



ASP 2060 HIGH SPEED STEEL

COMPOSITION %	C	Cr	Mo	W	V	Co
	2.30	4.0	7.0	6.5	6.5	10.5
STANDARDS	SS 2727					
CONDITION AS SUPPLIED	Soft annealed			Max 340 HB		

ASP 2060 is an extremely high-alloy high speed steel. It is manufactured powder metallurgically using the ASP process. The steel is atomized, compacted and processed to the dimensions required. The result is an extremely homogeneous steel with a unique combination of properties. ASP 2060's homogeneous structure enhances such properties as dimensional stability and shape stability during heat treatment, as well as improving grindability and toughness. ASP 2060's method of manufacture and composition mean that it can provide very high hot hardness and good wear resistance.

PHYSICAL PROPERTIES

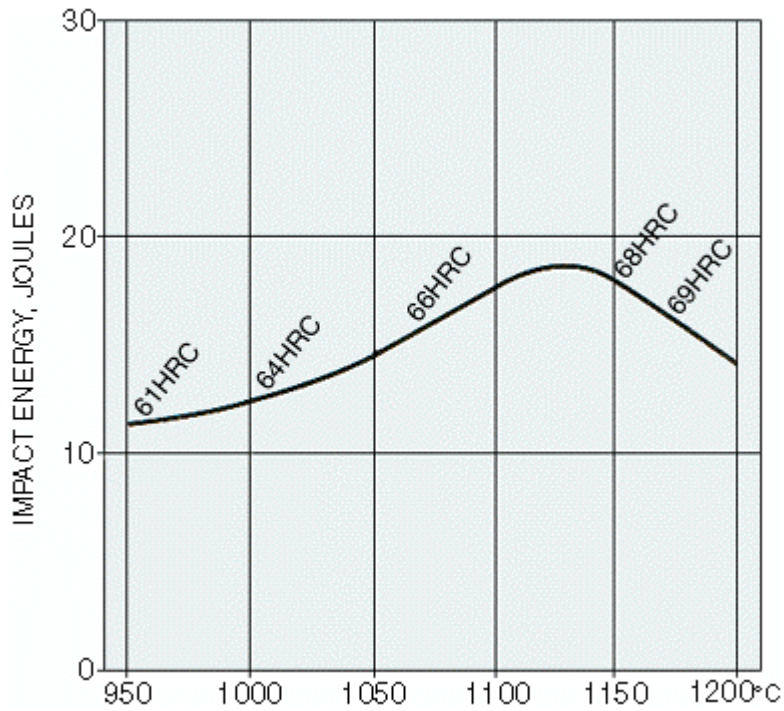
			Temperature °C		
			20	400	600
DENSITY	Kg/m ³	1	7940	7855	7800
MODULUS OF ELASTICITY	kN/mm ²	2	250	222	200
COEFFICIENT OF THERMAL EXPANSION FROM	20°C, per °C	2	-	10.6x10 ⁻⁶	11.1x10 ⁻⁶
THERMAL CONDUCTIVITY	W/m °C	2	24	28	27
SPECIFIC HEAT	J/kg °C	2	420	510	600

1 = Soft annealed

2 = Hardened 1180°C and tempered 560°C, 3x1 hour

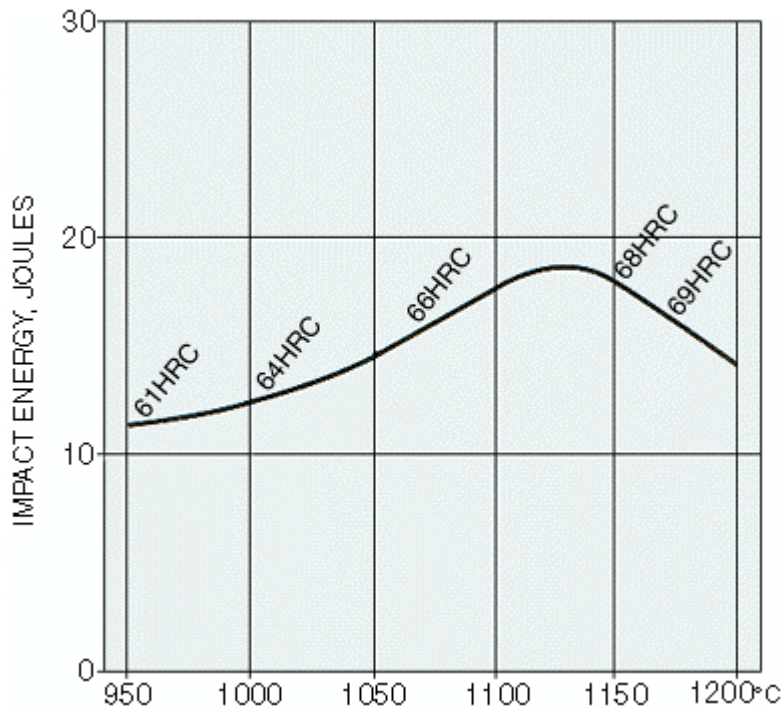
IMPACT STRENGTH

Original dimensions 9 x 12 mm
Tempering 3 x 1 hour at 560°C
Unnotched test piece 7 x 10 x 55 mm



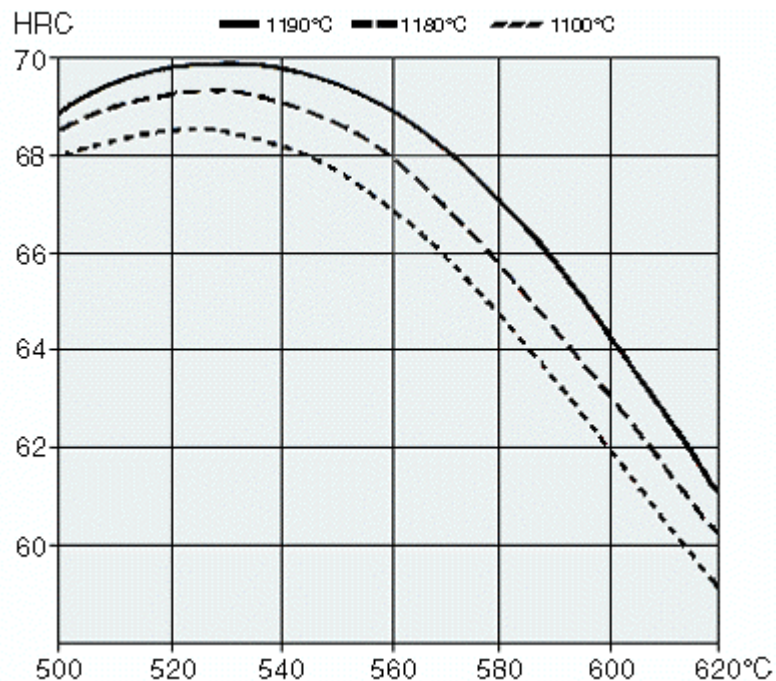
4 – POINT BENDING TEST

Original dimensions 6 mm Ø
Tempering 560°C, 3 x 1 hour
Dimensions of test piece 4.7 mm Ø



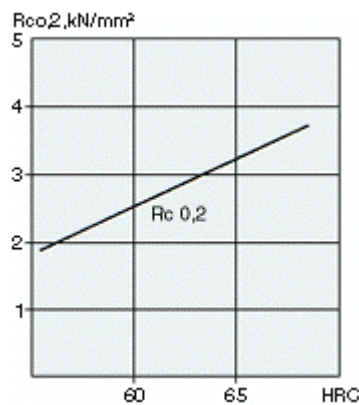
HEAT TREATMENT

- Soft-annealing 850°C – 900°C, slow cooling 10°C/h to 700°C, hardness max 340 HB.
- Stress-relieving annealing 600°C – 700°C, approx. 2 hours at temperature, slow cooling to 500°C.
- Hardening according to table.
Cooling to 40°C / 50°C.
- Tempering at 560°C 3 times for at least 1 hour each time. Cooling to room temperature (25°C) between temperings.

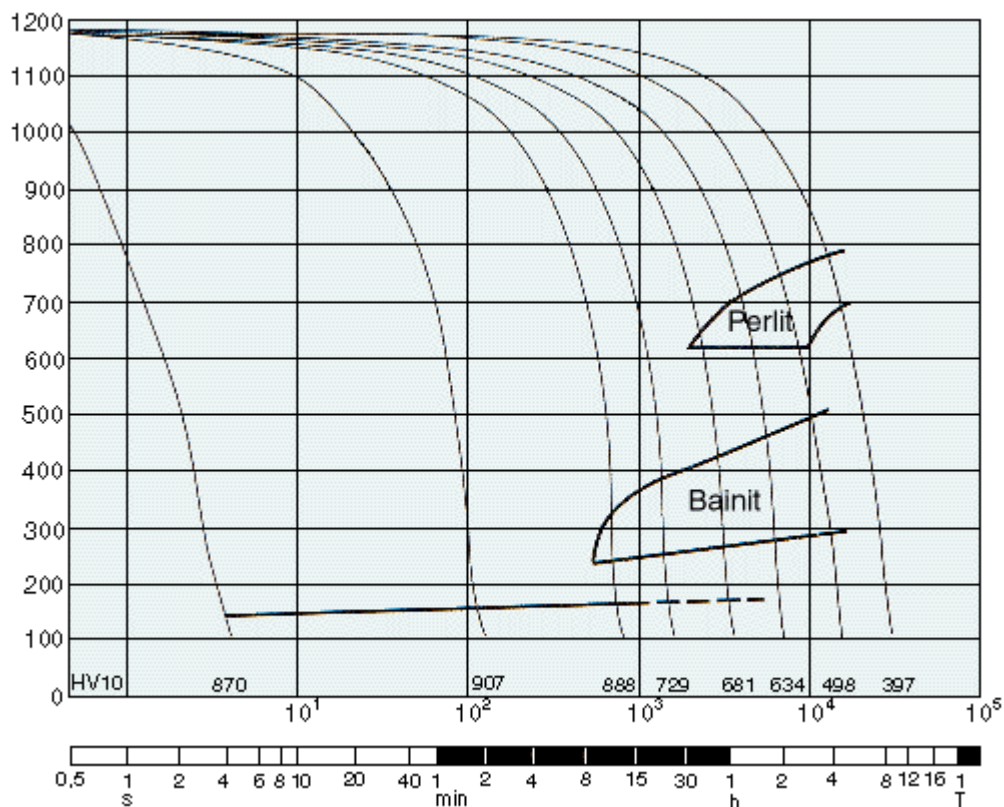


COMPRESSION YIELD STRESS

Test piece: hour glass with 10 mm Ø waist



CONTINUOUS COOLING TRANSFORMATION CURVE



GUIDELINES FOR HARDENING

Hardness HRC *	Hardening Temp °C
58	900
59	920
60	940
61	950
62	960
63	975
64	1000
65	1030
66	1070
67	1100
68	1150
69	1180

* Tempering time 3x1 hour at 560 °C

MANUFACTURING PROGRAMME

Form Supplied	Dimensional range mm
Round bars	7 - 385 Ø
Forged blanks	max 580 Ø
Flat bars	2,5 x 7-50 x 380
Square bars	4,5 - 345
Tool-bit sections	

Products are available drawn, centerless-ground, hot-worked, peeled, rough-machined depending on dimensions and requirements.

SURFACE TREATMENT

ASP 2060 can be nitrided (a small diffusion zone of 2–20 µm, recommended) or steam-tempered if so desired. ASP 2060 is excellent as substrate material for PVD and CVD surface coating.