



SPECIAL STEELS

SPECIFICATIONS TO BS 970: PART 1: 1983	BRIGHT CARBON STEELS	
GRADE	SPECIFICATION AND APPLICATIONS	COLOUR CODES
(EN1A) 220M07	FREE CUTTING STEEL - BOLTS, BUSHES, COUPLING, NUTS, PINS AND STUDS.	
(EN3B) 070M20	CARBON AXLE STEEL (LOW TENSILE STRENGTH) - BOLTS, COUPLING, NUTS, SHAFTS AND STUDS.	
(EN8) 080M40	CARBON AXLE STEEL - AXLES, BOLTS, BRACKETS, CONNECTING RODS, CRANKSHAFTS, DRIVING RINGS, DYNAMO AND ELECTRIC MOTOR SHAFTS.	

SPECIFICATIONS TO BS 970: PART 1: 1983	BLACK CARBON STEELS	
GRADE	SPECIFICATION AND APPLICATIONS	COLOUR CODES
(EN3A) 070M20	CARBON STEEL (LOW TENSILE STRENGTH) - BOLTS, COUPLING, NUTS, SHAFTS AND STUDS.	
(EN8) 080M40	CARBON AXLE STEEL - AXLES, BOLTS, BRACKETS, CONNECTING RODS, CRANKSHAFTS.	
(EN9) 070M55	CARBON STEEL (MODERATE WEAR RESISTANCE) - CAMS, CRANKSHAFTS, CYLINDERS, MACHINE TOOLS, SMALL GEARS AND SPROCKETS.	

SPECIFICATIONS TO BS 970: PART 1: 1983	ALLOY STEELS	
GRADE	SPECIFICATION AND APPLICATIONS	COLOUR CODES
(EN19) 709M40	1% CHROME, MOLYBDENUM STEEL - AXLE SHAFTS, CRANKSHAFTS, CONNECTING RODS, GEARS, HIGH-TENSILE BOLTS AND STUDS.	
(EN24) 817M40	1½% NICKEL, CHROME, MOLYBDENUM STEEL - AXLE SHAFTS, PINION SLEEVES, HIGH TEMPERATURE BOLTS, POWER TRANSMISSION GEARS, SPINDLE GEARS, SLIDE RACKS AND CAMS.	
(EN26) 826M40	2½% NICKEL, CHROME, MOLYBDENUM STEEL - SIMILAR TO EN24 BUT FOR HEAVIER SECTIONS.	
(EN36B) 655M13	CASE HARDENING STEEL - AUTO AND HEAVY VEHICLE TRANSMISSIONS. COMPONENTS, STEERING WORMS AND TIMING WHEELS.	

MECHANICAL AND HARDNESS VALUES					
HEAT TREATED CONDITION	UTS Mpa (N/mm²)	BHN	HRC	VHN (Vickers)	TON / SQ INCH
P	540-695	160-207		168-218	35-45
Q	625-774	170-229		178-241	40-50
R	700-850	201-255		212-269	45-55
S	775-925	223-277	18.8-28.8	234-292	50-60
T	850-1000	248-302	24.2-32.1	261-319	55-65
U	925-1075	269-331	27.6-35.5	284-350	60-70
V	1000-1150	293-352	30.9-37.9	309-372	65-75
W	1075-1225	311-375	33.1-40.4	328-396	70-80
X	1150-1300	341-388	36.6-41.8	360-410	75-85
Y	1225-1375	363-401	39.1-43.1	383-425	80-90
Z	1550 min	444 min	47.1 min	474 min	100 min

FORMULA FOR THEORETICAL MASS CALCULATION (Kg / mtr)

Section	Formula & Spec	AL	Brass	Bronze	Copper	Steel	Stainless
Round	D x D x	0,002132	0,006657	0,006924	0,007010	0,00616	0,00631
Hollow	(D - t) x t x	0,0085	0,026	0,02778	0,028	0,02466	0,0253
Flat	W x t x	0,002712	0,00848	0,00882	0,00889	0,00786	0,00804
Square	D x D x	0,002712	0,00848	0,00882	0,00889	0,00786	0,00804
Hexagon	D x D x	0,00235	0,007344	0,007638	0,00776	0,0068	0,006963