

## E110 Case hardening steel

Typical Analysis (Ave. values %)	C	Si	Mn	Ni	Cr	Mo	S	P
	0.18	0.30	0.50	1.50	1.70	0.30	0.025	0.025
NEAREST STANDARD	AS		DIN		BS		AISI	
	-		1.6587 17CrNiMo6		-		-	

<b>DESCRIPTION</b>	E110 is a 1.8% Nickel Chromium Molybdenum case hardening steel combining core toughness and high case hardness after carburising and quenching.
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<b>APPLICATIONS</b>	Components with large cross sections requiring high toughness and core strength, such as gears, crankshafts and heavy-duty gear shafts in aircraft and truck construction and mechanical engineering.
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<b>HEAT TREATMENT</b>	Forge	850-1150°C. Cool in furnace.
	Normalize	850-880°C. Air cool.
	Anneal	650-700°C. Cool slowly in controlled furnace.
	Carburize	900-950°C. Furnace or Air cool
	Core Refine	830-870°C. Oil quench or Air cool.
	Harden	780-820°C Oil quench.
	Temper	150-200°C air cool
	Annealed hardness	229 HB max

<b>MECHANICAL PROPERTIES</b> Heat Treated Condition	Tensile Strength MPa	Yield Strength MPa	Elong. %	Brinell Hardness
	980-1270	785	8	290-375

<b>PHYSICAL PROPERTIES</b>	Density (kg/dm <sup>3</sup> )	7.85
	Modulus of elasticity 10 <sup>3</sup> N/mm <sup>2</sup>	210
	Thermal conductivity W/(m.K)	38
	Electric resistivity Ohm.mm <sup>2</sup> /m	0.18
	Specific heat capacity J/(kg.K)	460
	Thermal expansion 10 <sup>6</sup> m/(m.K) (Room temp.)	11.1

<b>WELDING</b>	Parts should be welded before Carburizing and Hardening. Preheat to 250-350°C. Filler metals:-Bohler FOX DCMS-KB or FOX 2.5 Ni electrodes. DCMS-IG wire.
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<b>SIZE RANGE</b>	Round	25-520 mm
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<b><u>LOCATIONS</u></b>					
<b>Bohler Uddeholm Australia Pty Ltd ABN 15000013052</b>					
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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	
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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	
<a href="http://www.buau.com.au">www.buau.com.au</a>					
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