

Cold Rolled Strip



1. Description, standards & chemical

CRYOPHY[®] is nickel-iron soft magnetic alloy suitable for magnetic shieldings at cryogenic temperature (typically 4K).

Chemical composition (%weight)

	Ni	Mo	Fe
Typical value	81	5	Bal

2. Physical properties

Density (g/cm ³)	Melting T° (°C - °F)	Curie T° (°C - °F)	Thermal expansion between 25°C and -269°C (10 ⁻⁶ .K ⁻¹)	Resistivity at -269°C (μΩcm)	Thermal conduction at -269°C (W/Km)	Specific heat at -269°C (J.Kg ⁻¹ .K ⁻¹)
8.72	1450 - 2642	400 - 752	-8	47,5	0,3	0,6

3. Magnetic properties *

Conditions	Thickness (mm - ")	Saturation induction (G - T at 2 Oe ≈ 160 A/m)	Coercive force (Oe - A/m)	Permeability (at 5 mOe ≈ 0.4 A/m)
DC	1 - 0.04	8000 - 0.80	0.010 - 0.8	70 000

* Typical values at 4K measured on rings sample th. 1mm / 0.04" after heat treatment at 1170°C / 2138°F in pure & dry Hydrogen after proper cooling

4. Mechanical properties *

Temper	Hardness (HV)	Grain size	Tensile strength (MPa - KSI)	Yield strength (MPa - KSI)	Elongation (%)	Young's modulus (MPa - KSI)
Soft	160	8	650 - 94	280 - 41	35	205 000 – 29 730
Hard	320	-	1010 - 146	990 - 144	3	255 000 – 36 980

* Typical values at 20°C for material to be tested in accordance with NF EN 10002, NF EN ISO 6507, NFA 04102

5. Standard delivery & dimensions available

Form *	Thickness (mm / ")	Width (mm / ")	Length (mm / ")	Temper
Coil - Sheet	0.10 to 3.5 / .004 to .138	10 to 640 / .4 to 25.2	500 to 3500 / 19.7 to 137.8	Soft / Hard

* Depending on thickness, width & temper

The data enclosed in this document are only given as indicative values and correspond to our standard product. Different specific requirements are subject to discussion and formal approval by Aperam Alloys Imphy. For further information or special request, please contact us.