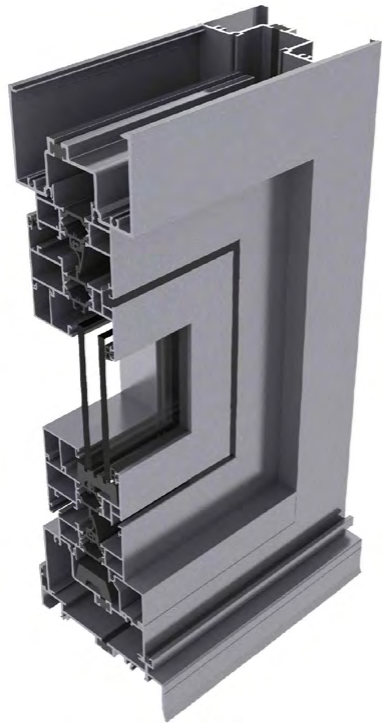


**U-Max™ THERMAL BREAK Tilt & Turn Sash**  
**U-Max Framing Systems: UTNT - 1**

**Tilt & Turn Sash (Tilt First)**



**FEATURES:**

- Quality German manufactured Roto Designo Hardware
- Concealed hinge hardware - only the handle is exposed
- Adaptor suits front, offset or centre glazed suites
- Tilt First - initial operation is tilt, then requires a key to open
- When in tilt position, complies with "kid's can't fly requirements"
- Open Inwards allows cleaning of the sash from inside
- Optional Turn Only (inwards)
- Optional Tilt only (inwards)
- Multi Locking around the sash for added security & windloads
- Screen to outside - better suited to 100 Centre Glaze & 150 Offset
- 130kg Sash weight with concealed hardware
- Capable of 3m High x 1.3m wide Sashes
- Accepts 24mm - 38mm IGU's, sufficient to triple glaze
- Additional bead allows up to 40mm - 50mm glazed or insulated panels

**FABRICATION:**

- Mitre cut
- Stainless Steel Chevron corners which are able to be glued for additional corner strength
- Corner staked & crimped - requires Sash crimp & specialist machining

**PRODUCT APPLICATIONS:**

- Large operable panels, larger than equivalent awning windows
- Ventilation where external obstructions prohibit Sashes opening out
- Security ventilation - Sash projects inwards & difficult to open from outside
- Acoustic applications, can take 18 - 28mm IGU's
- Accepts Operable blinds

**LIMITATION:**

- Sash height must exceed Sash width.  
- a tilt only option may be available in this condition
- Min Sash Height: 555 (590 daylight opening)
- Min Sash Width: 500 (590 daylight opening)
- Max Sash Width: 1300 (1335 daylight opening)
- 150kg sash weight

**HARDWARE SELECTION:**

Selecting the correct hardware for application is determined by many factors that change on a project by project basis. Careful consideration needs to be given to opening type, size & weight, wind loads, location within the building, security, ease of operation, budget, serviceability & aesthetic requirements.

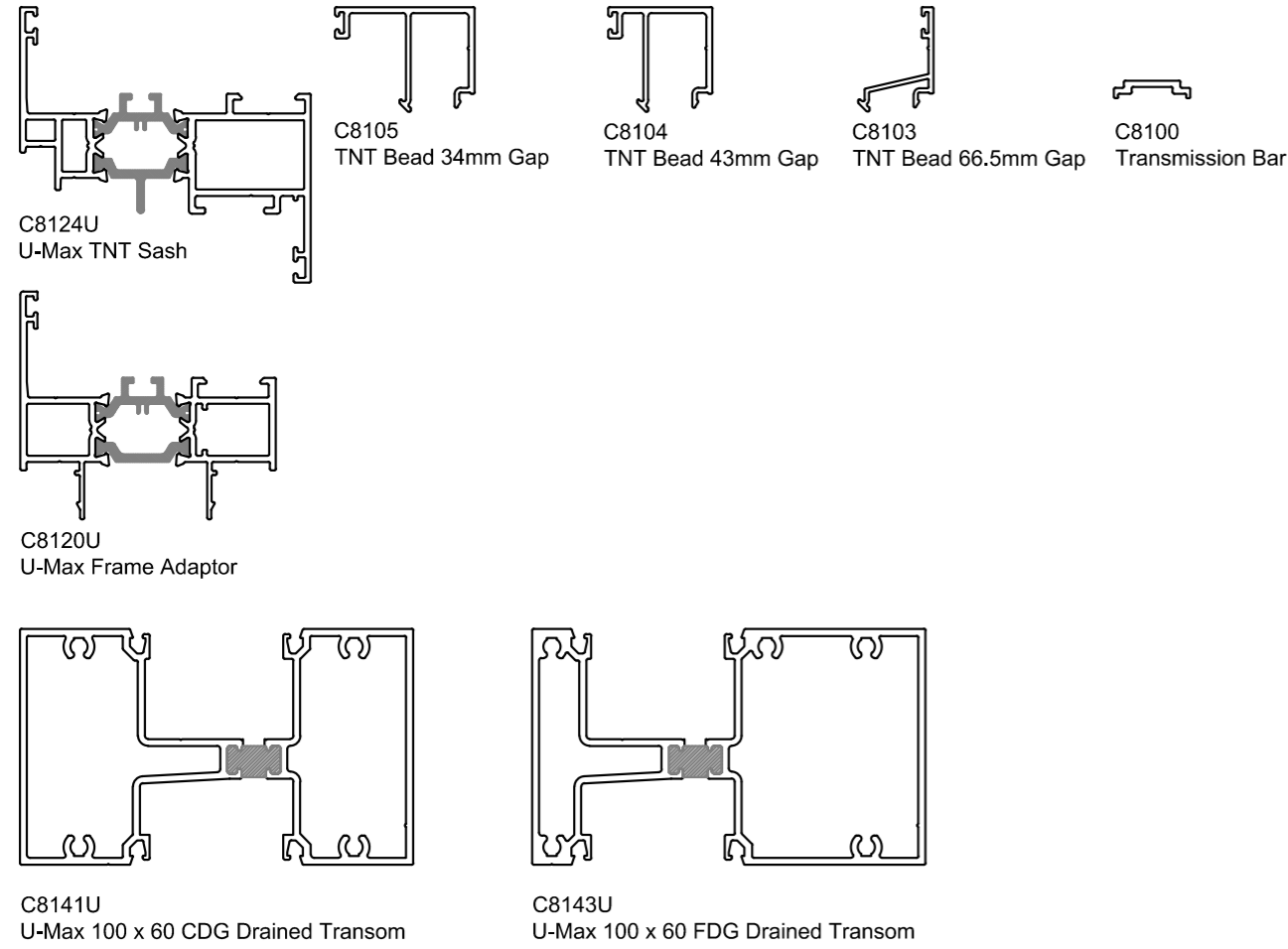
Typical hardware is shown throughout our catalogues to depict opening types & function. There are a range of sash types available to cover a variety of applications. Once the opening type has been selected, it is the responsibility of the fabricator to determine hardware suitability with the hardware manufacturer, ensuring their selection meets project requirements.



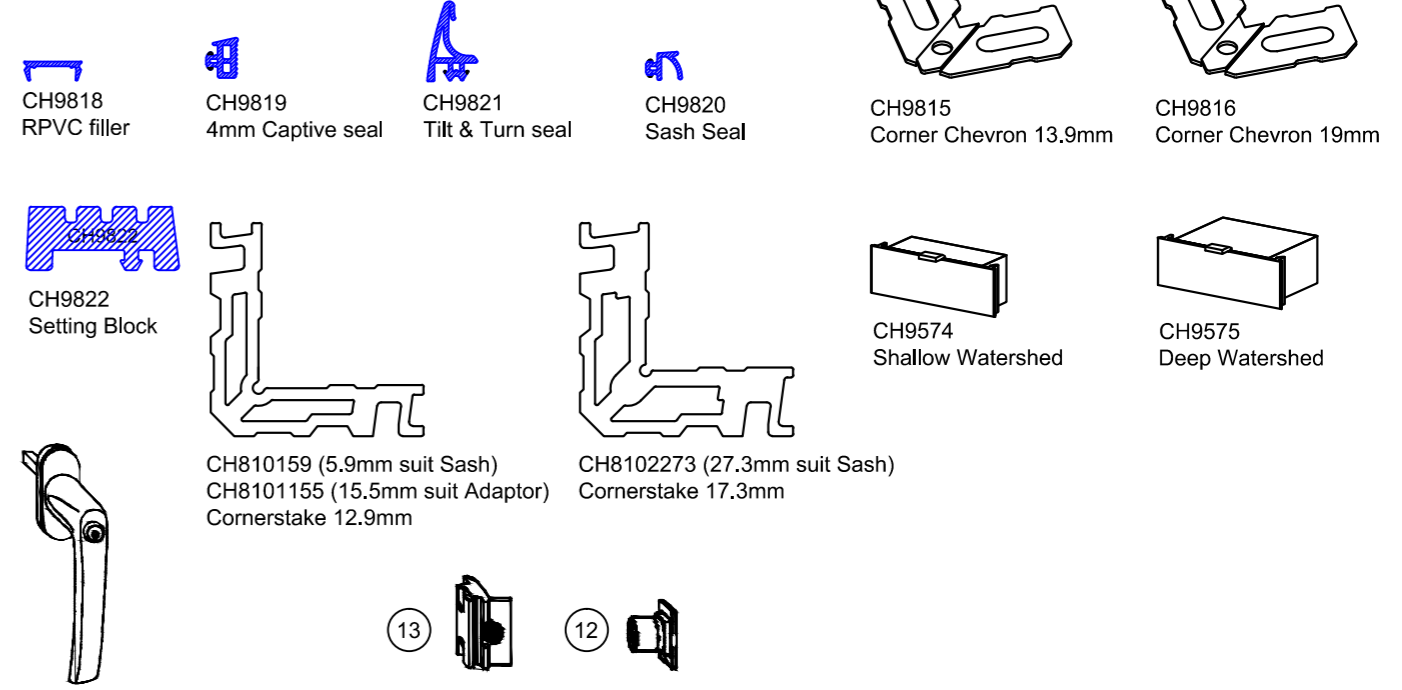
**U-Max™ THERMAL BREAK Tilt & Turn Sash**

**U-Max Framing Systems: UTNT - 2**

**Extrusion ID**



**Component ID**



Rotoline Forked Handle without Fork		
Ref #	Code	Finish
16	CH9830SVR	Silver Powdercoat
16	CH9830WHT	White Powdercoat
16	CH9830TS	Titanium Silver Plated

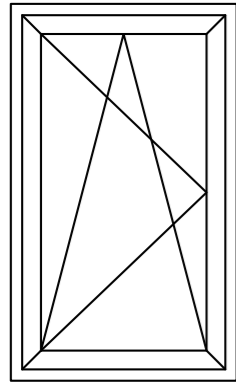


**U-Max™ THERMAL BREAK Tilt & Turn Sash**

**U-Max Framing Systems: UTNT - 3**

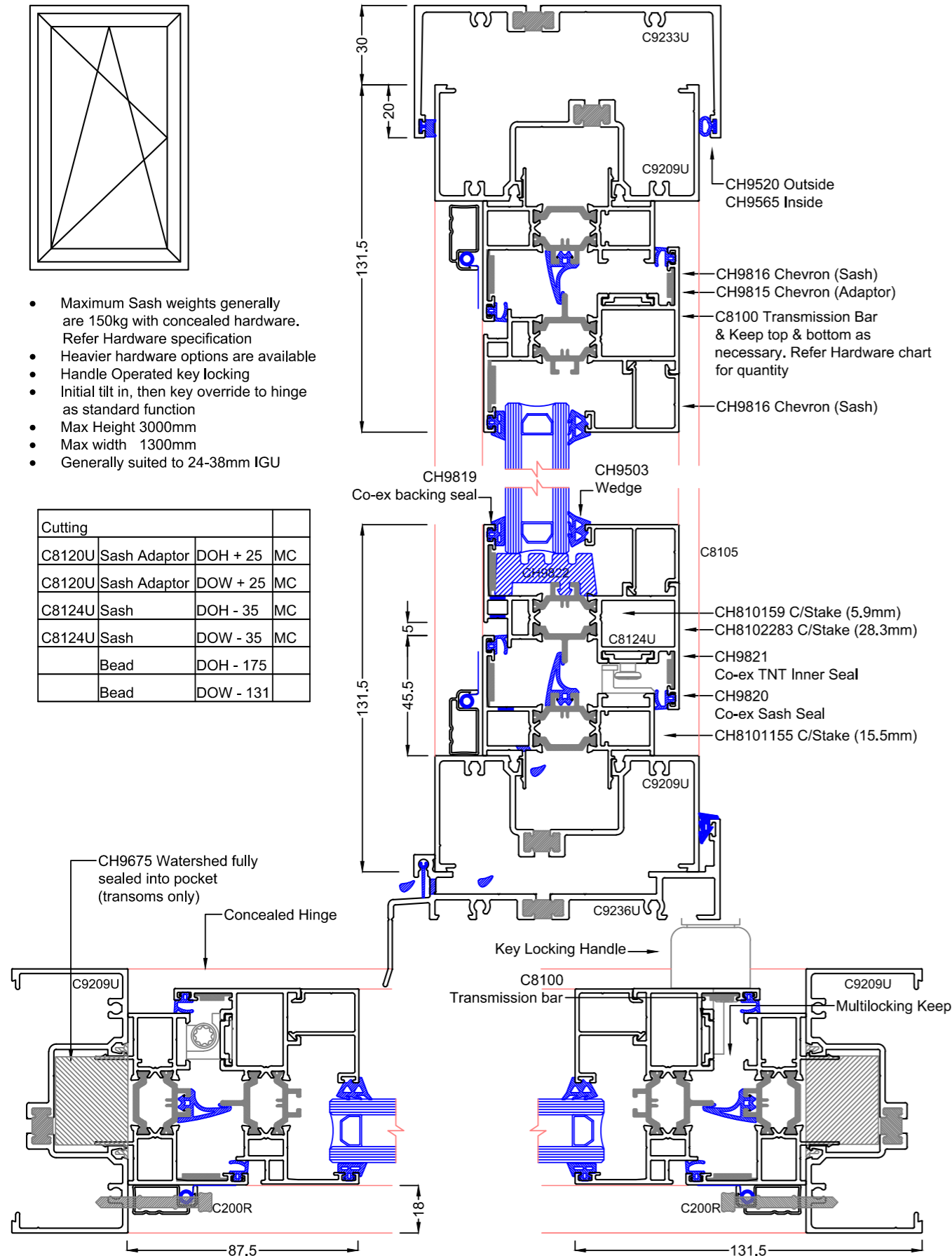
**Tilt & Turn Sash (Tilt First) in 100 Centre Glaze**

44mm Frame shown for clarity, C9200U 60mm frame can also be used



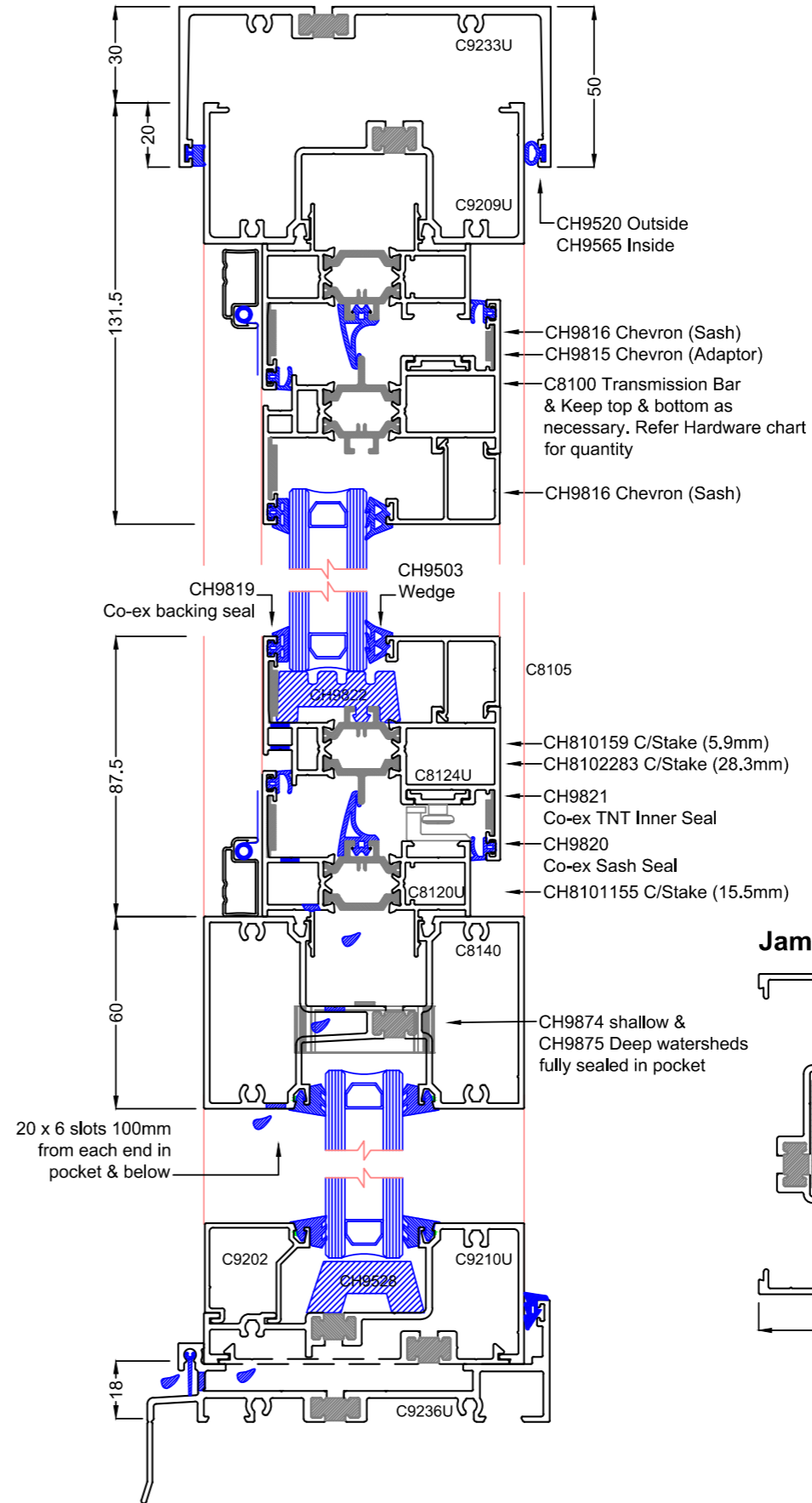
- Maximum Sash weights generally are 150kg with concealed hardware. Refer Hardware specification
- Heavier hardware options are available
- Handle Operated key locking
- Initial tilt in, then key override to hinge as standard function
- Max Height 3000mm
- Max width 1300mm
- Generally suited to 24-38mm IGU

Cutting			
C8120U	Sash Adaptor	DOH + 25	MC
C8120U	Sash Adaptor	DOW + 25	MC
C8124U	Sash	DOH - 35	MC
C8124U	Sash	DOW - 35	MC
	Bead	DOH - 175	
	Bead	DOW - 131	

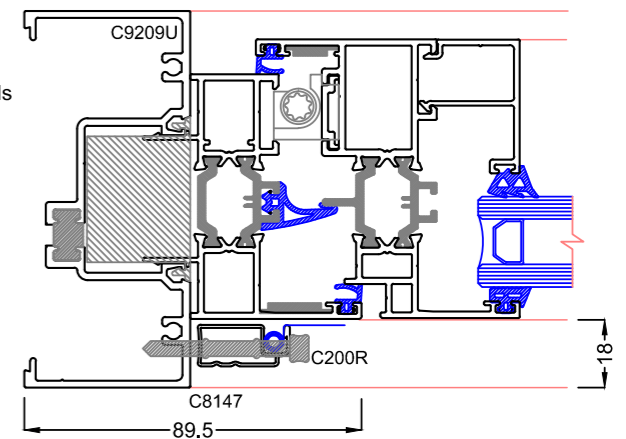


**Tilt & Turn Sash (Tilt First) in 100 Centre Glaze with drained Transom**

44mm Frame shown for clarity, C9200U 60mm frame can also be used



**Jamb Detail with Screen**

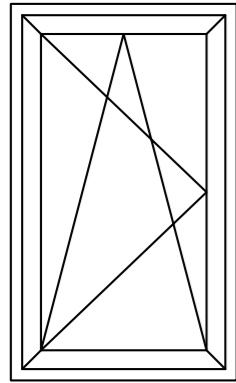


**U-Max™ THERMAL BREAK Tilt & Turn Sash**

**U-Max Framing Systems: UTNT - 4**

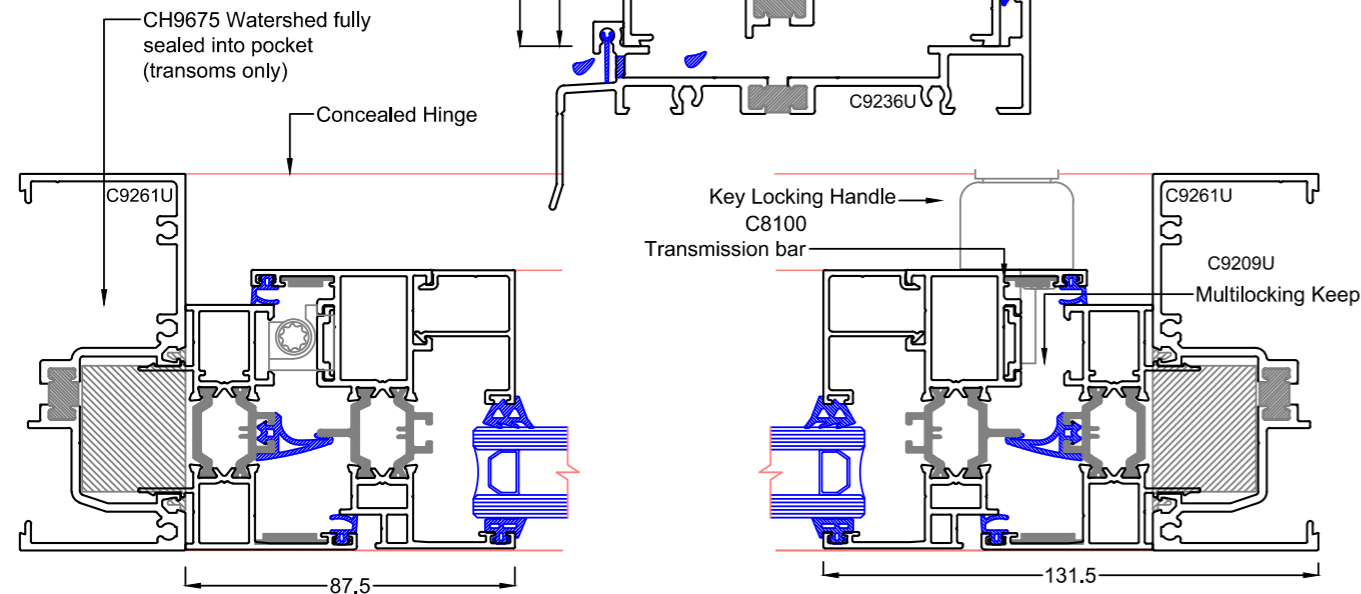
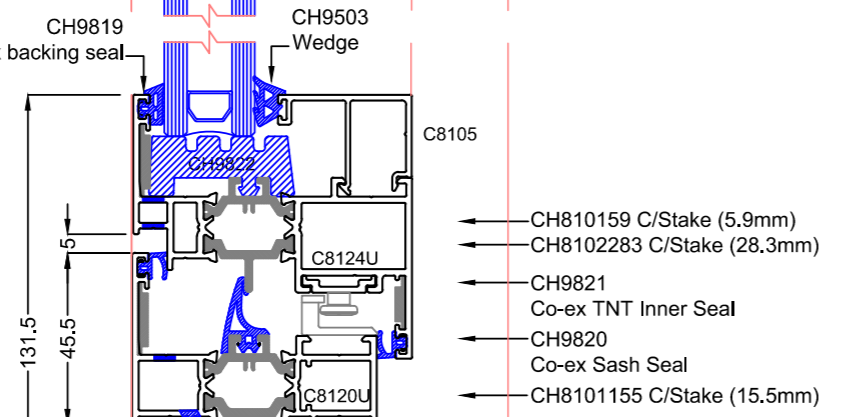
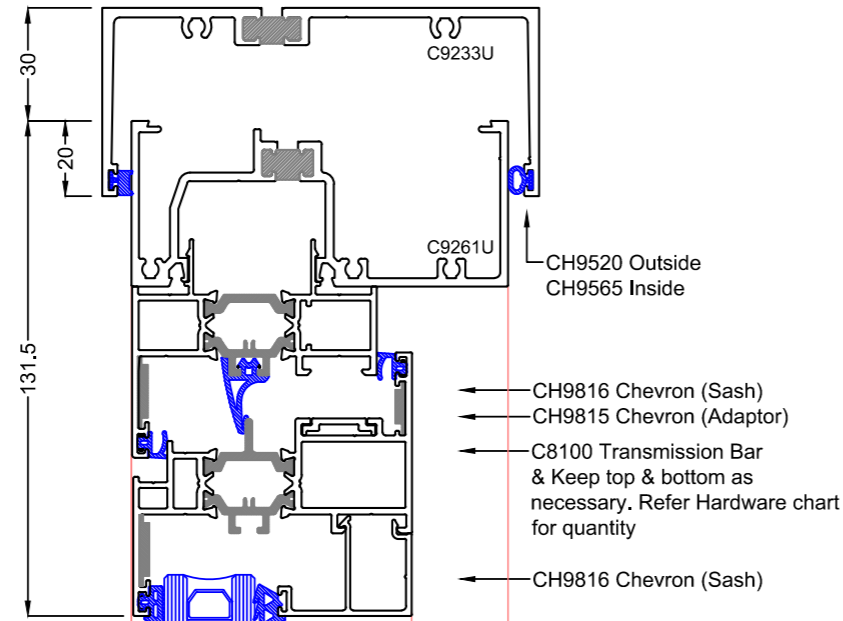
**Tilt & Turn Sash (Tilt First) in 100 Front Glaze**

44mm Frame shown for clarity, C9250U 60mm frame can also be used



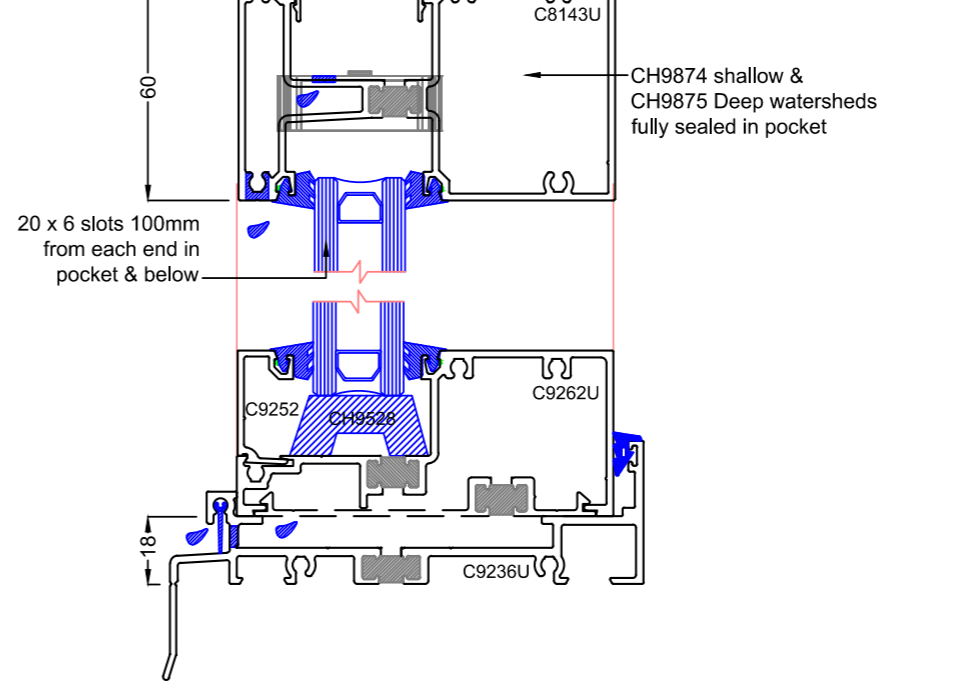
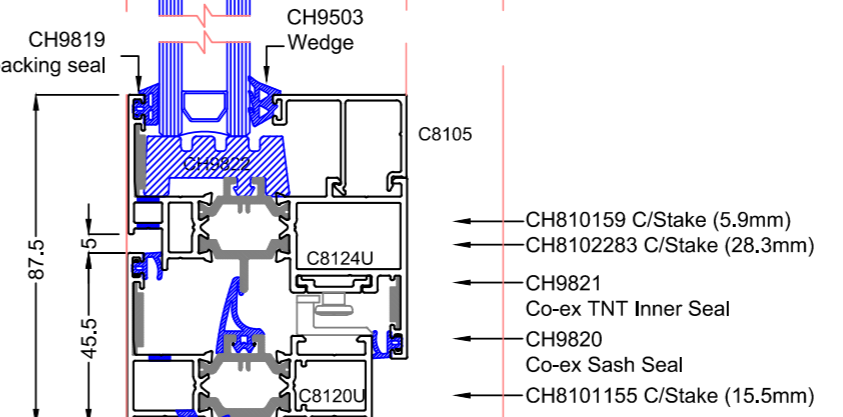
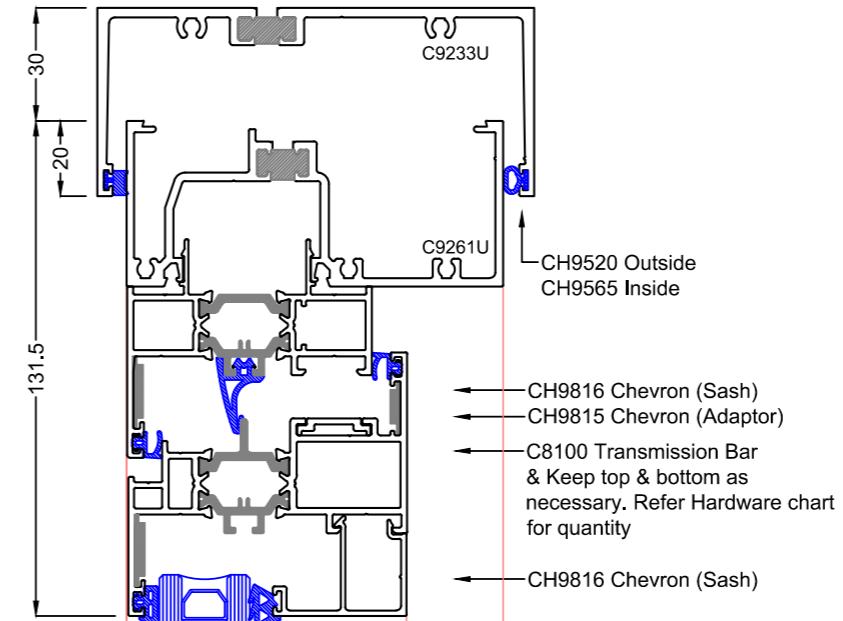
- Maximum Sash weights generally are 150kg with concealed hardware. Refer Hardware specification
- Heavier hardware options are available
- Handle Operated key locking
- Initial tilt in, then key override to hinge as standard function
- Max Height 3000mm
- Max width 1200mm
- Generally suited to 24-28mm IGU

Cutting			
C8120U	Sash Adaptor	DOH + 25	MC
C8120U	Sash Adaptor	DOW + 25	MC
C8124U	Sash	DOH - 35	MC
C8124U	Sash	DOW - 35	MC
	Bead	DOH - 175	
	Bead	DOW - 131	



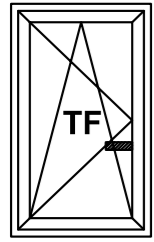
**Tilt & Turn Sash (Tilt First) in 100 Front Glaze with drained Transom**

44mm Frame shown for clarity, C9250U 60mm frame can also be used

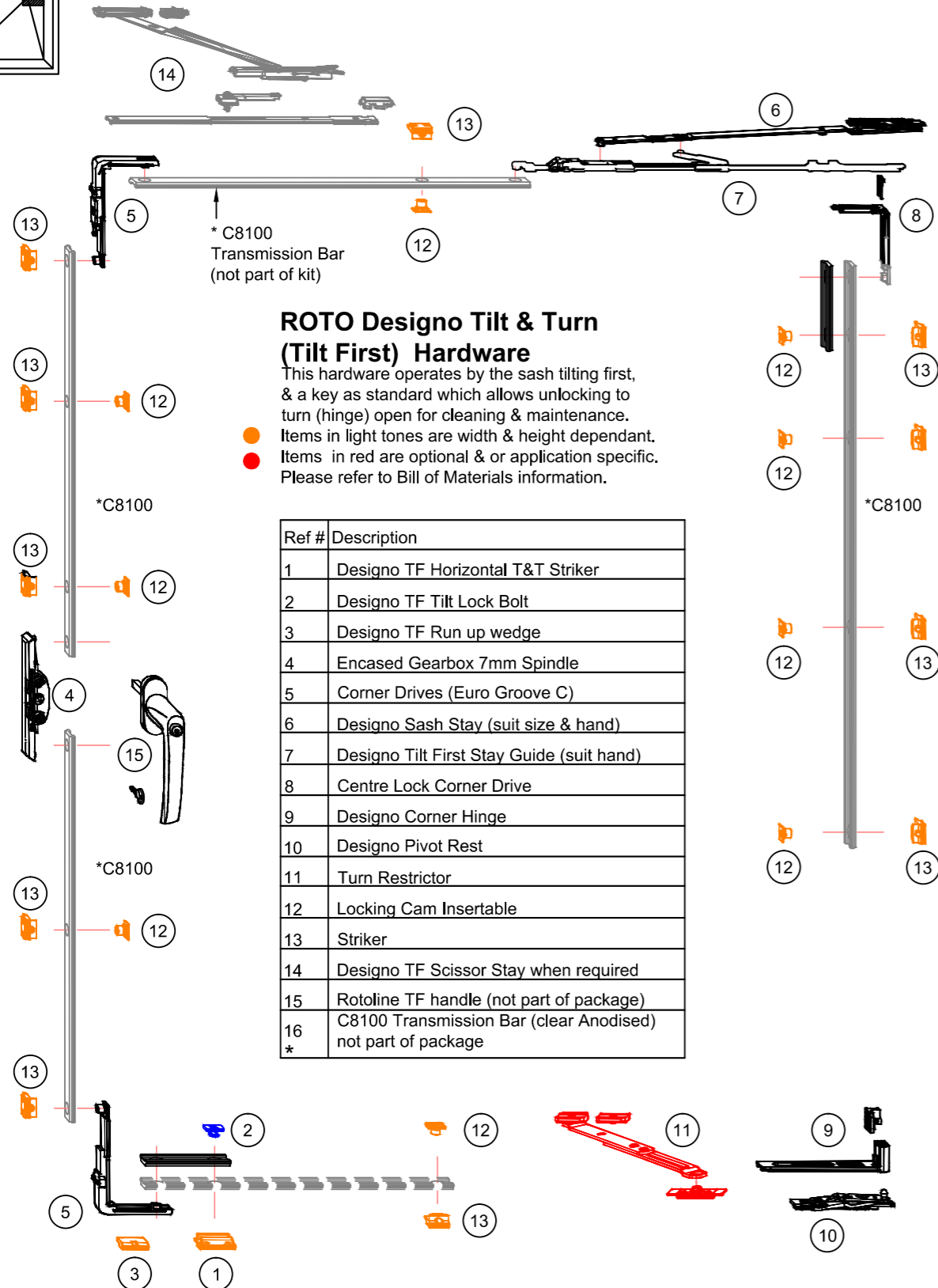




**U-Max™ THERMAL BREAK Tilt & Turn Sash**  
**U-Max Framing Systems: UTNT - 5**  
**Tilt & Turn Hardware ID (Tilt First)**



Left Hand Sash depicted as viewed from Outside.  
The hardware schematic view below however is viewed from Inside.

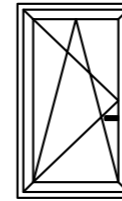


**ROTO Designo Tilt & Turn (Tilt First) Hardware**

This hardware operates by the sash tilting first, & a key as standard which allows unlocking to turn (hinge) open for cleaning & maintenance.  
● Items in light tones are width & height dependant.  
● Items in red are optional & or application specific. Please refer to Bill of Materials information.

Ref #	Description
1	Designo TF Horizontal T&T Striker
2	Designo TF Tilt Lock Bolt
3	Designo TF Run up wedge
4	Encased Gearbox 7mm Spindle
5	Corner Drives (Euro Groove C)
6	Designo Sash Stay (suit size & hand)
7	Designo Tilt First Stay Guide (suit hand)
8	Centre Lock Corner Drive
9	Designo Corner Hinge
10	Designo Pivot Rest
11	Turn Restrictor
12	Locking Cam Insertable
13	Striker
14	Designo TF Scissor Stay when required
15	Rotoline TF handle (not part of package)
16	C8100 Transmission Bar (clear Anodised) not part of package

**Tilt First Left Hand Hardware Packages**

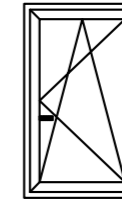


As viewed from Outside  
Hardware is variable dependant on Sash height, width, weight, hand & handle finish.  
Select: Kit + Strike Package + Handle for a complete bill of materials

CHTF1L Designo Tilt First Kit #1 LH Sash Width 500 - 735mm up to 100kg		
Ref #	Description	Qty
1	Designo TF Horizontal T&T Striker (V.01)	1
2	Designo TF Tilt Lock Bolt	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Designo Sash Stay 500R	1
7	Designo Tilt First Stay Guide 500	1
8	Centre Lock Corner Drive	1
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable (Refer strike table)	varies
13	Striker (Refer strike table for additional quantities)	2

CHTF2L Designo Tilt First Kit #2 LH Sash Width 736 - 1300mm up to 100kg		
Ref #	Description	Qty
1	Designo TF Horizontal T&T Striker (V.01)	1
2	Designo TF Tilt Lock Bolt	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Designo Sash Stay 735R	1
7	Designo Tilt First Stay Guide 735	1
8	Centre Lock Corner Drive	1
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable (Refer strike table)	varies
13	Striker (Refer strike table for additional quantities)	2

**Tilt First Right Hand Hardware Packages**



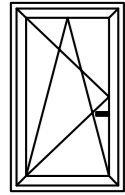
CHTF1R Designo Tilt First Kit #1 RH Sash Width 500 - 735mm up to 100kg		
Ref #	Description	Qty
1	Designo TF Horizontal T&T Striker (V.01)	1
2	Designo TF Tilt Lock Bolt	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Designo Sash Stay 500L	1
7	Designo Tilt First Stay Guide 500	1
8	Centre Lock Corner Drive	1
9	Designo Corner Hinge L	1
10	Designo Pivot Rest L	1
11	Turn Restrictor	1
12	Locking Cam Insertable (Refer strike table)	varies
13	Striker (Refer strike table for additional quantities)	2

CHTF2R Designo Tilt First Kit #2 RH Sash Width 736 - 1300mm up to 100kg		
Ref #	Description	Qty
1	Designo TF Horizontal T&T Striker (V.01)	1
2	Designo TF Tilt Lock Bolt	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Designo Sash Stay 735L	1
7	Designo Tilt First Stay Guide 735	1
8	Centre Lock Corner Drive	1
9	Designo Corner Hinge L	1
10	Designo Pivot Rest L	1
11	Turn Restrictor	1
12	Locking Cam Insertable (Refer strike table)	varies
13	Striker (Refer strike table for additional quantities)	2

**U-Max™ THERMAL BREAK Tilt & Turn Sash**

**U-Max Framing Systems: UTNT - 6**

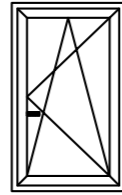
**Tilt First Left Hand Hardware Packages**



Hardware is variable dependant on Sash height, width, weight, hand & handle finish. Select: Kit + Strike Package + Handle for a complete bill of materials

Ref #	Description	Qty
1	Designo TF Horizontal T&T Striker (V.01)	1
2	Designo TF Tilt Lock Bolt	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Designo Sash Stay 735R	1
7	Designo Tilt First Stay Guide 735	1
8	Centre Lock Corner Drive	1
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable not incl (Refer strike table)	
13	Striker (Refer strike table for additional quantities)	2
14	Designo TF Additional Scissor Stay (V.01)	1

**Tilt First Right Hand Hardware Packages**



Ref #	Description	Qty
1	Designo TF Horizontal T&T Striker (V.01)	1
2	Designo TF Tilt Lock Bolt	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Designo Sash Stay 735L	1
7	Designo Tilt First Stay Guide 735	1
8	Centre Lock Corner Drive	1
9	Designo Corner Hinge L	1
10	Designo Pivot Rest L	1
11	Turn Restrictor	1
12	Locking Cam Insertable not incl (Refer strike table)	
13	Striker (Refer strike table for additional quantities)	2
14	Designo TF Additional Scissor Stay (V.01)	1



CH9834 Eurogroove Striker Package includes Striker & Locking Cam

CH9834 Striker Package: Quantity varies by Sash Height & Width					
Height					
<700mm					
700 - 1600mm	0	2W	2	2H, 2W	4
1601 - 2000mm	2H	2	2H, 2W	4	2H, 4W
2001 - 2400mm	4H	4	4H, 2W	6	4H, 4W
1601 - 2400mm	6H	6	6H, 2W	8	6H, 4W
2400 - 3000mm	8H	8	8H, 2W	10	8H, 4W
Width	600 - 1000mm	1001 - 1300mm	1301 - 1600mm		

**Example for Ordering**

1800 x 1200 Left Hand, white Handle  
CHTF2L Kit + CH9830WHT Handle + 4 x CH9834 strike

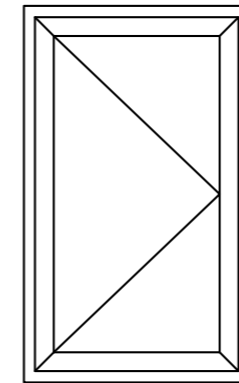


CH9830 Tilt First Handle key locking Sold Separate to kits

Rotoline Tilt First Handle with spindle		
Ref #	Code	Finish
9	CH9830SVR	Silver Powdercoat
9	CH9830WHT	White Powdercoat
9	CH9830TSVR	Titanium Silver Plated

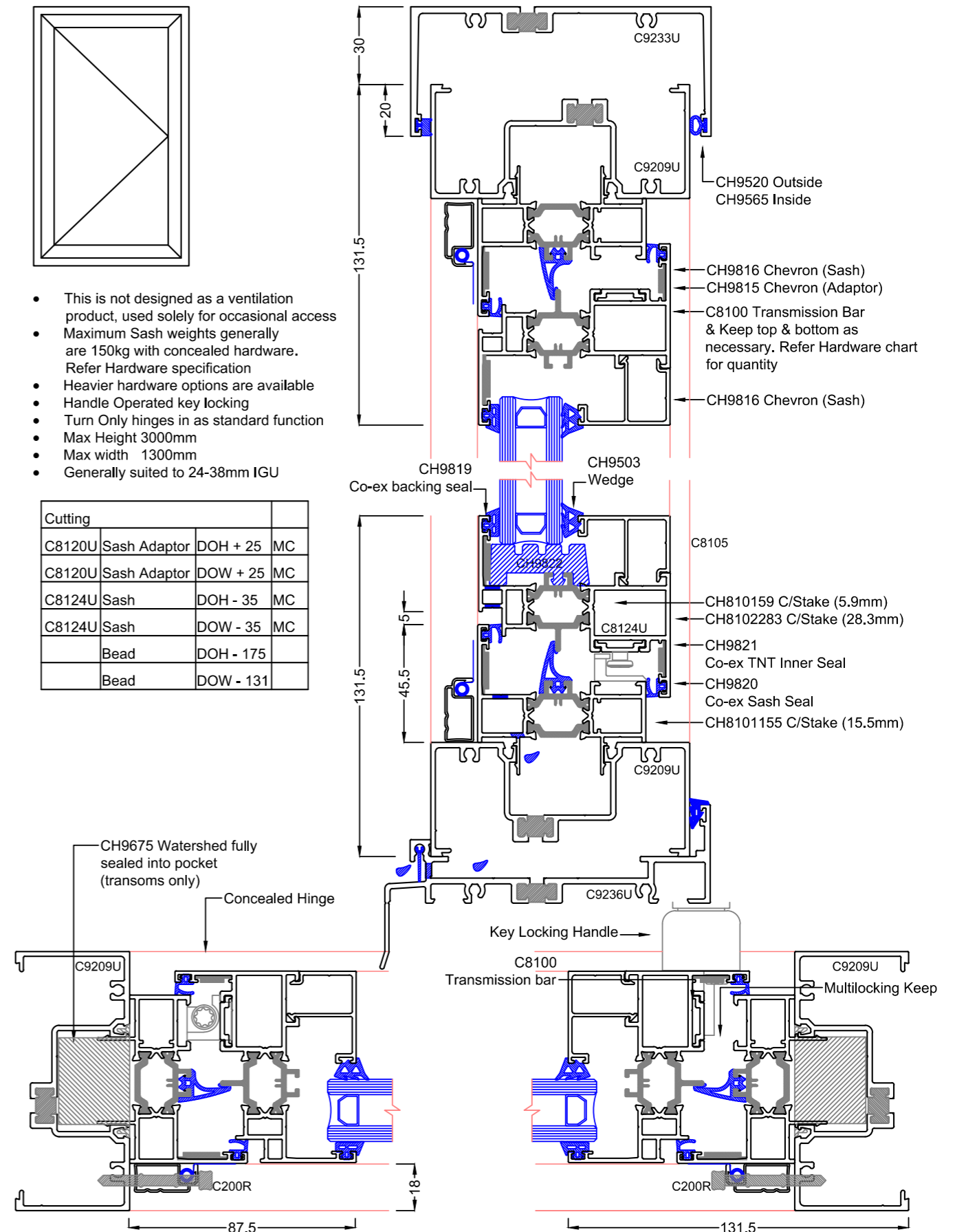
**Turn Only Sash in 100 Centre Glaze**

44mm Frame shown for clarity, C9200U 60mm frame can also be used



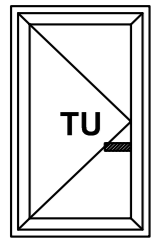
- This is not designed as a ventilation product, used solely for occasional access
- Maximum Sash weights generally are 150kg with concealed hardware. Refer Hardware specification
- Heavier hardware options are available
- Handle Operated key locking
- Turn Only hinges in as standard function
- Max Height 3000mm
- Max width 1300mm
- Generally suited to 24-38mm IGU

Cutting			
C8120U	Sash Adaptor	DOH + 25	MC
C8120U	Sash Adaptor	DOW + 25	MC
C8124U	Sash	DOH - 35	MC
C8124U	Sash	DOW - 35	MC
	Bead	DOH - 175	
	Bead	DOW - 131	



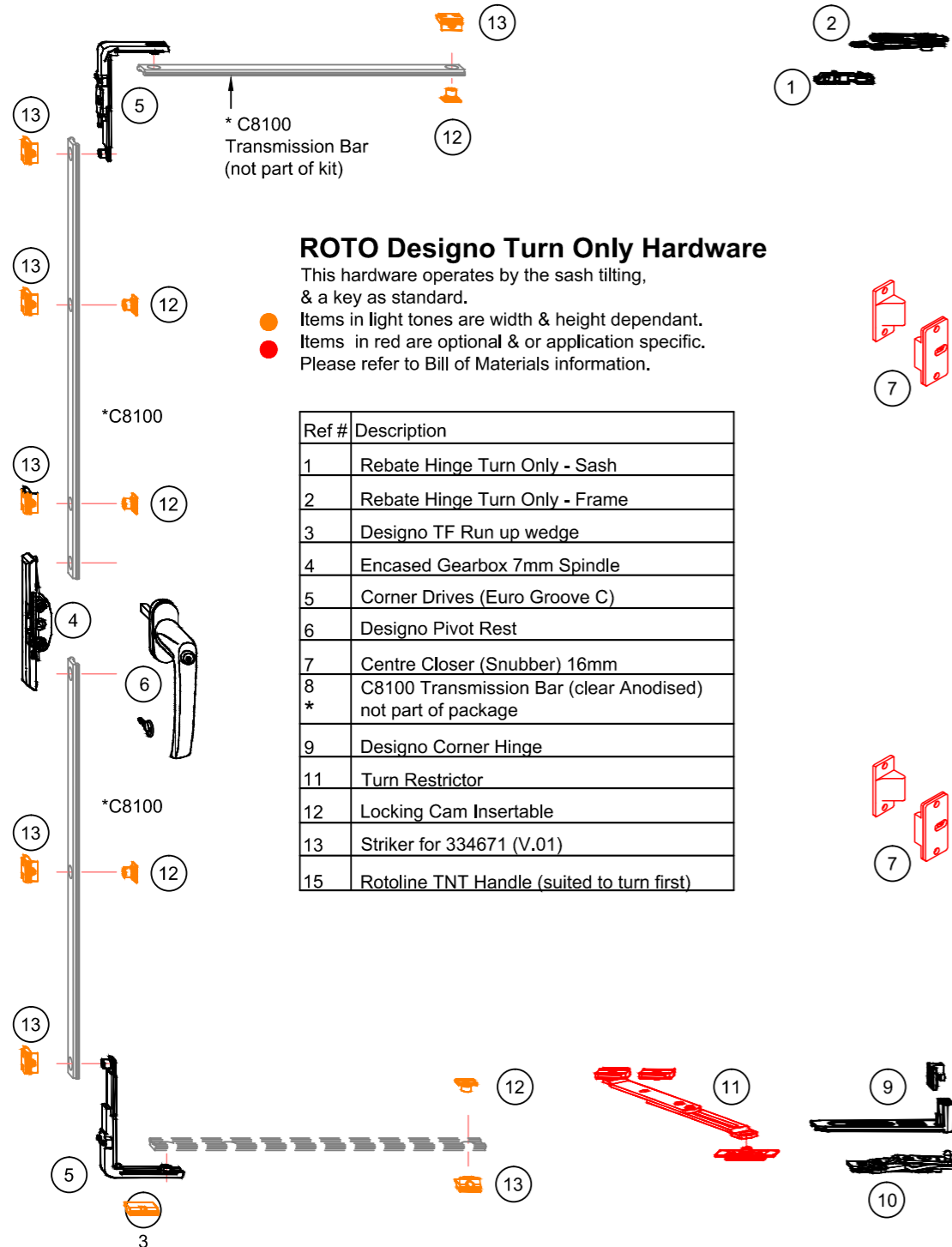


**U-Max™ THERMAL BREAK Tilt & Turn Sash**  
**U-Max Framing Systems: UTNT - 7**  
**Turn Only Hardware ID**



Windows as viewed from outside.  
The hardware schematic view below however is viewed from Inside.

- This is not designed as a ventilation product, used solely for occasional access
- Maximum Sash weights generally are 150kg with concealed hardware. Refer Hardware specification
- Heavier hardware options are available
- Handle Operated key locking
- Tilt only function
- Max Height 3000mm
- Max width 1300mm
- Generally suited to 24-38mm IGU

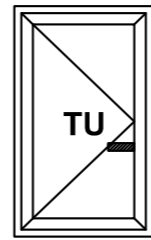


**ROTO Designo Turn Only Hardware**

This hardware operates by the sash tilting, & a key as standard.  
● Items in light tones are width & height dependant.  
● Items in red are optional & or application specific.  
Please refer to Bill of Materials information.

Ref #	Description
1	Rebate Hinge Turn Only - Sash
2	Rebate Hinge Turn Only - Frame
3	Designo TF Run up wedge
4	Encased Gearbox 7mm Spindle
5	Corner Drives (Euro Groove C)
6	Designo Pivot Rest
7	Centre Closer (Snubber) 16mm
8	C8100 Transmission Bar (clear Anodised) not part of package
9	Designo Corner Hinge
11	Turn Restrictor
12	Locking Cam Insertable
13	Striker for 334671 (V.01)
15	Rotoline TNT Handle (suited to turn first)

**Turn Only Left Hand Hardware Packages**



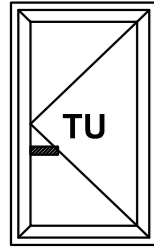
Windows as viewed from outside.  
The hardware schematic view below however is viewed from Inside.

Ref #	Description	Qty
1	Rebate Hinge Turn Only - Sash	1
2	Rebate Hinge Turn Only - Frame	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Rotoline TNT Handle (not in kit)	-
7	Centre Closer (Snubber) 16mm	-
8	Transmission Bar (not in kit)	-
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable (Refer strike table)	varies
13	Striker (Refer strike table for additional quantities)	2

Ref #	Description	Qty
1	Rebate Hinge Turn Only - Sash	1
2	Rebate Hinge Turn Only - Frame	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Rotoline TNT Handle (not in kit)	-
7	Centre Closer (Snubber) 16mm	3
8	Transmission Bar (not in kit)	-
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable not incl (Refer strike table)	
13	Striker (Refer strike table for additional quantities)	2

Ref #	Description	Qty
1	Rebate Hinge Turn Only - Sash	1
2	Rebate Hinge Turn Only - Frame	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Rotoline TNT Handle (not in kit)	-
7	Centre Closer (Snubber) 16mm	1
8	Transmission Bar (not in kit)	-
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable not incl (Refer strike table)	
13	Striker (Refer strike table for additional quantities)	2

**U-Max™ THERMAL BREAK Tilt & Turn Sash**  
**U-Max Framing Systems: UTNT - 8**  
**Turn Only Right Hand Hardware Packages**



Windows as viewed from outside.  
The hardware schematic view below  
however is viewed from inside.

Ref #	Description	Qty
CHTO1R Designo Tilt Only Kit #1 RH Sash Height 500 - 1600mm up to 100kg Sash width must not exceed $\frac{2}{3}$ of sash height		
1	Rebate Hinge Turn Only - Sash	1
2	Rebate Hinge Turn Only - Frame	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Rotoline TNT Handle (not in kit)	-
7	Centre Closer (Snubber) 16mm	-
8	Transmission Bar (not in kit)	-
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable (Refer strike table)	varies
13	Striker (Refer strike table for additional quantities)	2

Ref #	Description	Qty
CHTO3R Designo Tilt Only Kit #3 RH Sash Height 2101 - 3000mm up to 100kg Sash Width must not exceed 1300mm		
1	Rebate Hinge Turn Only - Sash	1
2	Rebate Hinge Turn Only - Frame	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Rotoline TNT Handle (not in kit)	-
7	Centre Closer (Snubber) 16mm	3
8	Transmission Bar (not in kit)	-
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable not incl (Refer strike table)	
13	Striker (Refer strike table for additional quantities)	2

Ref #	Description	Qty
CHTO3R Designo Tilt Only Kit #3 RH Sash Height 1601 - 2100mm up to 100kg Sash Width must not exceed $\frac{2}{3}$ of sash width & <1300mm		
1	Rebate Hinge Turn Only - Sash	1
2	Rebate Hinge Turn Only - Frame	1
3	Designo TF Run up wedge (V.01)	1
4	Encased Gearbox 7mm Spindle	1
5	Corner Drives (Euro Groove C)	2
6	Rotoline TNT Handle (not in kit)	-
7	Centre Closer (Snubber) 16mm	1
8	Transmission Bar (not in kit)	-
9	Designo Corner Hinge R	1
10	Designo Pivot Rest R	1
11	Turn Restrictor	1
12	Locking Cam Insertable not incl (Refer strike table)	
13	Striker (Refer strike table for additional quantities)	2



CH9831  
Tilt & Turn (Turn First) Handle  
key locking  
Sold Separate to kits

Ref #	Code	Finish
6	CH9831SVR	Silver Powdercoat
6	CH9831WHT	White Powdercoat
6	CH9831TSVR	Titanium Silver Plated

**Striker Packages**



CH9834  
Eurogroove Striker Package  
includes Striker & Locking Cam

CH9834 Striker Package: Quantity varies by Sash Height & Width				
Height				
<700mm				
700 - 1600mm	0	2W	2	2H, 2W 4
1601 - 2000mm	2H	2	2H, 2W	4 2H, 4W 6
2001 - 2400mm	4H	4	4H, 2W	6 4H, 4W 8
1601 - 2400mm	6H	6	6H, 2W	8 6H, 4W 10
2400 - 3000mm	8H	8	8H, 2W	10 8H, 4W 12
Width	600 - 1000mm	1001 - 1300mm	1301 - 1600mm	

**Example for Ordering**

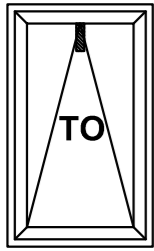
1800 x 1200 Left Hand, white Handle  
CHTF2L Kit + CH9830WHT Handle + 4 x CH9834 strike



## U-Max™ THERMAL BREAK Tilt & Turn Sash

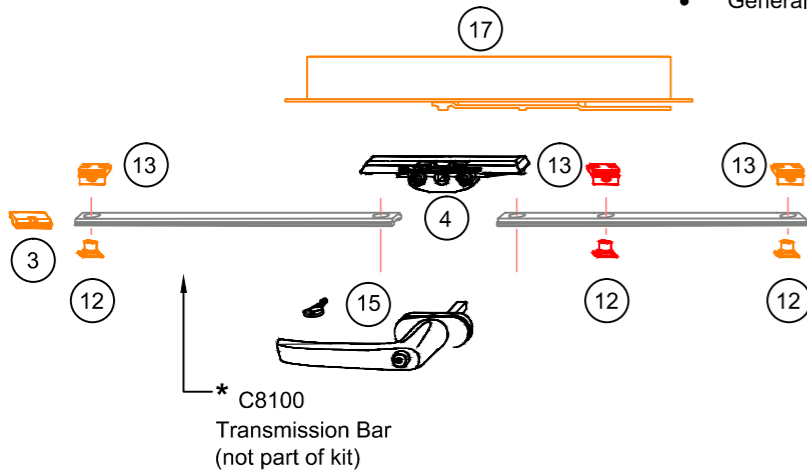
### U-Max Framing Systems: UTNT - 9

#### Tilt Only Hardware (Handle on Top)



Windows as viewed from outside. The hardware schematic view below however is viewed from Inside. Note that a handle is usually fitted at the top for this product. Tilt only windows are often used as highlights & can be fitted with Roto E-Tech motorised operators (concealed in head).

- Maximum Sash weights generally are 100kg with concealed hardware. Refer Hardware specification
- Tilt in only function
- Handle Top mounted, key locking
- Optional E-Tech Motorised operator
- Sash Height 500mm min, 1300mm max
- Sash Width 520mm min, 1600mm max
- Generally suited to 24-38mm IGU



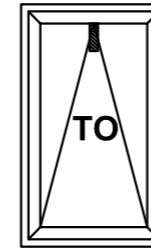
#### ROTO Designo Tilt Only Hardware (Handle at top)

This hardware operates by the sash tilting inward, with a key as standard.

- Items in light tones are width dependant.
- Items in red are optional & or application specific. Please refer to Bill of Materials information.

Ref #	Description
1	Rebate Hinge Tilt Only (Frame)
2	Rebate Hinge Tilt Only (Sash)
3	Designo TF Run up wedge
4	Encased Gearbox 7mm Spindle
5	Stay Arm Tilt Only (Frame & Sash)
7	Centre Closer (Snubber)
12	Locking Cam Insertable
13	Striker for 334671 (V.01)
15	Rotoline Window handle (not part of package)
16*	C8100 Transmission Bar (clear Anodised) not part of package
17	Roto E-Tech Motorised Operator (not part of package)

#### Tilt Only Hardware Packages



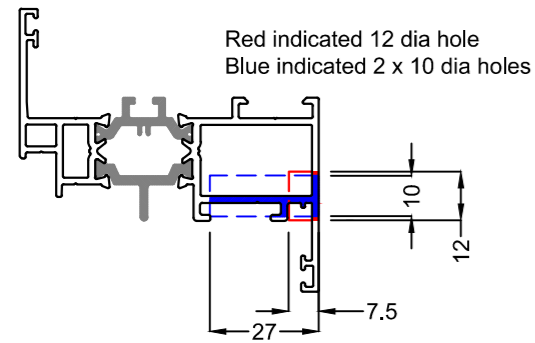
Hardware is variable dependant on Sash height, width, weight, & handle finish. The handle is generally fitted to the top of the sash which does not impact on hardware selection. Select: Kit + Strike Package + Handle for a complete bill of materials

Ref #	Description	Qty
1	Rebate Hinge Tilt Only (Frame)	Pair
2	Rebate Hinge Tilt Only (Sash)	2
3	Designo TF Run up wedge	1
5	Stay Arm Tilt Only (Frame & Sash)	2
5	Locking Cam Insertable	2
13	Striker for 33671 (V.01)	2
15	Rotoline Window handle (not part of package)	
17	E-Tech Motorised unit (not part of package)	

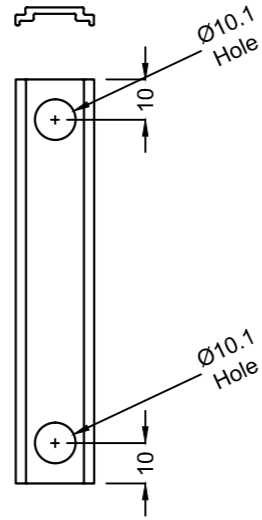
**U-Max™ THERMAL BREAK Tilt & Turn Sash**

**U-Max Framing Systems: UTNT - 10**

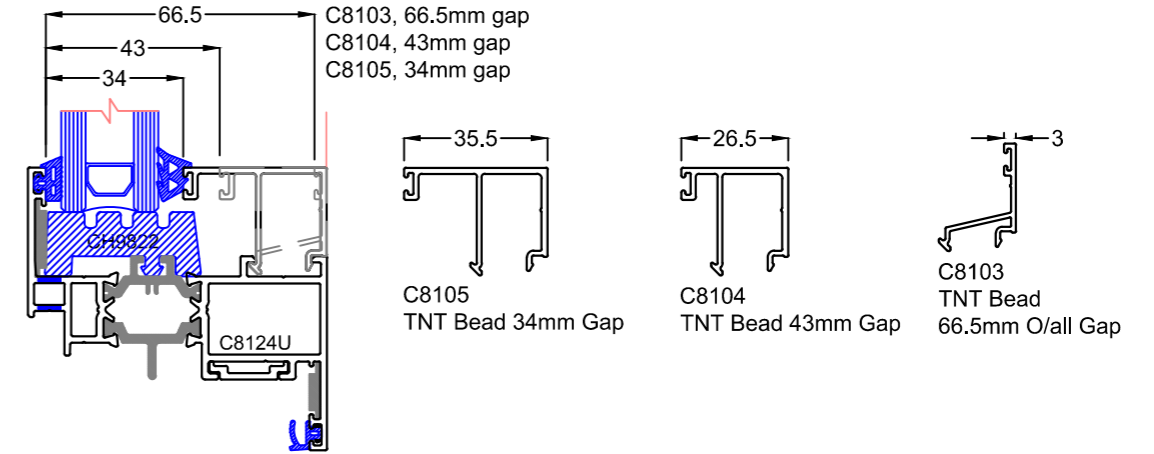
**Sash Machining**



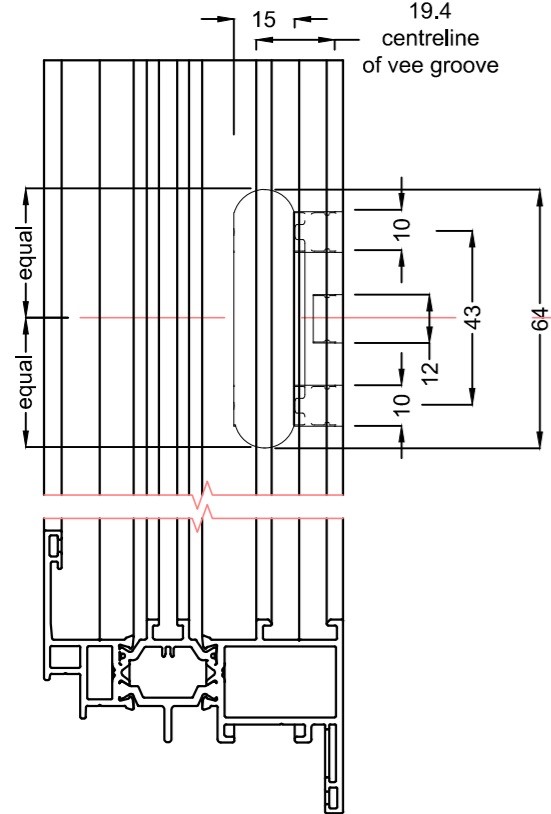
**Transmission Bar Machining**



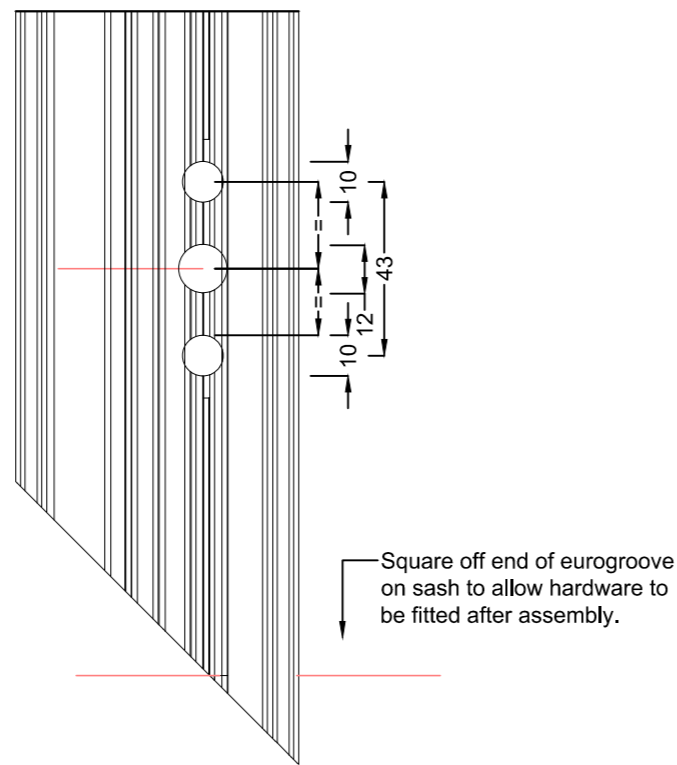
**Sash Glazing Details**



**End face of sash**



**Back face of sash**



**Glazing Wedge selection**

U-Max Tilt & Turn Sash	Glass thickness	Example	Bead	Pocket	Glazing wedge	Gap
	24mm	6/12/6	C8105	34mm	CH9503	6mm
	26mm	6/14/6	C8105	34mm	CH9501	4mm
	28mm	8/12/8	C8105	34mm	CH9500	2mm
	36mm	4/12/4/12/4	C8104	43mm	CH9503	7mm
	38mm	6/12/4/12/4	C8104	43mm	CH9502	5mm
	38mm	6/10/6/10/6	C8104	43mm	CH9502	5mm
	60mm	-	C8103	66.5mm	CH9503	7mm
	64mm	-	C8103	66.5mm	CH9500	3mm

**Glazing Wedges**

