

MATERIAL DATA SHEET



Fullerton Road
Rotherham S60 1DH
Tel:-01709 828517
Email:-
sales@dacooper.co.uk

AISI/SAE 4145

Condition of supply:-	<i>As Rolled/Forged, Annealed, Quenched & Tempered</i>
Surface Condition:-	<i>Black, Bright, Proof machined, Machined to Requirements</i>

Description:

AISI 4145 is a chromium molybdenum alloy steel grade widely used in the oil and gas sectors for down hole applications. Similar to AISI 4140 but with a higher carbon content. 4145 is more popular in larger diameters due to its increased strength and hardenability. AISI 4145 is commonly supplied quenched and tempered with a hardness of between 30 to 36HRc although hardness's of 55-62HRc are achievable.

Typical Applications:

AISI 4145 is commonly used for a variety of applications in the oil and gas sector. Used often for the manufacture of down hole drilling tools such as drill collars, Drill Bits, tool Joints and Crossovers. Other applications include gear shafts for hydraulic presses, rolls for paper mills, pump shafts and tool holders.

Typical Chemical Composition:

	C	Si	Mn	S	P	Cr	Ni	Mo	V	Al	Cu	Sn
Min	0.43	0.10	0.85			0.80		0.15		0.01		
Max	0.49	0.35	1.10	<0.045	0.035	1.20	<0.5	0.25	<0.05	0.035	<0.25	<0.035

Typical Mechanical Properties: At room temp, heat treated to 30-36HRc

	Tensile Strength	Yield (0.2%)	Elongation	Reduction of area	Hardness	Charpy	
	KSI	KSI	%	%	HRc (HB)	RT	-46C
Min		110	15	40	30 (286)	54	27
Max		130			36 (336)		

Machining

AISI/SAE 4145 is readily machinable allowing processes such as Sawing, Turning, Drilling, Boring and Milling to be relatively easily achieved.

Welding

Weldability is poor and is often carried out using more sophisticated methods such as Plasma or Electron Beam

Form of supply:

Material can be supplied as Black As-Rolled/Forged Bar, Proof Machined, Bright Turned or Ground Bar, Cut Pieces or Machined to customer specification.

Size ranges from:

<35mm diameter - 1150mm diameter