

MS Pipe Size Chart

This MS pipe size chart covers standard mild steel pipe from 15 mm NB to 600 mm NB, listed in both millimetres and inches. It follows IS 1239 (Part 1) : 2004 up to 150 mm NB, IS 3589 : 2001 for large diameter pipe above that, IS 4923 for square and rectangular hollow sections, and ASME B36.10M for the schedule sizes used on export drawings. Each size is given with outside diameter, wall thickness and theoretical mass per metre. Outside diameter stays fixed for a given nominal bore, and only the wall thickness changes between Class A, Class B and Class C.

MS Pipe Size Chart as per IS 1239 (Part 1)

IS 1239 covers welded and seamless mild steel tubes from 15 mm NB to 150 mm NB in three classes: Light (Class A), Medium (Class B) and Heavy (Class C). It is equivalent to BS 1387 : 1985. The outside diameter is identical across all three classes.

NB (mm)	Size	OD (mm)	Class A wall	Class A kg/m	Class B wall	Class B kg/m	Class C wall	Class C kg/m
15	1/2"	21.3	2.00	0.947	2.60	1.210	3.20	1.440
20	3/4"	26.9	2.30	1.380	2.60	1.560	3.20	1.870
25	1"	33.7	2.60	1.980	3.20	2.410	4.00	2.930
32	1-1/4"	42.4	2.60	2.540	3.20	3.100	4.00	3.790
40	1-1/2"	48.3	2.90	3.230	3.20	3.560	4.00	4.370
50	2"	60.3	2.90	4.080	3.60	5.030	4.50	6.190
65	2-1/2"	76.1	3.20	5.710	3.60	6.420	4.50	7.930
80	3"	88.9	3.20	6.720	4.00	8.360	4.80	9.900
100	4"	114.3	3.60	9.750	4.50	12.100	5.40	14.400
125	5"	139.7	4.50	14.980	4.80	15.900	5.40	17.800
150	6"	165.1	4.50	17.800	4.80	19.000	5.40	21.200

Masses are the nominal plain end masses published in IS 1239 (Part 1) : 2004 at a steel density of 7.85 g/cm³. Mass tolerance is plus or minus 8 per cent on Class A and plus or minus 10 per cent on Class B and Class C. Standard length is 6 metres.

Class	Also called	Where it is used
Class A	Light	Low pressure water lines, electrical conduit, light structural work and general fabrication. Not for gas or any pressurised system.
Class B	Medium	The default in Indian construction. Water supply, scaffolding, fencing, low pressure gas and everyday fabrication.
Class C	Heavy	Fire fighting risers and hydrant lines, high pressure water mains, structural columns and load bearing members.

MS Pipe Size Chart in mm and Inches

A straight conversion between the Indian NB system, the European DN system and the American NPS system. Outside diameters follow ASME B36.10M.

NB (mm)	DN	NPS (inch)	OD (mm)	OD (inch)
6	6	1/8"	10.3	0.405
8	8	1/4"	13.7	0.540
10	10	3/8"	17.1	0.675
15	15	1/2"	21.3	0.840
20	20	3/4"	26.7	1.050
25	25	1"	33.4	1.315
32	32	1-1/4"	42.2	1.660
40	40	1-1/2"	48.3	1.900
50	50	2"	60.3	2.375

NB (mm)	DN	NPS (inch)	OD (mm)	OD (inch)
65	65	2-1/2"	73.0	2.875
80	80	3"	88.9	3.500
100	100	4"	114.3	4.500
125	125	5"	141.3	5.563
150	150	6"	168.3	6.625
200	200	8"	219.1	8.625
250	250	10"	273.0	10.750
300	300	12"	323.9	12.750
350	350	14"	355.6	14.000
400	400	16"	406.4	16.000
450	450	18"	457.2	18.000
500	500	20"	508.0	20.000
600	600	24"	609.6	24.000

IS 1239 uses a slightly different outside diameter at some sizes: 65 mm NB is 76.1 mm against 73.0 mm, 125 mm NB is 139.7 mm against 141.3 mm, and 150 mm NB is 165.1 mm against 168.3 mm. Fittings made to one standard will not seat on pipe made to the other at these three sizes, so name the standard on the purchase order.

Large Diameter MS Pipe as per IS 3589

Above 150 mm NB the governing standard is IS 3589 : 2001, covering steel pipes for water and sewage from 168.3 mm to 2540 mm outside diameter. It does not use the class system. Wall thickness is selected from the design pressure and installation conditions. Grades are Fe 330, Fe 410 and Fe 450, where the number is the minimum tensile strength in MPa.

NB (mm)	Size	OD (mm)	Common wall (mm)	Typical use
200	8"	219.1	4.0 to 8.0	Water mains, industrial cooling
250	10"	273.0	4.5 to 8.0	Pumping mains, fire service lines
300	12"	323.9	5.0 to 10.0	Municipal water, sewage rising mains
350	14"	355.6	5.6 to 10.0	Transmission mains, process piping
400	16"	406.4	5.6 to 12.5	Water trunk mains, industrial effluent
450	18"	457.2	6.3 to 12.5	Major trunk mains
500	20"	508.0	6.3 to 12.5	Irrigation and water distribution
600	24"	609.6	6.3 to 14.2	Large municipal mains, canal crossings

MS Pipe Schedule Chart as per ASME B36.10M

ASME B36.10M sets wall thickness by schedule number instead of class, and is the reference on most export and EPC drawings. A Schedule 40 pipe and an IS 1239 Class B pipe are similar but not the same, so always name the standard in the purchase order.

NPS	DN (mm)	OD (mm)	Sch 40 wall	Sch 40 kg/m	Sch 80 wall	Sch 80 kg/m
1/2"	15	21.3	2.77	1.27	3.73	1.62
3/4"	20	26.7	2.87	1.69	3.91	2.20
1"	25	33.4	3.38	2.50	4.55	3.24
1-1/4"	32	42.2	3.56	3.39	4.85	4.47
1-1/2"	40	48.3	3.68	4.05	5.08	5.41
2"	50	60.3	3.91	5.44	5.54	7.48
2-1/2"	65	73.0	5.16	8.63	7.01	11.41
3"	80	88.9	5.49	11.29	7.62	15.27
4"	100	114.3	6.02	16.08	8.56	22.32
5"	125	141.3	6.55	21.77	9.53	30.97
6"	150	168.3	7.11	28.26	10.97	42.56

NPS	DN (mm)	OD (mm)	Sch 40 wall	Sch 40 kg/m	Sch 80 wall	Sch 80 kg/m
8"	200	219.1	8.18	42.55	12.70	64.64
10"	250	273.0	9.27	60.29	15.09	95.98
12"	300	323.9	10.31	79.73	17.48	132.09
14"	350	355.6	11.13	94.55	19.05	158.11
16"	400	406.4	12.70	123.31	21.44	203.54

MS Pipe Wall Thickness Comparison (mm)

IS 1239 classes against ASME schedules at the same nominal size.

NB (mm)	IS OD	Class A	Class B	Class C	ASME OD	Sch 40	Sch 80
15	21.3	2.00	2.60	3.20	21.3	2.77	3.73
20	26.9	2.30	2.60	3.20	26.7	2.87	3.91
25	33.7	2.60	3.20	4.00	33.4	3.38	4.55
32	42.4	2.60	3.20	4.00	42.2	3.56	4.85
40	48.3	2.90	3.20	4.00	48.3	3.68	5.08
50	60.3	2.90	3.60	4.50	60.3	3.91	5.54
65	76.1	3.20	3.60	4.50	73.0	5.16	7.01
80	88.9	3.20	4.00	4.80	88.9	5.49	7.62
100	114.3	3.60	4.50	5.40	114.3	6.02	8.56
125	139.7	4.50	4.80	5.40	141.3	6.55	9.53
150	165.1	4.50	4.80	5.40	168.3	7.11	10.97

MS Square and Rectangular Hollow Sections, IS 4923

Profile	Common sizes (mm)	Wall (mm)	Typical use
SHS, square	20x20, 25x25, 40x40, 50x50, 75x75, 100x100, 150x150	1.6 to 6.0	Frames, posts, railings, gates, furniture
RHS, rectangular	40x20, 60x40, 80x40, 100x50, 120x60, 150x100, 200x100	1.6 to 6.0	Mezzanines, chassis, racking, greenhouse frames

Calculating Mass and Bore

Quantity	Formula
Inside diameter	ID = OD - (2 x wall thickness)
Mass per metre	W = 0.02466 x t x (OD - t), in kg/m at 7.85 g/cm ³
Galvanised pipe	Add 1 to 3 per cent to the black pipe mass
Mass of a length	Mass per metre x length in metres

Supply Range

Sachiya Steel International Pvt. Ltd. supplies ERW mild steel pipe from 15 mm to 350 mm NB in IS 1239 Class A, B and C and IS 3589 Fe 330, Fe 410 and Fe 450, and seamless pipe from 15 mm to 600 mm NB in ASTM A106 Grade B, ASTM A53 Grade B and API 5L Grade B. Hollow sections to IS 4923. Black or hot dip galvanised, plain, bevelled or threaded ends, 6 metre standard length with 12 metre and cut to length on order. Mill test certificate to EN 10204 Type 3.1 with every consignment.

Contact	Details
Registered office	Office No. 102, 1st Floor, Prasad Chambers, Tata Road No. 2, near Roxy Cinema, Charni Road East, Opera House, Girgaon, Mumbai, Maharashtra 400004, India
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Issued for reference and estimating. Dimensions follow IS 1239 (Part 1) : 2004, IS 3589 : 2001, IS 4923 and ASME B36.10M, and masses are theoretical. Verify against the governing standard and the project specification before ordering or fabricating.