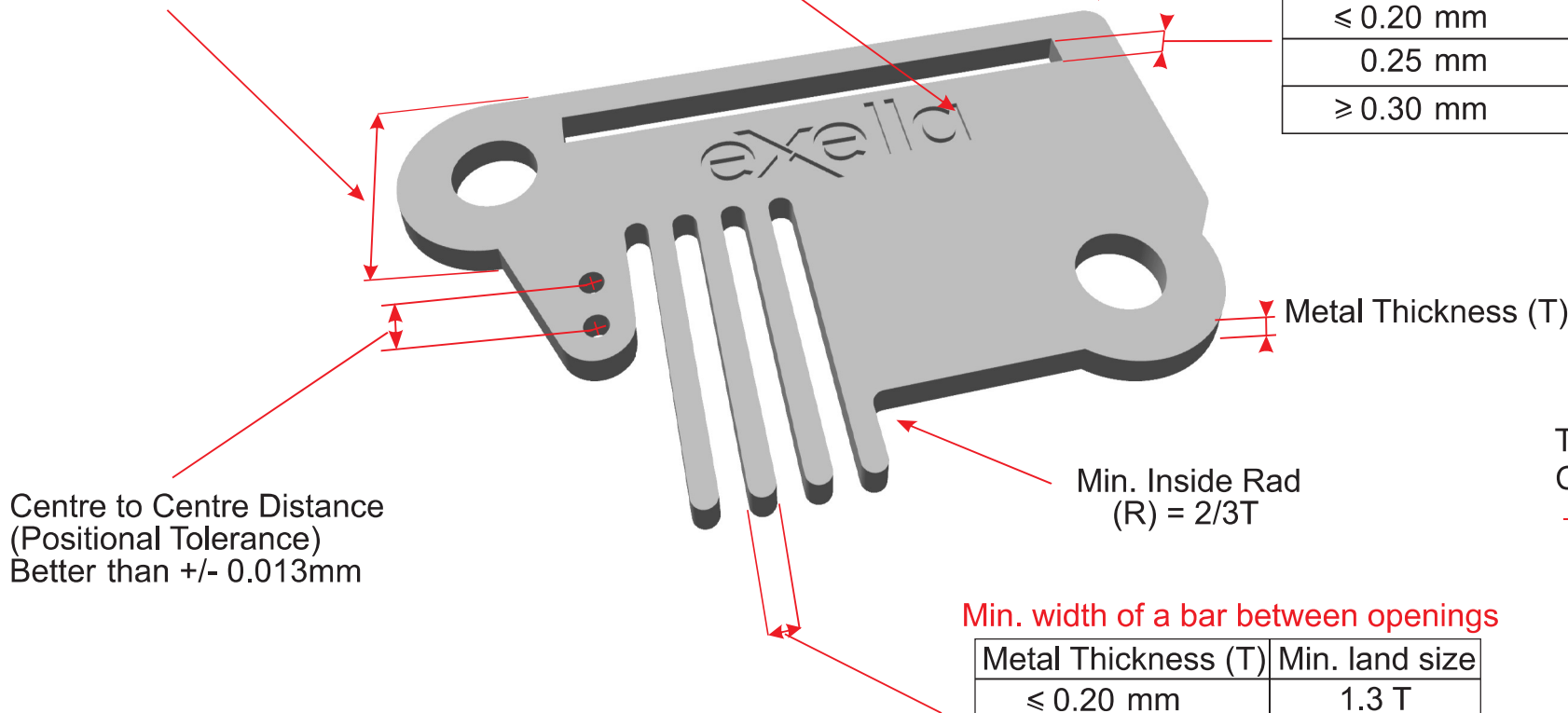


Photoetching - Typical dimensional tolerances

Etched Dimensional Tolerance

Metal Thickness (T)	Tolerance
< 0.35 mm	± 0.05 mm
≥ 0.35 mm	± 15% of T



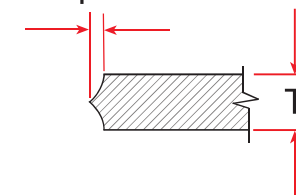
Min. Cut Out (Holes or Slots)

Metal Thickness (T)	Min. hole size
≤ 0.20 mm	1.3 T
0.25 mm	0.28 mm
≥ 0.30 mm	T

Centre to Centre Distance
(Positional Tolerance)
Better than +/- 0.013mm

Min. Inside Rad
(R) = 2/3T

Typical Edge Profile
Cusp = 20% T



Min. width of a bar between openings

Metal Thickness (T)	Min. land size
≤ 0.20 mm	1.3 T
≥ 0.25 mm	0.28 mm
0.30 mm	T

From Exella's experience we advise the technical designers to comply with the dimensional tolerances indicated here, and also to take into consideration that the type of material, the thickness and the shape of the piece can influence on the tolerances. Guaranteed characteristics will be pre-emptively accorded.

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Photoetching - Material properties

Thicknesses Tolerances

	0.03 -> 1.20 mm
STANDARD	+/- 8 %
SPECIAL	+/- 4 %

Hardness

Temper	Hardness	COD
Annealed	Commercially Soft	
Quarter Hard	One Number Hard	1/4 H
Half Hard	Two Numbers Hard	1/2 H
Hard Temper	Four Numbers Hard	4/4 H
Extra Hard	Six Numbers Hard	

Materials

	Common designation	Standard Designation		
		UNI EN	DIN	UNS/AISI
Cu Alloy	Brass	CuZn37	2.0321	C 27200
	Nickel Silver	CuNi18Zn20	2.0740	C 76400
	Bronze	CuSn10	2.1050	C 90700
	Phosphorous Bronze	CuSn8P	2.1830	C 52100
Steel	Austentic stainless steel	X10CrNi18-8	1.4310	AISI 301 - S30100
	Austentic stainless steel	X10CrNi18-10	1.4301	AISI 304 - S30400
	Austentic stainless steel	X2CrNiMo17-12-2	1.4404	AISI 316L - S31603
	Ferritic stainless steel	X8Cr17	1.4016	AISI 430 - S43000

Finished Surface

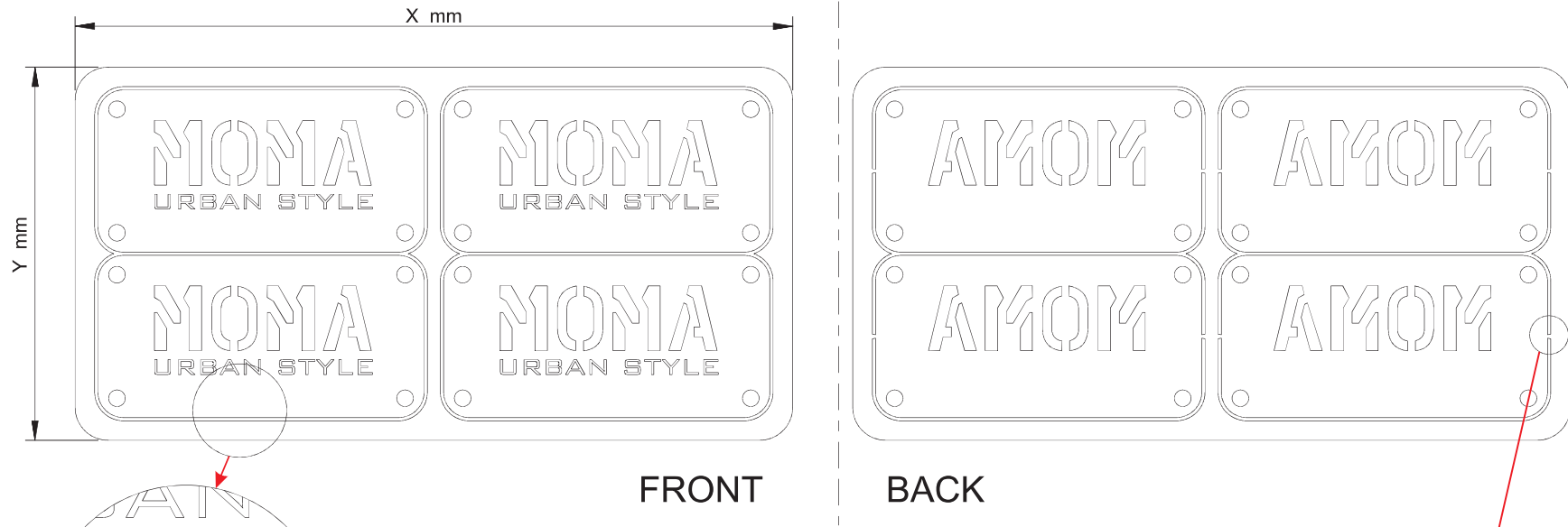
	COD	Description
MIRROR	BA	Bright Annealed Finish- A smooth, bright, reflective finish
BRIGHT	2B	Bright surfaced - A smooth, moderately reflective finish
DULL	2D	Dull surfaced material - A smooth, non-reflective finish

Exella has a wide range of metallic sheets in every thickness from 0,03 mm to 1,20 mm. The etched sheets can arrive to dimensions of 400 x 1200 mm, however it is advisable to use more restrained formats, around 200x300 mm. Special dimensions can also be agreed, or the use of materials and treatments not listed.

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Photoetching - Autocad or Rhino3D drawing



Attach Point

Metal Thickness (T)	A	B
< 0.40 mm	0.50 mm	0.70 mm
≥ 0.40 mm	1.5 T mm	1.5 T mm

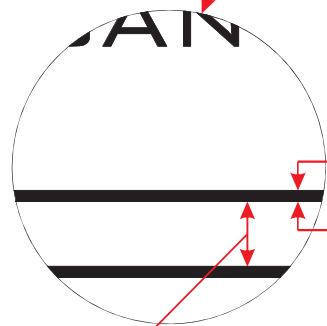
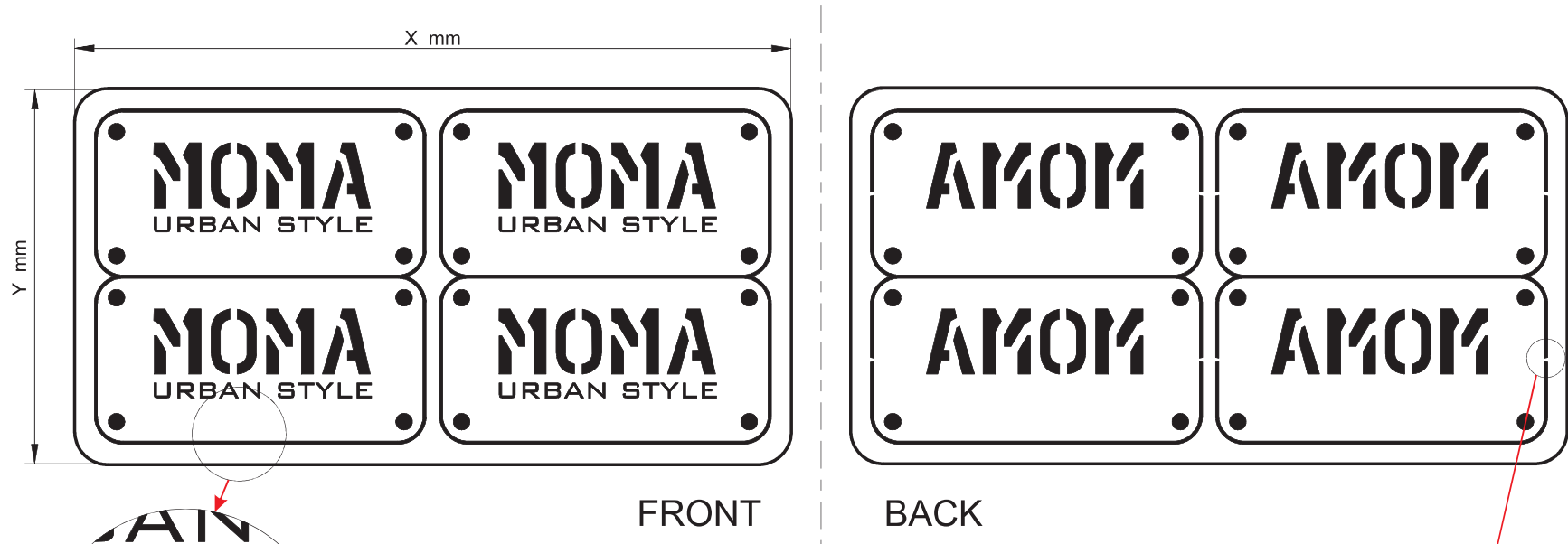
Etching Split

Metal Thickness (T)	1
< 0.60 mm	0.50 mm
≥ 0.60 mm	T

Outside Rake 3.00 mm

Drawings for photo etching must be in vector format and may be created using various software applications. This sheet specifies the procedure for preparing drawings in AutoCAD or Rhinoceros, for both front and back layouts. All lines must be completely closed. Please ensure compliance with the specified dimensions of the attachments and the indicated cutting lines. For tolerances, please refer to our technical data sheets or our website.

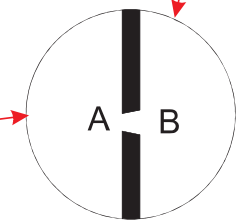
Photoetching - CorelDraw or Illustrator drawing



Outside Rake 3.00 mm

Attach Point

Metal Thickness (T)	A	B
< 0.40 mm	0.50 mm	0.70 mm
≥ 0.40 mm	1.5 T mm	1.5 T mm



Etching Split

Metal Thickness (T)	1
< 0.60 mm	0.50 mm
≥ 0.60 mm	T

Drawings for photo etching must be in vector format and may be created using various software applications. This sheet specifies the procedure for preparing drawings in CorelDraw or Adobe Illustrator for both front and back layouts. Black areas represent the etched regions. All drawings are to be prepared in CMYK color mode, with black defined as 100% (absolute). Text must be converted to curves. Please ensure compliance with the specified dimensions of the attachments and the indicated cutting lines. For tolerances, please refer to our technical data sheets or our website.

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