Weld Neck Flange — ASME B16.47 Series B Class 150

ANSI / ASME B16.47 Series B (API 605) Class 150 large diameter compact welding neck raised face flanges · NPS 26" to 60" · Carbon steel ASTM A105 / A694, stainless steel ASTM A182 F304 / F316, low-temperature A350 LF2

ASME B16.47 SERIES B CLASS 150 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. A Series B Class 150 flange is typically 40 – 60 % lighter than its Series A counterpart at the same rating — the economical choice for tank farms, process plants and offshore topsides.

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 150 weld neck flanges in Mumbai, 26" to 60", RF or FF, bored to the customer's pipe wall.

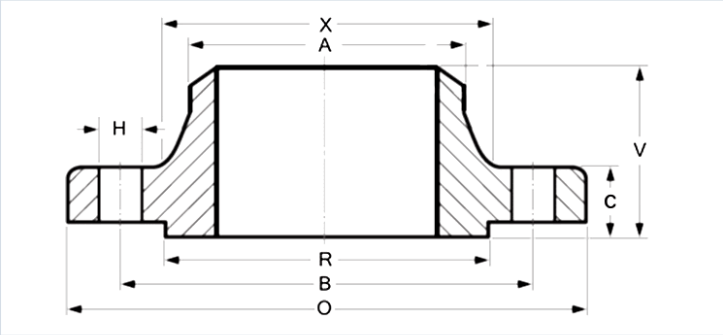
KEY FEATURES

- **Full ASME B16.47 compliance** — Series B dimensions, tolerances, facing and marking to ASME B16.47-2020.
- **Series B compact drilling** — 36 to 60 studs, ¾" – 1¼"; smaller OD, far lighter than Series A.
- **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 150 (150 lb / #150)
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 150 WELD NECK FLANGE DIMENSIONS (MM)

ASME B16.47 SERIES B · CLASS **150** WELD NECK FLANGE · RAISED FACE · DIMENSIONS IN MM — 18 sizes

NPS	O	C	X	A	R	V	B	Bolting			Weight
inch	OD	Thick.	Hub Ø base	Hub Ø bevel	RF Ø	Length thru hub	Bolt circle	No.	H · Hole Ø	Stud	kg approx.
26"	785	41.4	684	661.9	711	88.6	744.5	36	22.2	3/4"	54
28"	835	44.6	735	712.7	762	95.6	795.3	40	22.2	3/4"	64
30"	885	44.6	787	763.5	813	99.6	846.1	44	22.2	3/4"	68
32"	940	46.2	840	814.3	864	107.6	900.1	48	22.2	3/4"	77
34"	1005	49.3	892	865.1	921	110.6	957.3	40	25.4	7/8"	95
36"	1055	52.5	945	915.9	972	117.6	1009.6	44	25.4	7/8"	109
38"	1125	54.1	997	968.2	1022	123.6	1070.0	40	28.6	1"	132
40"	1175	55.7	1049	1019.0	1080	128.6	1120.8	44	28.6	1"	141
42"	1225	58.9	1102	1069.8	1130	133.6	1171.6	48	28.6	1"	156
44"	1275	60.5	1153	1120.6	1181	136.6	1222.4	52	28.6	1"	168
46"	1340	62.0	1205	1171.4	1235	144.6	1284.3	40	31.8	1 1/8"	197
48"	1390	65.2	1257	1222.2	1289	149.6	1335.1	44	31.8	1 1/8"	218
50"	1445	68.4	1308	1273.0	1340	153.6	1385.9	48	31.8	1 1/8"	236
52"	1495	70.0	1360	1323.8	1391	157.6	1436.7	52	31.8	1 1/8"	249
54"	1550	71.6	1413	1374.6	1441	161.6	1492.2	56	31.8	1 1/8"	281
56"	1600	73.2	1465	1425.4	1492	166.6	1543.0	60	31.8	1 1/8"	295
58"	1675	74.7	1516	1476.2	1543	174.6	1611.3	48	34.9	1 1/4"	354
60"	1725	76.3	1570	1527.0	1600	179.6	1662.1	52	34.9	1 1/4"	386

- All dimensions in millimetres per ASME B16.47-2020 Series B, Class 150 (metric). Thickness C includes the 2 mm raised face. Length through hub V is measured from the raised face. Hub Ø at bevel A is as listed in B16.47 Series B (≈ 1.5 mm above pipe OD); the weld end is machined to match the pipe.
- 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 34, 38, 46 and 58 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

Refinery and petrochemical process headers · tank-farm and API 650 / API 620 nozzle piping · offshore topsides and FPSO utility lines · cooling-water and fire-water mains · LNG and gas-plant low-pressure piping · large-bore flare and vent headers · pump and vessel connections where weight matters.

Also known as: ANSI B16.47 Series B 150 lb WNRF flange · API 605 Class 150 weld neck flange · 150# compact large diameter welding neck flange · 26" – 60" WN flange (≈ PN 20).

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, F46, F52, F56, F60, F65 — matched to API 5L X42 – X65 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 RATINGS

PRESSURE–TEMPERATURE RATING **Class 150** BAR, ASME B16.47 / B16.5 TABLE 2

Temperature °C	Group 1.1 A105 / A350 LF2 / A694	Group 2.1 / 2.2 A182 F304 / F316
–29 to 38	19.6	19.0
100	17.7	16.2
150	15.8	14.8
200	13.8	13.7
250	12.1	12.1
300	10.2	10.2
350	8.4	8.4
400	6.5	6.5
450	4.6	4.6

Working pressure in bar (gauge); ASME B16.47 adopts the ASME B16.5 Table 2 ratings for Class 150 (Table 2-1.1, 2-2.1 / 2-2.2). A694 grades rated per Group 1.1 unless otherwise agreed. Confirm for the specific material group, bolting and gasket.

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 150".
- 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

Series A or Series B — which do I need?
Match the mating equipment. Series B (ex-API 605) is common in refineries, tank farms and offshore; valves, pumps and older MSS SP-44 piping are usually Series A. The two are never interchangeable — check the bolt count and bolt circle.

Is the pressure rating the same as Series A Class 150?
Yes. Both series use the ASME B16.5 Class 150 pressure–temperature ratings; Series B achieves the same rating with a thinner flange and more, smaller bolts on a tighter bolt circle.

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 150 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).