



SURFACE VEHICLE STANDARD

J755**MAY2015**Issued 1929-02
Reaffirmed 2015-05

Superseding J755 DEC2009

Marine Propeller-Shaft Ends and Hubs

RATIONALE

J755 has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE

This SAE Standard specifies basic tolerances and dimensions for inboard propeller-shaft ends, propeller hubs and keyways for shaft sizes 3/4 in (19 mm) through 8 in (203 mm).

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.

2.1.1 ASME Publications

Available from American Society of Mechanical Engineers, 22 Law Drive, Fairfield, N.J. 07007, Tel: 973-882-1170, www.asme.org. (Also available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.)

ASME B18.2.2 Square and Hex Nuts

ASME B46.1 Surface Texture, Surface Roughness, Waviness and Lay

3. TOLERANCES FOR SAE MARINE TAPERS—SURFACE FINISH

The machined surfaces of propeller hubs, shafting, and keyways shall have a surface finish of 32 uin RMS, 29 uin RA (0.81 um RMS, 0.74 um RA) maximum as defined by ASME B46.1.

3.1 Basic Dimensions

Taper per foot measured on the diameter and diameter of small end of taper shall be basic dimensions.

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Documents
AVS
Document Sharing Hub

3.2 Taper Tolerances for Hub Bores

Sizes $\frac{3}{4}$ in (19 mm) to $1\frac{1}{4}$ in (32 mm) inclusive, 0.7500 in (19 mm) (+0.0000, -0.0020) in taper per ft
 Sizes $1\frac{3}{8}$ in (35 mm) to 2 in (51 mm) inclusive, 0.7500 in (19 mm) (+0.0000, -0.0019) in taper per ft
 Sizes $2\frac{1}{4}$ in (57 mm) to 3 in (76 mm) inclusive, 0.7500 in (19 mm) (+0.0000, -0.0015) in taper per ft
 Sizes $3\frac{1}{4}$ in (83 mm) to $5\frac{1}{2}$ in (140 mm) inclusive, 0.7500 in (19 mm) (+0.0000, -0.0013) in taper per ft
 Sizes 6 in (152 mm) to 8 in (203 mm) inclusive, 1.0000 in (25 mm) (+0.0000, -0.0013) in taper per ft

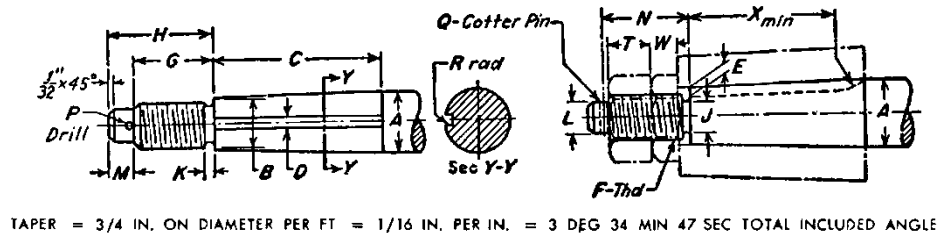


FIGURE 1 - PROPELLER-SHAFT ENDS

TABLE 1 - DIMENSIONS FOR SHAFTS FROM $\frac{3}{4}$ in (19 mm) TO 3 in (76 mm) IN DIAMETER

Nominal Shaft Dia, A	Dia Small End B Min	Dia Small End B Max	Taper Length, C	Keyway Width, D Nominal	Keyway Width D Min	Keyway Width, D Max	Keyway Side Depth ⁽¹⁾ E Nominal	Keyway Side Depth ⁽¹⁾ Min	Keyway Side Depth ⁽¹⁾ Max	Keyway Fillet Radius, ⁽²⁾ R	Thread ⁽³⁾ F Dia	Thread ⁽³⁾ F Threads per in	End of Taper to End of Thread, G	Extension Beyond Taper, H
0.75 (19.05)	0.624 (15.85)	0.626 (15.90)	2 (50.80)	0.19 (4.83)	0.1865 (4.74)	0.1875 (4.76)	0.09 (2.29)	0.095 (2.41)	0.097 (2.46)	0.03 (0.76)	1/2	13	1.06 (26.92)	1.31 (33.27)
0.88 (22.35)	0.726 (18.44)	0.728 (18.49)	2.38 (60.45)	0.25 (6.35)	0.249 (6.32)	0.250 (6.35)	0.13 (3.30)	0.125 (3.18)	0.127 (3.23)	0.03 (0.76)	5/8	11	1.25 (31.75)	1.5 (38.10)
1 (25.40)	0.827 (21.01)	0.829 (21.06)	2.75 (69.85)	0.25 (6.35)	0.249 (6.32)	0.250 (6.35)	0.13 (3.30)	0.125 (3.18)	0.127 (3.23)	0.03 (0.76)	3/4	10	1.43 (36.32)	1.75 (44.45)
1.13 (28.70)	0.929 (23.60)	0.931 (23.65)	3.13 (79.50)	0.25 (6.35)	0.249 (6.32)	0.250 (6.35)	0.13 (3.30)	0.125 (3.18)	0.127 (3.23)	0.03 (0.76)	3/4	10	1.43 (36.32)	1.75 (44.45)
1.25 (31.75)	1.030 (26.16)	1.032 (26.21)	3.5 (88.90)	0.31 (7.87)	0.3115 (7.91)	0.3125 (7.94)	0.16 (4.06)	0.157 (3.99)	0.160 (4.06)	0.06 (1.52)	7/8	9	1.63 (41.40)	2 (50.80)
1.38 (35.05)	1.132 (28.75)	1.134 (28.80)	3.88 (98.55)	0.31 (7.87)	0.3115 (7.91)	0.3125 (7.94)	0.16 (4.06)	0.157 (3.99)	0.160 (4.06)	0.06 (1.52)	1	8	1.81 (45.97)	2.25 (57.15)
1.50 (38.10)	1.233 (31.32)	1.235 (31.37)	4.25 (107.95)	0.38 (9.65)	0.374 (9.50)	0.375 (9.53)	0.19 (4.83)	0.189 (4.80)	0.192 (4.88)	0.06 (1.52)	1 1/8	7	2 (50.80)	2.43 (61.72)
1.75 (44.45)	1.437 (36.50)	1.439 (36.55)	5 (127.00)	0.44 (11.18)	0.4365 (11.09)	0.4375 (11.11)	0.22 (5.59)	0.219 (5.56)	0.222 (5.64)	0.06 (1.52)	1 1/4	7	2.25 (57.15)	2.75 (69.85)
2 (50.80)	1.640 (41.66)	1.642 (41.71)	5.75 (146.05)	0.5 (12.70)	0.499 (12.67)	0.500 (12.70)	0.25 (6.35)	0.251 (6.38)	0.254 (6.45)	0.06 (1.52)	1 1/2	6	2.63 (66.80)	3.13 (79.50)
2.25 (57.15)	1.843 (46.81)	1.845 (46.86)	6.5 (165.10)	0.56 (14.22)	0.561 (14.25)	0.5625 (14.29)	0.28 (7.11)	0.281 (7.14)	0.284 (7.21)	0.09 (2.29)	1 3/4	5	3 (76.20)	3.5 (88.90)
2.50 (63.50)	2.046 (51.97)	2.048 (52.02)	7.25 (184.15)	0.63 (16.00)	0.6235 (15.84)	0.625 (15.88)	0.31 (7.87)	0.315 (8.00)	0.312 (7.92)	0.09 (2.29)	1 3/4	5	3 (76.20)	3.5 (88.90)
2.75 (69.85)	2.257 (57.33)	2.259 (57.38)	7.88 (200.15)	0.63 (16.00)	0.6235 (15.84)	0.625 (15.88)	0.31 (7.87)	0.313 (7.95)	0.316 (8.03)	0.09 (2.29)	2	4-1/2	3.5 (88.90)	4 (101.60)
3 (76.20)	2.460 (62.48)	2.462 (62.53)	8.63 (219.20)	0.75 (19.05)	0.7485 (19.01)	0.750 (19.05)	0.31 (7.87)	0.311 (7.90)	0.314 (7.98)	0.09 (2.29)	2 1/4	4-1/2	3.88 (98.55)	4.38 (111.25)

1. Keyway shall be cut parallel to taper.
2. Fillets are mandatory for keyways on all shaft diameters.
3. Threads are Unified.

TABLE 2 - DIMENSIONS FOR SHAFTS FROM 3/4 in (19 mm) TO 3 in (76 mm) IN DIAMETER (CONTINUED)

Nominal Shaft Dia, A	Undercut J	Undercut K	Dia of Pin End, L	Length Of Pin End, M	Cotter Pin Hole N	Cotter Pin Hole P (Drill)	Cotter Pin, Q Nominal Dia	Cotter Pin, Q Nominal Length	Nuts ⁽¹⁾ Size	Plain Thickness T	Jam Thickness, W	Keyway Length, X Min
0.75 (19.05)	0.39 (9.91)	0.13 (3.30)	0.38 (9.65)	0.25 (6.35)	1.14 (28.96)	0.14 (3.56)	0.13 (3.30)	0.75 (19.05)	1/2—13	0.5 (12.70)	0.31 (7.87)	1.5 (38.10)
0.88 (22.35)	0.48 (12.19)	0.13 (3.30)	0.44 (11.18)	0.25 (6.35)	1.33 (33.78)	0.14 (3.56)	0.13 (3.30)	0.75 (19.05)	5/8—11	0.63 (16.00)	0.38 (9.65)	1.78 (45.21)
1 (25.40)	0.59 (14.99)	0.13 (3.30)	0.5 (12.70)	0.31 (7.87)	1.52 (38.61)	0.14 (3.56)	0.13 (3.30)	1 (25.40)	3/4—10	0.75 (19.05)	0.44 (11.18)	2.13 (54.10)
1.13 (28.70)	0.59 (14.99)	0.13 (3.30)	0.5 (12.70)	0.31 (7.87)	1.52 (38.61)	0.14 (3.56)	0.13 (3.30)	1 (25.40)	3/4—10	0.75 (19.05)	0.44 (11.18)	2.13 (54.10)
1.25 (31.75)	0.72 (18.29)	0.13 (3.30)	0.63 (16.00)	0.38 (9.65)	1.72 (43.69)	0.17 (4.32)	0.16 (4.06)	1.25 (31.75)	7/8—9	0.88 (22.35)	0.5 (12.70)	2.81 (71.37)
1.38 (35.05)	0.81 (20.57)	0.13 (3.30)	0.75 (19.05)	0.44 (11.18)	1.91 (48.51)	0.17 (4.32)	0.16 (4.06)	1.5 (38.10)	1 —8	1 (25.40)	0.56 (14.22)	3.19 (81.03)
1.5 (38.10)	0.91 (23.11)	0.19 (4.83)	0.88 (22.35)	0.44 (11.18)	2.09 (53.09)	0.17 (4.32)	0.16 (4.06)	1.5 (38.10)	1-1/8—7	1.13 (28.70)	0.63 (16.00)	3.5 (88.90)
1.75 (44.45)	1.03 (26.16)	0.19 (4.83)	1 (25.40)	0.5 (12.70)	2.36 (59.94)	0.2 (5.08)	0.19 (4.83)	1.75 (44.45)	1-1/4—7	1.25 (31.75)	0.75 (19.05)	4.22 (107.19)
2 (50.80)	1.25 (31.75)	0.19 (4.83)	1.25 (31.75)	0.5 (12.70)	2.73 (69.34)	0.2 (5.08)	0.19 (4.83)	2 (50.80)	1-1/2—6	1.5 (38.10)	0.88 (22.35)	4.94 (125.48)
2.25 (57.15)	1.38 (35.05)	0.19 (4.83)	1.38 (35.05)	0.5 (12.70)	3.14 (79.76)	0.27 (6.86)	0.25 (6.35)	2.25 (57.15)	1-3/4—5	1.75 (44.45)	1 (25.40)	5.63 (143.00)
2.5 (63.50)	1.44 (36.58)	0.19 (4.83)	1.44 (36.58)	0.5 (12.70)	3.14 (79.76)	0.27 (6.86)	0.25 (6.35)	2.25 (57.15)	1-3/4—5	1.75 (44.45)	1 (25.40)	6.09 (154.69)
2.75 (69.85)	1.69 (42.93)	0.25 (6.35)	1.69 (42.93)	0.5 (12.70)	3.64 (92.46)	0.27 (6.86)	0.25 (6.35)	2.5 (63.50)	2 —4-1/2	2 (50.80)	1.13 (28.70)	6.66 (169.16)
3 (76.20)	1.94 (49.28)	0.25 (6.35)	1.94 (49.28)	0.5 (12.70)	4.02 (102.11)	0.27 (6.86)	0.25 (6.35)	3 (76.20)	2-1/4—4-1/2	2.25 (57.15)	1.25 (31.75)	7.34 (186.44)

1. Nuts are to be semifinished stock per ASME B18.2.2..

3.3 Taper Tolerances for Shafts

Sizes 3/4 in (19 mm) to 1 1/4 in (32 mm) inclusive, 0.7500 in (19 mm) (+0.0020, -0.0000) in taper per ft

Sizes 1 3/8 in (35 mm) to 2 in (51 mm) inclusive, 0.7500 in (19 mm) (+0.0019, -0.0000) in taper per ft

Sizes 2 1/4 in (57 mm) to 3 in (76 mm) inclusive, 0.7500 in (19 mm) (+0.0015, -0.0000) in taper per ft

Sizes 3 1/4 in (83 mm) to 5 1/2 in (140 mm) inclusive, 0.7500 in (19 mm) (+0.0013, -0.0000) in taper per ft

Sizes 6 in (152 mm) to 8 in (203 mm) inclusive, 1.0000 in (25 mm) (+0.0013, -0.0000) in taper per ft

4. BASIC DATA—KEYWAYS

The keyway shall be cut parallel to the shaft taper. At the small end of the hub length and shaft taper length, the keyway shall have the specified side depth. The keyway side depth shall be measured normal to the axis of the taper, not normal to the surface of the taper. The top corners of the keyways shall be rounded to a radius half of that used at the bottom of the keyway.

4.1 Keys

Keys for use in filleted keyways must be chamfered so that the corners of the key do not touch the keyway fillets.

4.2 Small-End Diameter of Taper for Hubs

For nominal bore diameters 3/4 in (83 mm) to 4 in (102 mm) inclusive, the small end of the taper shall be 0.8125 times the nominal bore diameter.

For nominal bore diameters 4 1/2 in (114 mm) to 5 1/2 in (140 mm) inclusive, the small end of the taper shall be 0.84375 times the nominal bore diameter.

For nominal bore diameters 6 in (152 mm) to 8 in (203 mm) inclusive, the small end of the taper shall be 0.79167 times the nominal bore diameter.