ASME B16.47 Series A — Class 400 Flange Dimensions (NPS 26 to NPS 60)

cBallast Technical Sourcing · Class 400 large-diameter weld-neck flange · issued 2026-06-16 · cballast.com/documents/asme-b16-47-series-a-class-400-flange-dimensions

ASME B16.47 Series A Class 400 large-diameter flange dimensions: flange outside diameter O, bolt-circle diameter, number of bolts, bolt-hole size and stud size for weld-neck flanges from NPS 26 through NPS 60 — the rating between Class 300 and Class 600 on the Series A pressure ladder. Includes NPS 30 (997.0 mm bolt circle, 28 studs), NPS 36 (1168.4 mm, 32 studs) and NPS 48 (1403.4 mm, 28 studs). For Class 400/600/900 the Series A flange adopts the Series B outside diameter and bolt circle at NPS 38 and larger, so NPS 38 steps down from NPS 36. Series A is not interchangeable with Series B, and Class 400 is not interchangeable with Class 150, 300 or 600. Values cross-checked across two independent reference tables.

ASME B16.47 Series A Class 400 flange dimensions (NPS 26 to NPS 60)

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 with more, smaller bolts). 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 400 sits between Class 300 and Class 600 on the pressure ladder. The values below are the Series A Class 400 dimensions for the weld-neck flange, cross-checked across two independent reference tables.

NPS | Flange OD O (mm) | Bolt circle (mm) | No. of bolts | Bolt hole (mm) | Stud size |

NPS 26 | 970 | 876.3 | 28 | 47.6 | 1 3/4 in |

NPS 28 | 1035 | 939.8 | 28 | 50.8 | 1 7/8 in |

NPS 30 | 1090 | 997.0 | 28 | 54 | 2 in |

NPS 32 | 1150 | 1054.1 | 28 | 54 | 2 in |

NPS 34 | 1205 | 1104.9 | 28 | 54 | 2 in |

NPS 36 | 1270 | 1168.4 | 32 | 54 | 2 in |

NPS 38 | 1205 | 1117.6 | 32 | 47.6 | 1 3/4 in |

NPS 40 | 1270 | 1174.8 | 32 | 50.8 | 1 7/8 in |

NPS 42 | 1320 | 1225.6 | 32 | 50.8 | 1 7/8 in |

NPS 44 | 1385 | 1282.7 | 32 | 54 | 2 in |

NPS 46 | 1440 | 1339.8 | 36 | 54 | 2 in |

NPS 48 | 1510 | 1403.4 | 28 | 60.3 | 2 1/4 in |

NPS 50 | 1570 | 1460.5 | 32 | 60.3 | 2 1/4 in |

NPS 52 | 1620 | 1511.3 | 32 | 60.3 | 2 1/4 in |

NPS 54 | 1700 | 1581.2 | 28 | 66.7 | 2 1/2 in |

NPS 56 | 1755 | 1632.0 | 32 | 66.7 | 2 1/2 in |

NPS 58 | 1805 | 1682.8 | 32 | 66.7 | 2 1/2 in |

NPS 60 | 1885 | 1752.6 | 32 | 73.0 | 2 3/4 in |

Bolt holes are drilled on the bolt circle, straddling the centreline and equally spaced. ASME B16.47 drills the hole 1/8 in larger than the stud, so the 47.6 mm (1 7/8 in) hole takes a 1 3/4 in stud, the 54 mm (2 1/8 in) hole a 2 in stud and the 73.0 mm (2 7/8 in) hole a 2 3/4 in stud. At NPS 38 the Series A Class 400 outside diameter and bolt circle step down from NPS 36: for Class 400, 600 and 900 the Series A flange adopts the Series B outside diameter and bolt circle at NPS 38 and larger — a genuine feature of the standard, confirmed across the reference tables, not a typographical error. The two tables agree exactly on the outside diameter, bolt circle and bolt count for every NPS.

Reading the dimensions

Flange OD O — the overall diameter of the flange disc; sets the space the flange occupies.

Bolt circle — the diameter of the circle through the bolt-hole centres, also called the PCD. This is the figure to lay out or check the drilling against and the single most important number for matching a mating flange.

Number of bolts — equally spaced; both mating flanges share the same count. Series A Class 400 carries 28, 32 or 36 studs across the range.

Bolt hole — the drilled hole diameter; the clearance over the stud lets two flanges line up.

Stud size — the diameter of the stud bolt (these flanges are bolted with stud bolts and two nuts, not through-bolts). Use the full set.

Flange thickness and hub dimensions are not tabled here: they vary with the flange type (weld-neck, blind, slip-on) and the

published columns differ between reference tables. Take the thickness for a given NPS from the controlling ASME B16.47 Series A table or the flange maker’s data sheet.

Selecting and matching

Two flanges bolt together only when the standard, series, NPS, rating and bolt pattern all agree, so confirm all five before ordering. A B16.47 Series A flange will not mate to a Series B flange of the same NPS and rating — the outside diameter, bolt circle and bolt count differ — and neither mates to an ASME B16.5 flange. Class 400 carries a larger bolt circle and bigger studs than Class 150 or Class 300 at the same NPS, and a smaller pattern than Class 600, so the ratings are not interchangeable. Series A is the common choice where a Series A flange is already installed or where the heavier flange suits the duty; Series B saves weight and bolt-up effort where the line and the mating equipment are built to Series B throughout. The rating (Class 400 here) sets the bolt circle and the facing; the bore, hub and thickness then follow the flange type. The dimensions above are for the weld-neck flange; blind flanges to B16.47 Series A Class 400 share the same outside diameter, bolt circle, bolt hole, bolt count and stud size.

Dimensions are nominal ASME B16.47 Series A values and provided for identification and cross-reference. Confirm against the controlling standard and the specific flange maker’s current data sheet before manufacture or procurement.

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