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

ANSI / ASME B16.47 Series A (MSS SP-44) Class 150 large diameter 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 A CLASS 150 WELD NECK FLANGE

ASME B16.47 covers large diameter steel flanges NPS 26 through 60 in two bolting patterns. **Series A** (formerly MSS SP-44) is the heavier pattern — larger OD, thicker flange and fewer, larger bolts than Series B (formerly API 605) — and is the usual choice for pipelines, valves, pumps and vessel nozzles, and wherever existing MSS SP-44 equipment must be matched.

The weld neck type has a long tapered hub butt-welded to the pipe, giving the best stress distribution and fatigue life. TESCO Steel & Engineering manufactures B16.47 Series A Class 150 weld neck flanges in Mumbai, 26" to 60", RF or FF, bored to the customer's pipe wall.

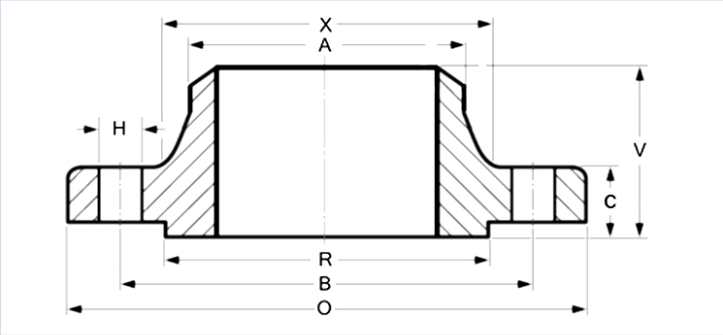
KEY FEATURES

- **Full ASME B16.47 compliance** — Series A dimensions, tolerances, facing and marking to ASME B16.47-2020.
- **Series A drilling** — 24 to 52 studs, 1¼" – 1¾"; matches MSS SP-44 and B16.1 Class 125 (30" – 60").
- **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 A (formerly MSS SP-44)
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

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Dimensions per ASME B16.47-2020 Series A (NPS 26 – 60); weights approximate; bore per purchaser's pipe; P–T ratings per ASME B16.5 Table 2 — verify for material group and service.

ASME B16.47 SERIES A CLASS 150 WELD NECK FLANGE DIMENSIONS (MM)

ASME B16.47 SERIES A · 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"	870	68.3	676	660.4	749	120.6	806.4	24	34.9	1 1/4"	136
28"	925	71.5	727	711.2	800	125.6	863.6	28	34.9	1 1/4"	156
30"	985	74.7	781	762.0	857	136.6	914.4	28	34.9	1 1/4"	181
32"	1060	81.0	832	812.8	914	144.6	977.9	28	41.3	1 1/2"	229
34"	1110	82.6	883	863.6	965	149.6	1028.7	32	41.3	1 1/2"	245
36"	1170	90.5	933	914.4	1022	157.6	1085.8	32	41.3	1 1/2"	290
38"	1240	87.4	991	965.2	1073	157.6	1149.4	32	41.3	1 1/2"	327
40"	1290	90.5	1041	1016.0	1124	163.6	1200.2	36	41.3	1 1/2"	352
42"	1345	96.9	1092	1066.8	1194	171.6	1257.3	36	41.3	1 1/2"	404
44"	1405	101.7	1143	1117.6	1245	177.6	1314.4	40	41.3	1 1/2"	449
46"	1455	103.2	1197	1168.4	1295	185.6	1365.2	40	41.3	1 1/2"	481
48"	1510	108.0	1248	1219.2	1359	192.6	1422.4	44	41.3	1 1/2"	538
50"	1570	111.2	1302	1270.0	1410	203.6	1479.6	44	47.6	1 3/4"	576
52"	1625	115.9	1353	1320.8	1461	209.6	1536.7	44	47.6	1 3/4"	640
54"	1685	120.7	1403	1371.6	1511	215.6	1593.8	44	47.6	1 3/4"	719
56"	1745	123.9	1457	1422.4	1575	228.6	1651.0	48	47.6	1 3/4"	798
58"	1805	128.6	1508	1473.2	1626	234.6	1708.2	48	47.6	1 3/4"	869
60"	1855	131.8	1559	1524.0	1676	239.6	1759.0	52	47.6	1 3/4"	928

- All dimensions in millimetres per ASME B16.47-2020 Series A, 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 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 Table 5; hole Ø is 3.2 mm larger than the stud. Weights approximate, carbon steel, bored for STD (9.53 mm) wall pipe.

SERIES A VS SERIES B

Origin	Series A = MSS SP-44 · Series B = API 605
Geometry	A: larger OD, thicker, fewer / larger bolts · B: compact, more / smaller bolts
Interchange	Not interchangeable; Series A mates with MSS SP-44 and B16.1 Cl. 125 (30" – 60")
Typical use	A: pipelines, valves, pumps, vessels · B: tanks, low-pressure process

APPLICATIONS

Oil & gas transmission pipelines · pig launchers and receivers · large valves and pump suction / discharge · water transmission and desalination intake · power-plant circulating water · tank and pressure-vessel nozzles · LNG and petrochemical utility headers.

Also known as: ANSI B16.47 Series A 150 lb WNRF flange · MSS SP-44 Class 150 weld neck flange · large diameter 150# 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. A".
- 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. Valves, pumps and older MSS SP-44 piping are usually Series A; API 605 / Series B appears on tanks and some process plants. Check the bolt count and bolt circle in the table.

Does B16.47 Series A Class 150 mate with cast-iron Class 125 flanges?

Yes for the B16.1 sizes 30", 36", 42", 48", 54" and 60" — same bolt circle and count. Use a flat face and full-face gasket against cast iron.

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 A 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).