Power Metallurgy HSS

ASP® 2080

ERASTEEL

ASP 2080 is a high alloyed grade developed for dry cutting applications where the need of wear resistance and high hardness in combination .with relatively high toughness is important.

STANDARDS

> Europe: HS 11-5-6-16

DELIVERY HARDNESS

> Soft annealed max. 380 HB

CHEMICAL COMPOSITION

Safety datasheet available

C	Cr	Mo	W	Co	V
2.45	4.0	5.0	11.0	16.0	6.3

APPLICATIONS

> Gear cutting tools

>Finishing end mills

>Cold work

FORM SUPPLIED

> Round bars

HEAT TREATMENT

> Soft annealing in a protective atmosphere at 850-900°C for 3 hours, followed by slow cooling 10°C per hour down to 700°C, then air cooling.

> Stress-relieving at 600°C to 700°C for approximately 2 hours, slow cooling down to 500˚C.

> Hardening according to curve. Cooling down to 40-50°C

> Tempering at 560°C three times for at least 1 hour each time. Cooling to room temperature (25°C) between tempering

PROCESSING

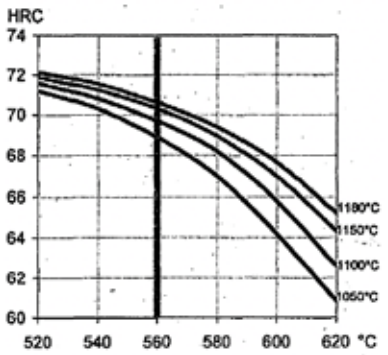
ASP 2055 can be worked as follows:

> machining (grinding, turning, milling)

> polishing

> electrical discharge machining

GUIDELINES FOR HARDENING



Tempering temperature in °C

Hardness after hardening, quenching and tempering 3 x 1 hour

GRINDING

During grinding, local heating of the surface, which may alter the temper, must be avoided. Grinding wheel makers can furnish advice on the choice of grinding wheels.

SURFACE TREATMENT

The steel grade is a good substrate material for PVD and CVD coating. If nitriding is demanded a small zone of 2-15 µm is recommended: The steel grade can also be steam-tempered if so desired.

evoloop®
SUSTAINABLE STEEL

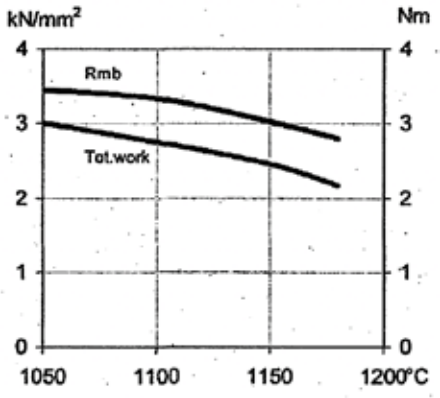
ERASTEEL

PROPERTIES

PHYSICAL PROPERTIES

Temperature	20°C	400°C	600°C
Density g/cm³	8.1	8	7.9
Modulus of elasticity kN/mm²	265	236	212
Thermal expansion ratio per °C	-	$10.6x10^{-6}$	$11.1x10^{-6}$
Specific heat J/kg °C	420	510	600

4-POINT BEND STRENGTH

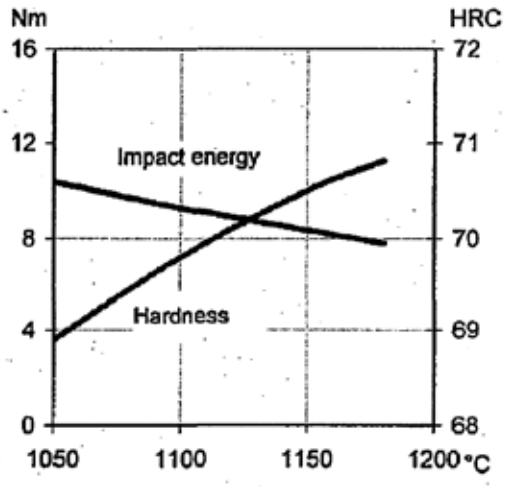


Hardening temperature in °C

Tempering 2 x 1 hour at 560°C
Dimension of test piece Ø 4.7 mm

Rmb = Ultimate bend strength in kN/mm²
Reb = Bend yield strength in kN/mm²
Tot. work = Total work in Nm

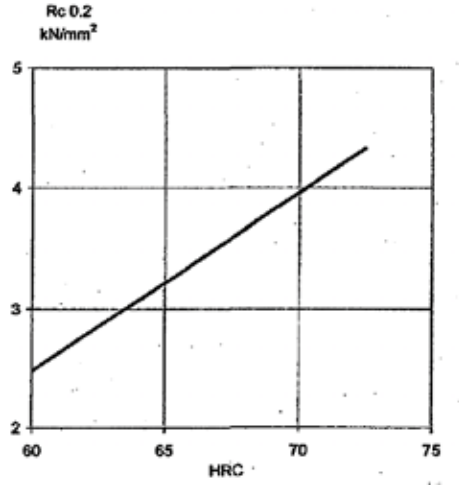
IMPACT TOUGHNESS



Hardening temperature in °C

Tempering 2 x 1 hour at 560° C
Unnotched test piece 7 x 10 x 55 mm

COMPRESSION YIELD STRESS



Test piece: hourg lass with 10 mm Ø waist

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COMPARATIVE PROPERTIES