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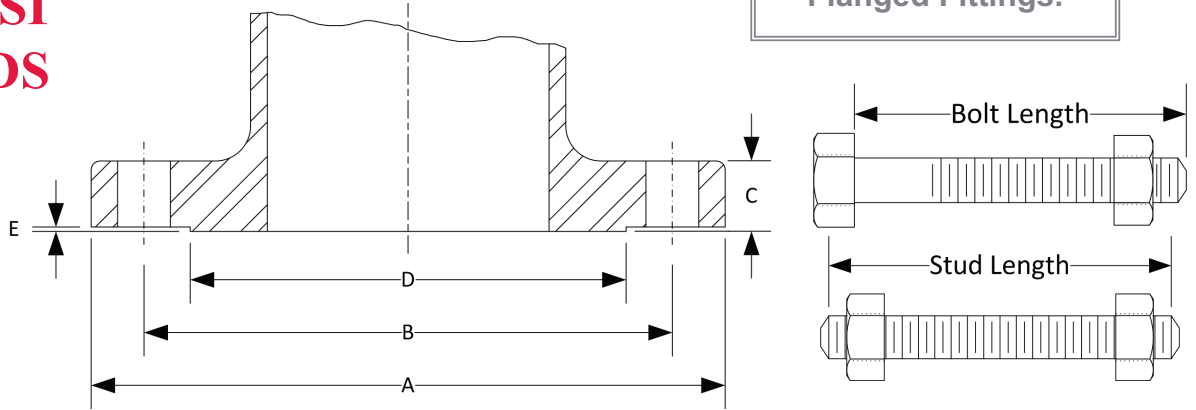
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Flange, Bolt Holes, and Bolting Dimensions for Flanged Fittings.

ASME / ANSI STANDARDS



Cast Iron Flanges

		1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20
125 lb.	Flange Dia. A	--	--	4-1/4	4-5/8	5	6	7	7-1/2	9	10	11	13-1/2	16	19	21	23-1/2	25	27-1/2
	Bolt Circle Dia. B	--	--	3-1/8	3-1/2	3-7/8	4-3/4	5-1/2	6	7-1/2	8-1/2	9-1/2	11-3/4	14-1/4	17	18-3/4	21-1/4	22-3/4	25
	Flange Thk. C	--	--	7/16	1/2	6/16	5/8	11/16	3/4	15/16	15/16	1	1-1/8	1-3/16	1-1/4	1-3/8	1-7/16	1-9/16	1-11/16
	No. Bolts	--	--	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20
	Bolt Dia.	--	--	1/2	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	3/4	3/4	7/8	7/8	1	1	1-1/8
	Bolt Length	--	--	1-3/4	2	2	2-1/4	2-1/2	2-1/2	3	3	3-1/4	3-1/2	3-3/4	3-3/4	4-1/4	4-1/2	4-3/4	5
250 lb.	Flange Dia. A	--	--	4-7/8	5-1/4	6-1/8	6-1/2	7-1/2	8-1/4	10	11	12-1/2	15	17-1/2	20-1/2	23	25-1/2	28	30-1/2
	Bolt Circle Dia. B	--	--	3-1/2	3-7/8	4-1/2	5	5-7/8	6-5/8	7-7/8	9-1/4	10-5/8	13	15-1/4	17-3/4	20-1/4	22-1/2	24-3/4	27
	Flange Thk.* C	--	--	11/16	3/4	13/16	7/8	1	1-1/8	1-1/4	1-3/8	1-7/16	1-5/8	1-7/8	2	2-1/8	2-1/4	2-3/8	2-1/2
	Raised Face Dia. D	--	--	2-11/16	3-1/16	3-9/16	4-3/16	4-15/16	5-11/16	6-15/16	8-5/16	9-11/16	11-15/16	14-1/16	16-7/16	18-15/16	21-1/16	23-5/16	25-9/16
	No. Bolts	--	--	4	4	4	8	8	8	8	8	12	12	16	16	20	20	24	24
	Bolt Dia.	--	--	5/8	5/8	3/4	5/8	3/4	3/4	3/4	3/4	3/4	7/8	1	1-1/8	1-1/8	1-1/4	1-1/4	1-1/4
	Bolt Length	--	--	2-1/2	2-1/2	2-3/4	2-3/4	3-1/4	3-1/2	3-3/4	4	4	4-1/2	5-1/4	5-1/2	6	6-1/4	6-1/2	6-3/4

Bronze Flanges

		1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20
150 lb.	Flange Dia. A	3-1/2	3-7/8	4-1/4	4-5/8	5	6	7	7-1/2	9	10	11	13-1/2	16	19	--	--	--	--
	Bolt Circle Dia. B	2-3/8	2-3/4	3-1/8	3-1/2	3-7/8	4-3/4	5-1/2	6	7-1/2	8-1/2	9-1/2	11-3/4	14-1/4	17	--	--	--	--
	Flange Thk. C	5/16	11/32	3/8	13/32	7/16	1/2	9/16	5/8	11/16	3/4	13/16	15/16	1	1-1/16	--	--	--	--
	No. Bolts	4	4	4	4	4	4	4	4	8	8	8	8	12	12	--	--	--	--
	Bolt Dia.	1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	3/4	7/8	7/8	--	--	--	--
	Bolt Length	1-3/4	1-3/4	1-3/4	2	2	2-1/4	2-1/2	2-1/2	3	3	3-1/4	3-1/2	3-3/4	3-3/4	--	--	--	--
300 lb.	Flange Dia. A	3-3/4	4-5/8	4-7/8	5-1/4	6-1/8	6-1/2	7-1/2	8-1/4	10	11	12-1/2	15	--	--	--	--	--	--
	Bolt Circle Dia. B	2-5/8	3-1/4	3-1/2	3-7/8	4-1/2	5	5-7/8	6-5/8	7-7/8	9-1/4	10-5/8	13	--	--	--	--	--	--
	Flange Thk.* C	1/2	17/32	19/32	5/8	11/16	3/4	13/16	29/32	1-1/16	1-1/8	1-3/16	1-3/8	--	--	--	--	--	--
	No. Bolts	4	4	4	4	4	8	8	8	8	8	12	12	--	--	--	--	--	--
	Bolt Dia.	1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	3/4	3/4	3/4	7/8	--	--	--	--	--	--
	Bolt Length	2	2	2-1/2	2-1/2	2-3/4	2-3/4	3-1/4	3-1/2	3-1/2	4	4	4-1/2	--	--	--	--	--	--

Steel Flanges

		1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20
150 lb.	Flange Dia. A	3-1/2	3-7/8	4-1/4	4-5/8	5	6	7	7-1/2	9	10	11	13-1/2	16	19	21	23-1/2	25	27-1/2
	Bolt Circle Dia. B	2-3/8	2-3/4	3-1/8	3-1/2	3-7/8	4-3/4	5-1/2	6	7-1/2	8-1/2	9-1/2	11-3/4	14-1/4	17	18-3/4	21-1/4	22-3/4	25
	Flange Thk.* C	7/16	7/16	7/16	1/2	9/16	5/8	11/16	3/4	15/16	15/16	1	1-1/8	1-3/16	1-1/4	1-3/8	1-7/16	1-9/16	1-11/16
	Raised Face Dia. D	1-3/8	1-11/16	2	2-1/2	2-7/8	3-5/8	4-1/8	5	6-3/16	7-5/16	8-1/2	10-5/8	12-3/4	15	16-1/4	18-1/2	21	23
	No. Bolts	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16	16	20	20
	Bolt Dia.	1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	3/4	7/8	7/8	1	1	1-1/8	1-1/8
	Bolt Length	2	2	2-1/4	2-1/4	2-1/2	2-3/4	3	3	3	3-1/4	3-1/4	3-1/2	4	4	4-1/2	4-1/2	5	5-1/2
	Stud Length	2-1/4	2-1/2	2-1/2	2-3/4	2-3/4	3-1/4	3-1/2	3-1/2	3-1/2	3-3/4	4	4-1/4	4-1/2	4-3/4	5-1/4	5-1/4	5-3/4	6-1/4
300 lb.	Flange Dia. A	3-3/4	4-5/8	4-7/8	5-1/4	6-1/8	6-1/2	7-1/2	8-1/4	10	11	12-1/2	15	17-1/2	20-1/2	23	25-1/2	28	30-1/2
	Bolt Circle Dia. B	2-5/8	3-1/4	3-1/2	3-7/8	4-1/2	5	5-7/8	6-5/8	7-7/8	9-1/4	10-5/8	13	15-1/4	17-3/4	20-1/4	22-1/2	24-3/4	27
	Flange Thk.* C	9/16	5/8	11/16	3/4	13/16	7/8	1	1-1/8	1-1/4	1-3/8	1-7/16	1-5/8	1-7/8	2	2-1/8	2-1/4	2-3/8	2-1/2
	Raised Face Dia. D	1-3/8	1-11/16	2	2-1/2	2-7/8	3-5/8	4-1/8	5	6-3/16	7-5/16	8-1/2	10-5/8	12-3/4	15	16-1/4	18-1/2	21	23
	No. Bolts	4	4	4	4	4	8	8	8	8	8	12	12	16	16	20	20	24	24
	Bolt Dia.	1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	3/4	3/4	3/4	7/8	1	1-1/8	1-1/8	1-1/4	1-1/4	1-1/4
	Bolt Length	2-1/4	2-1/2	2-1/2	2-3/4	3	3	3-1/4	3-1/2	3-3/4	4-1/4	4-1/4	4-3/4	5-1/2	5-3/4	6-1/4	6-1/2	6-3/4	7-1/4
	Stud Length	2-1/2	3	3	3-1/4	3-1/2	3-1/2	4	4-1/4	4-1/2	4-3/4	4-3/4	5-1/2	6-1/4	6-3/4	7	7-1/2	7-3/4	8
600 lb.	Flange Dia. A	3-3/4	4-5/8	4-7/8	5-1/4	6-1/8	6-1/2	7-1/2	8-1/4	10-3/4	13	14	16-1/2	20	22	23-3/4	27	29-1/4	32
	Bolt Circle Dia. B	2-5/8	3-1/4	3-1/2	3-7/8	4-1/2	5	5-7/8	6-5/8	8-1/2	10-1/2	11-1/2	13-3/4	17	19-1/4	20-3/4	23-3/4	25-3/4	28-1/2
	Flange Thk.* C	9/16	5/8	11/16	13/16	7/8	1	1-1/8	1-1/4	1-1/2	1-3/4	1-7/8	2-3/16	2-1/2	2-5/8	2-3/4	3	3-1/4	3-1/2
	Raised Face Dia. D	1-3/8	1-11/16	2	2-1/2	2-7/8	3-5/8	4-1/8	5	6-3/16	7-5/16	8-1/2	10-5/8	12-3/4	15	16-1/4	18-1/2	21	23
	No. Bolts	4	4	4	4	4	8	8	8	8	8	12	12	16	20	20	20	20	24
	Bolt Dia.	1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	7/8	1	1	1-1/8	1-1/4	1-1/4	1-3/8	1-1/2	1-5/8	1-5/8
	Bolt Length	2-1/4	2-1/2	2-1/2	2-3/4	3	3	3-1/4	3-1/2	3-3/4	4-1/4	4-1/4	4-3/4	5-1/2	5-3/4	6-1/4	6-1/2	6-3/4	7-1/4
	Stud Length	3	3-1/2	3-1/2	3-3/4	4-1/4	4-1/4	4-3/4	5	5-3/4	6-1/2	6-3/4	7-1/2	8-1/2	8-3/4	9-1/4	10	10-3/4	11-1/2

*Flange thickness (dimension C) includes a 1/16 inch high face (dimension E).
 †Flange thickness (dimension C) does not include a 1/4 inch high face (dimension E).

PHYSICAL PROPERTIES & CHEMICAL COMPOSITION
**CAST IRON -
ASTMA 126, CLASS B**

Tensile Strength..... 31,000 PSI
Compressive Strength ...109,000 PSI
Tensile Modulus.....15 x 10⁶ PSI

Chemical Composition:

C (Carbon)3.20 - 3.40%
Si (Silicon)2.10 - 2.30%
P (Phosphorus)0.15 - 0.30%
S (Sulfur).....0.08 - 0.12%
Mn (Manganese)0.50 - 0.80%

**DUCTILE IRON -
ASTMA 536, GRADE 65-45-12**

Tensile Strength 60/80,000 PSI
Yield.....45/60,000 PSI
Elongation10/30%

Chemical Composition:

C (Carbon)3.20 - 3.40%
Si (Silicon)1.80 - 2.80%
P (Phosphorus)0.08% Max.
S (Sulfur).....0.03% Max.
Mn (Manganese)0.03% Max.

**BRONZE -
ASTM B 62, C83600**

Tensile Strength..... 30,000 PSI
Yield.....14,000 PSI
Elongation.....20%

Chemical Composition:

Cu (Copper).....85.0%
Sn (Tin).....5.0%
Pb (Lead).....5.0%
Zn (Zinc)5.0%
Ni (Nickel)1.0% Max.
Fe (Iron)0.3% Max.
P (Phosphorus)0.5% Max.

**CARBON STEEL -
ASTMA 216, GRADE WCB**

Tensile Strength..... 70,000 PSI
Yield.....36,000 PSI
Elongation.....22%

Chemical Composition:

C (Carbon).....0.30%
Si (Silicon)0.60%
P (Phosphorus)0.04%
S (Sulfur).....0.045%
Mn (Manganese)1.00%
Residual Elements.....1.00% Max.

**316 STAINLESS STEEL -
ASTMA 351, GRADE CF8M**

Tensile Strength..... 70,000 PSI
Yield.....30,000 PSI
Elongation.....30%

Chemical Composition:

C (Carbon)0.08% Max.
Si (Silicon)1.5%
P (Phosphorus)0.040%
Cr (Chromium)18.0 - 21.0%
Ni (Nickel)9.0 - 12.0%
Mn (Manganese)1.50%
S (Sulfur).....0.04%
Mo (Molybdenum).....2.0 - 3.0%

**BRONZE -
ASTM B 584, C84400**
Chemical Composition:

Cu (Copper)78.0 - 82.0%
Sn (Tin)2.3 - 3.5%
Pb (Lead).....6.0 - 8.0%
Zn (Zinc)7.0 - 10.0%
Fe (Iron)0.4% Max.
Ni (Nickel)1.0% Max.
P (Phosphorus)0.2% Max.

**NICKEL ALUMINUM BRONZE -
ASTM B 148, C95800**

Tensile Strength..... 85,000 PSI
Yield.....35,000 PSI
Elongation.....15%

Chemical Composition:

Cu (Copper).....79.0%
Al (Aluminum)8.5 - 9.5%
Fe (Iron)3.5 - 4.5%
Mn (Manganese)0.8 - 1.5%
Ni (Nickel)4.0 - 5.0%
Si (Silicon)0.10% Max.
Pb (Lead).....0.03% Max.

BASKET STRAINERS

All strainers are to be an approved equal to the Keckley Company strainer Styles Listed Below:

- **Cast iron**, ASTM A 126, Class B
Threaded end Basket strainer, sizes ½” - 2”
 Rated: Steam 250 PSI @ 406°F; WOG 400 PSI @ 150°F
 Standard 304 perforated stainless steel basket. ½” - 2” for WOG - 3/64”,
 1/32” perf. for steam service.
KECKLEY COMPANY Style D
- **Cast iron**, ASTM A 126, Class B
Flanged end Basket Strainer, sizes 2” - 12”
 Rated: 125 lb. flange Steam 125 PSI @ 450°F; WOG 200 PSI @ 150°F
 250 lb. flange Steam 250 PSI @ 450°F; WOG 500 PSI @ 150°F
 Standard 304 perforated stainless steel basket.
 Standard for liquid service: 2” - 12”, 1/8”
 Standard for steam service: 2” - 5”, 1/16”; 6” - 12”, 1/8”
KECKLEY COMPANY Style D
- **Cast iron**, ASTM A 126, Class B
Flanged end Basket Strainer, sizes 2” - 16”
 Rated: 125 lb. flange 2” - 12” Steam 125 PSI @ 450°F; WOG 200 PSI @ 150°F
 125 lb. flange 14” & 16” Steam 100 PSI @ 353°F; WOG 150 PSI @ 150°F
 250 lb. flange 2” - 6” Steam 250 PSI @ 450°F; WOG 500 PSI @ 150°F
 Standard 304 perforated stainless steel basket.
 Standard for liquid service: 2” - 16”, 1/8”
 Standard for steam service: 2” - 3”, 1/16”; 4” - 16”, 1/8”
KECKLEY COMPANY Style GFV

Note: For basket strainer styles and sizes not covered above, contact Keckley (800-KECKLEY) and we will write a specification covering your application requirements.

“Y” STRAINERS

All strainers are to be an approved equal to the Keckley Company strainer Styles Listed Below:

- **Cast carbon steel, ASTM A 216, Grade WCB**
Threaded / Socket Weld end Y-Strainer, sizes ¼” - 3”
 Rated: Steam 600 PSI @ 838°F; WOG 1480 PSI @ 100°F
 Standard 304 perforated stainless steel screen. ¼” - 3” for Steam - 3/64”,
 WOG - 1/16”. Straight threaded cap. Spiral wound stainless steel gasket.
KECKLEY COMPANY Style SB-7
- **Cast carbon steel, ASTM A 216, Grade WCB**
Flanged / Butt Weld end Y-Strainer, sizes ½” - 14”
 Rated: 150 lb. flange Steam / BW 150 PSI @ 565°F; WOG 285 PSI @ 100°F
 300 lb. flange Steam / BW 300 PSI @ 838°F; WOG 740 PSI @ 100°F
 600 lb. flange Steam / BW 600 PSI @ 838°F; WOG 1480 PSI @ 100°F
 Standard 304 perforated stainless steel screen. Specify screen perforation
 or media, see Keckley Binder for recommended perforations.
 Spiral wound stainless steel gasket.
KECKLEY COMPANY Style SA-7 & SA (600 lb. flange @ 300/600 BW)
- **Cast stainless steel, ASTM A 351, Grade CF8M**
Flanged / Butt Weld end Y-Strainer, sizes ¼” - 3”
 Rated: Steam 600 PSI @ 1125°F; WOG 1440 PSI @ 100°F
 Standard 304 perforated stainless steel screen. ¼” - 3” for Steam - 3/64”,
 WOG - 1/16”. Straight threaded cap. Spiral wound stainless steel gasket.
KECKLEY COMPANY Style SSB-7
- **Cast stainless steel, ASTM A 351, Grade CF8M**
Flanged / Butt Weld end Y-Strainer, sizes ½” - 12”
 Rated: 150 lb. flange Steam / BW 150 PSI @ 565°F; WOG 275 PSI @ 100°F
 300 lb. flange Steam / BW 300 PSI @ 1125°F; WOG 720 PSI @ 100°F
 600 lb. flange Steam / BW 600 PSI @ 1125°F; WOG 1440 PSI @ 100°F
 Standard 304 perforated stainless steel screen. Specify screen perforation
 or media, see Keckley Binder for recommended perforations.
 Spiral wound stainless steel gasket.
KECKLEY COMPANY Style SSA-7 & SSA (600 lb. flange @ 300/600 BW)

Note: For Y-Strainer styles and sizes not covered above, contact Keckley (800-KECKLEY) and we will write a specification covering your application requirements.

GOVERNMENT / MILITARY SPECIFICATIONS**“Y” STRAINERS**

<u>SPECIFICATION</u>	<u>STYLE</u>	<u>DESCRIPTION</u>
WW-S-2739; Type I	B	3/8" - 4" Threaded, Cast Iron (ASTM A 126, Class B), with brass blow off plug.
WW-S-2739; TYPE II	A	2" - 8" 125 lb. & 250 lb. Flanged, Cast Iron (ASTM A 126, Class B), with brass blow off plug.
NAVSHIPS 810-841499	E-250	3/8" - 3" Silbraze ends, Cast Bronze (ASTM B 62, C83600)

BASKET STRAINERS

<u>SPECIFICATION</u>	<u>STYLE</u>	<u>DESCRIPTION</u>
WW-S-2739; Type I	D	1/2" - 2" Threaded, Cast Iron (ASTM A 126, Class B), with brass blow off plug.
WW-S-2739; TYPE II	D GFV	2" - 8" 125 lb. & 250 lb. Flanged, Cast Iron (ASTM A 126, Class B), with brass blow off plug.