

V820 Nitriding steel

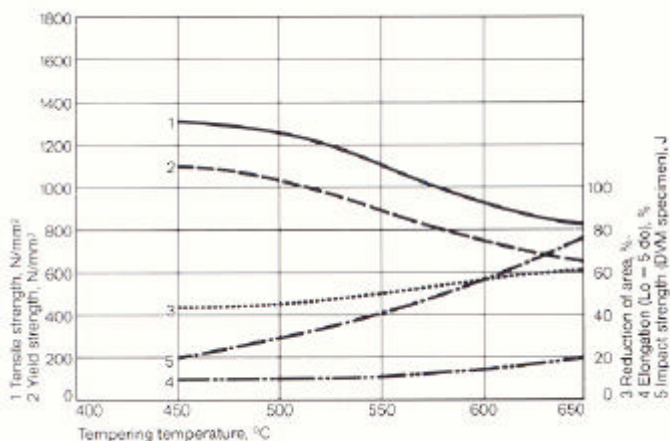
Typical Analysis (Ave. values %)	C	Si	Mn	Ni	Cr	Mo	Al		
	0.36	0.30	0.55	1.00	1.70	0.20	0.95		
NEAREST STANDARD	AS		W. No.		BS		AISI		
	-		1.8550		-		-		

DESCRIPTION	Chromium, Nickel, Aluminium steel for applications requiring very high surface hardness and wear resistance, in particular in large cross sections, in the hardened and tempered condition.
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APPLICATIONS	Cam discs, Cams, Pinion shafts, Measuring tools. Injection pump parts, Valve spools and Gudgeon pins.
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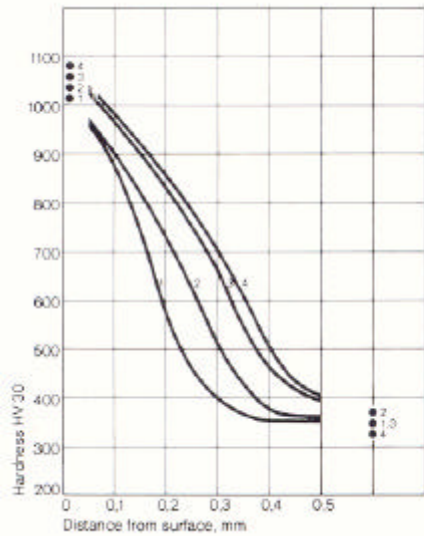
HEAT TREATMENT	Forge	850-1050°C, slow furnace cool.
	Normalize	870-900°C air cool.
	Anneal	650-700°C slow cool in controlled furnace.
	Stress relieve	In the hardened and tempered condition, approx. 30-50°C below tempering temperature. In the annealed condition 550-600°C 1 hour min. at temperature, air cool.
	Harden	850-900°C oil quench.
	Temper	580-660°C air cool (refer to Harden and temper graph.)
	Nitride	Gas, 510°C Salt, 570°C Surface hardness after nitriding, approx. 950 VH.

Harden and Temper graph



Hardening temperature: 870°C
Quenched and tempered
Specimen size: 60 mm diameter

Hardness after gas nitriding



Nitriding temperature: 510°C
Nitriding time:
curve 1 40 hrs
curve 2 60 hrs
curve 3 85 hrs
curve 4 100 hrs

MECHANICAL PROPERTIES	Diameter		Tensile Strength MPa	Yield Strength MPa	Elong %	Impact Strength J
	Over	Up to				
	70	250				

PHYSICAL PROPERTIES	Density (kg/dm ³)	7.85				
	Modulus of elasticity 10 ³ N/mm ²	210				
	Thermal conductivity W/(m.K)	35				
	Electric resistivity Ohm.mm ² /m	0.31				
	Specific heat capacity J/(kg.K)	460				
	Modulus of elasticity 10 ³ N/mm ²	100°C	200°C	300°C	400°C	500°C
		205	195	185	175	165
Thermal expansion 10 ⁶ m/(m.K)	100°C	200°C	300°C	400°C	500°C	
	11.1	12.1	12.9	13.5	13.9	

WELDING	Limited to minor repair work, please consult our welding engineers.
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SIZE RANGE	Round	30-190 mm
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LOCATIONS

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Townsville	9-11 Caldwell St Garbutt	4814	Ph (07) 4479 4800	Fax (07) 4725 1316
Perth	29-33 Gauge Cir Canningvale	6155	Ph (08) 9455 8672	Fax (08) 9455 8673
Kewdale	5 Beete St Welshpool	6106	Ph (08) 9350 9582	Fax (08) 9350 9683
Launceston	20 Murphy St Invermay	7248	Ph (03) 6334 3542	Fax (03) 6331 4001

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