

ASME B16.5 Pipe Flanges and Flanged Fittings
Published Interpretations

Interpretation: 12-1

Subject: B16.5 – Interpretation to Para. 6.4.3.2

Date Issued: January 18, 2012

Record: 11-1940

Question (1): Does paragraph 6.4.3.2, B16.5-2009 require the large male face height of a lap joint stub end to have a minimum thickness of 0.50 inch (12.7 mm) if used with pipe having a nominal wall thickness of 0.50 (12.7) inches?

Reply (1): Yes. See Figures 7.

Question (2): Does paragraph 6.4.3.2, B16.5-2009 require a large female gasket recess in the lap of a lap joint stub end have a minimum wall thickness of 0.50 inch at bottom of gasket recess if used with pipe having a nominal wall thickness of 0.50 inches?

Reply (2): Yes.

Interpretation: 11-3

Subject: Raised Face Dimensions

Date Issued: October 3, 2011

Record: 11-1395

Question: Does a flange with a weld overlay of material for corrosion protection on the flange facing meet the requirements of ASME B16.5-2009?

Reply: No.

Interpretation: 11-2

Subject: Dimensions and Tolerances of Ring Joints

Date Issued: May 26, 2011

Record: 11-567

Question: Does ASME B16.5-2009, permit bolt holes to encroach upon the raised portion of the facing for certain sizes of flanges with ring joint facing?

Reply: Yes.

Interpretation: 11-1

Subject: B16.5 - Interpretation of B16.5-2009 Para. 2.8

Date Issued: January 21, 2011

Record: 10-1648

Question (1): Are long welding neck flanges without a straight hub of uniform thickness, within the scope of ASME B16.5-2009?

Reply (1): No.

Question (2): Does ASME B16.5-2009 permit long welding neck flanges without a straight hub of uniform thickness to be stamped in accordance with para. 4?

Reply (2): No.

Interpretation: 10-2

Subject: B16.5-2009 Interpretation, Marking Requirements

Date Issued: August 13, 2010

Record: 10-1089

Question: Is it permissible to mark ASME B16.5 flanges and flanged end fittings or ASME B16.34 valves having B16.5 flanged ends with an 'ANSI B16.5' classification marking?

Reply: Yes. While ASME B16.5-2009, para. 4.2.4, requires a 'B16' or 'B16.5' marking there is no requirement for or prohibition of either an alphabetical prefix or suffix. ASME B16.34-2009 has no requirements for a 'B16.5' mark. However, the "yes" reply is not an endorsement for the continued use of the 'ANSI B16.5' marking. It is obsolete, could cause misunderstanding and has little or no currency or recognition in today's flange or valve piping codes or standards.

Furthermore, from the 'yes' reply it should not be construed that this is the only required product marking. Both of the ASME standards cited here require additional identification markings that have been upgraded or added since the ANSI versions were converted to ASME publications many years ago.

Interpretation: 10-1

Subject: B16.5-2009 Inquiry, Paint Covering Markings

Date Issued: March 18, 2010

Record: 09-2122

Question (1): Does ASME B16.5-2009 require that the marking on a flange be readable at the time of manufacture?

Reply (1): Yes.

Question (2): Does ASME B16.5-2009 require that the marking remain visible after application of any painting/coating?

Reply (2): ASME B16.5-2009 does not address this.

Interpretation: 09-1

Subject: B16.5-2003, Section 5.3 and Table 1B

Date Issued: March 27, 2009

Record: 09-518

Question: Does ASME B16.5-2003 define the corresponding material as used in Note 11 of Table 1B?

Reply: No.

Interpretation: 08-2

Subject: ASME B16.5-2003

Date Issued: March 18, 2008

Record: 07-1467

Question: In accordance with ASME B16.5–2003, are there requirements that prohibit removal of the raised face, or providing a raised face height greater or less than that referenced in Paragraph 6.4.1 and illustrated in Figure 7 (Fig. F7 of Annex F)?

Reply: No.

Interpretation: 08-1

Subject: ASME B16.5-2003, eccentricity

Date Issued: March 13, 2008

Record: 08-351

Question: Does ASME B16.5-2003 have requirements for eccentricity between the inside diameter (bore B) and the outside diameter of the raised face (R)?

Reply: No.

Interpretation: 06-6

Subject: B16.5-2003; para. 5.3 and 6.5

Date Issued: September 25, 2006

Record: 04-1106

Question: Can a valve flange have drilled and tapped bolt holes instead of through holes and still be considered an ASME B16.5 flange?

Reply: For valve end flange requirements relating to tapped bolt holes, see ASME B16.34-2004, Clause 6.2.2.

Interpretation: 06-5

Subject: B16.5-2003; 7.4 Flange Thickness

Date Issued: August 17, 2006

Record: 06-802

Question: Does the ASME B16.5-2003 tolerance in 7.4 apply to the flange thickness, t_f , without the facing height included?

Reply: Yes.

Interpretation: 06-4

Subject: B16.5-2003; Material A 350 Gr. LF3

Date Issued: August 2, 2006

Record: 06-799

Question: In accordance with ASME B16.5-2003 is the material A 350 Gr. LF3 with a nominal designation of 3-1/2 Ni listed in the appropriate pressure-temperature Table 2-1.1 and F2-1.1?

Reply: Yes.

Interpretation: 06-3

Subject: B16.5-2003

Date Issued: April 11, 2006

Record: 06-428

Question: Does ASME B16.5-2003 address limits on chamfering of flange bolt holes?

Reply: No.

Interpretation: 06-2

Subject: B16.5-2003; Machining a WN flange to a SW flange

Date Issued: June 19, 2006

Record: 05-1355

Question: Does ASME B16.5-2003 prohibit a flange manufacturer from converting a welding neck flange to a socket welding flange?

Reply: No, provided all the requirements of ASME B16.5-2003 are met. See, for example Table 20 note (1).

Interpretation: 06-1

Subject: B16.5-2003; Machining a Flange

Date Issued: June 16, 2006

Record: 05-377

Question: Does ASME B16.5-2003 prohibit a manufacturer from converting a large blind flange meeting the requirements of B16.5 to a smaller slip-on or blind flange?

Reply: No, provided all the requirements of ASME B16.5-2003 are met.

Interpretation: 4-17

Subject: Flange Thickness

Date Issued: September 2, 2002

File: 02-02830

Question: According to ASME B16.5-1996 edition, 1998 Addenda **(a)**, is it acceptable for the flange thickness to taper to the edge and be thinner than the flange thickness "C" dimension listed in the dimensional tables?

Reply: No. See para. 7, Tolerances.

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Interpretation: 4-16

Subject: Marking Requirements

Date Issued: February 20, 2002

File: B16-C-01-03

Question (1): According to B16.5-1996, 1998 Addenda **(a)**, is it required that the designation “B16” or the designation “B16.5” be marked on the flange?

Reply (1): It is required that “B16” be marked on the flange. See para. 4.1.4.

Question (2): Does marking “B16.5” in lieu of “B16”, as required, render the flange nonconforming to ASME B16.5-1996, 1998 Addenda **(a)**?

Reply (2): No.

Interpretation: 4-15

Subject: Lapped Joint Flanges Thickness

Date Issued: February 1, 2002

File: B16-C-01-02

Question: What minimum thickness does ASME B16.5-1996, 1998 Addenda **(a)**, require for lapped joint flanges?

Reply: Dimension “C” as shown in Tables 9, 12, 15, 18, 21, 24, and 27. See para. 7.4 for tolerance.

Interpretation: 4-14

Subject: Material Conformance

Date Issued: February 1, 2002

File: B16-C-01-01

Question: In accordance with ASME B16.5-1996 Edition, 1998 Addenda **(a)**, may flanges manufactured of materials other than those listed in Table 1A be marked as being in conformance with ASME B16.5 as required by para. 4.14?

Reply: No. See para. 5.1.

Interpretation: 4-13

Subject: Marking for Welding Neck Flanges

Date Issued: January 31, 2001

File: B16-00-12

Question: Does ASME B16.5-1996 require marking in addition to that described in para. 4 for socket welding or welding neck flanges?

Reply: No.

Interpretation: 4-12

Subject: Dimensional Requirements

Date Issued: January 31, 2001

File: B16-00-004

Question: In accordance with ASME B16.5-1996, including 1998 Addenda **(a)**, are there requirements for the geometry of the shoulder at the circumference defined by diameters designated R in Fig. 7?

Reply: No.

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Interpretation: 4-11

Subject: Socket Weld Flanges

Date Issued: January 31, 2001

File: B16-00-03

Question (1): In ASME B16.5-1996, including 1998 Addenda **(a)**, various tables (for example Table 9) have illustrations that show the location of the applicable tabulated dimensions. For socket welding flanges, these illustrations note a limiting flange size range. Are socket-welding flanges in sizes outside this range, covered by ASME B16.5?

Reply (1): No.

Question (2): May socket welding flanges, in sizes greater than NPS 3 (NPS 2½ for class 1500), which conform to the requirements of ASME B16.5-1996, including 1998 Addenda **(a)**, with all dimensions listed in the applicable tables met, be stamped "B16" in accordance with para. 4.14?

Reply (2): No. Socket welding flanges in these larger sizes are not included in the requirement of B16.5.

Interpretation: 4-10

Subject: Welding End Preparation for Welding Neck Flanges

Date Issued: January 31, 2001

File: B16-99-14

Question: In ASME B16.5-1996, para. 6.7.1, the referenced figures are for attachment of flanges to pipe with wall thickness 0.19 in. and larger. May weld preparations for pipe wall thickness less than 0.19 in. be used in accordance with para. 6.7.4?

Reply: Yes.

Interpretation: 4-9

Subject: Dual Markings

Date Issued: January 31, 2001

File: B16-99-12

Question: In accordance with ASME B16.5-1996, para. 4.1.4, may flanges NPS 1/2 through NPS 31/2 meeting all of the requirements for Class 600 be marked to show conformance with both Class 400 and Class 600?

Reply: Yes.

Interpretation: 4-8

Subject: Material Conformance

Date Issued: January 31, 2001

File: B16-99-03

Question: May a flange meeting all of the relevant dimensional requirements of ASME B16.5-1996 that is integrally forged or cast to another product be marked as in para. 4.1.1 to indicate conformance to the B16.5 Standard?

Reply: No.

Interpretation: 4-7

Subject: Materials Conformance

Date Issued: January 31, 2001

File: B16-98-017

Question: In accordance with ASME B16.5-1996, may a flange made from a material other than that of a material specification listed in Table 1A be identified as being manufactured in accordance with ASME B16.5?

Reply: No.

Interpretation: 4-6

Subject: Blind Flange Material

Date Issued: October 15, 2001

File: B16-98-013

Question (1): Does ASME B16.5-1996 allow blind flange made from a plate material listed in Table 1A to be designated as a forging material in Table 1A?

Reply (1): No.

Question (2): Does ASME B16.5-1996 permit blind flanges to be of a plate material as listed in Table 1A for all pressure classes covered in ASME B16.5-1996 (150, 300, 400, 600, 900, 1500, and 2500)?

Reply (2): Yes.

Interpretation: 4-5

Subject: Welding Neck Flanges

Date Issued: June 18, 1999

File: B16-99-004

Question (1): Does ASME B16.5-1996 cover welding neck flanges that have the overall length through hub dimension y greater than the specified values (e.g., long weld neck)?

Reply (1): No.

Question (2): Does para. 6.7.4 of ASME B16.5-1996 allow the conformance designation "B16" to be applied to long weld neck flanges having overall length through hub dimensions greater than specified values?

Reply (2): No. This paragraph applies to only end preparations.

Interpretation: 4-4

Subject: Implementation of the Standard, Flange Face Finish

Date Issued: July 21, 1998

File: B16-097-015

Question (1): Is there a mandatory date for the implementation of ASME B16.5-1996?

Reply (1): No. Implementation may be required by reference in a code, specification, sales contract, or public law.

Question (2): May a flange not meeting the flange facing finish requirements of ASME B16.5-1996 but meeting those of an earlier edition be supplied as being in accordance with the 1996 edition?

Reply (2): Yes, provided that the flange face finish is supplied by arrangement with the purchaser. (See para. 6.4.4.)

Question (3): According to ASME B16.5-1996, para. 6.4.4.3, may a flange with less than 45 grooves per inch or more than 55 grooves per inch meet the flange facing finish requirements as long as the resultant surface finish has a 125 to 250 μ in. average roughness?

Reply (3): Yes.

Interpretation: 4-3

Subject: Blind Flange Material

Date Issued: March 24, 1998

File: B16-98-004

Question (1): May blind flanges covered by ASME B16.5-1996 be produced from plate?

Reply (1): Yes.

Question (2): May blind flanges produced from plate be marked in accordance with ASME B16.5-1996?

Reply (2): Yes, provided that they meet all the requirements of ASME B16.5-1996.

Question (3): Does ASME B16.5-1996 have criteria for the selection of materials?

Reply (3): No. See para. 5.1.1.

Interpretation: 4-2

Subject: Tolerance

Date Issued: March 24, 1998

File: B16-98-003

Question: Does ASME B16.5-1996 have required tolerances for a lapped, slip-on, or socket welding flange for the overall length through hub?

Reply: No.

Interpretation: 4-1

Subject: Hub Diameter

Date Issued: March 13, 1998

File: B16-97-011

Question: According to ASME B16.5-1996, does the diameter of hub dimension "X" as shown in Table 9, Fig. 9, correspond to the theoretical intersection of the angles line that represents the outside of the hub with the line that represents the back of the flange?

Reply: Yes. However, note this is a dimension without a tolerance.

Interpretation: 3-6

Subject: Use of O-Ring Seals

Date Issued: July 10, 1997

File: B16-96-004

Question: Is the use of O-ring seals with flanged joints prohibited by the rules of ASME B16.5-1988?

Reply: No. See para. E2 of Annex E.

Interpretation: 3-5

Subject: Machining of a Slip-On Flange

Date Issued: May 28, 1997

File: B16-97-010

Question: Does ASME B16.5-1996 permit the manufacturer of Class 150 or 300 lapped flange by machining it form a slip-on flange?

Reply: Yes, provide he resulting flange meets the requirements for a lapped flange, including flange thickness, bore, and length through the hub dimensions shown in the Tables 9 and 12. Since a lapped flange does not have a raised face, the raised face removal discussed in para. 6.1.3 does not apply.

Interpretation: 3-4

Subject: Removal of Raised Face form a Flange

Date Issued: May 23, 1997

File: B16-97-003

Question: According to ASME B16.5-1988, is it acceptable to supply a flat faced flanged or flanged fitting made from a Class 150 or a Class 300 raised flange or flanged fitting with the raised face removed, even if the resulting thickness is 0.06 in. less than the minimum shown in the Tables?

Reply: Yes. See para. 6.3

Interpretation: 3-3

Subject: Hub Dimensions of Reducing Flanges

Date Issued: March 27, 1997

File: B16-96-011

Question (1): According to B16.5-1988, what are the minimum hub dimension of a NPS 6 x 2½ Class 300 slip-on reducing flanges?

Reply: The minimum dimensions are the same as those for NPS 2½ Class 300 slip-on flanges. See Note (1) of Table 7.

Interpretation: 3-2

Subject: Tolerances

Date Issued: March 27, 1997

File: B16-96-014

Question: In B16.5-1988 or B16.5a-1992, is there a tolerance on the radius, r , for lap-joint flanges?

Reply: No.

Interpretation: 3-1

Subject: Class Designation and Surface Finish

Date Issued: March 5, 1997

File: B16-96-015

Question (1): According to ASME B16.5-1988, what is the correlation between the Class designation and the allowable working pressure at 100°F?

Reply (1): See Annex D.

Question (2): According to ASME B16.5-1988, does the resultant surface finish refer to the average finish over the raised face, or does it refer to the finish at the bottom of the grooves formed by the cutting tool?

Reply (2): It refers to the average finish.

Interpretation: 2-46

Subject: Spot Facing

Date Issued: July 7, 1995

File: B16-95-06

Question: Do flanges have to be spot faced in order to meet the requirements of B16.5-1988?

Reply: No. See para. 6.6.

Interpretation: 2-45

Subject: Use of Flanges to More than One Pressure Rating

Date Issued: May 30, 1995

File: B16-95-05

Question (1): According to B16.5-1988, what shall be the center-to-contact surface dimensions “HH” for tees and crossed of different end flange sizes?

Reply (1): The same as those for straight size fittings of the largest opening. See para. 6.2.3.

Question (2): According to B16.5-1988, what shall be the center-to-contact surface dimensions “HH” for tees and crossed of different end flange ratings?

Reply (2): The dimension for such fittings are not addressed by B16.5.

Interpretation: 2-44

Subject: Definition of Imperfection

Date Issued: July 29, 1994

File: B16-94-06

Question: Does B16.5-1988 define the term “imperfection” which is used in Table 3?

Reply: No.

Interpretation: 2-43

Subject: Permissible Radial Projection

Date Issued: July 29, 1994

File: B16-93-22

Question: According to B16.5-1988, does "separated" used in Note (1) to Table 3 mean radial separation?

Reply: No. Imperfections must be separated by at least four times the Permissible Radial Projection in any direction. The Permissible Radial Projection is found in column 2 a of Table 3.

Interpretation: 2-42

Subject: Flange Facing Finish

Date Issued: July 29, 1994

File: B16-93-17

Question: According to B16.5-1988, Table 3, is any visible surface discontinuity which is no deeper than the bottom of the serrations considered an imperfection?

Reply: Yes.

Interpretation: 2-41

Subject: Flange Marking

Date Issued: February 18, 1994

File: B16-93-21

Question: According to B16.5-1988, may raised lettering be used for the marking required by para. 4?

Reply: Yes.

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Interpretation: 2-40

Subject: Dual Marking

Date Issued: February 18, 1994

File: B16-93-20

Question (1): According to B16.5a-1992, may products identified as dual certified 304/304L and 316/316L be considered as straight grades 304 and 316, respectively, in Table 1A and Table 2 for temperature less than or equal to 1000°F?

Reply (1): Yes. See para. 2.7.

Question (2): According to B16.5-1992, may products identified as dual certified 304/304L and 316/316L be considered as straight grades 304 and 316, respectively, in Table 1A and Table 2 for temperatures above 1000°F?

Reply (2): No. See Table 1A, Note (5)

Interpretation: 2-39

Subject: Flange Facing Finish

Date Issued: October 28, 1993

File: B16-93-18

Question: According to B16.5-1988, what size scratch, length, and depth across the flange face is cause for rejection?

Reply: See Table 3.

Interpretation: 2-38

Subject: Use of Earlier Editions of B16.5

Date Issued: June 11, 1993

File: B16-92-28

Question: According to B16.5-1988, can flanges manufactured in accordance with an earlier edition of B16.5 be rated at the higher pressure-temperature ratings in the current edition?

Reply: No. Se para. 1.3

Interpretation: 2-37

Subject: Machining of Flange Surface, Flange Faces, and Surface Imperfections

Date Issued: June 11, 1993

File: B16-92-27

Question (1): Does B16.5-1988 requires that any surface of the flange be machined?

Reply (1): No.

Question (2): According to B16.5-1988, is it permissible to allow additional material on the face parallel to the flange centerline near the weld end of a welding neck flange?

Reply (2): Yes, with a taper up to 7 deg. See Figs. 8 and 9.

Question (3): According to B16.5-1988, may the face parallel to the flange centerline near the weld end of a welding neck flange be any length as long as the hub angle does not exceed 45 deg.?

Reply (3): I can be 0.25 in. or longer. See Figs. 8 and 9.

Question (4): Does B16.5-1988 places a limit on the depth of spot facing?

Reply (4): No, provide it does not infringe upon the minimum flange thickness.

Question (5): Does B16.5-1988 places limits on the removal of surface imperfections by blend grinding into adjacent surfaces?

Reply (5): Yes, but only to the extent that related dimensional requirements are maintained.

Interpretation: 2-36

Subject: Flange Facing Finish

Date Issued: February 22, 1993

File: B16-92-33

Question: According to B16.5-1988, may tactile comparison with the roughness comparison be used to judge surface finish of contact surface?

Reply: No. See para. 6.4.4.

Interpretation: 2-35

Subject: Definition of Nonshock

Date Issued: February 22, 1993

File: B16-92-26

Question: According to para. 2.1 of B16.5-1988, what is the meaning of “nonshock” in relation to pressure-temperature ratings?

Reply: B16.5-1988 does not define “nonshock”. The absence of a definition denotes a term at being used syntactically and therefore devoid of special technical connotation.

Interpretation: 2-34

Subject: Bolting a Raised Face Flange With a Flat Face Flange

Date Issued: February 18, 1993

File: B16-9235

Question: Do B16.1-1989 and B16.5-1988 prohibit bolting a raised flange with a standard flat face flange?

Reply: No

Interpretation: 2-33

Subject: Flanges Counterbores and Marking of Flanges

Date Issued: January 21, 1993

File: B16-92-34

Question (1): According to B16.5-1988, is it acceptable to produce Class 300 and higher threaded and threaded reducing flanges with no counterbore except for the 45 deg. Chamfer?

Reply (1): NO. See para. 6.9.2.

Question (2): According to B16.5-1988, if a flange did not meet one of its requirements, would the flange be able to carry the B16 designation?

Reply (2): No. See para. 4.1.4.

Interpretation: 2-32

Subject: Grooves of Flange Edges

Date Issued: December 2, 1992

File: B16-92-25

Question: According to B16.5-1988, is it permissible to cut $\frac{1}{8}$ in. by $\frac{1}{8}$ in. groove in the edge of a flange?

Reply: B16.5 does not cover this subject.

Interpretation: 2-31

Subject: Blind and Slip-on Flanges

Date Issued: November 30, 1992

File: B16-92-23

Question: Does a NPS 18 blind flange bored for use as a NPS 18 by NPS 3 slip-on flange meet the requirements of B16.5-1988?

Reply: No. See Note (1) of Table 7.

Interpretation: 2-30

Subject: Raised Face Flanges

Date Issued: November 30, 1992

File: B16-92-23

Question: According to B16.5-1988, and Class 150 and 300 flanges, with the raised face removed, limited to bolting to cast iron flanges only?

Reply: No. See para. 6.3.

Interpretation: 2-29

Subject: Flanges Marking

Date Issued: October 23, 1992

File: B16-92-22

Question: According to B16.5-1988, is it required that the designation "B16" or the designation "B16.5" be marked on the flange?

Reply: It is required that "B16" be marked on the flange. See para. 4.1.4.

Interpretation: 2-28

Subject: Eccentricity and Raised Face Dimensions

Date Issued: September 9, 1992

File: B16-91-06

Question (1): Is there a tolerance for the eccentricity between the bore and the outside diameter of the flange according to B16.5-1988?

Reply (1): No.

Question (2): Does the thickness, dimension "C", in B16.5-1988 for a Class 150 or Class 300, 0.006 in. raised face flange include the raised face height?

Reply (2): Yes. See Errata, page 2, issued October 1988.

Question (3): Does B16.5-1988 include a provision for flanges that have raised dimensions other than those shown in Fig. 7?

Reply (3): No.

Interpretation: 2-27

Subject: Corrosion Allowances

Date Issued: June 24, 1992

File: B16-92-02

Question: Are flange pressure-temperature ratings applicable to both the uncorroded and corroded conditions according to B16.5-1988?

Reply: Flanges dimensions in B16.5-1988 are related to new construction. The applicability of pressure-temperature ratings for material that is corroded or otherwise deteriorated is the responsibility of the user. See para. 5.1.1.

Interpretation: 2-26

Subject: Use of Barstock

Date Issued: February 5, 1992

File: B16-92-01

Question: May barstock be used to manufacture a flange according to B16.5-1988?

Reply: No. See para. 5.1

Interpretation: 2-25

Subject: Raised Face Flanges

Date Issued: February 5, 1992

File: B16-91-15

Question (1): Can the raised faces of flanges of Class 150 and Class 300 flanges be removed, even if the resulting flange thickness, or "C" dimension, is 0.06 in. less than the minimum as shown in column 3 of Tables 9 and 12 in B16.5-1988?

Replay(1): Yes. See para. 6.3.1

Question (2): If the raised face is removed from Class 150 and 300 flanges, will the pressure-temperature ratings remain unchanged?

Reply (2): Yes. See para. 6.3

Interpretation: 2-24

Subject: Welding Neck Flange Bores and Remachining

Date Issued: May 28, 1991

File: B16-90-32

Question (1): According to B16.5-1988, is it acceptable for welding neck flanges to have bores other than those listed in Table 6?

Reply (1): Yes, the bore is to be specified by the purchaser. In particular, see Note (14) in table 9 and Note (13) in Table 12.

Question (2): According to B16.5-1988, are the ratings applicable when the flange is welded to a pipe of equal schedule and having an allowable stress equal to or less than that of the flange material?

Reply (2): B16.5 does not cover ratings of piping assemblies.

Question (3): Does B16.5-1988 prohibits the machining of welding neck flange, which was originally manufactured with a smaller bore to produce a flange with a larger bore?

Reply (3): No.

Question (4): According to B16.5-1988, when a flange is remachined by an organization other than the original manufacturer, is it necessary for the original markings to be replaced with new markings?

Reply (4): B16.5 does not address remachining or replacement marking of flanges.

Interpretation: 2-23

Subject: Flange Facing Finish

Date Issued: April 18, 1991

File: B16-91-02

Question: May flange facing finishes be judged by methods other than visual comparison with Ra standards for the purpose of demonstrating conformance with para. 6.4.4 of B16.5-1988?

Reply: No.

Interpretation: 2-22

Subject: Welding Neck Flange Tolerances

Date Issued: April 18, 1991

File: B16-90-33

Question: According to B16.5-1988, what tolerances apply to dimension "Y" for welding neck flanges?

Reply: Those shown in para. 7.5

Interpretation: 2-21

Subject: Large Tongue and Groove Facings

Date Issued: February 1, 1991

File: B16-30-35

Question: Does B16.5-1988 require that flanges with a pressure class of least 300 be used for large tongue and groove facings?

Reply: Yes.

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Interpretation: 2-20

Subject: Pressure-Temperature Ratings

Date Issued: January 23, 1991

File: B16-90-37

Question: According to B16.5-1988, what pressure-temperature ratings would apply if a NPS 1½ Class 150 flange were bolted to a NPS 1½ Class 600 flange of the same material?

Reply: The rating of the Class 150 flange would apply (see para. 2.2).

Interpretation: 2-19

Note: See interpretation 2-40.

Subject: Dual Marking

Date Issued: B16-90-36

Question (1): According to B16.5-1988, may a flange produced having chemical and mechanical properties that meet the requirements of more than one material grade, e.g., F304/F304L, be marked with more than one material grade designation?

Reply (1): No.

Question (2): According to B16.5-1988, what stress values apply at temperatures above 800°F for flanges produced having chemical and mechanical properties that meets the requirements of more than one material grade where one of the grades does not list pressure-temperature ratings about 800°F, e.g., F304/F304L?

Reply (2): B16.5 does not address this question.

Interpretation 2-18

Subject: Materials

Date Issued: December 13, 1990

File: B16-90-22

Question: Does a flange made from two different materials joined by a threaded joint meet the requirements of B16.5-1988?

Reply: No.

Interpretation: 2-17

Subject: Flange Dimensions and Threads

Date Issued: December 13, 1990

File: B16-90-17

Question (1): In B16.5-1988, Table 3, Note (3), does the minimum length of treads, dimension "T", correspond to flange size designation or the threaded opening size dimension?

Reply (1): The threaded opening size designation.

Question (2): When a pipe is threaded into the flange, should the joint between the flange and the pipe form a lead free seal according to B16.5-1988?

Reply (2): Yes. See ASME V1.20.1

Question (3): May the threaded opening of a reducing threaded flange be used for a relief valve?

Reply (3): B16.5-1988 does not include application requirements for reducing threaded flanges.

Interpretation: 2-16

Subject: Flange Facing Finish

Date Issued: December 13, 1990

File: B16-90-13

Question (1): Does the requirements for use of an approximate 0.06 in. or larger radius tool in para. 6.4.41 of B16.5-1988 allow an essentially nonserrated flange surface?

Reply (1): No. The first sentence in para. 6.4.4.1 requires the finish to be serrated.

Question (2): Does the word “approximate” applied to the cutting tool radius in para. 6.4.4.1 of B16.5-1988 allow virtually any resultant finish?

Reply (2): No. The resultant finish must also meet the 125 to 500 $\mu\text{in.}$ roughness requirement in para. 6.4.4.1.

Question (3): Can a flat face flange comply with B16.5-1988 if it has a smooth face even though para. 6.3.4 requires a serrated facing finish for flat face flanges?

Reply (3): No.

Interpretation: 2-15

Subject: Eccentricity Tolerances

Date Issued: January 24, 1991

File: B16-90-25

Question (1): Does B16.5-1988 have a tolerance for eccentricity between the bolt circle diameter and the center opening in the flange?

Reply (1): No.

Question (2): Does B16.5-1988 have a tolerance for eccentricity between the bolt circle diameter and the O.D. of the flange?

Reply (2): No.

Interpretation: 2-14

Subject: Minimum Flange Thickness for Class 600 Flat Faced Flanges

Date Issued: November 12, 1990

File: B16-90-24

Question: What minimum flange thickness is required for Class 600 flat faced flanges according to B16.5-1988?

Reply: Dimension "C" as tabulated in column 3 of Table 18 (see para. 6.3.2).

Interpretation: 2-13

Subject: Chamfer and Tolerances of Flange Outer Edges

Date Issued: December 12, 1990

File: B16-90-23

Question: Does B16.5-1988 have any requirements for chamfer and tolerances of flange outer edges other than those relating to the flange thickness?

Reply: No.

Interpretation: 2-12

Subject: Flange Facing Finish

Date Issued: September 10, 1990

File: B16-90-18

Question: Does B16.5-1988 have any requirements for a "smooth finish" for flange facings?

Reply: No. However, para. 6.4.4 permits finishes other than those described by agreement between the user and manufacturer.

Interpretation: 2-11

Subject: Flange Facing Finish

Date Issued: September 6, 1990

File: B16-90-12

Question (1): Shall the flange facing be judged by visual comparison utilizing Ra standards as required by para. 6.4.4 of B16.5-1988?

Reply (1): Yes.

Question (2): Must the flange facing for raised face and large male and female flanges be manufactured using a cutting tool with an approximate 0.06 in. or larger radius providing 24 to 40 grooves/in. as required by para. 6.4.4.1 of B16.5-1988?

Reply (2): Yes, unless another finish is furnished by agreement between the user and manufacturer as permitted by para. 6.4.4.

Interpretation: 2-10

Subject: Outside Diameter Tolerance

Date Issued: July 3, 1990

File: B16-90-11

Question (1): Does B16.5-1988 have any requirements for tolerances on flange outside diameters?

Reply (1): No.

Question (2): Why not?

Reply (2): The ASME B16 Committee does not respond to questions about rationale for requirements.

Interpretation: 2-9

Subject: Use of Bar Stock and Flanges With Radial Slots

Date Issued: June 22, 1990

File: B16-90-16

Question (1): May pipe flanges be manufactured from bar stock and still meet the requirements of B16.5-1988?

Reply (1): No.

Question (2): May a pipe flange be slotted with a radial slot from the bore to the flange outside diameter and still meet the requirements of B16.5-1988?

Reply (2): No.

Interpretation: 2-8

Subject: Tolerances

Date Issued: June 21, 1991

File: B16-90-10

Question: Do the tolerances in paras. 7.22 and 7.23 of B16.5-1988 apply to all NPSs?

Reply: Yes.

Interpretation: 2-7

Subject: Bolt Hole Tolerances

Date Issued: June 18, 1990

File: B16-90-09

Question: Does B16.5-1988 have any requirements for tolerances on bolt hole diameters?

Reply: No.

Interpretation: 2-6

Note: See interpretation 2-40

Subject: Dual Marking

Date Issued: February 16, 1990

File: B16-89-13

Question (1): Does B16.5-1988 permit flanges to be dual marked when they are manufactured from material meeting the chemical composition, heat treatment, and mechanical properties of more than one material specification grade such as F304/F304L or F316/F316L?

Reply (1): No.

Question (2): Would dual marking of a flange, such as F304/F304L or F316/F316L, prohibit the use of the flange in Piping Code applications at the pressure ratings listed in B16.5-1988, Table 2, for the full range of temperatures given for the higher strength grade, such as F304 or F316, when the material is certified as having the chemical composition, heat treatment, and mechanical properties of both grades?

Reply (2): The B16 Committee cannot respond for what the Piping Code would allow. B16.5-1988 does not cover ratings of dual marked products.

Interpretation: 2-5

Subject: Thickness Less Than Tabulated Values

Date Issued: October 31, 1989

File: B16-89-07

Question: Are there any provisions in b16.5-1988 that permit local areas in the thickness of the flange to be less than the tabulated minimum values?

Reply: No.

Interpretation: 2-4

Subject: B16.5-1989

Date Issued: September 7, 1989

File: B16-89-08

Question: Does the stud bolt length specified in B16.5-1988 Table 8, 11, 14, 17, 20, 23, and 26 allow for extension of two full threads beyond each nut when assembled?

Reply: No. Annex F gives the method for calculating bolt lengths and does not necessarily allow for two exposed threads.

Interpretation: 2-3

Note: See interpretation 2-40

Subject: B16.5-1988, Dual Marking

Date Issued: January 31, 1989

File: B16-88-01

Question: Can a dual marked flange, such as F304/F304L or F316/F316L, meeting the dimensions of B16.5-1988 and the room temperature mechanical requirements and chemistry of ASTM A 182 for each grade or class, be used at the pressure ratings shown in Table 2 for the full range of temperatures given for the higher grade such as Type 3-4 or 316?

Reply: B16.5 only covers marking requirements for single grade materials.

Interpretation: 2-2

Note: This interpretation was omitted from the 1988 Edition of B16.5 and applies to B16.5-1981.

Subject: B16.5-1981, Table 1B

Date Issued: July 16, 1985

File: B16-85-10

Question: In B16.5-1981, is Note (13) to Table 1B as applied to material conforming to ASTM B 164, B 166, and B 408 restricted to the cold drawn stress relieved, cold drawn stress equalized, and cold drawn conditions?

Reply: No. See also para. 5.3 of B16.5

Interpretation: 2-1

Note: This interpretation was omitted from the 1988 Edition of B16.5 and applies to B16.5-1981.

Subject: B16.5-1981, Tolerance

Date Issued: March 8, 1985

File: B16-84-12

Question (1): For purposes of material acceptable inspection, is it the intent of tolerances listed in Section 7 of B16.5-1981, stated in hundredths of an inch, to be measured using precision equipment such as verniers, micrometers, or electric readout equipment?

Reply (1): No, the tolerances as stated are rounded decimal values of the previously listed fractional values.

Question (2): Is the tolerance on the 0.25 in. raised face of ± 0.02 in. correct and realistic?

Reply (2): Yes, because 0.25 in. raised faces can also be used as large male faces and must be compatible with large female flanges.

Interpretation: 1-34

Subject: Paragraph 6.3.4.1 Raised Face and Large Male and Female

Date Issued: August 14, 1986

File: B16-86-002

Question: In accordance with ANSI B16.5, para. 6.3.4, if a user and manufacturer agreed, may a nonserrated finish be used for raised face flanges?

Reply: Yes.

Interpretation: 1-33

Subject: Paragraph 1.1 and 5.1, Plate Materials

Date Issued: November 20, 1985

File: B16-85-013

Question: Assuming a material from Table 1 is used and the material specifications are not, does ANSI B16.5 permit blind flanges to be manufactured from plate?

Reply: Yes. See paras. 1.1 and 5.1 of ANSI B16.5

Interpretation: 1-32

Subject: Definition of Flange Facing

Date Issued: November 20, 1985

File: B16-85-005

Question: What is the definition of *flange facing* as used in ANSI B16.5?

Reply: ANSI B16.5 does not contain a definition of *flange facing* but as used in the Standard flange facing refers to the surface of the flange which normally comes in contact with the gasket.

Interpretation: 1-31

Subject: Paragraph 8.2 Flange Testing

Date Issued: November 20, 1985

File: B16-84-008

Question (1): What pressure does ANSI B16.5 require for the hydrostatic for Group 3 materials?

Reply (1): The pressure should be as calculated in para. 8.2

Question (2): For Group 3.5 material what is the pressure-temperature rating of Class 2500 flanges and flanged fittings at 750°F and 800°F?

Reply (2): The column dividing lines have been omitted to indicate that the pressure rating of Group 3.5 material is the same as Groups 3.6, 3.7, and 3.8 at 750°F and 800°F.

Interpretation: 1-30

Subject: Paragraph 5.1, Plate Material

Date Issued: November 19, 1985

File: B16-85-015

Question: It is Permissible in ANSI B16.5 to machine hubbed flanges directly form plate material listed in Table 1A?

Reply: No

Interpretation: 1-29

Subject: Paragraph 5 Materials

Date Issued: November 19, 1985

File: B16-85-008

Question: May flanges made of ASTM A 181 material be identified as conforming to ANSI B16.5-1981?

Reply: No.

Interpretation: 1-28

Subject: Paragraph 6.3.4 Flange Facing Finish

Date Issued: August 22, 1984

File: B16-84-005

Question: What were the reasons for the change in the flange facing finish requirements of ANSI B16.5 which resulted in the 1981 version limiting the finish to 125 μ in. roughness, introducing the lower limit of smoothness? What data or history of flange leakage necessitated the smoother finish requirements?

Reply: ANSI B16.5 has for many years defined the standard stock finish on flanges as a spiral or concentric serrate of 24 grooves/in. to 40 grooves/in. using a $\frac{1}{16}$ in. or greater radius tool. Within these parameters a resultant surface finish smoother than 125 AARH is difficult to achieve. The Committee felt, based on years of experience, that flange facing finished generally falling within the range of 125 AARH to 500 AARH have had good success in sealing the multitude of different gasket that the Standard allows.

It is not the intent of this Standard to limit flange facing finish within this range but merely to reflect the industry practice for normal stock finishes. Paragraph 6.3.4 allows for smoother (or coarser) finishes by agreement between manufacturer and user.

Interpretation: 1-27

Subject: Pressure-Temperature Ratings

Date Issued: November 21, 1983

File: B16-83-023

Question: Does ANSI B16.5 contain provisions for variations from the tabulated pressure-temperature ratings?

Reply: The Committee has determined that variations from ratings (over pressure) are the responsibility of the user.

Interpretation: 1-26

Subject: Pressure-Temperature Ratings

Date Issued: November 17, 1983

File: B16-83-017

Question (1): Does ANSI B16.5-1981 allows the use of slip-on flanges above 260°C when subjected to severe thermal gradients or thermal cycling?

Reply (1): The Committee feels the responsibility of using slip-on flanges above 260°C when subjected to severe thermal gradients or thermal cycling is the responsibility of the user.

Question (2): Does ANSI B16.5-1981 contains provisions for variations from the tabulated pressure-temperature ratings?

Reply (2): The Committee determined that variations from ratings (over pressure) are the responsibility of the user.

Question (3): Is the precautionary note on use of Class 150 flanges above 200°C in para. 2.4.2 related to the strength of the flange or a combination of flanges, gasket, and bolting?

Reply (3): The precautionary note about possible leakage in Class 150 flanges above 200°C when subjected to severe external loads and/or thermal gradients is related to the combination of flange strength, gasketing, bolting, etc. (refer to paragraph of para. 2.4.2)

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Interpretation: 1-25

Subject: Paragraph 6.3 Facings

Date Issued: November 14, 1983

File: B16-83-014

Question (1): for a 0.25 in. raised face flange, does ANSI B16.5 require that the transition from the raised face to the secondary face be perpendicular to the face?

Reply (1): No.

Question (2): For class 400 and higher flanges, what thickness is required for the flat face flanges?

Reply (2): Flat face flanges in Classes 400 and higher are not covered by ANSI B16.5. Flange thickness geometries covered by ANSI B16.5 for Classes 400 and higher are illustrated in Fig. 7.

Interpretation: 1-24

Subject: Paragraph 2 Pressure-Temperature Ratings

Date Issued: November 10, 1983

File: 59

Question (1): How were the pressure-temperature ratings determined for ANSI B16.5-1981?

Reply (1): Pressure-temperature ratings were calculated by the method described in Annex D for the 1977 edition using allowable stress and yield strength data through the Summer 1975 Addenda from the reference ASME Boiler and Pressure Vessel (BPV) Code Sections.

In the Foreword of B16.5-1981, it is noted that revisions of pressure-temperature ratings need not be considered unless changes in ASME BPV Code data result in rating changes greater than 10%. This rule was adopted to provide continuity for the Standard to enhance its effectiveness. The 1981 edition of B16.5 considered data through the Winter 1979 Addenda.

Question (2): If pressure-temperature calculations are made in accordance with Annex D of ANSI B16.5-1981 for a material listed in Table 1 and the calculated results yield values other than the tabulated values, may the calculated values be used to show compliance with ANSI B16.5?

Reply (2): No.

Question (3): In the case of materials listed in Table 1 of ANSI B16.5-1981 for which pressure-temperature ratings are tabulated, is it required for compliance with ANSI B16.5 that the ratings also be calculated by the method of Annex D?

Reply (3): No.

Interpretation: 1-23

Subject: Paragraph 6.3.1.1, Facings for Other than Lapped Joints.

Date Issued: November 9, 1983

File: 52

Question: Under what conditions does ANSI B16.5 allow removal of the raised face on Classes 150 and 300 flanges when furnishing flat face flanges?

Reply: Paragraph 6.3.1.1 of B16.5 states that the only time the raised face may be removal is when bolting to cast iron flanges.

Interpretation: 1-22

Subject: Long Welding Neck Flanges

Date Issued: September 26, 1983

File: B16-83-003

Question: Does ANSI B16.5 cover long welding neck flanges?

Reply: Long welding neck flanges are not covered in ANSI B16.5.

Interpretation: 1-21

Subject: Pressure-Temperature Ratings, 1977 Edition

Date Issued: September 20, 1983

File: 77

Question (1): What are the reasons and basis for decreasing the pressure-temperature ratings above 200°F in the 1977 edition of ANSI B16.5 versus the 1973 edition?

Reply (1): Ratings in ANSI B16.5 are a result of theoretical analysis with due consideration for experience in application. The changes in ratings were the result of the collective experience and expertise of the Committee members.

Question (2): Are there 1973 ratings for flanges applicable at the present time?

Reply (2): Ratings are applicable in accordance with para. 1.3 of ANSI B16.5-1977/81.

Interpretation: 1-20

Subject: Annex D

Date Issued: September 20, 1983

File: 56

Question (1): Can ANSI B16.5-1981 Annex D rules be applied to determine flange pressure-temperature ratings beyond 800°F for a material already listed in Group 3 to only 800°F?

Reply (1): Annex D of ANSI B16.5 deals only with materials not listed. There are currently no provisions for extending the ratings.

Question (2): Does ANSI B16.5 specifies a minimum ductility/elongation for flange materials?

Reply (2): Material requirements are those required by the reference ASTM specification and those required by notes for Table 2.

Question (3): Is a 0.2% offset yield strength intended for materials with no clearly defined yield point when using Annex D rules?

Reply (3): ANSI B16.5 has no rules for methods of determining yield strength. Yield strength values for deriving pressure-temperature ratings are limited to those listed in the ASME Boiler and Pressure Vessel Code Sections cited in Annex D.

Question (4): What are the criteria for determining the creep range temperature?

Reply (4): ANSI B16.5 has no rules for determining the creep temperature. Data for Group 1 and 2 materials were obtained from ASME Boiler and Pressure Vessel Code sources. An inquiry has been made to ASME by the B16 Committee for assistance in determining the value for Group 3 materials.

Interpretation: 1-19

Subject: Section 7, Tolerances

Date Issued: August 2, 1983

File: 61

Question (1): What are the dimensional limitation and sealing capabilities of flange facings?

Reply (1): Paragraph 7.2 gives tolerances on facing diameters. There are no specified tolerances on the various facing heights.

There required flange facing finish specified in para. 6.3.4 is intended to cover the wide range of gasket types and materials as specified in Fig. E1. Your experience may indicate different finish requirements for different gaskets. There other finishes may be furnished by agreements between the manufacture and user.

Question (2): What are the tolerances on the outside diameter (O dimension) and base of hub diameter (X dimension) or flanges?

Reply (2): There is no specified tolerance for either the outside diameter (O dimension) or the base hub diameter (X dimension) of flanges.

Question (3): Do the tolerances in para. 7.5 apply to the overall length of flanges (Y dimension)?

Reply (3): The tolerance specified in para. 7.5 applies to the length of hub (Y minus C) for welding neck flanges only.

Question (4): What allowances can be made for deviations from the published overall length of flanges (Y dimension)?

Reply (4): There are no tolerances specified on overall length (Y dimension) for any flange types. There is an implied tolerance on Y for welding neck flanges only, since the flange thickness and hub height are toleranced (see paras. 7.3 and 7.5).

Interpretation: 1-18

Subject: Bolt Circle Diameters

Date Issued: July 21, 1983

File: 60

Question (1): Why are there apparent discrepancies in the bolt circle diameters and bolt hole diameters between ANSI and ANSI B16.36?

Reply (1): There have been two editions (1977 and 1981) of ANSI B16.5 published since ANSI B16.36 was issued. With the 1981 edition, bolt hole diameters and bolting were changed to accommodate flanges and fittings to metric sizes with the intention of providing interchangeability. ANSI B16.36 has not been updated to reflect these changes but is on the B16 Standards Committee agenda to be reviewed for possible revision.

Question (2): Are there smaller bolt hole diameters in some Classes 300 and 600 flanges in ANSI B16.36 intended to provide a more accurate fit for the orifice plates?

Reply (2): The smaller hole sizes is intended to provide a more accurate fit but is only a small part of the problem of accurate metering.

Interpretation: 1-17

Subject: Section 6, Dimensions

Date Issued: July 15, 1983

File: 70

Question: What are the appropriate flange thickness for NPS $\frac{1}{2}$ and NPS $\frac{3}{4}$ Class 150 flanged fittings in Table 10 of ANSI B16.5?

Reply: There sizes are outside the scope of ANSI B16.5.

Interpretation: 1-16

Subject: Section 5, Materials

Date Issued: July 15, 1983

File: 66

Question: Does ANSI B16.5 limit the use of ASTM A 182 F5a material to nonwelding flanges only, since the allowable carbon content exceeds that allowed by QW-442 A-No. 4 in Section IX of the ASME Boiler and Pressure Vessel Code?

Reply: ANSI B16.5 is not a welding specification and does not impose limitations based on qualifying welding procedures. The inquirer is directed to the applicable vessel or piping code for such requirements.

Interpretation: 1-15

Subject: Section 2, Pressure-Temperature Ratings

Date Issued: June 20, 1983

File: 53

Question: Why do the pressure-temperature ratings of nickel based alloys in ANSI B16.5 stop at 800°F?

Reply: The pressure-temperature *P/T* ratings for materials listed in the Standard were determined based on the rating procedure given in Appendix D. This rating procedure requires that we have yield strength data at temperature up to the point where creep criteria apply. Since our source (ASME Boiler and Pressure Vessel Code) of data on yield strength at temperature stops at 800°F, we were unable to extend the *P/T* ratings beyond this point without making assumptions that could make the ratings too conservative above 800°F.

Interpretation: 1-14

Subject: Section 7, Tolerances

Date Issued: June 16, 1983

File: B16-83-022

Question: Does ANSI B16.5 have a tolerance on either the outside diameter or flanges or the height of the raised face of flanges?

Reply: No. The Committee will give consideration to placing a tolerance on these dimensions. Any changes will appear in a future addenda or edition.

Interpretation: 1-13

Subject: Bolting Materials and Surface Finishes

Date Issued: June 13, 1983

File: 69

Question (1): Is it intended that the UN series and metric series bolts be interchangeable?

Reply (2): It is intended that ANSI B16.5 flanges and flanged fittings manufactured to either dimensional system will be mutually interchangeable for bolt-up purpose.

Question (2): What thread configuration and pitch are intended for the metric series bolts?

Reply (2): ANSI B16.5 does not currently list the appropriate thread series for metric fasteners, but the Committee has on its agenda a request to add such information.

Question (3): Why has A 181 GR. I and II been deleted from the standard?

Reply (3): The scope of ASTM A 181-81 has changed such that it is not consistent with ANSI B16.5 requirements and has therefore been deleted.

Question (4): Why have bolting materials A 453-665 of "high strength" and A 354-BB and A 453-662 of "intermediate strength" been deleted for Table 1B?

Reply (4): ASTM A 453 Grades 662 and 665 are not listed in the ASME Boiler and Pressure Vessel Code allowable stress tables. Also the scope of ASTM A 453-80 states, "the material requires special processing and is not intended for general purpose applications." Grade BB has been dropped from ASTM A 354-80.

Question (5): Why have the surface roughness requirements for raised face and large male and female been changed?

Reply (5): Different types of gasket and gasket materials appear to perform differently for varying surface finishes. To accommodate all the possible gasket types and materials, this Committee felt a definite range of finish was preferable to 1977 requirements.

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Question (6): Does this same surface finish range apply to flat face flanges?

Reply (6): Yes.

Question (7): What are the appropriate hydrostatic test pressures for Material Groups 1.3 and all Group 3 materials in Table 1A?

Reply (7): The appropriate test pressures are calculated in accordance with the requirements of para. 8.3. The recently published errata to B16.5 includes to Group 1.3 pressures for conveniences. This Committee has an agenda item to expand the Table to include Group 3 material test pressures.

Question (8): Why the discrepancy between figures for outside diameter A of pipe and hub diameter A in Tables H6 and H9, H12, H18, H21, H24, and H27, respectively?

Reply (8): Table H6 values are taken from ANSI B36.10 and do not follow the same rounding techniques used in ANSI B16.5.

Interpretation: 1-12

Subject: Paragraph 6.3.4, Flange Facing Finish

Date Issued: February 15, 983

File: 35

Question: Will ANSI B16.5 set up definitive limits for flange facing finishes?

Reply: The 1981 edition of ANSI B16.5 has a definitive range of surface finish specified in para. 6.3.4.1. In addition, there is a definite range of feeds and a minimum tool radius specified. Paragraph 6.3.4 specifies method of judging the finish.

Interpretation: 1-11

Subject: Section 7, Tolerances

Date Issued: February 15, 1983

File: 29

Question (1): ANSI B16.5 as currently written leaves areas open for interpretation, which causes problems for both the vendor and the customer. To allow for the maximum tolerance would be in the best interest of ANSI and all valve manufacturers.

Reply (1): The present tolerancing practice in ANSI B16.1 and ANSI B16.5 have resulted in standards that can be used to obtain a product that can be purchased at a cost that reflects mass production advantages and that have for many years yielded items that are dimensionally compatible and suitable for fit-up with other flanges, valves, and piping components.

Question (2): Would a 0.062 in. diameter hole location (using ANSI Y14.5-1966 as a reference) be acceptable to replace paras. 7.7.1 and 7.7.2 of ANSI B16.5?

Reply (2): ANSI B16.5 specifies the required tolerances of bolt hole locations in paras. 7.7.1 and 7.7.2 but does not specify how to achieve these tolerances. One method of achieving the required location within tolerance is to use true-position dimensioning. Any method used that gives the desired result is acceptable.

No change is proposed of paras. 7.7.1 and 7.7.2

Question (3): What tolerance does the bolt circle location have in relationship to the cast outside diameter of the flange?

Reply (3): ANSI B 16.5 does not establish a relation between the bolt circle and the outside diameter of the flange.

Question (4): What is the tolerance from one bolt circle to the other on opposite flanges?

Reply (4): B16.5 does not establish a tolerance from one bolt circle to the other on opposite flanges. It should be noted here that the center-to-center tolerance of 0.03 in. specification in para 7.7.2 can be considered to help in lining up the bolt holes in opposite flanges so that the bolts (which have a diameter $\frac{1}{8}$ in. smaller than the bolt holes) can be inserted and flange joint assembled.

Interpretation: 1-10

Subject: Paragraph 7.4.1 and Tables 9,12,15, etc.; Hub Dimensions, 1977 Edition

Date Issued: February 15, 1983

File: 21

Question: In para.7.4.1 and Tables 9,12,15, etc., of ANSI B16.5-1977, is there a tolerance specified for the X dimension (diameter of hub at base)?

Reply: Starting with its first issue, ANSI B16.5 has not included a tolerance for the X dimension (diameter of hub at base) for flanges.

Interpretation: 1-9

Subject: Welding Neck Flanges

Date Issued: February 14, 1983

File: 67

Question (1): Can welding neck flanges that have had their hub heights modified to a shorter dimension be designated as ANSI B16.5 Class 600 flanges?

Reply (1): No. Flanges not conforming to all ANSI B16.5 dimensions cannot be stamped B16.

Question (2): If such modified flanges are used to fabricate a fitting assembly, will this assembly carry a Class 600 rating provided the fitting the flanges are attached to has been designed for the pressure rating and the attachment welds are adequate?

Reply (2): Such a fabrication is beyond the scope of this Standard. Pressure-temperature ratings of proprietary items are the responsibility of the manufacturer based on the relevant Code requirements.

Question (3): What type of test is required in order to prove this fabrication is capable of a Class 600 rating?

Reply (3): This Committee cannot answer for nonstandard items.

Question (4): If the fabrication cannot be used as Class 600 rating, can it be downrated? And if so, to what rating would it be downrated to?

Reply (4): This Committee cannot answer for nonstandard items.

Question (5): How is the ANSI B16.5 welding neck hub length derived?

Reply (5): The hub lengths were the result of good welding practice, flange design, and proper casting/forging practices (not necessarily in that order).

Interpretation: 1-8

Subject: Dimensions and Materials

Date Issued: February 14, 1983

File: 63

Question (1): Should the Dimensional Tables in the SI unit system be considered as “standard” or be taken as information?

Reply (1): Footnote 1 to para. 6 Dimensions states that dimensions in inches are standard. As indicated in the Foreword, the metric dimensions are informational.

Question (2): Are “UN” series and “metric” series bolts interchangeable?

Reply (2): It is intended that flanges and flanged fitting manufactured to either dimensional system will be mutually interchangeable for bolt-up purposes

Question (3): Why has A 181 Gr. I and II been deleted from the Standard?

Reply (3): The scope of ASTM A 181-81 states, “this specification covers nonstandard as-forged fittings, valve components, and parts for general services,” which is not consistent with B16.5 requirements. A 181 has therefore been deleted.

Question (4): Why have bolting materials A 453-665 of “high strength” and A 354-BB and A 453-662 of “intermediate strength” been deleted from Table 1B?

Reply (4): ASTM A 453 Grades 662 and 665 are not listed in the ASME Boiler and Pressure Vessel Code allowable stress tables. Also the scope of ASTM A 453-80 states, “the material requires special processing and is not intended for general purpose application.” Grade BB has been dropped from ASTM A 354-80.

Interpretation: 1-7

Subject: Metric Conversion

Date Issued: February 14, 1983

File: 33

Question: What method or version of metric conversion of ANSI B16.5 dimensions will be promoted in the ISO standard for flanges?

Reply: It is the intent of the B16 Standards Committee that flanges and flanged fittings manufactured to the dimensions in the standard (inch) tables or metric tables in Annex H, and the corresponding tolerances, and which otherwise conform to the requirements of ANSI B16.5-1981, will be equally acceptable. It is intended that flanges and flanged fittings manufactured to either dimensional system will be mutually interchangeable for bolt-up purpose. The B16 Standards Committee has recommended that dimensions in Annex H, and the corresponding tolerances, for consideration by ISO/TC 5/SC 10 in the preparation of an ISO standard for steel flanges.

Interpretation: 1-6

Subject: Tables 9 and 12, Removal of the Raised Face of Class 150 Flanges

Date Issued: February 11, 1983

File: 15

Question: Referencing footnote 13, p. 37, and footnote 12, p. 47 of ANSI B16.5, is it acceptable to supply a flat face part made from a raised face part with the facing removed, even if the resulting flange thickness (or C dimension) is 0.060 in. less than the minimum as shown in column 3 of tables 9 and 12?

Reply: Yes, the application of the referenced footnotes can result in a manufacturer furnishing a Class 150 or 300 flange with a C dimension to 0.060 in. less than that shown in column 3, Tables 9 and 12. Such flange, however, are limited to bolting to cast iron only (see para. 6.3.1) and for service at corresponding cast iron flange ratings (see para. 2.2).

Interpretation: 1-5

Subject: Table 9

File: 4

Question: Note 13 of Table 9 in ANSI B16.5-1977 reads: "When these flanges are required with flat face, either the full thickness or thickness with raised face removed may be furnished. Users are reminded that removing the raised face will make the length through the hub nonstandard."

(1) Can the raised face of a Class 150 threaded flange be removed and still comply with a referencing Code?

(2) Will the pressure-temperature ratings (rated Class 150) remain unchanged?

Replies: (1) Yes, provided all related requirements of ANSI B16.5 are met including paras. 6.3.1, 5.3.4, 5.4.1 and 2.2.

(2) No, para. 6.3.1.1 prohibits a decrease in flange thickness except when bolting to a cast iron flange. Paragraph 2.2 requires a flanged joint to be used at the lower of the two flange ratings. Therefore, an ANSI B16.5 flange with raised face removed is limited to the cast iron flange rating (see ANSI B16.1).

Interpretation: 1-4

Subject: Proprietary Products, 1977 Edition

Date Issued: October 7, 1982

File: 36

Question (1): Is it intended that ANSI B16.5-1977 should apply to flanged proprietary products, such as thermowells and diaphragm seals?

Reply (1): ANSI B16.5 is intended to cover flanges and flanged fittings. Proprietary items, such as diaphragm seals and thermowells, are not intended to be covered in this Standard even though materials and certain dimensions may correspond to those in the Standard.

Question (2): Why was bar stock excluded from ANSI B16.5-1977 after being permitted in B16.5-1973?

Reply (2): ANSI B16.5-1977 does not exclude the use of bar stock material but does require compliance with Annex D for pressure-temperature ratings in place of the pressure-temperature tables for materials listed in the Standard. It should be noted that ANSI B16.5 has no jurisdiction nor can it overrule and Piping or Boiler Code requirements that may be more restrictive about the use of bar stock for flanges or flanged fittings. Bar stock for flanges has been excluded in the past primarily in keeping with the Boiler Code requirements.

Question (3): How can the pressure-temperature ratings of flanged proprietary products be made conforming to the rating listed in ANSI B16.5 for various pressure rating classes?

Reply (3): ANSI B16.5 does not have rules for establishing ratings for products not covered by the Standard.

Interpretation: 1-3

Subject: Lapped flanges

Date Issued: May 28, 1982

File 35

Question: Is it acceptable under ASNI B16.5 to manufacture a lapped Class 150 or 300 flange from a slip-on flange without removing the raised face?

Reply: Yes, as long as the flange thickness, excluding the raised face, meets the minimums required by Table 9 and 12 for lapped flanges and are further limited to the following sizes:

Class 150	NPS ½-12
Class 300	NPS ½-8

Interpretation: 1-2

Subject: Conversion from Customary to Metric Dimensions (1977 Edition)

Date Issued: September 11, 1981

File: 8

Question (1): In the past, values in ANSI B16 tables were given as fractions. Why have they been changed to decimals in the 1977 Edition?

Reply (1): Dimensions in decimal fractions conform to ANSI B87.1-1965, which gives rules for dimensional standardization of mechanical products. Use of decimal inch fractions was intended as a step toward later conversion to metric values.

Question (2): Can you advise as to how to best convert English measurements in ANSI B16.5-1977 to metric equivalents?

Reply (2): Tables in Annex H of ANSI B16.5-1977 show the metric equivalent of inch values. These tables contain same errors and inconsistencies in rounding off metric values, which will be corrected in the revision now being prepared. Metric conversion may also be made from "old" dimensions [common fractions as mentioned in Question (1) of the inquiry] and the resultant metric values rounded appropriately.

Question (3): We have noticed some apparent typographical errors in ANSI B16.5-1977 and would like to take this opportunity to bring them to your attention. I refer you to the attached pages.

Reply (3): The typographical errors shown have been noted, and the next issue of ANSI B16.5 will show the correct information.

Interpretation: 1-1

Subject: Modification to Flanges; Downrating (1977 Edition)

Date Issued: March 30, 1981

File: 5

Question (1): Do flanges made to ANSI B16.5-1977 automatically lose their rating if small modifications are made to the flanges after manufacture?

Reply (1): Modifications to the dimensions of flanges that result in an item that does not meet the dimensions and dimensional tolerances of ANSI B16.5-1977 result in a nonstandard item. Such items technically cannot carry an automatic ANSI B16.5 rating.

Question (2): Is it possible to obtain ANSI approval of such small modification, and/or received approval on downrating the allowable working pressure?

Reply (2): The Subcommittee neither approves nor disapproves modifications to standard products or downrating the allowable working pressure for modified parts. Such actions and decisions are the responsibility of the person who makes the modifications.
