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THERMAL SIMULATION IN ACCORDANCE WITH CSA A440.2-14

CLEB laboratory Inc.	Submitted to:
Report No.: **AT-00629**	**Fabelta Aluminium** **3840 Georges-Corbeil Street** **Terrebonne QC, Canada** **J6X 4J4** **(450) 477-7611**

Report Summary

Operation Type:	DATT
Series/Model:	# 1016-Pure-Oscillo-Battant
Report Date:	2017-08-07
Revision Date:	N/A
Simulation Date :	2017-08-07
Number of Pages:	6

Note: Reference must be made to CLEB laboratory Inc. complete report for specimen description and detailed simulation results.

Simulated by:

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NFRC Certified Simulator, Person in Responsible Charge
CLEB laboratory Inc.

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THERMAL SIMULATION IN ACCORDANCE WITH CSA A440.2-14

1 INTRODUCTION

CLEB laboratory Inc. has been retained by Fabelta Aluminium to evaluate *a tilt turn window* in accordance with ANSI/NFRC 100 Procedure for Determining Fenestration Product U-Factors, ANSI/NFRC 200 Solar Heat Gain Coefficient and Visible Transmittance and NFRC 500 Procedure for Determining Fenestration Product Condensation Resistance Values. The product components and manufacturing details are documented in section 4 of this report. Rounding is per NFRC 601 NFRC Unit and Measurement Policy. All imperial values are for reference only. Appendix A of this report includes drawings and information of the product.

Simulations were conducted in full compliance with CSA requirements. Air infiltration test results were taken in report number AI-04597-C1 from CLEB laboratory Inc.

2 SPECIFICATION

CSA A440.2-14:	Fenestration energy performance
ANSI/NFRC 100-2014:	Procedure for Determining Fenestration Product U-Factors
ANSI/NFRC 200-2014:	Solar Heat Gain Coefficient and Visible Transmittance
NFRC 101-2017:	Procedure for Determining Thermophysical Properties of Materials for Use in NFRC-Approved Software
NFRC 500-2014:	Procedure for Determining Fenestration Product Condensation Resistance Values
NFRC 601-2010:	NFRC Unit and Measurement Policy
WINDOW 6:	Software by Lawrence Berkeley National Laboratory
THERM 6:	Software by Lawrence Berkeley National Laboratory

3 DISCLAIMER

Data required for this evaluation were taken from the best available sources and every effort was taken to accurately perform the simulation documented in this report. Because of the large amount of input data and analysis it is possible that errors or omissions could occur. Neither CLEB laboratory Inc. nor any of its employees shall be held responsible for any loss or damage resulting directly or indirectly from any default, error or omission.

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4 PRODUCT DESCRIPTION

4.1 OPERATOR TYPE:

DATT, Tilt Turn

4.2 SERIES/MODEL:

1016-Pure-Oscillo-Battant

4.3 FRAME:

4.3.1	Material:	AT, Aluminium w/ Thermal breaks - All members
4.3.2	Finish:	Painted Aluminum
4.3.3	Reinforcement:	None
4.3.4	Weatherstripping:	Compression weatherstripping at all perimeter
4.3.5	Continuous Hardware:	No hardware was required to be modeled
4.3.6	Overall dimensions:	1200 mm W. x 1500 mm H. (47.24 "x 59.06")

4.4 SASH(ES)

4.4.1	Material:	AT, Aluminium w/ Thermal breaks - All members
4.4.2	Sash 1:	
4.4.2.1.	*Finish:*	*Painted Aluminum*
4.4.2.2.	*Reinforcement(s):*	*None*
4.4.2.3.	*Weatherstripping(s):*	*Compression bulb at all perimeter*
4.4.2.4.	*Continious Harware:*	*N/A*
4.4.3	Sash 2:	N/A
4.4.4	Sash 3:	N/A
4.4.5	Sash 4:	N/A

4.5 GLAZING METHOD:

4.5.1	Exterior face:	EPDM gasket
4.5.2	Interior face:	EPDM gasket

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4.6 SPACER:

Spacer type:	Material:	Primary sealant:	Secondary sealant:
TGI-Spacer Wave (TS-D)	Polypropylene and Stainless Steel	Polyisobutylene	Hot-Melt Butyl
I-Spacer (TS-D)	Polypropylene and Stainless Steel	Polyisobutylene	Hot-Melt Butyl
Swiss Spacer Ultimate (TP-D)	Thermo-plastic	Polyisobutylene	Hot-Melt Butyl

4.7 GRID:

		Grid Type	Dimensions:
4.7.1	Grid:	Georgian	8 mm x 18 mm
		Rectangular_3/8 x 5/8	.300 in x .625 in
		Rectangular	6 mm x 15.87 mm
		SDL	21.73 mm
		SDL	44.4 mm
4.7.2	Material and finish:	Painted Aluminum	
4.7.3	Standard NFRC Grid Pattern:	Yes	

4.8 GLAZING:

4.8.1	Filling Techniques:	Single probe Evacuated chamber
4.8.2	Capillary tube:	No
4.8.3	Gas fill percentages:	90% Argon, 10% Air 95% Argon, 5% Air
4.8.4	Comment:	None

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5 SIMULATION RESULTS

Table 1: Center of glazing results

ID	Name	Insulating Glass Unit																U factor		SHGC	VT
		Glass 1				Gap 1		Glass 2				Gap 2		Glass 3							
		Type	mm	Emissivity		mm	gas	Type	mm	Emissivity		mm	gas	Type	mm	Emissivity		W/m2-K	Btu/hr-ft2-F		
				Surface #1	Surface #2					Surface #3	Surface #4					Surface #5	Surface #6				
10	ClrGuard-Arg90-8070#3	Clear, Guardian	3.0	0.840	0.840	16.21	Arg 90%	Climaguard 80/70	3.0	0.095	0.840	N-A	N-A	N-A	N-A	N-A	N-A	1.586	0.279	0.704	0.810
20	ClrGuard-Arg90-8070#3-Arg90-8070#5	Clear, Guardian	3.0	0.840	0.840	12.75	Arg 90%	Climaguard 80/70	3.0	0.095	0.840	12.75	Arg 90%	Climaguard 80/70	3.0	0.095	0.840	0.799	0.141	0.607	0.728
30	ClrAGC-Arg95-CS73#3	Clear, AGC	3.0	0.840	0.840	16.64	Arg 95%	Comfort Select 73	3.0	0.148	0.840	N-A	N-A	N-A	N-A	N-A	N-A	1.683	0.296	0.737	0.744
40	ClrPilk-Arg95-SUN400#3	Clear, Pilkington	3.0	0.840	0.840	15.80	Arg 95%	SUN400	3.0	0.115	0.840	N-A	N-A	N-A	N-A	N-A	N-A	1.608	0.283	0.713	0.792

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Table 2: Overall fenestration products results

ID	Option Name	Insulating Glass Unit														Overall Product								
		Glass 1		Gap 1				Glass 2		Gap 2				Glass 3		U Factor		SHGC	VT	Air Tightness (l/s.m^2)			Aw	ER
		Type	mm	mm	Gas	Spacer	Grid	Type	mm	mm	Gas	Spacer	Grid	Type	mm	W/m2-K	Btu/hr-ft2-F			Average	Infiltration	Exfiltration	(m^2)	
10	IW_ClrGuard-Arg90-8070#3	Clear, Guardian	3.0	16.21	Arg 90%	TS-D	None	Climaguard 80/70	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.85	0.33	0.53	0.60	N / A	0.03	0.02	1.8	30
11	IW_ClrGuard-Arg90-8070#3_Grids<1"	Clear, Guardian	3.0	16.21	Arg 90%	TS-D	Grids<1"	Climaguard 80/70	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.85	0.33	0.47	0.54	N / A	0.03	0.02	1.8	27
12	IW_ClrGuard-Arg90-8070#3_SDL<1"	Clear, Guardian	3.0	16.21	Arg 90%	TS-D	SDL<1"	Climaguard 80/70	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.85	0.33	0.47	0.54	N / A	0.03	0.02	1.8	27
13	IW_ClrGuard-Arg90-8070#3_SDL>=1"	Clear, Guardian	3.0	16.21	Arg 90%	TS-D	SDL>=1"	Climaguard 80/70	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.85	0.33	0.42	0.47	N / A	0.03	0.02	1.8	24
20	IW_ClrGuard-Arg90-8070#3-Arg90-8070#5	Clear, Guardian	3.0	12.75	Arg 90%	TS-D	None	Climaguard 80/70	3.0	12.75	Arg 90%	TS-D	None	Climaguard 80/70	3.0	1.24	0.22	0.46	0.54	N / A	0.03	0.02	1.8	39
30	IS_ClrAGC-Arg95-CS73#3	Clear, AGC	3.0	16.64	Arg 95%	TS-D	None	Comfort Select 73	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.91	0.34	0.55	0.55	N / A	0.03	0.02	1.8	30
31	IS_ClrAGC-Arg95-CS73#3_Grids<1"	Clear, AGC	3.0	16.64	Arg 95%	TS-D	Grids<1"	Comfort Select 73	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.91	0.34	0.50	0.49	N / A	0.03	0.02	1.8	27
32	IS_ClrAGC-Arg95-CS73#3_SDL<1"	Clear, AGC	3.0	16.64	Arg 95%	TS-D	SDL<1"	Comfort Select 73	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.91	0.34	0.50	0.49	N / A	0.03	0.02	1.8	27
33	IS_ClrAGC-Arg95-CS73#3_SDL>=1"	Clear, AGC	3.0	16.64	Arg 95%	TS-D	SDL>=1"	Comfort Select 73	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.91	0.34	0.44	0.43	N / A	0.03	0.02	1.8	24
40	SU_ClrPilk-Arg95-SUN400#3	Clear, Pilkington	3.0	15.80	Arg 95%	TP-D	None	SUN400	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.79	0.31	0.54	0.59	N / A	0.03	0.02	1.8	32
41	SU_ClrPilk-Arg95-SUN400#3_Grids<1"	Clear, Pilkington	3.0	15.80	Arg 95%	TP-D	Grids<1"	SUN400	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.79	0.31	0.48	0.52	N / A	0.03	0.02	1.8	28
42	SU_ClrPilk-Arg95-SUN400#3_SDL<1"	Clear, Pilkington	3.0	15.80	Arg 95%	TP-D	SDL<1"	SUN400	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.79	0.31	0.48	0.52	N / A	0.03	0.02	1.8	28
43	SU_ClrPilk-Arg95-SUN400#3_SDL>=1"	Clear, Pilkington	3.0	15.80	Arg 95%	TP-D	SDL>=1"	SUN400	3.0	N-A	N-A	N-A	N-A	N-A	N-A	1.79	0.31	0.43	0.46	N / A	0.03	0.02	1.8	26

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6 REVISION LOG

Revision Number	Revision Date	Description

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APPENDIX A: DRAWINGS AND PRODUCT INFORMATION

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PRODUIT # 1016 (PURE)
Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Matériel

#	Part #	Description	Matériel	Fourn.
01	990721	Volet extérieur	ALU	Métra
02	990372	Volet intérieur	ALU	Métra
03	990375	Moustiquaire	ALU	Métra
04	990368	Cadre - Seuil extérieur	ALU	Métra
05	990369	Cadre - Jambage/ Tête extérieur	ALU	Métra
06	990370	Cadre intérieur	ALU	Métra
07	990735	Parclose opérant	ALU	Métra
08	FD28x17-95	Coin vissé assemblage volet- coté aluminium	ALU	Acofal
09	394400	Barrière thermique - Volet	Polyamide	Technoform
10	394500	Barrière thermique - Cadre	Polyamide	Technoform
11	394600	Barrière thermique - STandard	Polyamide	Technoform
12	R1520/FV3497	Gasket vitrage extérieur	TPE	Quéplex
13	R1519/FV3498	Gasket vitrage intérieur	TPE	Quéplex
14	FL-2807/FV3515	Gasket principal cadre	TPE	Quéplex
15	COEX-429B	Coupe-froid - Volet	TPE	Quéplex
16		Thermos fini 0.875"	Verre	
17	CZS20	Poignée	ZINC-ALU	Kin Long
18	FWG10	Mécanisme de prévention mauvaise utilisation	ZINC-ALU	Kin Long
19	ZA1-6A	Plaque de verrouillaige (keeper)	ZINC-ALU	Kin Long
20	ZA2	Dispositif de coin	ZINC-ALU	Kin Long
21	LZDC05	Tige raccord (500mm, 750mm, 1000mm)	ALU	Kin Long
22	LG11	Mécanisme oscillo-battant	ZINC-ALU	Kin Long
23	N50	Pivot oscillo	ZINC-ALU	Kin Long
24	N51	Bloc support - cadre	ZINC-ALU	Kin Long

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AT-30629
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PRODUIT # 1016 (PURE)
Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Matériel

#	Part #	Description	Matériel	Fourn.
25	N33	Bloc support - volet	Nylon Pa66	Kin Long
26	NDHA10	Penture du haut	Métal	Kin Long
27	NDHB10	Penture du bas	Métal	Kin Long
28	PP06051308	Cale D4C-R 1/4 x 1 x 4	Néoprène	Profom
29	PKAZ10112	Vis #10 x 1-1/2 - assemblage cadre	Acier plaqué zinc	
30	ZB1	PETIT DISPOSITIF DE COIN (option)	ZINC-ALU	Kin Long
31	FV-3499	PARE-EAU DES JAMBAGES ET SEUIL	TPE	Quéplex
32	FV-3522	PARE-EAU DE LA TÊTE	TPE	Quéplex
33	RD25x11	Coin vissé assemblage volet- coté polyamide	ALU	Acofal
34	DTEE1	Déflecteur trou d'évacuation d'eau	ALU	Werner
35		Styromousse 15/16" x 13/32" dans barrière thermique volet	Styromousse	Fransyl
36		Styromousse 15/16" x 5/8" dans barrière thermique cadre	Styromousse	Fransyl
	I30924-20794	Adseal 4585 Blanc Glacier	Silicone	Adfast
	BEPS	BLOC ÉTANCHÉITÉ COIN CADRE PURE SEUIL	POLYÉTYLÈNE	PROFOM
	BEPT	BLOC ÉTANCHÉITÉ COIN CADRE PURE TETE	POLYÉTHYLÈNE	PROFOM

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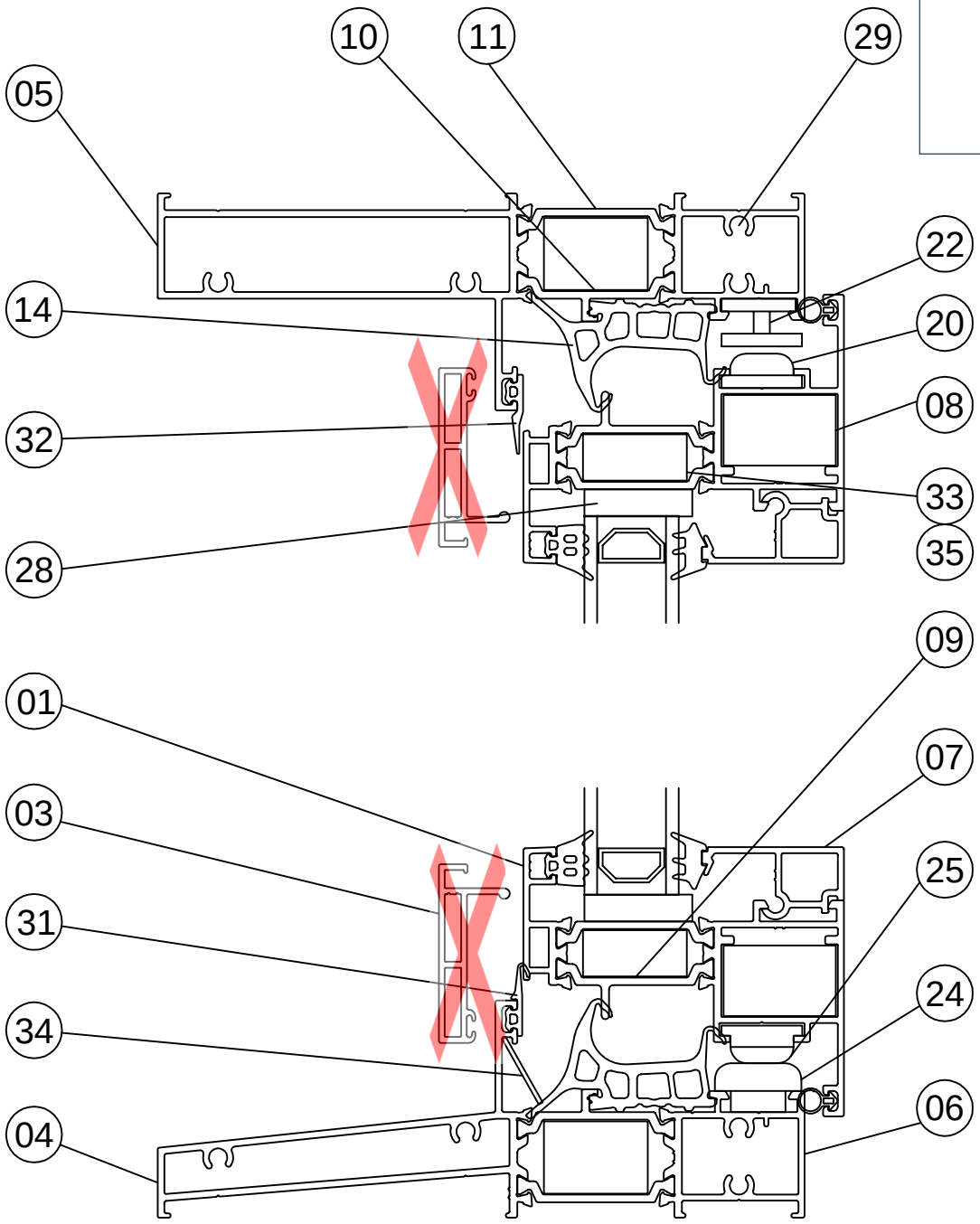
PRODUIT # 1016 (PURE)
Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Coupe verticale



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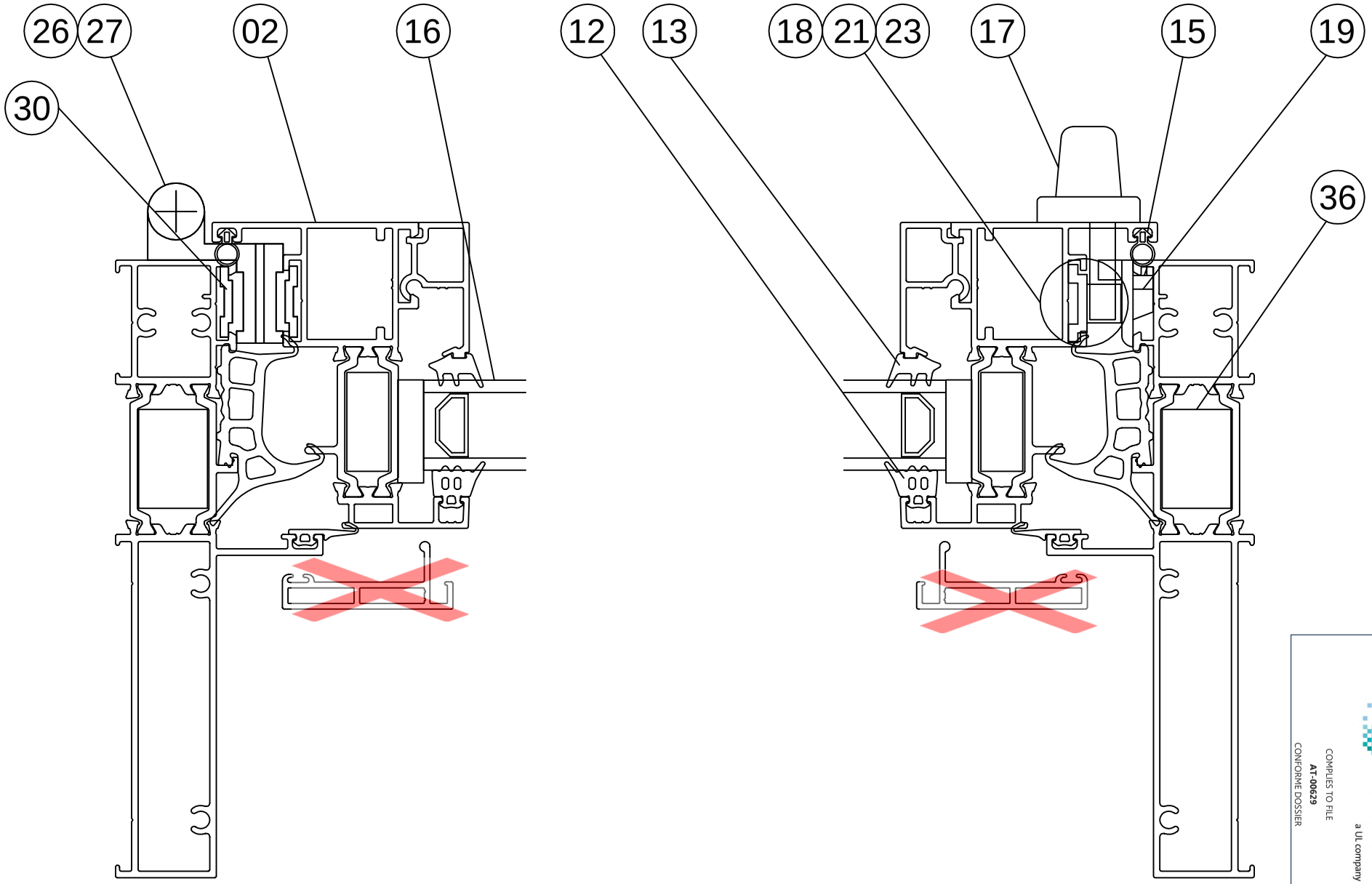
PRODUIT # 1016 (PURE)

Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Coupe horizontale



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PRODUIT # 1016 (PURE)
Fenêtre - ALU/ALU - OSCILLO-BATTANT / TRIPLE VERRE 35.12mm- Boite 6" - Matériel

#	Part #	Description	Matériel	Fourn.
01	990721	Volet extérieur	ALU	Métra
02	990372	Volet intérieur	ALU	Métra
03	990375	Moustiquaire	ALU	Métra
04	990368	Cadre - Seuil extérieur	ALU	Métra
05	990369	Cadre - Jambage/ Tête extérieur	ALU	Métra
06	990370	Cadre intérieur	ALU	Métra
07	990724	Parclose TV 35.12mm opérant	ALU	Métra
08	FD28x17-95	Coin vissé assemblage volet- coté aluminium	ALU	Acofal
09	394400	Barrière thermique - Volet	Polyamide	Technoform
10	394500	Barrière thermique - Cadre	Polyamide	Technoform
11	394600	Barrière thermique - STandard	Polyamide	Technoform
12	R1520/FV3497	Gasket vitrage extérieur	TPE	Quéplex
13	R1519/FV3498	Gasket vitrage intérieur	TPE	Quéplex
14	FL-2807/FV3515	Gasket principal cadre	TPE	Quéplex
15	COEX-429B	Coupe-froid - Volet	TPE	Quéplex
16		Thermos fini 35.12mm	Verre	
17	CZS20	Poignée	ZINC-ALU	Kin Long
18	FWG10	Mécanisme de prévention mauvaise utilisation	ZINC-ALU	Kin Long
19	ZA1-6A	Plaque de verrouillaige (keeper)	ZINC-ALU	Kin Long
20	ZA2	Dispositif de coin	ZINC-ALU	Kin Long
21	LZDC05	Tige raccord (500mm, 750mm, 1000mm)	ALU	Kin Long
22	LG11	Mécanisme oscillo-battant	ZINC-ALU	Kin Long
23	N50	Pivot oscillo	ZINC-ALU	Kin Long
24	N51	Bloc support - cadre	ZINC-ALU	Kin Long

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PRODUIT # 1016 (PURE)
Fenêtre - ALU/ALU - OSCILLO-BATTANT / TRIPLE VERRE 35.12mm - Boite 6" - Matériel

#	Part #	Description	Matériel	Fourn.
25	N33	Bloc support - volet	Nylon Pa66	Kin Long
26	NDHA10	Penture du haut	Métal	Kin Long
27	NDHB10	Penture du bas	Métal	Kin Long
28	PP06051308	Cale D4C-R 1/4 x 1 x 4	Néoprène	Profom
29	PKAZ10112	Vis #10 x 1-1/2 - assemblage cadre	Acier plaqué zinc	
30	ZB1	PETIT DISPOSITIF DE COIN (option)	ZINC-ALU	Kin Long
31	FV-3499	PARE-EAU DES JAMBAGES ET SEUIL	TPE	Quéplex
32	FV-3522	PARE-EAU DE LA TÊTE	TPE	Quéplex
33	RD25x11	Coin vissé assemblage volet- coté polyamide	ALU	Acofal
34	DTEE1	Déflecteur trou d'évacuation d'eau	ALU	Werner
35		Styromousse 15/16" x 13/32" dans barrière thermique volet	Styromousse	Fransyl
36		Styromousse 15/16" x 5/8" dans barrière thermique cadre	Styromousse	Fransyl
	I30924-20794	Adseal 4585 Blanc Glacier	Silicone	Adfast
	BEPS	BLOC ÉTANCHÉITÉ COIN CADRE PURE SEUIL	POLYÉTYLÈNE	PROFOM
	BEPT	BLOC ÉTANCHÉITÉ COIN CADRE PURE TETE	POLYÉTHYLÈNE	PROFOM

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PRODUIT # 1016 (PURE)
Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Coupe verticale
Triple verre 35.12mm

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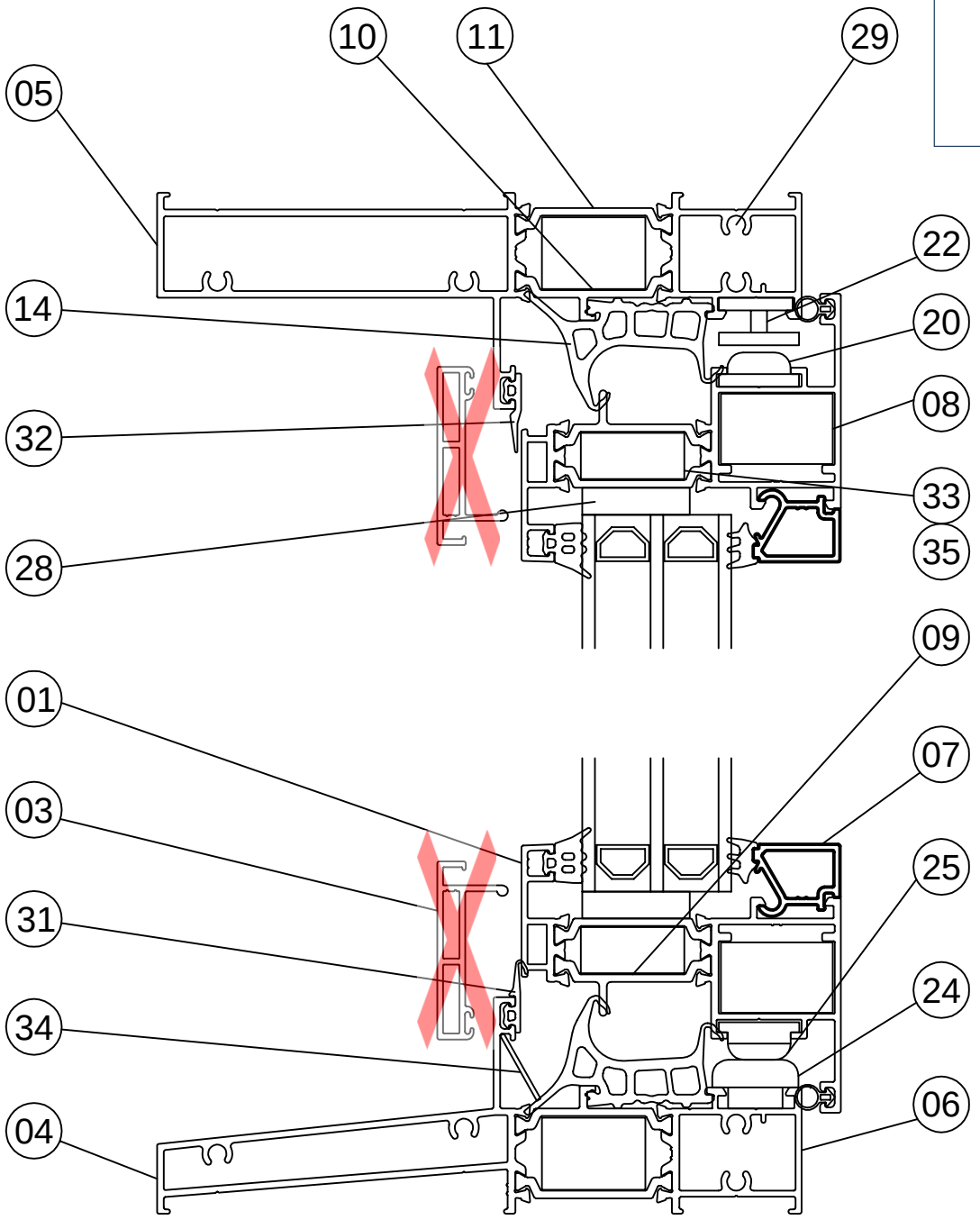
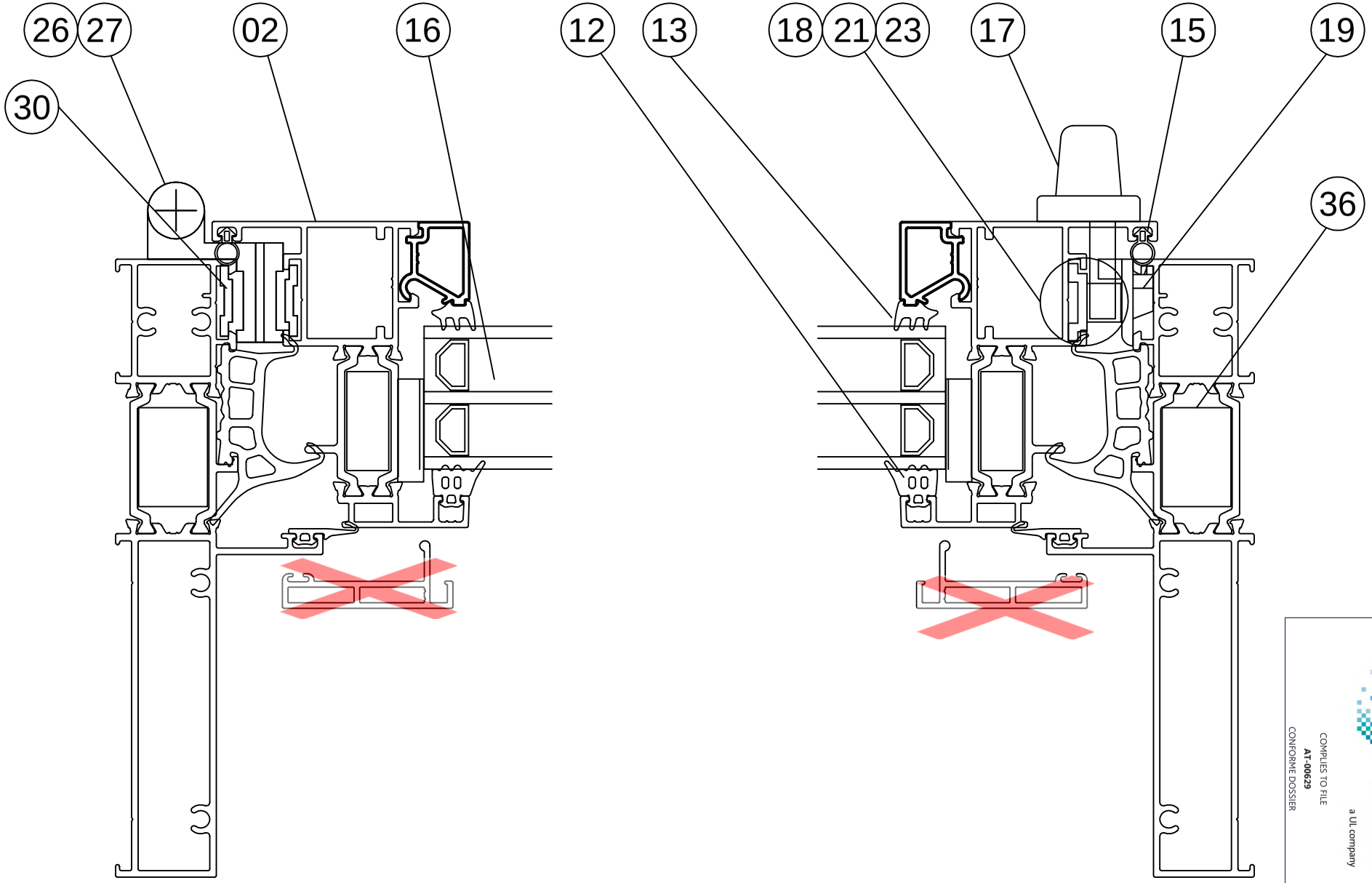


PRODUIT # 1016 (PURE)

Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Coupe horizontale

Triple verre 35.12mm



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METRA ALUMINIUM INC.

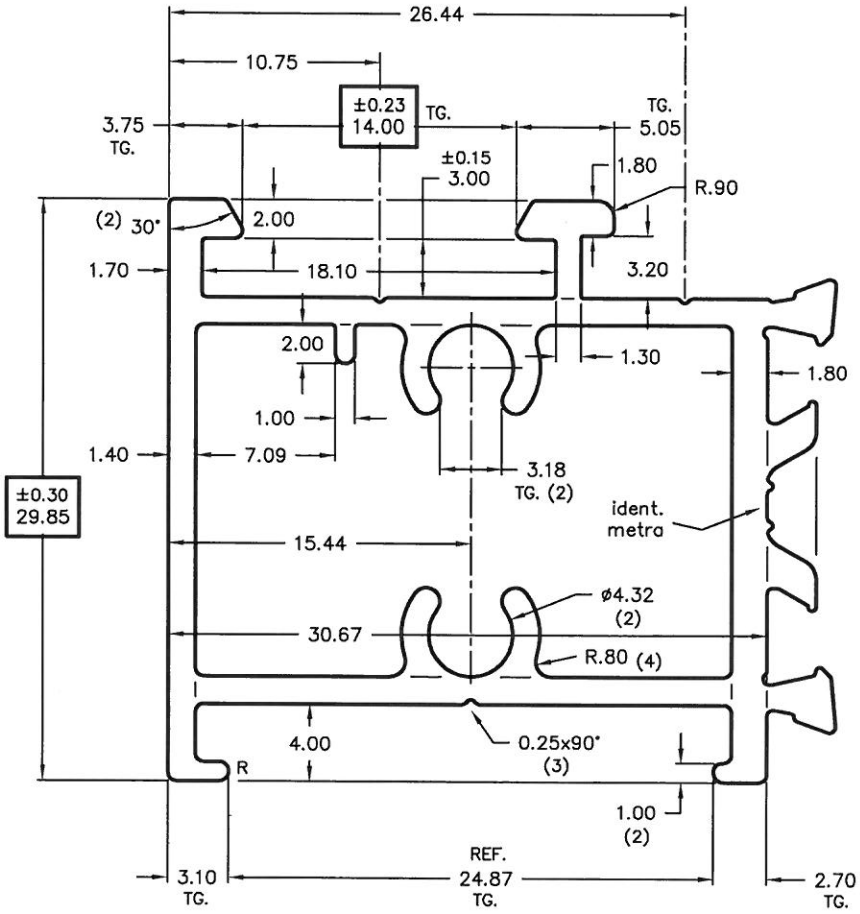
Utilisation: PIÈCE DE FENÊTRE

DIMENSIONS MÉTRIQUES

Alliage	6360
Fini de surface	ARCH.P
Surf. exposée	3
Surface (mm)²	240.4
Masse linéaire (kg/m)	0.649
Périmètre total (mm)	305.3
Périmètre ext. (mm)	180.5
Facteur	470
D.C.C. (mm)	43.6
R. angles vifs (mm)	0.40
Parois typ. (mm)	1.40
R. non indiqués (*) (mm)	---
Date	24 AVR 2013
Dessiné par	Y.P.
Échelle	
No. catégorie	78
Rapport d'ouverture	

Légende:
R : Rayon complet
* : Tol. non-cour.
P.I.: Point d'intersec.
TG : Dim. tangente

gabarit requis Date
OUI ☐ NON ☐



Parois typ. 1.40

Déflexion permise de la partie creuse ±0.25	1.65 / 1.15

Variation, parois des parties solides du profilé ±0.15

No de Profilé METRA **990370**

NO. D'ÉTAGÈRE
CAVITÉS
LINGOT
PRESSE
DIM. FILIÈRE
PLAQUE DE FORMAGE
DIM. PLAQUE DE FORMAGE
ANNEAU DE FILIÈRE
CONTRE-FILIÈRE 990370
DIM. CONTRE-FILIÈRE
PORTE FILIÈRE
INSERT- PORTE FILIÈRE

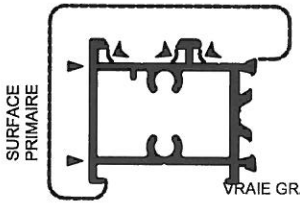
"Ceci n'est pas une conception de Metra Aluminium Inc. Nous devons insister pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé."

"L'outillage est la propriété exclusive de Metra Aluminium Inc. Le droit exclusif à moins d'avis contraire dûment écrit de cette filière, appartient à la compagnie inscrite sur ce dessin avec une approbation signée par une personne autorisée."

cad ☒

PROJET 2013-0063

SURFACE PRIMAIRE



VRAIE GRANDEUR

COMPLIES TO FILE
AT-00629
CONFORME DOSSIER

CLEB
a UL company

▲ = manque de peinture prévu à cet endroit

▼ = POSSIBILITÉ DE RAINURE VISIBLE ET DE DÉCOLORATION À CET ENDROIT APRÈS ANODISATION.

Description	CADRE INT.	No. de pièce du client	V30-04
Client	FABELTA ALUMINIUM INC.	C.C.N. 384270	No. de profilé METRA 990370

Date Rév Par

FQ2.3AB 13 SEPT. 2011

NOTE: LES TOLÉRANCES DE L'ALUMINIUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATION CONTRAIRE

METRA ALUMINIUM INC.

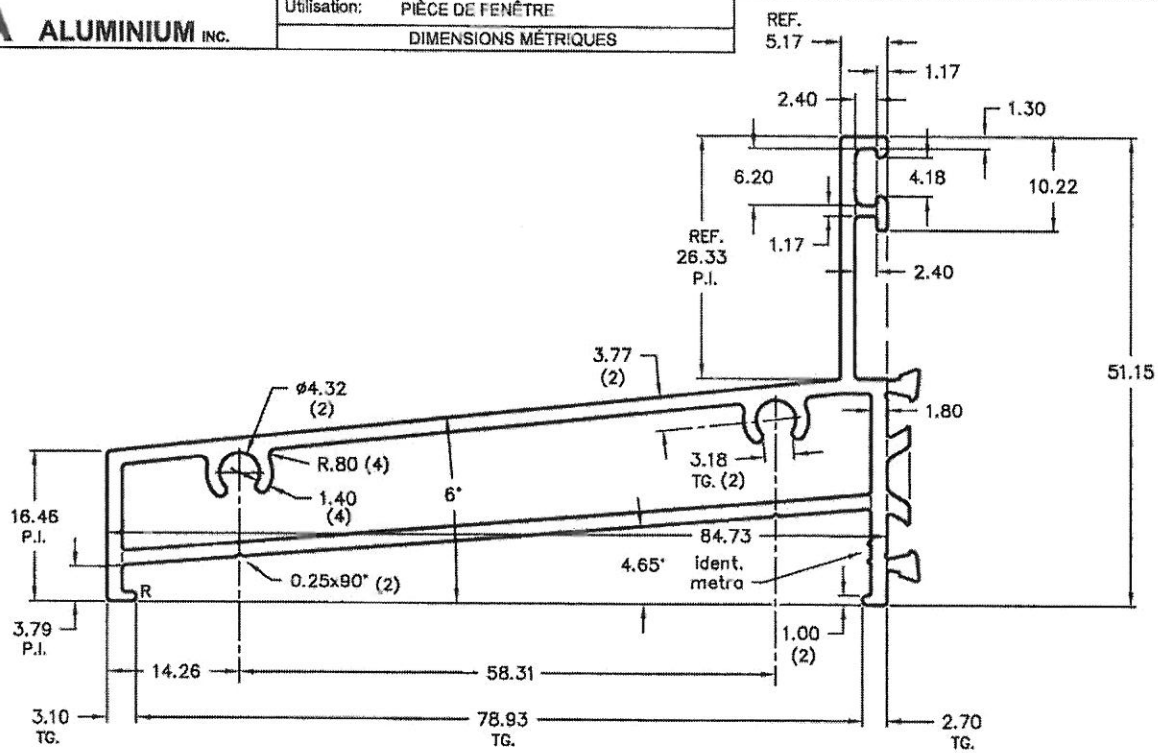
Utilisation: PIÈCE DE FENÊTRE

DIMENSIONS MÉTRIQUES

Alliage	6360
Fini de surface	ARCH.P
Surf. exposée	2
Surface (mm)²	445.2
Masse linéaire (kg/m)	1.202
Périmètre total (mm)	543.0
Périmètre ext. (mm)	328.6
Facteur	452
D.C.C (mm)	98.8
R. angles vis (mm)	0.40
Parois typ (mm)	1.60
R. non indiqués (*) (mm)	---
Date	24 AVR 2013
Dessiné par	Y.P.
Échelle	
No. catégorie	78
Rapport d'ouverture	

Légende
R : Rayon complet
* : Tol. non-cour.
P.I. : Point d'intersec.
TG : Dim. tangente

gabarit requis OUI ☐ NON ☐ Date



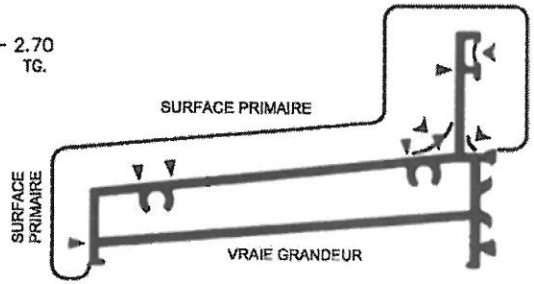
Parois typ 1.60

Déflexion permise de la partie creuse ±0.25	1.85 / 1.35

Variation, parois des parties solides du profilé ±0.15

COMPLIES TO FILE AT-00629 CONFORME DOSSIER

CLEB a UL company



▲ = manque de peinture prévu à cet endroit

▼ = POSSIBILITÉ DE RAINURE VISIBLE ET DE DÉCOLORATION À CET ENDROIT APRÈS ANODISATION.

No de Profilé METRA **990368**

NO. D'ÉTAPE DÉRE
CAVITÉS
LINGOT
PRESSE
DIM. FILIÈRE
PLAQUE DE FORMAGE
DIM. PLAQUE DE FORMAGE
ANNEAU DE FILIÈRE
CONTRE-FILIÈRE 990368
DIM. CONTRE-FILIÈRE
PORTE FILIÈRE
INSERT- PORTE FILIÈRE

"Ceci n'est pas une conception de Metra Aluminium inc. Nous devons obtenir pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé."

"L'outillage est la propriété exclusive de Metra Aluminium inc. Le droit exclusif à moins d'avis contraire donnant droit de cette filière, appartient à la compagnie associée sur ce dessin avec une approbation signée par une personne autorisée."

cad ☒

Projet 2013-0063

Description	SEUIL EXT.	No. de pièce du client	V30-02
Client	FABELTA ALUMINIUM INC.	C.C.N. 384270	No. de profilé METRA 990368

FQ2 3AB 13 SEPT. 2011

NOTE: LES TOLÉRANCES DE L'ALUMINUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATION CONTRAIRE

METRA ALUMINIUM INC.

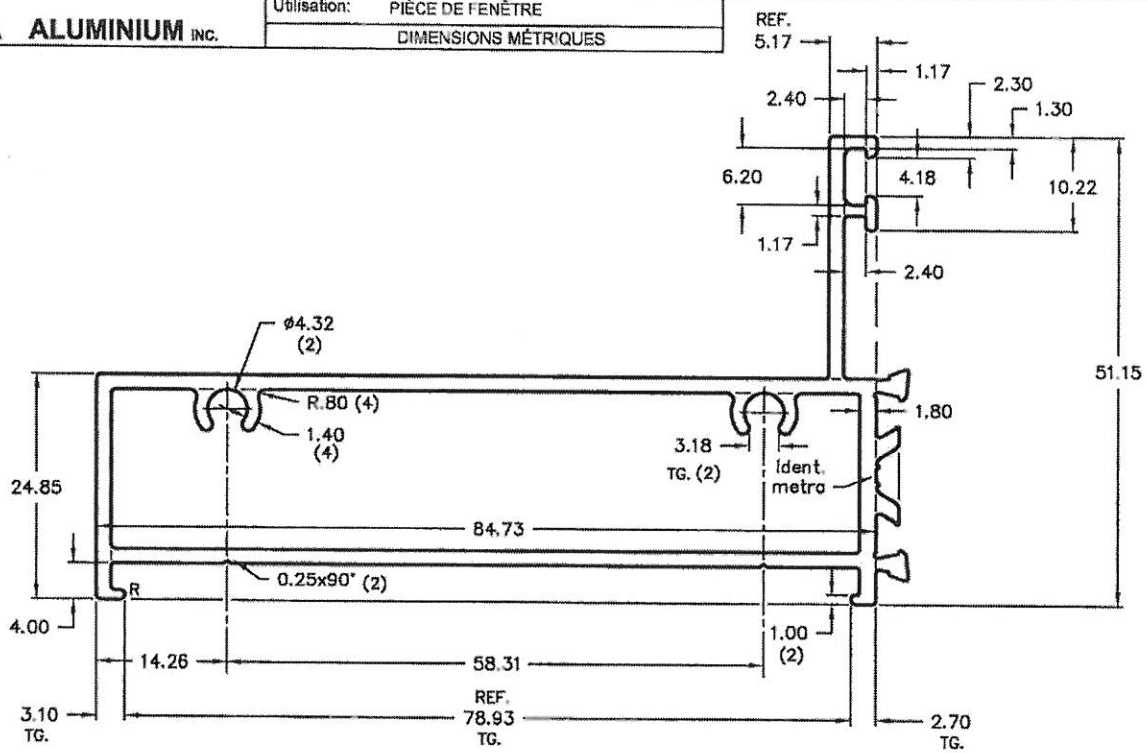
Utilisation: PIÈCE DE FENÊTRE

DIMENSIONS MÉTRIQUES

Alliage	6360
Fini de surface	ARCH.P
Surf. exposée	3
Surface (mm²)	457.3
Masse linéaire (kg/m)	1.235
Périmètre total (mm)	558.0
Périmètre ext. (mm)	329.7
Facteur	452
D.C.C. (mm)	98.8
R. angles vifs (mm)	0.40
Parois typ. (mm)	1.60
R. non indiqués (*) (mm)	---
Date	24 AVR 2013
Dessiné par	Y.P.
Échelle	
No. catégorie	78
Rapport d'ouverture	

Légende
R : Rayon complet
* : Tol. non-cour.
P.I. : Point d'intersec.
TG : Dim. tangente

gabarit requis Date
OUI ☐ NON ☐

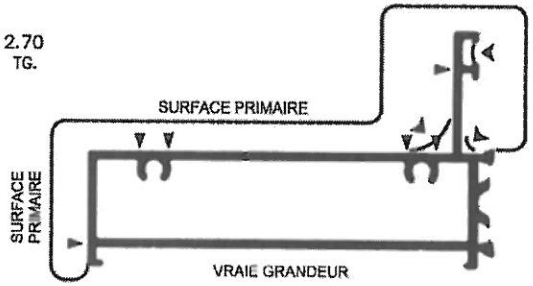


Parois typ. 1.60

Déflexion permise de la partie creuse ±0.25	1.85 / 1.35

Variation, parois des parties solides du profilé ±0.15

CLEB a UL company
COMPLIES TO FILE AT-00629 CONFORME DOSSIER



▲ = manque de peinture prévu à cet endroit

▼ = POSSIBILITÉ DE RAINURE VISIBLE ET DE DÉCOLORATION À CET ENDROIT APRÈS ANODISATION.

No de Profilé METRA: 990369

NO ÉTAGÈRE
CAVITÉS
LINGOT
PRESSE
DIM. FILIÈRE
PLAQUE DE FORMAGE
DIM. PLAQUE DE FORMAGE
ANNEAU DE FILIÈRE
CONTRE-FILIÈRE: 990369
DIM. CONTRE-FILIÈRE
PORTE FILIÈRE
INSERT - PORTE FILIÈRE

"Ceci n'est pas une conception de Metra Aluminium Inc. Notre devoir est de vous informer pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé."

"L'outillage est la propriété exclusive de Metra Aluminium Inc. Le droit est réservé à Metra d'avoir contrôle dûment écrit de cette filière, appartenant à la compagnie inscrite sur ce dessin avec une approbation signée par une personne autorisée."

cad ☒

PROJET: 2013-0063

Description	JAMB. / TÊTE EXT.	No de pièce du client	V30-03
Client	FABELTA ALUMINIUM INC.	C.C.N. 384270	No de profilé METRA 990369

Date Rev Par

FQ2 3AB 13 SEPT. 2011

NOTE: LES TOLÉRANCES DE L'ALUMINUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATION CONTRAIRE

METRA ALUMINIUM INC.

Utilisation: PIÈCE DE FENÊTRE

DIMENSIONS MÉTRIQUES

Alliage	6360
Fini de surface	ARCH.P
Surf. exposée	4
Surface (mm)²	272.6
Masse linéaire (kg/m)	0.736
Périmètre total (mm)	355.0
Périmètre ext. (mm)	247.0
Facteur	482
D.C.C. (mm)	58.2
R. angles vifs (mm)	0.40
Parois typ. (mm)	1.40
R. non indiqués (*) (mm)	---
Date	1 MAI 2013
Dessiné par	Y.P.
Échelle	
No. catégorie	78
Rapport d'ouverture	

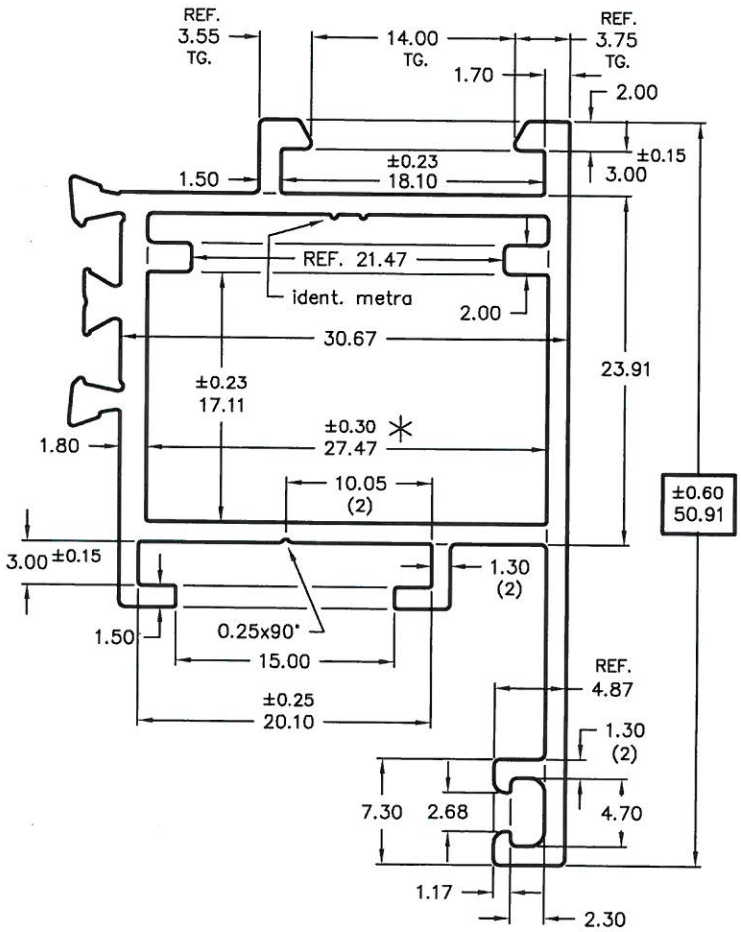
Légende:
R : Rayon complet
* : Tol. non-cour.
P.I.: Point d'intersec.
TG : Dim. tangente

gabarit requis Date
OUI ☐ NON ☐

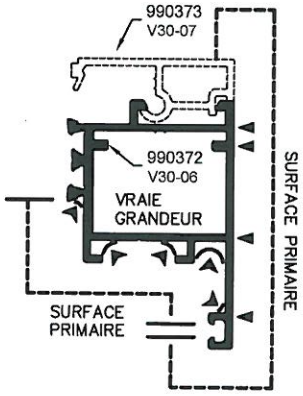
Parois typ. 1.40

Déflexion permise de la partie creuse ±0.25 | 1.65 / 1.15

Variation, parois des parties solides du profilé ±0.15



CLEB
a UL company
COMPLIES TO FILE AT-00629
CONFORME DOSSIER



▲ = manque de peinture prévu à cet endroit

▼ = POSSIBILITÉ DE RAINURE VISIBLE À CET ENDROIT.

No de Profilé METRA	990372
NO. D'ÉTAGÈRE	
CAVITÉS	
LINGOT	
PRESSE	
DIM. FILIÈRE	
PLAQUE DE FORMAGE	
DIM. PLAQUE DE FORMAGE	
ANNEAU DE FILIÈRE	
CONTRE-FILIÈRE	990372
DIM. CONTRE-FILIÈRE	
PORTE FILIÈRE	
INSERT- PORTE FILIÈRE	

"Ceci n'est pas une conception de Metra Aluminium Inc. Nous devons insister pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé."

"L'outillage est la propriété exclusive de Metra Aluminium Inc. Le droit exclusif à moins d'avis contraire dûment écrit de cette filière, appartient à la compagnie inscrite sur ce dessin avec une approbation signée par une personne autorisée."

cad ☒

Projet metra : 2013-0063

Description	VOLET INT.	No. de pièce du client	V30-06
Client	FABELTA ALUMINIUM INC.	C.C.N. 384270	No. de profilé METRA 990372

Date Rév Par

FQ2.3AB 2FEV.94

NOTE: LES TOLÉRANCES DE L'ALUMINIUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATION CONTRAIRE

METRA ALUMINIUM INC.

DIMENSIONS MÉTRIQUES

Parois Typ. 1.40

No. pièce du Client

No de Profilé METRA **990721**

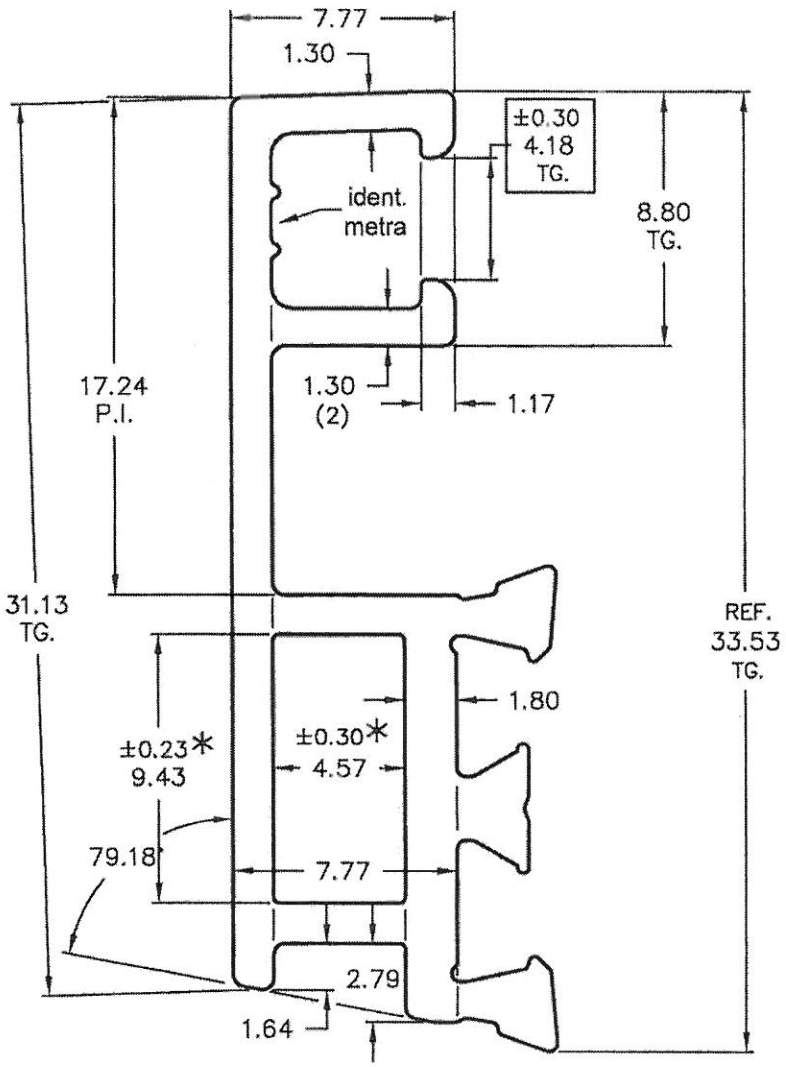
Alliage	6363
Fini de surface	ARCH.A
Surf. exposée	4
Surface (mm²)	124.9
Masse linéaire (kg/m)	0.337
Périmètre total (mm)	163.4
Périmètre ext. (mm)	135.7
Facteur	485
D.C.C. (mm)	35.0
R. angles vifs (mm)	0.40
Parois typ. (mm)	1.40
R. non indiqués • (mm)	---
Date	7 MAI 2015
Dessiné par	Y.P.
Échelle	4:1
No. catégorie	
Rapport d'ouverture	

Légende:
R : Rayon complet
∗ : Tol. non-cour.
P.I.: Point d'intersec.
TG : Dim. tangente

gabarit requis Date
OUI ☐ NON ☐

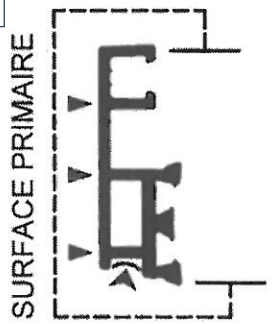
No. de profilé METRA **990721**

FQ2.3AB 08SEPT.2011



Déflexion permise de la partie creuse ±0.25	1.65 / 1.15
Variation, parois des parties solides du profilé ±0.15	

CLEB a UL company
COMPLIES TO FILE AT-00629 CONFORME DOSSIER



VRAIE GRANDEUR

▼ = possibilité de rainure visible à cet endroit

▲ = manque de peinture prévu à cet endroit.

NO. D'ÉTAGÈRE
CAVITÉS
LINGOT
PRESSE
DIM. FILIÈRE
PLAQUE DE FORMAGE
DIM. PLAQUE DE FORMAGE
ANNEAU DE FILIÈRE
CONTRE-FILIÈRE 990721
DIM. CONTRE-FILIÈRE
PORTE FILIÈRE
INSERT- PORTE FILIÈRE

"Ceci n'est pas une conception de Metra Aluminium Inc. Nous devons insister pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé."

"L'outillage est la propriété exclusive de Metra Aluminium Inc. Le droit exclusif à moins d'avis contraire dûment écrit de cette filière, appartient à la compagnie inscrite sur ce dessin avec une approbation signée par une personne autorisée."

Date	Rev.	Par.

Description: BATTANT FENÊTRE PURE

Client: FABELTA ALUMINIUM INC.

C.C.N.

cad ☒

NOTE: LES TOLERANCES DE L'ALUMINIUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATIONS CONTRAIRES

Utilisation: PIÈCE DE FENÊTRE

Projet metra : 2015-0124

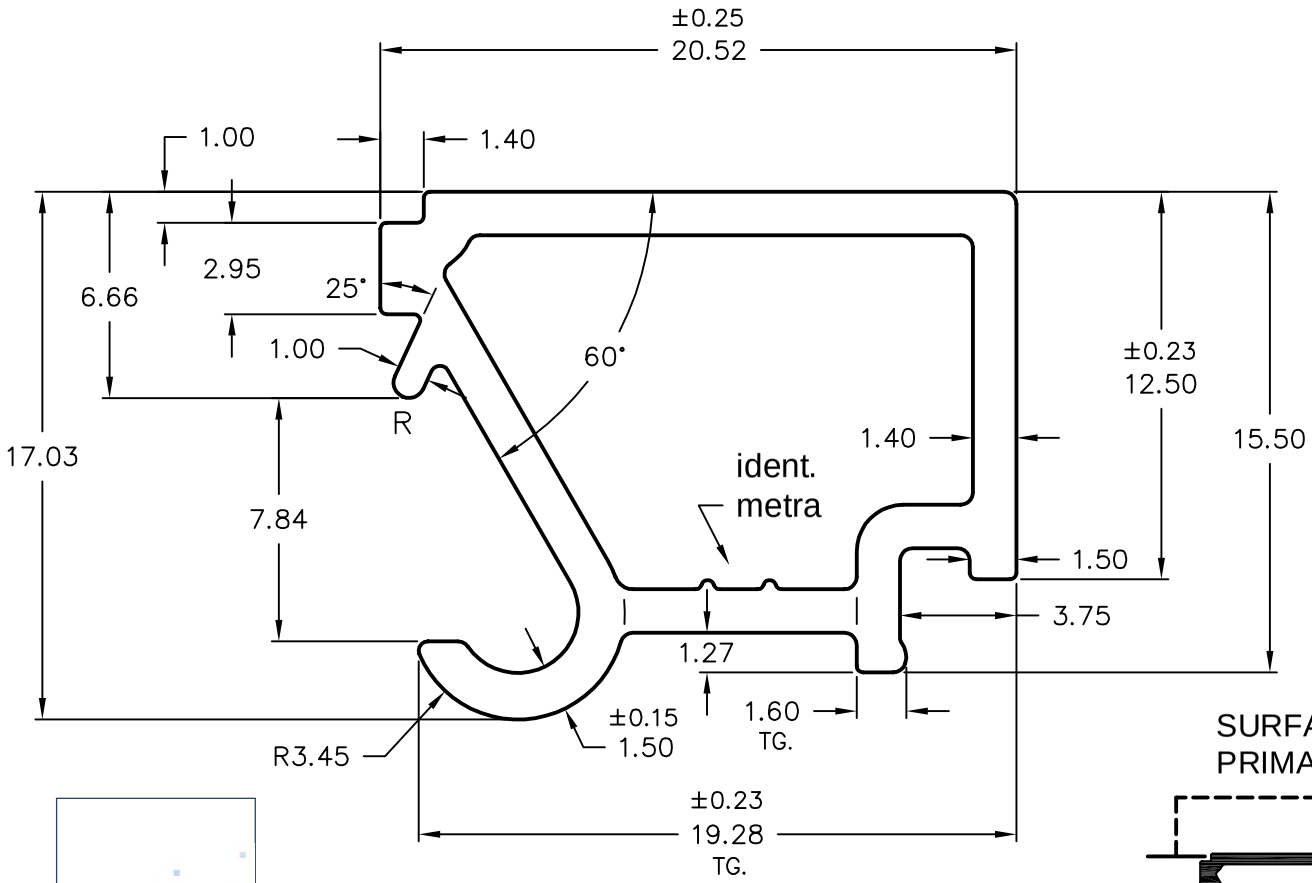
METRA ALUMINIUM INC.	DIMENSIONS MÉTRIQUES	Parois Typ. 1.40±0.25 (1.65 / 1.15)	No. pièce du Client	No de Profilé METRA 990724

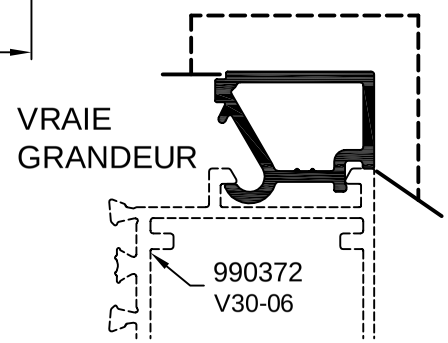
liage	6063
ni de surface	ARCH.P
urf. exposée	2
urface (mm²)	99.4
asse linéaire (kg/m)	0.268
érimètre total (mm)	174.9
érimètre ext. (mm)	85.5
acteur	652
.C.C. (mm)	24.4
. angles vifs (mm)	0.40
arois typ. (mm)	1.40
. non indiqués ° (mm)	---
ate	29 AVR 2015
essiné par	Y.P.
chelle	4:1
o. catégorie	78
apport ouverture	

égende:
R : Rayon complet
∗ : Tol. non-cour.
P.I.: Point d'intersec.
G : Dim. tangente

abarit requis Date
OUI ☐ NON ☐

o. de profilé METRA
990724





▼ = POSSIBILITÉ DE RAINURE VISIBLE À CET ENDROIT.

CLEB a UL company
COMPLIES TO FILE AT-00629 CONFORME DOSSIER

Date	Rev.	Par:

Description: PARCLOSE OPÉRANT, STORE INTÉGRÉ

Client: FABELTA ALUMINIUM INC. | C.C.N. 384270

NOTE: LES TOLERANCES DE L'ALUMINIUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATIONS CONTRAIRES

Utilisation: PIÈCE DE FENÊTRE

NO. D'ÉTAGÈRE
CAVITÉS
LINGOT
PRESSE
DIM. FILIÈRE
PLAQUE DE FORMAGE
DIM. PLAQUE DE FORMAGE
ANNEAU DE FILIÈRE
CONTRE-FILIÈRE 990724
DIM. CONTRE-FILIÈRE
PORTE FILIÈRE
INSERT- PORTE FILIÈRE

"Ceci n'est pas une conception de Metra Aluminium Inc. Nous devons insister pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé. "

"L'outillage est la propriété exclusive de Metra Aluminium Inc. Le droit exclusif à moins d'avis contraire dûment écrit de cette filière, appartient à la compagnie inscrite sur ce dessin avec une approbation signée par une personne autorisée."

cad ☒

Projet 2015-0152

O2-3AB 08SEPT 2011

METRA ALUMINIUM INC.	DIMENSIONS MÉTRIQUES	Parois Typ. 1.40	No. pièce du Client	No de Profilé METRA 990735

Alliage	6063
Fini de surface	ARCH.P
Surf. exposée	2
Surface (mm²)	121.9
Masse linéaire (kg/m)	0.329
Périmètre total (mm)	168.4
Périmètre ext. (mm)	121.6
Facteur	511
D.C.C. (mm)	35.3
R. angles vifs (mm)	0.40
Parois typ. (mm)	1.40
R. non indiqués ∘ (mm)	---
Date	11 MAI 2015
Dessiné par	Y.P.
Échelle	3:1
No. catégorie	
Rapport d'ouverture	

Légende:
R : Rayon complet
∗ : Tol. non-cour.
P.I.: Point d'intersec.
TG : Dim. tangente

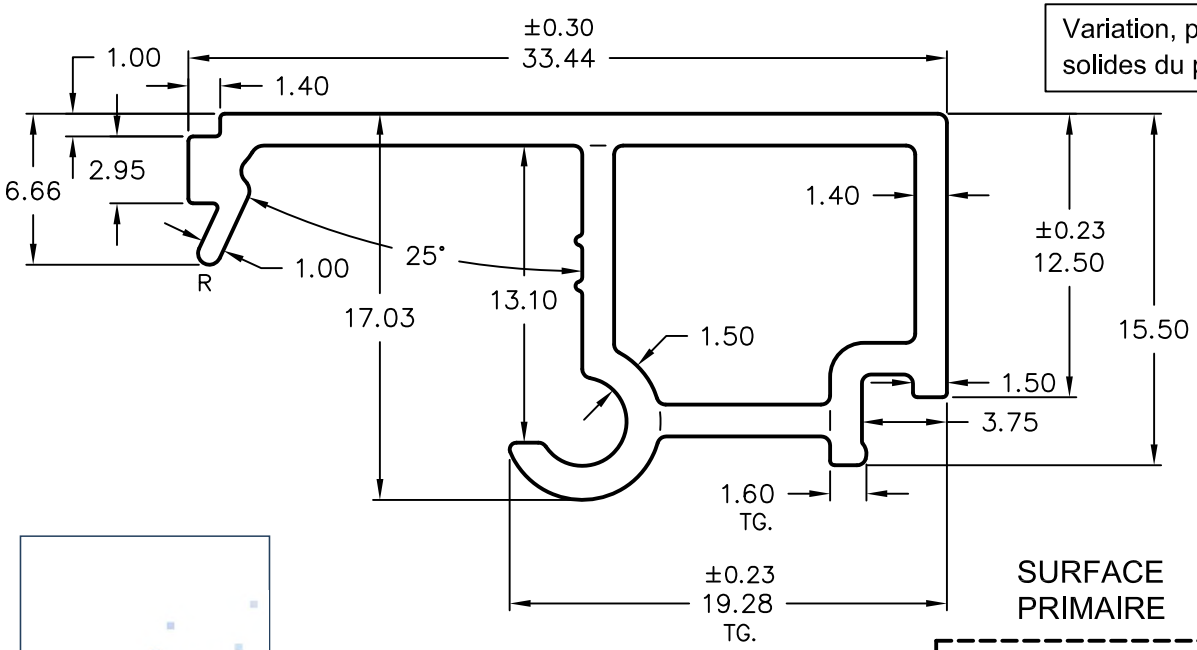
gabarit requis Date
OUI ☐ NON ☐

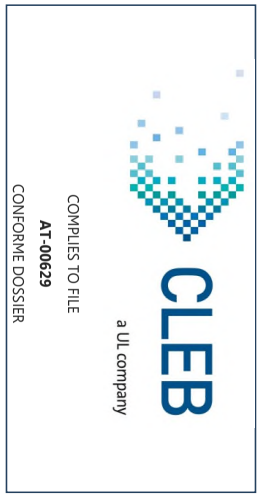
No. de profilé METRA
990735

FQ2.3AB 08SEPT.2011

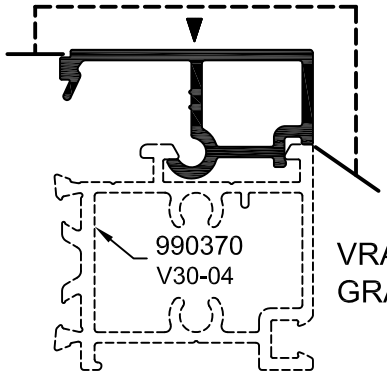
Déflexion permise de la partie creuse ±0.25 | 1.65 / 1.15

Variation, parois des parties solides du profilé ±0.15





SURFACE PRIMAIRE



VRAIE GRANDEUR

▼ = POSSIBILITÉ DE RAINURE VISIBLE À CET ENDROIT.

Date	Rev.	Par:

NOTE: LES TOLERANCES DE L'ALUMINIUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATIONS CONTRAIRES

Description: PARCLOSE PURE

Client: FABELTA ALUMINIUM INC.

C.C.N. 384270

Utilisation: PIÈCE DE FENÊTRE

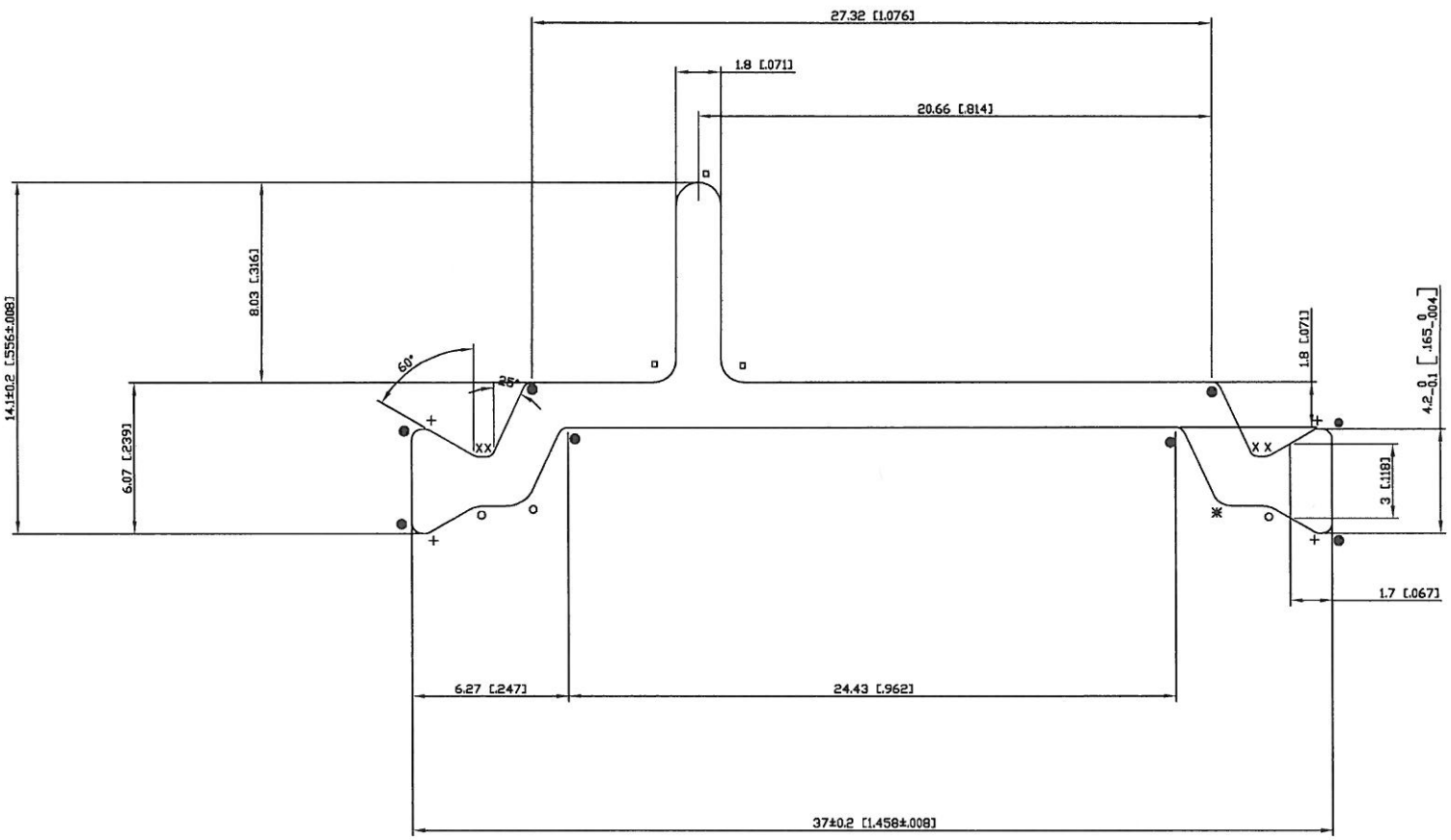
NO. D'ÉTAGÈRE
CAVITÉS
LINGOT
PRESSE
DIM. FILIÈRE
PLAQUE DE FORMAGE
DIM. PLAQUE DE FORMAGE
ANNEAU DE FILIÈRE
CONTRE-FILIÈRE 990735
DIM. CONTRE-FILIÈRE
PORTE FILIÈRE
INSERT- PORTE FILIÈRE

"Ceci n'est pas une conception de Metra Aluminium Inc. Nous devons insister pour que le client en fasse l'essai. Metra Aluminium Inc. n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé. "

"L'outillage est la propriété exclusive de Metra Aluminium Inc. Le droit exclusif à moins d'avis contraire dûment écrit de cette filère, appartient à la compagnie inscrite sur ce dessin avec une approbation signée par une personne autorisée."

cad ☒

Projet metra : 2015-0153



CLEB
a UL company

COMPLIES TO FILE
AT-00629
CONFORME DOSSIER

+	R = 0.2 mm
x	R = 0.3 mm
●	R = 0.4 mm
✱	R = 0.8 mm
▫	R = 0.9 mm
○	R = 1.2 mm

1 Comments
mm.inch

2 Scale 1:1

3
Y+ -X X+ -Y
Bending :
X = +/- 15 mm/m
Y = +/- 50 mm/m
Distortion :
+/- 15'/m

4
0.3 (0.12)

5
Construction Dimensioning

6 Customer

7 Customer Reference

8 Not specified tolerances
Din 16941 clase 2

Area: 98.3492
Perimeter: 104.6147

9
= 104.61 mm
= 98.35 mm²

No:	Modification	Date	Name

10 Status

ST	Date	Resp.	Check
0	7/14/10	NF	MZ
1	7/28/10	MZ	CR
2	8/17/10	MZ	CR
3	8/23/10	MZ	CR

TECH NO FORM
Technoform BAUTEC
Kunststoffprodukte GmbH
34277 Fuldabrück

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11 Scale M 5:1 (1:1)

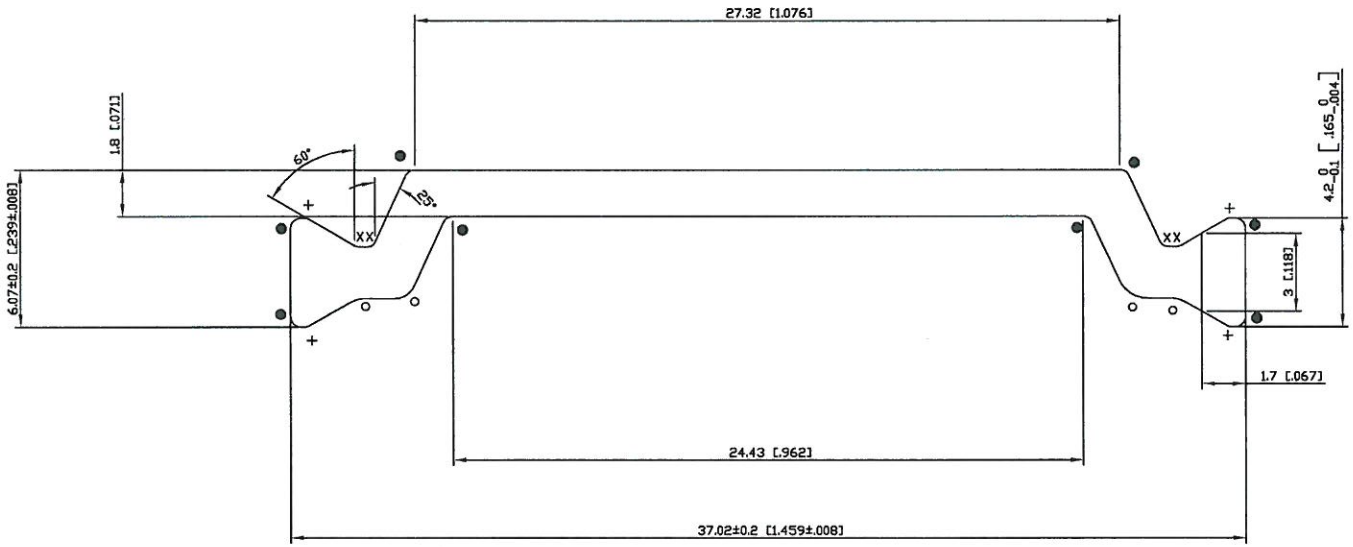
12 Material PA 6.6 GF 25 , dry impact resistant

13 Description
37mm CT, NG

14 Article No. 394400

Page

Author: BH



CLEB
a UL company

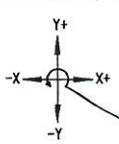
COMPLIES TO FILE
AT-00629
CONFORME DOSSIER

+	R = 0.2 mm
x	R = 0.3 mm
●	R = 0.4 mm
✱	R = 0.8 mm
▫	R = 0.9 mm
○	R = 1.2 mm

1 Comments
mm.inch

2 Scale 1:1

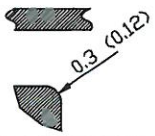
3



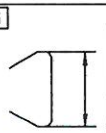
Bending :
X = +/- 15 mm/m
Y = +/- 50 mm/m

Distortion :
+/- 15°/m

4



5



Construction Dimensioning

6 Customer

7 Customer Reference

8 Not specified tolerances
Din 16941 clase 2

Area: 83.9340
Perimeter: 90.1423

9 = 90.14 mm
= 83.93 mm²

No:	Modification	Date	Name

10 Status

ST	Date	Resp.	Check
0	7/14/2010	NF	MZ
1	7/28/10	MZ	CR
2	8/17/10	MZ	CR
3	8/23/10	MZ	CR

TECH NO FORM
Technoform BAUTEC
Kunststoffprodukte GmbH
34277 Fuldabrück

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11 Scale M 5:1 (1:1)

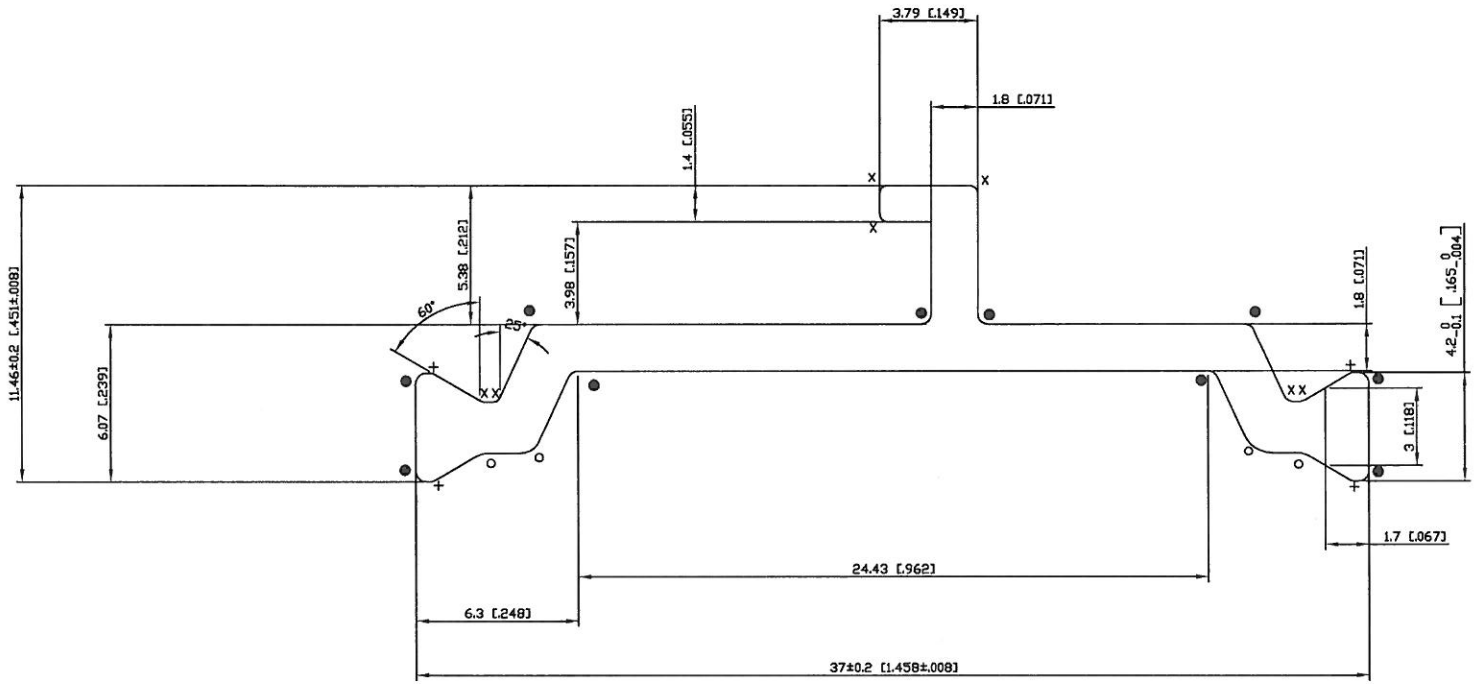
12 Material PA 6.6 GF 25 , dry impact resistant

13 Description
37mm C, NG

14 Article No. 394600

Page

Author: BH



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+	R = 0.2 mm
x	R = 0.3 mm
●	R = 0.4 mm
✱	R = 0.8 mm
▫	R = 0.9 mm
○	R = 1.2 mm

1 Comments
mm.inch

2 Scale 1:1

3
Y+
-X X+
-Y
Bending :
X = +/- 10 mm/m
Y = +/- 15 mm/m
Distortion :
+/- 15'/m

4
0.3 (0.12)

5
Construction Dimensioning

6 Customer

7 Customer Reference

8 Not specified tolerances
Din 16941 clase 2

Area: 96.3121
Perimeter: 104.4643

9
= 104.12 mm
= 96.38 mm²

No:	Modification	Date	Name

10 Status

ST	Date	Resp.	Check
0	7/14/2010	NF	MZ
1	7/28/10	MZ	CR
2	8/17/10	MZ	CR
3	8/23/10	MZ	CR

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11 Scale M 5:1 (1:1)

12 Material PA 6.6 GF 25 , dry impact resistant

13 Description
37mm CT, NG

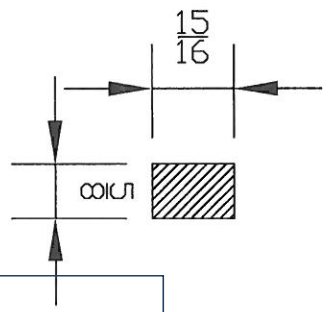
14 Article No. 394500

Page

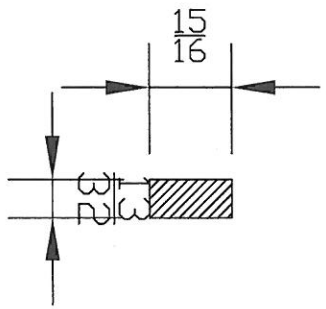
Author: BH

POLYSTYRÈNE POUR LE POLYAMIDE

CADRE



VOLET FENÊTRE



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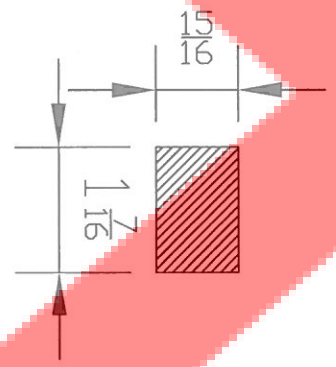
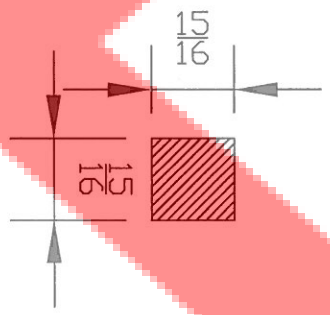


MENEAU



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1- LES DIMENSIONS SONT EN POUCES
2- FOURNIR DES ÉCHANTILLONS DE 1 POUCES DE LARGE ÉGALEMENT POUR TESTER LA LARGEUR APPROPRIÉE

Produit : PO11-06 - Porte fenetre PURE	Cadre : ___	Matériaux : POLYSTYRÈNE	
Description : POLYSTYRÈNE POUR POLYAMIDE	Dessinateur : G. Dorion	Dessiné le : 2013/12/09	
Chemin : H/employé/martinl/po11-06/fournisseur	No. Dessin : 20131209-01	Échelle : '---	

No. rév.	Note de révision	Date	Signature	Vérifié

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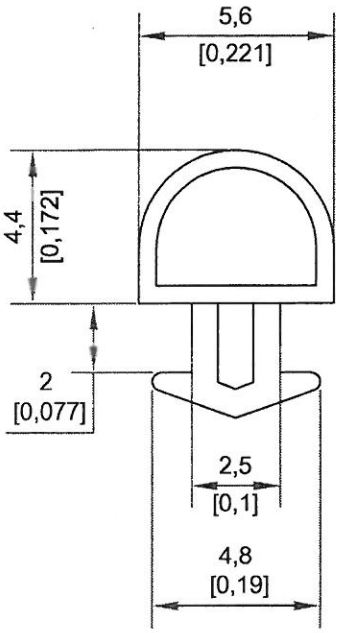

Echelle 1/1

Section: R0.19 inch2	Matière: Symprene 85 sha + 60Sha			No.DIE: COEX-429	
Dessiné par Nicolas STIVAL	Vérifié par .	Approuvé par - date .	Nom de fichier .	Date 17/Nov/2014	Echelle 5/1.

QUÉPLEX LTÉE
4690 des Grandes Prairies
St-Léonard, Québec
Canada, H1R 1A1
Tél: (514) 326 - 0411
1 - 800 - 561 - 7844
Fax: (514) 326 - 2887

Désignation
MFG-0001 Garniture d'ampoule 3.5mm Rev1

Muraflex

Edition	Feuille No.

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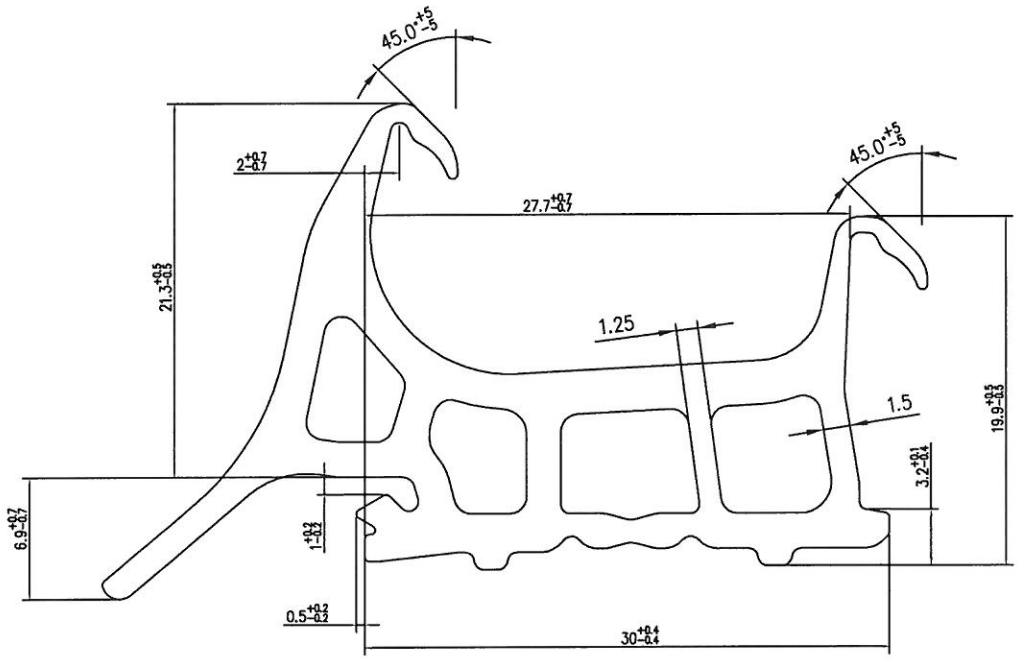
CONFORME DOSSIER

QUÉPLEX FV-3515



- MATERIAL : Santoprene 121-58-W175, 65 DURO SHORE A
- DIMENSIONS EN MM
- TOLERANCES SELON RMA CLASS E1 - HIGH PRECISION
- LES TOLÉRANCES SPÉCIFIQUES PRÉVALENT SUR LES TOLÉRANCES GÉNÉRALES

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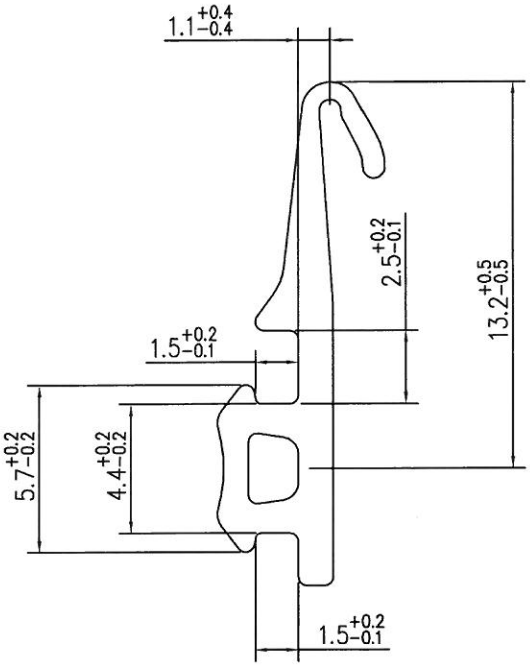
CONFORME DOSSIER

QUÉPLEX FV-3499



- MATERIAL : Santoprene 121-67-W175, 70 DURO SHORE A
- DIMENSIONS EN MM
- TOLERANCES SELON RMA CLASS E1 - HIGH PRECISION
- LES TOLÉRANCES SPÉCIFIQUES PRÉVALENT SUR LES TOLÉRANCES GÉNÉRALES

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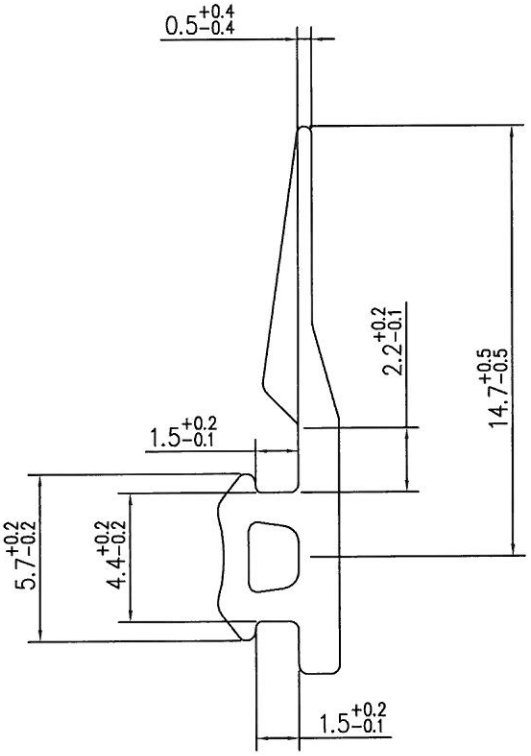
CONFORME DOSSIER

QUÉPLEX FV-3522



- MATERIAL : Santoprene 121-67-W175, 70 DURO SHORE A
- DIMENSIONS EN MM
- TOLERANCES SELON RMA CLASS E1 - HIGH PRECISION
- LES TOLÉRANCES SPÉCIFIQUES PRÉVALENT SUR LES TOLÉRANCES GÉNÉRALES

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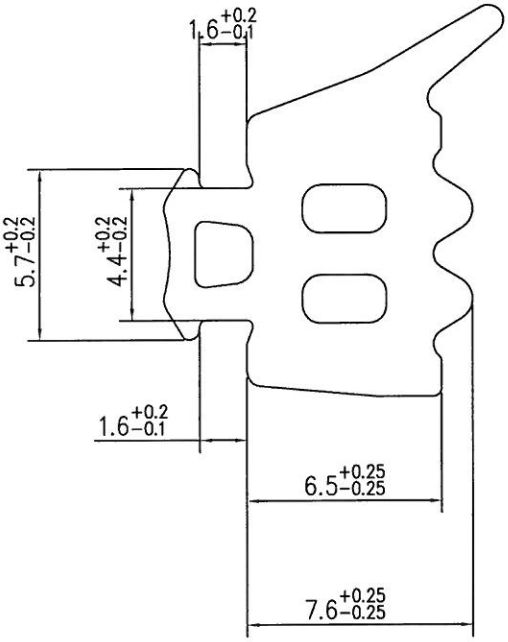
QUÉPLEX FV-3497
Fabelta R-1520



- MATERIAL : Santoprene 121-67-W175, 70 DURO SHORE A
- DIMENSIONS EN MM
- TOLERANCES SELON RMA CLASS E1 - HIGH PRECISION
- LES TOLÉRANCES SPÉCIFIQUES PRÉVALENT SUR LES TOLÉRANCES GÉNÉRALES

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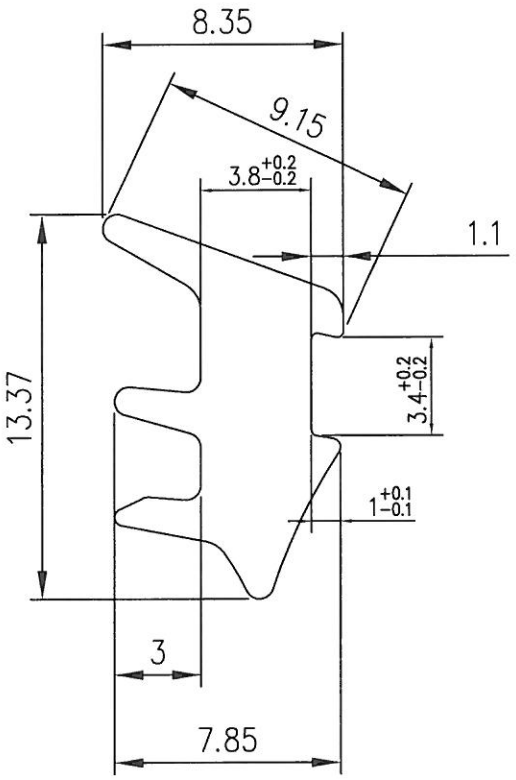
CONFORME DOSSIER

QUÉPLEX FV-3498
Fabelta R-1519



- MATERIAL : Santoprene 121-67-W175, 70 DURO SHORE A
- DIMENSIONS EN MM
- TOLERANCES SELON RMA CLASS E1 - HIGH PRECISION
- LES TOLÉRANCES SPÉCIFIQUES PRÉVALENT SUR LES TOLÉRANCES GÉNÉRALES

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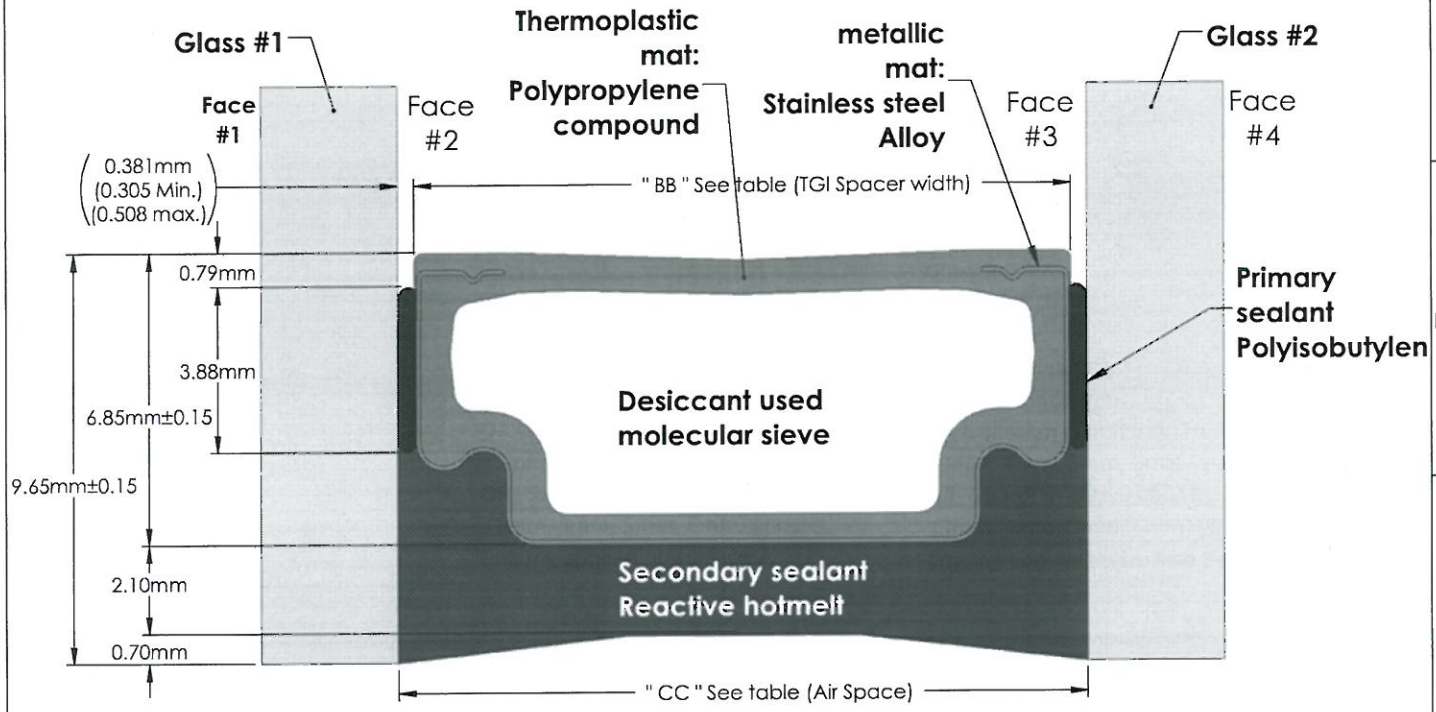
AT-00629
CONFORME DOSSIER

Glass 1:
Pilkington clear glass
(3 mm)
Guardian clear glass
(4mm, 5mm, 6mm)
OR Guardian climaguard HER*plus* 80/70
(3mm, 4mm, 5mm, 6mm) glass.
OR Guardian climaguard RLE 70/36
(3mm, 4mm, 5mm, 6mm) glass.
Coating applied on surface 2.

Glass 2:
Pilkington clear glass
(3 mm)
Guardian clear glass
(4mm, 5mm, 6mm)
OR Guardian climaguard HER*plus* 80/70
(3mm, 4mm, 5mm, 6mm) glass.
OR Guardian climaguard RLE 70/36
(3mm, 4mm, 5mm, 6mm) glass.
Coating applied on surface 3 or 4.

Argon filled unit with timer or detector method (90%)



IG Nom. (po)	Glass CL (mm)	Dimension CC: Air Space (mm) (mm)	Spacer	Glass CL Low-E (mm)
7/8" Double Glazed	3	16.21	16MM	3
	4	14.20	17/32	4
	5	12.62	15/32	5
	6	11.86	13/32	6

IG Nom. (po)	Glass CL (mm)	Dimension CC: Air Space (mm) (mm)	Spacer	Glass CL Low-E (mm)
1" Double Glazed	3	19.66	3/4	3
	4	17.88	17/25	4
	5	16.21	16MM	5
	6	14.20	17/32	6

Dimension " BB " : TGI SPACER WAVE width		
Type	(mm)±0.15	(inches)±0.006"
13/32	10.17	0.4004
7/16	10.96	0.4315
15/32	11.86	0.4669
1/2	12.55	0.4941
17/32	13.44	0.5291
9/16	14.14	0.5567
19/32	15.03	0.5917
16mm	15.45	0.6083
5/8	15.82	0.6228
21/32	16.62	0.6543
17/25	17.12	0.6740
23/32	18.21	0.7169
3/4	18.90	0.7441

Fini = 22.22 mm

Note:
Reference spacer No 6/13-2125
was replaced by No 6/16-2302 (29-07-2016)

Novatech
Groupe Novatech Inc./Novatech Group Inc.
160 Murano
Sainte-Julie, Qc, Canada
J3E 0C6

DESSINÉ PAR: DRAWN BY: Daniel Bélanger
VÉRIFIÉ PAR: CHECKED BY: Nadine Tardif
MATÉRIEL: MATERIAL: X
UTILISÉ SUR: USED ON: VCN

DESCRIPTION:
TECHNOFORM
TGI SPACER W
DOUBLE GLAZED

DATE DE CRÉATION: CREATION DATE: 17-02-2017

FEUILLE: SHEET: 1 / 1
ÉCHELLE: SCALE: 6:1
No. DESSIN DRAWING# 2017-004-100-02
PIÈCE \PART No: VCN-QUAL-XX-XXX
REVISION 00

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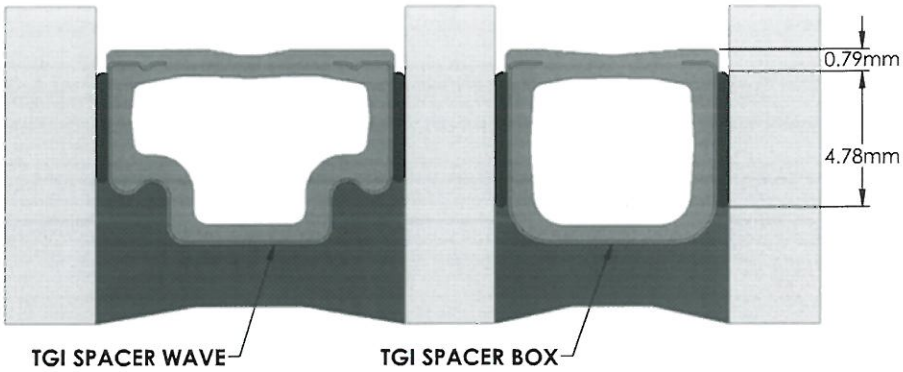
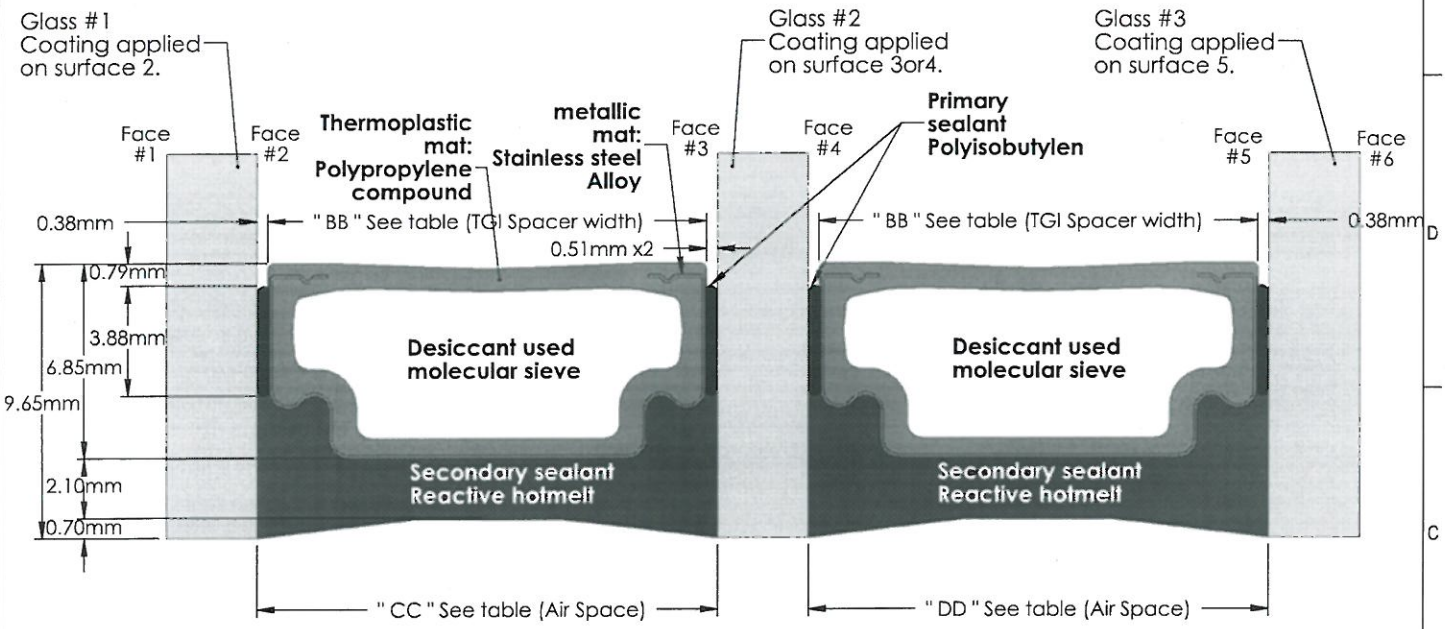
Glass 1,2 & 3:
Pilkington clear glass
(3 mm)
Guardian clear glass
(4mm, 5mm)
OR Guardian climaguard HER*plus* 80/70
(3mm, 4mm, 5mm) glass.
OR Guardian climaguard RLE 70/36
(3mm, 4mm, 5mm) glass.



Argon filled unit with timer or detector method (90%)

Argon filled unit with timer or detector method (90%)



IG Nom.	#1 Glass CL	Dimension CC: Air Space (mm)		#2 Glass CL	Dimension DD: Air Space (mm)		#3 Glass CL Low-E
(po)	(mm)	(mm)	Spacer	(mm)	(mm)	Spacer	(mm)
1-3/8" Triple Glazed	3	12.75	15/32	3	12.75	15/32	3
	4	11.85	7/16	4	11.85	7/16	4
	5	10.27	3/8	5	10.27	3/8	5
	6	8.68	5/16	6	8.68	5/16	6

Dimension " BB " : TGI SPACER BOX width		
Type	(mm)±0.15	(inches)±0.006"
1/4	6.20	0.2441
5/16	7.79	0.3067
3/8	9.38	0.3693

Dimension " BB " : TGI SPACER WAVE width		
Type	(mm)±0.15	(inches)±0.006"
13/32	10.17	0.4004
7/16	10.96	0.4315
15/32	11.86	0.4669
1/2	12.55	0.4941
17/32	13.44	0.5291
9/16	14.14	0.5567
19/32	15.03	0.5917
16mm	15.45	0.6083
5/8	15.82	0.6228
21/32	16.62	0.6543
17/25	17.12	0.6740
23/32	18.21	0.7169
3/4	18.90	0.7441

Fini : 35 mm

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Note:
Reference spacer No 6/13-2125
was replaced by No 6/16-2302 (29-07-2016)

Novatech
Groupe Novatech Inc./Novatech Group Inc.
160 Murano
Sainte-Julie, Qc, Canada
J3E 0C6

DESSINÉ PAR: DRAWN BY: Daniel Bélanger
VÉRIFIÉ PAR: CHECKED BY: Nadine Tardif
MATÉRIEL: MATERIAL: x
UTILISÉ SUR: USED ON: VCN

DESCRIPTION:
TECHNOFORM TGI SPACER W & BOX TRIPLE GLAZED

DATE DE CRÉATION: CREATION DATE: 16-03-2017

FEUILLE: SHEET: 4 / 5
ÉCHELLE: SCALE: 4:1
No. DESSIN DRAWING# 2017-004-100-04
PIÈCE \PART No: VCN-QUAL-XX-XXX
RÉVISION 00 REVISION

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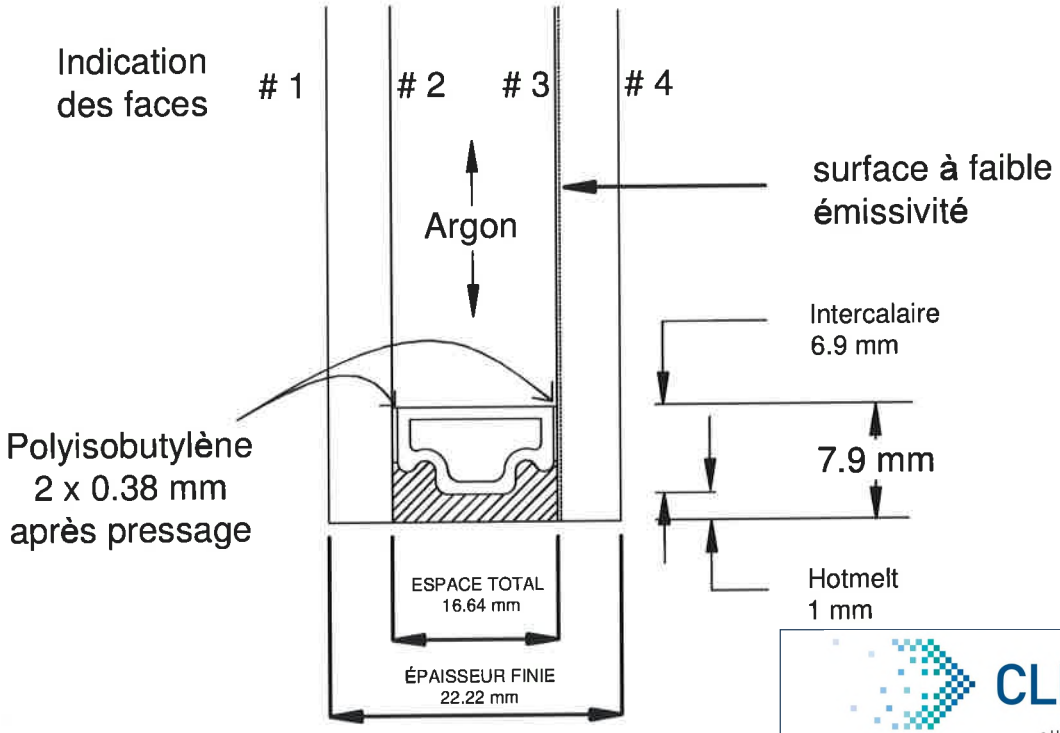
Coupe transversale d'une unité scellée MULTIVER
(Double) Épaisseur finie / de 22.22 mm
Verre de type Éconover Comfort Select 73 # 3 (AGC)
Intercalaire I-spacer (Technoform)
Gaz - Argon (95% - Chambre à gaz)

Verre extérieur
3 mm clair AGC

Verre intérieur
3 mm Éconover CS 73 (#3)



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Attention:
Les épaisseurs réelles des verres peuvent être différentes de leurs appellations.

Aucune échelle

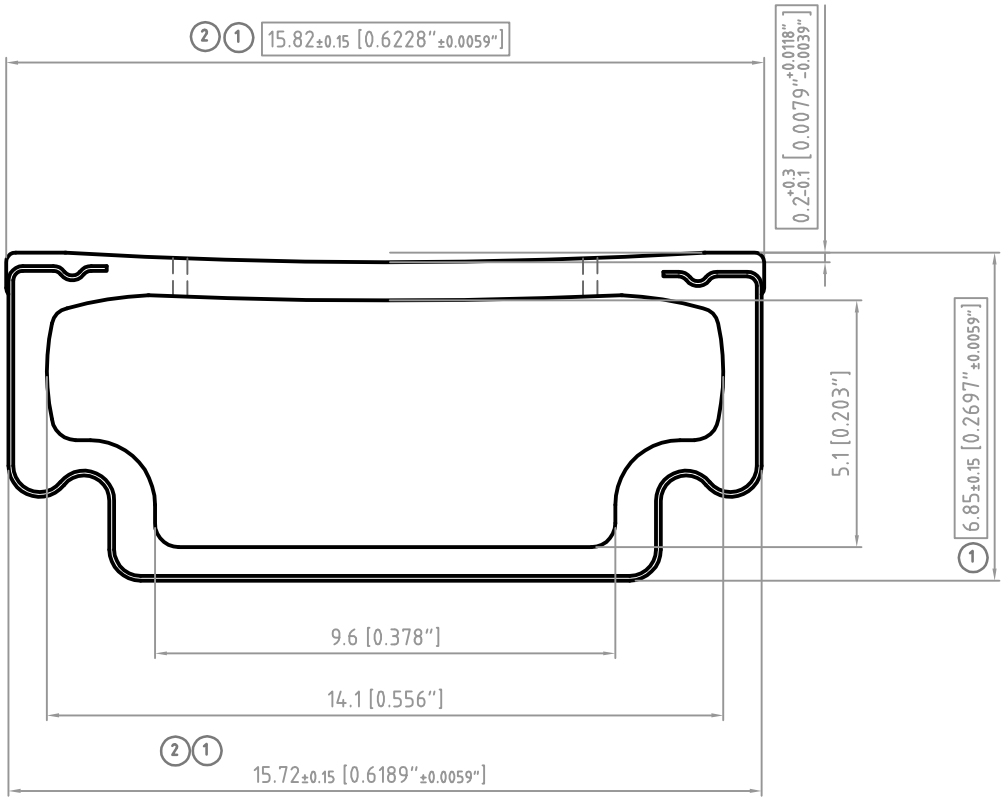
MULTIVER
Le savoir-faire de l'industrie du verre

Client: Fabelta

APPROUVÉ PAR: DENIS CORMIER

Date: 03/22/2016

Index	Änderungsumfang modification entry



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scale 1:1		DIN 16941 Reihe 2	customer: TGI	customer reference: Spacer	
			labeling		
scale: 10:1, 20:1, (1:1)		weight	material: PP + stainless steel		
		2000 / date / name	article: TGI Spacer 5/8		
		drawn: 24.08. / RS Engineering/Jo			
		check	article drawing (ARTIKELZEICHNUNG)		
		norm			
(2) Spacer width-0.05 / 07.05.09 / RS/Kr		TECHNOFORM GLASSINSULATION	431500R	sheet 1	
(1) revision product / 02.03.2009 / RS/Kr				page	
dent / revision / date / name			EDV-Nr. 431500R_5_8_PP_SS_inch_i 24.01.2008	of	

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ROBOVER

Produit Pour : FABELTA

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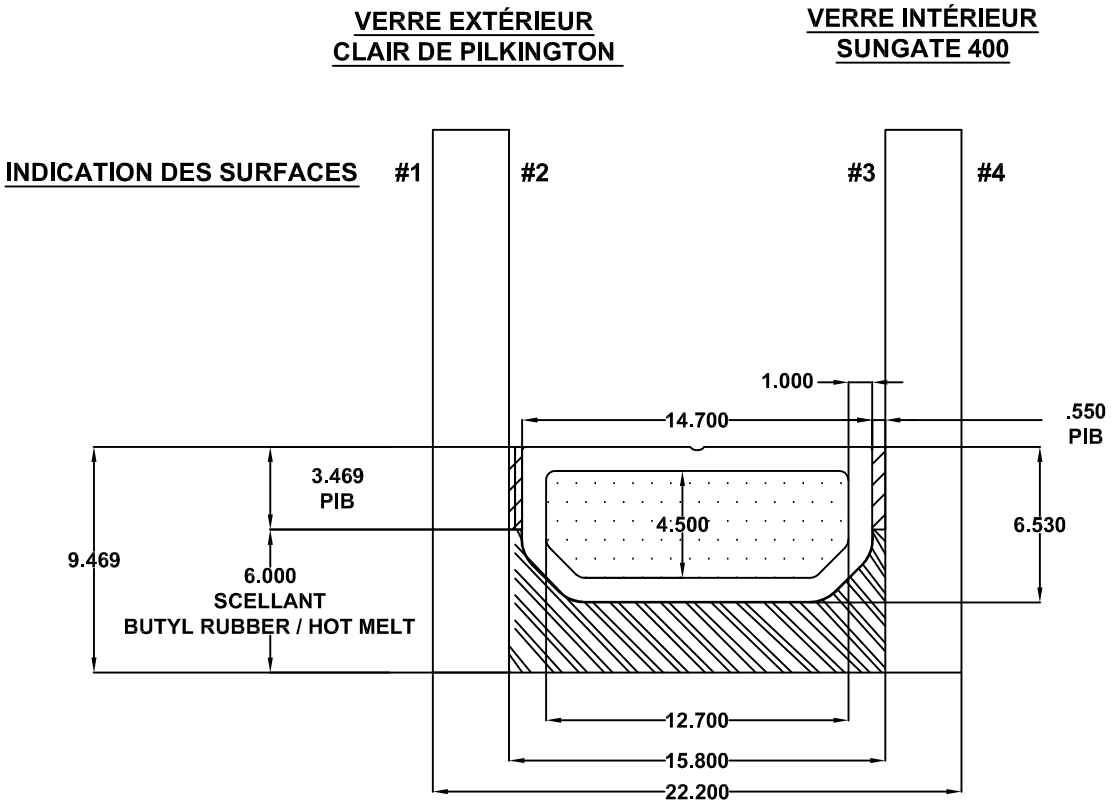
Spécification pour les unités scellées

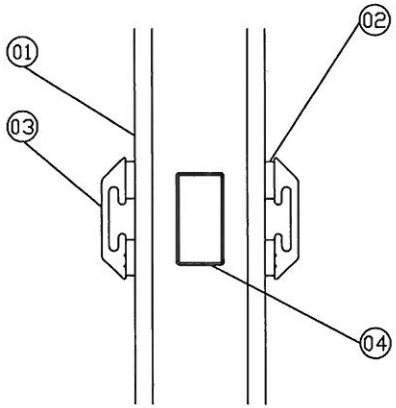
Unité double	**Fini 22.2 mm**
Type de verre	**SUNGATE 400 SURFACE 3**
Méthode de remplissage	**CHAMBRE D'ARGON**
Type de gaz	**ARGON 95%**
Dessicant	**SILICA LOOSE FILL**
Type de Scellant Primaire	**PIB**
Type de Scellant Secondaire	**BUTYL**
Type d'intercalaire	**SWISSPACER ULTIMATE**

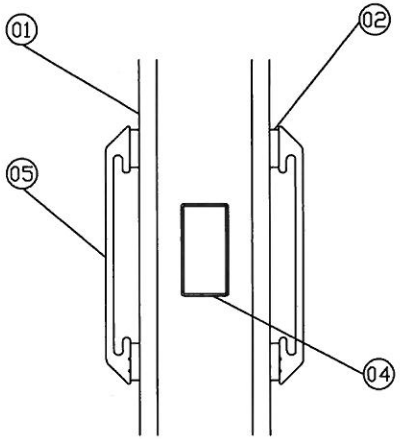


NOTE : ROBOVER CERTIFIE UNE PERFORMANCE OPTIMALE DE SES UNITÉS SCELLÉES SI ET SEULEMENT SI CES SPÉCIFICATIONS SONT UTILISÉS DANS LES CALCULS DE RENDEMENT ÉNERGÉTIQUE DE SES PRODUITS

LE FEUILLARD DU SWISSPACER U NE DOIT ÊTRE TENU COMPTE LORS DES SIMULATIONS AVEC LE LOGICIEL THERM.

MONTAGE DU BARROTIN SUR THERMOS





PRODUIT # 1016 (PURE)
Assemblage du barrotin sur thermos

#	Part #	Description
01	THERMOS	.875" D'ÉPAISSEUR
02	TAPE DOUBLE FACE	$\frac{1}{4}$" X $\frac{1}{16}$"
03	BARROTION $\frac{7}{8}$" (ALU)	945858
04	CARRELAGE RECTANGLE	CARRELAGE 8MM X 16MM (ép. 0.4mm) / ALU
05	BARROTIN $1\frac{3}{4}$" (ALU)	926605
06	~~CARRELAGE~~	~~CARRELAGE POUR BARROTIN $1\frac{3}{4}$"~~

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CONFORME DOSSIER

Altex Extrusion Inc.
2000 boul. Fortin, Laval, Québec, Canada H7S 1P3
tél: (450) 629-4260 fax: (450) 629-4227 E-MAIL: design1@altex-ext.com

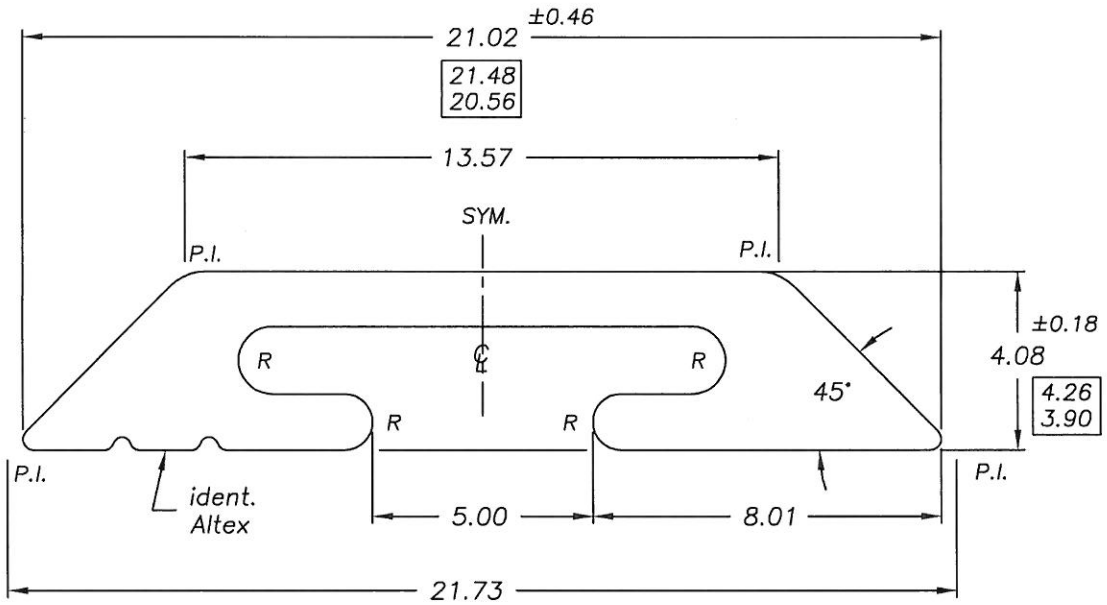
DIMENSIONS MÉTRIQUES

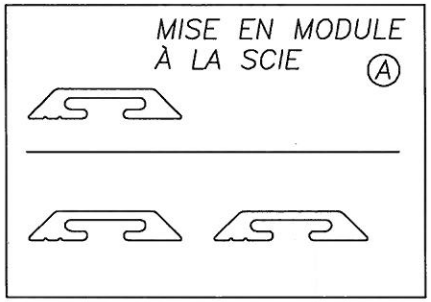
Parois Typ.	
1.27±0.15	1.42 / 1.12

No. pièce du Client

No de Profilé Altex: 945858

Alliage	6063
Fini de surface	ARCH.P
Surf. exposée	3
Surface (mm²)	48.2
Masse linéaire (kg/m)	.130
Périmètre total (mm)	61.5
Périmètre ext. (mm)	61.5
Facteur	472
D.C.C. (mm)	21.0
R. angles vifs (mm)	0.25
Parois typ. (mm)	1.27
R. non indiqués (∘) (mm)	---
Date	13MAR01
Dessiné par	P.B.
Échelle	6:1
No. catégorie	42
Rapport d'ouverture	
Vérifié par	Date
Approuvé par	Date
No. de profilé Altex	945858





CLEB a UL company
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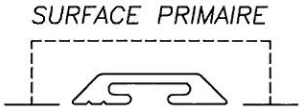

SURFACE PRIMAIRE

VRAIE GRANDEUR

4084	No. d'étagère
8	Trous
	Lingot
2	Presse
9x2	Dim. filière
	Plaque de formage
	Dim. plaque de formage
	Anneau de fillière
945858	Contre-fillière
9x2	Dim. contre-fill.
8	Porte-fillière
	Dim. porte-fill.
	Collerette

"Ceci n'est pas une conception d'Altex Extrusion Inc. Nous devons insister pour que le client en fasse l'essai. Altex n'accepte aucune responsabilité concernant le rendement des produits obtenus par l'usage de ce profilé. La seule garantie est la déclaration au verso du reçu de commande."

Légende:
R : Rayon complet
∗ : Tol. non-cour.
P.I.: Point d'intersec.
TG : Dim. tangente
∘ : R. non-indiqué
x : Rayon vif
S : X.XX R
T : X.XX R

Date	Rev.	Par:
02AVR01	A MISE EN MODULE AJOUTÉE	MAJ

Description: CARRELAGE

Client: FABELTA

C.C.N.: 384270

NOTE: LES TOLERANCES DE L'ALUMINIUM ASSOCIATION SONT APPLIQUÉES SAUF INDICATIONS CONTRAIRES

Utilisation: PIECE DE FENETRE

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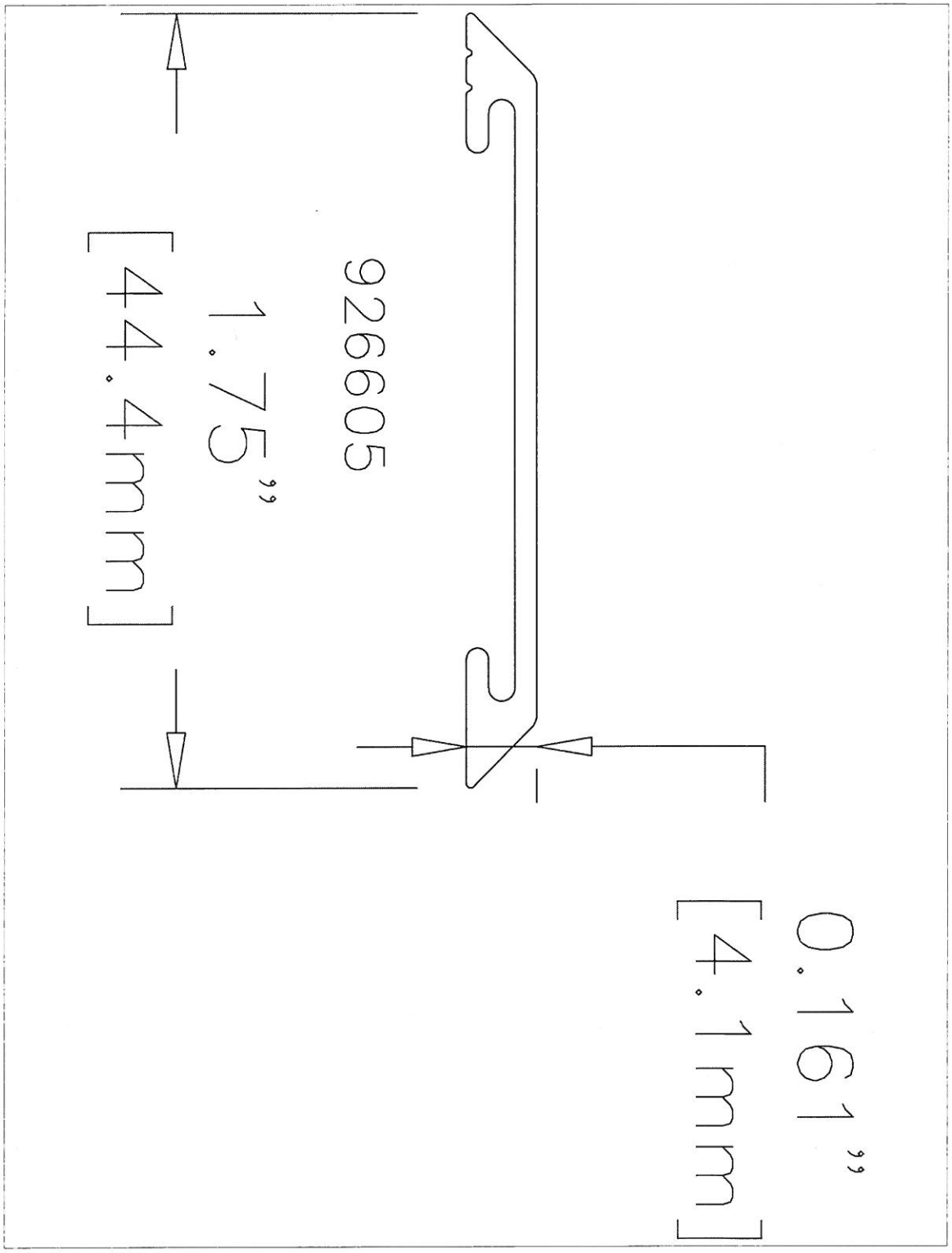
AT-00629
CONFORME DOSSIER



Industries Cover inc.

Filiale de Guardian Industries Canada corp.

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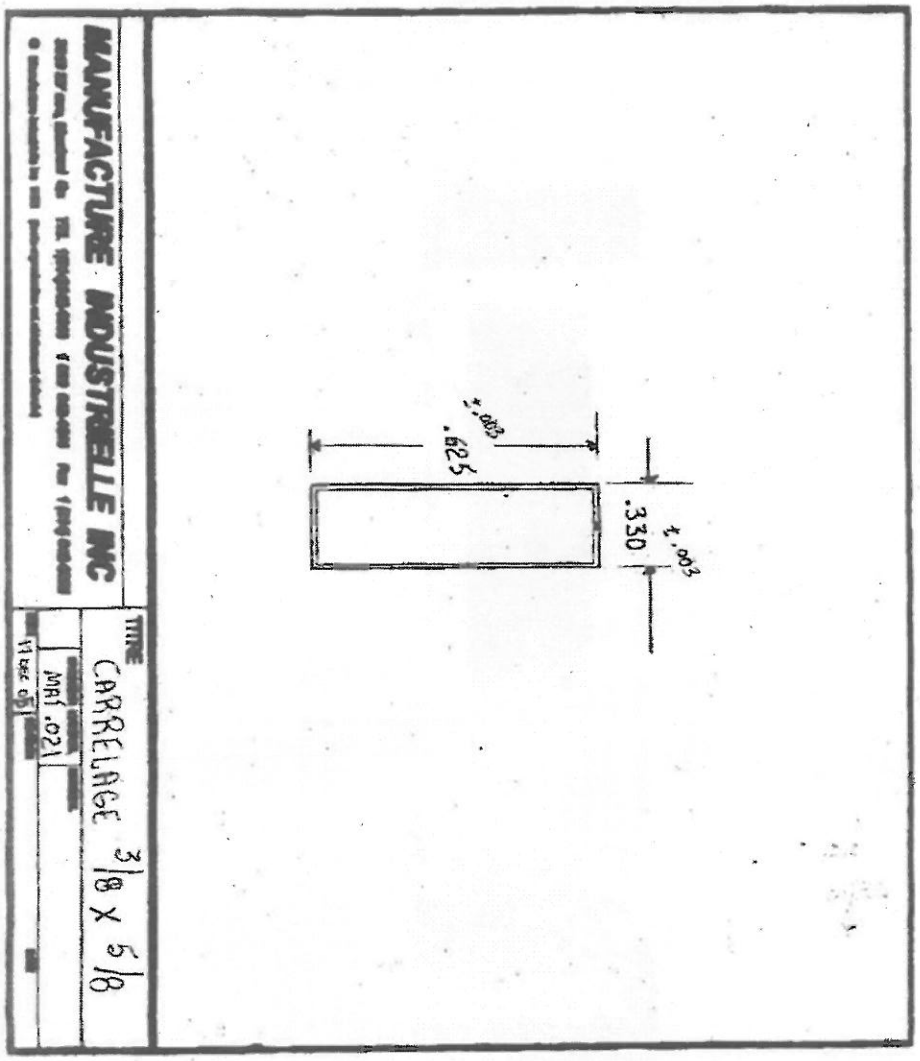
AT-00629

CONFORME DOSSIER

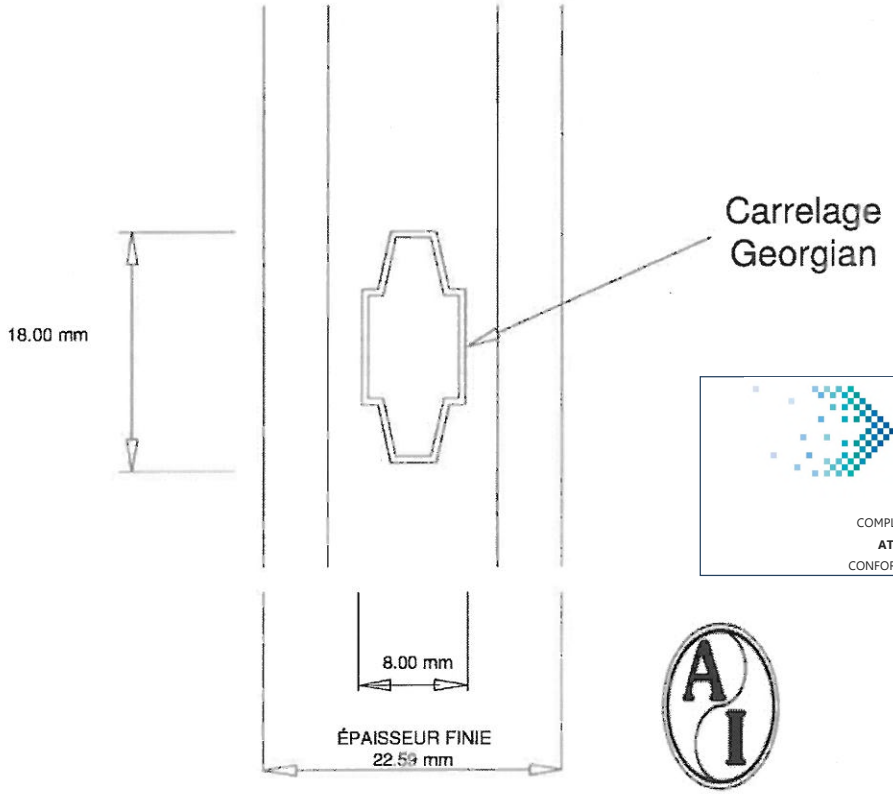
Regtangular 3/8x5/8



Coupe périphérique d'une unité scellée MULTIVER avec carrelage Georgian

Verre extérieur
3 mm clair AGC

Verre intérieur
3 mm Éconover Select
73 (face 3)



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Attention:
Les épaisseurs réelles des verres peuvent être différentes de leurs appellations.

Aucune échelle

MULTIVER
Le savoir-faire de l'industrie du verre

CLIENT: Fabelta Aluminium inc.

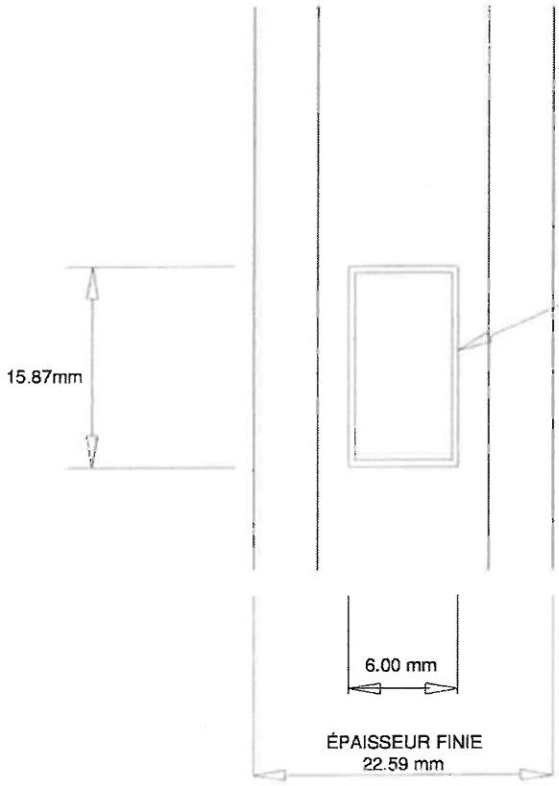
APPROUVÉ PAR: DENIS CORMIER ING. JR

Date: 16/12/2013

Coupe périphérique d'une unité scellée MULTIVER avec carrelage rectangulaire standard

Verre extérieur
3mm clair AGC

Verre intérieur
3 mm Éconover Select
73 #3



Carrelage
rectangulaire
standard

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Attention:
Les épaisseurs réelles des verres peuvent être différentes de leurs appellations.

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CLIENT: Fabelta Aluminium inc.

APPROUVÉ PAR: DENIS CORMIER ING. JR

Date: 16/12/2013

APPENDIX B: STRUCTURAL TEST REPORT

The results in this report relate only to the items evaluated.This report shall not be reproduced except in full, without the written approval of CLEB laboratory Inc.

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PERFORMANCE TESTING IN ACCORDANCE WITH AAMA/WDMA/CSA 101/I.S.2/A440-11 (NAFS 2011) & A440S1-17

PRODUCT MANUFACTURER
FABELTA SYSTÈMES DE FENESTRATION 3840, Georges-Corbeil Terrebonne, Quebec J6X 4J4 450-477-4658

REPORT **AI-04597-C1**

TEST REPORT SUMMARY	
Product type	**Aluminum Dual-Action Window**
Product series/model	**PURE**
Primary product designator	**Class CW – PG35 : Size tested 1225 x 2420 mm (~ 48 x 95 in) - Type DAW**
Optional secondary designator	**Positive Design pressure (DP) = 1680 Pa (~35.09 psf)** **Negative design pressure (DP) = -1680 Pa (~-35.09 psf)** **Water penetration resistance test pressure = 720 Pa (~15.04 psf)** **Canadian air infiltration / exfiltration level = A3 Level**
CAN/CSA A440-00 ratings	***A3 / B7 / C2 / F20 / S1***

See CLEB laboratory Inc. complete report AI-04597-C1 for test specimen description and detailed test results

Test completion date	2017-07-03	**Number of pages**	6 pages & 1 appendix
Report date	2017-07-05	**Revision date**	-

Prepared by:

Digitally Signed by:

Alexandre Bertrand, Tech.
Fenestration Testing Department
CLEB Laboratory Inc.

Approved by:

Digitally Signed by:

Jean Miller, P.Eng.
Director, Fenestration Testing Department
CLEB Laboratory Inc.

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6.0 CONCLUSION 6

7.0 REVISION LOG 6

APPENDIX : DRAWINGS, BILL OF MATERIALS, SEALANT AND DRAINAGE DETAILS

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1.0 INTRODUCTION

CLEB Laboratory Inc. was retained by " ***FABELTA SYSTÈMES DE FENESTRATION*** " to test a fenestration product according to the performance levels in the *AAMA/WDMA/CSA 101/I.S. 2/A440-11 (NAFS 2011) & A440S1-17* Standards. The sample components and manufacturing are documented in section 2.0.

Note concerning the use of units of measurement in this report:
According to the AAMA/WDMA/CSA 101/I.S.2/A440 Standard, the use of SI (metric) units is the standard, while IP (Imperial) values given in parentheses are for reference purposes only, and are inexact rounded values. Section 5.0 contains testing results converted to IP units for the sake of convenience only. The only exception to using Si values is in the Performance Grade (PG) portion of the product designation.

Note concerning drawings:
The drawings reviewed for the production of this report are stamped and are on file at CLEB Laboratory Inc. The availability of individual drawings will be at the discretion of the client.

2.0 DESCRIPTION OF THE SPECIMEN(S) TESTED

Model
PURE Aluminum Dual-Action Window

Product type
DAW – (Dual-action window)

Operation mode
Inswing opening

Configuration
A

Drawings (Appendix)
PRODUIT #1016 (PURE) Fenêtre – ALU/ALU – OSCILLO-BATTANT – Boîte 6" - Coupe verticale
PRODUIT #1016 (PURE) Fenêtre – ALU/ALU – OSCILLO-BATTANT – Boîte 6" - Coupe horizontale
PRODUIT #1016 (PURE) Fenêtre – ALU/ALU – OSCILLO-BATTANT – Boîte 6" - Matériel (2 pages)

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Drawings (Others)

V30-04, V30-02, V30-03, BEPT-couleur/BEPS-couleur, V30-06, BATTANT FENÊTRE PURE, PARCLOSE PURE, V30-09, COEX-429, FV-3515, FV-3499, FV-3522, FV-3497 (R-1520), FV-3498 (R-1519), 394400, 394500, 394600, POLYSTYRÈNE POUR POLYAMIDE.

Date(s) of sample reception

2017-04-26

Date(s) of testing

2017-05-01, 2017-05-02, 2017-06-27, 2017-06-29, 2017-07-03

Test specimen installation (test buck)

Material: Spruce (~2" x 10")

R.O. clearances: 9.3 mm (0.38")

Fastening:

Jambs: (4) # 10 x 2 1/2" screws; at 210 mm (8.26"), 975 mm (38.39"), 1400 mm (55.12") and 2165 mm (85.24") from sill.

Sealing detail: Sealant between test buck and specimen on exterior perimeter only

Frame

Material: Extruded Aluminum

Joinery type: Mechanical assembly (screwed). With foam pads at sill extremities prior to screwing.

Reinforcement: No reinforcement

Weatherstripping: See drawing(s) in the Appendix

Sealant: Sealant at mechanical assemblies. Sealant at sill exterior corners.

Drainage: (2) oblong holes, 28 mm (1.10") x 9 mm (0.35") at 35 mm (1.38") from corners.

Glazing: None

Frame depth: 152.5 mm (6.00")

Overall dimensions: 1225 mm (48.22") W x 2420 mm (95.28") H

Sash

Material: Extruded Aluminum

Joinery type: Mechanical assembly (crimped)

Reinforcement: No reinforcement

Weatherstripping: See drawing(s) in the Appendix

Sealant: Sealant at mechanical assemblies. Sealant on interior surface at glazing stops edges.

Drainage: (4) oblong holes, 11.5 mm (0.45") x 3.5 mm (0.14"), at 100 mm (3.94") and 125 mm (4.92") from sash exterior corner.

Glazing:

Double glazed sealed unit (22.2 mm) / Glass thickness: 4.1 mm / Air space gap: 14.0 mm / Type of glass: Annealed / Type of spacer: *Technoform (black)* / Type of sealant: Dual-sealed / Type of filling gas: Air / Glass retention: Glazing stop / Glazing seals: Gasket on the exterior face and gasket on the interior face / Grid description: None / Setting blocks: (2) blocks at jamb and (1) at head / Daylight opening: 1135 mm W x 2250 mm H

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Overall dimensions: 1170 mm (46.06") W x 2390 mm (94.09") H

Screen

Frame material: Extruded aluminium

Mesh material: Fiberglass

Anchoring method: (4) Anchoring tabs

Auxiliary parts: (4) Corner brackets / Peripherical Weatherstrip

Overall dimensions: 1140 mm (44.88") W x 2360 mm (92.91") H

Hardware

(1) Handle kit (Kin Long, CZS20)
(1) Misuse prevention mechanism (Kin Long, FWG10)
(1) Strike plate (Kin Long, ZA1-6A)
(1) Corner device (Kin Long, ZA2)
(1) Dual-Action mechanism (Kin Long, LG11)
(1) Tilt pivot (Kin Long, N50)
(1) Support block – frame (Kin Long N51)
(1) Support block – sash (Kin Long N33)
(1) Upper hinge (Kin Long, NDHA10)
(1) Lower hinge (Kin Long, NDHB10)

3.0 ALTERATION(S)

Alteration(s) performed in the laboratory on tested specimen to meet the reported performances: None.

4.0 TEST BENCH INFORMATION

Test bench identification: TB-AWS-01

The calibration of this test bench was done as per Article 9.0 of *ASTM E283, Standard Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors*, and *ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference* and *ASTM E547 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Cycling Static Air Pressure Difference.* The last calibration of this test bench and related equipment was performed in January, 2017.

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5.0 RESULTS OF PERFORMANCE TESTS

SPECIFICATIONS	TEST RESULTS
U.S. Air Leakage Resistance Test R – LC – CW Classifications: Q_{inf} ≤1.5 l/s-m² @ 75 Pa *(~ ≤ 0.3 cfm/ft² @ 1.57 psf)* AW Classification: Q_{inf} ≤0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.27 psf)* **Canadian air infiltration/exfiltration level** R – LC – CW Classifications: A2: Q ≤ 1.5 l/s-m² @ 75 Pa *(~ ≤ 0.3 cfm/ft² @ 1.57 psf)* A3: Q ≤ 0.5 l/s-m² @ 75 Pa *(~ ≤ 0.1 cfm/ft² @ 1.57 psf)* AW Classification: A2: Q ≤ 0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.27 psf)* A3: Q ≤ 0.5 l/s-m² @ 300 Pa *(~ ≤ 0.1 cfm/ft² @ 6.27 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.2* *A440S1-17 Canadian Supplement par. 5.3* *ASTM-E283-04 (2012)*	**Class CW – U.S. Requirements** **A3 Level –Canadian Requirements** Surface: 2.96 m² *(~31.91 ft²)* Q_{inf} = 0.03 l/s-m² @ 75 Pa *(~0.01 cfm/ft² @ 1.57 psf)* Q_{exf} = 0.02 l/s-m² @ 75 Pa *(~0.00 cfm/ft² @ 1.57 psf)*
Water Resistance Test No water infiltration under a minimum pressure differential: Class R: 140 Pa *(~ 2.92 psf)* Class LC: 180 Pa *(~ 3.76 psf)* Class CW: 220 Pa *(~ 4.59 psf)* Class AW: 390 Pa *(~ 8.15 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.3.* *A440S1-17 Canadian Supplement par. 5.4* *ASTM-E547-00 (2009) & ASTM-E331-00 (2009)*	**Class CW – U.S. & Canadian Requirements** **With & without screen** No water infiltration under the minimum test pressure for the Class. No water infiltration at an optional test pressure differential of: **580 Pa** *(~12.19 psf)*- U.S. & Canadian Requirements **720 Pa** *(~15.04 psf)* - Canadian requirements only
Uniform Load Deflection Test Member deflection at a minimum design pressure (DP) and at optional DP: Class R: 720 Pa (~15.04 psf) – Reported only Class LC: 1200 Pa (~25.06 psf) – Reported only *Class* CW: Limited to L/175 at 1440 Pa *(~30.08 psf)* *Class* AW: Limited to L/175 at 1920 Pa *(~40.10 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.4* *ASTM-E330-02 (2010)*	**DP 35 – Class CW** Net deflection measured on stile: 0.36 mm @ –1440 Pa *(~0.01" @ –30.08 psf)* 2.90 mm @ +1440 Pa *(~0.11" @ +30.08 psf)* 0.37 mm @ –1680 Pa *(~0.01" @ –35.09 psf)* 3.32 mm @ +1680 Pa *(~0.13" @ +35.09 psf)* Allowed ≤ 13.2 mm *(~0.52")*
Uniform Load Structural Permanent deformation is limited at a minimum structural test pressure (STP) and at optional STP of: *Class* R: ≤ 0.4% (L) at 1080 Pa *(~22.56 psf)* *Class* LC: ≤ 0.4% (L) at 1800 Pa *(~37.59 psf)* *Class* CW: ≤ 0.3% (L) at 2160 Pa *(~45.11 psf)* *Class* AW: ≤ 0.2% (L) at 2880 Pa *(~60.15 psf)* *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.4* *ASTM-E330-02 (2010)*	**STP 35 – Class CW** Permanent deformation measured on stile: 0.33 mm @ –2160 Pa *(~0.01" @ –45.11 psf)* 0.19 mm @ +2160 Pa *(~0.01" @ +45.11 psf)* 0.33 mm @ –2520 Pa *(~0.01" @ –52.63 psf)* 0.21 mm @ +2520 Pa *(~0.01" @ +52.63 psf)* Allowed ≤ 6.93 mm *(~0.27")*

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Forced-Entry Resistance All windows shall be tested according to ASTM F588-07 Grade 10. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.5*	**Passed** **Grade 40** T_1=10 min., L_1=1334 N *(~300 lbf)*, L_2=667 N *(~150 lbf)* & L_3=267 N *(~60 lbf)*
Stabilizing Arm Load Test Vertical concentrated load apply on a complete assembled window for 10 sec shall not damage the frame or the sash or any hardware components : Class R: 445 N *(~100.04 lbf)* at sash corner and 890 N *(~200.08 lbf)* at center of top rail. Class LC & CW: 890 N *(~200.08 lbf)* at sash corner and 1780 N *(~400.16 lbf)* at center of top rail.. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 9.3.6.5.3*	**Passed** **Class CW** After loads removal of 890 N *(~200.08 lbf)* at sash corner and 1780 N *(~400.16 lbf)* at center of top rail, the window presents no damage and functions normally.
Sash/leaf Load Test on Latch Rail Class CW: Deflection of the center of the span of the latch rail under a concentrated load of 135 N *(~30.35 lbf)* parallel to the plane of the sash <1.5 mm *(0.06")* and a concentrated load of 230 N *(~51.71 lbf)* perpendicular to the plane of the sash <3.3 mm *(0.13")*. Class AW: Deflection of the center of the span of the latch rail under a concentrated load of 270 N *(~60.70 lbf)* parallel to the plane of the sash <1.5 mm *(0.06")* and a concentrated load of 400 N *(~89.92 lbf)* perpendicular to the plane of the sash < 6.4 mm *(0.25")*. *AAMA/WDMA/CSA 101/I.S.2/A440-11 par. 7.3.4.1*	**Passed** **Class CW – DAW Products** Allowed parallel: 1.5 mm (0.06") Measured parallel: 0.39 mm (0.02 ") Allowed perpendicular: 3.3 mm (0.13") Measured perpendicular: 1.2 mm (0.05")
Insect Screen Test Canadian (only)requirements: Insect screens shall be tested in accordance with ASTM E1748-95(09) in the outward direction only under a load of 60 N (~13 lbf). *A440S1-17 Canadian Supplement par. 5.1*	**Passed** No screen disengagement or permanent deformation observed.

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6.0 CONCLUSION

Based on the tests results, the fenestration product described in this report meets the requirements of the *AAMA/WDMA/CSA 101/I.S. 2/A440-11* and *A440S1-17* Standards regarding performance testing.

Detailed assembly drawings showing wall thickness of all members, corner construction and hardware application are on file and have been compared to the sample submitted.

The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the referenced specification. The test records from this evaluation will be retained for a minimum of four (4) years from the date of report issuance. This report does not constitute certification of this product, which may only be granted by a certification agency.

Note on the Limitation of Liability:
Due care was taken in performing the testing sequence and in reporting the results related to the test specimen received for evaluation. Through acceptance of this report, the Client agrees to exempt CLEB Laboratory Inc. employees and owners from all liability claims and demands arising from any matter related to or concerning the quality and execution of the performance evaluation contained in this report.

7.0 REVISION LOG

Rev. #	Date	Page(s)	Révision(s)

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APPENDIX

DRAWINGS, BILL OF MATERIALS, SEALANT & DRAINAGE DETAILS

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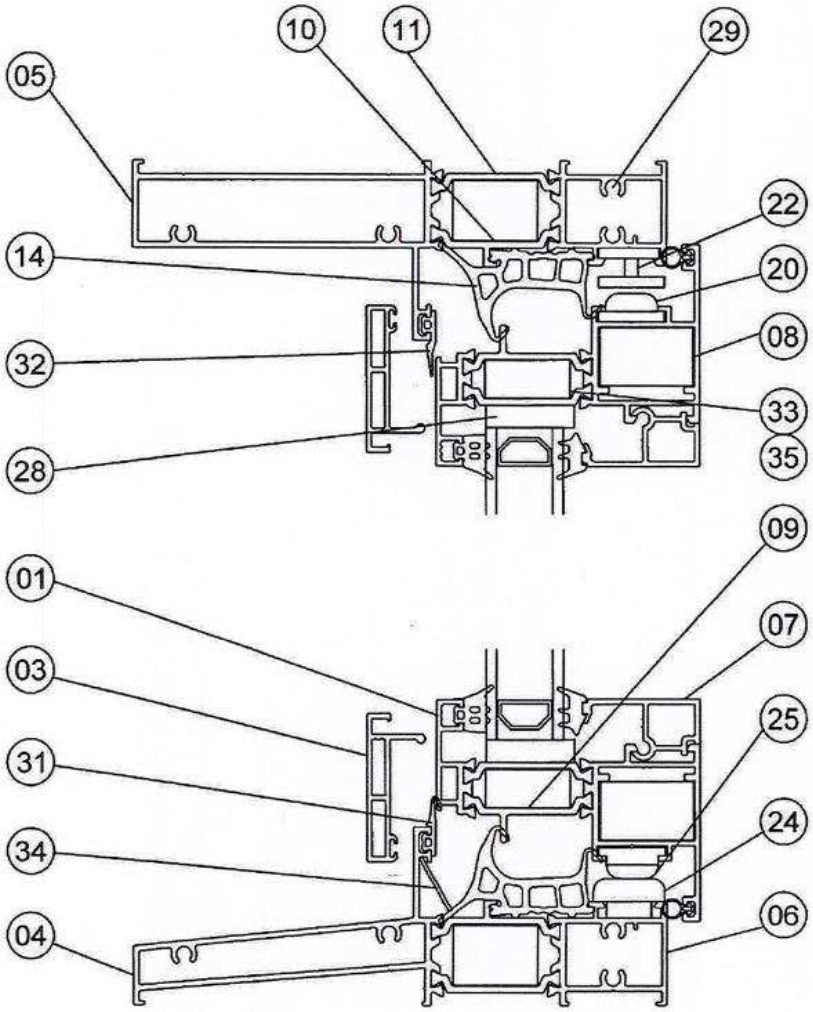
PRODUIT # 1016 (PURE)

Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Coupe verticale



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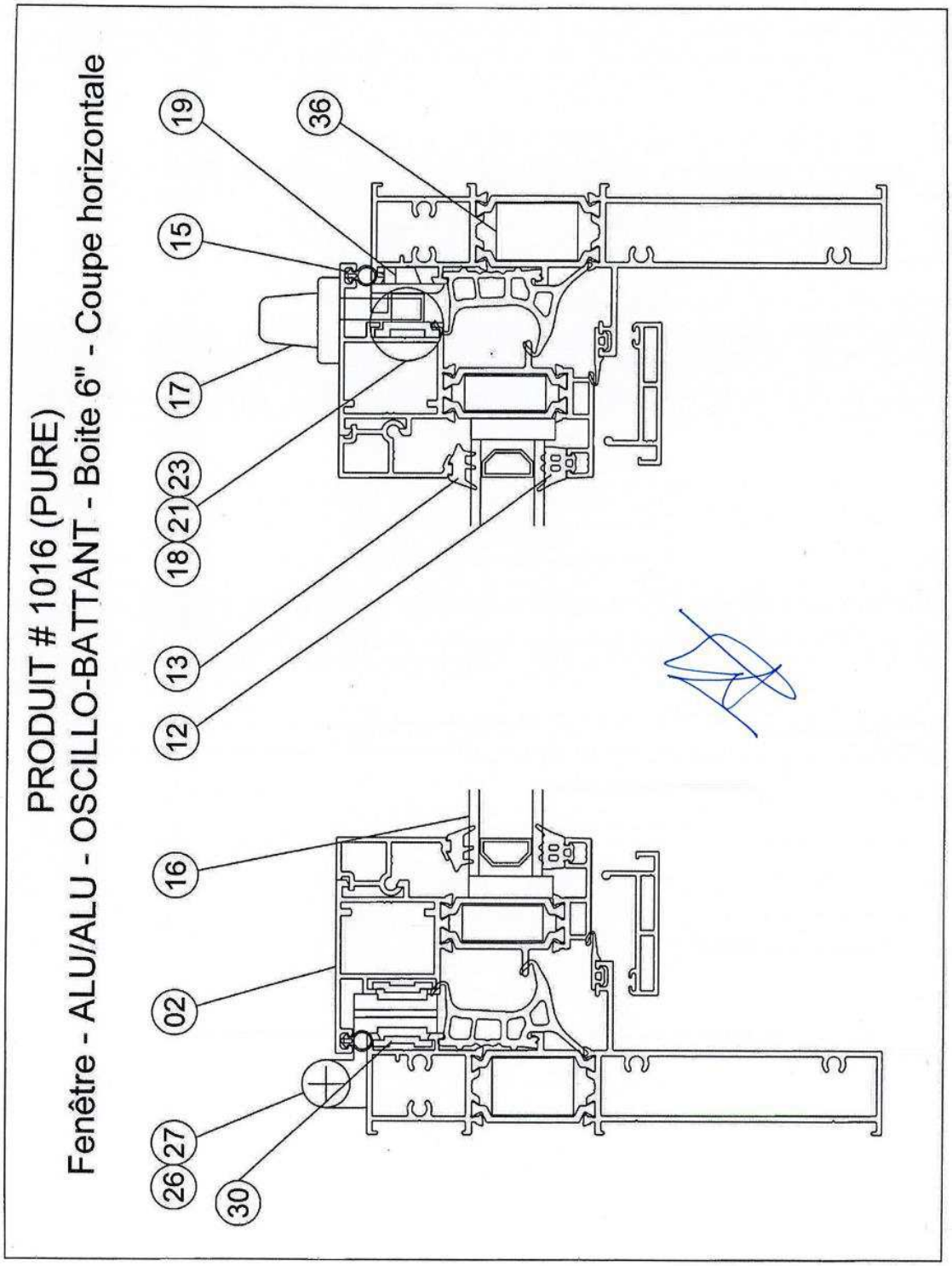

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PRODUIT # 1016 (PURE) Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Matériel				
#	Part #	Description	Matériel	Fourn.
01	990721	Volet extérieur	ALU	Métra
02	990372	Volet intérieur	ALU	Métra
03	990375	Moustiquaire	ALU	Métra
04	990368	Cadre - Seuil extérieur	ALU	Métra
05	990369	Cadre - Jambage/ Tête extérieur	ALU	Métra
06	990370	Cadre intérieur	ALU	Métra
07	990735	Parclose opérant	ALU	Métra
08	FD28x17-95	Coin vissé assemblage volet- coté aluminium	ALU	Acofal
09	394400	Barrière thermique - Volet	Polyamide	Technoform
10	394500	Barrière thermique - Cadre	Polyamide	Technoform
11	394600	Barrière thermique - STandard	Polyamide	Technoform
12	R1520/FV3497	Gasket vitrage extérieur	TPE	Quéplex
13	R1519/FV3498	Gasket vitrage intérieur	TPE	Quéplex
14	FL-2807/FV3515	Gasket principal cadre	TPE	Quéplex
15	COEX-429B	Coupe-froid - Volet	TPE	Quéplex
16		Thermos fini 0.875"	Verre	
17	CZS20	Poignée	ZINC-ALU	Kin Long
18	FWG10	Mécanisme de prévention mauvaise utilisation	ZINC-ALU	Kin Long
19	ZA1-6A	Plaque de verrouillaige (keeper)	ZINC-ALU	Kin Long
20	ZA2	Dispositif de coin	ZINC-ALU	Kin Long
21	LZDC05	Tige raccord (500mm, 750mm, 1000mm)	ALU	Kin Long
22	LG11	Mécanisme oscillo-battant	ZINC-ALU	Kin Long
23	N50	Pivot oscillo	ZINC-ALU	Kin Long
24	N51	Bloc support - cadre	ZINC-ALU	Kin Long

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PRODUIT # 1016 (PURE) Fenêtre - ALU/ALU - OSCILLO-BATTANT - Boite 6" - Matériel				
#	Part #	Description	Matériel	Fourn.
25	N33	Bloc support - volet	Nylon Pa66	Kin Long
26	NDHA10	Penture du haut	Métal	Kin Long
27	NDHB10	Penture du bas	Métal	Kin Long
28	PP06051308	Cale D4C-R 1/4 x 1 x 4	Néoprène	Profom
29	PKAZ10112	Vis #10 x 1-1/2 - assemblage cadre	Acier plaqué zinc	
30	ZB1	PETIT DISPOSITIF DE COIN (option)	ZINC-ALU	Kin Long
31	FV-3499	PARE-EAU DES JAMBAGES ET SEUIL	TPE	Quéplex
32	FV-3522	PARE-EAU DE LA TÊTE	TPE	Quéplex
33	RD25x11	Coin vissé assemblage volet- coté polyamide	ALU	Acofal
34	DTEE1	Déflecteur trou d'évacuation d'eau	ALU	Werner
35		Styromousse 15/16" x 13/32" dans barrière thermique volet	Styromousse	Fransyl
36		Styromousse 15/16" x 5/8" dans barrière thermique cadre	Styromousse	Fransyl
	I30924-20794	Adseal 4585 Blanc Glacier	Silicone	Adfast
	BEPS	BLOC ÉTANCHÉITÉ COIN CADRE PURE SEUIL	POLYÉTYLÈNE	PROFOM
	BEPT	BLOC ÉTANCHÉITÉ COIN CADRE PURE TETE	POLYÉTHYLÈNE	PROFOM

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