

MEDIUM CARBON STEEL**DSM 1.5.1****Definition:****Medium carbon** (0,45 % - 1,4 %):

A popular, free-machining, grade of through hardening medium carbon steel. Suitable for applications where better properties than low carbon steel are required & the expense of an alloy steel are not justified.

Available in two types which relate to the process only **not** the grade or specification:-

Black Steel: Use only for components that are **not stock sized**.

Direct from hot rolling mill, coated in scale & not precise in form. Cheaper

Bright Drawn/Cold Rolled: Use only for components that are **stock sized**.

Essentially black steel that has had further processing, including cold rolling & annealing, to produce a consistent, closer tolerance form with a superior finish.

Features:

For enhanced wear resistance, **small sections** can be **induction heat treated** to a surface hardness of typically 50 – 55 Rc. Lower carbon versions (more recent) can be welded. Bright rod can be supplied hard chrome plated. (dia. 'f 7')

ASM (DEK) Applications:

Suitable for shafts, studs, bolts & gears

These values are representative and should not be considered as definitive. For critical applications, refer to material data-sheet.

TYPICAL MECHANICAL PROPERTIES @25°C	
DENSITY:	7860 Kg/m ³
YOUNGS MODULUS:	293 GPa
POISSONS RATIO:	0.27 – 0.3
YIELD STRENGTH	465 MPa
Max. TENSILE STRENGTH	660 MPa

Issue	01	02	03	04	05	06	07	08	09
DCR	7135	30040	44682						



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CHEMICAL ANALYSIS		BENEFIT
Carbon	0.36/0.44	Med. Content: Better mechanical properties.
Silicon	0.10/0.40	Principle deoxidizer improves purity.
Mang	0.50/0.90	Combines with sulphur: good machining & finish.
Phos	0.05 max	Increases resistance to corrosion.
Sulphur	0.05 max	Good for machining.

CURRENT INTERNATIONAL SPECIFICATION COMPARISON	
BRITISH: BS	BS 970: 1991: 080M40
GERMAN: DIN	C40
AMERICAN: SAE	1040
EUROPEAN STEEL No.	1.0511
JAPANESE GRADE	JIS G 4051 S40C
CHINA GRADE	GB 40

REPLACES

BS970 1955	BS970 1991	COLOUR CODE	DESCRIPTION
EN8			Black/Bright: Med.Carbon

Alternatives:

Alternative materials are allowed only with the express written permission of ASMPT. Please email details of your request to engineering_enquiries@asmpt.com

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These sizes are given in good faith and should not be considered as definitive

Rounds (mm)_ Black_ Hot Rolled

45	50	55	60	65	70	75	80	85	90
95	100	105	110	115	120	125	130	135	140
145	150	155	160	165	170	180	185	190	200
210	220	230	249	250	260	270	280	300	

Rounds (mm)_ Bright_ Drawn/Turned

5	6	7	8	9	10	12	13	14	15
16	18	20	22	24	25	28	30	32	35
38	40	42	45	50	55	60	65	70	75
80	85	90	95	100	110	120	125	130	140
150									

Hexagons (mm)_ Bright_ Drawn

4	5	6	8	10	12	14	16	18	20
22	24	26	28	30	32	34	36	38	40
42	44	46	48	50	54	56	60	70	80
90									

Squares (mm)_ Bright_ Drawn

3	5	8	9	12	13	16	17	20	21
24	25	28	29	32	33	36	37	40	41
44	45	48	49	54	55	60	65	80	90
120	150								

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Flats (mm)_ Bright_ Drawn									
6	10								
7	8								
8	10	12							
10		12	16						
12			20						
14			22	25					
16			20	25	28				
18					32				
20				25		36			
22							40		
25							40	45	50
28								50	
32									56

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