

Pipe Size Chart: DN, NPS and Outside Diameter

Nominal bore (DN) to nominal pipe size (NPS) to pipe outside diameter, under ASME B36.10M and EN 10220 / ISO 4200.

DN (nominal diameter) and NPS (nominal pipe size) are size labels, not measurements — they name the bore class, not the actual outside diameter. For a given pipe size the outside diameter is fixed by the standard so that all wall thicknesses (schedules) share one OD and one set of fittings, with the wall growing inward as the schedule rises. DN and NPS run in step (DN15 is NPS 1/2, DN100 is NPS 4), but the outside diameter they fix differs between the inch-based ASME series and the metric EN series at several sizes — most visibly at DN65, where ASME B36.10M sets 73.0 mm and EN 10220 sets 76.1 mm. The two are not interchangeable at those sizes. The table lists both so a DN/NPS label can be turned into the right outside diameter for the standard in use.

DN	NPS (in)	OD ASME B36.10M (mm)	OD EN 10220 (mm)	OD (in)
DN15	1/2	21.3	21.3	0.840
DN20	3/4	26.7	26.9	1.050
DN25	1	33.4	33.7	1.315
DN32	1-1/4	42.2	42.4	1.660
DN40	1-1/2	48.3	48.3	1.900
DN50	2	60.3	60.3	2.375
DN65	2-1/2	73.0	76.1	2.875
DN80	3	88.9	88.9	3.500
DN100	4	114.3	114.3	4.500
DN125	5	141.3	139.7	5.563
DN150	6	168.3	168.3	6.625
DN200	8	219.1	219.1	8.625
DN250	10	273.1	273.0	10.750
DN300	12	323.9	323.9	12.750
DN350	14	355.6	355.6	14.000
DN400	16	406.4	406.4	16.000
DN450	18	457.0	457.0	18.000
DN500	20	508.0	508.0	20.000
DN600	24	610.0	610.0	24.000

Where the two OD columns read the same the size is interchangeable (DN125, DN250) the pipe, fittings and flange drilling must be to the ASME series; the millimetre value is 1 in = 25.4 mm of that figure.

Reading the chart

- DN (nominal diameter) — the metric size label, the bore in millimetres, not the measured bore or outside diameter.
- NPS (nominal pipe size) — the inch-based size label, the bore in inches, not the measured bore or outside diameter. The NPS number equals the outside diameter in inches.
- Outside diameter (OD) — the measured outside diameter in millimetres or inches. This is the figure to measure a pipe and fittings, and the figure to which pipe and socket are cut to.
- OD (in) — the outside diameter in inches for the ASME series.

Using it to size and match

To identify an unmarked pipe, measure the outside diameter in millimetres or inches; the wall thickness then gives the schedule number. The ASME and EN standards agree on both parts — a DN65 EN pipe has an outside diameter of 76.1 mm. DN and NPS describe size only; the pressure ratings (e.g. ASME B16.5) are separate selections that fix the bolt size and the wall thickness for a given schedule is read from the ASME B16.5 table.

10217 (stainless and welded pipe).

Reference compiled by cBallast from ASME B36.10M and provided for identification and cross-reference; confirm before manufacture or procurement. All trademarks are