

431 Stainless steel

Typical Analysis (Ave. values %)	C	Si	Mn	Cr	Ni	S	P
	0.19	0.25	0.40	15.9	1.6	0.025	0.025
NEAREST STANDARD	AS		DIN		SIS		AISI
	431		1.4057 X20CrNi16-2		2321		431

DESCRIPTION	Heat treatable Martensitic, nickel bearing grade good corrosion resistance, excellent tensile and torque strength and good toughness. This grade can not be readily cold worked and is therefore not recommended for cold heading, bending, deep drawing or spinning.
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APPLICATIONS	Pump shafts, nuts & bolts, studs, valve parts, or other uses where high tensile properties are required.
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MECHANICAL PROPERTIES H & T 60-160 MM	Tensile Strength MPa	Yield Strength MPa	Elong %	Impact strength J
	800-950	600	12	25

HEAT TREATMENT	Forge	800-1100°C. Cool in furnace.
	Anneal	680-800°C. Cool slowly in controlled furnace.
	Harden	950-1050°C Oil or Air.
	Temper	600-650°C hold for 1 hour min. at temperature, air cool.

PHYSICAL PROPERTIES	Density (kg/dm ³)	7.70
	Modulus of elasticity 10 ³ N/mm ²	215
	Thermal conductivity W/(m.K)	25
	Electric resistivity Ohm.mm ² /m	0.70
	Specific heat capacity J/(kg.K)	460
	Thermal expansion 10 ⁶ m/(m.K)	10

WELDING	For joint welding, preheat parts to a temperature of 250-450°C. For building up preheat to 100-200°C. To increase toughness in the heat affected zone of the base metal, anneal welded joints at 650-750°C or conduct a new heat treatment cycle. Use Bohler SKWAM electrodes or SKWAM-IG for MIG or TIG
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SIZE RANGE	Round	7.94 to 100 mm Ground to h9 31.75 to 90 mm Peeled & Polished to k12 105 to 178 mm Rough machined
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LOCATIONS

Bohler Uddeholm Australia Pty Ltd ABN 15000013052

Sydney	129-135 McCredie Rd Guildford	2161	Ph (02) 8724 5554	Fax (02) 8724 5555
Newcastle	3 Pavilion Pl Cardiff	2285	Ph (02) 4954 6611	Fax (02) 4956 5773
Albury	1 Eames St Albury	2640	Ph (02) 6041 3399	Fax (02) 6041 1820
Wollongong	40 Doyle Ave Unanderra	2526	Ph (02) 4272 6544	Fax (02) 4272 7563
Marayong	1/21 Binney Rd Marayong	2148	Ph (02) 9831 4431	Fax (02) 9671 1682
Melbourne	282-290 Greens Rd Dandenong	3175	Ph (03) 9767 5554	Fax (03) 9767 5555
Bayswater	4 Amsted Rd Bayswater	3153	Ph (03) 9739 8022	Fax (03) 9739 8033
Adelaide	1 Williams Cir Pooraka	5095	Ph (08) 8368 4554	Fax (08) 8368 4555
Brisbane	12-18 Limestone St Darra	4076	Ph (07) 3712 9554	Fax (07) 3712 9555
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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