Powder Metallurgy High-Speed Steel

ASP® 2062

ERASTEEL

ASP® 2062 is a cobalt-free High-Speed Steel with high red-hardness and good abrasion wear resistance.

STANDARDS

> EN 10027-1: PMHS 6-11-2

> ASTM: AISI M62

DELIVERY HARDNESS

> Typical soft annealed hardness is 290 HB

CHEMICAL COMPOSITION

Safety datasheet available

C	Cr	Mo	W	Co	V
1.30	3.8	10.5	6.3	-	2.0

APPLICATIONS

> High temperature bearings

> Bearings & other components

HEAT TREATMENT

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

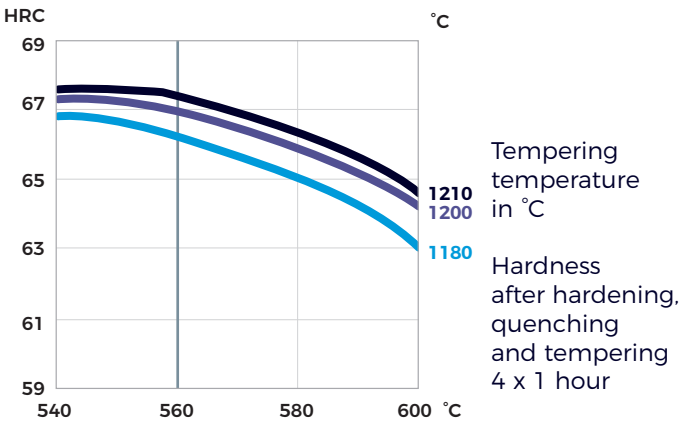
> Stress-relieving at 600-700˚C for approximately 2 hours, slow cooling down to 500˚C.

> Hardening in a protective atmosphere with pre-heating in 2 steps at 450-500˚C and 850-900˚C and austenitizing at a temperature suitable for chosen working hardness. Cooling down to 40-50˚C.

> Tempering at 560˚C four times* for at least 1 hour each time. Cooling to room temperature < 25˚C between tempers.

**Four temperings are recommended in order to remove all retained austenite and ensure a fully tempered martensitic matrix .*

GUIDELINES FOR HARDENING



Tempering temperature in ˚C

Hardness after hardening, quenching and tempering 4 x 1 hour

FORM SUPPLIED

> Round bars

Available surface conditions: peeled and rough- machined.

PROCESSING

ASP® 2062 can be worked as follows:

> machining (grinding, turning, milling)

> polishing

> hot forming

> electrical discharge machining

> welding (special procedure including preheating and filler materials of base material composition)

GRINDING

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

SURFACE TREATMENT

The steel grade is a perfect substrate material for PVD coating. If nitriding is requested, a small diffusion zone is recommended but avoid compound and oxidized layers.

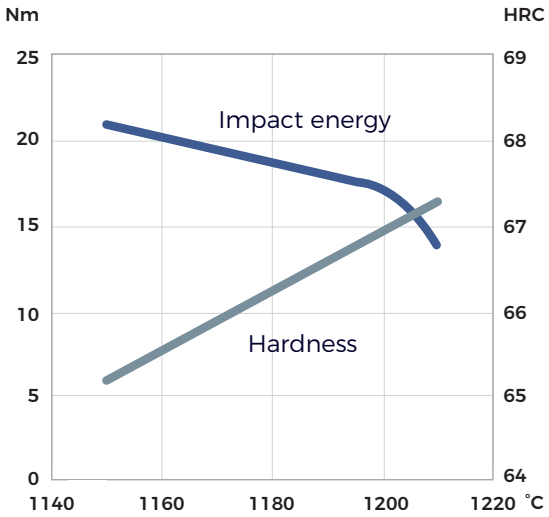
PROPERTIES

PHYSICAL PROPERTIES

Temperature	20˚C	400˚C	600˚C
Density g/cm³ (1)	8.2	8.1	8.0
Modulus of elasticity kN/mm² (2)	240	214	192
Thermal expansion ratio per ˚C (2)	-	$11.2x10^{-6}$	$11.7x10^{-6}$

(1) Soft annealed
(2) Hardened 1210˚C and tempered 560˚C, 4 x 1 hour to 67 HRC

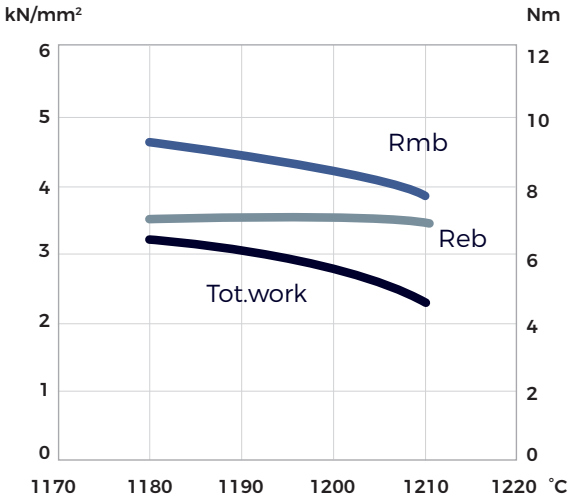
IMPACT TOUGHNESS



Hardening temperature in ˚C

Original dimension Ø42 mm
Tempering 4 x 1 hour at 560˚ C
Unnotched test piece 7 x 10 x 55 mm

4-POINT BEND STRENGTH

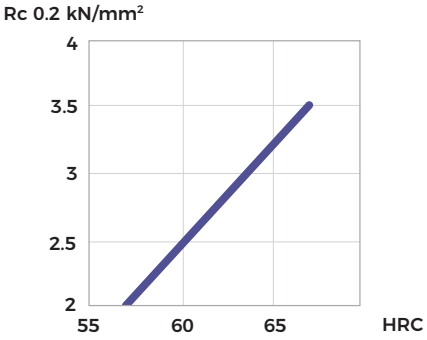


Hardening temperature in ˚C

Original dimension Ø 5.6 mm
Tempering 4 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

COMPRESSION YIELD STRESS



COMPARATIVE PROPERTIES