
hpulcasTM

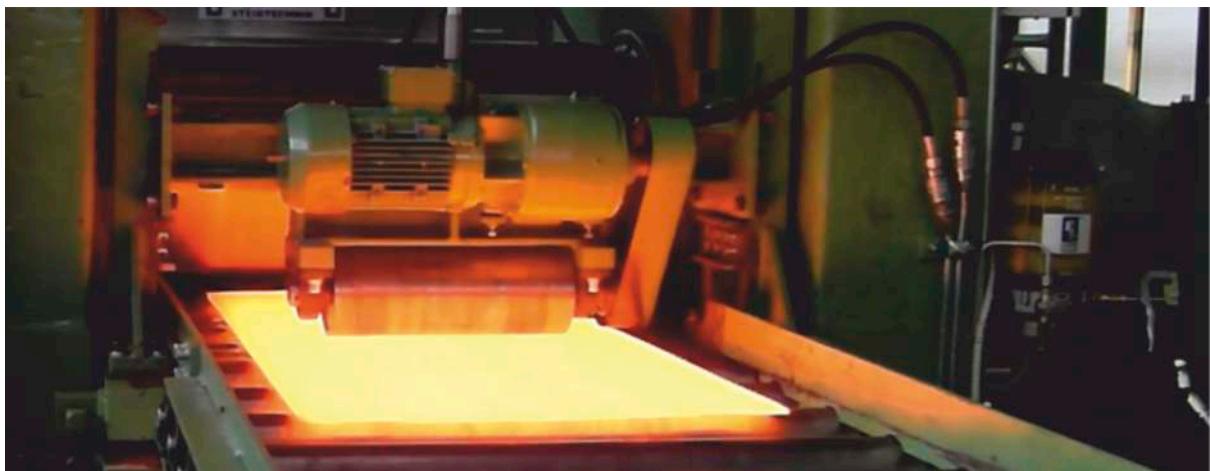
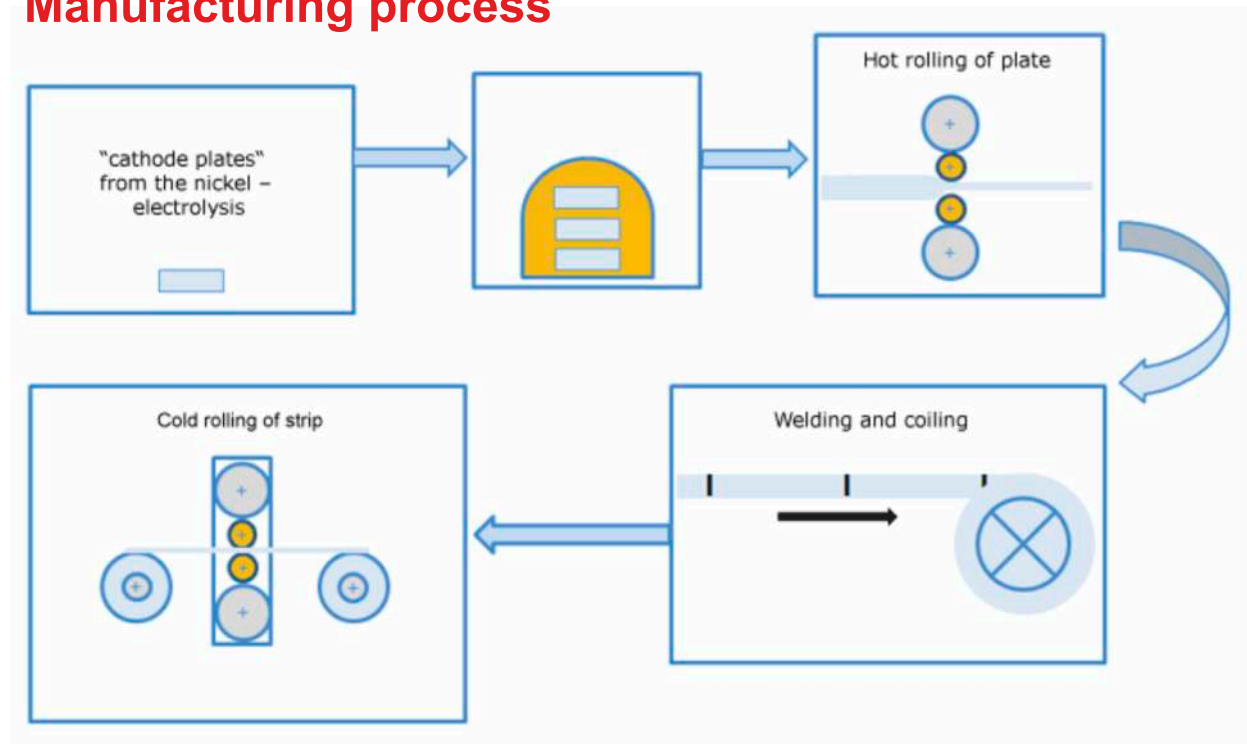
Nickel 99.98%

Pure Metals only: **H**igh **p**urity **u**ltra **l**ow **c**arbon **a**nd **s**ulfur



hpulcasTM

Manufacturing process



Hot rolling of nickel full plate cathode



Coiling of strip after welding (625 x 6.0 mm)

Properties and benefits

Highest degree of purity	Ni 99.98%
Very low levels of C (20 ppm) and S (2 ppm)	These elements tend to segregate at grain boundaries resulting in hot shortening
Cleanliness	Absence of non-metallic inclusions as Al, Ti or Si oxides
Low electrical resistivity at 20°C	7.1 $\mu\Omega\cdot\text{cm}$
High thermal conductivity at 20°C	90.9-91 W/m K
Excellent formability	Young's Modulus E=196 GPa (28427 ksi)
Low softening temperature	350°C
Low hardness	<65 HV
Improved oxidation resistance	
Development of a tightly adherent one-layer oxide scale instead of a two-layer customary one, which tends to flake off due to mismatch in thermal expansion	

Range of typical mechanical properties for hpulcas Ni 99.98%

Condition	R _{0.2} [MPa]	R _m [MPa]	Elongation [%]	Hardness [HV]
Soft annealed	100-200	300-350	>45	<65
Half hard	>300	>450	>15	>100
Full hard	>500	600-900	>5	>150

Strip is produced by joining plates frontally; wire is produced from sticks cut from plate and frontally welded. The grain structure of weld seams in strip and wire is aligned to the grain structure of the base material by a special process.

Applications

- **Plate material:** sputter targets, construction elements in the Chlor-alkali electrolysis, glass forming molds
- **Strip:** in batteries as current collectors and terminals; in supercapacitors as electrode substrate
- **Wire:** regulator coil in glow plugs of diesel engines; litz wire for current conduction under elevated temperatures and in aggressive environments

Dimensions

	mm	inch
Plate		
• Width	up to 650	up to 25.6"
• Thickness	1.0 - 10	0.04" - 0.393"
Strip/Foil		
• Width	3 - 600	0.12" - 23.6"
• Thickness	0.05 - 2.5	0.002" - 0.10"
• Temper	- soft annealed - quarter hard - full hard	
• Surface	- mill finish - mirror finish - brush finish	
Rod		
• Diameter	up to 4	up to 0.157"
• Length	up to 2,500	up to 98.4"
Wire		
• Diameter	0.2 - 1.6	0.0078" - 0.063"
Flat wire		
• Width	3 - 12	0.12" - 0.47"
• Thickness	0.25 - 2.5	0.01" - 0.100"

Standards (assume fabrication by powder metallurgy)

UNS N0 2270
2.4050

Contact

hpulcas GmbH

Fraunsteiner Strasse 107
09599 Freiberg
Germany

Tel.: +49 3731 77494 40
Fax: +49 3731 77494 429
E-mail: sales@hpulcas.com
www.hpulcas.com

Angaben gemäß § 37a HGB, § 35a GmbHG:
Geschäftsführer: Ralf Lummer; Amtsgericht Chemnitz, Reg.-Nr. HRB 27024
USt-ID-Nr. DE 280822588