

## Amumetal 4K (A4K) Data Sheet

For Magnetic Shielding at Cryogenic Temperatures

1. CHEMICAL COMPOSITION (Weight %)

Element	Ni	Mo	Fe
Typical value	81	4.5	Bal

2. PHYSICAL PROPERTIES

Density (g/cm <sup>3</sup> )	Resistivity (μmΩcm)	Melting T (°C)	Thermal expansion (m/°C)	Thermal conductivity (W/m/°C)	Specific heat (J/kg/°C)	Curie T (°C)
8.7	60	1450	12 x 10 <sup>-6</sup>	19	460	400

3. MAGNETIC PROPERTIES

Suggested heat treatment: 1150°C; 4 hours, cooling (50°C/h); Hydrogen pure and dry atmosphere

DC typical magnetic properties at 4K (measurements made on rings 1mm thick)

Saturation induction	: B(10 Oe) ≥ 8000 Gauss
Coercive force	: Hc ≤ 0,010 Oersteds
Initial Permeability	: μi(5mOe) ≥ 70,000

4. MECHANICAL CHARACTERISTICS (typical values)

Material tested in accordance with NF EN 10002, NF EN ISO 6507, NFA 04102

Metallurgical state	Hardness (HV)	Tensile strength (MPa)	Elongation (%)	Grain size
Annealed	160	700	35	8
Hard	325	1000	3	-

5. ROUGHNESS-SURFACE

0,10μm ≤ Typical Ra ≤ 0,35 μm

6. DIMENSIONS

Thickness (mm)	Thickness tolerance	Width tolerance (mm)			
		W ≤ 100	100 < W < 150	150 < W < 300	300 < w < 610
0,2 ≤ t ≤ 0,5	+/- 10%	+0/+ 0,20	+0/+ 0,30	+0/+ 0,40	+0/+ 0,50
0,5 < t ≤ 2	+/- 10%	+0/+ 0,40	+0/+ 0,50	+0/+ 0,50	+0/+ 0,60
2 < t ≤ 2,5	+/- 10%	+0/+ 0,60	+0/+ 0,60	+0/+ 0,60	+0/+ 0,70

7. FORM

Temper	Annealed	Hard
Edge burr	≤ 10% of the thickness	≤ 5% of the thickness
Edgewise curvature	3 mm/m	3mm/m

8. CONFORMS TO INTERNATIONAL SPECIFICATIONS

ASTM A 753, DIN 17405, IEC 404, JIS C 2531

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