

DIMENSIONAL DATA REFERENCE

SHORT RADIUS ELBOWS AND 180 DEGREE RETURNS

ASME B16.9-2018

B16.28 dimensions incorporated | NPS 1 through NPS 24

90 DEG ELBOWS

180 DEG RETURNS

SI / INCH DATA

TOLERANCES

Dimensions D, A, O and K with applicable dimensional tolerances.

Original source values are retained without numerical alteration.

Short radius elbow and return dimensions

Direct access to source basis, dimensional tables, tolerances and project support.

01 Source basis and B16.28 incorporation

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Dimensional symbols and confirmed incorporation of B16.28 data into B16.9-2018

02 90 degree short radius elbows

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NPS 1-NPS 24 outside diameter D and center-to-end A in millimetres and inches

03 180 degree short radius returns

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NPS 1-NPS 24 dimensions D, center-to-center O and back-to-face K

04 Applicable dimensional tolerances

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Outside/inside diameter plus A, O, K and out-of-round tolerance ranges

05 Ordering checklist and project support

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Required product, size, wall thickness, material, edition and inspection information

Basis & equivalence

Why the B16.9 tables are used for this document.

Verified conclusion

ASME B16.9-2018 states that the 2001 edition incorporated the short radius elbow and return dimensions and tolerances of ASME B16.28-1994. Direct row-by-row comparison confirms that NPS 1 through NPS 24 values for D, A, O and K are identical in the supplied source files.

90° short radius elbows

D = outside diameter at bevel
A = center-to-end dimension

180° short radius returns

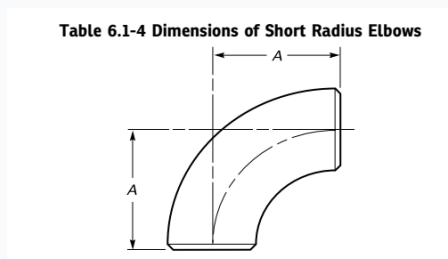
O = center-to-center dimension
K = back-to-face dimension

Important

Use the project-specified edition and contractual requirements for final procurement.
This data sheet is a convenient extract; it does not replace the complete ASME standard.

90° short radius elbows

Source: ASME B16.9-2018, Table 6.1-4; dimensions incorporated from ASME B16.28.



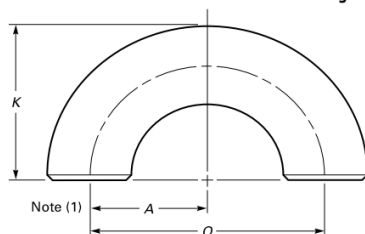
NPS	D (mm)	D (in.)	A (mm)	A (in.)
1	33.4	1.32	25	1.00
1¼	42.2	1.66	32	1.25
1½	48.3	1.90	38	1.50
2	60.3	2.38	51	2.00
2½	73.0	2.88	64	2.50
3	88.9	3.50	76	3.00
3½	101.6	4.00	89	3.50
4	114.3	4.50	102	4.00
5	141.3	5.56	127	5.00
6	168.3	6.62	152	6.00
8	219.1	8.62	203	8.00
10	273.0	10.75	254	10.00
12	323.8	12.75	305	12.00
14	355.6	14.00	356	14.00
16	406.4	16.00	406	16.00
18	457.0	18.00	457	18.00
20	508.0	20.00	508	20.00
22	559.0	22.00	559	22.00
24	610.0	24.00	610	24.00

D = outside diameter at bevel. A = center-to-end. Dimensions shown exactly as published.

180° short radius returns

Source: ASME B16.9-2018, Table 6.1-5; dimensions incorporated from ASME B16.28.

Table 6.1-5 Dimensions of Short Radius 180-deg Returns



NPS	D mm	D in.	O mm	O in.	K mm	K in.
1	33.4	1.32	51	2.00	41	1.62
1¼	42.2	1.66	64	2.50	52	2.06
1½	48.3	1.90	76	3.00	62	2.44
2	60.3	2.38	102	4.00	81	3.19
2½	73.0	2.88	127	5.00	100	3.94
3	88.9	3.50	152	6.00	121	4.75
3½	101.6	4.00	178	7.00	140	5.50
4	114.3	4.50	203	8.00	159	6.25
5	141.3	5.56	254	10.00	197	7.75
6	168.3	6.62	305	12.00	237	9.31
8	219.1	8.62	406	16.00	313	12.31
10	273.0	10.75	508	20.00	391	15.38
12	323.8	12.75	610	24.00	467	18.38
14	355.6	14.00	711	28.00	533	21.00
16	406.4	16.00	813	32.00	610	24.00
18	457.0	18.00	914	36.00	686	27.00
20	508.0	20.00	1016	40.00	762	30.00
22	559.0	22.00	1118	44.00	838	33.00
24	610.0	24.00	1219	48.00	914	36.00

O = center-to-center. K = back-to-face. For this geometry, A equals one-half of O.

Applicable dimensional tolerances

Applicable subset from ASME B16.9-2018, Table 11-1.

NPS	D (mm)	ID (mm)	A (mm)	O (mm)	K (mm)	U (mm)
1 to 2½	+1.6 / -0.8	±0.8	±2	±6	±6	±1
3 to 3½	±1.6	±1.6	±2	±6	±6	±1
4	±1.6	±1.6	±2	±6	±6	±1
5 to 8	+2.4 / -1.6	±1.6	±2	±6	±6	±1
10 to 18	+4.0 / -3.2	±3.2	±2	±10	±6	±2
20 to 24	+6.4 / -4.8	±4.8	±2	±10	±6	±2

Tolerance notes

- Tolerances are equal plus and minus except where asymmetric values are shown.
- Inside diameter and nominal wall thickness at ends are specified by the purchaser.
- Minimum wall thickness is 87.5% unless the purchaser specifies another tolerance.
- Out-of-round is the sum of the absolute plus and minus tolerances.
- Localized formed areas may require increased wall thickness to meet design requirements.

Send your requirement

We can review the product list, drawing and documentation requirements.

- 90 degree short radius elbow or 180 degree return
- NPS and wall thickness or schedule
- Material grade, quantity and required standard edition
- End preparation and dimensional tolerance requirements
- Inspection and project-document requirements

SEND RFQ BY EMAIL

CONTACT ON WHATSAPP

DIRECT CONTACT

Email

info@lkpiping.com

Initial response within 24 hours, including weekends.

Technical resources

www.lkpiping.com/technical/

Longtan Industrial Zone, Yanta Road, Yanshan County, Cangzhou City, Hebei Province, China