

## **ELITE GROUP OF COMPANIES**

Innovation and leadership are two terms usually associated with Elite Group of Companies. Driven by passion and dedication, we offer you world class products, solutions and systems in aluminum architectural & non architectural applications. The role of fine-tuned solutions in construction is huge. Whatever the size of the business may be, companies need top quality services that the professional team at Elite Group promise. When it comes to end-to-end solutions and professional management expertise, Elite Group of Companies has always given its best.

An ISO 9001:2008 certified organizations; our group has been at the apex of providing a vast array of commendable services. Since its inception, the endeavor for each group' subsidiary has been to deliver excellence in terms of quality products and services.

Continuous investments and continuous process improvement aim, we have been successful at making a positive impact on our global customers through sheer dedication and commitment.

Elite Group has developed a stronghold in the international arena. Innovation, integrity, and respect, defines our culture. We have an extensive network of clientele that seek our in-house expertise in all necessary disciplines. With a strong management ethos and adopting a proactive approach, we have successfully catered to every demand and requirement of our valuable customers. This evolution is continuing through an increasing focus on the mentioned scope in which Elite group of companies has taken the lead.

Elite Group takes pride in being a unique organization that has the capability to link the raw material with end user. Our subsidiaries can transform the base material into the defined application, in a continuous supply chain.

The core competencies of the Elite Group include several manufacturing plants equipped with state-of-the art European technology for a full group capacity of more than 60,000 MT/year of production of extruded profiles and 24,000 MT/year of aluminum rolled products.

Premises and staff to control the extrusion lines and the continuous rolling casters along with ancillary and support equipment, makes Elite Group one of the main player in the Middle East aluminum industry to cater the global demand.

Group coating capacity is about 55,000 MT/year with 4 coating lines for profiles, 1 coating line for coils, in addition to the wood coating line and anodizing line for profiles finishing. The extrusion is supported with 3 die shops for design, manufacturing and correction of the tools. Furthermore engineering and calculation offices to serve and support the customer requirements.

## INTRODUCTION TO SYSTEM

Elite Group is oriented to fulfill the obligation to both its customers and to the community at large. Accordingly, while we have been developing aluminium profiles for the general use, we introduced the ecofriendly and energy saving thermally broken profiles; the **ECO-500 Series**.

**The ECO-500 Series** comes in sliding and casement options.

While the profiles are automatically guaranteed for superior quality by strict adherence to quality standards on the in-house manufacturing process, the thermal insulating polyamide strips are imported directly from world class European suppliers. The system is Euro-groove compatible and hence, goes with standard European accessories suppliers.

If need, our Technical Department can render all technical support and service.

The improved version **ECO-500 Series**, which supersedes the earlier issue, has been engineered to synergize aesthetics with ease of fabrication.

Please note we have withdrawn the earlier version of the catalogue and hence, customers are requested to order based only on this updated catalogue.

# ECO - 500

## THERMALLY BROKEN SLIDING SERIES

### Contents

Test Certificate of Sliding Window	Page 01-11
------------------------------------	------------

---

Thermal Transmittance of Thermal Break System	Page 02-13
---	------------

---

Windows and Doors Elevation sectional details	Page 14-21
---	------------

---

3D Assembly Drawing	Page 22-23
---------------------	------------

---

Sections (Profiles) Drawings	Page 24-29
------------------------------	------------

---

Sections Moment of Inertia Details	Page 30
------------------------------------	---------

---

**Eco 500 Thermal Break Sliding System catalogue is protected and is the exclusive property of Elite Group of Companies. Copying / re-producing partially or fully of this catalogue without written approval is illegal.**

# ECO - 500 SLIDING

## Certificate of Testing



**THOMAS BELL-WRIGHT**  
INTERNATIONAL CONSULTANTS

**Certificate Number:** CHF02

**Date:** 2007, June

**Project:** Seven Tides Ibn Batuta Complex  
at Gardens Mall

**System Supplier:** Al Hamad Industries Co.,  
(L.L.C.)  
Extrusion Division  
P.O. Box 6275  
Sharjah, U.A.E.


**System:** ECO - 500 Thermal Break Sliding  
Window

<b>Tested for:</b> Air Infiltration	Pass
Static Water Penetration	Pass
Structural Load	Pass
Operation Force Test	Pass
Structural Load to Safety	Pass

**Notes:** Testing conducted in accordance with ASTM, or industry standards.  
This certificate to be read in conjunction with the full report of testing.  
Refer to report for performance criteria.

**Thomas Bell-Wright International Consultants**

  
Sandy Dweik  
Quality Manager

  
Clarence P. Facun  
Testing Engineer

**Date:** 19 June 2007

P.O. BOX 26385 DUBAI, U.A.E. TEL: (+9714) 333-2692 FAX: (+9714) 333-2693 WEB: [www.bell-wright.com](http://www.bell-wright.com)

a. Air infiltration test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

AIR INFILTRATION TEST ASTM E 283

Reset Date

Monday, April 30, 2007

9:30:00 AM

AMBIENT CONDITIONS

Air Temperature

37

°C

Wind Speed

m/s

Barometric Pressure

10.15

mb

Relative Humidity

15

%

Wind Direction

Deg

TESTING ENGINEER

Clark Facun

Width

1.3

m

Height

1.4

m

INLET NOZZLE SIZE

56

mm

NOZZLE CONNECTION

A - PT L1

CHAMBER CONNECTION

B - PT L2

TEST PRESSURE

300

Pa

Area

1.82

m²

Length of opening joint

0.0

m

Permitted Leakage area

2.00

m³/hr/m²

Permitted Leakage(Meter opening joint)

0.0

m³/hr/m

Total permitted Leakage

3.6

m³/hr

READINGS

SEAL WITH POLYETHYLENE

Chamber Pressure

300

Pa

Nozzle Pressure

34

Pa

Differential Pressure

0

Pa

Flow

0

m3/hr

Nozzle Flow

62.2

m3/hr

Data Recorded at

9:50:00 AM

Display 1

Stop 1

READINGS

WITHOUT POLYETHYLENE

Chamber Pressure

300

Pa

Nozzle Pressure

82

Pa

Differential Pressure

266

Pa

Flow

175

m3/hr

Nozzle Flow

96.7

m3/hr

Data Recorded at

10:40:00 AM

Display 2

Stop 2

SUMMARY RESULTS

Permitted Leakage

4

m³/hr

Specimen Leakage

34.55

m³/hr

Conclusion

Pass

Signature

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS

b. Static water penetration test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

STATIC WATER PENETRATION TEST to ASTM E 331

Reset Date

Monday, 30 April 2007

10:55:00 AM

AMBIENT CONDITIONS

Air Temperature

39

°C

Wind Speed

m/s

Barometric Pressure

10.14

mb

Relative Humidity

15

%

TESTING ENGINEER

Clark Facun

Chamber Connection

B- PT L2

SPECIMEN TEST CRITERIA

Width

1.3

m

Height

1.4

m

The spray rack will consist of

3

rows of

240

Nozzles

Test Pressure

Pa

Update Links

READINGS

Hours

0

Minutes

15

Seconds

0

Timer

0

15

0

Chamber Pressure

240

Zero

Start

Stop

Start/reset timer

11:00:00 AM

Calculated finishing time

11:15:00 AM

Actual when timer stopped

11:25:00 AM

Conclusion

Pass

Signature

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS

c. Structural positive wind load - serviceability test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

STRUCTURAL WIND LOAD - SERVICEABILITY

AMBIENT CONDITIONS

Air Temperature

39

°C

Barometric Pressure

10.15

mb

Reset Date

Monday, 30 April 2007

11:30:00 AM

Relative Humidity

15

%

TESTING ENGINEER

Clark Facun

Chamber Connection

C- PT I

SPECIMEN TEST CRITERIA

Design Wind Pressure

1211

Pa

Mullion Length to be tested

1.4

m

Transom Length to be tested

1.3

m

Max. Allowable Deformation-Mullion

8

mm

Max. Allowable Deformation-Transom

7

mm

Update Links

LIVE READINGS

Chamber Pressure

Top Center Member

LDT 1

Middle Center Member

LDT 2

Bottom Center Member

LDT 3

Top Right Member

LDT 4

Middle Right Member

LDT 5

Bottom Right Member

LDT 6

Glass

LDT 7

LDT 8

1211

Pa

4.3 mm

4.6 mm

3.1 mm

3.8 mm

3.8 mm

3.1 mm

0.0 mm

0.0 mm

Chamber Pressure

Design WL Pressure

Actual Mullion Def

Design WL Pressure

Actual Transom Def

1211

1

Pass

1211

0

Pass

Pa

mm

mm

Pa

mm

RESIDUAL

LDT 1

LDT 2

LDT 3

LDT 4

LDT 5

LDT 6

11:40:20 AM

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS



d. Structural negative wind load - serviceability test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

STRUCTURAL WIND LOAD - SERVICEABILITY

AMBIENT CONDITIONS

Air Temperature

39 °C

Barometric Pressure

10.15 mb

Reset Date

Monday, 30 April 2007 11:45:00 AM

Relative Humidity

15 %

TESTING ENGINEER

Clark Facun

Chamber Connection

C- PT I

SPECIMEN TEST CRITERIA

Design Wind Pressure

1211 Pa

Mullion Length to be tested

1.4 m

Transom Length to be tested

1.3 m

Max. Allowable Deformation-Mullion

8 mm

Max. Allowable Deformation-Transom

7 mm

Update Links

Diagram

LIVE READINGS

NEGATIVE WIND LOAD	
Chamber Pressure	1211 Pa
Top Center Member LDT 1	3.8 mm
Middle Center Member LDT 2	4.8 mm
Bottom Center Member LDT 3	3.1 mm
Top Right Member LDT 4	3.1 mm
Middle Right Member LDT 5	3.8 mm
Bottom Right Member LDT 6	3.1 mm
Glass LDT 7	0.0 mm
LDT 8	0.0 mm

Data recorded @ 12:07:18 PM

Chamber Pressure	1211 Pa	Design WL Pressure	1211 Pa				
Actual Mullion Deflection	1 mm	Actual Mullion Def.	1 mm				
Chamber Pressure	1211 Pa	Design WL Pressure	1211 Pa				
Actual Transom Deflection	1 mm	Actual Transom Def	1 mm				
RESIDUAL		LDT 1	LDT 2	LDT 3	LDT 4	LDT 5	LDT 6

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS

e. Post Structural - Static water penetration test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

POST STRUCTURAL - STATIC WATER PENETRATION TEST to ASTM E 331

Reset Date

Monday, 30 April 2007

12:10:00 PM

AMBIENT CONDITIONS

Air Temperature

39

°C

Wind Speed

m/s

Barometric Pressure

10.16

mb

Relative Humidity

18

%

TESTING ENGINEER

Clark Facun

B- PT L2

Width

1.3

m

Height

1.4

m

The spray rack will consist of

3

rows of

3

Nozzles

Test Pressure

240

Pa

Update Links

READINGS

Hours

0

Minutes

15

Seconds

0

Timer

0

15

0

Chamber Pressure

240

Zero

Start

Stop

Start/reset timer

12:20:00 PM

Calculated finishing time

12:35:00 PM

Actual when timer stopped

12:40:00 PM

Conclusion

Pass

Signature

f. Post Structural - Static water penetration test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

POST STRUCTURAL - STATIC WATER PENETRATION TEST to ASTM E 331

Reset Date

Monday, 30 April 2007 3:00 PM

AMBIENT CONDITIONS

Air Temperature

38

°C

Wind Speed

m/s

Barometric Pressure

10.06

mb

Relative Humidity

19

%

TESTING ENGINEER

Clark Facun

Chamber Connection

B- PT L2

SPECIMEN TEST CRITERIA

Width

1.3

m

Height

1.4

m

The spray rack will consist of

3

rows of

Nozzles

3

Test Pressure

240

Pa

Update Links

READINGS

Hours

0

Minutes

15

Seconds

0

Timer

Chamber Pressure

240

Zero

Start

Stop

Start/reset timer

3:50:00 PM

Calculated finishing time

3:05:00 PM

Actual when timer stopped

3:07:00 PM

Conclusion

Pass

Signature

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS

g. Structural positive wind load @ 1.5 times design wind load

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

STRUCTURAL WIND LOAD - SAFETY

AMBIENT CONDITIONS

Air Temperature

37

°C

Barometric Pressure

10.06

mb

Reset Date

Monday, 30 April 2007 4:10 PM

Relative Humidity

19

%

TESTING ENGINEER

Clark Facun

Chamber Connection

C- PT I

SPECIMEN TEST CRITERIA

Design Wind Pressure

1817

Pa

Mullion Length to be tested

1.4

m

Transom Length to be tested

1.3

m

Max. Allowable Deformation-Mullion

3

mm

Max. Allowable Deformation-Transom

3

mm

Update Links

LIVE READINGS

Chamber Pressure

1817

Pa

Top Center Member LDT 1

5.6

mm

Middle Center Member LDT 2

6.4

mm

Bottom Center Member LDT 3

4.0

mm

Top Right Member LDT 4

4.3

mm

Middle Right Member LDT 5

5.1

mm

Bottom Right Member LDT 6

4.6

mm

Glass LDT 7

0.0

mm

LDT 8

0.0

mm

Chamber Pressure

1817

Pa

Actual Mullion Def

2

mm

Chamber Pressure

1817

Pa

Actual Transom Def

1

mm

RESIDUAL

LDT 1

0.38

LDT 2

0.25

LDT 3

0.25

LDT 4

0.25

LDT 5

0.51

LDT 6

0.64

POSITIVE WIND LOAD

Chamber Pressure

1817

Pa

Design WL Pressure

1817

Pa

Actual Mullion Def

2

mm

Chamber Pressure

1817

Pa

Design WL Pressure

1817

Pa

Actual Transom Def

1

mm

Data recorded @

4:18 PM

Diagram of a window frame with dimensions: 1400 (width) x 1300 (height). The frame is divided into four quadrants by a central mullion and transom. The top-left quadrant is labeled 'LDT 1', top-right 'LDT 2', bottom-left 'LDT 3', and bottom-right 'LDT 4'. The central mullion is labeled 'LDT 5' and the central transom is labeled 'LDT 6'. The outer frame is labeled 'LDT 7' and 'LDT 8'. Dimensions 650 and 700 are indicated for the top and right sections respectively.

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS

17

ECO - 500 SLIDING

h. Structural negative wind load @ 1.5 times design wind load

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

STRUCTURAL WIND LOAD - SAFETY

AMBIENT CONDITIONS

Air Temperature

37 °C

Barometric Pressure

10.06 mb

Reset Date

Monday, 30 April 2007 4:25:00 PM

Relative Humidity

19 %

TESTING ENGINEER

Clark Facun

Chamber Connection

C- PT I

SPECIMEN TEST CRITERIA

Design Wind Pressure

1817 Pa

Mullion Length to be tested

1.4 m

Transom Length to be tested

1.3 m

Max. Allowable Deformation-Mullion

3 mm

Max. Allowable Deformation-Transom

3 mm

Update Links

LIVE READINGS

Chamber Pressure

1817 Pa

Top Center Member

LDT 1

5.6 mm

Middle Center Member

LDT 2

6.6 mm

Bottom Center Member

LDT 3

4.3 mm

Top Right Member

LDT 4

3.3 mm

Middle Right Member

LDT 5

4.8 mm

Bottom Right Member

LDT 6

4.1 mm

Glass

LDT 7

0.0 mm

LDT 8

0.0 mm

Data recorded @

4:38 PM

NEGATIVE WIND LOAD

Chamber Pressure

1817 Pa

Actual Mullion Deflection

2 mm

Pass

Design WL Pressure

1817 Pa

Actual Mullion Def.

2 mm

Pass

Chamber Pressure

1817 Pa

Actual Transom Deflection

1 mm

Pass

Design WL Pressure

1817 Pa

Actual Transom Def

1 mm

Pass

RESIDUAL

LDT 1

0.25

LDT 2

0.51

LDT 3

0.25

LDT 4

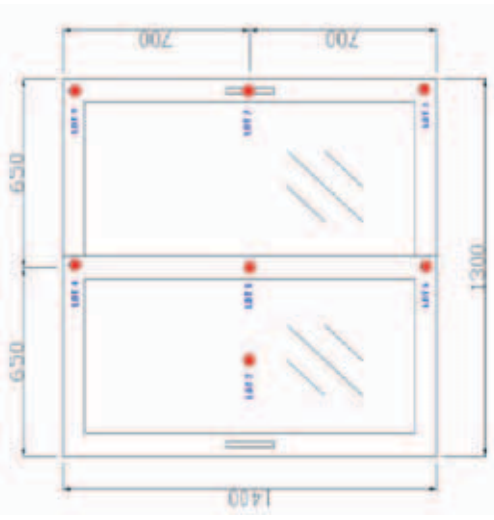
0.25

LDT 5

0.51

LDT 6

0.38



THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS

9

Test Certificate of Sliding Window

18

ECO - 500 SLIDING

i. Post Structural - Air infiltration test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

POST STRUCTURAL - AIR INFILTRATION TEST ASTM E 283

Tuesday, May 15, 2007

Reset Date

2:30:12 PM

Ambient Conditions

Air Temperature

41

°C

Wind Speed

m/s

Barometric Pressure

10.02

mb

Wind Direction

Deg

Relative Humidity

14

%

Reset Date

Testing Engineer

Clark Facun

Specimen Test Criteria

Width

1.3

m

Height

1.4

m

Test Pressure

75

Pa

Area

1.82

m²

Length of opening joint

0.0

m

Permitted Leakage area

5.00

m³/hr/m²

Permitted Leakage(Meter opening joint)

0.0

m³/hr/m

Total permitted Leakage

9.1

m³/hr

Update Links

Zero Pressure

Readings

Seal With Polyethylene

Chamber Pressure

75

Pa

Nozzle Pressure

11

Pa

Differential Pressure

61

Pa

Flow

83

m3/hr

Nozzle Flow

35.3

m3/hr

Data Recorded at

2:45 PM

Readings

Without Polyethylene

Chamber Pressure

75

Pa

Nozzle Pressure

14

Pa

Differential Pressure

0

Pa

Flow

0

m3/hr

Nozzle Flow

39.8

m3/hr

Data Recorded at

2:53 PM

Summary Results

Permitted Leakage

9

m³/hr

Specimen Leakage

4.54

m³/hr

Conclusion

Pass

Signature

j. Post Structural - Air infiltration test

PROJECT NAME:

SEVEN TIDES, IBN BATTUTA COMPLEX

POST STRUCTURAL - AIR INFILTRATION TEST ASTM E 283

AMBIENT CONDITIONS

Air Temperature

41

°C

Wind Speed

m/s

Barometric Pressure

10.02

mb

Wind Direction

Deg

Relative Humidity

14

%

Reset Date

Tuesday, May 15, 2007

2:30:12 PM

TESTING ENGINEER

Clark Facun

SPECIMEN TEST CRITERIA

Width

1.3

m

Height

1.4

m

Test Pressure

100

Pa

Area

1.82

m<sup>2</sup>

Length of opening joint

0.0

m

Permitted Leakage area

5.00

m<sup>3</sup>/hr/m<sup>2</sup>

Permitted Leakage(Meter opening joint)

0.0

m<sup>3</sup>/hr/m

Total permitted Leakage

9.1

m<sup>3</sup>/hr

Update Links

Zero Pressure

READINGS

SEAL WITH POLYETHYLENE

Chamber Pressure

100

Pa

Nozzle Pressure

11

Pa

Differential Pressure

0

Pa

Flow

0

m<sup>3</sup>/hr

Nozzle Flow

35.3

m<sup>3</sup>/hr

Data Recorded at

2:45

PM

Display 1

Stop 1

READINGS

WITHOUT POLYETHYLENE

Chamber Pressure

100

Pa

Nozzle Pressure

17

Pa

Differential Pressure

0

Pa

Flow

0

m<sup>3</sup>/hr

Nozzle Flow

43.9

m<sup>3</sup>/hr

Data Recorded at

2:53

PM

Display 2

Stop 2

SUMMARY RESULTS

Permitted Leakage

9

m<sup>3</sup>/hr

Specimen Leakage

8.61

m<sup>3</sup>/hr

Conclusion

Pass

Signature

# ECO - 500 SLIDING

## THERMAL TRANSMITTANCE ACCORDING TO EN ISO 10077-2

### Theory

The thermal transmittance of a frame according to EN ISO 10077-2:

$$U_f = \frac{L_{2D} - U_p * l_p}{l_f} \quad \text{and} \quad L_{2D} = \frac{q_{l,tot}}{\Delta \theta}$$

with:

$U_f$ : thermal transmittance of the window frame [W/m<sup>2</sup>K]

$U_p$ : thermal transmittance of the flanking panel [W/m<sup>2</sup>K]

$l_p$ : projected width of the flanking panel [m]

$l_f$ : projected width of the window frame [m]

$L_{2D}$ : two-dimensional coupling coefficient [W/mK]

$q_{l,tot}$ : total heat flow through the window frame and the flanking panel [W/m]

$\Delta \theta$ : temperature difference between inside ( $\theta_i$ ) and outside ( $\theta_e$ ) [K]

POWERED BY



TECHNOFORM BAUTEC

### Calculation

Item: elite sliding bisco re

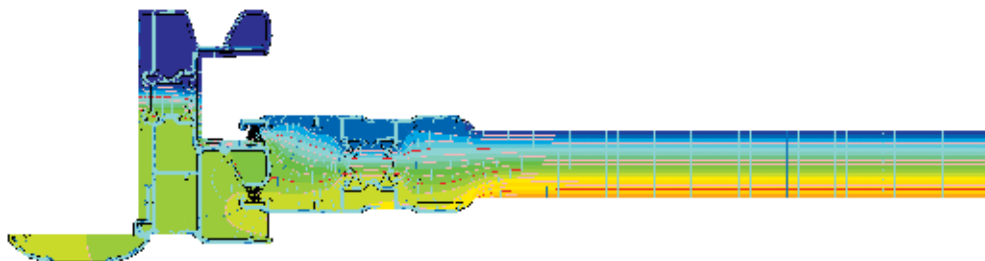
input data:	$q_{l,tot} =$	16.738 W/m	$R_{se} =$	0.04 m <sup>2</sup> K/W
	$\theta_e =$	0.0 °C	$R_{si} =$	0.13 m <sup>2</sup> K/W
	$\theta_i =$	20.0 °C		
	$d_p =$	0.0241 m		
	$\lambda_p =$	0.035 W/m*K		
	$U_p =$	1.165 W/m <sup>2</sup> K		
	$l_p =$	0.190 m		
			calculation results:	$L_{2D} =$ 0.84 W/mK
	$l_f =$	0.1163 m		$U_f =$ 5.29 W/m <sup>2</sup> K

$q_{l,tot}$ :	alphanumeric output heat losses per boundary condition
$\Delta \theta$ :	input data, surface boundary conditions: inside temperature minus outside temperature
$U_p$ :	calculation, using the following formula:

$$U_p = \left[ \frac{1}{h_e} + \sum \frac{d_p}{\lambda_p} + \frac{1}{h_i} \right]^{-1}$$

with:	$h_e / h_i$	ext./int. surface heat transfer coeff. [W/m <sup>2</sup> K]
	$d_p$	thickness of panel p [m]
	$\lambda_p$	thermal conductivity of panel p [W/mK]

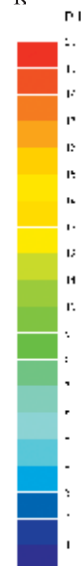
$l_p / l_f$ :	input data: dimensions of the item
---------------	------------------------------------



POWERED BY



TECHNOFORM BAUTEC





# ECO - 500 SLIDING

## THERMAL TRANSMITTANCE ACCORDING TO EN ISO 10077-2

### Theory

The thermal transmittance of a frame according to EN ISO 10077-2:

$$U_f = \frac{L_{2D} - U_p * l_p}{l_f} \quad \text{and} \quad L_{2D} = \frac{q_{l,tot}}{\Delta \theta}$$

with:

- $U_f$ : thermal transmittance of the window frame [W/m<sup>2</sup>K]
- $U_p$ : thermal transmittance of the flanking panel [W/m<sup>2</sup>K]
- $l_p$ : projected width of the flanking panel [m]
- $l_f$ : projected width of the window frame [m]
- $L_{2D}$ : two-dimensional coupling coefficient [W/mK]
- $q_{l,tot}$ : total heat flow through the window frame and the flanking panel [W/m]
- $\Delta \theta$ : temperature difference between inside ( $\theta_i$ ) and outside ( $\theta_e$ ) [K]

POWERED BY



TECHNOFORM BAUTEC

### Calculation

Item: elite sliding central bisco re

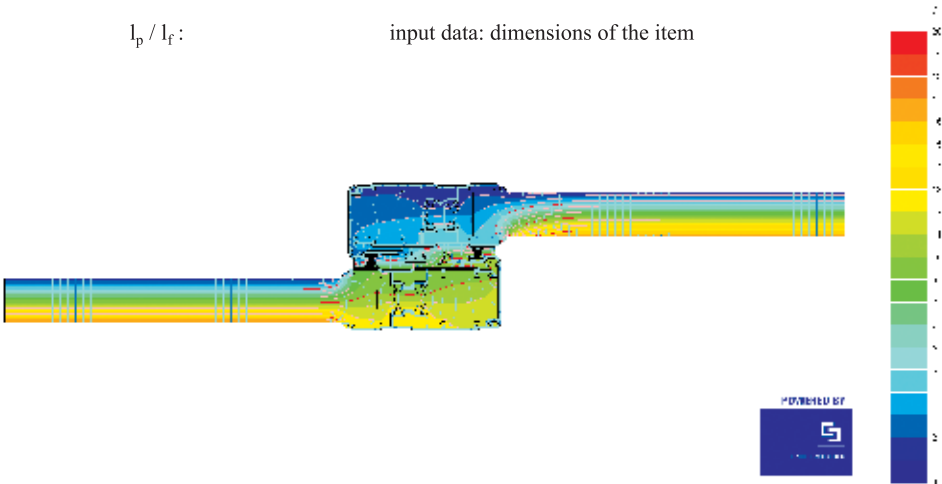
input data:	$q_{l,tot} =$	17.246 W/m	$R_{se} =$	0.04 m <sup>2</sup> K/W
	$\theta_e =$	0.0 °C	$R_{si} =$	0.13 m <sup>2</sup> K/W
	$\theta_i =$	20.0 °C		
	$d_p =$	0.0241 m		
	$\lambda_p =$	0.035 W/m*K		
	$U_p =$	1.165 W/m <sup>2</sup> K		
	$l_p =$	0.380 m		
			calculation results:	$L_{2D} =$ 0.86 W/mK
	$l_f =$	0.0841 m		$U_f =$ 4.99 W/m <sup>2</sup> K

- $q_{l,tot}$ : alphanumeric output  
heat losses per boundary condition
- $\Delta \theta$ : input data, surface boundary conditions:  
inside temperature minus outside temperature
- $U_p$ : calculation, using the following formula:

$$U_p = \left[ \frac{1}{h_e} + \sum \frac{d_p}{\lambda_p} + \frac{1}{h_i} \right]^{-1}$$

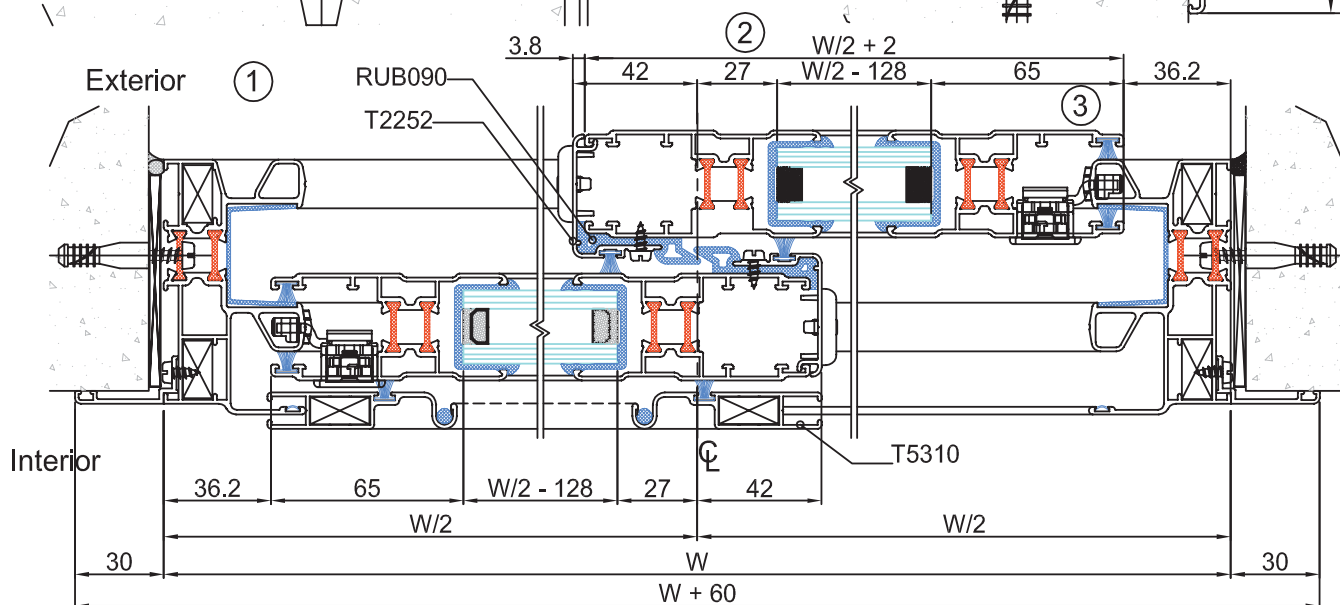
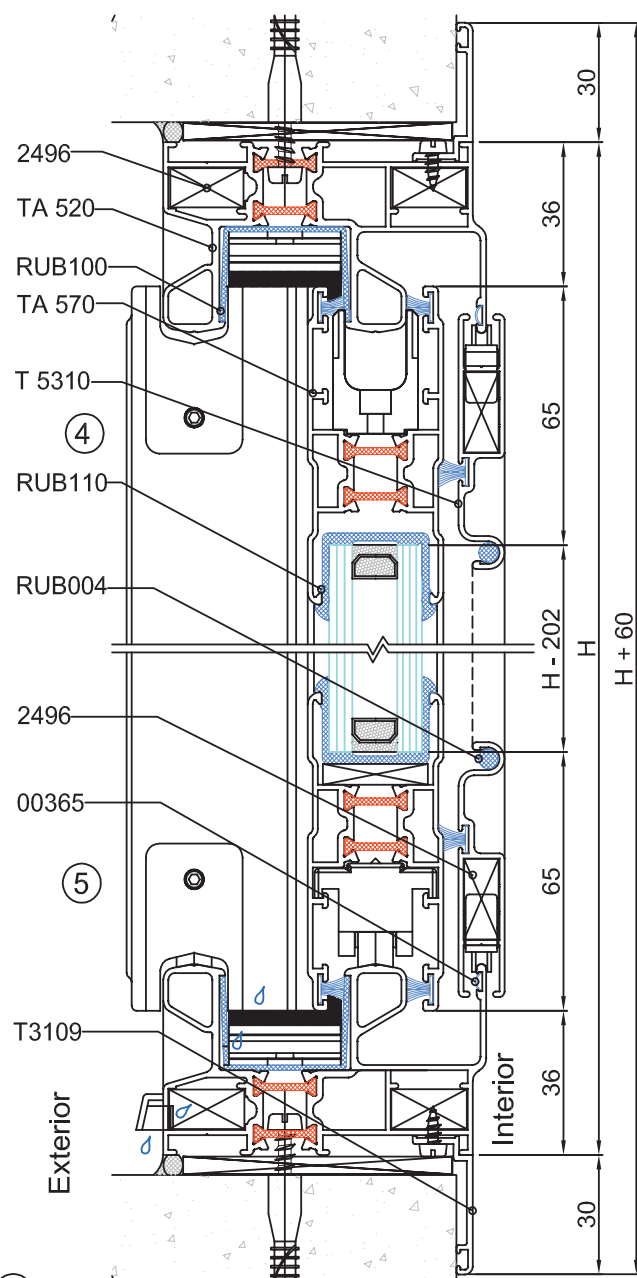
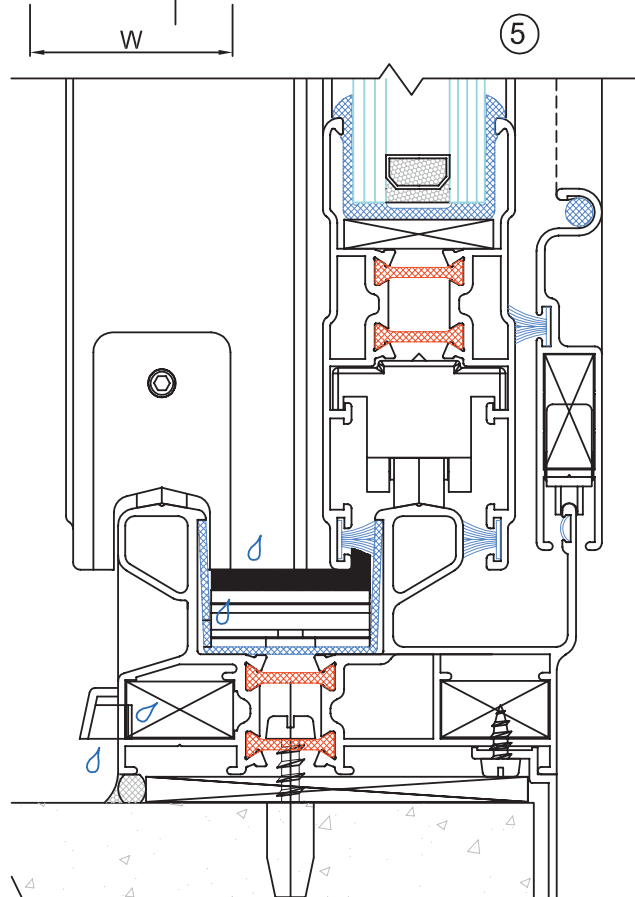
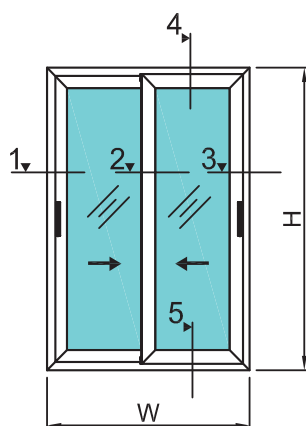
- with:  $h_e / h_i$  ext./int. surface heat transfer coeff. [W/m<sup>2</sup>K]
- $d_p$  thickness of panel p [m]
- $\lambda_p$  thermal conductivity of panel p [W/mK]

- $l_p / l_f$ : input data: dimensions of the item



# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS


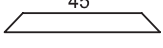

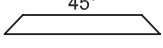

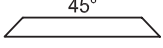

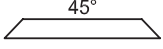

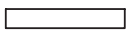

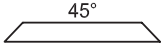

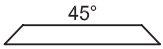

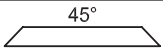

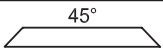



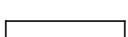


## ECO - 500



# THERMAL BREAK DOUBLE SLIDING WINDOW

# ECO - 500

## PROFILE CUTTING LIST

ITEM No.	DESCRIPTION & SECTION SHAPE	PROFILE No.	PROFILE CUTTING ANGLE	CUTTING SIZE	No. OF PIECES	REMARKS
1.	 FRAME WIDTH	TA 520	 45°	W	02	
2.	 FRAME HEIGHT	TA 520	 45°	H	02	
3.	 SASH WIDTH	TA 570	 45°	W/2 + 2	04	W/2 + 2
4.	 SASH HEIGHT	TA 570	 45°	H - 72.6	04	H - 72.6
5.	 INTER LOCK HEIGHT	T2252		H - 72.6	02	H - 72.6
6.	 FLY SCREEN WIDTH	T5310	 45°	W/2 + 2	02	
7.	 FLY SCREEN HEIGHT	T5310	 45°	H - 83	02	
8.	 ARCHITRIVE WIDTH	T 3109	 45°	W + 60	02	
9.	 ARCHITRIVE HEIGHT	T 3109	 45°	H + 60	02	
10.	 CORNER CLEAT FOR FRAME	2496		19.5	08	
11.	 CORNER CLEAT FOR FLY SCREEN	5278		8.5	04	
12.	 CORNER CLEAT FOR SASH	5576		2.5	16	

## ACCESSORIES LIST

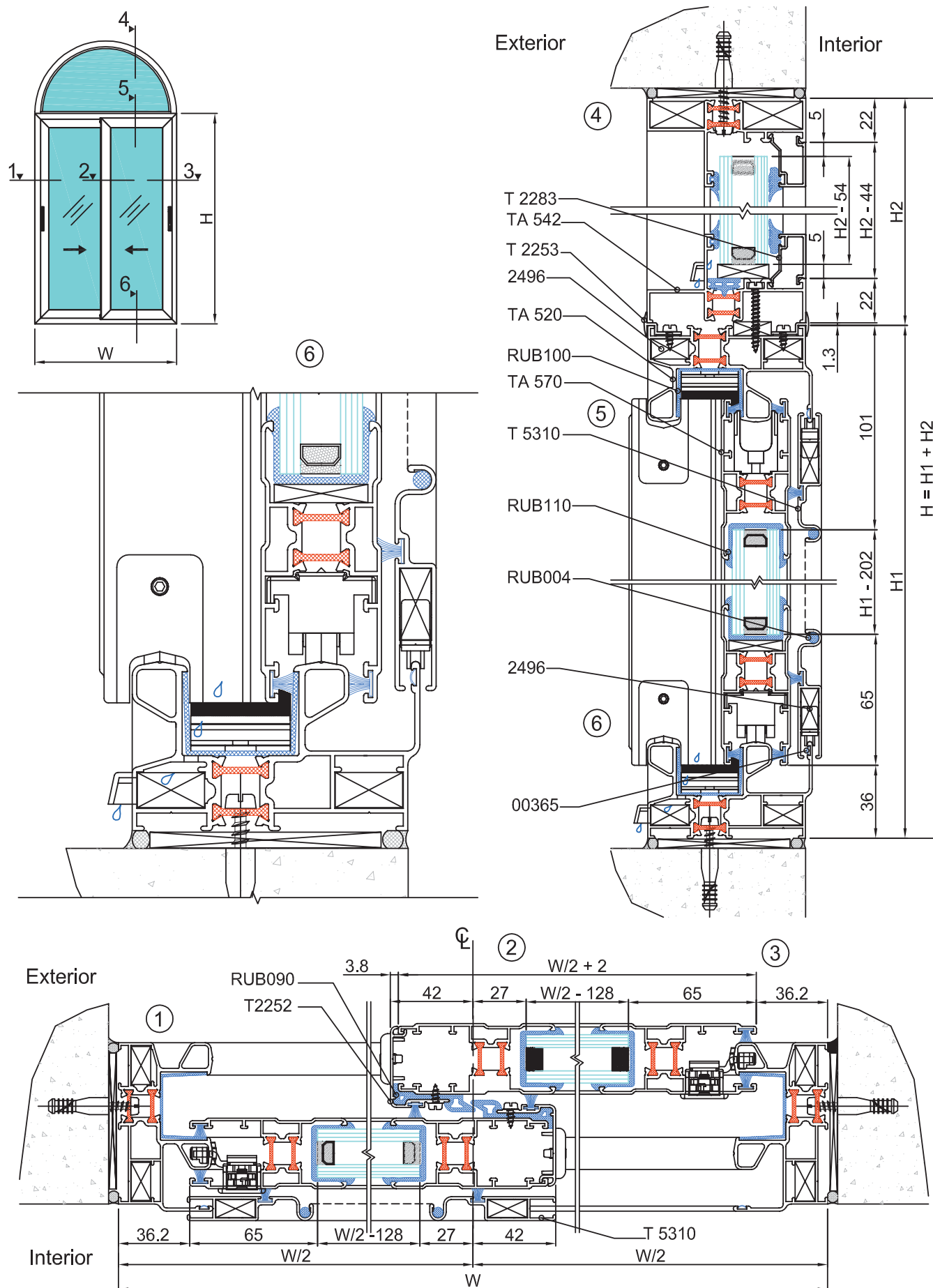
## E.P.D.M. GASKET LIST

ITEM No.	ACCESSORY CODE No.	DESCRIPTION	FINISH	QTY	ITEM No.	GASKET CODE No.	DESCRIPTION	QTY
1.	00365	ALIGNMENT CORNER	M. F	04	1.	RUB 110	24mm U GASKET	2W + 4H
2.	A1500	NYLON CORNER FOR SASH	M. F	08	2.	RUB 100	SLIDING FRAME GASKET	2W + 2H
3.	2314	DRAIN HOLE COVER	M. F	02	3.	RUB 090	INTER LOCK GASKET	2H
4.	03144	BUMP RUBBER	M. F	04	4.	RUB 004	FLY SCREEN GASKET	1W + 2H
5.	03143	DUST PLUG	M. F	02	5.	PB69-800-3P-HF	WEATHER PILE FOR SASH	4W + 6H
6.	03115	ROLLER	M. F	04	6.	PB69-800-4P	WEATHER PILE FOR FLY SCREEN	1W + 2H
7.	02983	HANDLE	P. C	02				
8.	03085	HANDLE KIT	M. F	02				

NOTE: SCREWS, FLY SCREEN ROLLER, ALUMINIUM MESH, SILICON & GLASS ARE NOT INCLUDED IN THE CUTTING LIST


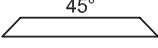

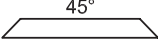

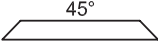

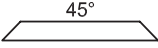

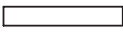

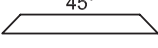

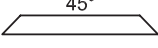

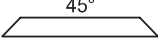

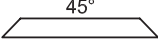

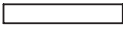

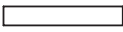



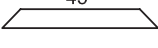







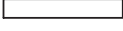

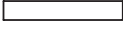
# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

# ECO - 500



# THERMAL BREAK DOUBLE SLIDING WINDOW WITH TOP FIXLITE ECO - 500

## PROFILE CUTTING LIST

ITEM No.	DESCRIPTION & SECTION SHAPE	PROFILE No.	PROFILE CUTTING ANGLE	CUTTING SIZE	No. OF PIECES	REMARKS
1.	 FRAME WIDTH	TA 520	 45°	W	02	
2.	 FRAME HEIGHT	TA 520	 45°	H	02	
3.	 SASH WIDTH	TA 570	 45°	W/2 + 2	04	W/2 + 2
4.	 SASH HEIGHT	TA 570	 45°	H - 72.6	04	H - 72.6
5.	 INTER LOCK HEIGHT	T2252		H - 72.6	02	H - 72.6
6.	 FLY SCREEN WIDTH	T5310	 45°	W/2 + 2	02	
7.	 FLY SCREEN HEIGHT	T5310	 45°	H - 83	02	
8.	 ARCHITRIVE WIDTH	T 3109	 45°	W + 60	02	
9.	 ARCHITRIVE HEIGHT	T 3109	 45°	H + 60	02	
10.	 CORNER CLEAT FOR FRAME	2496		19.5	08	
11.	 CORNER CLEAT FOR FLY SCREEN	5278		8.5	04	
12.	 CORNER CLEAT FOR SASH	5576		2.5	16	
13.	 FIXLITE FRAME WIDTH	TA 542	 45°	W	01	
14.	 (T4) ARCH FRAME	TA 542	 45° 45°	(3.14 X D)/2	01	(3.14 X D)/2
15.	 GLASS BEAD FOR FIXLITE	T 2283		W - 44	01	
16.	 (T4) GLASS BEAD FOR FIXLITE	T 2283	 45° 45°	(3.14 X D)/2	01	(3.14 X D)/2
17.	 ADOPTER	T 2253		W	02	
18.	 CORNER CLEAT FOR FIXLITE FRAME	2261		28	02	MILL FINISH
				27	02	

## ACCESSORIES LIST

ITEM No.	ACCESSORY CODE No.	DESCRIPTION	FINISH	QTY
1.	00365	ALIGNMENT CORNER	M. F	04
2.	A1500	NYLON CORNER FOR SASH	M. F	08
3.	2314	DRAIN HOLE COVER	M. F	04
4.	03144	BUMP RUBBER	M. F	04
5.	03143	DUST PLUG	M. F	02
6.	03115	ROLLER	M. F	04
7.	02983	HANDLE	P. C	02
8.	03085	HANDLE KIT	M. F	02

## E.P.D.M. GASKET LIST

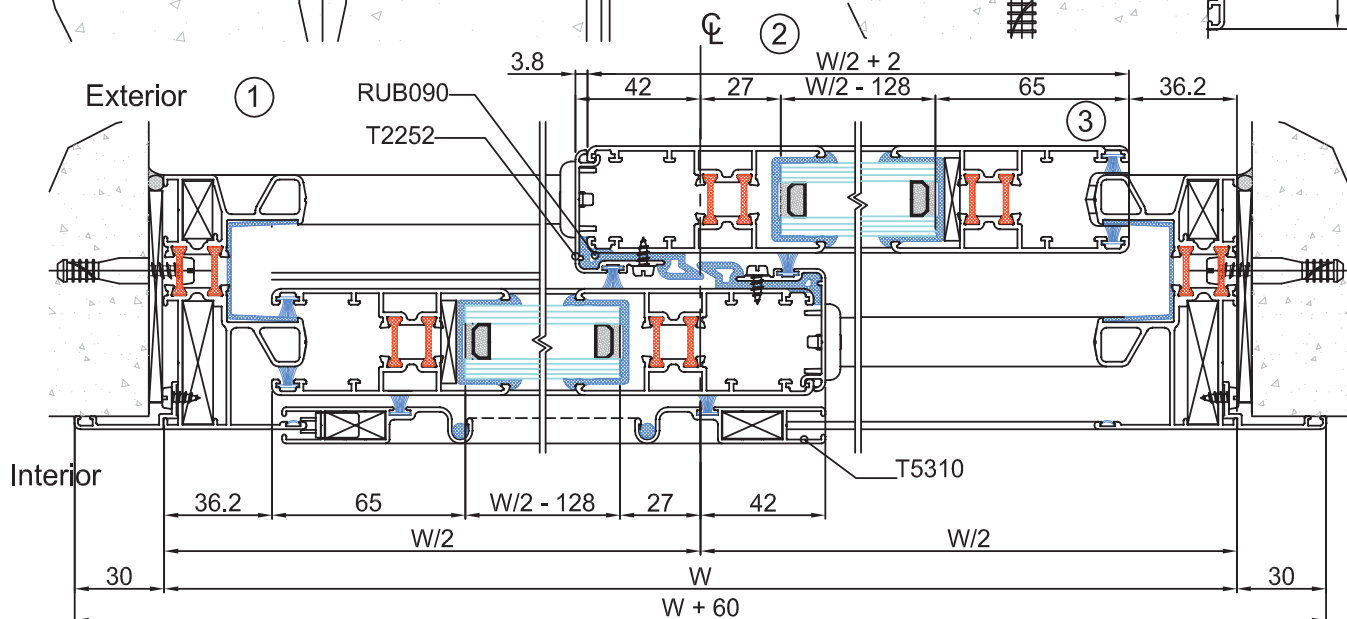
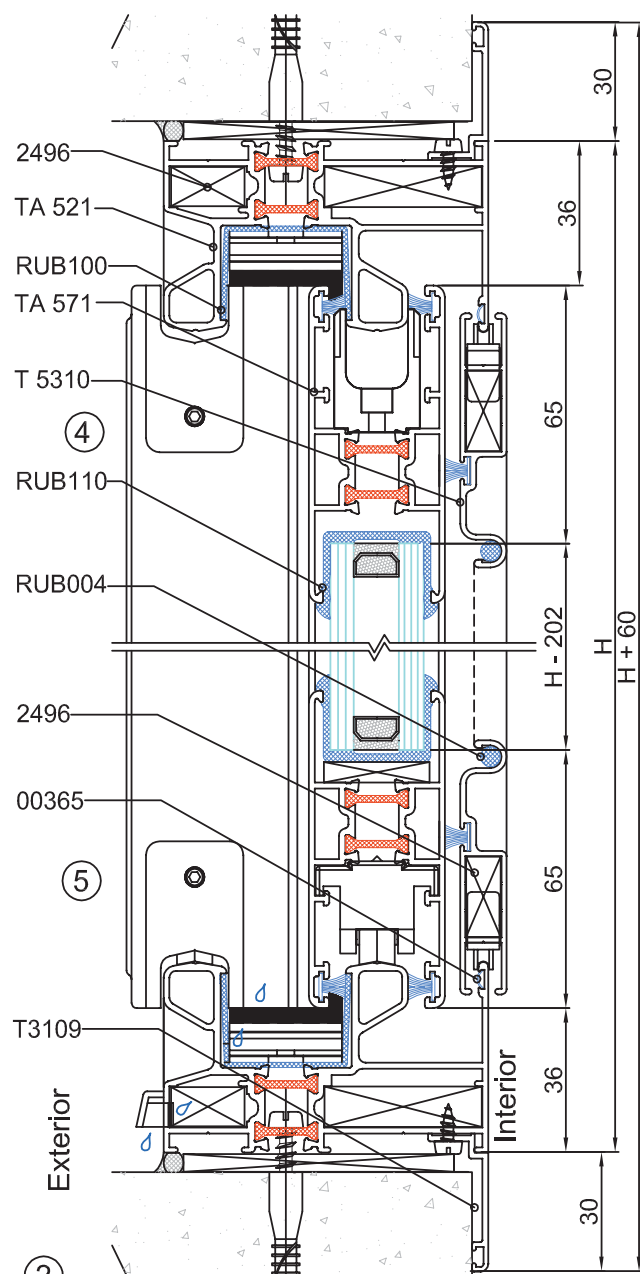
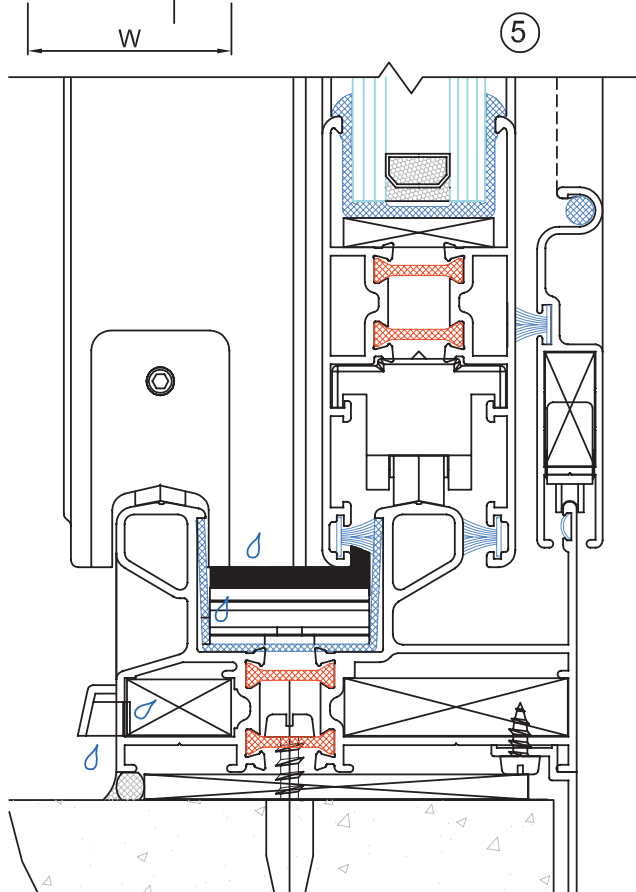
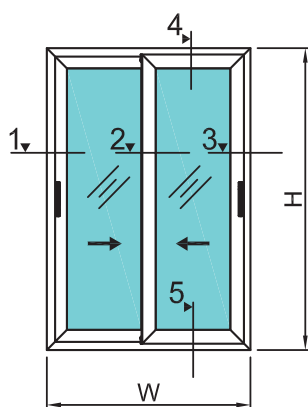
ITEM No.	GASKET CODE No.	DESCRIPTION	SINGLE LEAF
1.	RUB 110	24mm U GASKET	2W + 4H
2.	RUB 100	SLIDING FRAME GASKET	2W + 2H
3.	RUB 090	INTER LOCK GASKET	2H
4.	RUB 004	FLY SCREEN GASKET	1W + 2H
5.	RUB 010	THERMAL BARRIER GASKET	1W
6.	RUB 055	INTERNAL GLAZING GASKET	1W + 2H
7.	RUB 065	EXTERNAL GLAZING GASKET	1W + 2H
8.	PB69-800-3P-HF	WEATHER PILE FOR SASH	4W + 6H
9.	PB69-800-4P	WEATHER PILE FOR FLY SCREEN	1W + 2H

NOTE: SCREWS, FLY SCREEN ROLLER, ALUMINIUM MESH, SILICON & GLASS ARE NOT INCLUDED IN THE CUTTING LIST

# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

## ECO - 500


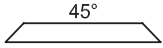

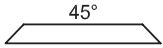

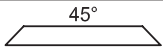

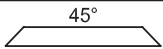



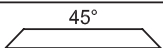

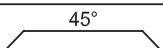

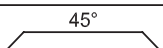

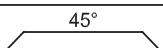

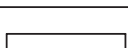



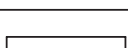
### STRAIGHT EDGE FRAME AND SASH



# THERMAL BREAK DOUBLE SLIDING WINDOW STRAIGHT EDGE FRAME AND SASH

# ECO - 500

## PROFILE CUTTING LIST

ITEM No.	DESCRIPTION & SECTION SHAPE	PROFILE No.	PROFILE CUTTING ANGLE	CUTTING SIZE	No. OF PIECES	REMARKS
1.	 FRAME WIDTH	TA 521	 45°	W	02	
2.	 FRAME HEIGHT	TA 521	 45°	H	02	
3.	 SASH WIDTH	TA 571	 45°	W/2 + 2	04	W/2 + 2
4.	 SASH HEIGHT	TA 571	 45°	H - 72.6	04	H - 72.6
5.	 INTER LOCK HEIGHT	T2252		H - 72.6	02	H - 72.6
6.	 FLY SCREEN WIDTH	T5310	 45°	W/2 + 2	02	
7.	 FLY SCREEN HEIGHT	T5310	 45°	H - 83	02	
8.	 ARCHITRIVE WIDTH	T 3109	 45°	W + 60	02	
9.	 ARCHITRIVE HEIGHT	T 3109	 45°	H + 60	02	
10.	 CORNER CLEAT FOR FRAME	2496		19.5	08	
11.	 CORNER CLEAT FOR FLY SCREEN	5278		8.5	04	
12.	 CORNER CLEAT FOR SASH	5576		2.5	16	

## ACCESSORIES LIST

ITEM No.	ACCESSORY CODE No.	DESCRIPTION	FINISH	QTY
1.	00365	ALIGNMENT CORNER	M. F	04
2.	A1500	NYLON CORNER FOR SASH	M. F	08
3.	2314	DRAIN HOLE COVER	M. F	02
4.	03144	BUMP RUBBER	M. F	04
5.	03143	DUST PLUG	M. F	02
6.	03115	ROLLER	M. F	04
7.	02983	HANDLE	P. C	02
8.	03094	HANDLE KIT	M. F	02

## E.P.D.M. GASKET LIST

ITEM No.	GASKET CODE No.	DESCRIPTION	QTY
1.	RUB 110	24mm U GASKET	2W + 4H
2.	RUB 100	SLIDING FRAME GASKET	2W + 2H
3.	RUB 090	INTER LOCK GASKET	2H
4.	RUB 004	FLY SCREEN GASKET	1W + 2H
5.	PB69-800-3P-HF	WEATHER PILE FOR SASH	4W + 6H
6.	PB69-800-4P	WEATHER PILE FOR FLY SCREEN	1W + 2H

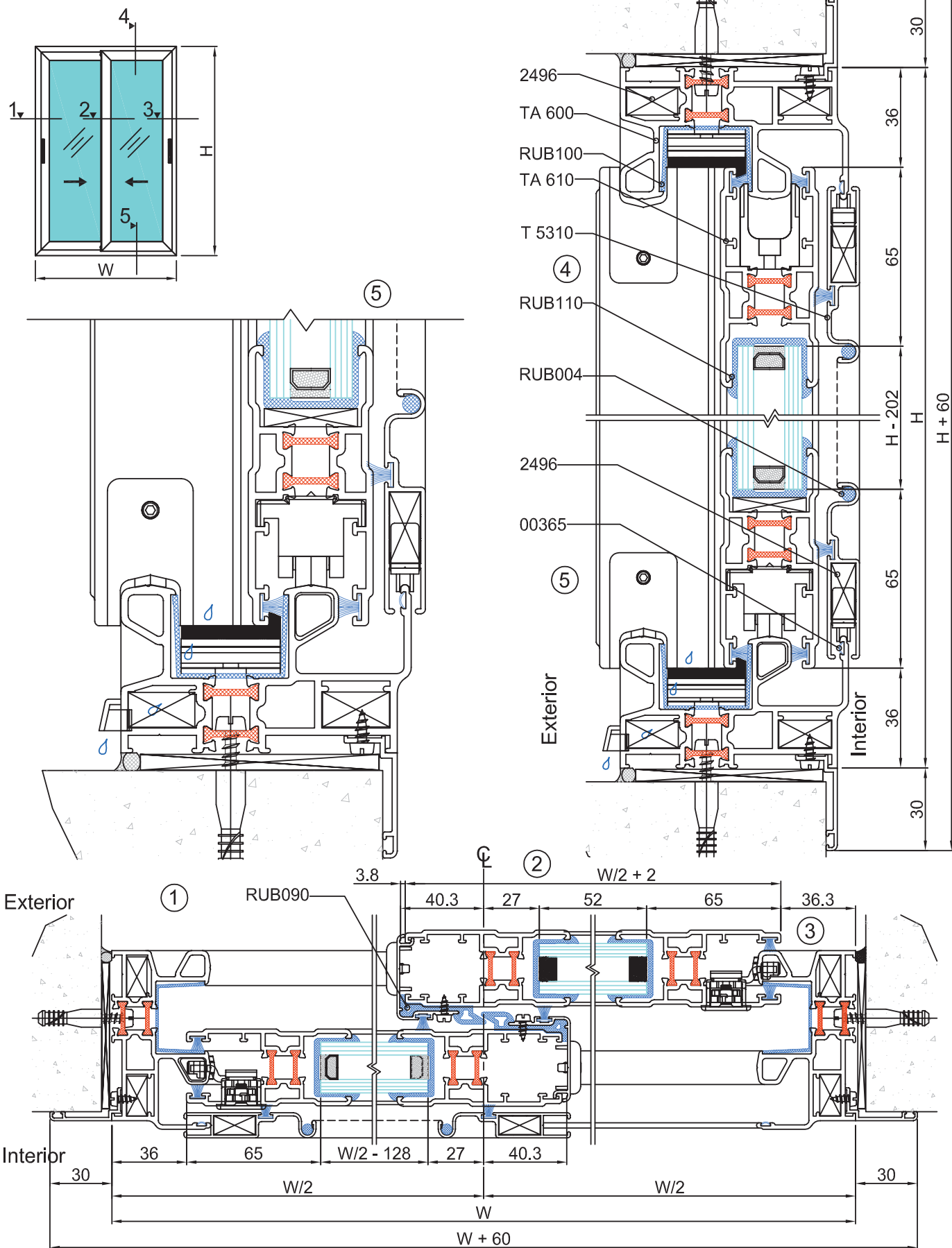
NOTE: SCREWS, FLY SCREEN ROLLER, ALUMINIUM MESH, SILICON & GLASS ARE NOT INCLUDED IN THE CUTTING LIST



# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

# ECO - 500

## HEAVY DUTY PROFILES (2.1mm THICK)


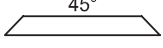

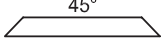

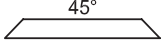

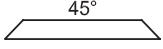

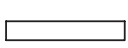

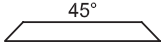

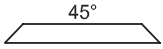

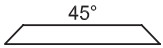

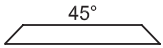





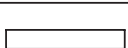




# THERMAL BREAK DOUBLE SLIDING WINDOW HEAVY DUTY PROFILES (2.1mm THICK)

# ECO - 500

## PROFILE CUTTING LIST

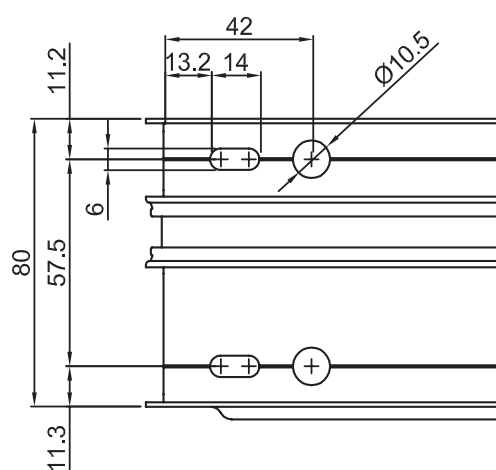
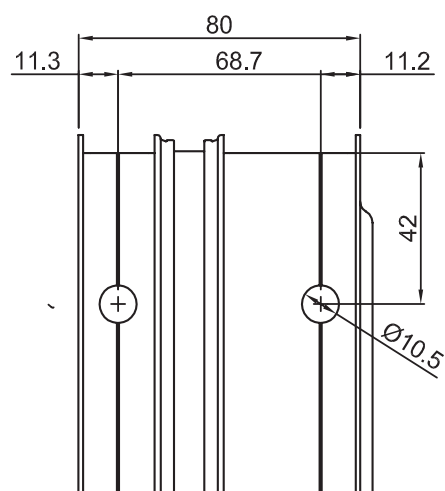
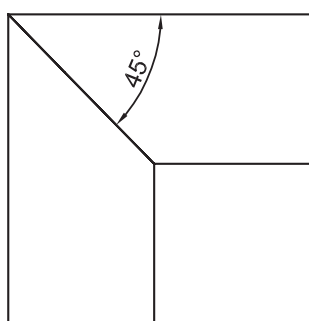
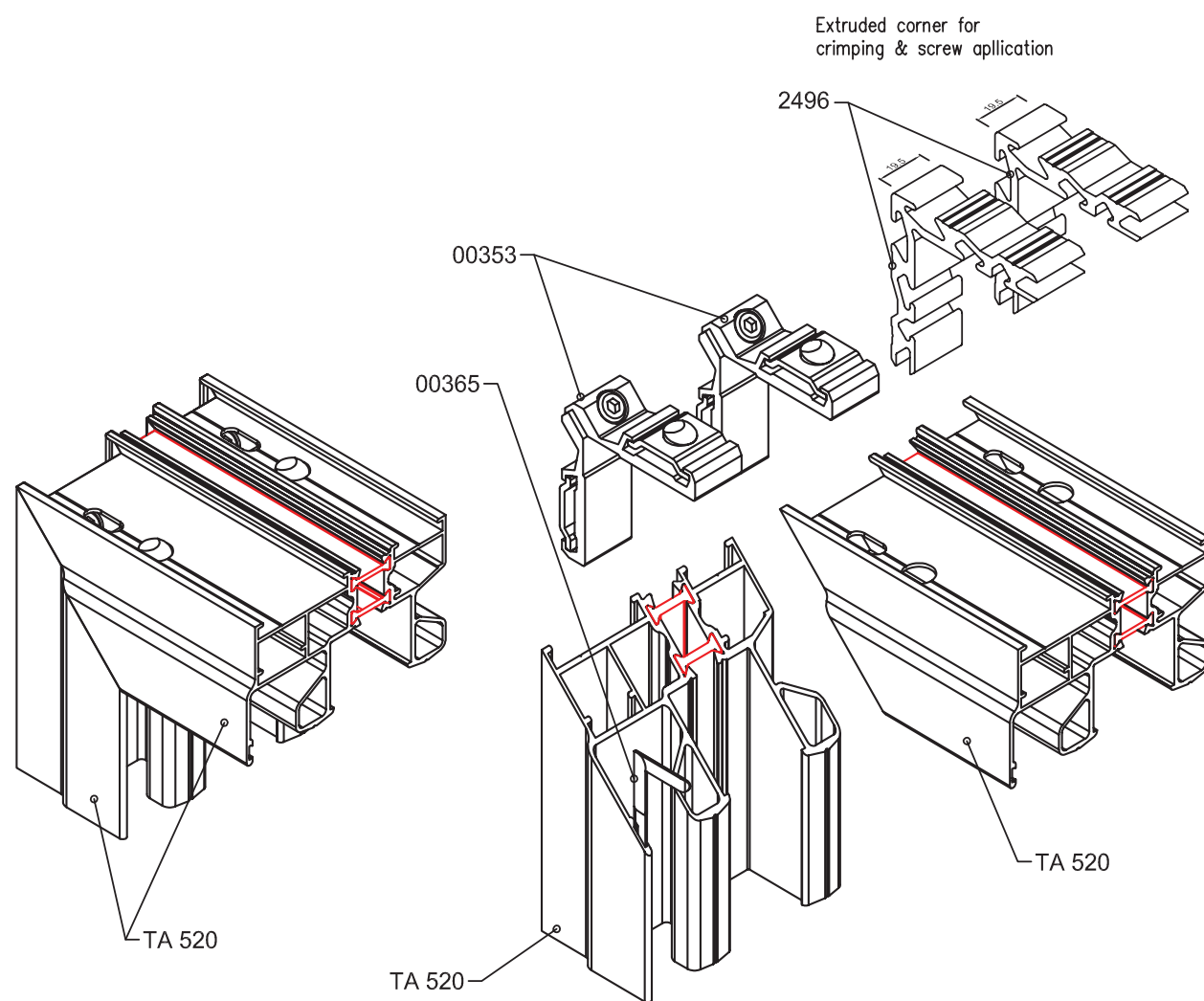
ITEM No.	DESCRIPTION & SECTION SHAPE	PROFILE No.	PROFILE CUTTING ANGLE	CUTTING SIZE	No. OF PIECES	REMARKS
1.	 FRAME WIDTH	TA 600	 45°	W	02	
2.	 FRAME HEIGHT	TA 600	 45°	H	02	
3.	 SASH WIDTH	TA 610	 45°	W/2 + 2	04	W/2 + 2
4.	 SASH HEIGHT	TA 610	 45°	H - 72.6	04	H - 72.6
5.	 INTER LOCK HEIGHT	T2252		H - 72.6	02	H - 72.6
6.	 FLY SCREEN WIDTH	T5310	 45°	W/2 + 2	02	
7.	 FLY SCREEN HEIGHT	T5310	 45°	H - 83	02	
8.	 ARCHITRIVE WIDTH	T 3109	 45°	W + 60	02	
9.	 ARCHITRIVE HEIGHT	T 3109	 45°	H + 60	02	
10.	 CORNER CLEAT FOR FRAME	2496		19.5	08	
11.	 CORNER CLEAT FOR FLY SCREEN	5278		8.5	04	
12.	 CORNER CLEAT FOR SASH	5576		2.5	16	

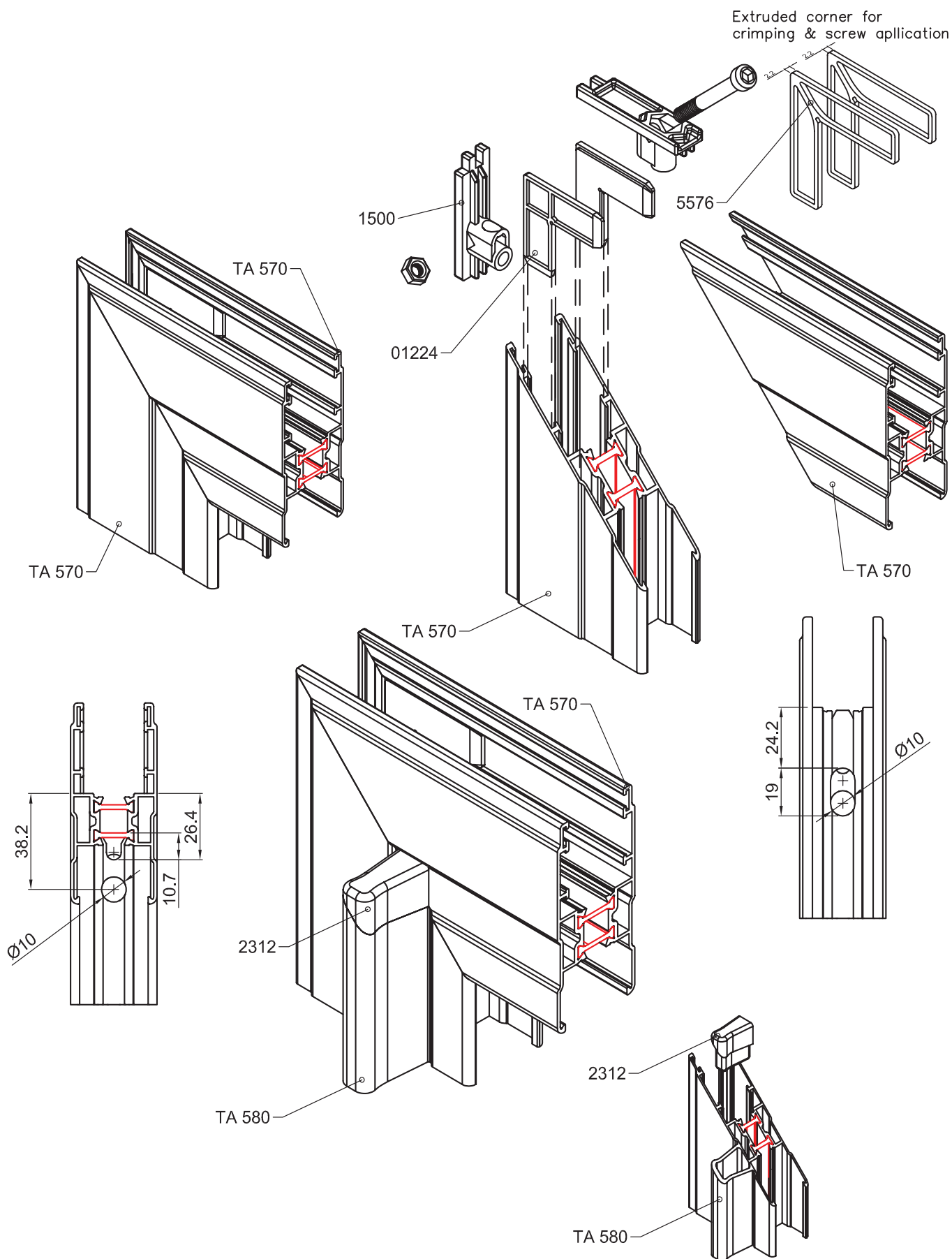
## ACCESSORIES LIST

## E.P.D.M. GASKET LIST

ITEM No.	ACCESSORY CODE No.	DESCRIPTION	FINISH	QTY	ITEM No.	GASKET CODE No.	DESCRIPTION	QTY
1.	00365	ALIGNMENT CORNER	M. F	04	1.	RUB 110	24mm U GASKET	2W + 4H
2.	A1500	NYLON CORNER FOR SASH	M. F	08	2.	RUB 100	SLIDING FRAME GASKET	2W + 2H
3.	2314	DRAIN HOLE COVER	M. F	02	3.	RUB 090	INTER LOCK GASKET	2H
4.	03144	BUMP RUBBER	M. F	04	4.	RUB 004	FLY SCREEN GASKET	1W + 2H
5.	03143	DUST PLUG	M. F	02	5.	PB69-800-3P-HF	WEATHER PILE FOR SASH	4W + 6H
6.	03115	ROLLER	M. F	04	6.	PB69-800-4P	WEATHER PILE FOR FLY SCREEN	1W + 2H
7.	02983	HANDLE	P. C	02				
8.	03085	HANDLE KIT	M. F	02				

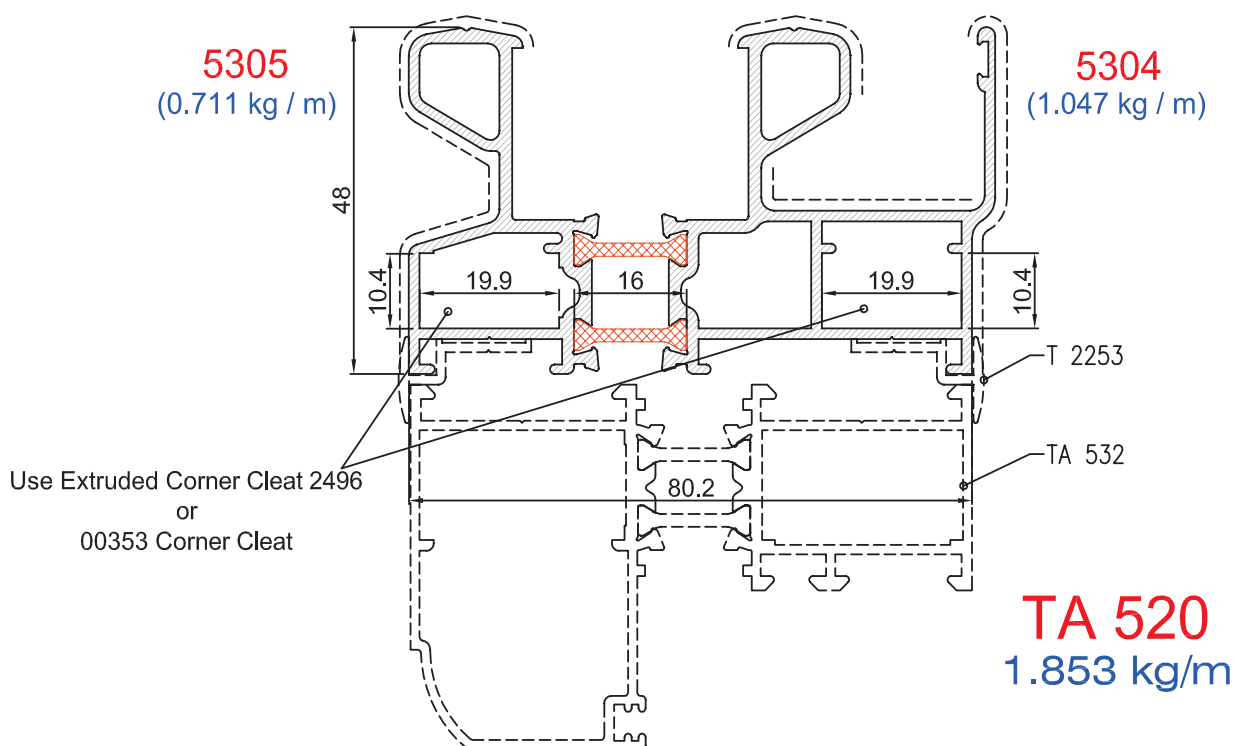
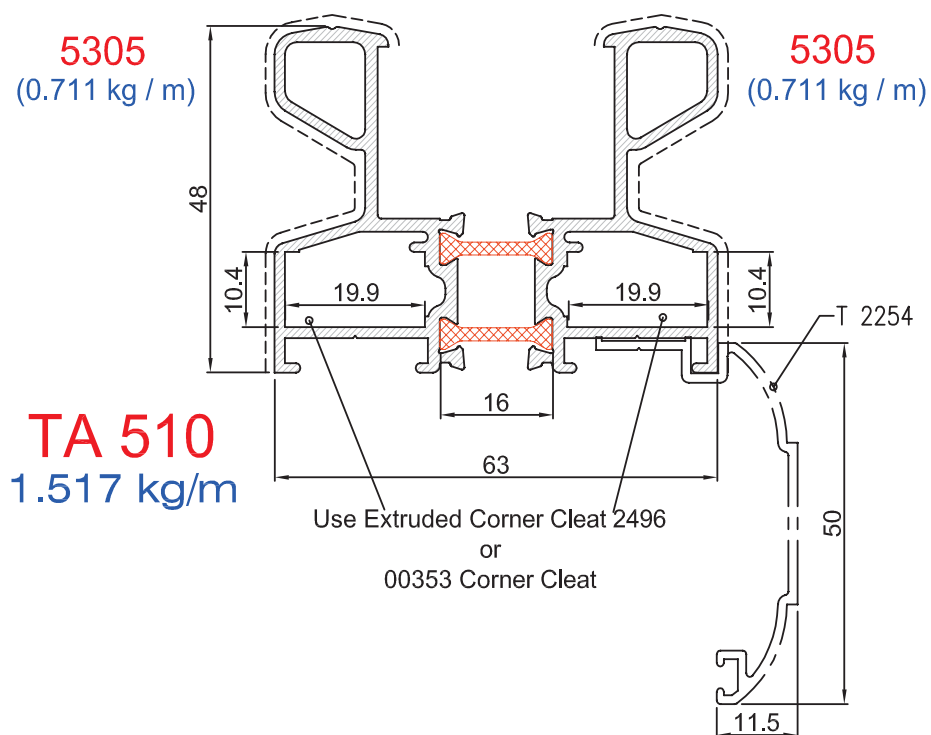
NOTE: SCREWS, FLY SCREEN ROLLER, ALUMINIUM MESH, SILICON & GLASS ARE NOT INCLUDED IN THE CUTTING LIST





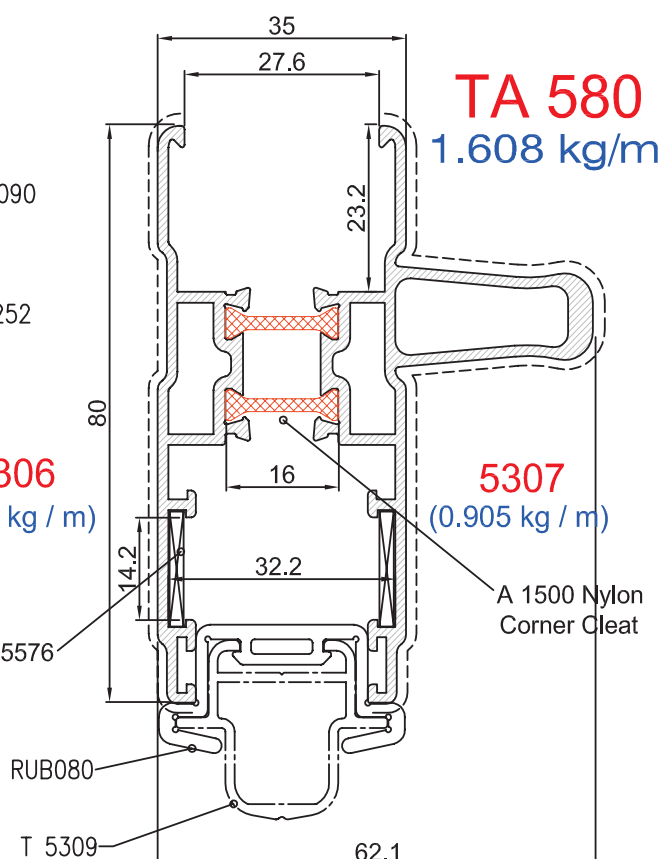
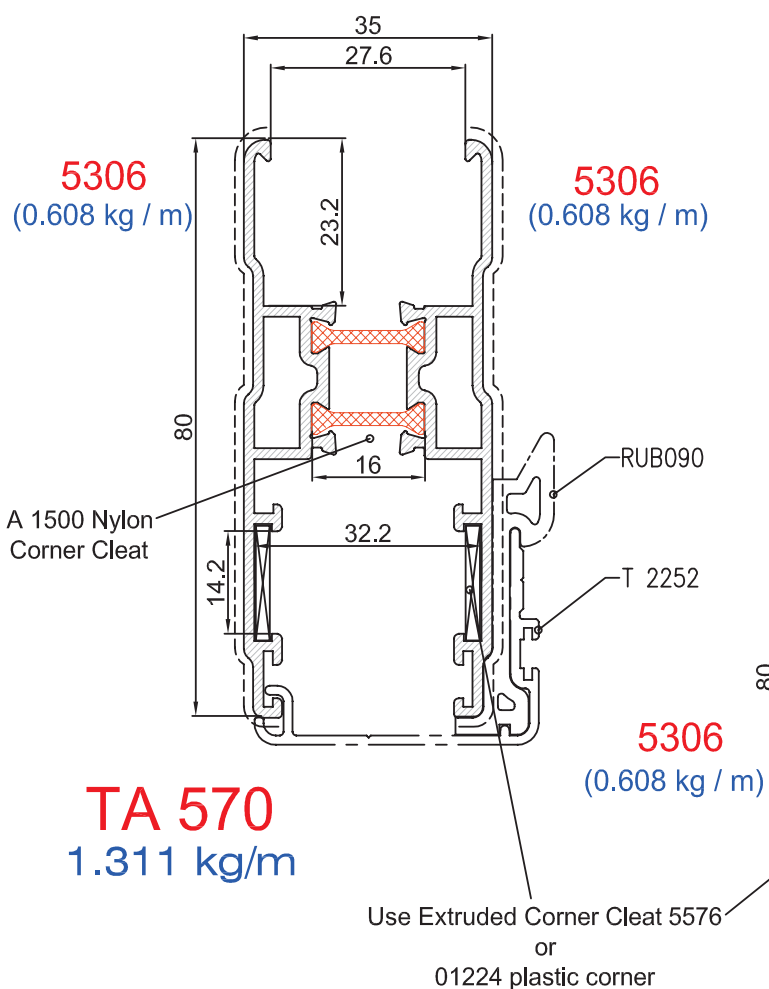
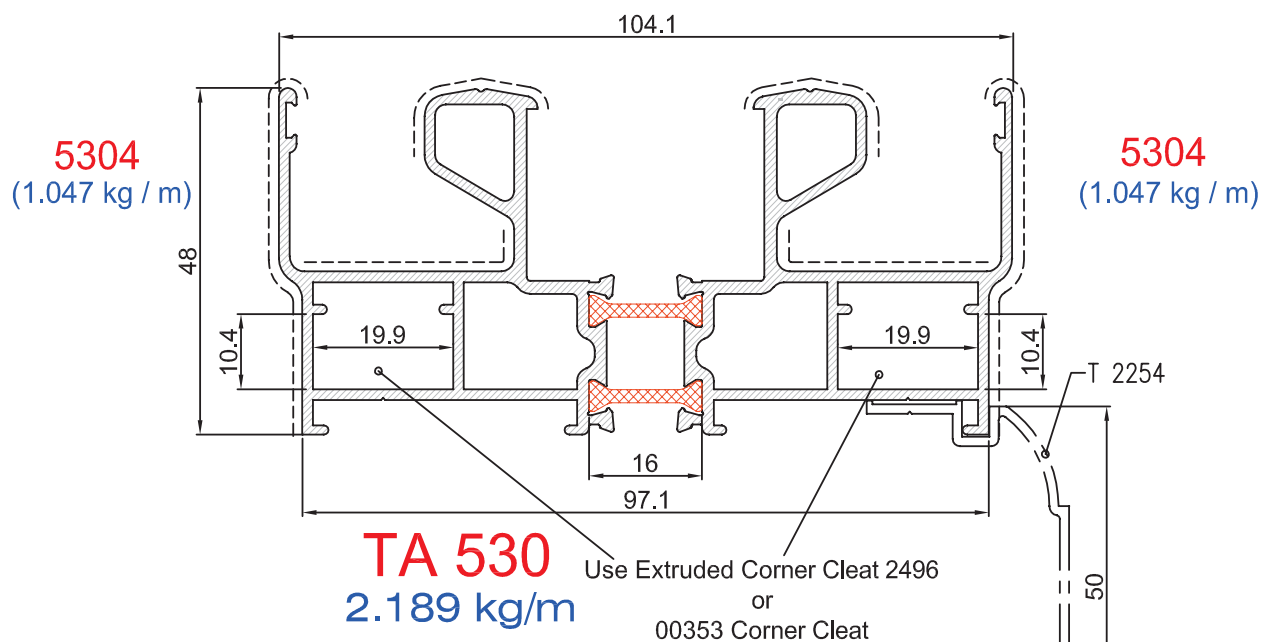
# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

## ECO - 500



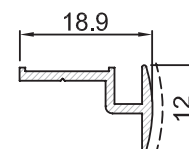
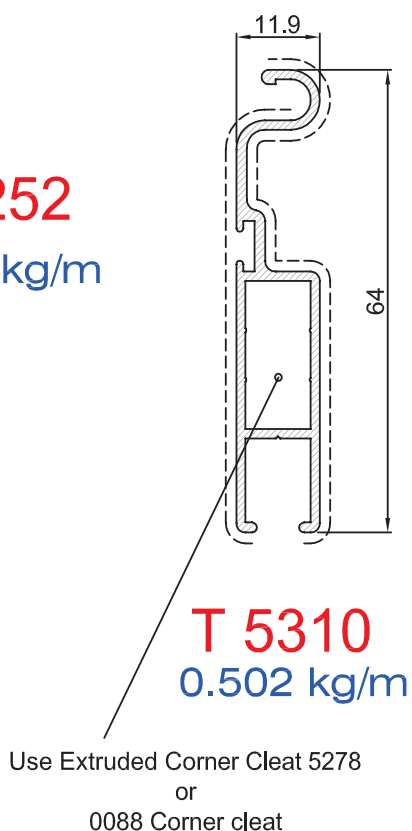
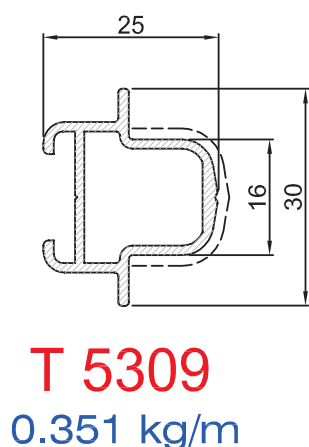
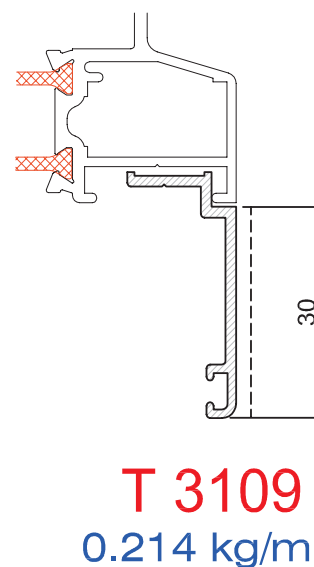
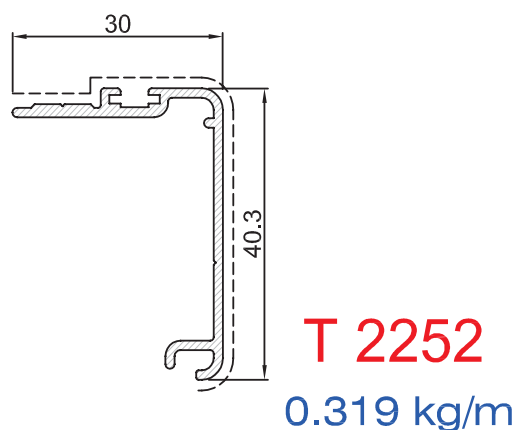
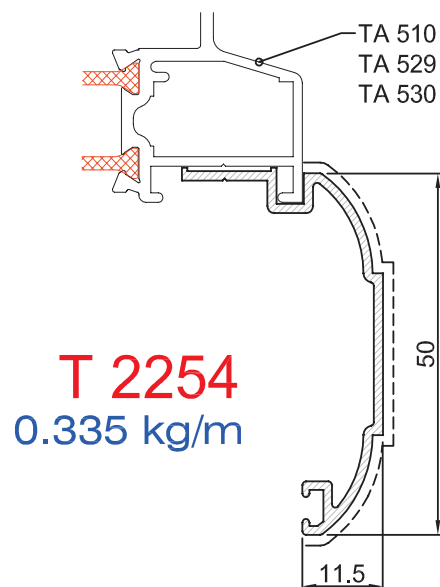
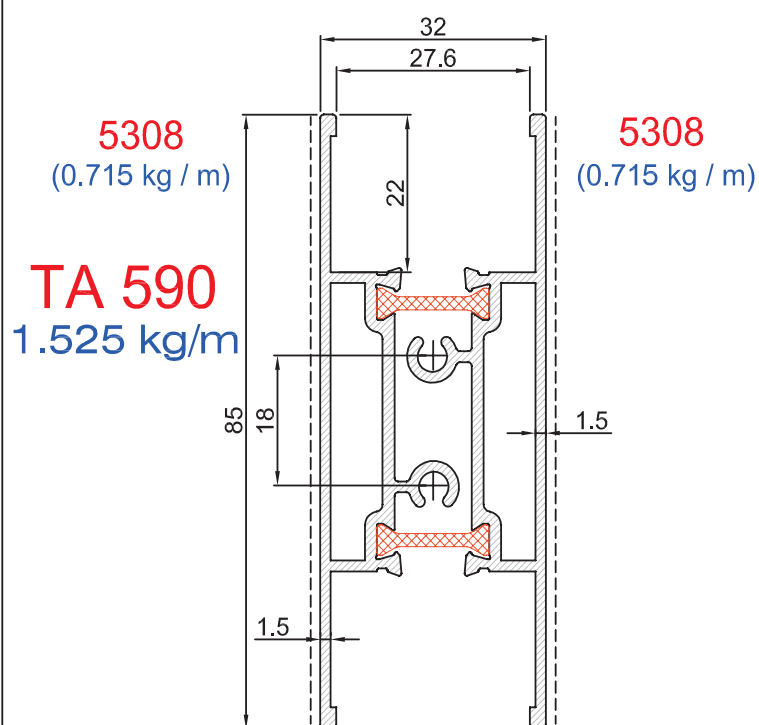
# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

# ECO - 500



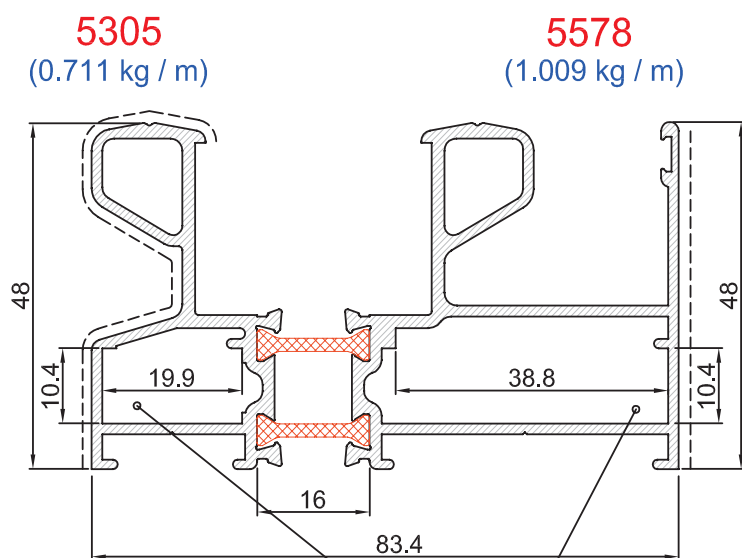
# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

## ECO - 500



# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

# ECO - 500



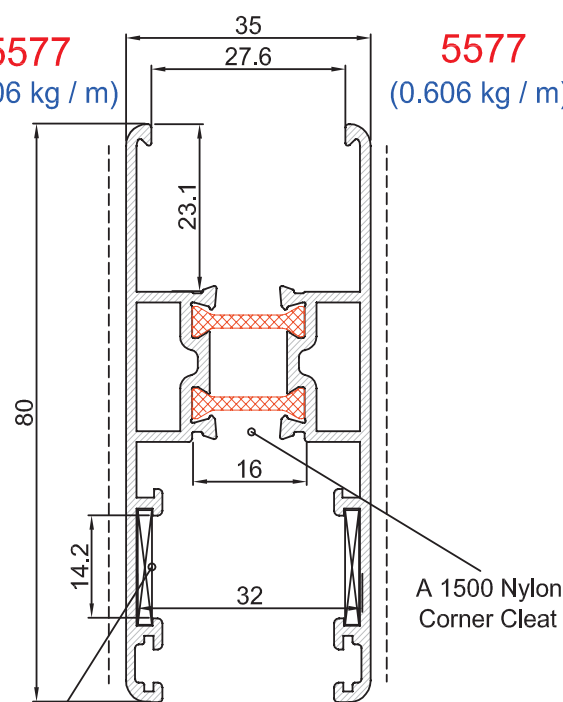
**TA 521**  
1.815 kg/m

Use Extruded Corner Cleat 2496  
or  
00353 Corner Cleat

**5578**  
(1.009 kg / m)

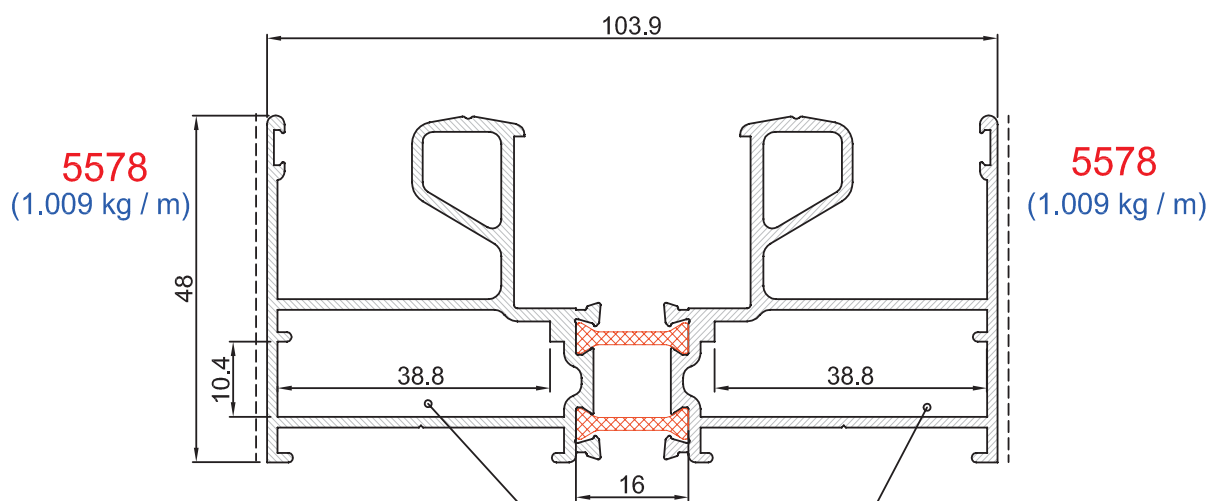
**5577**  
(0.606 kg / m)

**5577**  
(0.606 kg / m)



Use Extruded Corner Cleat 5576  
or  
01224 plastic corner

**TA 571**  
1.307 kg/m



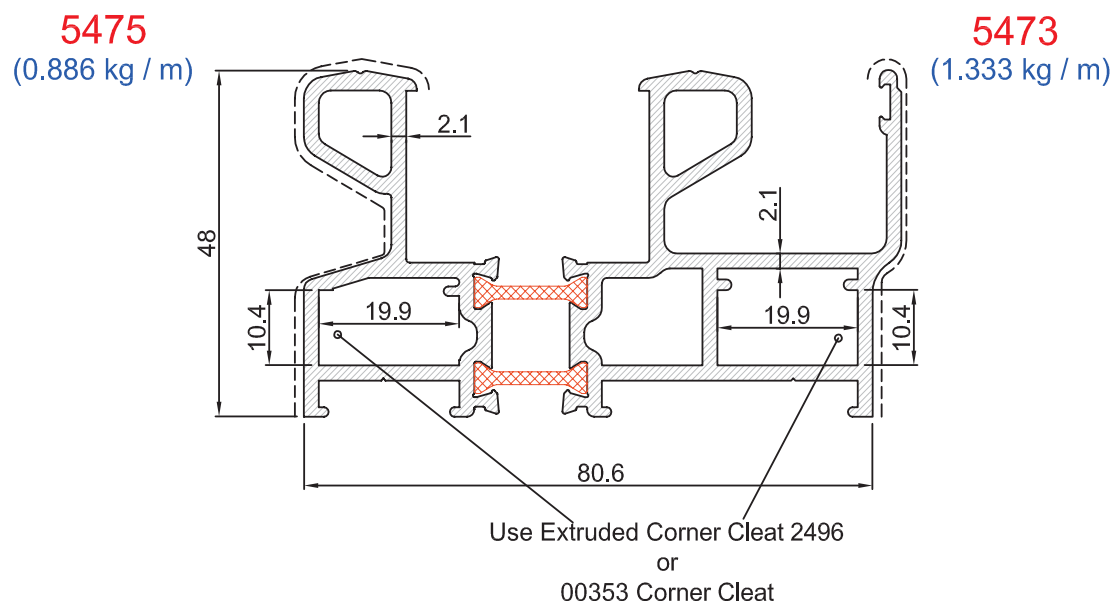
Use Extruded Corner Cleat 2496  
or  
00353 Corner Cleat

**TA 531**  
2.113 kg/m

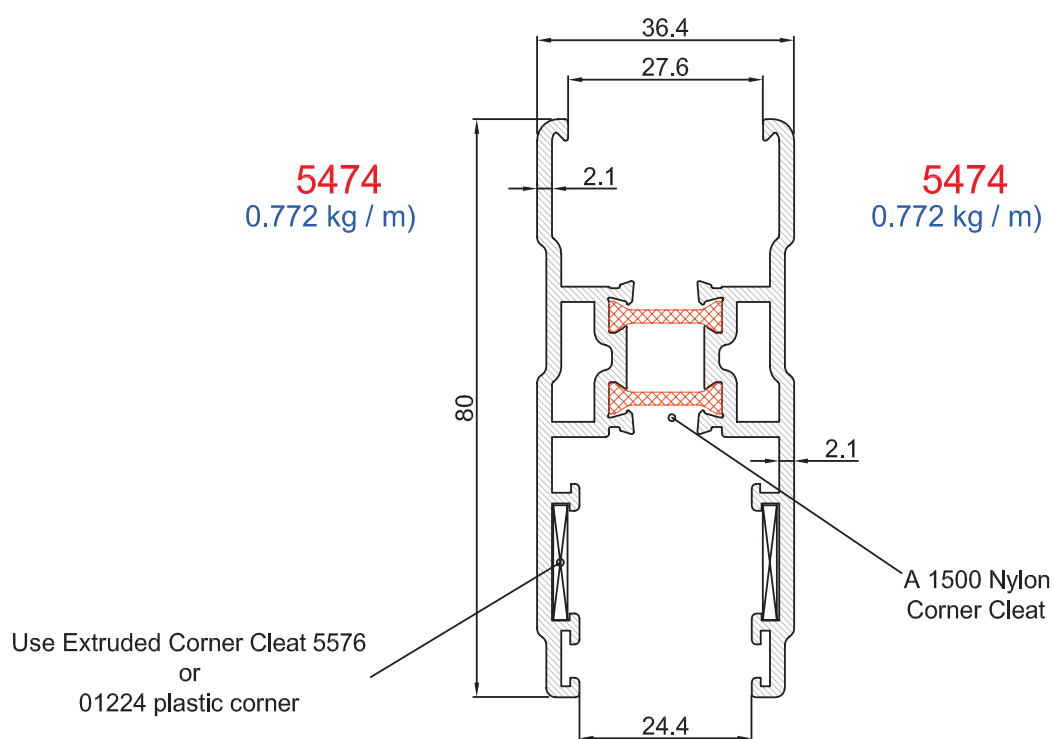
# SLIDING SERIES THERMAL BREAK WINDOWS AND DOORS SECTIONS

## ECO - 500

### HEAVY DUTY PROFILES (2.1mm THICK)



**TA 600**  
2.314 kg/m

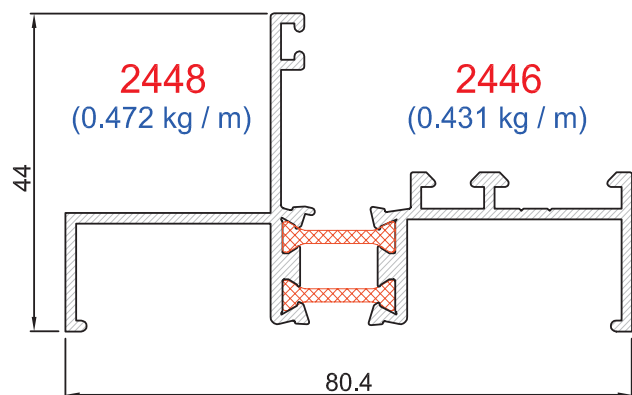


**TA 610**  
1.639 kg/m

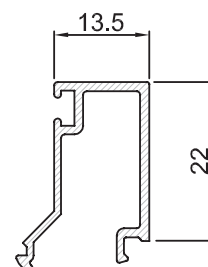
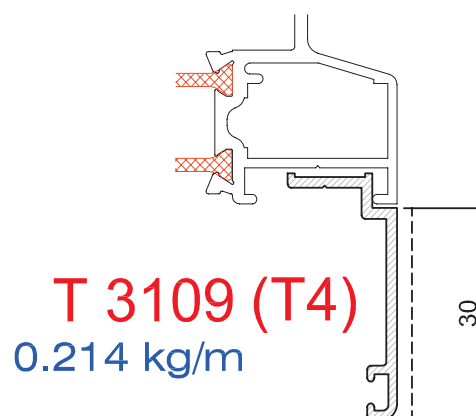
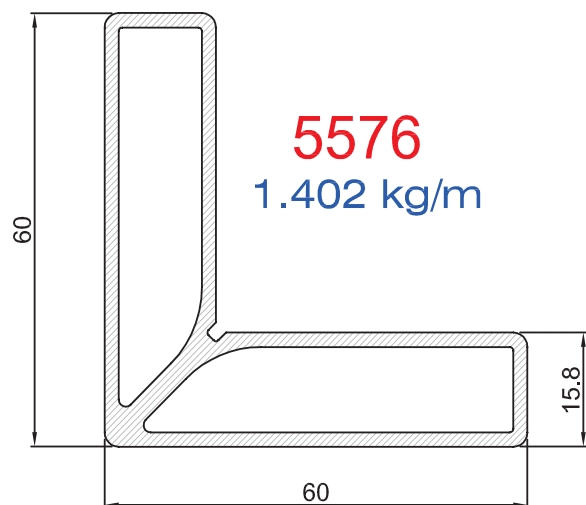
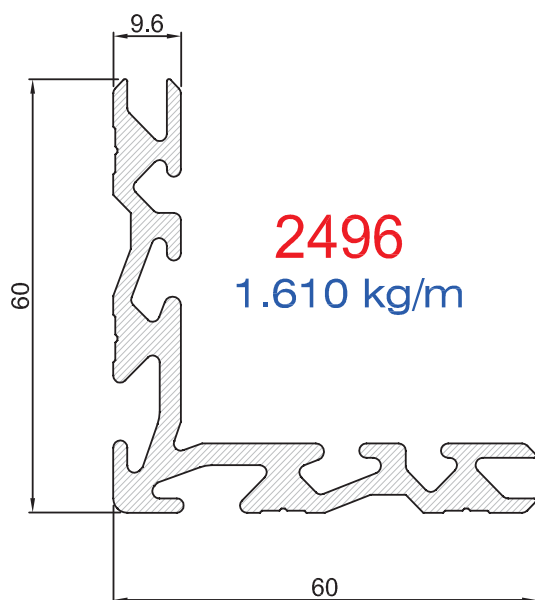


# SLIDING WINDOWS AND DOORS SECTIONS TOP FIXLITE

## ECO - 500

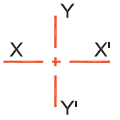
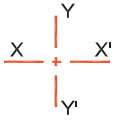
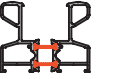

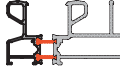


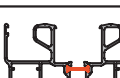

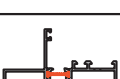
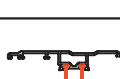


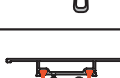




**T 542 (T4)**  
0.998 kg/m



# THERMAL BREAK SLIDING SERIES SECTIONS MOMENT OF INERTIA

# ECO - 500

	Sec. No.	$I_{xx'}$ (CM <sup>4</sup> )	$I_{yy'}$ (CM <sup>4</sup> )			Sec. No.	$I_{xx'}$ (CM <sup>4</sup> )	$I_{yy'}$ (CM <sup>4</sup> )	
	TA 510	11.51	22.20						
	TA 511	14.64	64.74						
	TA 512	19.61	72.83						
	TA 520	13.29	44.07						
	TA 521	13.24	45.12						
	TA 530	15.06	76.12						
	TA 531	14.96	77.66						
	TA 542	17.71	03.50						
	TA 570	19.09	08.84						
	TA 571	19.13	08.96						
	TA 580	20.97	19.43						
	TA 590	21.98	07.64						
	TA 600	16.34	58.83						
	TA 610	24.40	12.09						