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MDM
SVET NERJAVNEGA JEKLA

GENERAL TERMS AND CONDITIONS FOR CUTS
(laser, plasma, waterjet)

1. DOCUMENTATION

The customer is obliged to send the documentation in a DXF/DWG format in a 1:1 ration, using millimetres as a unit of measurement. Any engravings must be clearly recognisable and specially marked (a different layer).

All requirements, such as tolerances and other special requirements (threads, addition for machining, etc.), must be marked in the plans in accordance with the standard SIST EN ISO 128. All of the above special requirements must be approved by MDM prior to confirming an order.

2. TOLERANCES / QUALITY

2.1. Deviation of the actual measurement from the nominal measurement on the plan

The tolerances for thickness and surface flatness are based on the technical conditions of the basic material (EN 10088–2/EN 10095/EN 10028–7, DIN 17440/DIN 17441, DIN 17460).

According to the SIST EN ISO 9013 standard, permissible measurement deviations are allowed for cuts, which are divided according to
the level 2 cutting procedure.

Level 1 – laser / waterjet

Work piece thickness, mm	Normal dimensions, mm							
	> 0 < 3	≥ 3 < 10	≥ 10 < 35	≥ 35 < 125	≥ 125 < 315	≥ 315 < 1.000	≥ 1.000 < 2.000	≥ 2.000 < 4.000
	Limit deviations, mm							
> 0 ≤ 1	± 0,04	± 0,1	± 0,1	± 0,2	± 0,2	± 0,3	± 0,3	± 0,3
> 1 ≤ 3,15	± 0,1	± 0,2	± 0,2	± 0,3	± 0,3	± 0,4	± 0,4	± 0,4
> 3,15 ≤ 6,3	± 0,3	± 0,3	± 0,4	± 0,4	± 0,5	± 0,5	± 0,5	± 0,6
> 6,3 ≤ 10	—	± 0,5	± 0,6	± 0,6	± 0,7	± 0,7	± 0,7	± 0,8
> 10 ≤ 50	—	± 0,6	± 0,7	± 0,7	± 0,8	± 1	± 1,6	± 2,5
> 50 ≤ 100	—	—	± 1,3	± 1,3	± 1,4	± 1,7	± 2,2	± 3,1
> 100 ≤ 150	—	—	± 1,9	± 2	± 2,1	± 2,3	± 2,9	± 3,8
> 150 ≤ 200	—	—	± 2,6	± 2,7	± 2,7	± 3	± 3,6	± 4,5

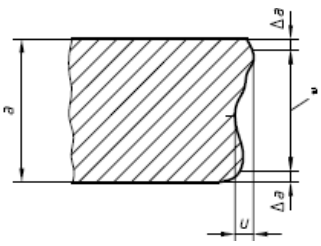
Level 2 – plasma

Work piece thickness, mm	Normal dimensions, mm							
	> 0 < 3	≥ 3 < 10	≥ 10 < 35	≥ 35 < 125	≥ 125 < 315	≥ 315 < 1.000	≥ 1.000 < 2.000	≥ 2.000 < 4.000
	Limit deviations, mm							
> 0 ≤ 1	± 0,1	± 0,3	± 0,4	± 0,5	± 0,7	± 0,8	± 0,9	± 0,9
> 1 ≤ 3,15	± 0,2	± 0,4	± 0,5	± 0,7	± 0,8	± 0,9	± 1	± 1,1
> 3,15 ≤ 6,3	± 0,5	± 0,7	± 0,8	± 0,9	± 1,1	± 1,2	± 1,3	± 1,3
> 6,3 ≤ 10	—	± 1	± 1,1	± 1,3	± 1,4	± 1,5	± 1,6	± 1,7
> 10 ≤ 50	—	± 1,8	± 1,8	± 1,8	± 1,9	± 2,3	± 3	± 4,2
> 50 ≤ 100	—	—	± 2,5	± 2,5	± 2,6	± 3	± 3,7	± 4,9
> 100 ≤ 150	—	—	± 3,2	± 3,3	± 3,4	± 3,7	± 4,4	± 5,7
> 150 ≤ 200	—	—	± 4	± 4	± 4,1	± 4,5	± 5,2	± 6,4

2.2. Tolerances for angulation and the surface of a cut according to the SIST EN ISO 9013 standard.

Cut thickness, α mm	Δα mm
≤ 3	0,1α
> 3 ≤ 6	0,3
> 6 ≤ 10	0,6
> 10 ≤ 20	1
> 20 ≤ 40	1,5
> 40 ≤ 100	2
> 100 ≤ 150	3
> 150 ≤ 200	5
> 200 ≤ 250	8
> 250 ≤ 300	10

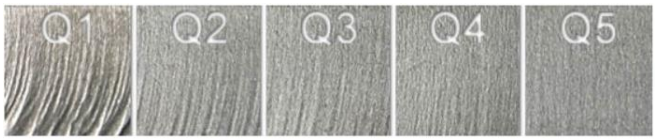
$$u = 1{,}2 + 0{,}035 * a$$



2.3. Roughness – the quality of a cut

With no additional requirements by the customer, the medium cut quality is used as standard.

Q1…very rough cut
Q2…rough cut
Q3…medium quality of a cut
Q4… smooth cut
Q5…very smooth cut



In the event of thermal cuts, the roughness increases with the thickness of the material – see table.

Thickness [mm]	Conical [mm]	Ra [µm]
1	0,02	0,5- 1
3	0,05	0,5- 2,5
5	0,07	1 - 3
10	0,1	3 - 6
15	0,13	5 - 14
20	0,16	8 - 16

2.4. Surface flatness

Unless ordered by the customer, the products are not flattened after cutting (a product may be deformed during cutting due to the internal tension within the material).

2.5. Surface quality

Because we use thermal cutting procedures, the remains of the melt (sprayed deposits) can appear on the surface.
On the bottom side of the sheet metal surface, traces of material manipulation and the remains of the flash of the cut can be seen.

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