comar5P.*i*

TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.01**

SUB TITLE **STANDARDS**

COMAR 5 P.*i* - TILT/TURN, BOTTOM & SIDE HUNG OPEN-IN WINDOW

A thermally broken window system with an external flush-face vent incorporating a central weather gasket and inner rebate air-seal gasket.
A standard 21mm Euro-groove is incorporated for a variety of hardware components.

MATERIALS

Extruded aluminium profiles are aluminium alloy 6063 T5 or T6 to BS EN 12020 & BS EN 755 tempered to BS EN 515. Gaskets are extruded from E.P.D.M to BS 4255-1 and PVC to BS 7412.

FINISHES

Aluminium profiles are finished to the following specifications: Silver, Bronze and Black anodising to BS EN 12373 or BS 3987. Liquid organic coating is to BS 4842. Polyester powder coating is to BS 6496.

CONSTRUCTION

The sash frame is constructed with mitre joints and inserted cleats. The main cleat can be either crimped or tightened with an eccentric cam. The second cleat in the front part of the profile is pinned. Multi-light transoms and mullions are secured with No.8 screws into integral ports or with cleats and additional dowel pins.

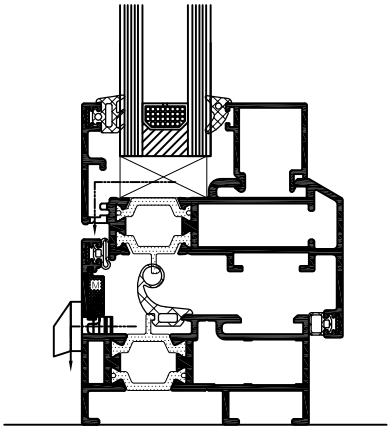
GLAZING

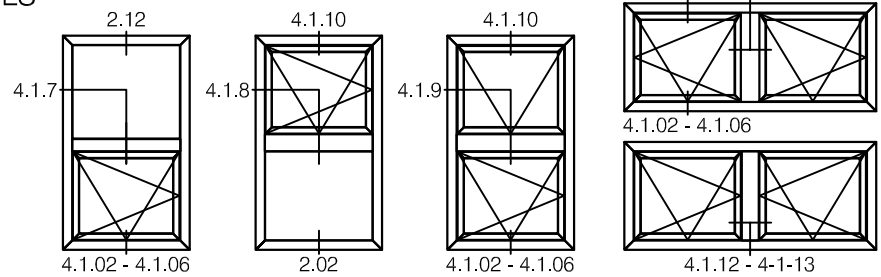
Glazing beads and gaskets allow for an exceptional range of glazing thickness from 22mm up to 45mm. Glazing beads are available as square or sloped profiles for either the commercial or the domestic markets.

SPECIFICATION

The Comar window system has been designed in accordance with BS 4873 and other recognised industry standards adopted by CWCT and trade associations. i.e. The Council for Aluminium in Building where applicable. The window system has also been successfully tested to BS 6375 for weathering: 600Pa air permeability, 600Pa water tightness, 2400Pa resistance to wind load and to BS 7950 for security.

REFER TO FIXED LIGHT SECTION FOR FURTHER FULL SIZE DETAILS





SHEET No`s	SHEET SUB TITLE
4.1.02 to 4.1.06	SILL/JAMB DETAILS
4.1.07 to 4.1.09	MULLION/TRANSOM DETAILS
4.1.10	HEAD DETAILS
4.1.11 to 4.1.13	MULLION DETAILS
4.1.14 to 4.1.16	PREPARATION & ASSEMBLY

Max Sizes for CS433

930 mm x 1800 mm
1162 mm x 775 mm
2 x 6 mm = 30kg/m² Glass

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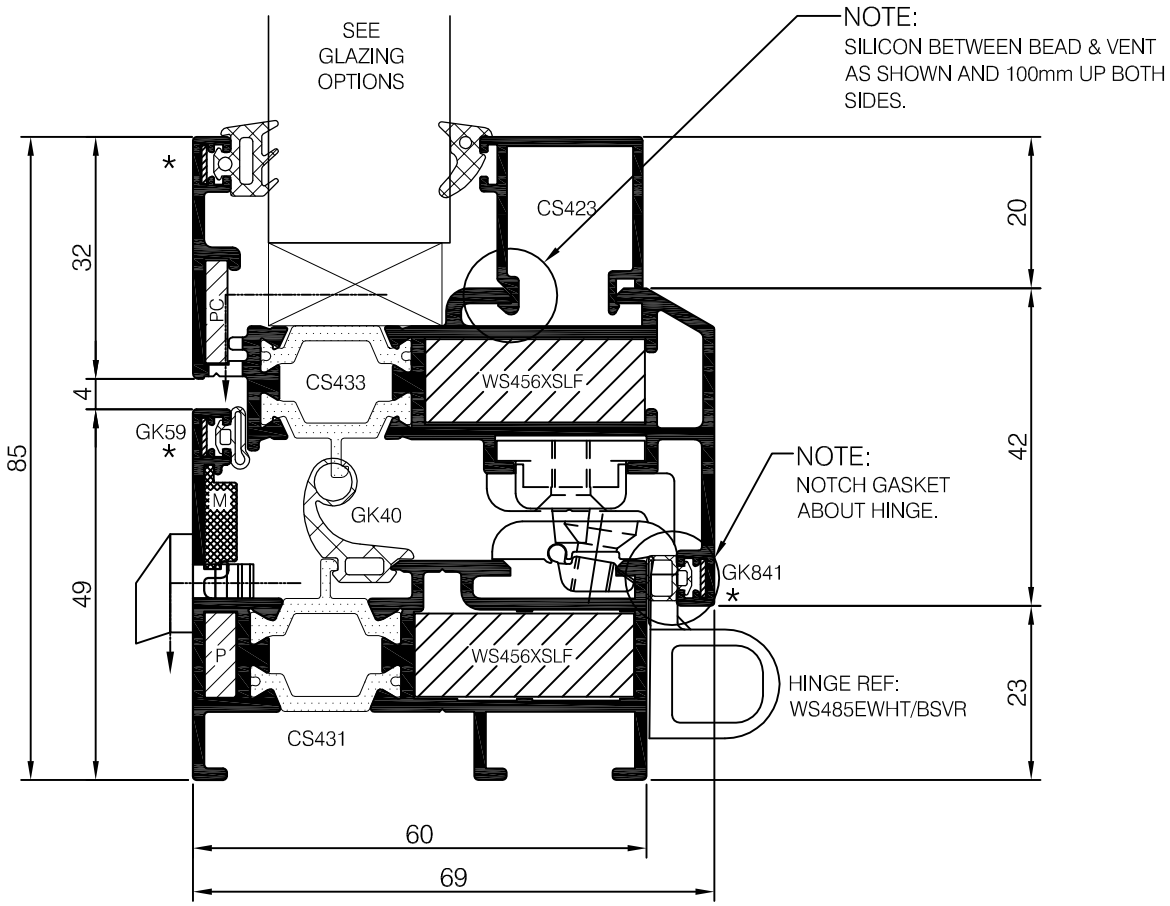
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DRG. No.	C5Pi–4.1.01

comar5Pi

TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.02**

SUB TITLE
SILL DETAILS
STANDARD



BOTTOM HUNG OPEN IN SILL SHOWN,
TILT TURN JAMB DETAIL SIMILAR
(WITH OUT DRAINAGE).

ô FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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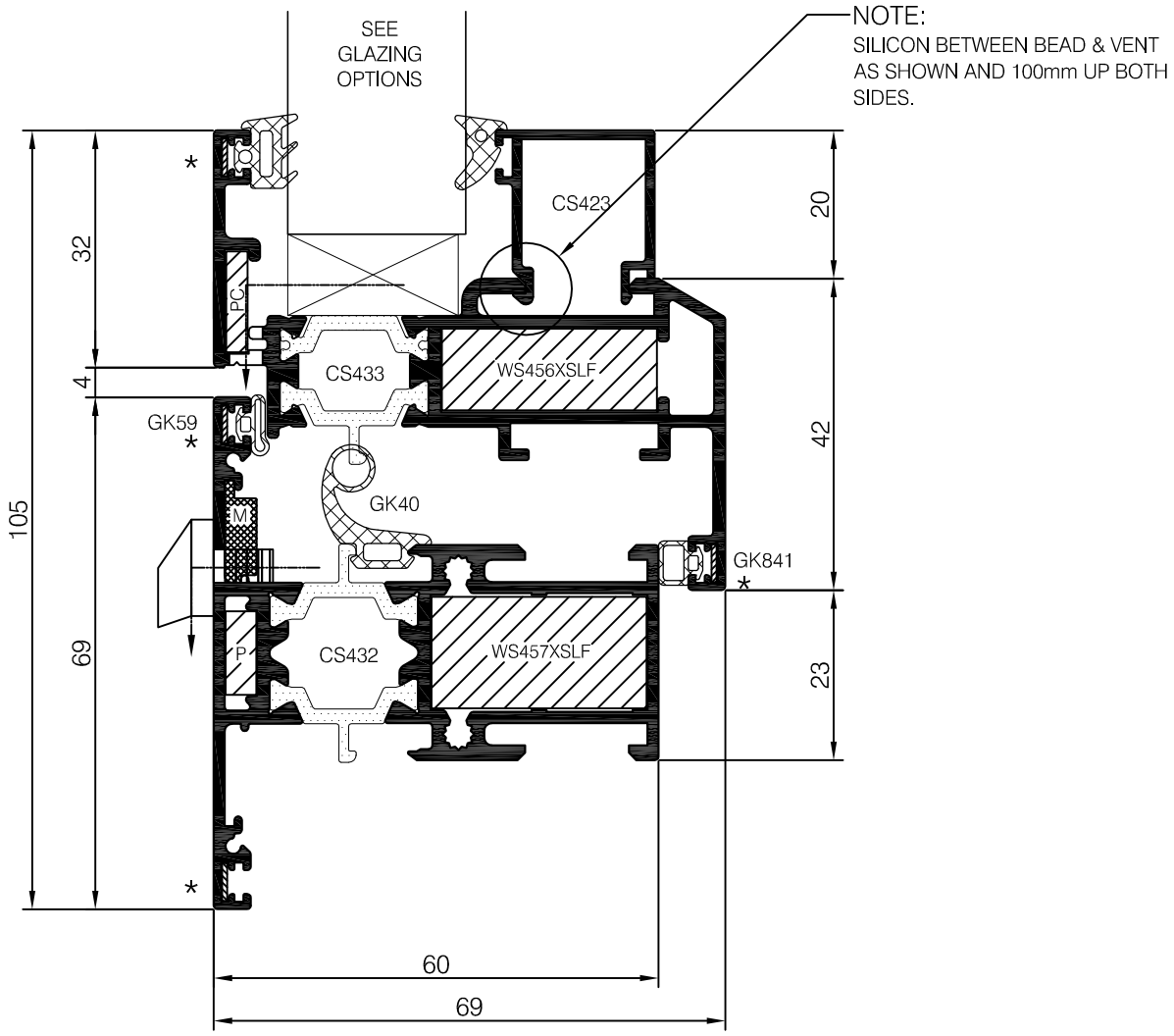
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comar5Pi

TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.03**

SUB TITLE **SILL DETAILS ODD LEG**



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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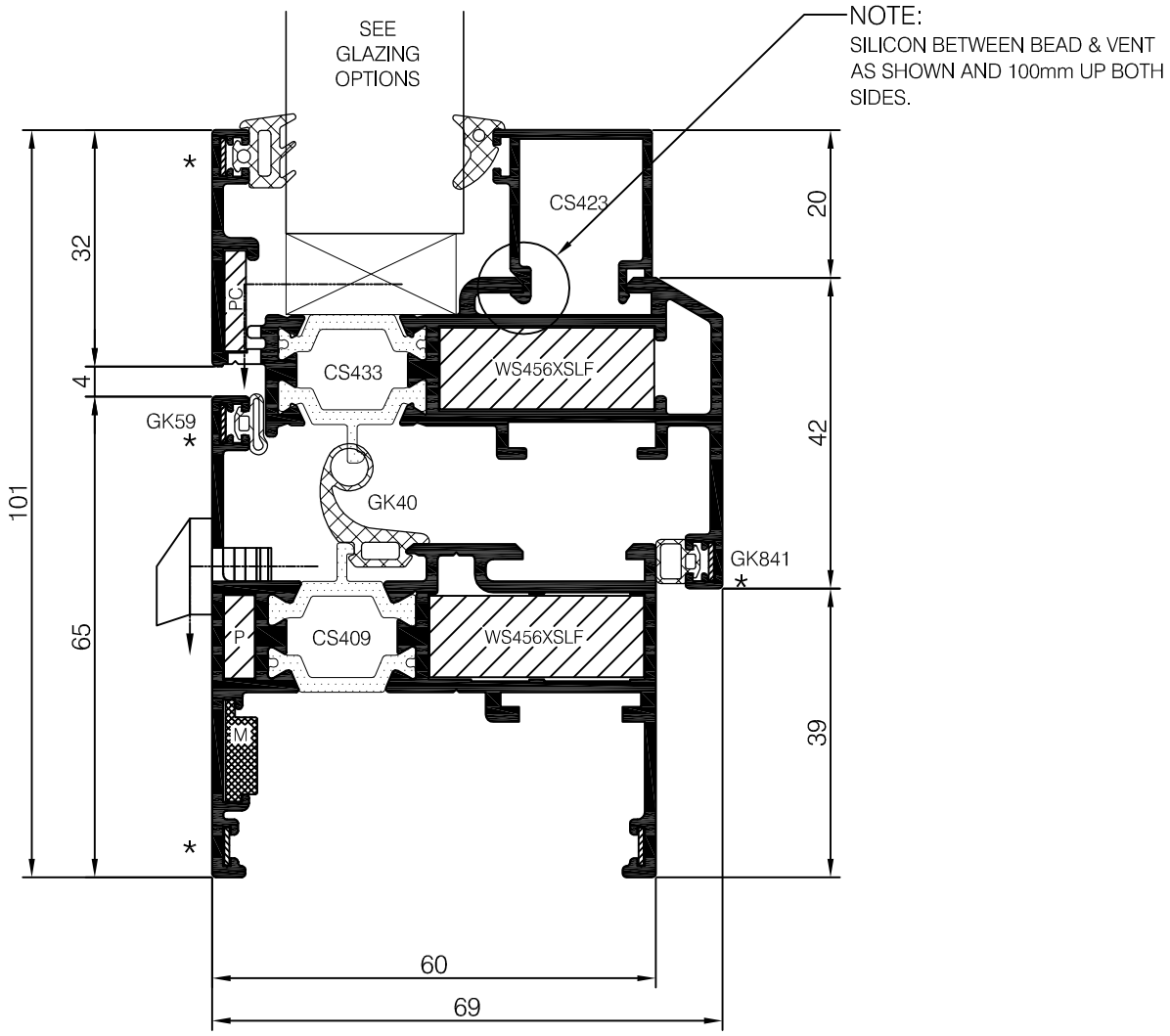
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.04**

SUB TITLE **SILL DETAILS LONG LEG**



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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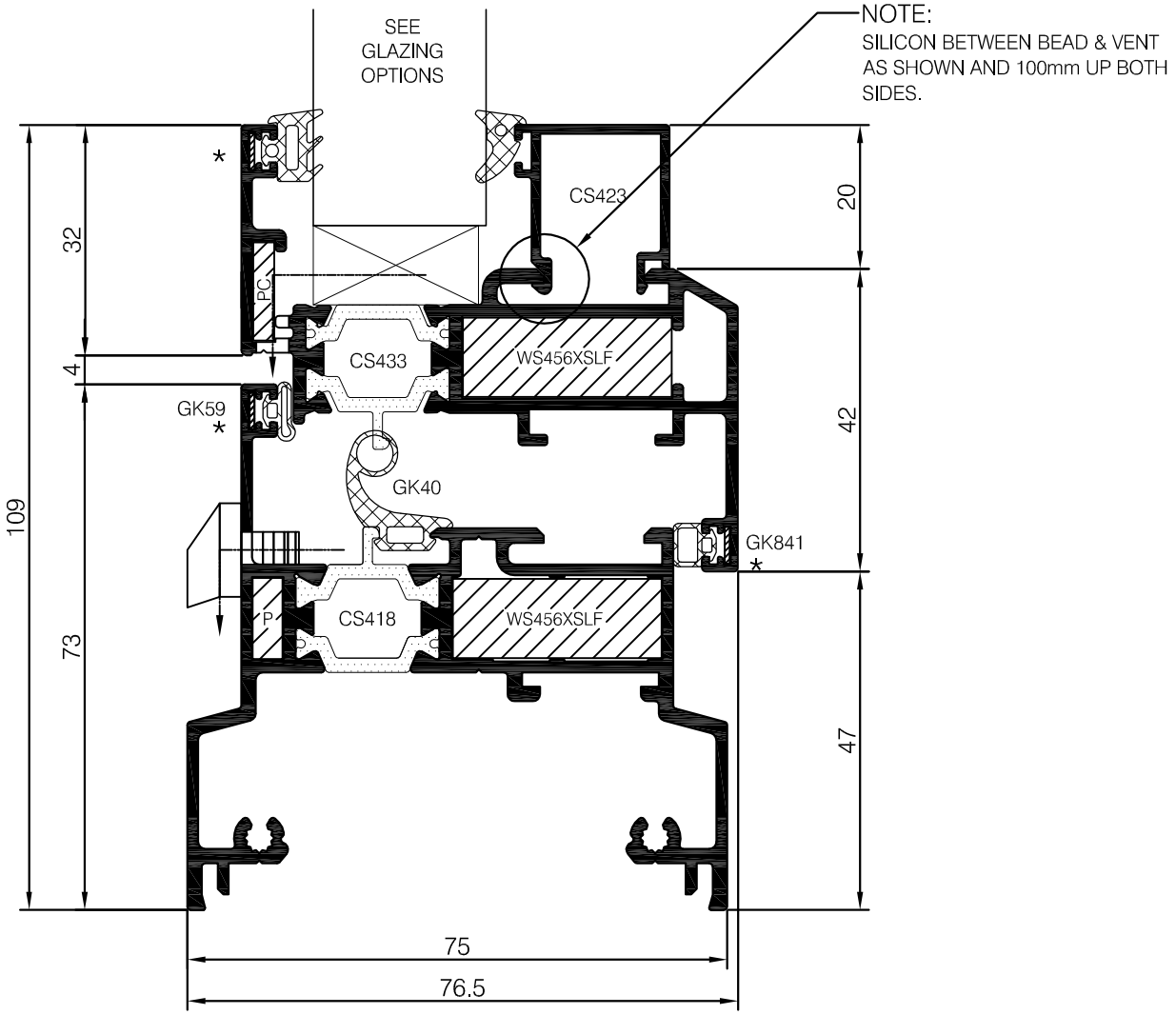
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.05**

SUB TITLE **SILL DETAILS DIRECT FIX**



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
P DENOTES WS415XSLF PLASTIC CHEVRON
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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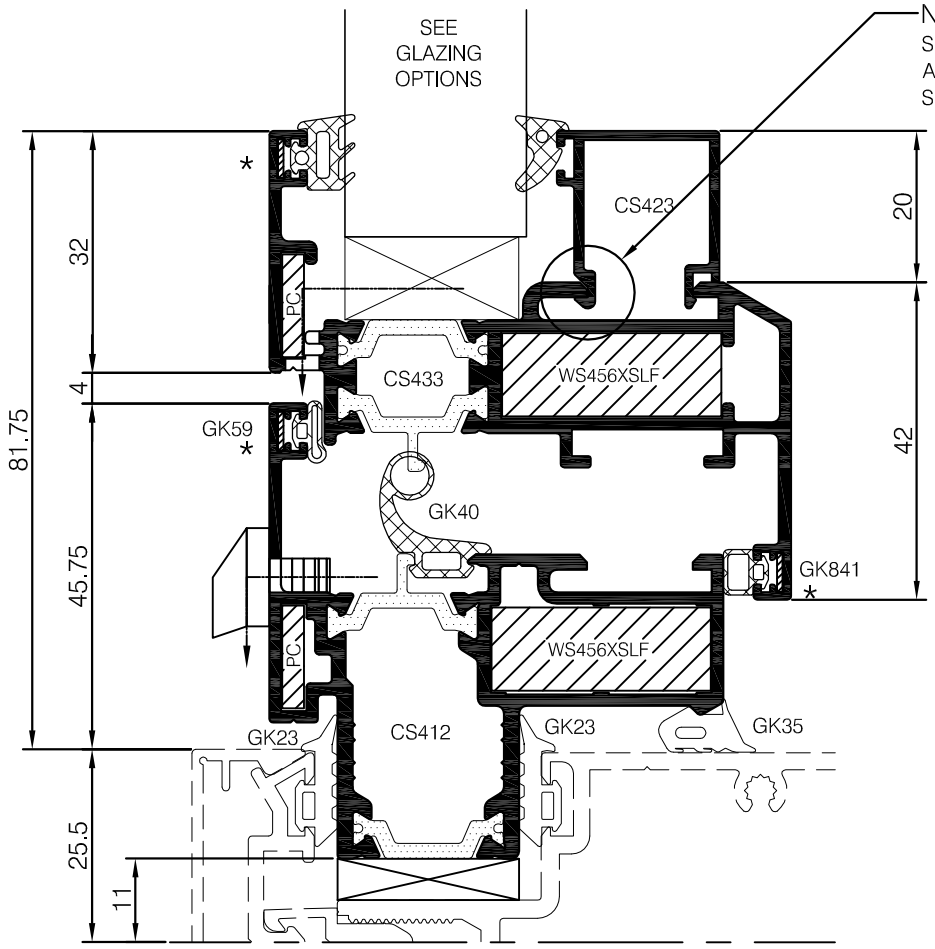
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.06**

SUB TITLE
SILL DETAILS
CURTAIN WALL - COMAR 6



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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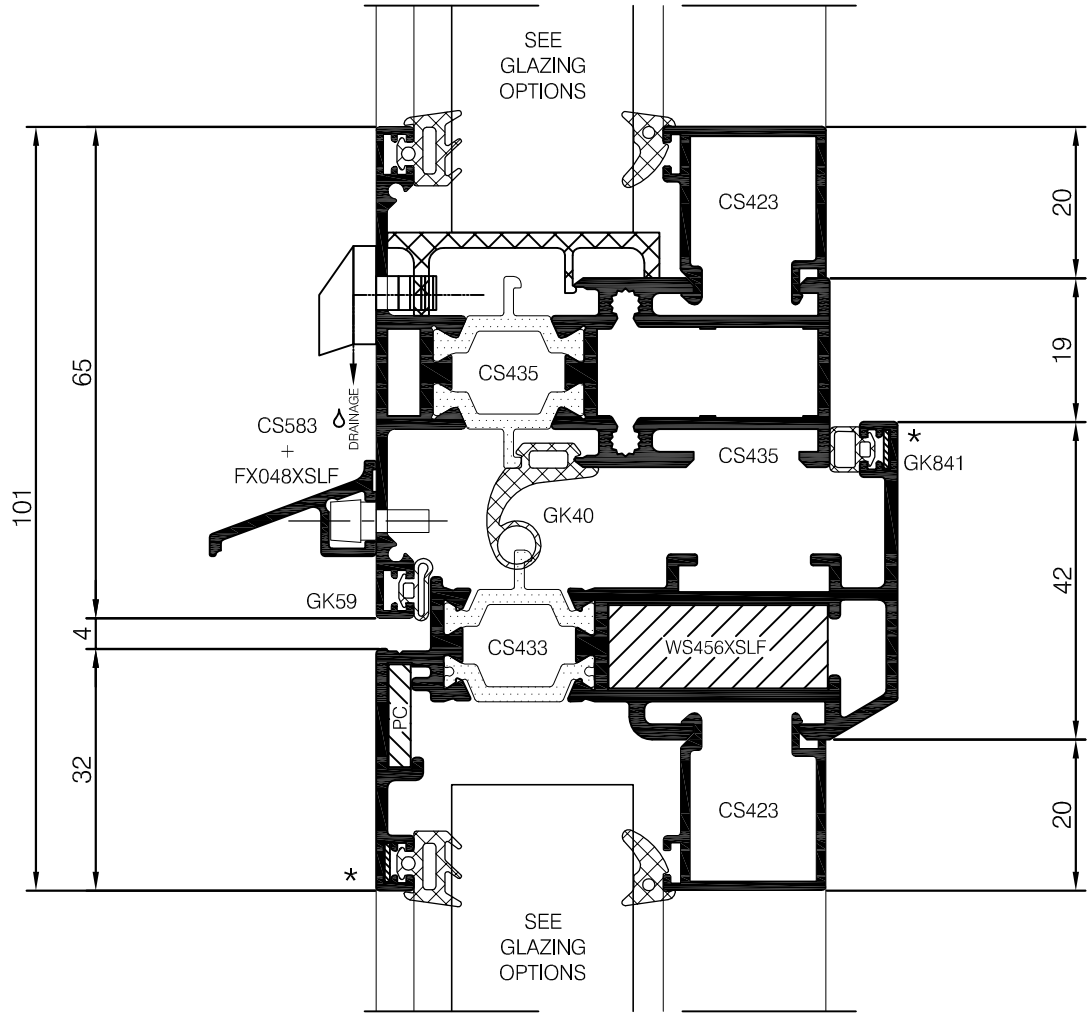
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.07**

SUB TITLE **MULLION/TRANSOM DETAILS**
FIXED LIGHT TO VENT



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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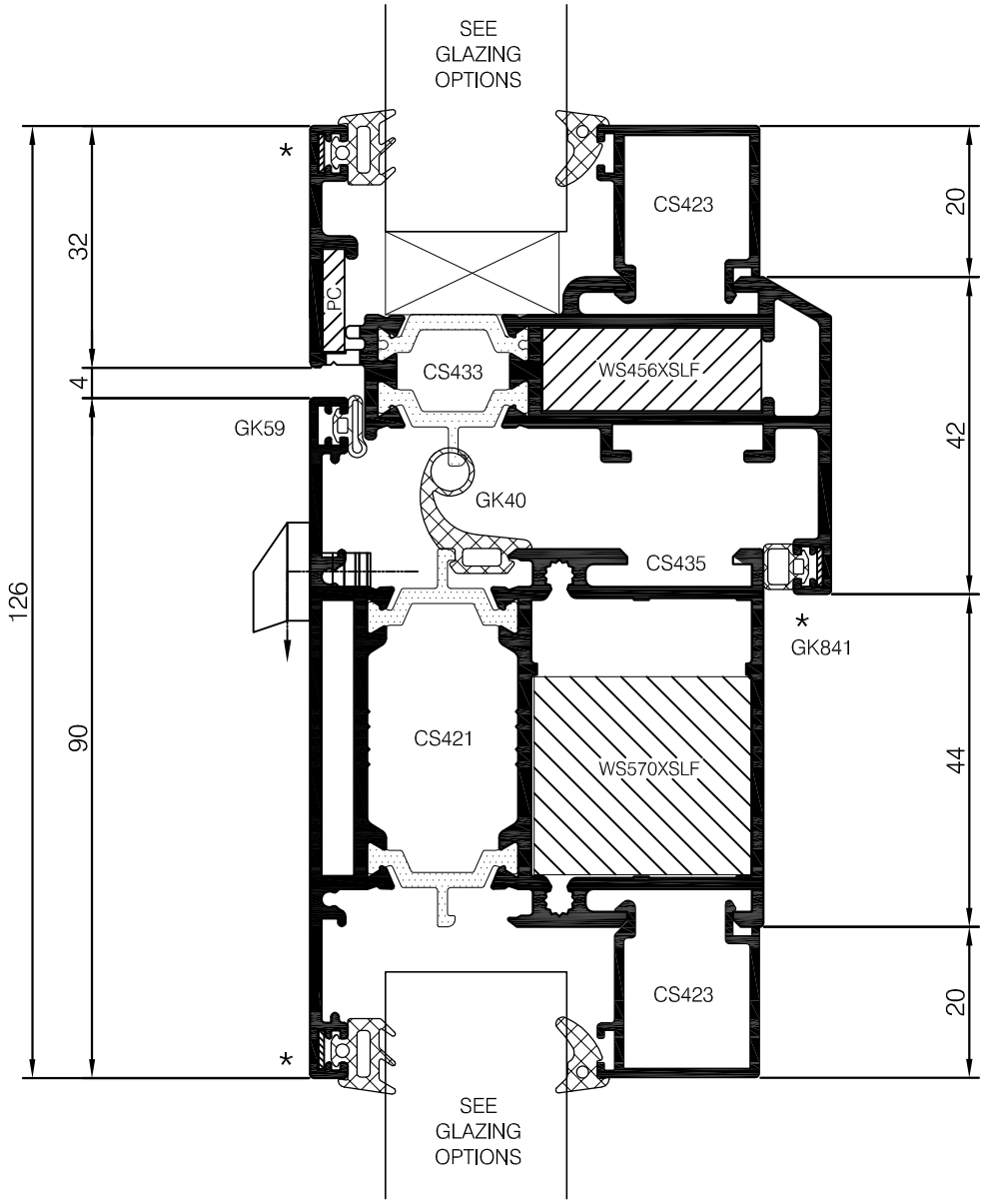
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.08**

SUB TITLE **MULLION/TRANSOM DETAILS**
VENT TO FIXED LIGHT



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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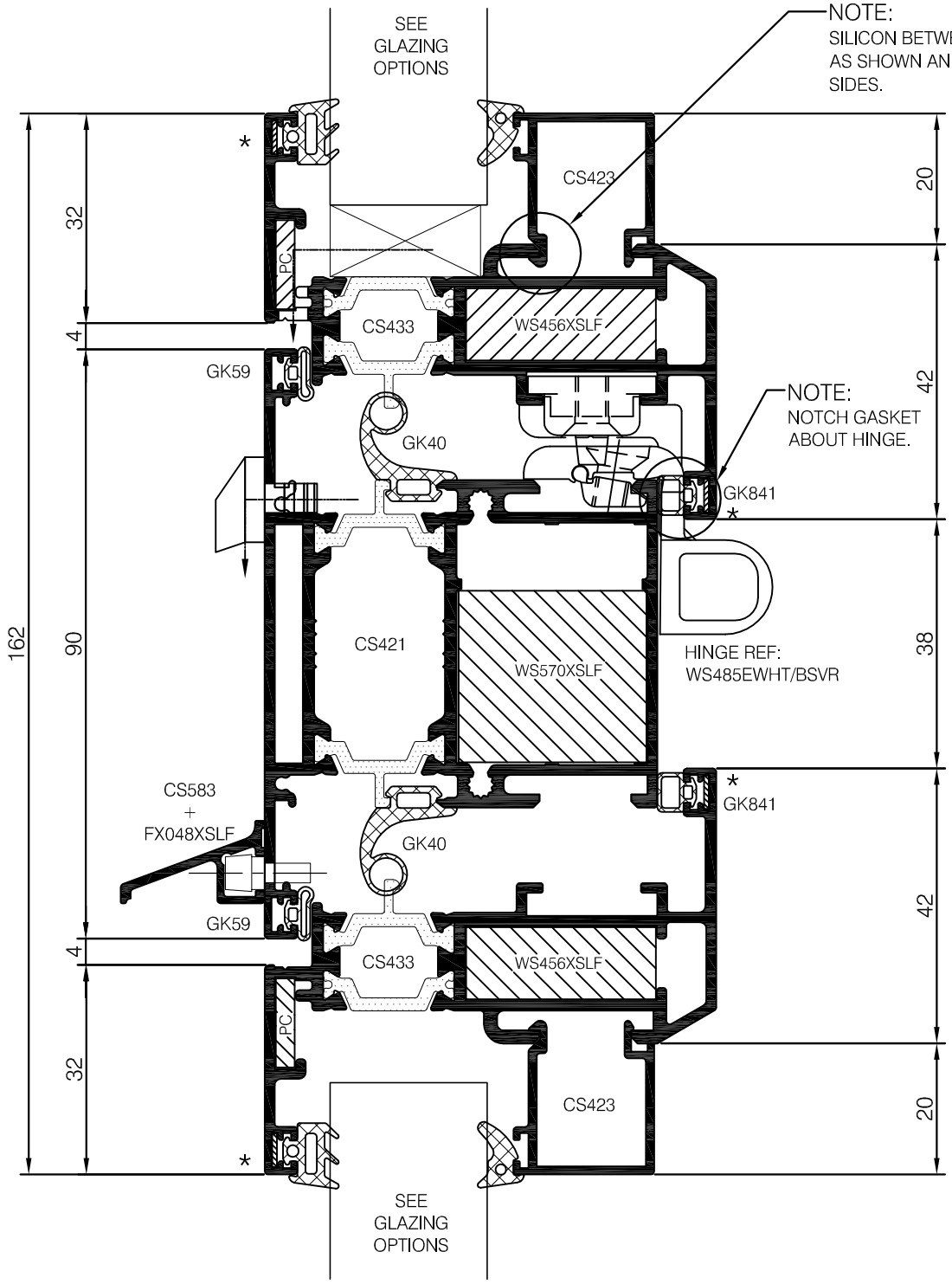
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.09**

SUB TITLE **MULLION/TRANSOM DETAILS VENT TO VENT**



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
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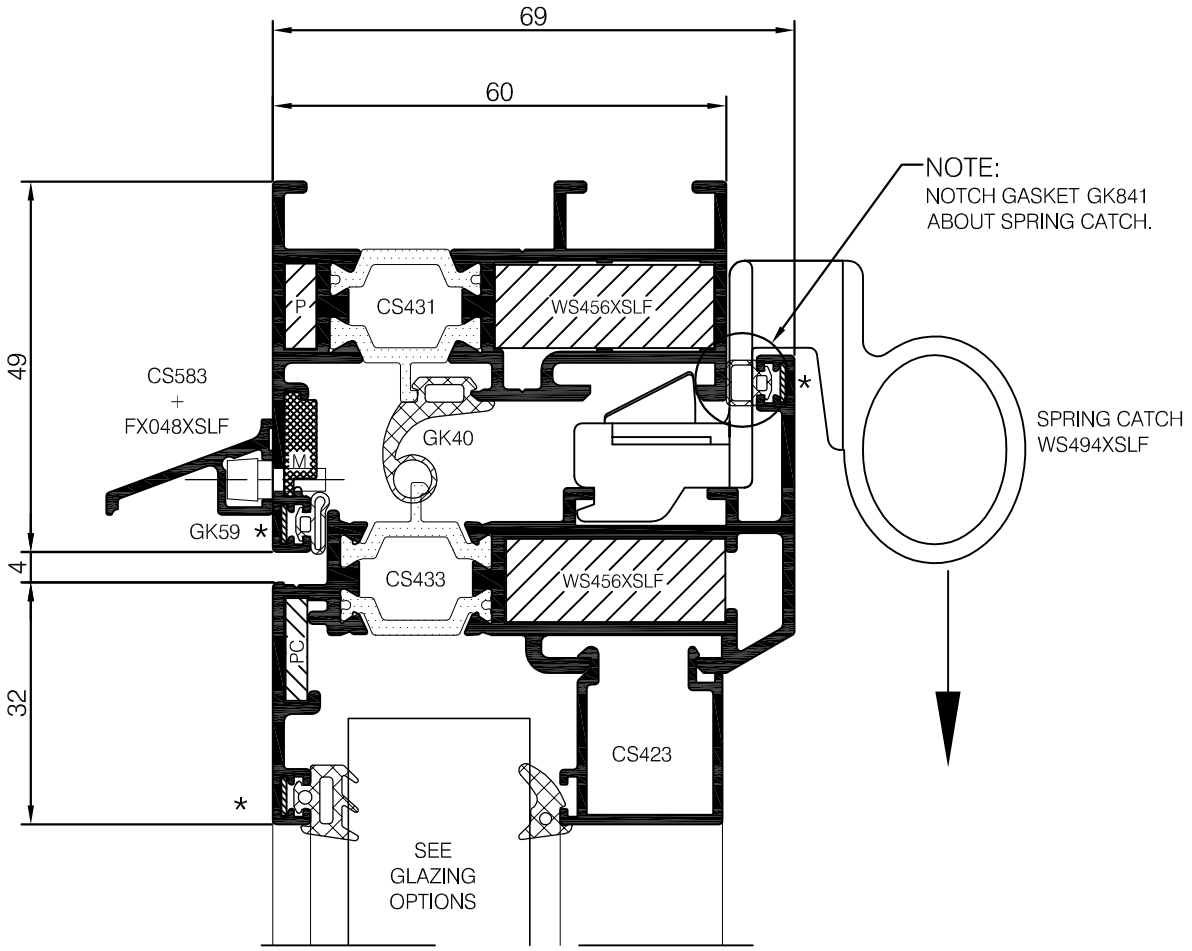
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comar5Pi

TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.10**

SUB TITLE
HEAD DETAILS
BOTTOM HUNG SPRING CATCH



M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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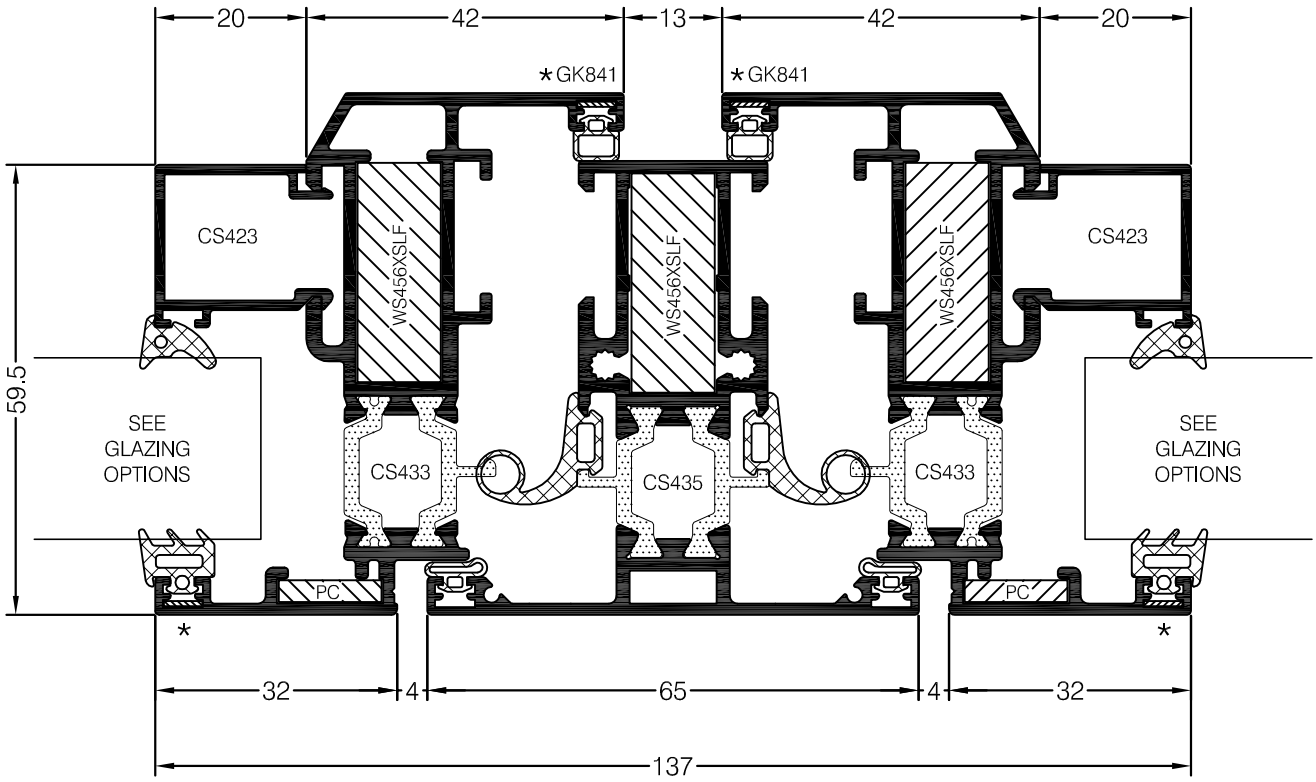
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.11**

SUB TITLE **MULLION/TRANSOM DETAILS**
VENT TO VENT



PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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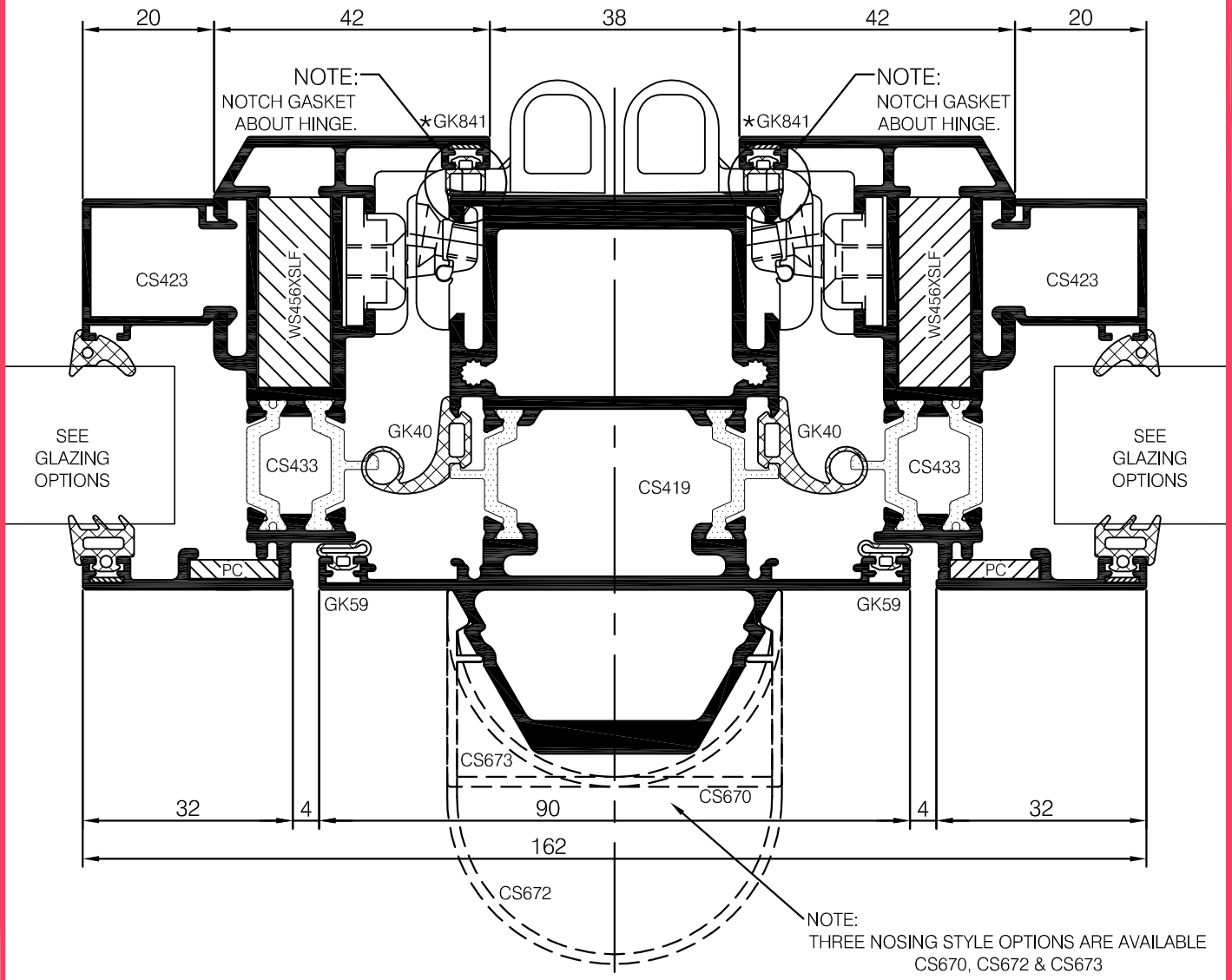
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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.12**

SUB TITLE **MULLION/TRANSOM DETAILS**
VENT TO VENT



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
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* DENOTES WS515 CHEVRON

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TITLE **STANDARD TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.13**

SUB TITLE **MULLION DETAILS COUPLED WITH STANDARD CHRONO**

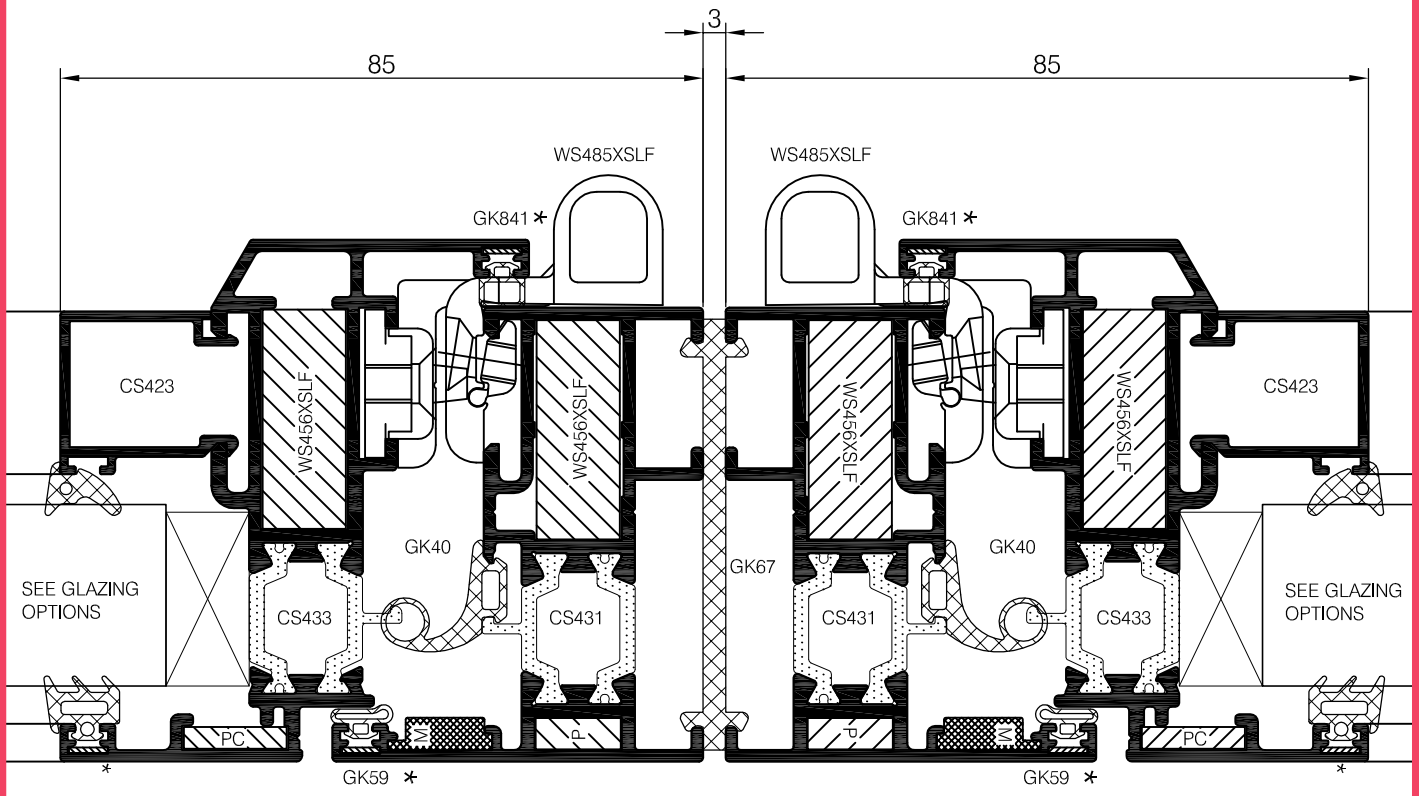
NOTE:

WHEN CREATING ADJACENT TILT TURN, SIDE HUNG OR STACKED BOTTOM HUNG OPEN IN VENTS, THE GK67 COUPLER IS TO BE USED TO ALLOW FOR THE STANDARD HINGES.

ALTERNATIVELY THE CHRONO INVISI GEAR CAN BE USED WHEN NOT COUPLING.

IF IN DOUBT, ASK.

PLEASE CONTACT TECHNICAL DEPT.



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PC DENOTES WS189XSLF PINNED CLEAT
* DENOTES WS515 CHEVRON

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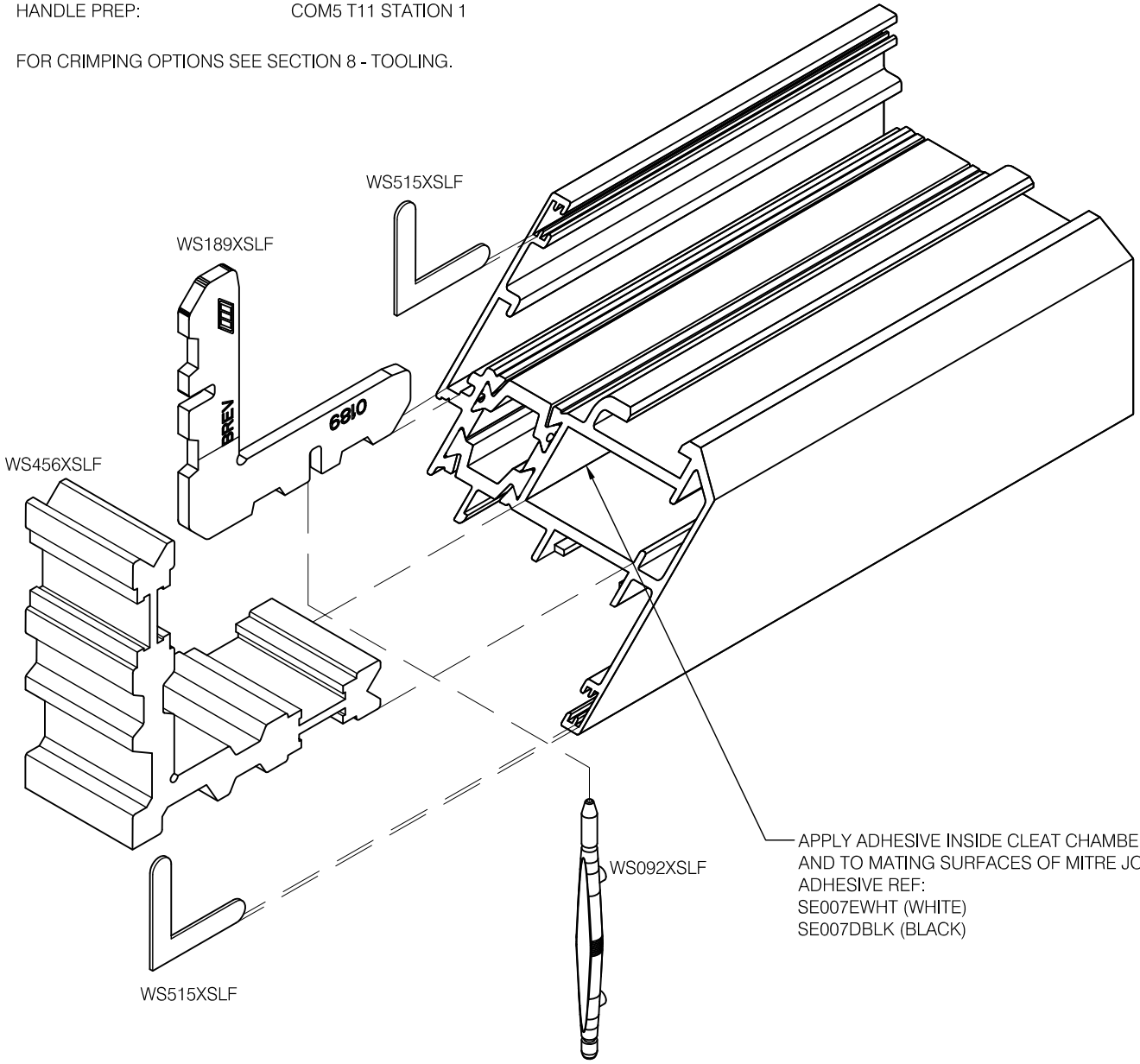
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MITRED CS433 ILLUSTRATED

CAM SLUG PREP:	COM5 T11 STATION 6
PINNED CLEAT PREP:	COM5 T98
DRAINAGE SLOT PREP:	COM5 T99 STATION 7
HANDLE PREP:	COM5 T11 STATION 1

FOR CRIMPING OPTIONS SEE SECTION 8 - TOOLING.



SEE SHEET 4.1.16 FOR PREP DETAILS

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DRG. No.	C5Pi–4.1.14 R1

comar 5P.*i*

POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

SHEET No. **4.1.15**

STANDARD TILT/TURN & OPEN IN CASEMENT
PREPARATION DETAILS

CS431 OUTER FRAME SHOWN

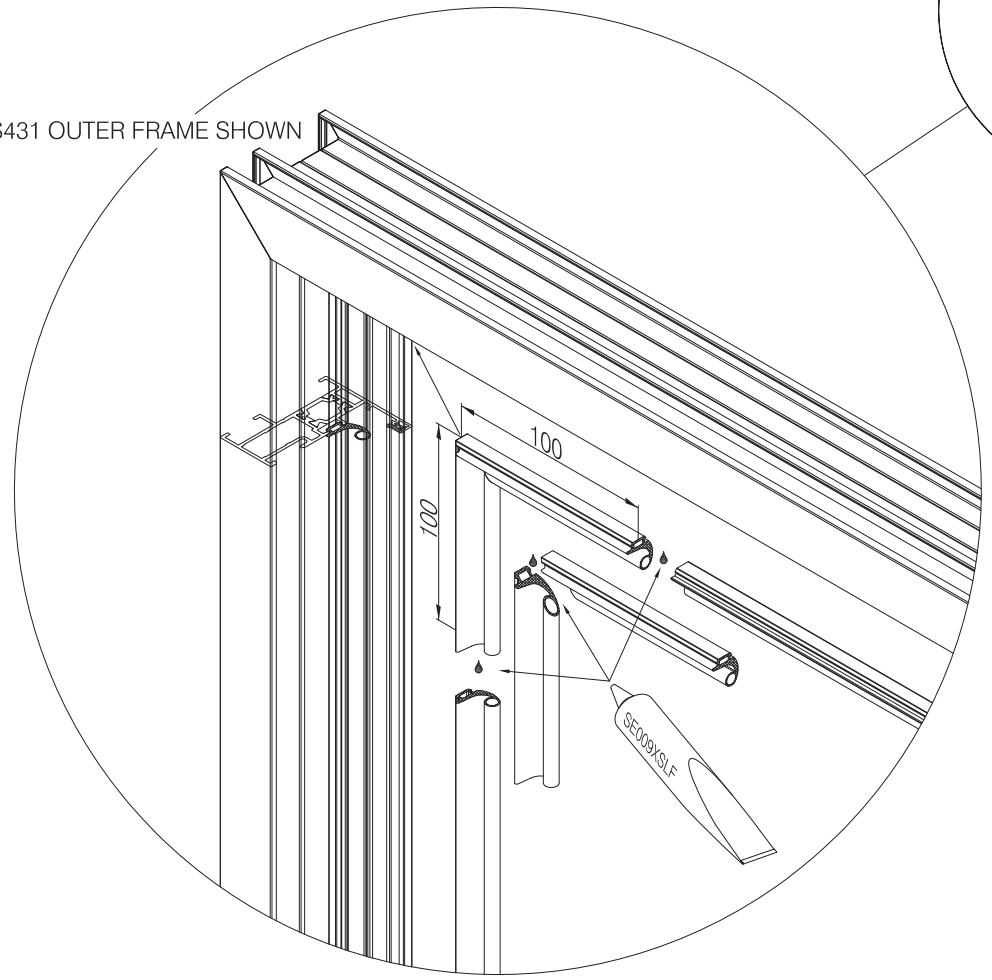
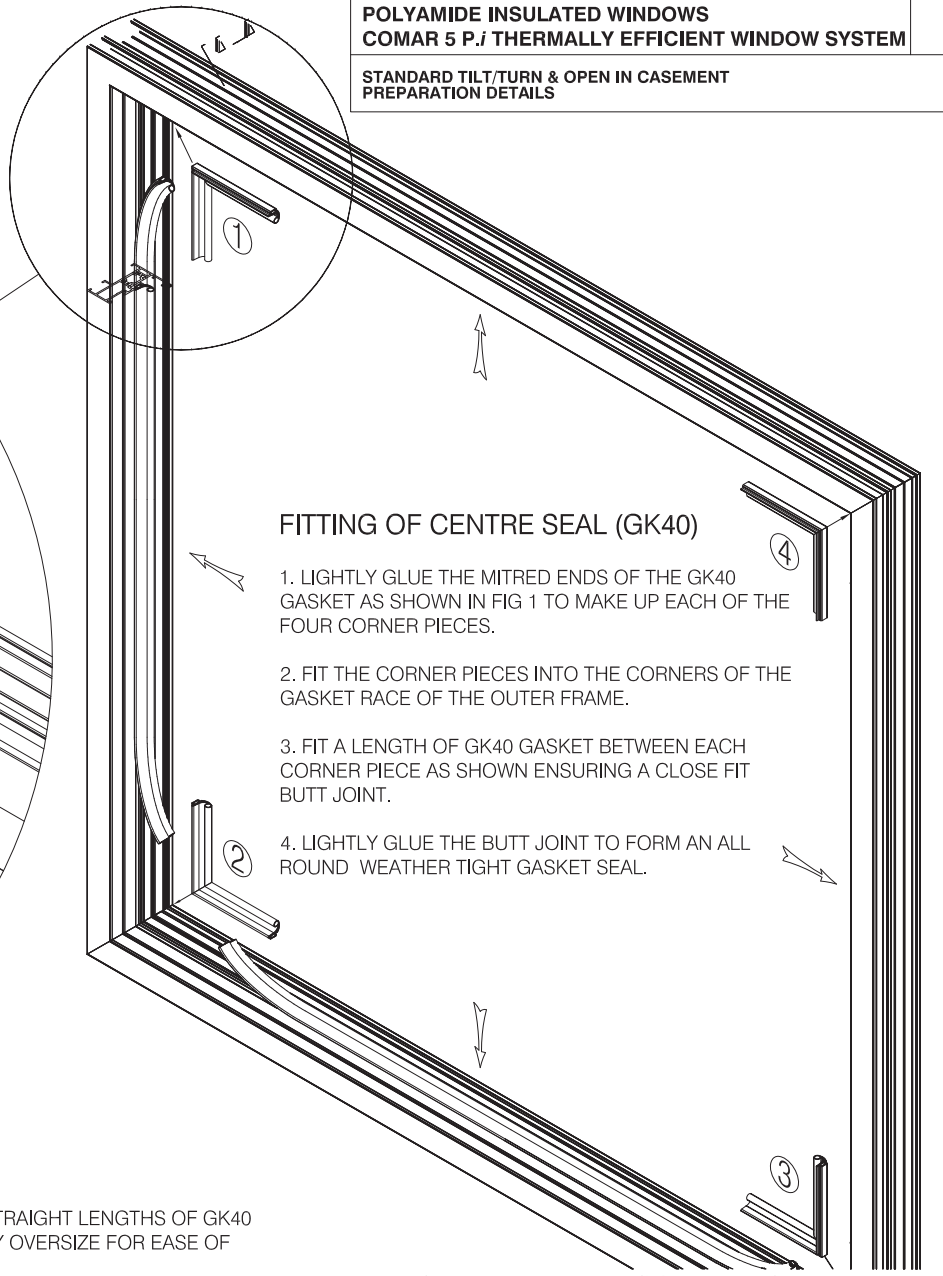


FIG 1



FITTING OF CENTRE SEAL (GK40)

1. LIGHTLY GLUE THE MITRED ENDS OF THE GK40 GASKET AS SHOWN IN FIG 1 TO MAKE UP EACH OF THE FOUR CORNER PIECES.

2. FIT THE CORNER PIECES INTO THE CORNERS OF THE GASKET RACE OF THE OUTER FRAME.

3. FIT A LENGTH OF GK40 GASKET BETWEEN EACH CORNER PIECE AS SHOWN ENSURING A CLOSE FIT BUTT JOINT.

4. LIGHTLY GLUE THE BUTT JOINT TO FORM AN ALL ROUND WEATHER TIGHT GASKET SEAL.

NOTE:

PLEASE ENSURE THAT STRAIGHT LENGTHS OF GK40 GASKET IS CUT SLIGHTLY OVERSIZE FOR EASE OF FITMENT.

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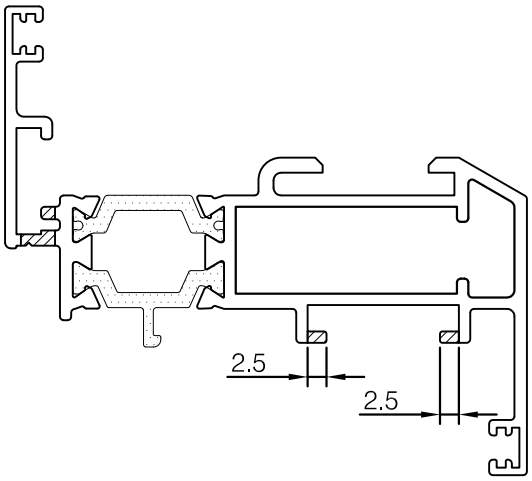
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DRG. No.	C5Pi – 4.1.15

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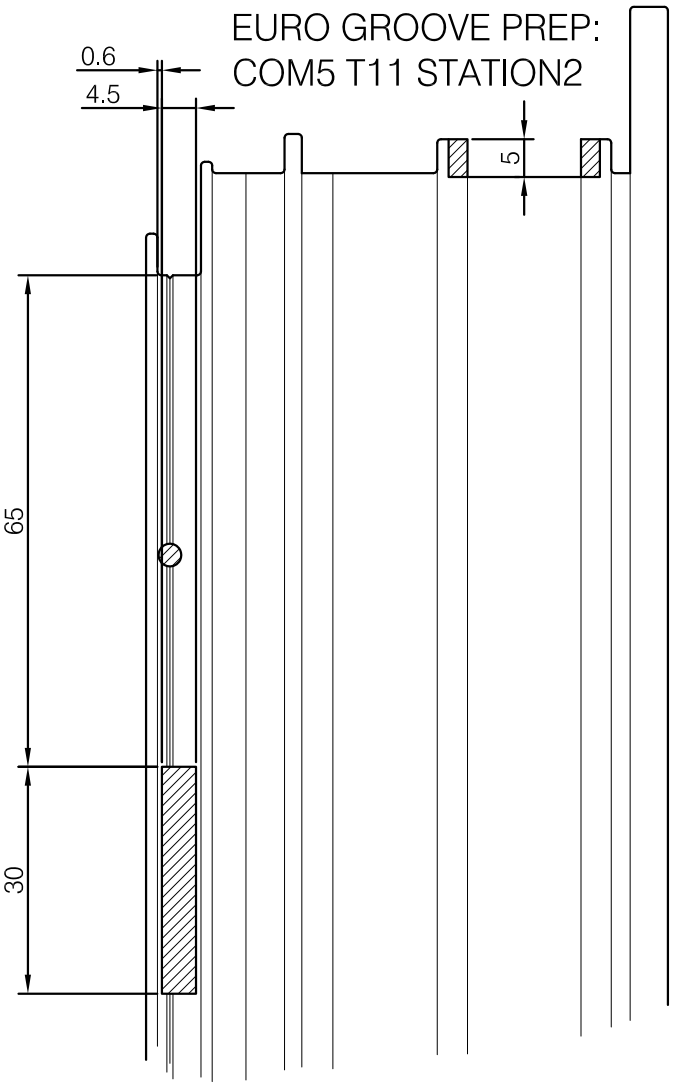
TITLE **TILT/TURN & OPEN IN CASEMENT**

SHEET No. **4.1.16**

SUB TITLE **PREPARATION DETAILS**
TILT/TURN & OPEN IN WINDOW



EURO GROOVE PREP:
COM5 T11 STATION2



DRAINAGE PREP:
COM5 T99 STATION 7
OR
ROUT OUT 5 x 30mm SLOT
USING Ø5mm ROUTER BIT

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comar 5P.*i*

TITLE **HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT**

SHEET No. **4.2.01**

SUB TITLE **STANDARDS HEAVY DUTY**

COMAR 5 P.*i* - HEAVY DUTY TILT/TURN, SIDE HUNG OPEN-IN WINDOW

A thermally broken window system with an external flush-face vent incorporating a central weather gasket and inner rebate air-seal gasket. A standard 21mm Euro-groove is incorporated for a variety of hardware components.

MATERIALS

Extruded aluminium profiles are aluminium alloy 6063 T5 or T6 to BS EN 12020 & BS EN 755 tempered to BS EN 515. Gaskets are extruded from E.P.D.M to BS 4255-1 and PVC to BS 7412.

FINISHES

Aluminium profiles are finished to the following specifications: Silver, Bronze and Black anodising to BS EN 12373 or BS 3987. Liquid organic coating is to BS 4842. Polyester powder coating is to BS 6496.

CONSTRUCTION

Outer frames are constructed with mitre joints and an inserted cleat that can be either crimped or tightened with an eccentric cam. Multi-light transoms and mullions are secured with No.8 screws into integral ports or with cleats and additional dowel pins.The larger CS446 vent frame profile utilises pinned and sprung loaded cleats about the mitred corners for the high strength and enables its use for door size vents, specifically in the "French Casement" configuration.

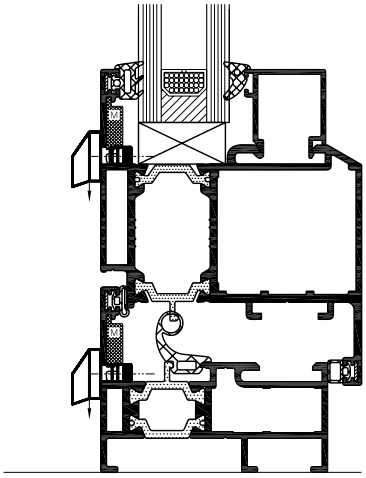
GLAZING

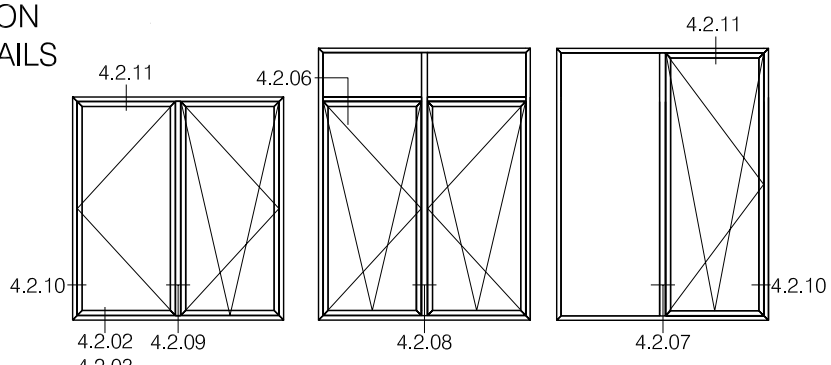
Glazing beads and gaskets allow for an exceptional range of glazing thickness from 22mm up to 45mm. Glazing beads are available as square or sloped profiles for either the commercial or the domestic markets.

SPECIFICATION

The Comar window system has been designed in accordance with BS 4873 and other recognised industry standards adopted by CWCT and trade associations. i.e. The Council for Aluminium in Building.

REFER TO FIXED LIGHT SECTION
FOR FURTHER FULL SIZE DETAILS





SHEET No`s	SHEET SUB TITLE
4.2.02 to 4.2.05	SILL DETAILS
4.2.06 to 4.2.09	MULLION/TRANSOM DETAILS
4.2.10	JAMB DETAIL
4.2.11	HEAD DETAILS
4.2.12 to 4.2.16	PREPARATION & ASSEMBLY

Max Sizes for CS446

1200 mm x 2400 mm
1400 mm x 1080 mm
2 x 6 mm = 30kg/m² Glass

ALL ELEVATION DRAWINGS DEPICT UK CONVENTION.
(POINT TO HINGE - VIEW FROM OUTSIDE)

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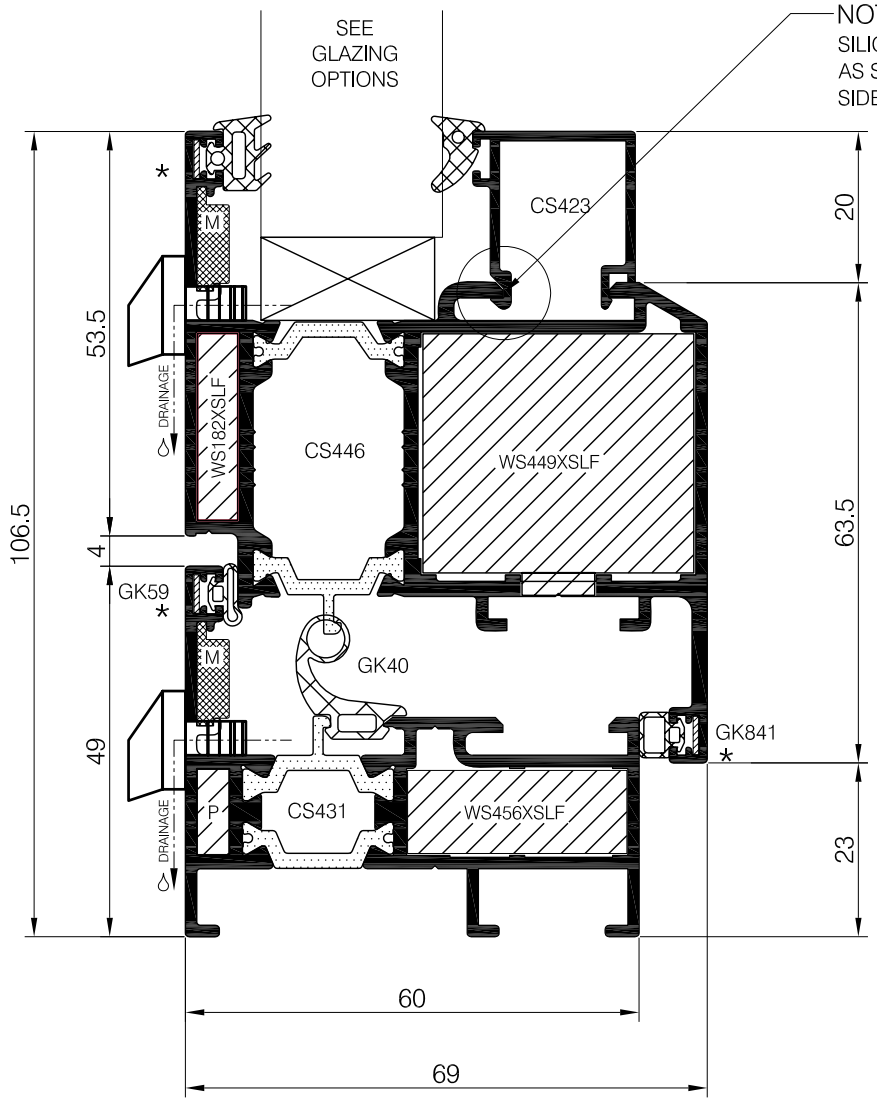
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TITLE
HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No.
4.2.02

SUB TITLE
SILL DETAILS
HEAVY DUTY



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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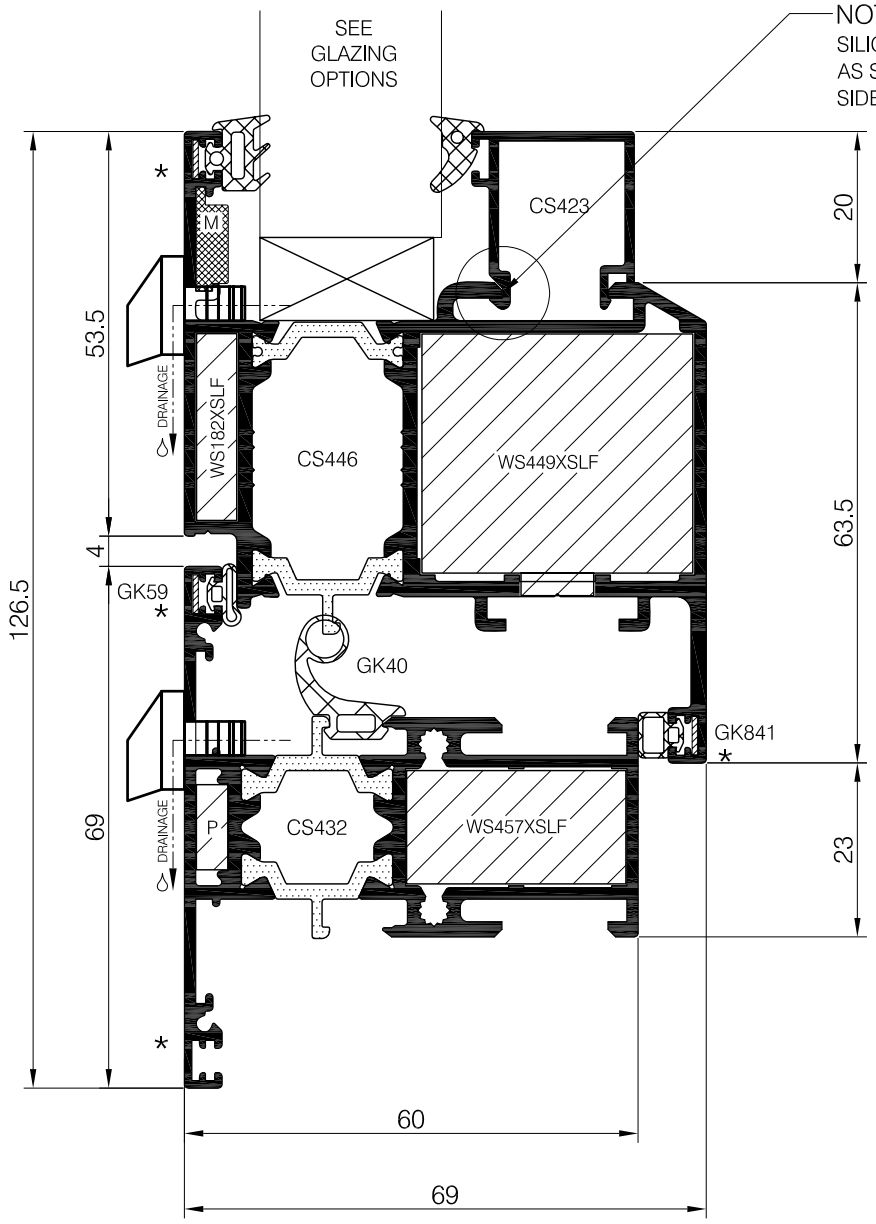
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HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.03**

SUB TITLE

SILL DETAILS HEAVY DUTY



♢ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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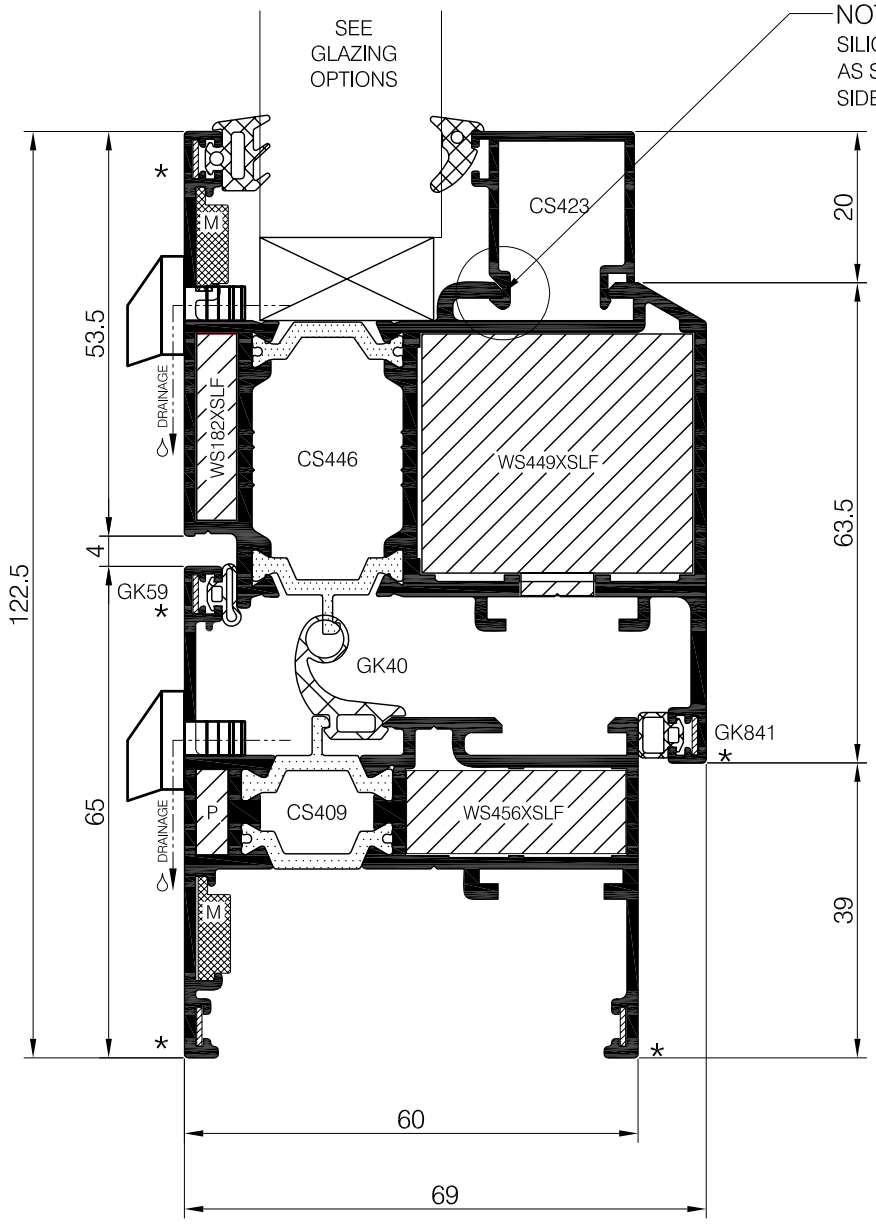
TITLE

HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.04**

SUB TITLE

SILL DETAILS HEAVY DUTY



♢ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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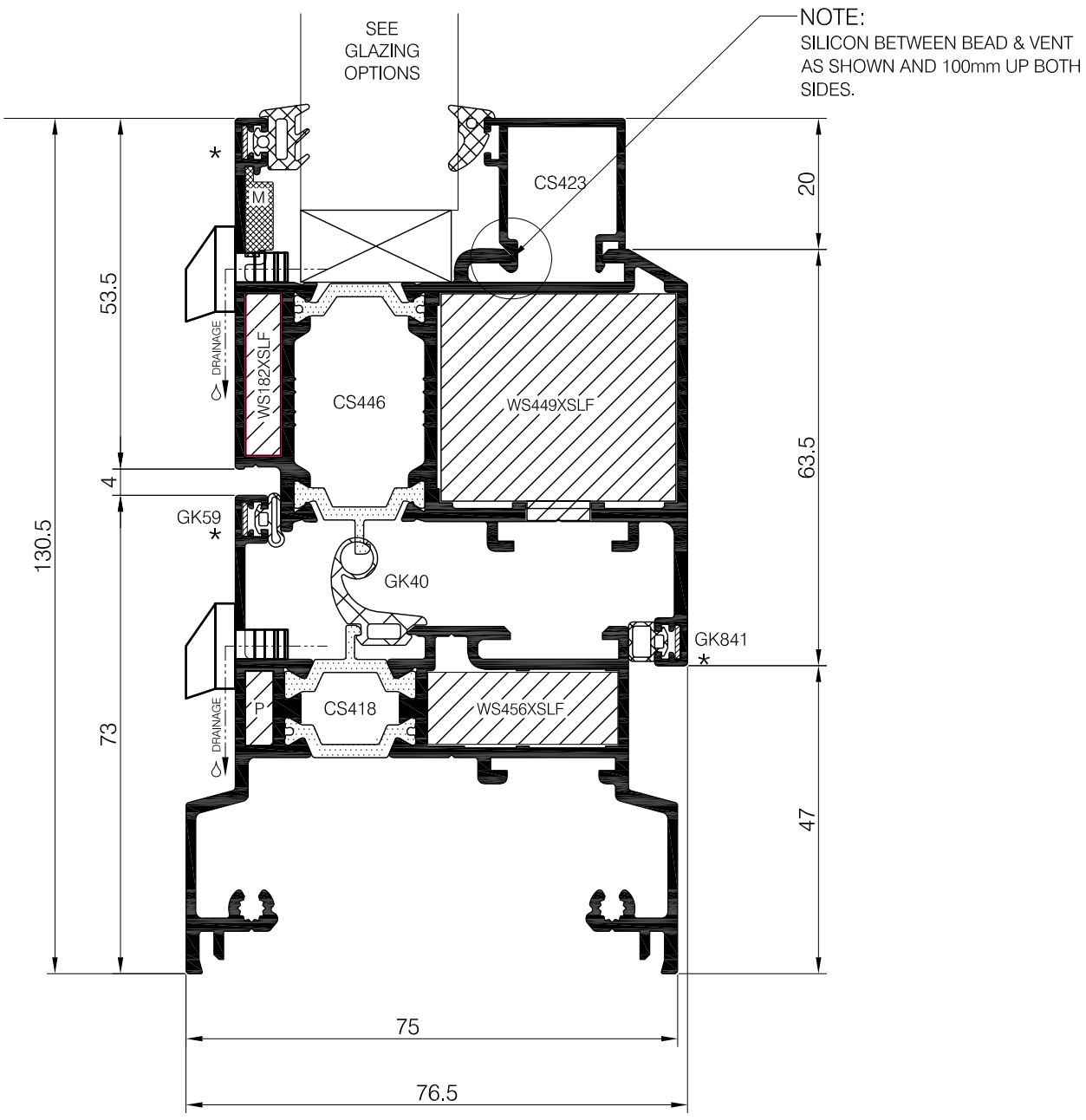
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DRG. No.	C5Pi–4.2.04

comar5Pi

TITLE
HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No.
4.2.05

SUB TITLE
SILL DETAILS
HEAVY DUTY



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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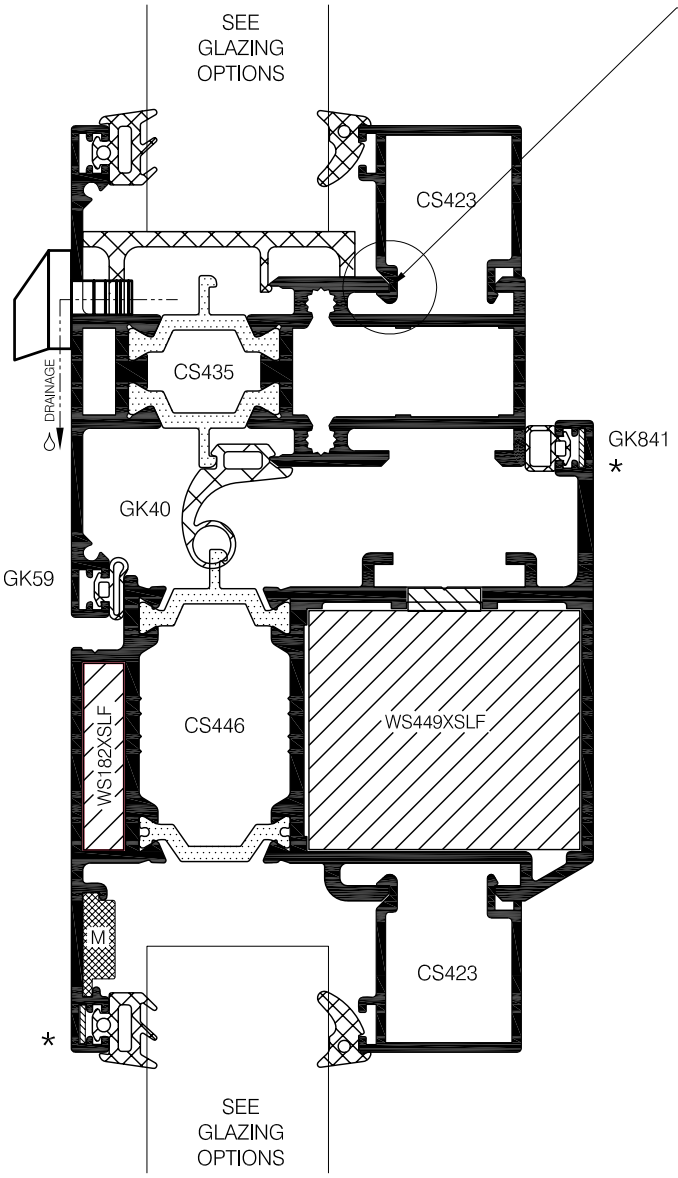
TITLE

HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.06**

SUB TITLE

TRANSOM / MULLION DETAILS HEAVY DUTY



♢ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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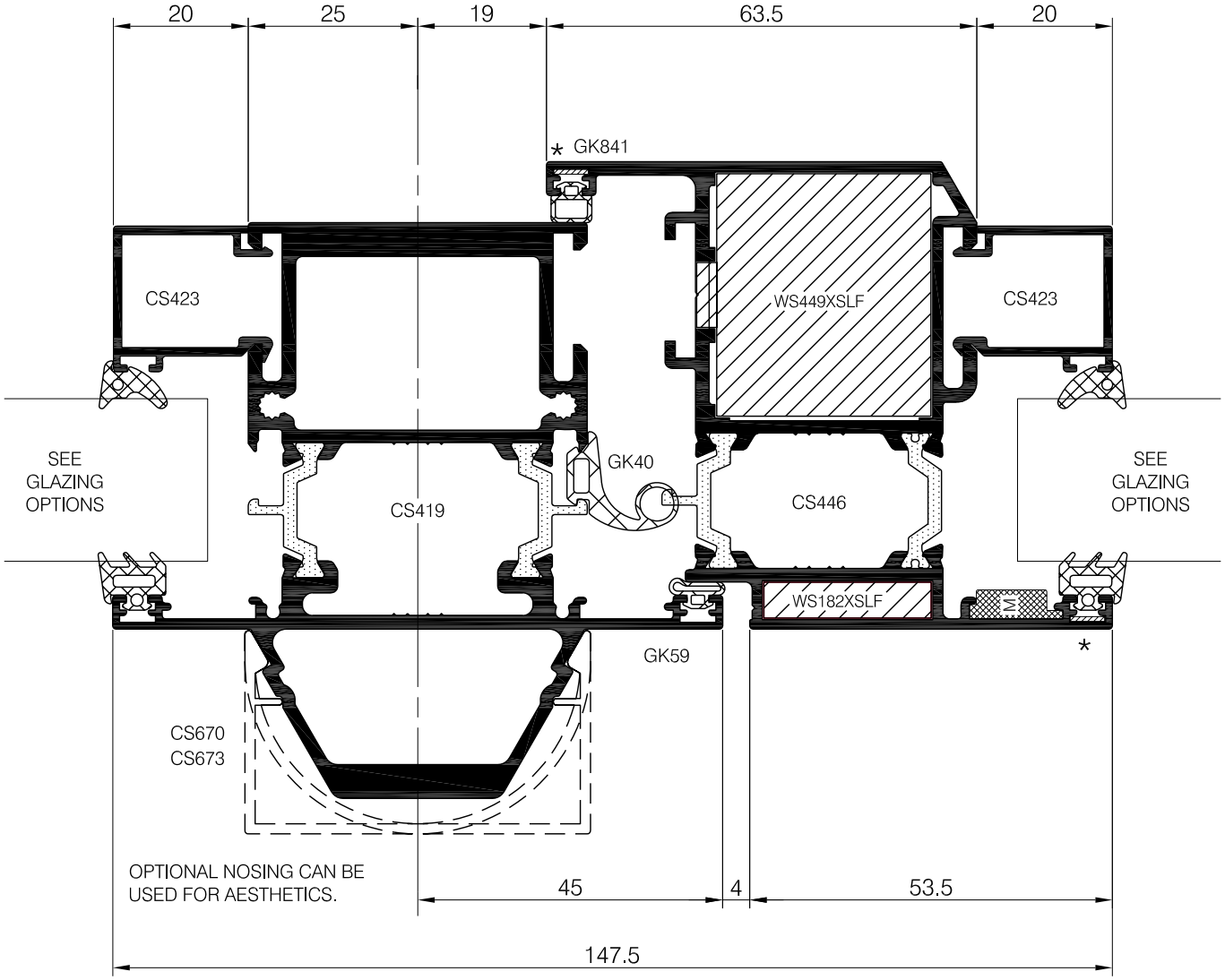
TITLE

HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.07**

SUB TITLE

TRANSOM / MULLION DETAILS HEAVY DUTY



CS419 IS SUITABLE FOR CS409 & CS431 OUTER FRAMES

M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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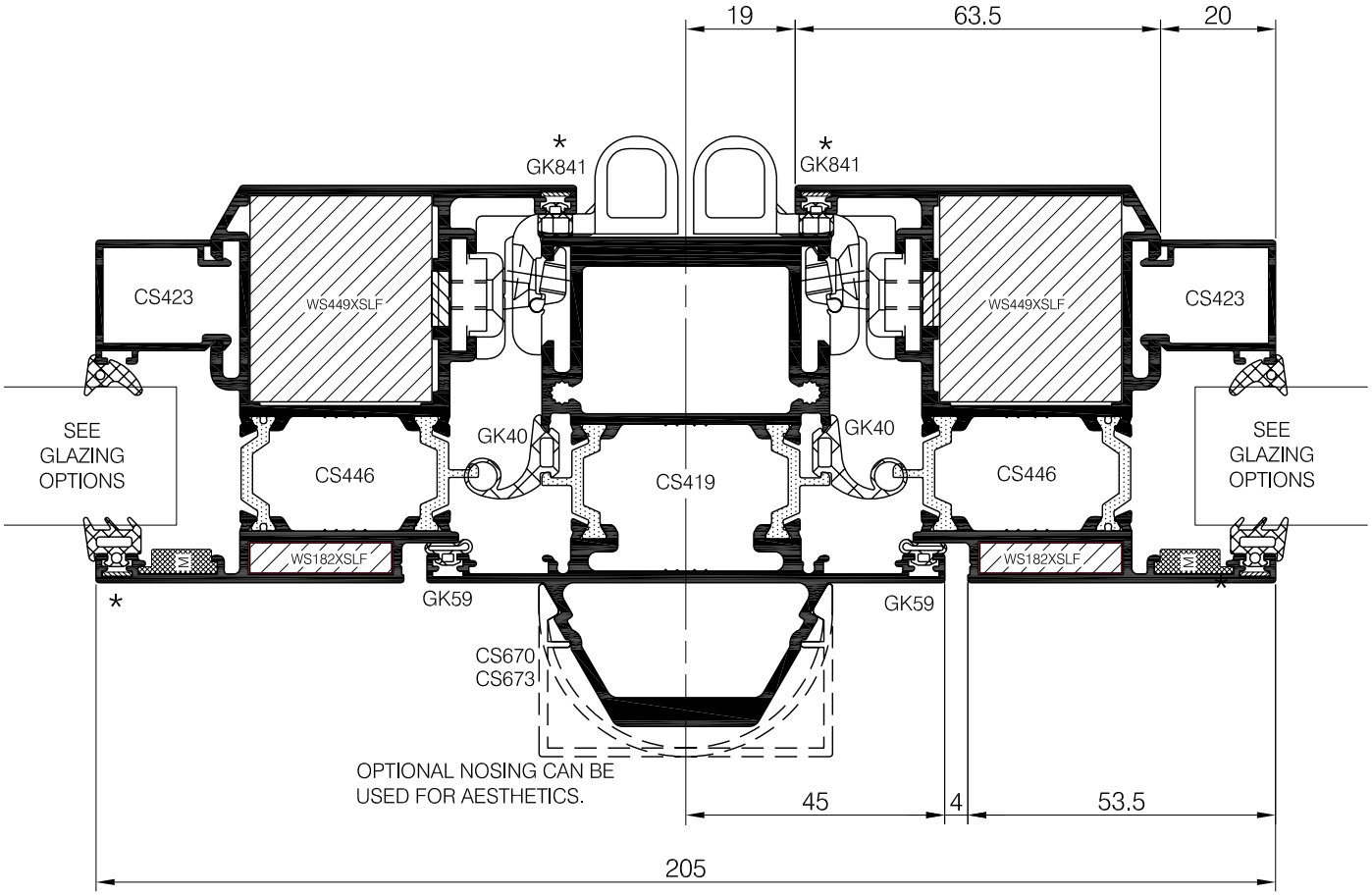
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HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.08**

SUB TITLE

TRANSOM / MULLION DETAILS HEAVY DUTY



CS419 IS SUITABLE FOR CS409 & CS431 OUTER FRAMES

M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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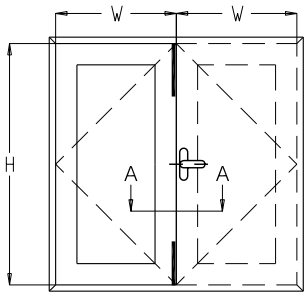
HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.09**

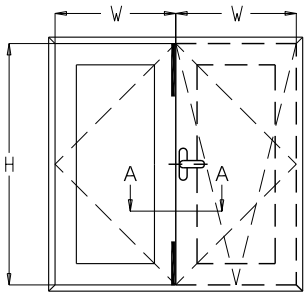
SUB TITLE

FRENCH CASEMENT
HEAVY DUTY

SIDE HUNG OPEN-IN



TURN & TILT OPEN-IN



HANDLE ONLY ON INSIDE OF MASTER LEAF

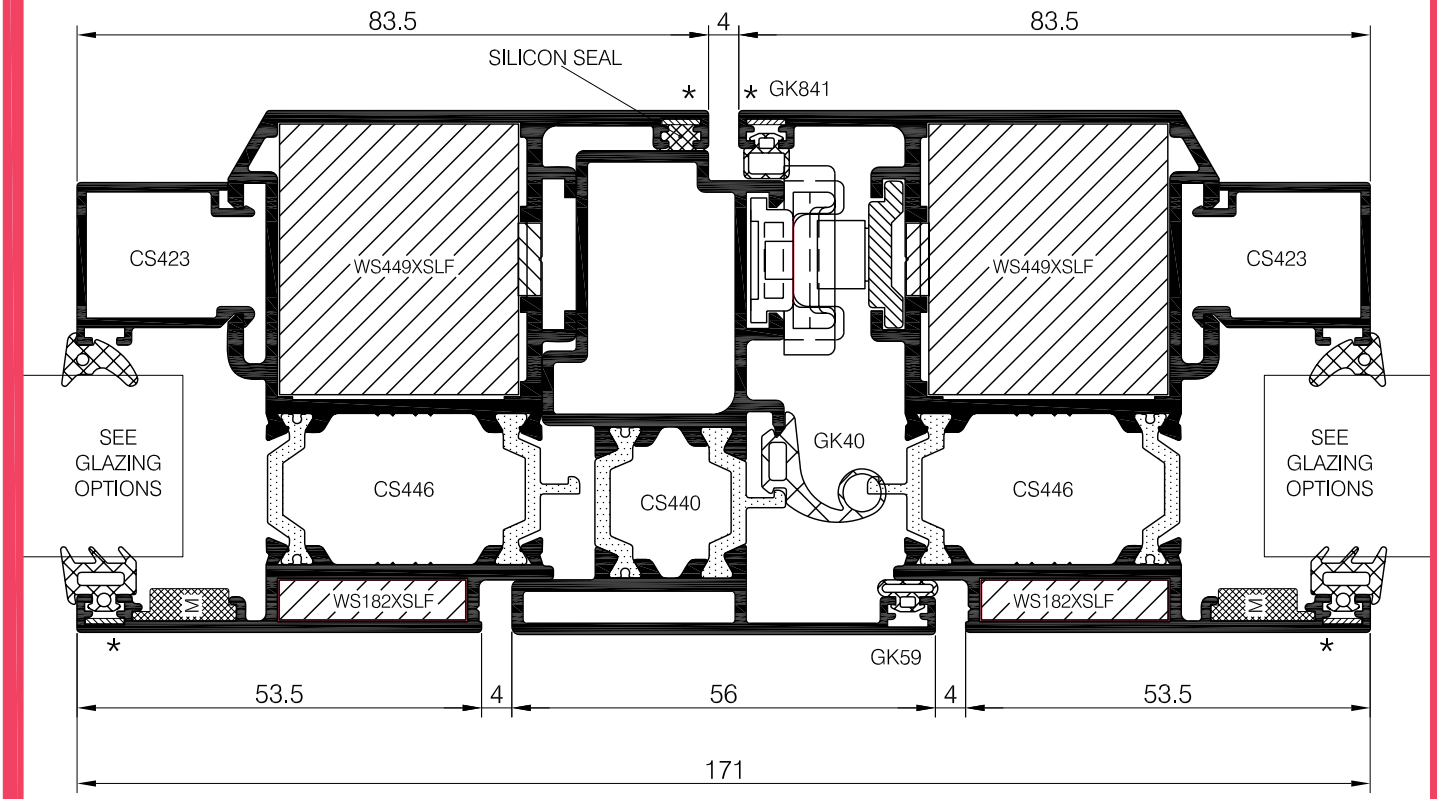
SIZE LIMITS

H = 2400mm MAX

W = 1200mm MAX

WEIGHT = 90KG MAX.

FOR ADDITIONAL PREP DETAILS
SEE PAGE 4.2.14 & 4.2.15



M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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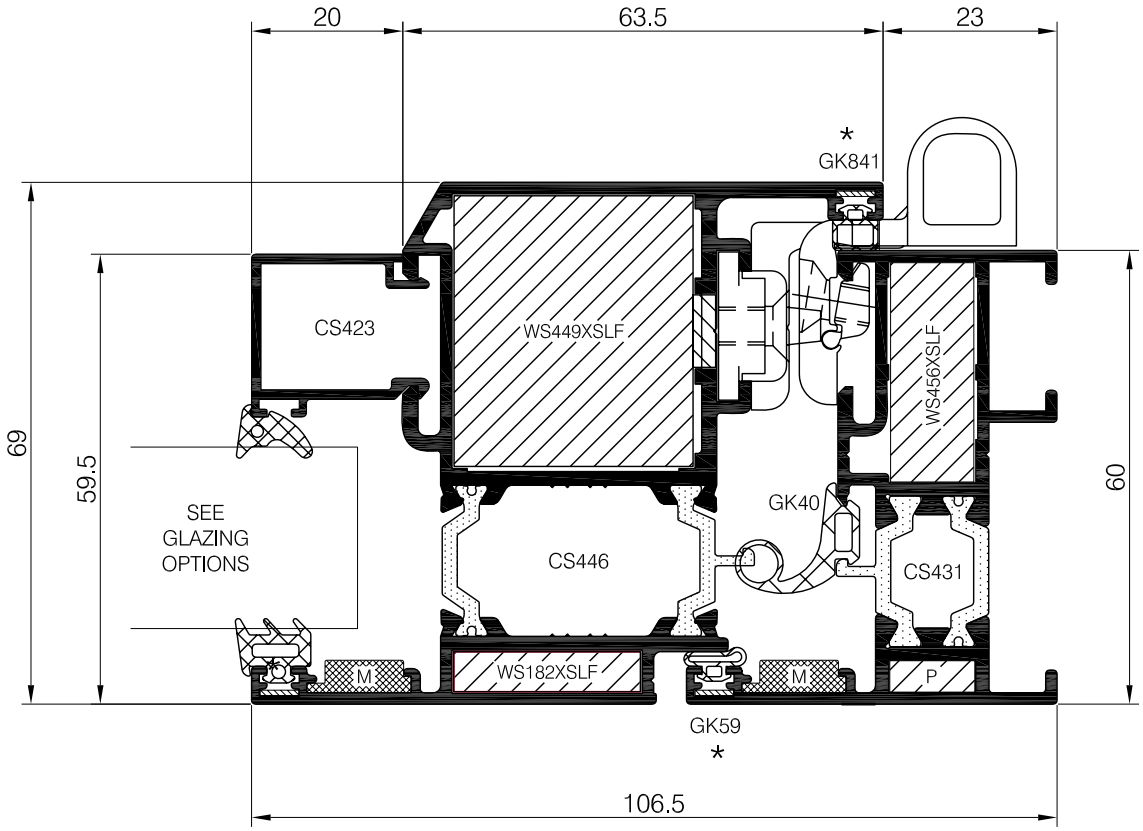
TITLE

HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

SHEET No. **4.2.10**

SUB TITLE

JAMB DETAIL HEAVY DUTY



M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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TITLE

HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT

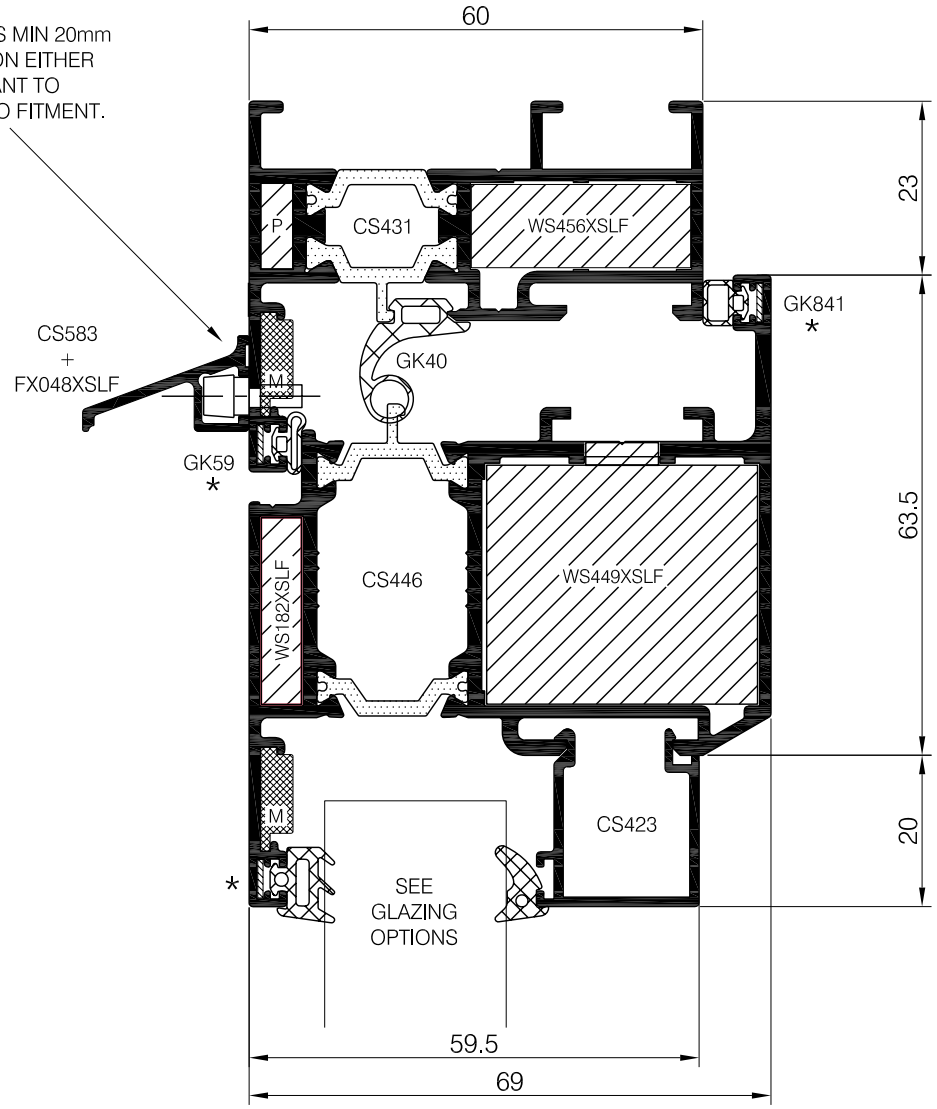
SHEET No. 4.2.11

SUB TITLE

HEAD DETAIL HEAVY DUTY

NOTE:

BE SURE NOT TO DRILL THROUGH ALIGNMENT SQUARE WS416XSLF IN CORNER OF CS431 WHEN FITTING FX048XSLF RIVETS.
ENSURE DRIP EXTENDS MIN 20mm PAST SASH OPENING ON EITHER END AND APPLY SEALANT TO MATING FACE PRIOR TO FITMENT.



◊ FOR OUTER FRAME DRAINAGE DETAIL SEE SECTION 2
M DENOTES WS416XSLF ALIGNMENT SQUARE
P DENOTES WS415XSLF PLASTIC CHEVRON
* DENOTES WS515 CHEVRON

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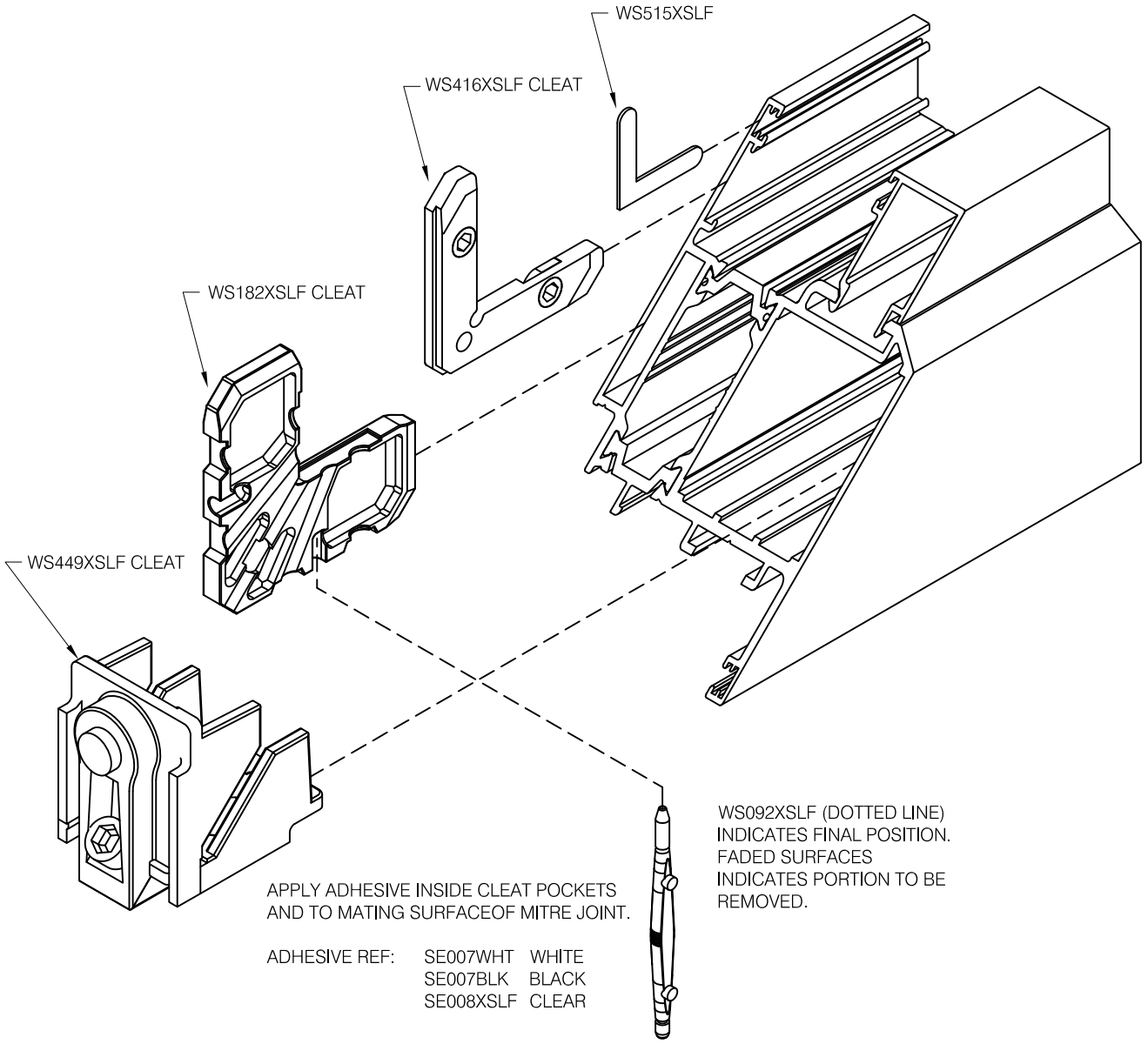
TITLE **HEAVY DUTY TILT/TURN, BOTTOM HUNG & SIDE HUNG OPEN IN CASEMENT**

SHEET No. **4.2.12**

SUB TITLE **EXPLODED CORNER - INTERNALLY BEADED PREPARATION & ASSEMBLY**

MITRED CS446 ILLUSTRATED

WS182XSLF CLEAT PREP:	COM5 T25 STATION 1 & 8
DRAINAGE SLOT PREP:	COM5 T11 STATION 3 & 4
WS449XSLF CLEAT PREP	COM5 T25 STATION 3



NOTE:

GK454 & IN080XSLF IS TO BE INSERTED UP THE SIDE OF THE SASH PRIOR TO ASSEMBLING THE CORNERS.

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comar 5P.*i*

POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

SHEET No. **4.2.13**

TILT/TURN & OPEN IN CASEMENT
PREPARATION DETAILS

CS431 OUTER FRAME SHOWN

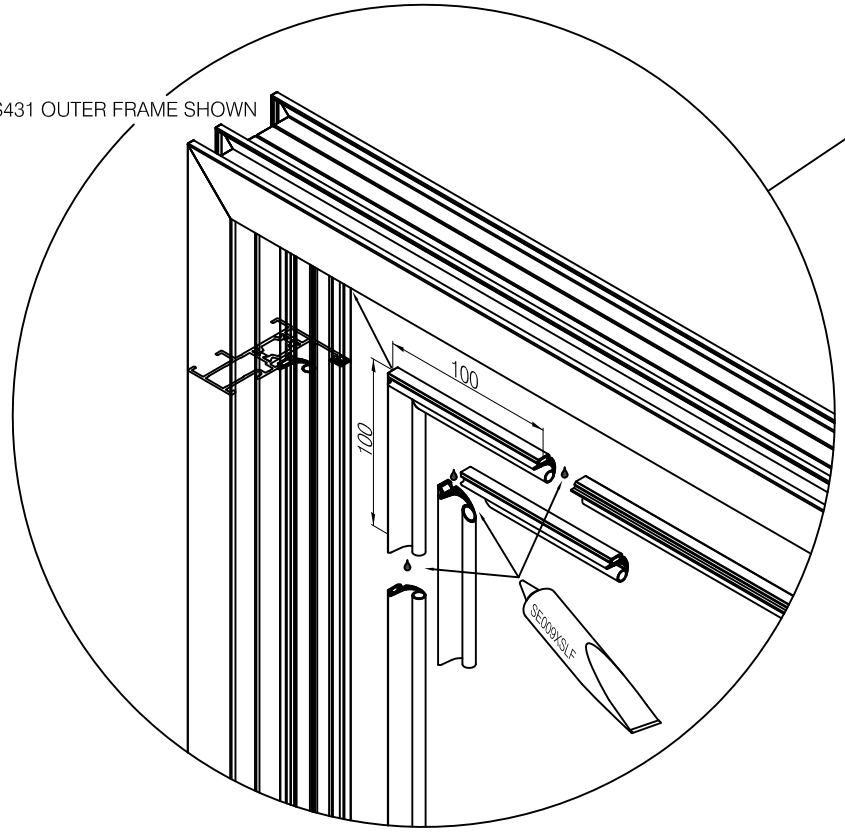
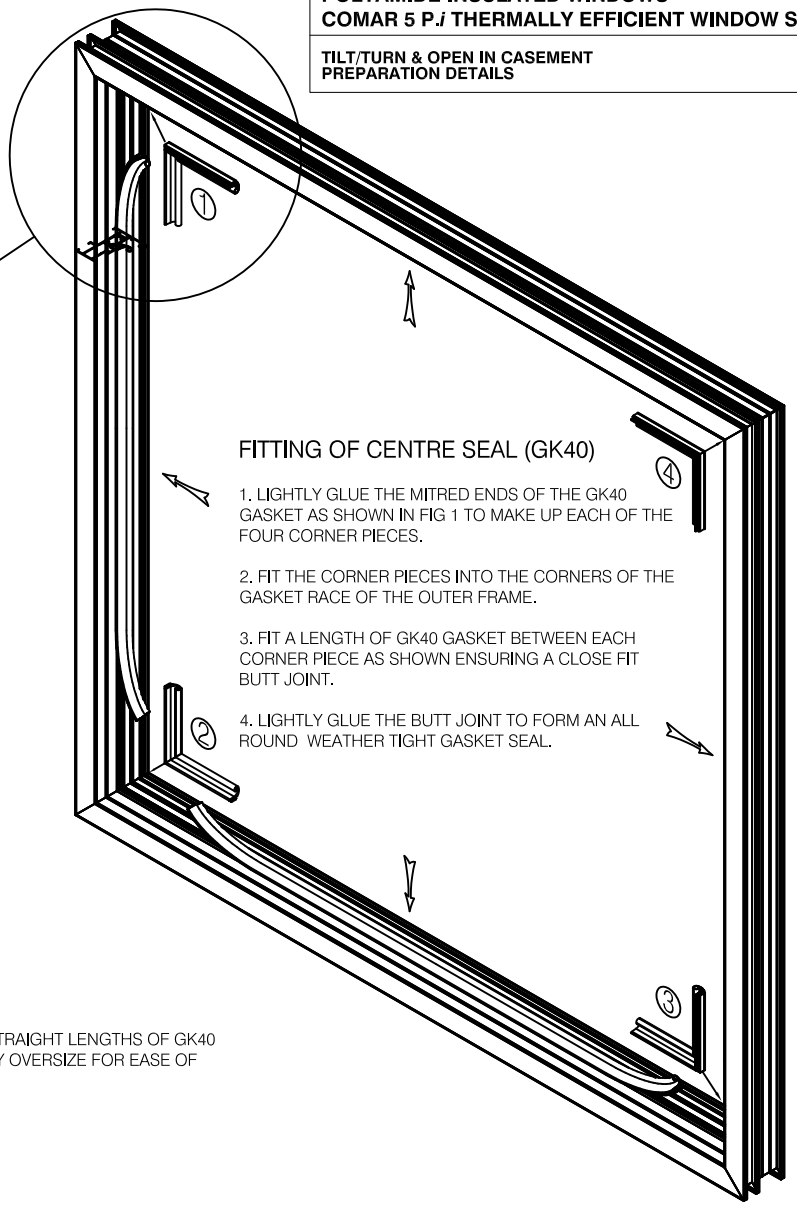


FIG 1



FITTING OF CENTRE SEAL (GK40)

1. LIGHTLY GLUE THE MITRED ENDS OF THE GK40 GASKET AS SHOWN IN FIG 1 TO MAKE UP EACH OF THE FOUR CORNER PIECES.

2. FIT THE CORNER PIECES INTO THE CORNERS OF THE GASKET RACE OF THE OUTER FRAME.

3. FIT A LENGTH OF GK40 GASKET BETWEEN EACH CORNER PIECE AS SHOWN ENSURING A CLOSE FIT BUTT JOINT.

4. LIGHTLY GLUE THE BUTT JOINT TO FORM AN ALL ROUND WEATHER TIGHT GASKET SEAL.

NOTE:

PLEASE ENSURE THAT STRAIGHT LENGTHS OF GK40 GASKET IS CUT SLIGHTLY OVERSIZE FOR EASE OF FITMENT.

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DRG. No.	C5Pi – 4.2.13

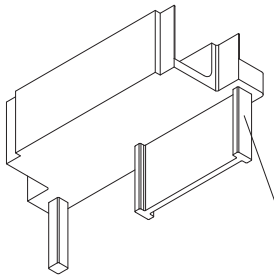
comar 5P.*i*

POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

SHEET No. **4.2.14**

FRENCH CASEMENT MULLION PREPARATION
END CAP FITMENT PREPARATION DETAIL

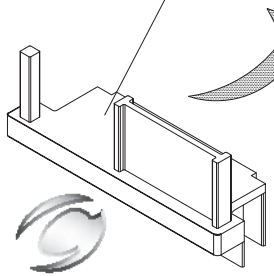
EC440DBLK

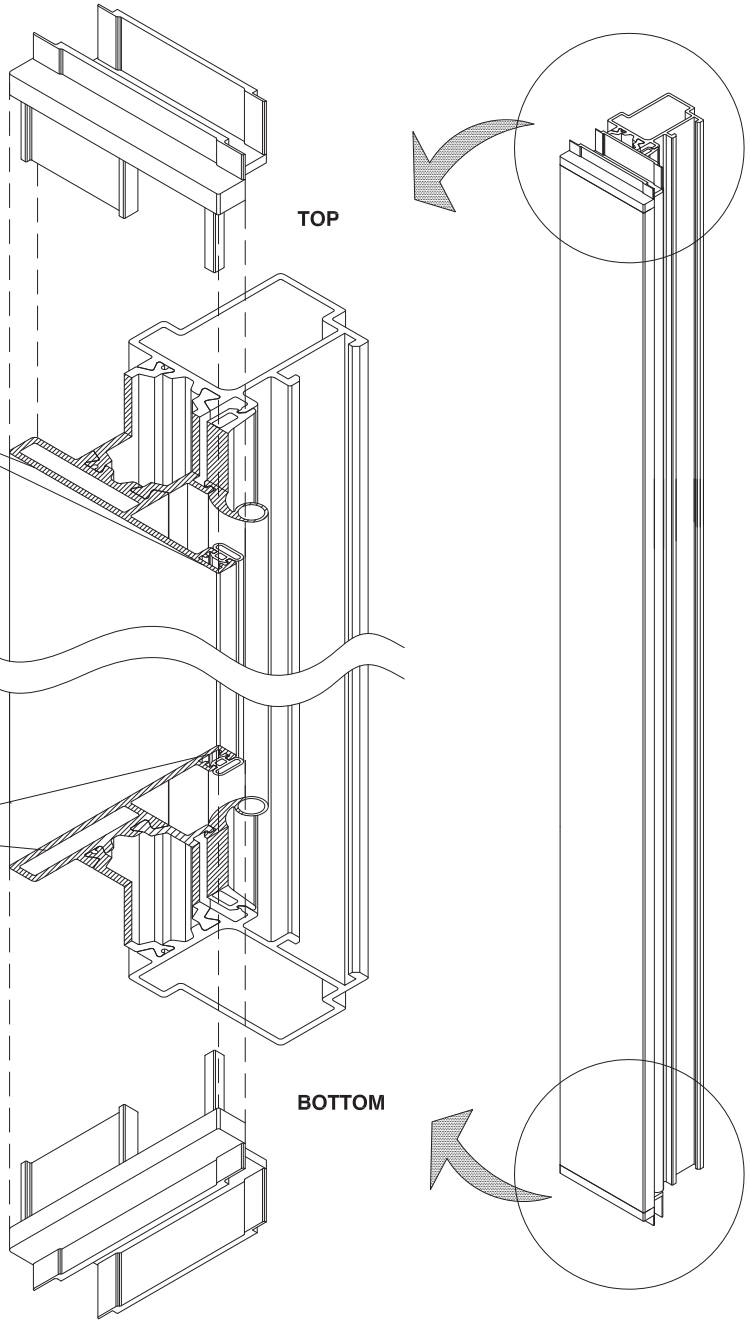


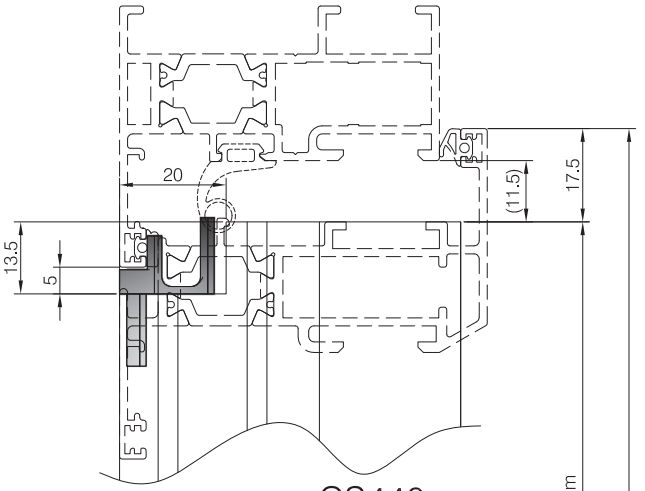
APPLY ADHESIVE OR SUITABLE EQUIVALENT TO SURFACE AND INTO RECESSES

ADHESIVE REF:
SE008XSLF (CLEAR)
SE007XSLF (WHITE)
SE007BLK (BLACK)

EC440DBLK



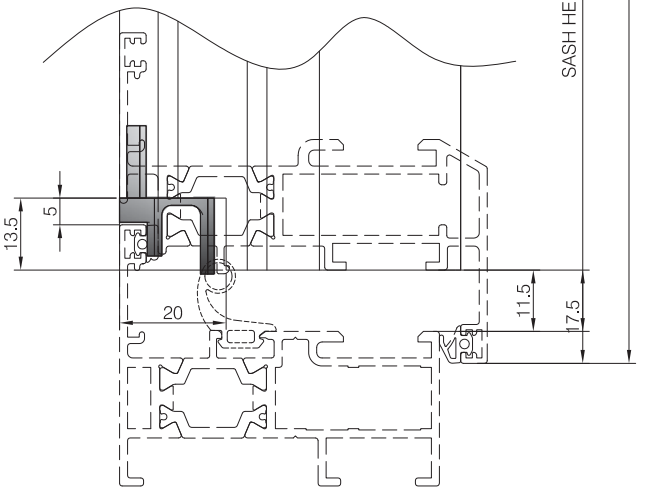




CS440
END PREPS

Profile cutting.

CS440	
Cut to	Sash size (Fh) - 35mm



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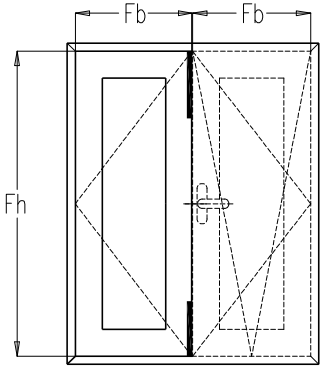
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17 WILLOW LANE ° MITCHAM
SURREY ° CR4 4NX
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Email: technical@parksidegrp.co.uk
Web Site: http://www.comar-alu.co.uk

SCALE	NTS @A4
DATE	31/03/08
DRAWN	GMS/CAD
DRG. No.	C5Pi – 4.2.14 R1

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comar 5P.*i*

TURN TILT OPEN-IN VERSION



PARTS LIST

Fb / Fh	400 - 1200
1801 - 2400	① WS496XSLF ② WS485 ③ WS486 ⑤ 2 x WS489XSLF

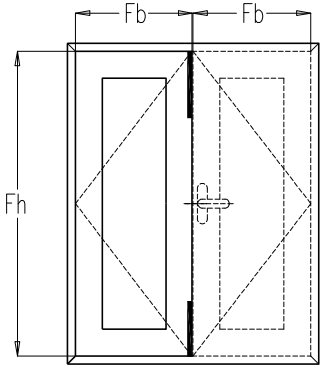
SIZE RANGE

Fb : min 400 - max 1200

Fh : max 2400

Max 90 kg

SIDE HUNG OPEN-IN VERSION



PARTS LIST

Fb / Fh	400 - 1200
1801 - 2400	① WS496XSLF ② WS485 ③ WS486 ④ WS497XSLF ⑥ 2 x WS485

SIZE RANGE

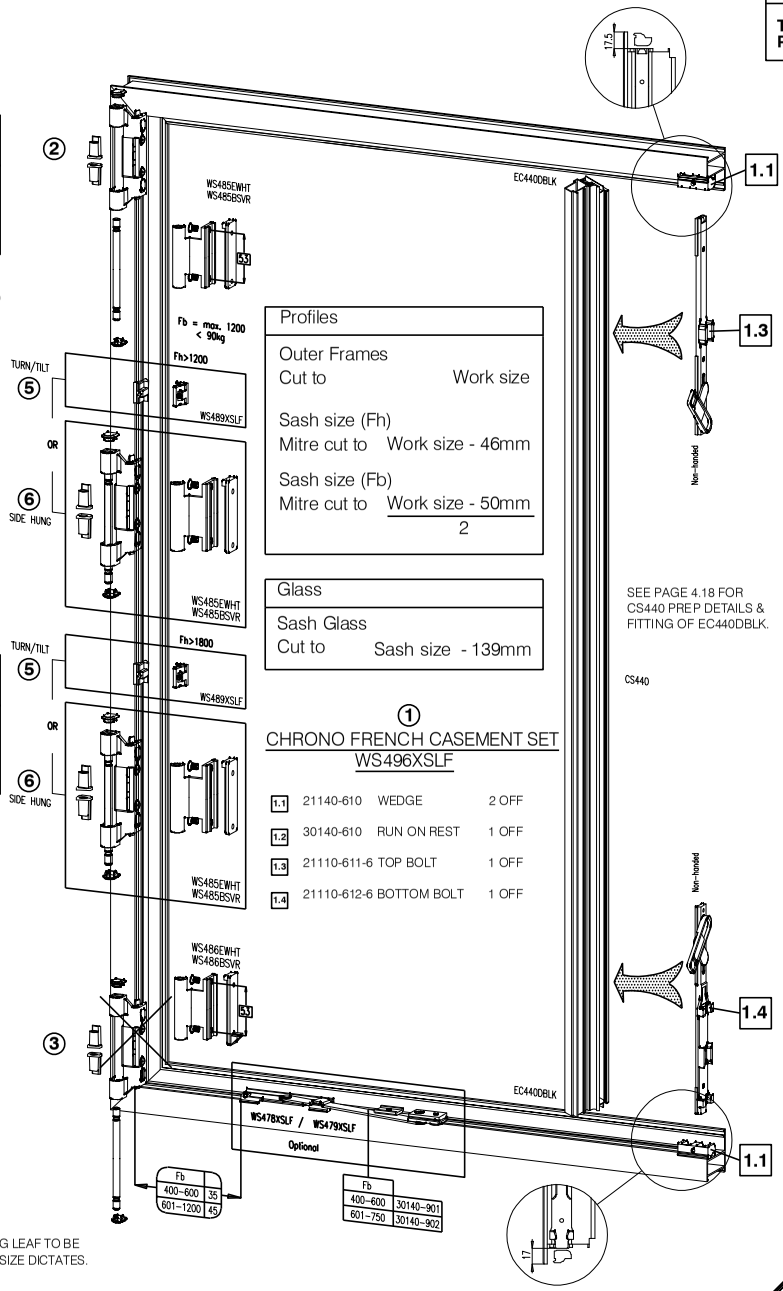
Fb : min 400 - max 1200

Fh : max 2400

Max 90 kg

SOBINCO GEARING SUPPLIED BY:
TITON
INTERNATIONAL HOUSE
PEARTREE ROAD
STANWAY
COLCHESTER
ESSEX
C03 0JL
TEL: 01206 713800 FAX: 01206 543126
web: www.titon.com

NOTE:
TURN/TILT AND SIDE HUNG LEAF TO BE ORDERED NORMALLY AS SIZE DICTATES.



Profiles

Outer Frames
Cut to Work size

Sash size (Fh)
Mitre cut to Work size - 46mm

Sash size (Fb)
Mitre cut to $\frac{\text{Work size - 50mm}}{2}$

Glass

Sash Glass
Cut to Sash size - 139mm

SEE PAGE 4.18 FOR CS440 PREP DETAILS & FITTING OF EC440DBLK.

CS440

① CHRONO FRENCH CASEMENT SET WS496XSLF

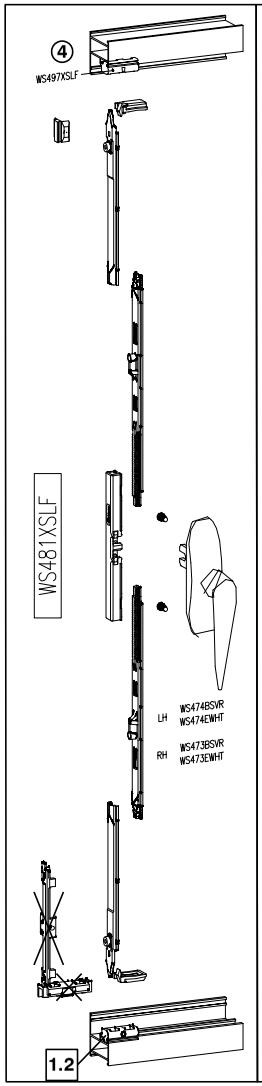
1.1	21140-610	WEDGE	2 OFF
1.2	30140-610	RUN ON REST	1 OFF
1.3	21110-611-6	TOP BOLT	1 OFF
1.4	21110-612-6	BOTTOM BOLT	1 OFF

POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

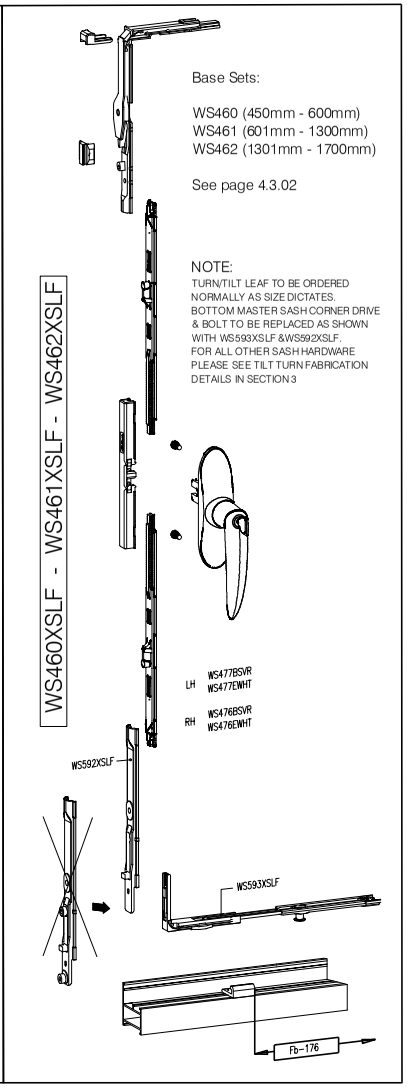
SHEET No. **4.2.15**

TILT/TURN & OPEN IN CASEMENT WINDOW
PREPARATION & ASSEMBLEY - FRENCH CASEMENT

SIDE HUNG OPEN-IN



TURN/TILT OPEN-IN



Base Sets:

WS460 (450mm - 600mm)
WS461 (601mm - 1300mm)
WS462 (1301mm - 1700mm)

See page 4.3.02

NOTE:
TURN/TILT LEAF TO BE ORDERED NORMALLY AS SIZE DICTATES.
BOTTOM MASTER SASH CORNER DRIVE & BOLT TO BE REPLACED AS SHOWN WITH WS593XSLF &WS592XSLF.
FOR ALL OTHER SASH HARDWARE PLEASE SEE TILT TURN FABRICATION DETAILS IN SECTION 3

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SCALE	NTS @A4
DATE	07/10/2020
DRAWN	GMS/CAD
DRG. No.	C5Pi – 4.2.15 R1

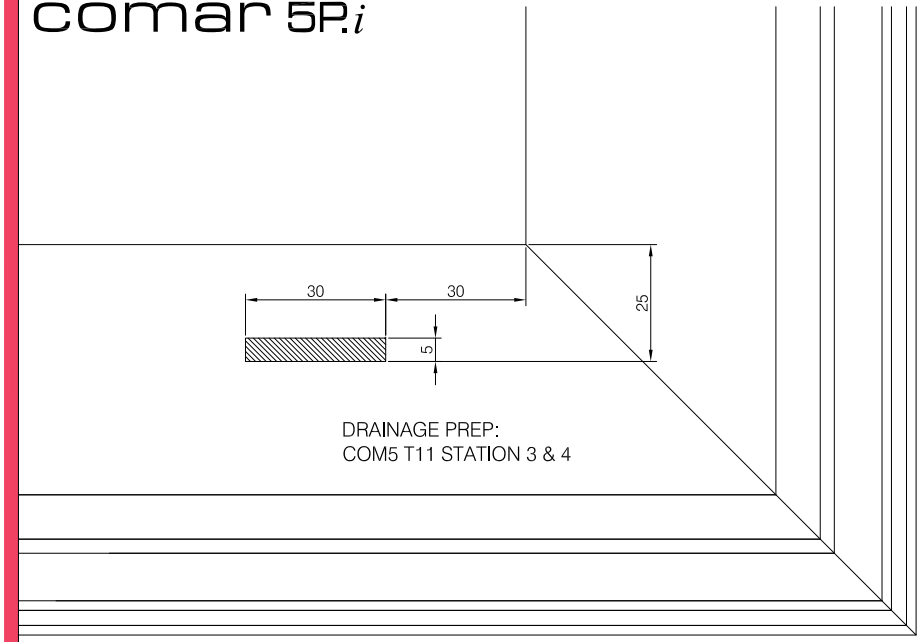
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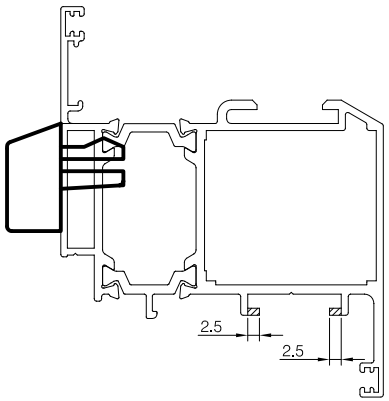
POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

SHEET No. **4.2.16**

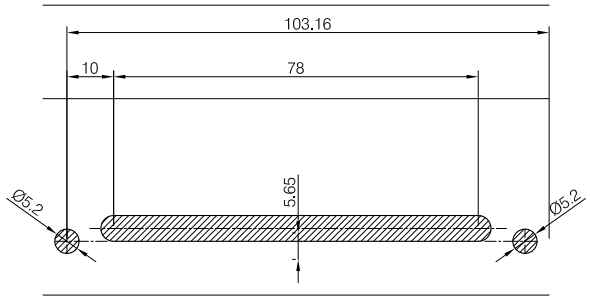
TILT/TURN & OPEN IN CASEMENT WINDOW
PREPARATION DETAILS



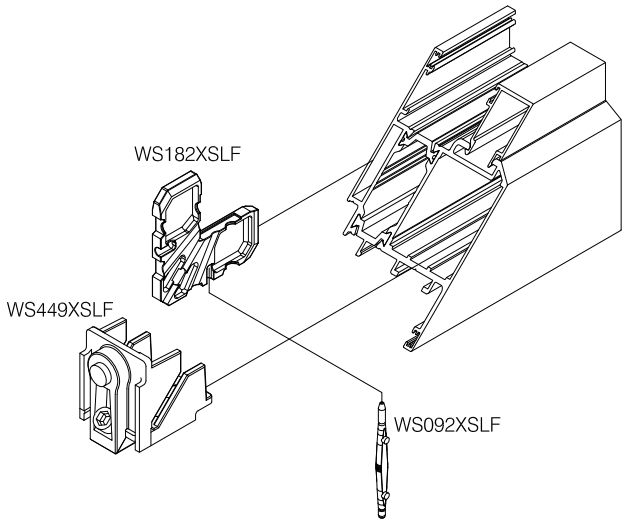
DRAINAGE PREP:
COM5 T11 STATION 3 & 4

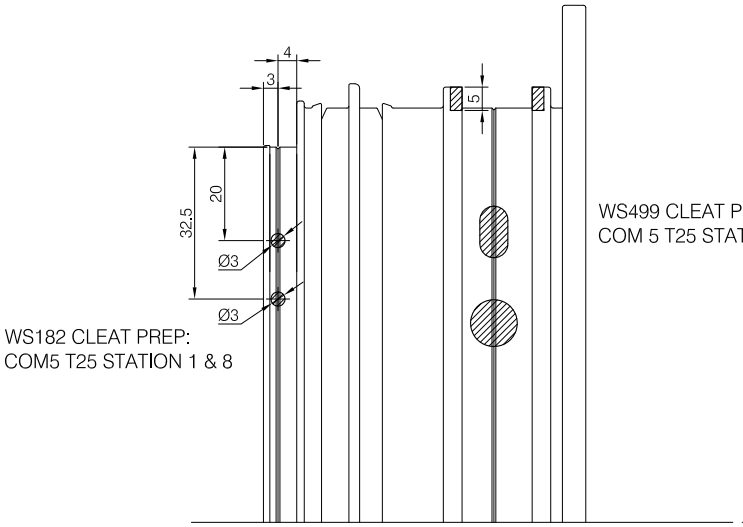


EURO GROOVE PREP:
COM5 T11 STATION 2

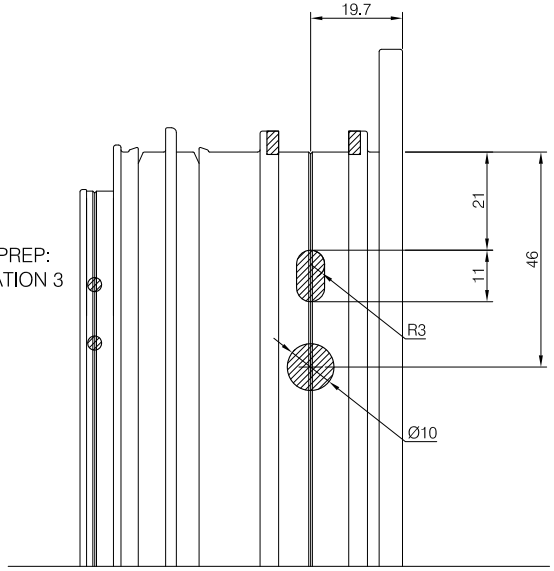


HANDLE PREP:
COM5 T11 STATION 1





WS182 CLEAT PREP:
COM5 T25 STATION 1 & 8



WS499 CLEAT PREP:
COM 5 T25 STATION 3

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DATE	08/12/17
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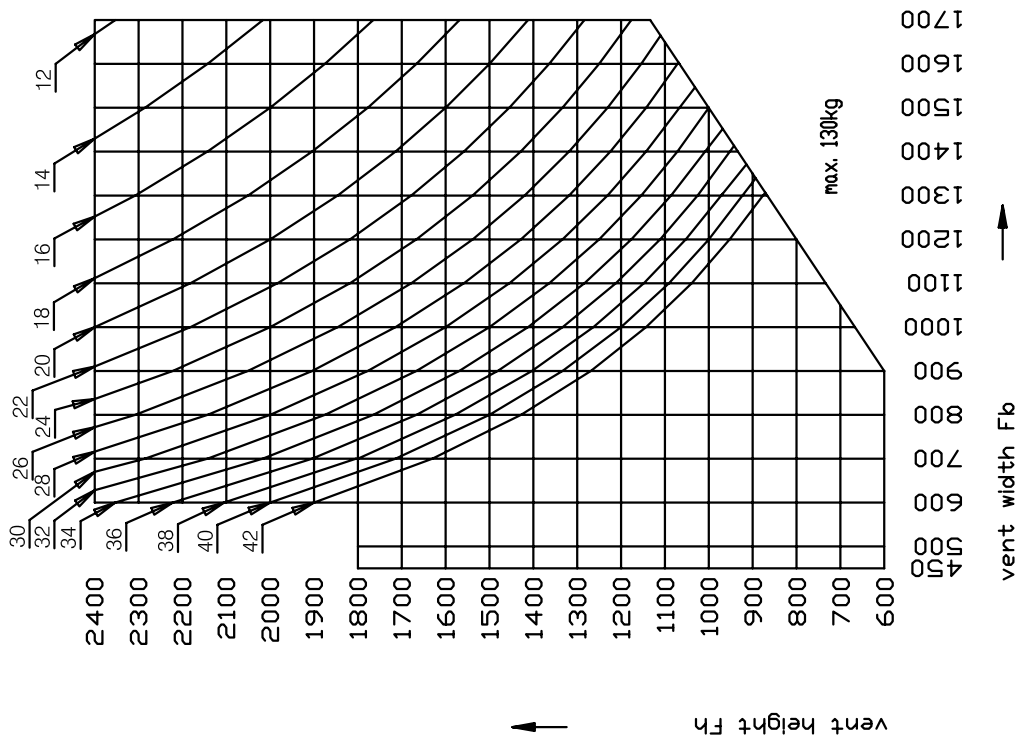
TITLE
Tilt & Turn Open In Casement
Sobinco Chrono

SHEET No.
4.3.01

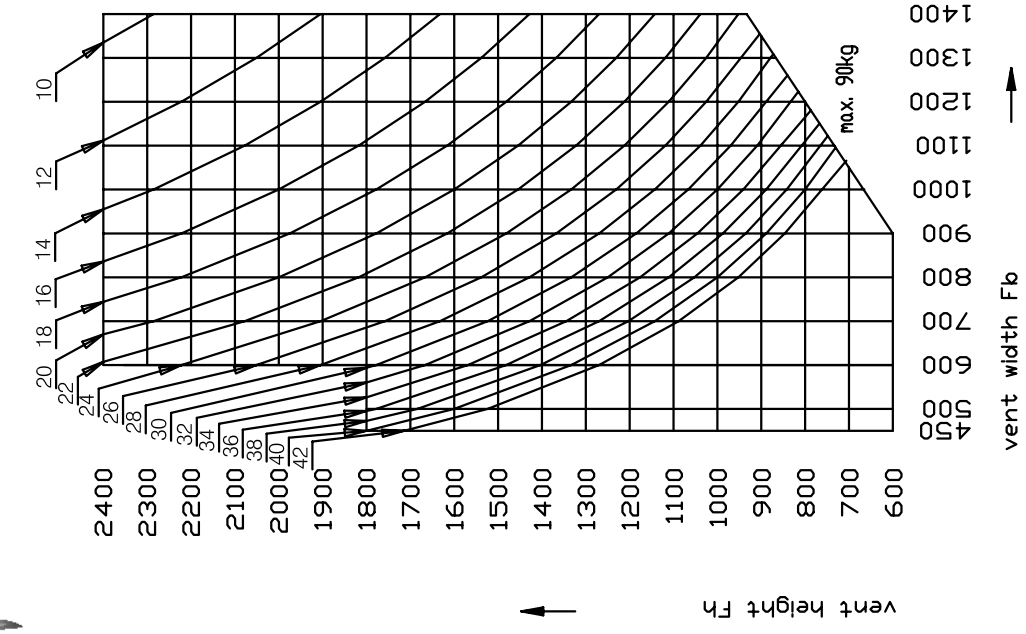
SUB TITLE
Size Limitation to Glass Weight Table

Tilt & Turn Size Limitation to Glass Weight Table

NOTE: Use 130kg table for vents over 1400mm wide or 1800mm tall.



glass		
nr	mm	kg/m2
10	10	25
12	12	30
14	14	35
16	16	40
18	18	45
20	20	50
22	22	55
24	24	60
26	26	65
28	28	70
30	30	75
32	32	80
34	34	85
36	36	90
38	38	95
40	40	100
42	42	105



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DRG. No.	C5Pi–4.3.01

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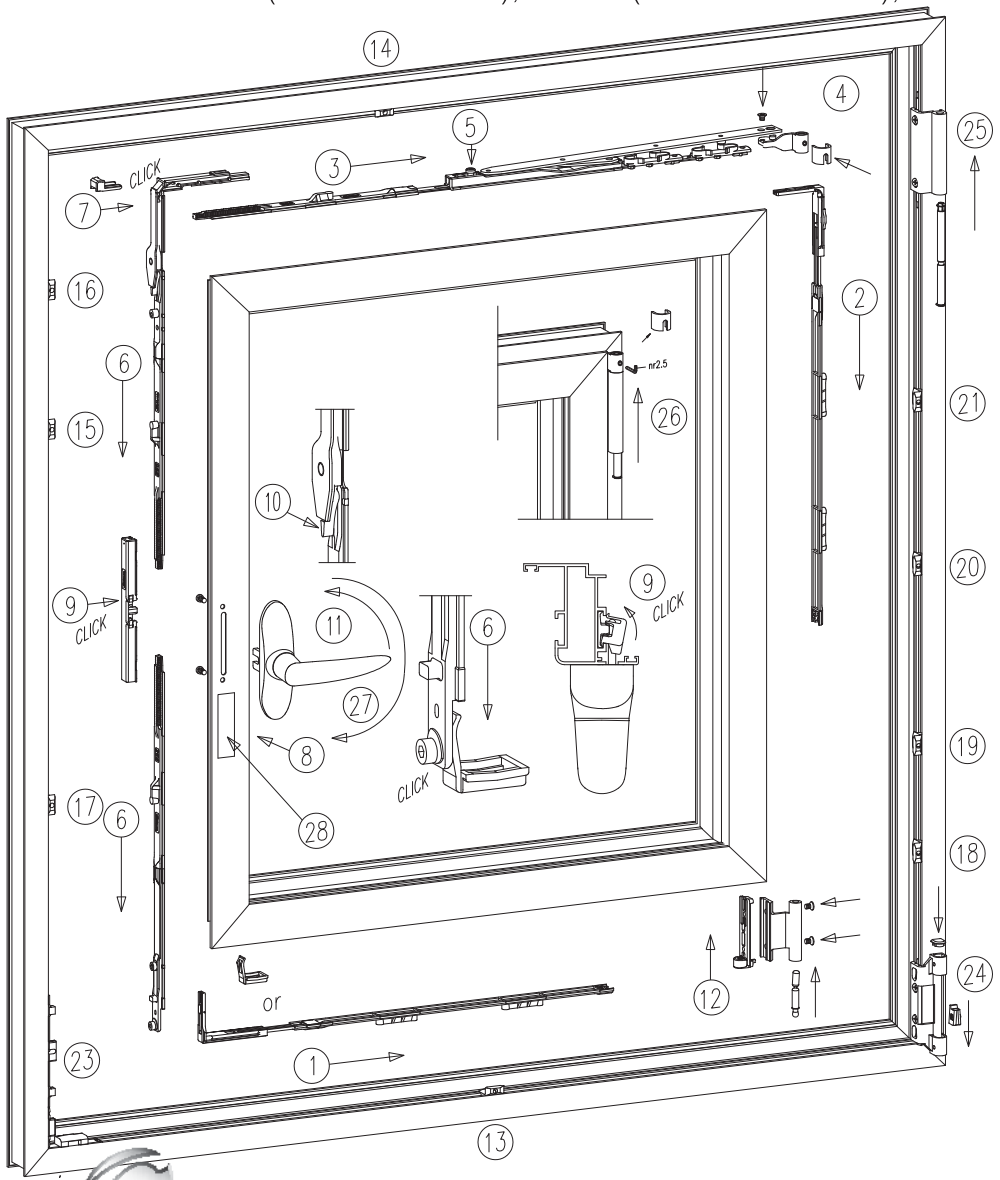
CHRONO Hardware Reference to Width:

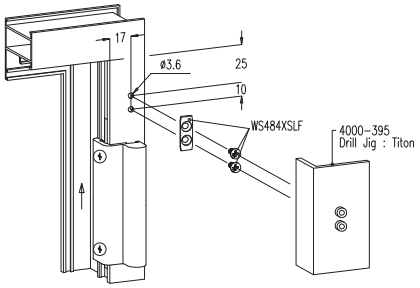
WS460 (450mm - 600mm); WS461 (601mm - 1300mm); WS462 (1301mm - 1700mm)

POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

SHEET No. **4.3.02**

TILT/TURN & OPEN IN CASEMENT WINDOW
PREPARATION & ASSEMBLEY - SOBINCO CHRONO HARDWARE OPTION





NOTE
VENT SIZE RATIO:
WIDTH / HEIGHT = 1.5MAX

ALTERNATIVE SOBINCO TILT & TURN HARDWARE
CHRONO INVISI - Concealed hinge.
CHRONO SAFE - Security rated hardware.

PREP: Trim 110mm off top & bottom of GK841on bracket side of vent prior to fitment of Chrono gear.

1. Slide in Run-on-rest or Centre Lock
2. Slide in Centre Lock if required
3. Slide in Link Arm and Rod
4. Mount Hinge and temporary Nylon Spacer
5. Screw in Self-Tapping Screw
6. Slide in Gear below handle
7. Slide in Clip
8. Mount Handle
9. Click in Handle Connector
10. Depress Anti-Mishandling device
11. Rotate Handle to "Turn"
12. Mount bottom Hinge
13-21. Position Wedges using colour Jigs
22&23. Mount Wedges
24. Mount bottom Hinge
25. Mount top Hinge
26. Slide in Hinge Pin
27. Close handle
28. Apply Operation Guide Sticker

HANDLES: WS477 (LH)
WS476 (RH)

SOBINCO GEARING SUPPLIED BY:
TITON
INTERNATIONAL HOUSE
PEARTREE ROAD
STANWAY
COLCHESTER
ESSEX
C03 0JL
TEL: 01206 713800
FAX: 01206 543126
WEB: www.titon.com

Profile and glass cutting.
Outer Frame: CS431
Mullion/Transom: CS435

Profiles	
Outer Frames	
Cut to	Work size
Sash size	
Mitre cut to	Work size - 46mm
or	Edge to ℄ - 29.5mm
or	℄ to ℄ - 13mm

Glass (CS433)	
Sash Glass	
Cut to	Sash size - 96mm
Glass (CS446)	
Sash Glass	
Cut to	Sash size - 139mm

Max Sizes for CS433

Width: 450 - 1162 mm
Height: 600 - 1800 mm
2 x 6 mm = 30kg/m² Glass
Max Perimeter = 5500mm

Max Sizes for CS446

Width: 450 - 1620 mm
Height: 600 - 2400mm
2 x 6 mm = 30kg/m² Glass
Max Weight = 90kg

NOTE:
USE WS484XSLF REINFORCEMENT SET FOR VENTS OVER 1400mm WIDE OR 1800mm TALL.

LOCKING POINTS SUBJECT TO WINDOW DIMENSIONS.
PLEASE CONSULT COMAR'S ESTIMATING SOFTWARE (GENESIS)

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DATE	23/10/07
DRAWN	GMS/CAD
DRG. No.	C5Pi – 4.3.02

TILT & TURN GEARING

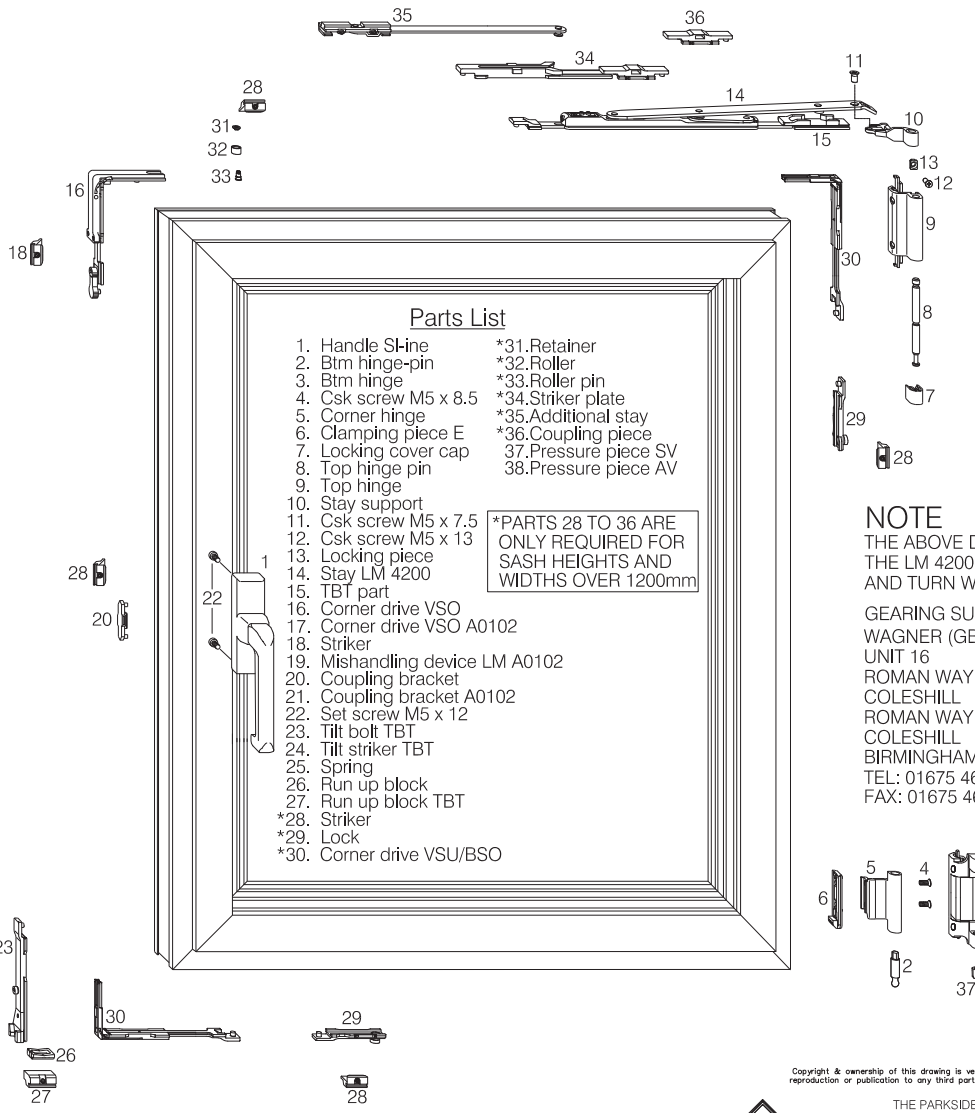
SIEGENIA LM4200 TBT AVAILABLE IN SILVER OR WHITE

	GR20	GR35	GR35 + A S
	SASH WIDTH 355-600	SASH WIDTH 600-1249	SASH WIDTH 1250-1600
WINDOW HEIGHT 500-1249	WS572	WS573	WS574
	SASH WIDTH 350-600	SASH WIDTH 600-1250	SASH WIDTH 1250-1600
WINDOW HEIGHT 1250-2400	WS575	WS576	WS577

SIEGENIA TBT LOCKING HANDLE (UNIVERSAL):
WS571

PLEASE SPECIFY SILVER (BSVR) OR WHITE (WHT) WHEN ORDERING HARDWARE

MAX SASH WEIGHT: 90Kg



Parts List

1. Handle SI-ine
2. Btm hinge-pin
3. Btm hinge
4. Csk screw M5 x 8.5
5. Corner hinge
6. Clamping piece E
7. Locking cover cap
8. Top hinge pin
9. Top hinge
10. Stay support
11. Csk screw M5 x 7.5
12. Csk screw M5 x 13
13. Locking piece
14. Stay LM 4200
15. TBT part
16. Corner drive VSO
17. Corner drive VSO A0102
18. Striker
19. Mishandling device LM A0102
20. Coupling bracket
21. Coupling bracket A0102
22. Set screw M5 x 12
23. Tilt bolt TBT
24. Tilt striker TBT
25. Spring
26. Run up block
27. Run up block TBT
*28. Striker
*29. Lock
*30. Corner drive VSU/BSO
*31. Retainer
*32. Roller
*33. Roller pin
*34. Striker plate
*35. Additional stay
*36. Coupling piece
37. Pressure piece SV
38. Pressure piece AV

*PARTS 28 TO 36 ARE ONLY REQUIRED FOR SASH HEIGHTS AND WIDTHS OVER 1200mm

Profile and glass cutting.
Outer Frame: CS431
Mullion/Transom: CS435

Profiles	
Outer Frames	
Cut to	Work size
Sash size	
Mitre cut to	Work size - 46mm
or	Edge to ℄ - 29.5mm
or	℄ to ℄ - 13mm

Glass (CS433)	
Sash Glass	
Cut to	Sash size - 96mm
Glass (CS446)	
Sash Glass	
Cut to	Sash size - 139mm

NOTE

THE ABOVE DRAWING INDICATES A DIAGRAMATICAL VIEW OF THE LM 4200 TBT (TILT BEFORE TURN) GEARING FOR THE TILT AND TURN WINDOW

GEARING SUPPLIED BY:
WAGNER (GB) LTD
UNIT 16
ROMAN WAY
COLESHILL
ROMAN WAY
COLESHILL
BIRMINGHAM B46 1HG
TEL: 01675 466411
FAX: 01675 466300

Max Sizes for CS433

Width: 450 - 1162 mm
Height: 600 - 1800 mm
2 x 6 mm = 30kg/m² Glass
Max Perimeter = 5500mm

Max Sizes for CS446

Width: 450 - 1620 mm
Height: 600 - 2400mm
2 x 6 mm = 30kg/m² Glass
Max Weight = 90kg

NOTE

VENT SIZE RATIO:
WIDTH / HEIGHT = 1.5MAX

LOCKING POINTS SUBJECT TO WINDOW DIMENSIONS.
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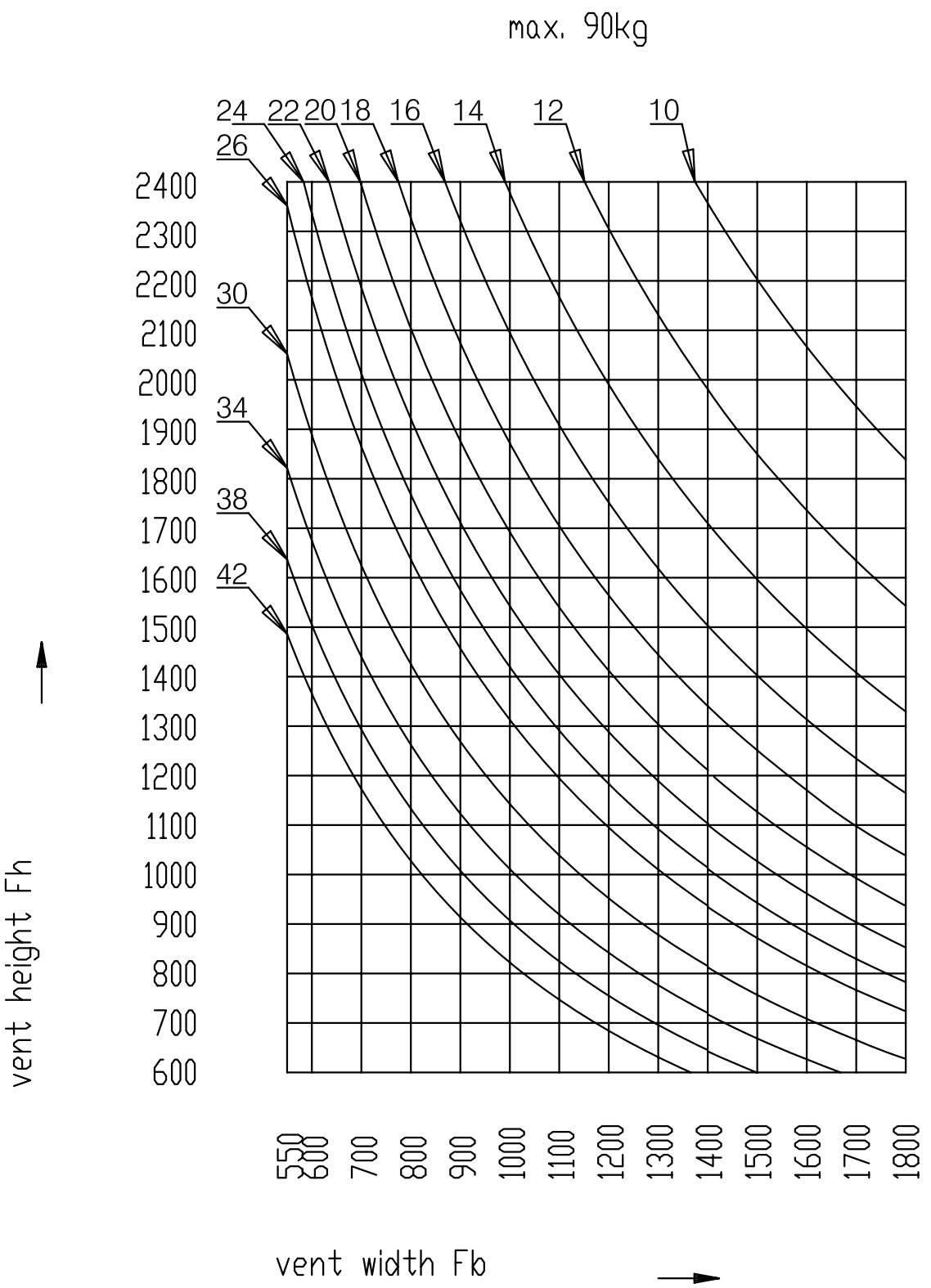
SCALE	NTS @A4
DATE	23/10/07
DRAWN	GMS/CAD
DRG. No.	C5Pi – 4.3.03

comar5Pi

TITLE
Bottom Hung Open In Casement
Sobinco Chrono - Side Handle

SHEET No.
4.3.04

SUB TITLE
Size Limitation to
Glass Weight Table



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Web Site: http://www.comar-alu.co.uk

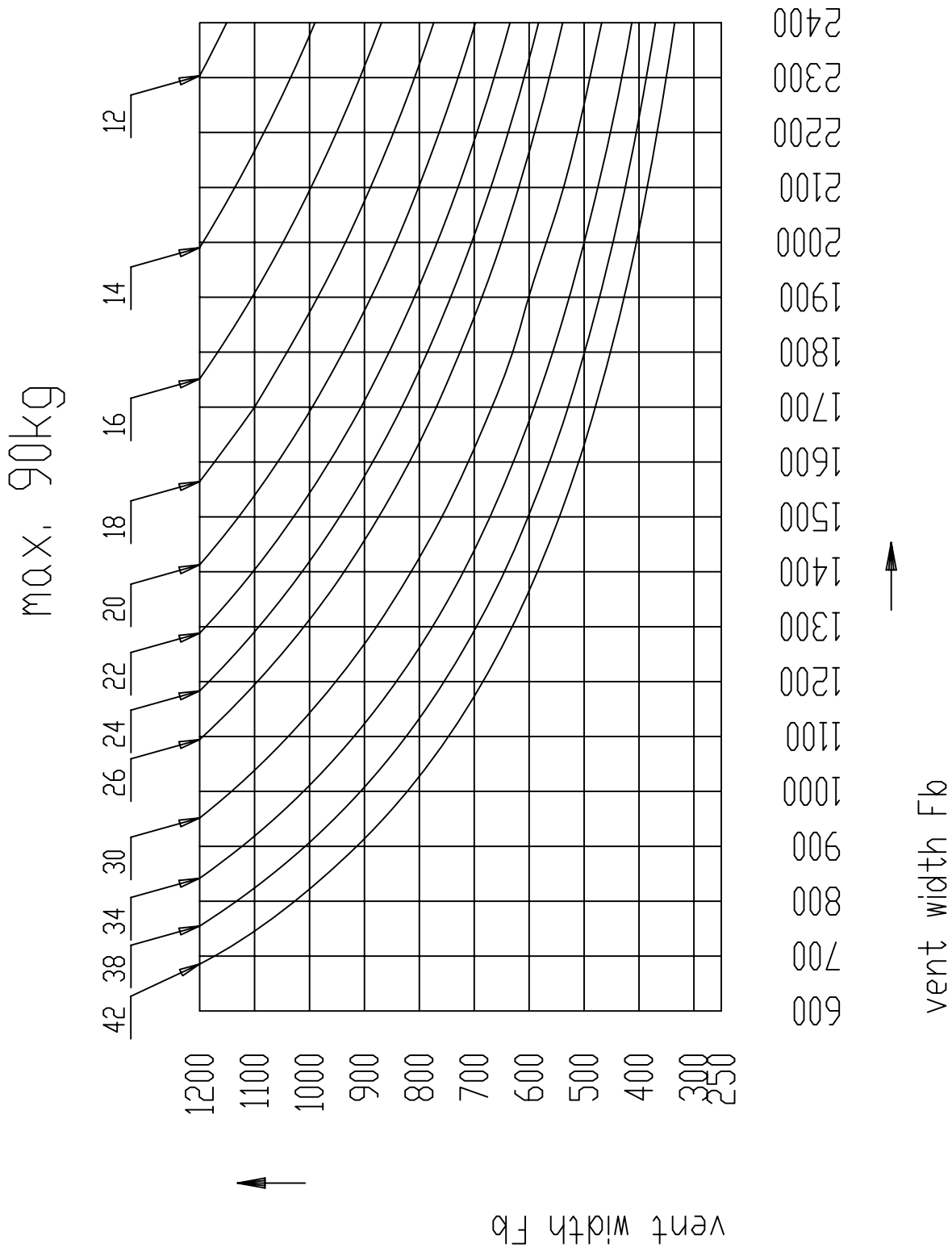
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DATE	31/10/07
DRAWN	GMS/CAD
DRG. No.	C5Pi–4.3.04

comar5Pi

TITLE
Bottom Hung Open In Casement
Sobinco Chrono - Top Handle

SHEET No.
4.3.05

SUB TITLE
Size Limitation to
Glass Weight Table



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DRG. No.	C5Pi–4.3.05

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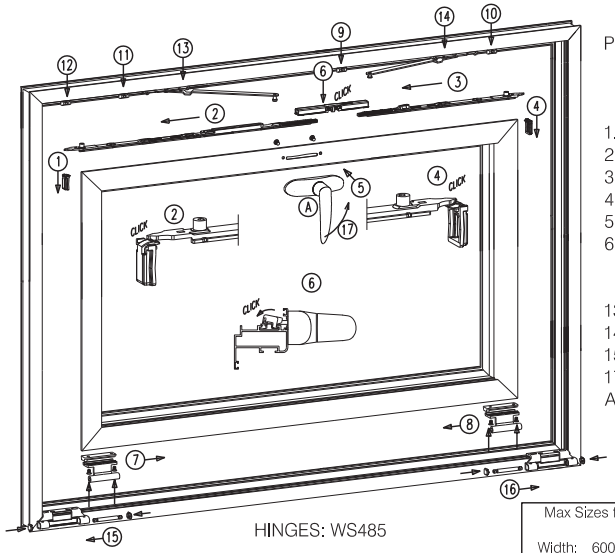
POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

SHEET No. **4.3.06**

BOTTOM HUNG OPEN IN CASEMENT
PREPARATION & ASSEMBLEY - SOBINCO CHRONO HARDWARE OPTION

TOP HANDLE

WS491XSLF + WS492XSLF (x2) (600mm - 1200mm width)
WS491XSLF (1201mm - 1800mm width)



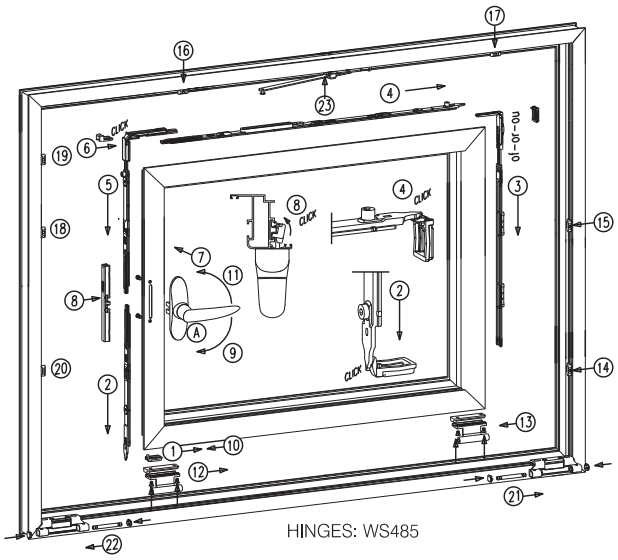
HINGES: WS485

PREP: Trim 110mm off top & bottom of GK481 on bracket side of vent prior to fitting of Chrono gear.

1. Fit Run-On-Rest
2. Slide in Gear
3. Fit Run-On-Rest
4. Slide in Gear
5. Mount Handle
6. Click in Handle Connector
7&8. Mount Hinges
9-12. Mount Wedges using Coloured Jigs
13. Mount Stay
14. Mount Stay if required
15&16. Mount Hinges
17. Close Handles
A. Locking Handle: WS476 (RH)
WS477 (LH)

Max Sizes for CS446	Max Sizes for CS433
Width: 600 - 1500mm Height: 400 - 1200mm 2 x 6 mm = 30kg/m² Glass Max Weight = 90kg	Width: 600 - 1162mm Height: 250 - 1200mm 2 x 6 mm = 30kg/m² Glass Max Perimeter = 5500mm

SIDE HANDLE
WS591XSLF



HINGES: WS485

GK481 on bracket side of vent prior to fitting of Chrono gear.

1. Fit Run-On-Rest if required
2. Fit Gear Below Handle if required
3. Slide in Run-On-Rest or Centre Lock
4. Slide in Gear
5. Slide in Gear above Handle
6. Slide in Clip
7. Mount Handle
8. Click in Handle Connector
9. Close Handle
10. Remove Run-On-Rest if fitted
11. Open Handle
12&13. Mount Hinges
14-20. Mount Wedges using Colour Jig
21&22. Mount Hinges
23. Fit Stay
A. Handle WS476 (RH)
WS477 (LH)

Max Sizes for CS446	Max Sizes for CS433
Width: 550 - 1500mm Height: 600 - 2000mm 2 x 6 mm = 30kg/m² Glass Max Weight = 90kg	Width: 550 - 1162mm Height: 600 - 1800mm 2 x 6 mm = 30kg/m² Glass Max Perimeter = 5500mm

ALTERNATIVE SOBINCO BOTTOM HUNG OPEN IN HARDWARE

CHRONO INVISI - Concealed hinge.

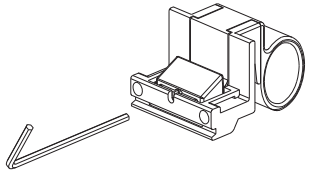
CHRONO SAFE - Security rated hardware.

SOBINCO GEARING SUPPLIED BY:
TITON
INTERNATIONAL HOUSE
PEARTREE ROAD
STANWAY
COLCHESTER
ESSEX
C03 0JL
TEL: 01206 713800
FAX: 01206 543126
WEB: www.titon.com

Profile and glass cutting.
Outer Frame: CS431
Mullion/Transom: CS435

Profiles	
Outer Frames Cut to	Work size
Sash size Mitre cut to or or	Work size - 46mm Edge to ℄ - 29.5mm ℄ to ℄ - 13mm

Glass (CS433)	
Sash Glass Cut to	Sash size - 96mm
Glass (CS446)	
Sash Glass Cut to	Sash size - 139mm



SPRING CATCH: WS494

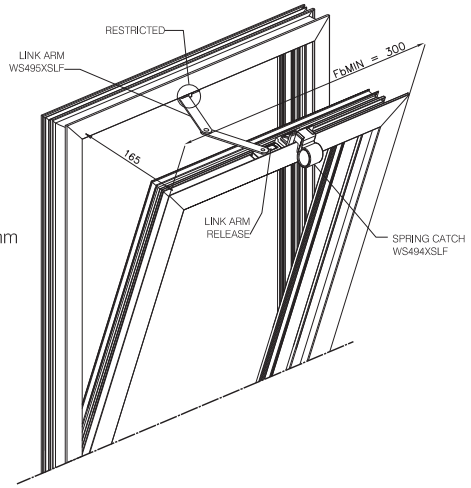
WIDTH:

300-1000mm	1001-1200mm	1201-1400mm
1 x WS494XSLF 1 x WS495XSLF 2 x WS485XSLF	2 x WS494XSLF 2 x WS495XSLF 2 x WS485XSLF	2 x WS494XSLF 2 x WS495XSLF 3 x WS485XSLF

LINK ROD AVAILABLE FROM TITON

Max Sizes for CS446	Max Sizes for CS433
Width: 300 - 1400mm Height: 250 - 1200mm 2 x 6 mm = 30kg/m² Glass Max Weight = 90kg	Width: 300 - 1162mm Height: 250 - 1200mm 2 x 6 mm = 30kg/m² Glass Max Perimeter = 5500mm

SPRING CATCH & LINK ARM ALTERNATIVE FOR BOTTOM HUNG INWARD OPENING VENT



LOCKING POINTS SUBJECT TO WINDOW DIMENSIONS.
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SCALE	NTS @A4
DATE	23/10/07
DRAWN	GMS/CAD
DRG. No.	C5Pi – 4.3.06

comar5Pi

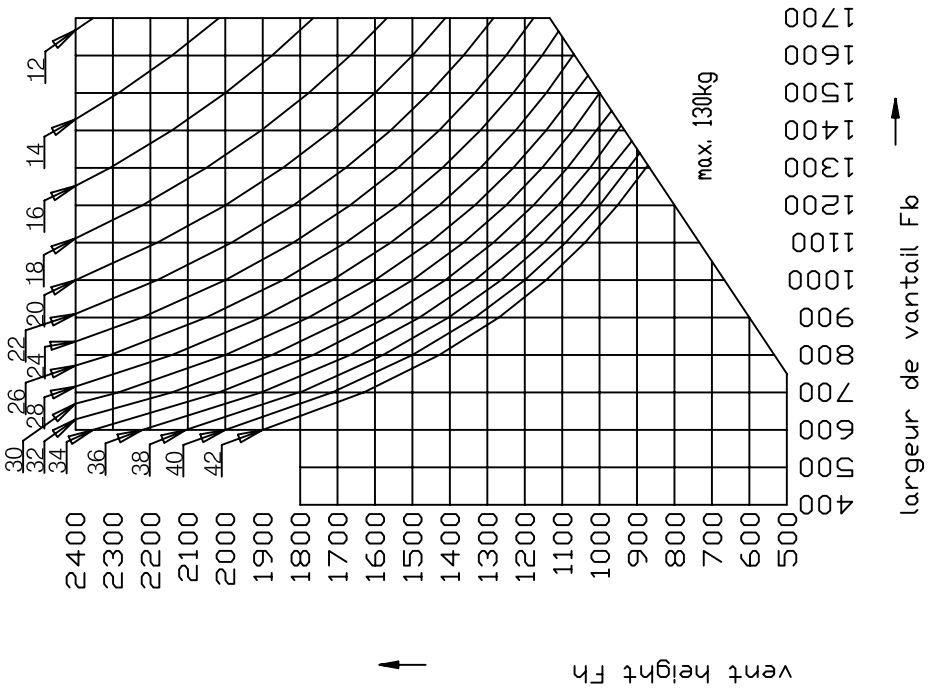
TITLE
Side Hung Open In Casement
Sobinco Chrono

SHEET No.
4.3.07

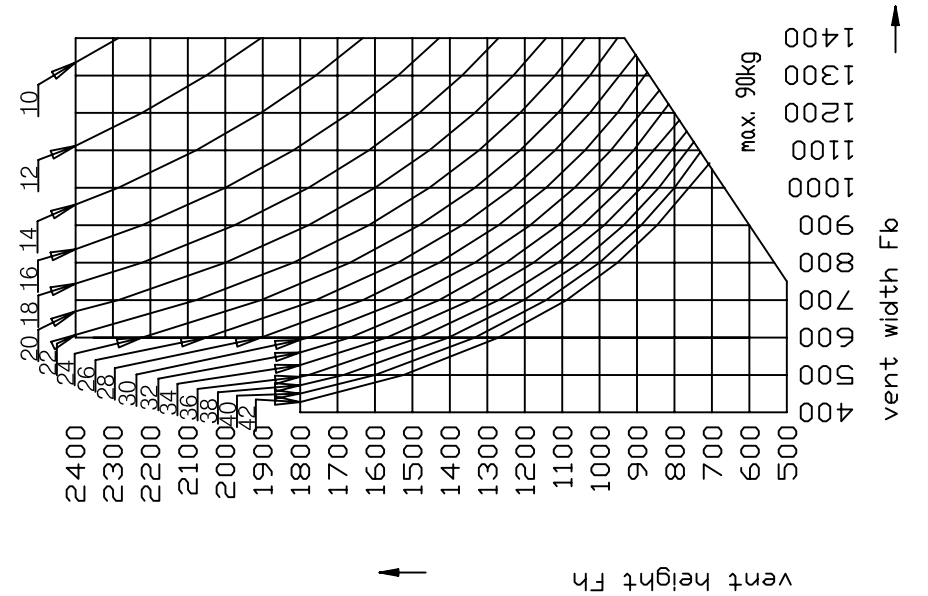
SUB TITLE
Size Limitation to
Glass Weight Table

Side Hung Open In Size Limitation to Glass Weight Table

NOTE: Use 130kg table for vents over 1400mm wide and / or 1800mm tall.



glass		
nr	mm	kg/m2
10	10	25
12	12	30
14	14	35
16	16	40
18	18	45
20	20	50
22	22	55
24	24	60
26	26	65
28	28	70
30	30	75
32	32	80
34	34	85
36	36	90
38	38	95
40	40	100
42	42	105



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SCALE	NTS @ A4
DATE	31/10/07
DRAWN	GMS/CAD
DRG. No.	C5Pi–4.3.07

comar 5P.*i*

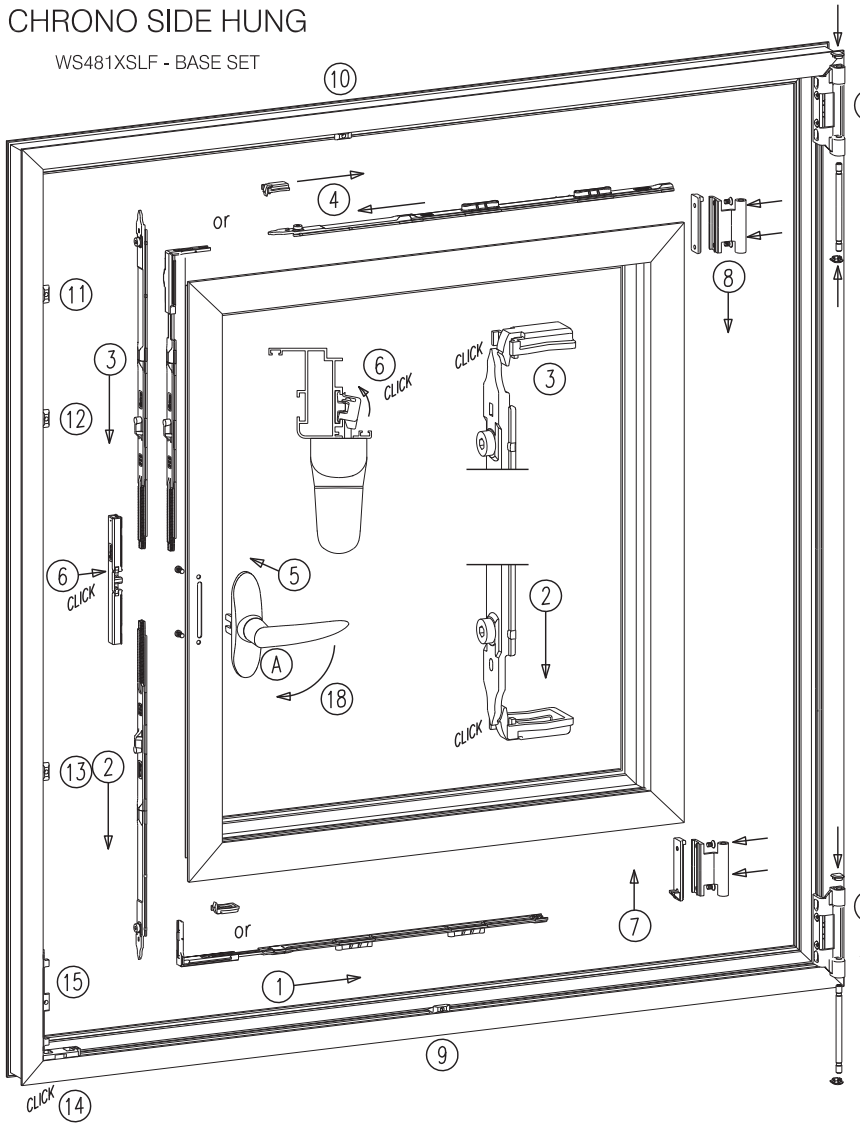
POLYAMIDE INSULATED WINDOWS
COMAR 5 P.*i* THERMALLY EFFICIENT WINDOW SYSTEM

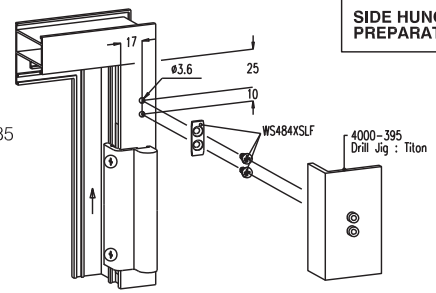
SHEET No. **4.3.08**

SIDE HUNG OPEN IN CASEMENT
PREPARATION & ASSEMBLEY - SOBINCO CHRONO HARDWARE OPTION

CHRONO SIDE HUNG

WS481XSLF - BASE SET





PREP: Trim 110mm off top & bottom of GK841 on bracket side of vent prior to fitting of Chrono gear.

1. Slide in Run-On-Rest or Centre Lock
2. Slide in Gear Below Handle
3. Slide in Gear Above Handle
4. Slide in Run-On-Rest or Centre Lock
5. Mount Handle
6. Click in Handle Connector
7. Mount Bottom Hinge
8. Mount Top Hinge

9-13. Mount Wedges using Colour Jigs

14. Mount Run-On-Wedges
15. Mount Wedges
16. Mount Bottom Hinge
17. Mount Top Hinge
18. Close Handle

A. Locking Handle: WS476 (RH)
WS477 (LH)

WS485
WIDTH: 400 - 1400
HEIGHT:1201 +

NOTE
VENT SIZE RATIO:
WIDTH / HEIGHT = 1.5MAX

ALTERNATIVE SOBINCO SIDE HUNG HARDWARE
CHRONO INVISI - Concealed hinge.
CHRONO SAFE - Security rated hardware.

WS485
WIDTH: 400 - 1400
HEIGHT:1800+

SOBINCO GEARING SUPPLIED BY:
TITON
INTERNATIONAL HOUSE
PEARTREE ROAD
STANWAY
COLCHESTER
ESSEX
C03 0JL
TEL: 01206 713800
FAX: 01206 543126
WEB: www.titon.com

Profile and glass cutting.
Outer Frame: CS431
Mullion/Transom: CS435

Profiles	
Outer Frames	
Cut to	Work size
Sash size	
Mitre cut to	Work size - 46mm
or	Edge to ℄ - 29.5mm
or	℄ to ℄ - 13mm

Glass (CS433)	
Sash Glass	
Cut to	Sash size - 96mm
Glass (CS446)	
Sash Glass	
Cut to	Sash size - 139mm

Max Sizes for CS433

Width: 450 - 1162 mm
Height: 600 - 1800 mm
2 x 6 mm = 30kg/m² Glass
Max Perimeter = 5500mm

Max Sizes for CS446

Width: 450 - 1620 mm
Height: 600 - 2400mm
2 x 6 mm = 30kg/m² Glass
Max Weight = 90kg

NOTE:
USE WS484XSLF REINFORCEMENT SET FOR VENTS OVER 1400mm WIDE OR 1800mm TALL.

OPTIONAL WINDOW STAY (90° restrictor)

WS478 (WIDTH 400 - 600)
WS479 (WIDTH 601 - 1300)
WS480 (WIDTH 1301 - 1500)

LOCKING POINTS SUBJECT TO WINDOW DIMENSIONS.
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DRG. No.	C5Pi – 4.3.08