

MILD STEEL: BOX SECTION_ SEAMLESS
DSM 1.1.2

Definition:

The manufacture of **seamless HOT** formed hollow sections is a two stage process and occurs at high temperature. A heated solid round billet is pierced by a piercing plug to produce a hollow bloom which is stretched into a shell (a thick walled tube) over a mandrel. Then the shell is pushed through shaping rollers to the required diameter & wall thickness before being detached from the mandrel. Rectangular hollow sections are made by deforming circular sections through forming rollers.

Hot formed:

This process produces a better grain structure and superior mechanical properties compared to welded cold formed (**DSM 1.1.3**) equivalents by offering a higher thickness to diameter ratio combined with an absence of residual stress.

Features:

S – Structural Steel

275 – Minimum yield strength (MPa) at ≤ 16 mm wall thickness.

J2 - Impact test value: -20°C min. 27 Joules

H – Hollow section

ASM (DEK) Applications:

To be used **only** if the application exceeds the scope of **DSM 1.1.3**.

These values are representative and are dependent on section. For critical applications, refer to material data-sheet.

TYPICAL MECHANICAL PROPERTIES @25°C			
DENSITY:	7860 Kg/m ³		
YOUNGS MODULUS:	200 GPa		
POISSONS RATIO:	0.27 – 0.3		
	WALL THICKNESS		
	< 3mm	$\leq 16\text{mm}$	$>16\text{mm}\leq 40\text{mm}$
Min. YIELD STRENGTH	275 MPa	275 MPa	265 MPa
TENSILE STRENGTH	430 -580 MPa	410 MPa	560 MPa

Note: Yield strength is reduced as material thickness is increased.

Issue	01	02	03	04	05	06	07	08	09
DCR	7135	30040	44842	44939	N/A				



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CHEMICAL ANALYSIS		BENEFIT
Carbon	0,20	Good for machining & welding.
Silicon	0,5 max	Good for galvanising purposes
Mang	1,6 max	Combines with sulphur: good machining & finish.
Phos	0.04 max	Increases resistance to corrosion.
Sulphur	0.05 max	Good for machining.

CURRENT INTERNATIONAL SPECIFICATION COMPARISON	
BRITISH: BS	BS EN 10210-2: 2006: S275J2H
GERMAN: DIN	St44 – 3N
AMERICAN: ASTM	A633 GR.A
EUROPEAN STANDARD	EN 10025: 2004
JAPANESE GRADE	JIS G 3444 CHS & JIS G 3466 SHS / RHS
CHINA GRADE	Q275

REPLACES

BS 4360 1990	DESCRIPTION
43D	Rolled Hollow Section: Hot Formed

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

Circular Hollow Section (CHS)_Hot Formed

Thickness	Diameter		
3,2	21,3	26,9	33,7

Rectangular Hollow Section (RHS)_Hot Formed

Size	Thick	Size	Thick	Size	Thick
50 x 25	2,0	100 x 40	3,0	120 x 40	6,3
50 x 25	2,5	100 x 40	3,6	120 x 60	3,0
50 x 25	3,0	100 x 40	4,0	120 x 60	3,6
50 x 30	2,5	100 x 40	5,0	120 x 60	4,0
50 x 30	3,0	100 x 50	3,0	120 x 60	5,0
50 x 30	3,2	100 x 50	3,6	120 x 60	6,0
50 x 30	4,0	100 x 50	4,0	120 x 60	6,3
60 x 40	2,5	100 x 50	5,0	120 x 80	3,0
60 x 40	3,0	100 x 50	6,0	120 x 80	4,0
60 x 40	3,2	100 x 50	6,3	120 x 80	5,0
60 x 40	4,0	100 x 60	3,0	120 x 80	6,0
80 x 40	3,0	100 x 60	3,6	120 x 80	6,3
80 x 40	3,2	100 x 60	4,0	150 x 100	3,0
80 x 40	4,0	100 x 60	5,0	150 x 100	4,0
80 x 60	2,5	100 x 60	6,0	150 x 100	5,0
80 x 60	3,0	100 x 60	6,3	150 x 100	6,0
80 x 60	3,6	100 x 80	3,0	150 x 100	6,3
80 x 60	4,0	100 x 80	3,6	160 x 80	3,0
80 x 60	5,0	100 x 80	4,0	160 x 80	4,0
90 x 50	2,5	120 x 40	3,0	160 x 80	5,0
90 x 50	3,0	120 x 40	3,6	160 x 80	6,0
90 x 50	3,6	120 x 40	4,0	160 x 80	6,3
90 x 50	4,0	120 x 40	5,0	200 x 100	4,0
90 x 50	5,0	120 x 40	6,0	200 x 100	5,0

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Rectangular Hollow Section (RHS)_Hot Formed

Size	Thick	Size	Thick	Size	Thick
200 x 100	6,0	200 x 100	16,0	250 x 150	16,0
200 x 100	6,3	250 x 150	6,3	300 x 200	6,3
200 x 100	8,0	250 x 150	8,0	300 x 200	8,0
200 x 100	10,0	250 x 150	10,0	300 x 200	10,0
200 x 100	12,5	250 x 150	12,5		

_Square Hollow Section (SHS)_Hot Formed

Size	Thick	Size	Thick	Size	Thick
20 x 20	2,0	50 x 50	4,0	90 x 90	5,0
20 x 20	2,5	50 x 50	5,0	90 x 90	6,0
25 x 25	2,0	60 x 60	3,0	100 x 100	4,0
25 x 25	2,5	60 x 60	4,0	100 x 100	5,0
25 x 25	3,0	60 x 60	5,0	100 x 100	6,0
30 x 30	2,5	70 x 70	3,0	100 x 100	8,0
30 x 30	3,0	70 x 70	3,6	100 x 100	10,0
40 x 40	2,0	70 x 70	5,0	120 x 120	3,0
40 x 40	2,5	80 x 80	3,0	120 x 120	4,0
40 x 40	3,0	80 x 80	3,6	120 x 120	5,0
40 x 40	4,0	80 x 80	5,0	120 x 120	6,0
50 x 50	2,0	80 x 80	6,0	150 x 150	5,0
50 x 50	2,5	90 x 90	3,0	150 x 150	6,0
50 x 50	3,0	90 x 90	3,6	150 x 150	8,0
				150 x 150	10,0

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