

CHEMICAL COMPOSITION

C	Cr	Mo	V
2.30	14.0	1.0	9.0

SAFETY DATA SHEET AVAILABLE

DELIVERY HARDNESS

- Typical soft annealed hardness is 280 HB.

DESCRIPTION

ASP[®]420H powder manufactured grade combines high wear resistance, from the high V and C content, with corrosion resistance from the high Cr content. Thanks to the high cleanliness obtained with the ASP[®] process, high toughness, chipping resistance, polishability and corrosion resistance are obtained.

APPLICATIONS

- Injection moulding (corrosive and abrasive plastics)
- Industrial knives
- Food related applications
- Powder compaction
- Wear components etc.

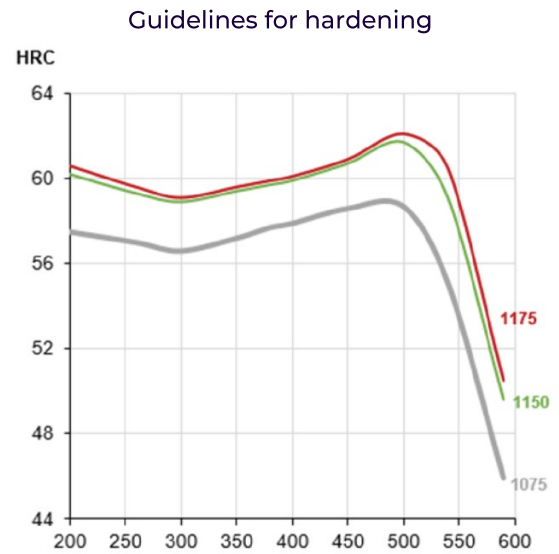
FORM SUPPLIED

- Round bars
- Flat & square bars

HEAT TREATMENT

- Soft annealing in a protective atmosphere at 930-970°C for 3 hours, followed by slow cooling at 10°C/h down to 750°C, then air cooling.
- Stress-relieving at 600-700°C for approximately 2 hours, slow cooling down to 500°C.
- Harden at 1075°C to 1175°C for chosen hardness.
- Temper for best corrosion resistance at 200-400°C (260°C recommended) 2 times for 2 hours each (minimum). Deep cooling after first tempering is possible and highly recommended for low temperature tempering to ensure thermal stability. Temper at 530-550°C can be used for best dimension stability and stress relieving.

GUIDELINES FOR HARDENING



Hardness after austenitization, quenching and tempering 2 x 2 hours

Application	Hardening	Tempering
Best corrosion resistance	1075-1175°C	250-270°C
Best dimension stability and stress relieving	1075-1175°C	530-550°C

SURFACE TREATMENT

ASP[®]420H can be PVD coated.

If nitriding is required, a small diffusion zone is recommended, but avoid compound and white layers. Nitriding may improve abrasive wear resistance but can also decrease the corrosion resistance.

PROPERTIES

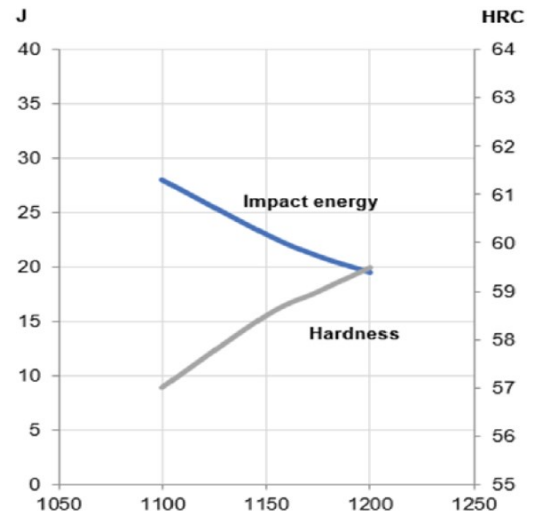
PHYSICAL PROPERTIES

Temperature	20°C
Density g /cm ³ (1)	7.4
Modulus of elasticity kN/mm ² (2)	215
Thermal expansion ratio per °C (2)	11.0
Thermal conductivity W/m°C (2)	17
Specific heat J/kg °C (2)	-

(1)=Soft annealed

(2)=Hardened 1125°C and tempered 540°C, 2 x 2 hours

IMPACT TOUGHNESS

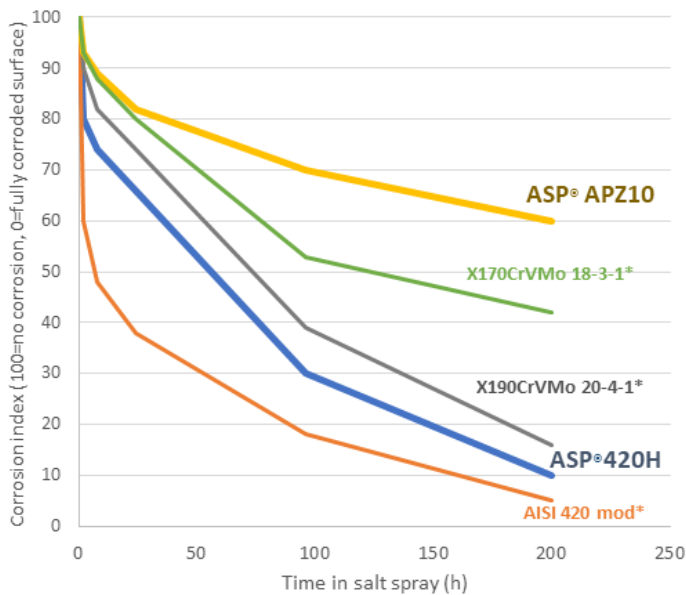


Hardening temperature in °C

Original dimension 260 x 174 mm
Tempering 2 x 2 hours at 540° C
Unnotched test piece 7 x 10 x 55 mm

CORROSION RESISTANCE

Salt spray corrosion test



Corrosion resistance from salt spray test of different types of Powder Metallurgy martensitic steels tempered <300°C.

Thanks to the high cleanliness obtained with ASP® process, the corrosion resistance of ASP®420H is good compared to other Powder Metallurgy grades of similar composition.

*Powder Metallurgy martensitic stainless steels of non-Erasteel origin with nominal composition 2.3C, 14Cr, 1Mo and 9V; 1.9C, 20Cr, 1Mo and 4V; and 1.7C, 18Cr, 1Mo and 3V.

COMPARATIVE PROPERTIES

