



钢铁之家
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全球钢号百科!

Global Steel Grade Encyclopedia



涵盖的行业或国家与地区类别



国际材料与试验协会

GJB

国家军用标准



动力机械工程师协会

EU

前欧洲标准化

AISI

美国钢铁学会



德国工业标准

AMS

航空航天材料规范



国际标准

JASO

日本汽车标准组织

EN

欧洲标准

JB

中国机械行业标准

UNS

统一编号系统

UNI

意大利标准

ASME

美国机械工程师协会

SS

瑞典标准



国家标准



日本工业标准

CHEMICAL COMPOSITION

C	Cr	Mo	W	Co	V
2.48	4.2	3.1	4.2	-	8.0

SAFETY DATA SHEET SDS: A

STANDARDS

- Europe: HS 4-3-8
- Germany: 1.3352
- AMS6556

DELIVERY HARDNESS

- Typical soft annealed hardness is 300 HB
- Cold drawn and cold rolled material is typically 10-40 HB harder

DESCRIPTION

ASP®2053 is a high V-alloyed grade with excellent abrasive wear resistance and toughness.

APPLICATIONS

- Cold work tools
- Wood tools
- Paper cutting knives
- Stamping
- Bi-metal saws
- Textile knives
- Fine blanking
- Extrusion
- Rolls

FORM SUPPLIED

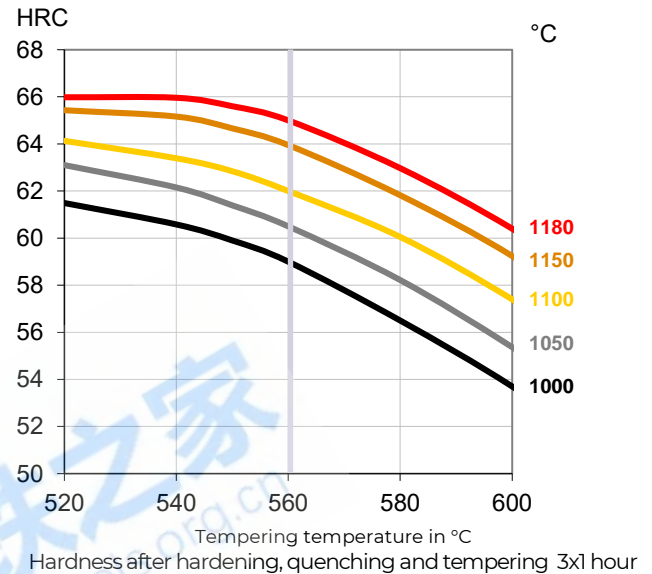
- Coils
- Round bars
- Forged blanks
- Flat & square bars
- Sheets
- Discs

Available surface conditions: drawn, ground, peeled, rough machined, hot rolled.

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 preheating in 2 steps at 450-500°C and 850-900°C and austenitising at a temperature suitable for chosen working hardness. 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 temperings.

GUIDELINES FOR HARDENING



PROCESSING

ASP®2053 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

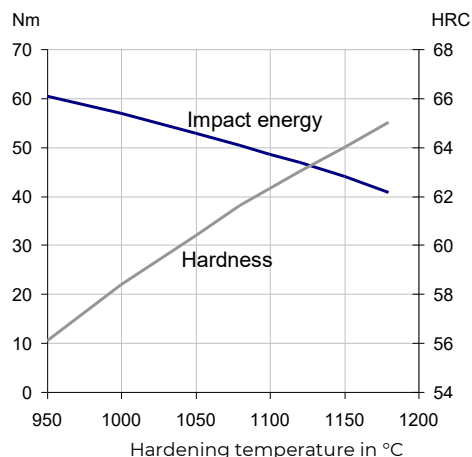
PHYSICAL PROPERTIES

Temperature	20°C	400°C	600°C
Density g /cm ³ (1)	7.7	7.6	7.5
Modulus of elasticity kN/mm ² (2)	250	220	200
Thermal expansion ratio per °C (2)	-	11.1x10 ⁻⁶	11.7x10 ⁻⁶
Thermal conductivity W/m°C (2)	24	28	27
Specific heat J/kg °C (2)	420	510	600

(1) = Soft annealed

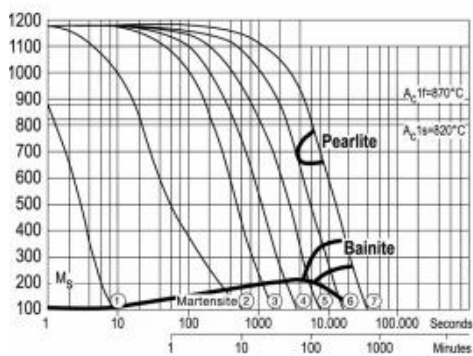
(2) = Hardened 1180°C and tempered 560°C, 3x1 hour

IMPACT TOUGHNESS



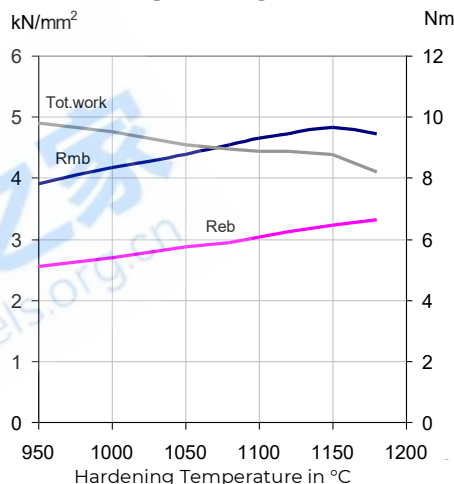
Hardening temperature in °C
Original dimension Ø 16 mm
Tempering 3 x 1 hour at 560° C
Unnotched test piece 7 x 10 x 55 mm

CCT CURVE



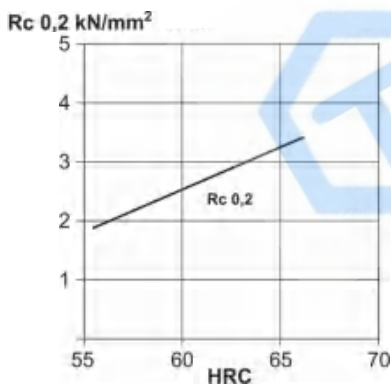
Continuous cooling transformation curve
Hardening Temperature 1180°C

4-POINT BEND STRENGTH



Hardening Temperature in °C
Original dimension Ø 16 mm
Tempering 3 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

