

# K1045 Medium carbon steel

Typical Analysis (Ave. values %)	C	Si	Mn	Ni	Cr	Mo	S	P
	0.45	0.30	0.70	-	-	-	0.035	0.035
NEAREST STANDARD	UNS		DIN		JIS		AISI	
	G10430		1.1191/1.0501 Ck45		S45C		1045	

<b>DESCRIPTION</b>	Fully-killed medium carbon steel.
--------------------	-----------------------------------

<b>APPLICATIONS</b>	Suitable for medium stressed parts in machinery and industrial tools. Components of small cross section requiring strength and wear properties better than low carbon unalloyed steel. Heavy forgings in the normalised condition for automotive and general engineering, such as axles, clutch members, shafts, pressed and punched parts, piston rods and gear racks. Can also be used as holder block in plastic moulds.
---------------------	---

<b>HEAT TREATMENT</b>	Forge	800-1100°C. Cool in furnace.
	Normalize	850°C. Air cool.
	Anneal	680-710°C. Cool slowly in controlled furnace.
	Stress relieve	600-650°C. Furnace or Air cool
	Flame or induction harden	820-860°C. Water or oil quench.
	Harden	800-830°C Water quench. Ave surface hardness 57 RC
	Temper	150-200°C air cool
	Annealed hardness	190 HB max

<b>MECHANICAL PROPERTIES</b> as tempered (40 mm)	Tensile Strength MPa	Yield Strength MPa	Elong. %	Impact Strength J
	620-770	375	17	27

<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)	45
	Electric resistivity Ohm.mm <sup>2</sup> /m	0.20
	Specific heat capacity J/(kg.K)	460
	Thermal expansion 10 <sup>6</sup> m/(m.K) (Room temp.)	11.1

<b>WELDING</b>	Limited for repair, use Bohler EV-63. Refer to Bohler welding literature.
----------------	---

<b>SIZE RANGE</b>	Round	16-650 mm
	Square	25-200 mm
	Flat	40 x 5 to 1230 x 605

<b><u>LOCATIONS</u></b>					
<b>Bohler Uddeholm Australia Pty Ltd ABN 15000013052</b>					
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	
<a href="http://www.buau.com.au">www.buau.com.au</a>					
Every care has been taken in listing this information, particularly specifications. Bohler Uddeholm Australia Pty Ltd will not accept responsibility for any loss or other damage caused to any person or Company as a result of the use of information contained herein					