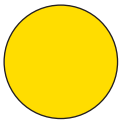
MACSTEEL®

Data Sheet

BRIGHT BAR | 080A42 – 0.40 % CARBON STEEL | SPECIFICATION – BS 970: PART 1:1983

(Formerly known as EN8D – BS 970: 1955)

YELLOW:
Cold drawn or
peeled bright bar



This material is a medium carbon and medium tensile steel used mainly in applications requiring a higher strength than Mild Steel for manufacturing automotive and general engineering components. It has reasonable machining and welding capabilities. Suitable for heat treatment where extra strength is required.

Product application

This item is typically used for dynamo and motor shafts. It can also be heat treated for bolts & studs, crankshafts, connecting rods, driving rings and flanges, railway couplings, axles, brackets, housing and parts not subjected to high stresses or severe wear.

Chemical composition limits

%	C	Si	Mn	S	P
Min	0.40	0.10	0.70	-	-
Max	0.45	0.40	0.90	0.05	0.05

Expected mechanical properties*

Drawn 080A42/EN8D 6 - 76.2mm

Heat treated condition	LRS (mm)	Hardness (BHN)	U.T.S. (MPa)	Y.S. (MPa)	0.2% P.S. (MPa)	Elongation (%)
Not applicable	-	230 - 250	730 - 840	680 - 720	-	10

Peeled 080A42/EN8D 80 – 160mm

Heat treated condition	LRS (mm)	Hardness (BHN)	U.T.S. (MPa)	Y.S. (MPa)	0.2% P.S. (MPa)	Elongation (%)
Not applicable	-	201	620	415	-	14

*Expected mechanical properties to be used as a guide only

Condition of delivery

- Cold drawn, drawn & ground or peeled depending, on requirement.
- Straightness shall not exceed 1mm over any 1 000mm.
- Length tolerance is -0mm, + 100mm.

Size range in round bar offered

Max	Nominal diameter	Min	Calculated weight
(mm)	(mm)	(mm)	(kg/m)
6	6	5.925	0.222
8	8	7.925	0.395
9	9	8.925	0.499
10	10	9.925	0.617
11	11	10.925	0.746
12	12	11.925	0.888
13	13	12.925	1.042
14	14	13.925	1.208
14.5	14.5	14.425	1.296
15	15	14.925	1.387
16	16	15.925	1.578
18	18	17.925	1.997
18.2	18.2	18.125	2.042
19	19	18.925	2.226
20	20	18.925	2.466
21.8	21.8	21.725	2.822
22	22	21.925	2.984
24	24	23.925	3.551
25	25	24.925	3.853
27.5	27.5	27.425	4.663
28	28	27.925	4.833
30	30	29.925	5.549
32	32	31.925	6.313
33.1	33.1	33.025	6.755
36	36	35.925	7.990

Max	Nominal diameter	Min	Calculated weight
(mm)	(mm)	(mm)	(kg/m)
38	38	37.925	8.902
40	40	39.925	9.864
45	45	44.925	12.484
50	50	49.925	15.413
50.8	50.8	50.68	15.910
55	55	54.88	18.649
60	60	59.88	22.194
65	65	64.88	26.047
70	70	69.88	30.209
75	75	74.88	34.678
76.2	76.2	76.08	35.797
80	80*	79.88	39.456
85	85*	84 .86	44 .542
90	90*	89.86	49 .937
95	95*	94.86	55.642
100	100*	99.86	61.650
105	105*	104.86	66.972
110	110*	109.86	74.597
115	115*	114.86	81.536
120	120*	119.86	88.776
125	125*	124.86	96.333
130	130*	129.84	104.189
140	140*	139.84	120.840
150	150*	149.84	138.713
160	160*	159.84	157.832

*80 mm nominal diameter and larger are in Turned/Peeled bar

Size range in hexagonal bar offered

Max	Nominal diameter	Min	Calculated weight
(mm)	(mm)	(mm)	(kg/m)
10	10	9.91	0.680
13	13	12.91	1.149
19	19	18.89	2.455
22	22	21.89	3.291
24	24	23.89	3.917
25	25	24.89	4.250
27	27	26.89	4.957
30	30	29.89	6.120
32	32	31.87	6.963
36	36	35.87	8.813
38	38	37.87	9.819
41	41	40.87	11.431
46	46	45.87	14.389
50	50	49.87	17.000
55	55	54.84	20.570