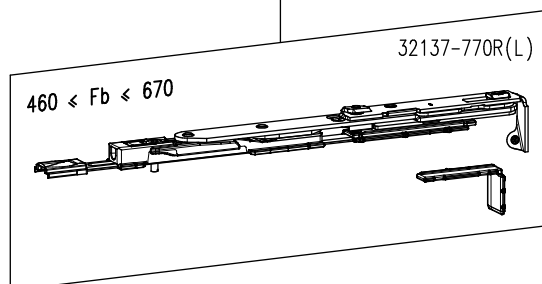


### 5.2. Hinge set for frame groove 10/14 mm

- For a good stability and operation of the window there are two different hinge sets for Chrono Invision Go.
- Vent weight = max. 90 kg.



or



Right hand = illustrated  
Left hand = opposite view

**Hinge set n° 32137-10R(L)**

Fb = 460-670 mm

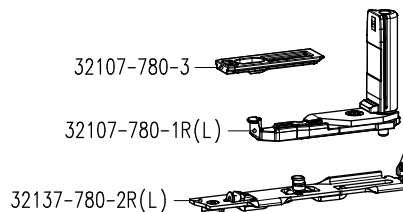
**Hinge set n° 32138-10R(L)**

Fb = 671-1300 mm

Hinge set n° 32137-10R(L)		
1	32137-770R(L)	link arm
1	32107-780-1R(L)	vent part bottom hinge
1	32137-780-2R(L)	frame part bottom hinge
1	32107-780-3	guiding piece bottom hinge

or

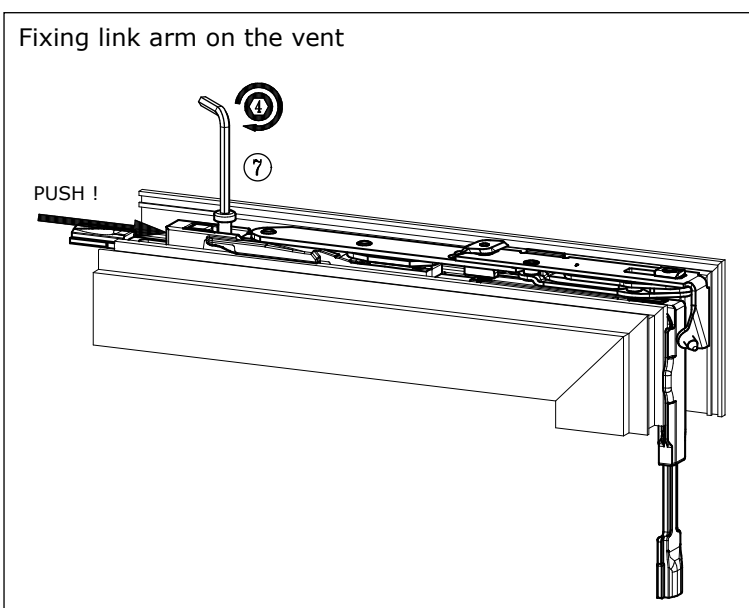
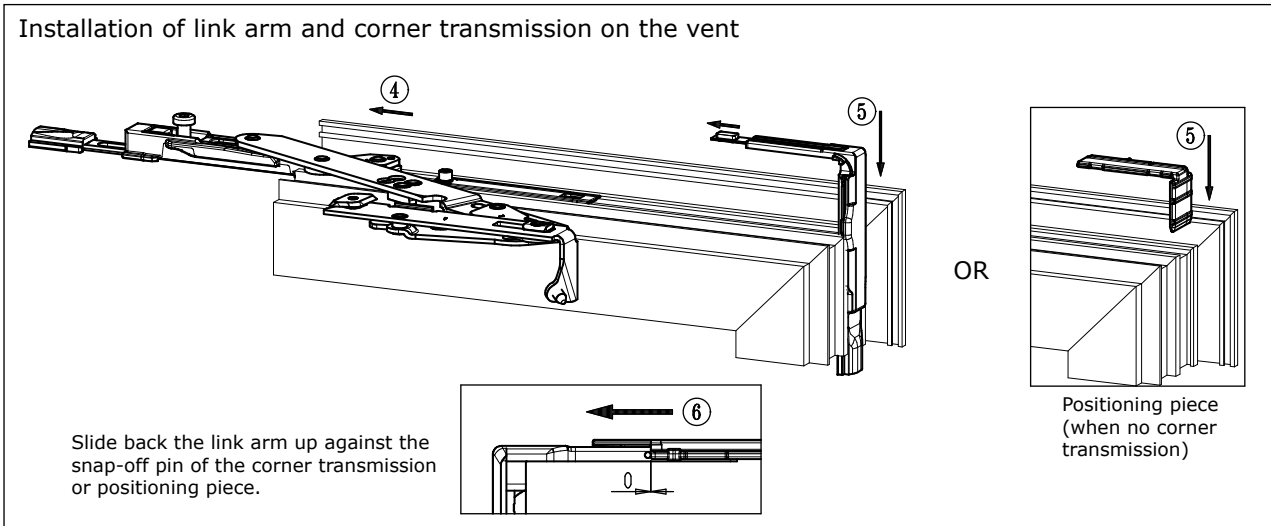
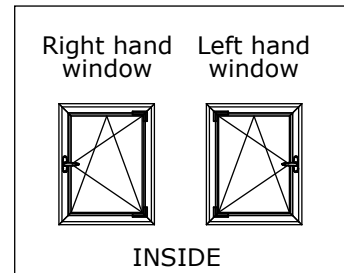
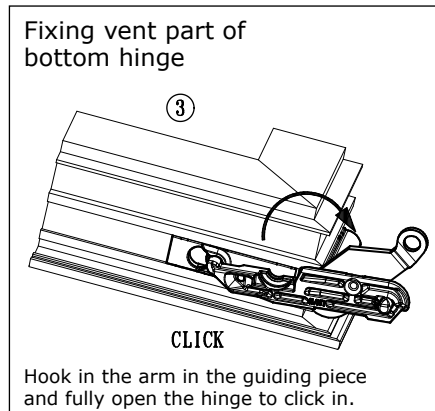
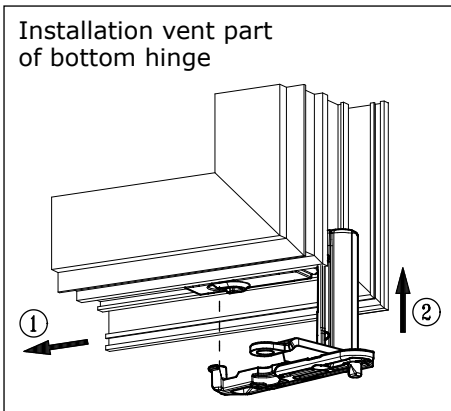
Hinge set n° 32138-10R(L)		
1	32138-770R(L)	link arm
1	32107-780-1R(L)	vent part bottom hinge
1	32137-780-2R(L)	frame part bottom hinge
1	32107-780-3	guiding piece bottom hinge





LINK ARMS AND HINGES

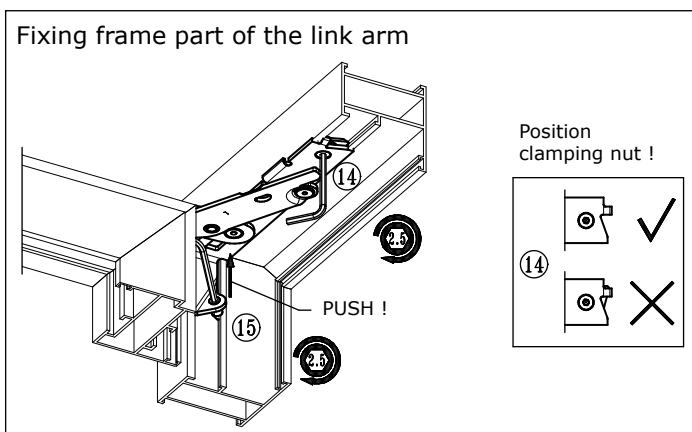
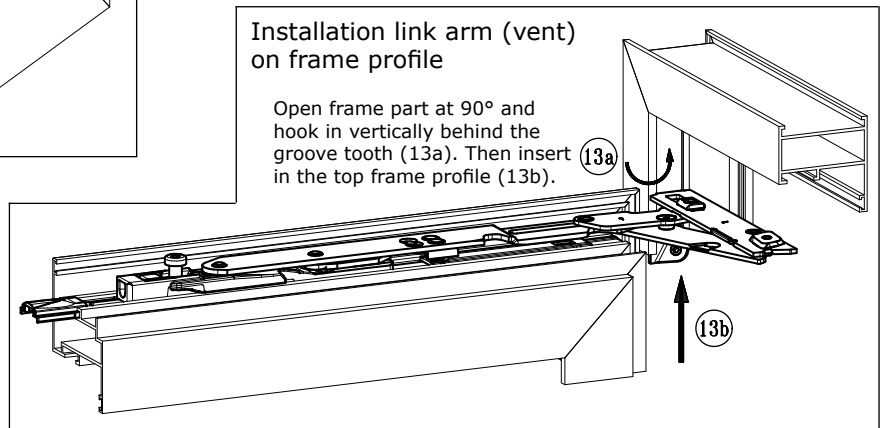
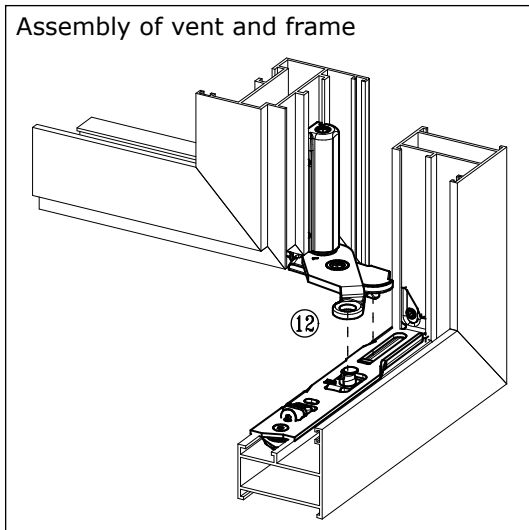
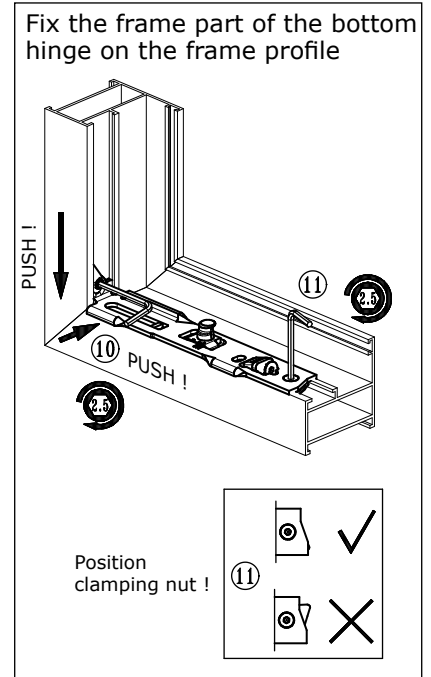
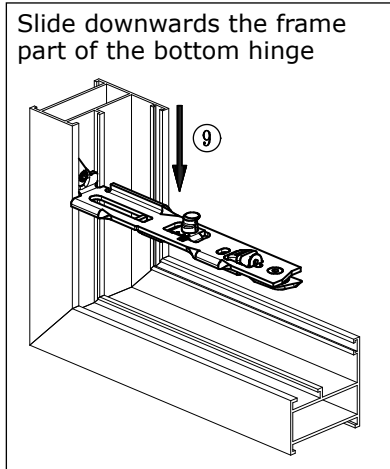
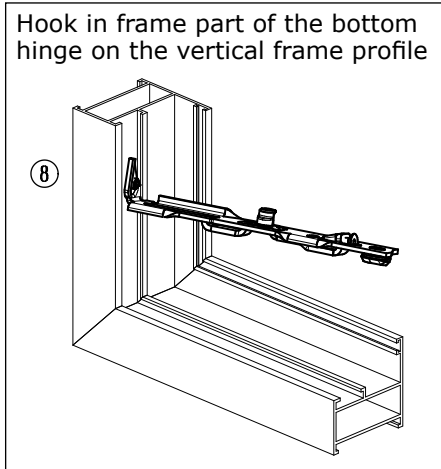
5.3. Installation of hinges







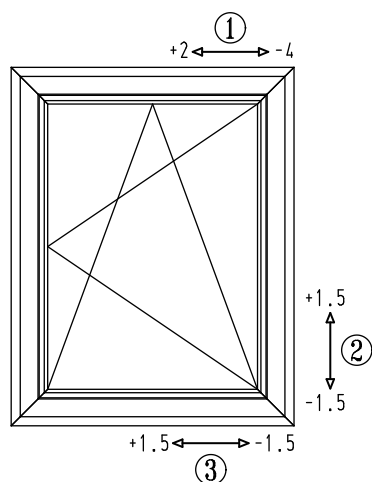
LINK ARMS AND HINGES





## LINK ARMS AND HINGES

### 5.4. Adjustment of hinges



#### Overview adjustments

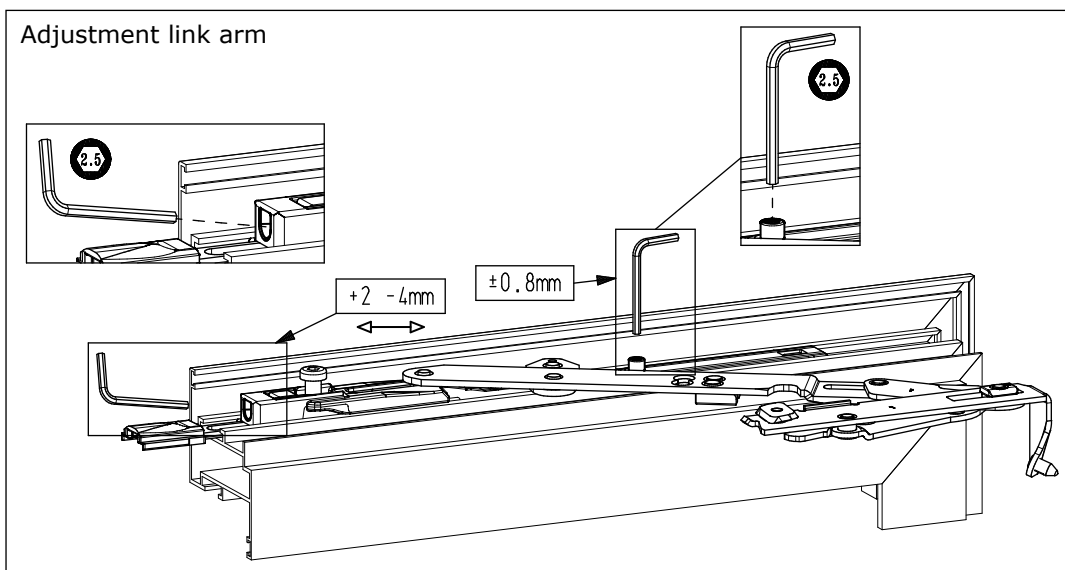
##### Bottom hinge

- Continuous horizontal and vertical adjustment range of  $\pm 1.5$  mm.
- Adjustable without releasing fixing screws and without removing the vent.

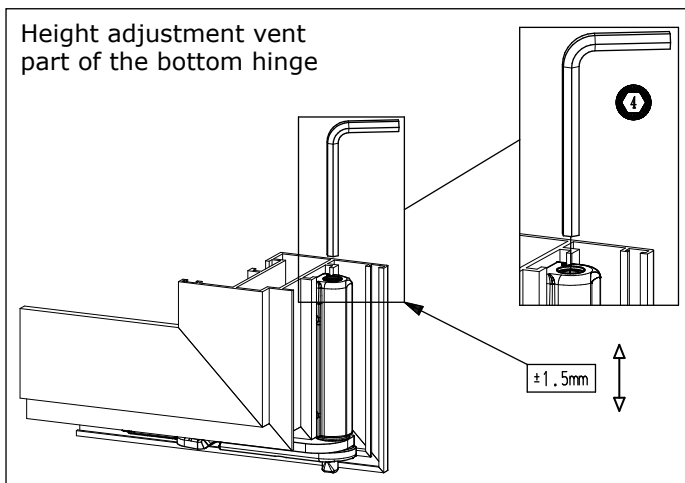
##### Link arm

- Continuous horizontal adjustment range of +2 mm/-4 mm.
- Gasket pressure adjustment of  $\pm 0.8$  mm.

Adjustment link arm



Height adjustment vent part of the bottom hinge



Horizontal adjustment frame part of the bottom hinge

