Weld Neck Flange — ASME B16.47 Series B Class 75

ANSI / ASME B16.47 Series B (API 605) Class 75 large diameter low-pressure welding neck raised face flanges · NPS 26" to 60" · Carbon steel ASTM A105 / A694, stainless steel ASTM A182 F304 / F316

ASME B16.47 SERIES B CLASS 75 WELD NECK FLANGE

ASME B16.47 covers large diameter steel flanges NPS 26 through 60 in two bolting patterns. **Series B** (formerly API 605) is the compact pattern — smaller OD, thinner flange and many smaller bolts on a tight bolt circle. **Class 75** exists only in Series B: it is the lightest flange in the standard, developed for large-bore, low-pressure lines (water, air, vent, flare and low-pressure gas) where a Class 150 flange would be heavier and costlier than the service needs.

The weld neck type has a tapered hub butt-welded to the pipe, giving the best stress distribution and fatigue life. TESCO Steel & Engineering manufactures B16.47 Series B Class 75 weld neck flanges in Mumbai, 26" to 60", RF or FF, bored to the customer's pipe wall.

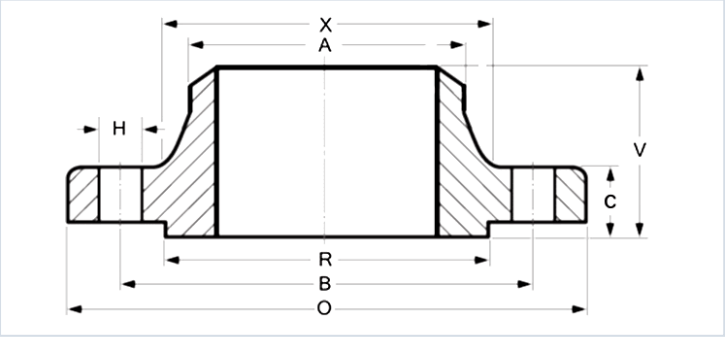
KEY FEATURES

- **Full ASME B16.47 compliance** — Series B dimensions, tolerances, facing and marking to ASME B16.47-2020.
- **Series B compact drilling** — 36 to 52 studs, ⅝" – 1"; smallest OD and lowest weight of any B16.47 flange.
- **Tapered hub, butt-weld end** — 37.5° bevel, 1.6 mm land; bored to the specified pipe wall.
- **Materials and certification** — A105, A694 F42 – F65, A350 LF2, A182 F304/F316; EN 10204 3.1 / 3.2.

SPECIFICATION SUMMARY

Product	Weld neck flange (WN / WNRF), forged or rolled-ring forged
Standard	ASME B16.47 Series B (formerly API 605)
Pressure class	Class 75 (75 lb / #75) — Series B only
Size range	NPS 26" – 60" (DN 650 – DN 1500), 18 sizes
Facing	Raised face (RF) 2 mm standard; flat face (FF) on request
Face finish	Serrated, 125 – 250 µin Ra (3.2 – 6.3 µm)
Bore	To purchaser's pipe OD × wall (not standardised in B16.47)
Weld end	37.5° ± 2.5° bevel, 1.6 ± 0.8 mm root face, ASME B16.25
Materials	ASTM A105 / A105N; A694 F42 – F65; A350 LF2; A182 F304/L, F316/L; F51 duplex

WELD NECK FLANGE DIMENSIONAL DRAWING



O Flange outside diameter	**C** Flange thickness (incl. 2 mm RF)
X Hub diameter at base	**A** Hub diameter at bevel (= pipe OD)
R Raised face diameter	**V** Length through hub
B Bolt circle diameter (PCD)	**H** Bolt hole diameter
Bore To purchaser's pipe (not dimensioned)	**Bevel** 37.5° ± 2.5°, 1.6 mm land

ASME B16.47 SERIES B CLASS 75 WELD NECK FLANGE DIMENSIONS (MM)

ASME B16.47 SERIES B · CLASS **75** WELD NECK FLANGE · RAISED FACE · DIMENSIONS IN MM — 18 sizes

NPS inch	O	C	X	A	R	V	B	Bolting			Weight
	OD	Thick.	Hub Ø base	Hub Ø bevel	RF Ø	Length thru hub	Bolt circle	No.	H · Hole Ø	Stud	kg approx.
26"	762	31.8	676	660.4	705	57	723.9	36	19.1	5/8"	36
28"	813	31.8	727	711.2	756	60	774.7	40	19.1	5/8"	39
30"	864	31.8	778	762.0	806	64	825.5	44	19.1	5/8"	41
32"	914	33.5	829	812.8	857	68	876.3	48	19.1	5/8"	48
34"	965	33.5	879	863.6	908	72	927.1	52	19.1	5/8"	50
36"	1034	35.1	935	914.4	965	84	992.1	40	22.2	3/4"	66
38"	1084	36.6	986	965.2	1016	87	1043.0	40	22.2	3/4"	73
40"	1135	36.6	1037	1016.0	1067	91	1093.7	44	22.2	3/4"	77
42"	1186	38.1	1087	1066.8	1118	94	1144.5	48	22.2	3/4"	84
44"	1251	41.4	1140	1117.6	1175	103	1203.5	36	25.4	7/8"	104
46"	1302	42.9	1191	1168.4	1226	106	1254.3	40	25.4	7/8"	111
48"	1353	44.5	1242	1219.2	1276	110	1305.1	44	25.4	7/8"	122
50"	1403	46.2	1294	1270.0	1327	114	1355.9	44	25.4	7/8"	132
52"	1457	46.2	1345	1320.8	1378	119	1409.7	48	25.4	7/8"	141
54"	1508	47.8	1397	1371.6	1429	124	1460.5	48	25.4	7/8"	154
56"	1575	49.3	1451	1422.4	1486	133	1521.0	40	28.6	1"	181
58"	1626	50.8	1502	1473.2	1537	137	1571.8	44	28.6	1"	195
60"	1676	54.1	1553	1524.0	1588	143	1622.6	44	28.6	1"	215

- All dimensions in millimetres per ASME B16.47-2020 Series B, Class 75 (converted from the inch table, Table 36). Thickness C includes the 2 mm raised face. Length through hub V is measured from the raised face. Hub Ø at bevel A equals pipe OD (ASME B36.10M).
- Bore is not standardised in B16.47 — flanges are bored to the pipe wall thickness stated on the order; please specify pipe OD × wall or schedule.
- Studs per ASME B16.47; hole Ø is 3.2 mm larger than the stud. Weights approximate, carbon steel, bored for STD (9.53 mm) wall pipe. Note the bolt-count steps at NPS 36, 44 and 56 where the stud size increases.

SERIES B VS SERIES A

Origin	Series B = API 605 · Series A = MSS SP-44
Geometry	B: compact, more / smaller bolts · A: larger OD, thicker, fewer / larger bolts
Classes	B: 75, 150, 300, 400, 600, 900 · A: 150 – 900 (no Class 75)
Interchange	Not interchangeable with Series A or any B16.5 / B16.1 drilling

APPLICATIONS

Large-bore cooling-water and circulating-water lines · raw-water, desalination intake and outfall · low-pressure gas, vent and flare headers · air and exhaust ducting · storage-tank and API 650 nozzle connections · FGD and scrubber piping · low-pressure process utility headers.

Also known as: ANSI B16.47 Series B Class 75 WNRF flange · API 605 Class 75 weld neck flange · 75 lb large diameter welding neck flange · 26" – 60" low-pressure WN flange (≈ PN 10).

WELD NECK FLANGE MATERIALS

Carbon steel	ASTM A105 / A105N (most common); A266 Cl.2 / A350 LF2 for large forgings
High-yield pipeline	ASTM A694 F42, F52, F60 — matched to API 5L X42 – X60 pipe
Low-temperature CS	ASTM A350 LF2 Cl.1 / Cl.2, LF3
Stainless steel	ASTM A182 F304 / F304L, F316 / F316L, F321
Duplex / super duplex	ASTM A182 F51 (UNS S31803 / S32205), F53 (S32750)
Clad / weld overlay	CS flanges with 316L, Inconel 625 or Cu-Ni face overlay — on request
Equivalent EN grades	P250GH, P355NH / L360NB (1.0582), 1.4404 on request

PRESSURE–TEMPERATURE RATING

Class 75 is unique to ASME B16.47 Series B and is rated in B16.47 Table 3 — Group 1.1 carbon steel: **9.6 bar (140 psig) at −29 to 38 °C**, decreasing with temperature. Class 75 is not an ASME B16.5 class and has no B16.5 equivalent; it is intended for low-pressure service where a Class 150 flange would be unnecessarily heavy. Refer to ASME B16.47 Table 3 for the full curve and other material groups, and confirm for bolting and gasket.

SERIES B BOLTING PATTERN

Studs	36 – 52 per flange, ⅝" to 1" (hole 3.2 mm larger)
Pattern	Compact — many small bolts on a bolt circle close to the pipe OD
Heritage	API 605 Class 75 (large-diameter carbon steel flanges), adopted into B16.47 Series B in 1990
Interchange	Not interchangeable with Series A or B16.5 / B16.1 drilling

QUALITY & DOCUMENTATION

- Forged from certified ingots / blooms or rolled-ring forged; normalised, quenched-and-tempered or solution-annealed per material specification.
- Manufactured under an ISO 9001:2015 quality management system; marking per ASME B16.47 and MSS SP-25 including "B16.47 SER. B" and "CL 75".
- EN 10204 3.1 material test certificates with chemical analysis, mechanical properties, heat-number traceability; 3.2 with third-party endorsement on request.
- Dimensional inspection to ASME B16.47 tolerances; face finish per MSS SP-6; UT of forgings per ASTM A388 on request.
- MPI / DPT, PMI, Charpy impact testing, NACE MR0175 / ISO 15156, PED and IBR compliance on request.

FREQUENTLY ASKED QUESTIONS

What is Class 75 and where does it come from?
Class 75 is the lowest pressure class in ASME B16.47 and exists only in Series B. It was carried over from API 605, which was written for large-diameter, low-pressure carbon steel flanges on refinery and tank-farm piping.

Can a Class 75 flange replace a Class 150 flange?
Only if the design pressure and temperature fall within the Class 75 rating (9.6 bar at ambient for carbon steel) and the mating flange is also Series B Class 75 — the drilling does not match Class 150 of either series.

Why is the bore not in the table?
B16.47 leaves the bore to the purchaser because large-diameter pipe is ordered by wall thickness, not schedule. State pipe OD × wall on the enquiry.

Which gasket and bolts are used?
Spiral wound (ASME B16.20) or non-metallic (B16.21) gaskets with A193 B7 / A194 2H studs and nuts; B8M Cl.2 for stainless flanges.

ORDERING INFORMATION

Specify: quantity · size (NPS) · ASME B16.47 Series B Class 75 weld neck · facing (RF / FF) · pipe OD × wall thickness for bore · material grade · certification (3.1 / 3.2, NACE, PED, IBR) · surface protection (anti-rust oil, paint, galvanising).