

ASME B16.47 Series B Class 900 Flange Dimensions (NPS 26 to NPS 48)

Mounting dimensions for ASME B16.47 Series B Class 900 large-diameter weld-neck flanges: flange outside diameter, bolt-circle diameter, number of bolts, bolt-hole size and stud size.

ASME B16.47 covers steel pipe flanges from NPS 26 to NPS 60, the range above the NPS 24 ceiling of ASME B16.5. It defines two non-interchangeable series: Series A (the larger, more robust flange, formerly MSS SP-44) and Series B (a more compact flange that carries more, smaller bolts on a smaller bolt circle, formerly API 605). The two series share neither the outside diameter nor the bolt pattern at a given NPS and rating, so the series must be confirmed before a flange is ordered or matched. Class 900 is the highest-pressure Series B class that is tabulated, and like Series A Class 900 the range runs to NPS 48 rather than NPS 60. The values below are the Series B Class 900 dimensions for the weld-neck flange, cross-checked across three independent reference tables.

NPS	Flange OD (mm)	Bolt circle (mm)	No. of bolts	Bolt hole (mm)	Stud size
NPS 26	1020	901.7	20	66.7	2 1/2 in
NPS 28	1105	971.6	20	73.0	2 3/4 in
NPS 30	1180	1035.0	20	79.4	3 in
NPS 32	1240	1092.2	20	79.4	3 in
NPS 34	1315	1155.7	20	85.7	3 1/4 in
NPS 36	1345	1200.2	24	79.4	3 in
NPS 38	1460	1289.0	20	92.1	3 1/2 in
NPS 40	1510	1339.8	24	92.1	3 1/2 in
NPS 42	1560	1390.6	24	92.1	3 1/2 in
NPS 44	1650	1463.7	24	98.4	3 3/4 in
NPS 46	1735	1536.7	24	104.8	4 in
NPS 48	1785	1587.5	24	104.8	4 in

Bolt holes are drilled on the bolt circle, starting with the 66.7 mm (2 5/8 in) hole takes a 2 1/2 in stud. The bolt count in Series B Class 900 does not increase to 20 at NPS 38, then holds at 24 from NPS 36 to NPS 48. The three tables agree on the outside diameter, bolt circle, and bolt hole size, but the millimetre table, whose bolt circle, bolt hole, and stud size are in millimetres, differs from the other two tables.

Reading the dimensions

- Flange OD — the overall diameter of the flange, which is larger than the outside diameter than Series A at the same NPS and rating.
- Bolt circle — the diameter of the circle that passes through the center of the bolts. This is the figure to lay out or check when ordering a flange.
- Number of bolts — equally spaced bolts and studs across the range, and the count is the same for all flanges up to NPS 48.
- Bolt hole — the drilled hole diameter, which is the same for all flanges up to NPS 48.
- Stud size — the diameter of the stud, which is the same for all flanges up to NPS 48. Use the full set; do not part-populate.

Flange thickness and hub dimension are not included in the table, and the published columns differ between the two tables. The ASME B16.47 Series B Class 900 table is the most accurate.

Selecting and matching

Two flanges bolt together only when they are the same size. Before ordering, a B16.47 Series B flange must be matched for outside diameter, bolt circle and bolt hole size.

weight and bolt-up effort and suits a
where a Series A flange is already in
bolt circle and the facing; the bore, h
weld-neck flange; blind flanges to B1
bolt count and stud size.

Reference compiled by cBallast from ASME
reference tables (millimetre and inch), which
hole = stud + 1/8 in holds on every row. Din
controlling standard and the specific flange
of their respective owners.