

Bondstrand® 2000M/7000M Flanges for Marine & Offshore

1 to 6 inch (Quick-Lock® Joint), 8 to 40 inch (Taper/Taper Joint)

Description

Bondstrand marine flanges are produced to fit pipe of both Iron Pipe Size (IPS) and Metric Cast Iron (MCI) outside diameters for the two types of Bondstrand® marine pipe:

Bondstrand Series 2000M

A lined fiberglass pipe of reinforced epoxy resins in 1-through 40-inch diameters intended for a broad range of shipboard uses, including fresh and seawater piping, ballast systems, portable discharge lines, inert gas effluent systems, and applications where resistance to corrosive fluids is required. Bondstrand 2000M flanges are not electrically conductive.

Bondstrand Series 7000M

An unlined fiberglass pipe of reinforced epoxy resins in 1-through 40-inch diameters containing integrally wound electrically conductive fibers for use where the accumulation of static electrical charges on the surface of the pipe is to be avoided. Bondstrand 7000M provide electrical continuity when assembled to other conductive flanges.

Consult NOV Fiber Glass Systems for the availability of flanges for any sizes not listed.

Configurations

Bondstrand Taper marine flanges are produced in two configurations:

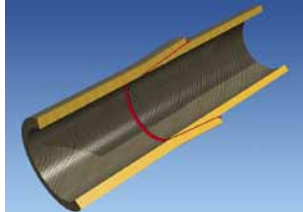
Fixed bolt-hole orientation, Heavy-duty type

Loose-ring, rotatable bolt-hole orientation, Stub End/ Flange Ring (Van Stone type)

Joint system: Quick-Lock joint is for pipe size 1 to 6 inch and Taper/Taper adhesive joint applied for size 8 to 40 inch.



Quick-Lock® adhesive bonded joint



Taper/Taper adhesive bonded joint

Drillings

ASME B16.5 Class 150 (1 to 24 inch)

ASME B16.5 Class 300 (1 to 24 inch)

ASME B16.47 A Class 150 (26 to 40 inch)

ISO 7005 PN-10

ISO 7005 PN-16

JIS B2220 - 5 kg/cm²

JIS B2220 - 10 kg/cm²

JIS B2220 - 16 kg/cm²

Other drillings, as well as undrilled flanges, are also available.

Performance

See Product Data of the appropriate Bondstrand pipe system for pressure and temperature performances. Consult Bondstrand Corrosion Guide for corrosion resistance properties. Refer to product brochure Assembly Instructions for Bondstrand fiberglass flanges for bolt torque and installation information.

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ASME/ ANSI B16.5 A CL.300

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JIS B2220 5 kg/cm²

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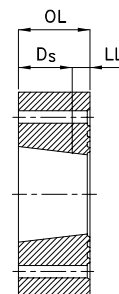
JIS B2220 16 kg/cm²

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Heavy-duty flanges ASME B16.5 & B16.47 A CL.150

Filament-wound heavy-duty flanges with integral Quick-lock (1 - 6 inch) or Taper/Taper (8 - 40 inch) socket end for adhesive bonding.

Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.5	11215360A	11715360A
40	1.5	3	35	1.1	QQ215360A	QQ715360A
50	2	4	50	1.3	22215360A	22715360A
65	2.5	5	51	1.5	RR215360A	RR715360A
80	3	5	51	1.8	33215360A	33715360A
100	4	5	51	2.8	44215360A	44715360A
125	5	5	62	3.8	55215360A	55715360A
150	6	6	63	4.5	66215360A	66715360A
200	8	6	71	5.0	882153J8A	887153J8A
250	10	6	86	9.5	AA2153J8A	AA7153J8A
300	12	5	100	10.5	BB2153J8A	BB7153J8A
350	14	8	108	21	CC2153J8A	CC7153J8A
400	16	8	118	27	DD2153J8A	DD7153J8A
450	18	8	122	32	EE2153J8A	EE7153J8A
500	20	8	135	40	FF2153J8A	FF7153J8A
550	22	8	160	49	GG2153J8A	GG7153J8A
600	24	8	186	58	HH2153J8A	HH7153J8A
650	26	8	186	66	JJ1953J8A	JJ6953J8A
700	28	8	186	73	KK1953J8A	KK6953J8A
750	30	8	186	88	LL1953J8A	LL6953J8A
800	32	8	186	112	ZZ1953J8A	ZZ6953J8A
900	36	8	211	116	MM1953J8A	MM6953J8A
1000	40	8	328	162	WW1953J8A	WW6953J8A

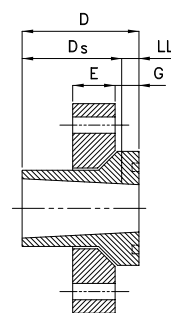


- Bolt hole size and pattern also match those of ASME B16.1 class 125; ASME B16.24 class 150; ISO 2229 class 150 and MSS SP-51 class 150LW.
- ASME B16.47 A flange specification is for 26" (650mm) and above.

Loose-ring flange ASME B16.5 & B16.47 A CL. 150

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) or Taper/Taper (8 - 40 inch) socket end for adhesive bonding.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end (2000M)	Flange ring
25	1	10	37	14.3	10	0.9	11215A60	11005687A
40	1.5	10	42	17.5	10	1.4	QQ215A60	QQ005687A
50	2	10	56	19	10	2.0	22215A60	22005687A
80	3	10	56	23.8	10	3.6	33215A60	33005687A
100	4	10	56	23.8	16	4.8	44215A60	44005687A
125	5	10	67	23.8	16	5.4	55215A60	55005687A
150	6	10	67	25.5	16	6.4	66215A60	66005687A
200	8	15	80	28.8	16	10.3	88212510	88005687A
250	10	15	95	35.6	23	16.0	AA212510	AA005687A
300	12	15	110	40	23	26	BB212510	BB005687A
350	14	15	115	41.6	27	36	CC212510	CC005687A
400	16	20	130	47.9	27	48	DD212510	DD005687A
450	18	20	134	50.2	35	56	EE212510	EE005687A
500	20	20	147	52	39	71	FF212510	FF005687A
600	24	20	198	63.7	47	108	HH212510	HH005687A
700	28	20	198	69	51	126	KK192510	KK005687A
750	30	20	198	71.6	46	146	LL192510	LL005687A
800	32	20	198	76.9	48	188	ZZ192510	ZZ005687A
900	36	20	223	85.4	53	238	MM192510	MM005687A
1000	40	20	340	86	63	340	WW192510	WW005687A

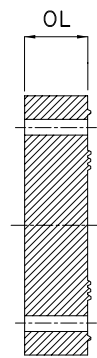


* For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Blind flanges ASME B16.5 & B16.47 A CL.150

Molded blind flanges.

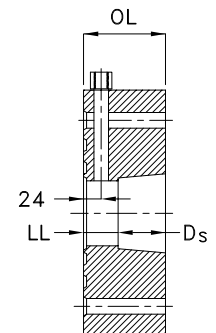
Size		OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)			(2000M)	(7000M)
25	1	25	0.4	11945700A	11C45700A
40	1.5	25	0.5	QQ945700A	QQC45700A
50	2	30	0.7	22945700A	22C45700A
80	3	30	1.1	33945700A	33C45700A
100	4	35	1.7	44935700A	44C35700A
125	5	35	2.6	55935700A	55C35700A
150	6	40	2.9	66935700A	66C35700A
200	8	45	5.2	88935700A	88C35700A
250	10	50	7.2	AA935700A	AAC35700A
300	12	60	11.4	BB935700A	BBC35700A
350	14	65	16.4	CC935700A	CCC35700A
400	16	70	23	DD935700A	DDC35700A
450	18	70	43	EE935700A	EEC35700A
500	20	70	51	FF935700A	FFC35700A
550	22	75	57	GG935700A	GGC35700A
600	24	85	85	HH935700A	HHC35700A
650	26	85	87	JJ935700A	JJC35700A
700	28	85	110	KK935700A	KKC35700A
750	30	90	132	LL935700A	LLC35700A
800	32	95	145	ZZ935700A	ZZC35700A
900	36	100	206	MM935700A	MMC35700A



Orifice flanges ASME B16.5 A CL.150

Filament-wound orifice flanges with integral Quick-Lock (2 - 6 inch) or Taper/Taper (8 - 16 inch) socket end for adhesive bonding and 1/2 inch or 3/4 inch stainless steel 316 nipple and coupling.

Size		Laying length (LL) (mm)	Overall length (OL) (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
50x15	2x0,5	40	86	2.2	2N215967A	2N715967A
50x20	2x0,75	40	86	2.2	2P215967A	2P715967A
80x15	3x0,5	39	85	3	3N215967A	3N715967A
80x20	3x0,75	39	85	3	3P215967A	3P715967A
100x15	4x0,5	39	85	4.7	4N215967A	4N715967A
100x20	4x0,75	39	85	4.7	4P215967A	4P715967A
150x15	6x0,5	40	97	6.9	6N215967A	6N715967A
150x20	6x0,75	40	97	6.9	6P215967A	6P715967A
200x15	8x0,5	55	120	7.4	8N2159J7A	8N7159J7A
200x20	8x0,75	55	120	7.4	8P2159J7A	8P7159J7A
250x15	10x0,5	55	135	13.5	AN2159J7A	AN7159J7A
250x20	10x0,75	55	135	13.5	AP2159J7A	AP7159J7A
300x15	12x0,5	55	150	21	BN2159J7A	BN7159J7A
300x20	12x0,75	55	150	21	BP2159J7A	BP7159J7A
350x15	14x0,5	55	155	27	CN2159J7A	CN7159J7A
350x20	14x0,75	55	155	27	CP2159J7A	CP7159J7A
400x15	16x0,5	55	165	35	DN2159J7A	DN7159J7A
400x20	16x0,75	55	165	35	DP2159J7A	DP7159J7A



¹⁾ Standard with SS 316 nipple and bushing. Other metals on request

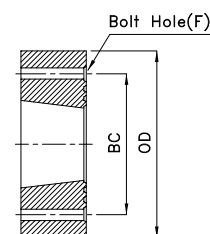
²⁾ Also available with 2 outlets spaced at 180 degree

³⁾ Other flange drillings are available. Please consult NOV Fiber Glass Systems

Common flange dimensions

Common dimensions for flanges with ASME B16.5/B16.47A class 150 drilling.

Size		OD	BCD	Bolt hole	Bolt size	Bolt holes
(mm)	(inch)	(mm)	(mm)	(mm)	(inch)	
25	1	108.0	79.4	15.9	0.5	4
40	1.5	127.0	98.4	15.9	0.5	4
50	2	152.4	120.7	19.1	0.625	4
80	3	190.5	152.4	19.1	0.625	4
100	4	228.6	190.5	19.1	0.625	8
125	5	254.0	215.9	22.2	0.75	8
150	6	279.4	241.3	22.2	0.75	8
200	8	342.9	298.5	22.2	0.75	8
250	10	406.4	362.0	25.4	0.875	12
300	12	482.6	431.8	25.4	0.875	12
350	14	533.4	476.3	28.6	1	12
400	16	596.6	539.8	28.6	1	16
450	18	635.0	577.9	31.8	1.125	16
500	20	698.5	635.0	31.8	1.125	20
550	22	749.3	692.2	34.9	1.25	20
600	24	812.8	749.3	34.9	1.25	20
650	26	870.0	806.5	34.9	1.25	24
700	28	927.1	863.6	34.9	1.25	28
750	30	984.3	914.4	34.9	1.25	28
800	32	1060.5	977.9	41.3	1.5	28
900	36	1168.4	1085.9	41.3	1.5	32
1000	40	1289.1	1200.2	41.3	1.5	36



Stud bolt lengths ASME B16.5 & B16.47 A CL.150

Recommended Stud bolt lengths for flanges with CL. 150 drilling.

Size		Heavy duty to			Loose ring to	
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	100	-	90	-	-
40	1.5	110	-	100	-	-
50	2	150	130	120	110	100
80	3	150	140	130	120	110
100	4	150	140	130	130	120
125	5	180	160	150	140	120
150	6	190	170	150	140	130
200	8	200	180	160	150	130
250	10	240	210	190	190	160
300	12	270	230	200	190	160
350	14	290	250	220	220	180
400	16	310	270	230	230	190
450	18	330	290	250	260	210
500	20	360	310	260	270	220
600	24	460	390	330	320	250
700	28	460	400	350	330	280
750	30	460	400	350	330	280
800	32	480	420	370	360	310
900	36	530	460	400	380	330
1000	40	760	580	520	400	350

Nuts and washers

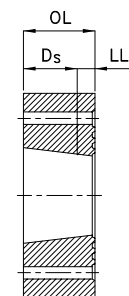
Recommended nuts and washer sizes for flange with CL.150 & CL. 300 drilling.

Bolt Size (inch)	Nut Thickness (mm)	Washer Thickness (mm)	Washer OD (mm)
0.5	11	3	27
0.625	14	3	33
0.75	16	4	38
0.875	19	4	44
1	22	4	51
1.125	25	4	57
1.25	27	4	64
1.5	32	4	76

Heavy-duty flanges ASME B16.5 A CL.300

Filament-wound heavy-duty flanges with integral Quick-lock (1 - 6 inch) or Taper/Taper (8 - 24 inch) socket end for adhesive bonding.

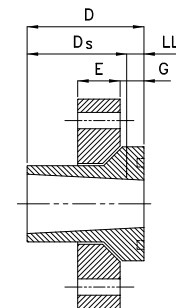
Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.5	11215360B	11715360B
40	1.5	3	35	1.1	QQ215360B	QQ715360B
50	2	4	50	1.3	22215360B	22715360B
80	3	5	51	1.8	33215360B	33715360B
100	4	5	51	2.8	44215360B	44715360B
125	5	5	62	3.4	55215360B	55715360B
150	6	6	63	4.5	66215360B	66715360B
200	8	6	71	5.0	882153J8B	887153J8B
250	10	6	86	9.5	AA2153J8B	AA7153J8B
300	12	5	100	14.5	BB2153J8B	BB7153J8B
350	14	8	108	21	CC2153J8B	CC7153J8B
400	16	8	118	27	DD2153J8B	DD7153J8B
450	18	8	122	32	EE2153J8B	EE7153J8B
500	20	8	135	40	FF2153J8B	FF7153J8B
600	24	8	186	58	HH2153J8B	HH7153J8B



Loose ring flanges ASME/ ANSI B16.5 A CL.300

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) Taper/Taper (8 - 24 inch) socket.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end	Flange ring (2000M)
50	2	10	56	22.2	10	2.7	22215A60	22005687B
80	3	10	56	28.6	10	5.2	33215A60	33005687B
100	4	10	56	31.7	16	7.6	44215A60	44005687B
125	5	10	67	34.9	16	10.5	55215A60	55005687B
150	6	10	67	36.5	16	13.4	66215A60	66005687B
200	8	15	80	41.3	16	20.0	88212510	88005687B
250	10	15	95	47.6	23	29.0	AA212510	AA005687B
300	12	15	110	50.8	23	42	BB212510	BB005687B
350	14	15	115	54	27	60	CC212510	CC005687B
400	16	20	130	58.2	27	76	DD212510	DD005687B
450	18	20	134	63.6	35	98	EE212510	EE005687B
500	20	20	147	66.5	39	117	FF212510	FF005687B
600	24	20	198	78.4	47	200	HH212510	HH005687B

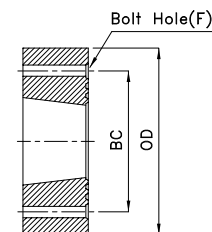


* For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Common flange dimensions

Common dimensions for flanges with ASME B16.5 class 300 drilling.

Size		OD (mm)	BCD (mm)	Bolt hole (mm)	Bolt size (inch)	Bolt holes
(mm)	(inch)					
25	1	123.8	88.9	19.1	0.625	4
40	1.5	155.6	114.3	22.2	0.625	4
50	2	165.1	127.0	19.1	0.625	8
80	3	209.6	168.3	22.2	0.75	8
100	4	254.0	200.0	22.2	0.75	8
125	5	279.4	235.0	22.2	0.75	8
150	6	317.5	269.9	22.2	0.75	12
200	8	381.0	330.2	25.4	0.875	12
250	10	444.5	387.4	28.6	1	16
300	12	520.7	450.9	31.8	1.125	16
350	14	584.2	514.4	31.8	1.125	20
400	16	647.7	571.5	34.9	1.25	20
450	18	711.2	628.7	34.9	1.25	24
500	20	774.7	685.8	34.9	1.25	24
600	24	914.4	812.8	41.3	1.5	24



Stud bolt lengths

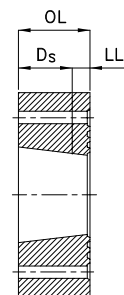
Recommended stud bolt lengths for flanges with CL300 drilling.

Size		Heavy duty to			Loose ring to	
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	110	-	100	-	-
40	1.5	120	-	100	-	-
50	2	150	140	130	120	110
80	3	160	150	140	130	120
100	4	160	160	140	150	140
125	5	180	170	160	160	150
150	6	190	180	160	170	150
200	8	210	200	180	180	170
250	10	240	230	210	220	190
300	12	280	250	230	230	200
350	14	300	270	240	250	220
400	16	320	290	260	260	230
450	18	330	310	270	290	250
500	20	360	330	290	300	260
600	24	470	410	360	350	300

Heavy-duty flange ISO 7005 PN-10

Filament-wound heavy-duty flanges with integral Quick-lock (1 - 6 inch) or Taper/Taper (8 - 40 inch) socket end for adhesive bonding.

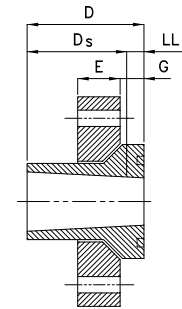
Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.5	11215360K	11715360K
40	1.5	3	35	1.1	QQ215360K	QQ715360K
50	2	4	50	1.3	22215360K	22715360K
80	3	5	51	1.8	33215360K	33715360K
100	4	5	51	2.8	44215360K	44715360K
125	5	5	62	3.6	55215360K	55715360K
150	6	6	63	4.5	66215360K	66715360K
200	8	6	71	5.0	882153J8K	887153J8K
250	10	6	86	9.5	AA2153J8K	AA7153J8K
300	12	5	100	14.5	BB2153J8K	BB7153J8K
350	14	8	108	21	CC2153J8K	CC7153J8K
400	16	8	118	27	DD2153J8K	DD7153J8K
450	18	8	122	32	EE2153J8K	EE7153J8K
500	20	8	135	40	FF2153J8K	FF7153J8K
600	24	8	186	58	HH2153J8K	HH7153J8K
700	28	8	186	73	KK1953J8K	KK6953J8K
750	30	8	186	88	LL1953J8K	LL6953J8K
800	32	8	186	112	ZZ1953J8K	ZZ6953J8K
900	36	8	211	116	MM1953J8K	MM6953J8K
1000	40	8	328	213	WW1953J8K	WW6953J8K



Loose-ring flanges ISO 7005 PN-10

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) or Taper/Taper (8 - 24 inch) socket.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end	Flange ring
		(2000M)						
50	2	10	56	18	10	2.4	22215A60	22005687K
80	3	10	56	20	10	3.4	33215A60	33005687K
100	4	10	56	20	16	3.7	44215A60	44005687K
125	5	10	67	22	16	4.6	55215A60	55005687K
150	6	10	67	22	16	6.1	66215A60	66005687K
200	8	15	80	25	16	8.9	88212510	88005687K
250	10	15	95	28	23	11.8	AA212510	AA005687K
300	12	15	110	29	23	14.0	BB212510	BB005687K
350	14	15	115	36	27	25	CC212510	CC005687K
400	16	20	130	40	27	32	DD212510	DD005687K
450	18	20	134	42	35	38	EE212510	EE005687K
500	20	20	147	45	39	48	FF212510	FF005687K
600	24	20	198	52	47	73	HH212510	HH005687K

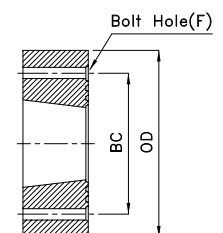


Note: For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Common flange dimensions

Common dimensions for flanges with ISO 7005 PN-10 drilling.

Size		OD	BCD	Bolt hole	Bolt size	Bolt holes
(mm)	(inch)	(mm)	(mm)	(mm)		
25	1	115	85	14	M12	4
40	1.5	150	110	18	M16	4
50	2	165	125	18	M16	4
80	3	200	160	18	M16	8
100	4	220	180	18	M16	8
125	5	250	210	18	M16	8
150	6	285	240	22	M20	8
200	8	340	295	22	M20	8
250	10	395	350	22	M20	12
300	12	445	400	22	M20	12
350	14	505	460	22	M20	16
400	16	565	515	26	M24	16
450	18	615	565	26	M24	20
500	20	670	620	26	M24	20
600	24	780	725	30	M27	20
700	28	895	840	30	M27	24
750	30	965	900	33	M30	24
800	32	1015	950	33	M30	24
900	36	1115	1050	33	M30	28
1000	40	1230	1160	36	M33	28



Stud bolt lengths

Recommended Stud bolt length for flanges with ISO 7005 PN-10 drilling.

Size		Heavy duty to			Loose ring to	
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	100	-	90	-	-
40	1.5	110	-	100	-	-
50	2	150	130	120	110	100
80	3	150	140	130	120	110
100	4	150	140	130	130	120
125	5	180	160	150	140	140
150	6	190	160	150	140	130
200	8	200	180	160	150	130
250	10	240	210	190	190	160
300	12	270	230	200	190	160
350	14	290	250	220	220	180
400	16	310	270	230	230	190
450	18	330	290	250	260	210
500	20	360	310	260	270	220
600	24	460	390	330	320	250
700	28	460	-	330	-	-
750	30	460	-	330	-	-
800	32	480	-	350	-	-
900	36	530	-	380	-	-
1000	40	770	-	460	-	-

Nuts and washers ISO 7005 PN-10 & PN-16

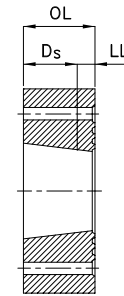
Recommended nut and washer sizes.

Bolt Size (mm)	Nut Thickness (mm)	Washer Thickness (mm)	Washer OD (mm)
M12	10	3	24
M16	13	3	30
M20	16	3	37
M24	19	4	44
M27	22	4	50
M30	24	4	56
M33	27	5	60

Heavy-duty flanges ISO 7005 PN-16

Filament-wound heavy-duty flanges with integral Quick-lock (1 - 6 inch) or Taper/Taper (8 - 24 inch) socket end for adhesive bonding.

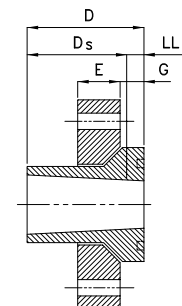
Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.5	11215360L	11715360L
40	1.5	3	35	1.0	QQ215360L	QQ715360L
50	2	4	50	1.3	22215360L	22715360L
80	3	5	51	2.3	33215360L	33715360L
100	4	5	51	2.5	44215360L	44715360L
125	5	5	62	3.5	55215360L	55715360L
150	6	6	63	4.5	66215360L	66715360L
200	8	6	71	6.5	882153J8L	887153J8L
250	10	6	86	9.2	AA2153J8L	AA7153J8L
300	12	5	100	12.0	BB2153J8L	BB7153J8L
350	14	8	108	20	CC2153J8L	CC7153J8L
400	16	8	118	32	DD2153J8L	DD7153J8L
450	18	8	122	33	EE2153J8L	EE7153J8L
500	20	8	135	43	FF2153J8L	FF7153J8L
600	24	8	186	65	HH2153J8L	HH7153J8L



Loose-ring flanges ISO 7005 PN-16

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) or Taper/Taper (8 - 24 inch) socket.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end (2000M)	Flange ring
50	2	10	56	18	10	2.4	22215A60	22005687L
80	3	10	56	20	10	3.4	33215A60	33005687L
100	4	10	56	20	16	3.7	44215A60	44005687L
125	5	10	67	22	16	4.8	55215A60	55005687L
150	6	10	67	23	16	6.3	66215A60	66005687L
200	8	15	80	27	16	9.1	88212510	88005687L
250	10	15	95	32	23	14.3	AA212510	AA005687L
300	12	15	110	35	23	18.7	BB212510	BB005687L
350	14	15	115	40	27	30	CC212510	CC005687L
400	16	20	130	44	27	39	DD212510	DD005687L
450	18	20	134	50	35	52	EE212510	EE005687L
500	20	20	147	54	39	73	FF212510	FF005687L
600	24	20	198	63	47	89	HH212510	HH005687L

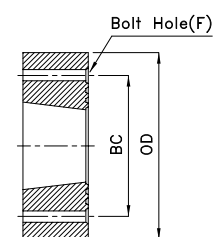


* For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Common flange dimensions

Common dimensions for flanges with ISO 7005 PN-16 drilling.

Size		OD (mm)	BCD (mm)	Bolt hole (mm)	Bolt size	Bolt holes
(mm)	(inch)					
25	1	115	85	14	M12	4
40	1.5	150	110	18	M16	4
50	2	165	125	18	M16	4
80	3	200	160	18	M16	8
100	4	220	180	18	M16	8
125	5	250	210	18	M16	8
150	6	285	240	22	M20	8
200	8	340	295	22	M20	12
250	10	405	355	26	M24	12
300	12	460	410	26	M24	12
350	14	520	470	26	M24	16
400	16	580	525	30	M27	16
450	18	640	585	30	M27	20
500	20	715	650	33	M30	20
600	24	840	770	36	M33	20



Stud bolt lengths

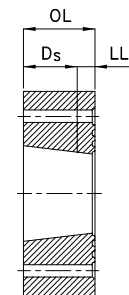
Recommended stud bolt lengths for flanges with ISO 7005 PN-16 drilling.

Size		Heavy duty to			Loose ring to	
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	100	-	80	-	-
40	1.5	120	-	100	-	-
50	2	150	130	120	110	100
80	3	150	130	120	110	100
100	4	150	140	120	120	110
125	5	180	150	140	130	110
150	6	190	160	150	140	120
200	8	200	180	160	150	130
250	10	240	210	180	180	150
300	12	270	230	200	190	160
350	14	290	250	210	210	170
400	16	320	270	230	220	180
450	18	320	290	240	260	200
500	20	350	310	250	270	210
600	24	470	390	320	320	240

Heavy-duty flanges JIS B2220 5 kg/cm²

Filament-wound heavy-duty flanges with integral Quick-lock (1 - 6 inch) or Taper/Taper (8 - 40 inch) socket end for adhesive bonding.

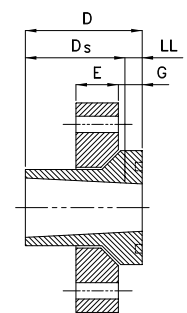
Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.5	11215360F	11715360F
40	1.5	3	35	1.1	QQ215360F	QQ715360F
50	2	4	50	1.3	22215360F	22715360F
80	3	5	51	1.8	33215360F	33715360F
100	4	5	51	2.8	44215360F	44715360F
125	5	5	62	3.5	55215360F	55715360F
150	6	6	63	4.5	66215360F	66715360F
200	8	6	71	5.0	882153J8F	887153J8F
250	10	6	86	9.5	AA2153J8F	AA7153J8F
300	12	5	100	14.5	BB2153J8F	BB7153J8F
350	14	8	108	21	CC2153J8F	CC7153J8F
400	16	8	118	27	DD2153J8F	DD7153J8F
450	18	8	122	32	EE2153J8F	EE7153J8F
500	20	8	135	40	FF2153J8F	FF7153J8F
550	22	8	160	49	GG2153J8F	GG7153J8F
600	24	8	186	58	HH2153J8F	HH7153J8F
650	26	8	186	66	JJ1953J8F	JJ6953J8F
700	28	8	186	73	KK1953J8F	KK6953J8F
750	30	8	186	88	LL1953J8F	LL6953J8F
900	36	8	211	116	MM1953J8F	MM6953J8F
1000	40	8	328	213	WW1953J8F	WW6953J8F



Loose-ring flanges JIS B2220 5 kg/cm²

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) Taper/Taper (8 - 24 inch) socket.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end	Flange ring
50	2	10	56	19	10	1.3	22215A60	22005687F
80	3	10	56	22	10	2.9	33215A60	33005687F
100	4	10	56	22	16	3.0	44215A60	44005687F
150	6	10	67	25	16	5.3	66215A60	66005687F
200	8	15	80	25	16	6.9	88212510	88005687F
250	10	15	95	29	23	10.8	AA212510	AA005687F
300	12	15	110	32	23	12.6	BB212510	BB005687F
350	14	15	115	38	27	20	CC212510	CC005687F
400	16	20	130	41	27	27	DD212510	DD005687F
450	18	20	134	44	35	38	EE212510	EE005687F
500	20	20	147	48	39	45	FF212510	FF005687F
600	24	20	198	54	47	71	HH212510	HH005687F

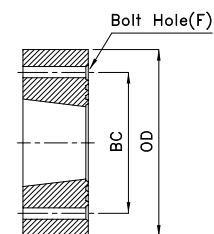


* For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Common flange dimensions

Common dimensions for flanges with JIS B2220 5 kg/cm² drilling.

Size		OD	BCD	Bolt hole	Bolt size	Bolt holes
(mm)	(inch)	(mm)	(mm)	(mm)		
25	1	95	75	12	M10	4
40	1.5	120	95	15	M12	4
50	2	130	105	15	M12	4
80	3	180	145	19	M16	4
100	4	200	165	19	M16	8
125	5	235	200	19	M16	8
150	6	265	230	19	M16	8
200	8	320	280	23	M20	8
250	10	385	345	23	M20	12
300	12	430	390	23	M20	12
350	14	480	435	25	M22	12
400	16	540	495	25	M22	16
450	18	605	555	25	M22	16
500	20	655	605	25	M22	20
550	22	720	665	27	M24	20
600	24	770	715	27	M24	20
650	26	825	770	27	M24	24
700	28	875	820	27	M24	24
750	30	945	880	33	M30	24
900	36	1095	1030	33	M30	24
1000	40	1195	1130	33	M30	28



Stud bolt lengths

Recommended stud bolt lengths for flanges with JIS B2220 5 kg/cm² drilling.

Size		Heavy duty to			Loose ring to	
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	90	-	70	-	-
40	1.5	110	-	90	-	-
50	2	140	120	110	100	90
80	3	150	130	120	120	100
100	4	150	140	120	130	110
125	5	180	-	130	-	-
150	6	180	160	140	140	110
200	8	200	170	150	140	120
250	10	230	200	170	170	140
300	12	260	220	180	170	140
350	14	290	240	200	200	160
400	16	310	260	210	210	160
450	18	310	270	220	230	170
500	20	340	290	230	240	180
600	24	450	370	290	280	210
700	28	450	-	300	-	-
750	30	460	-	310	-	-
900	36	510	-	340	-	-
1000	40	750	-	490	-	-

Nuts & washer

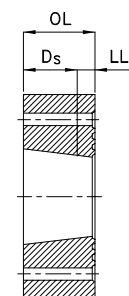
Recommended nuts and washer sizes for flanges with JIS B2220 5, 10 and 16 kg/cm² drilling.

Bolt Size (mm)	Nut thickness (inch)	Washer thickness (mm)	Washer OD (mm)
M10	8	2	21
M12	10	2.5	24
M16	13	3	30
M20	16	3	37
M22	18	3	39
M24	19	4	44
M27	22	4	50
M30	24	4	56
M33	27	5	60
M36	29	5	66

Heavy-duty flanges JIS B2220 10 kg/cm²

Filament-wound heavy-duty flanges with integral Quick-Lock (1 - 6 inch) or Taper/Taper (8 - 40 inch) socket end for adhesive bonding.

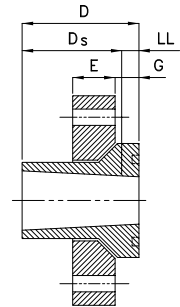
Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.4	11215360G	11715360G
40	1.5	3	35	0.6	QQ215360G	QQ715360G
50	2	4	50	0.9	22215360G	22715360G
80	3	5	51	1.8	33215360G	33715360G
100	4	5	51	2.2	44215360G	44715360G
125	5	5	62	3.5	55215360G	55715360G
150	6	6	63	4.1	66215360G	66715360G
200	8	6	71	5.5	882153J8G	887153J8G
250	10	6	86	8.7	AA2153J8G	AA7153J8G
300	12	5	100	10.0	BB2153J8G	BB7153J8G
350	14	8	108	12.0	CC2153J8G	CC7153J8G
400	16	8	118	18.0	DD2153J8G	DD7153J8G
450	18	8	122	23	EE2153J8G	EE7153J8G
500	20	8	135	29	FF2153J8G	FF7153J8G
600	24	8	186	47	HH2153J8G	HH7153J8G
650	26	8	186	66	JJ1953J8G	JJ6953J8G
700	28	8	186	73	KK1953J8G	KK6953J8G
750	30	8	186	80	LL1953J8G	LL6953J8G
900	36	8	211	95	MM1953J8G	MM6953J8G
1000	40	8	328	213	WW1953J8G	WW6953J8G



Loose-ring flanges JIS B2220 10 kg/cm²

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) Taper/Taper (8 - 24 inch) socket.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end	Flange ring
		(2000M)						
50	2	10	56	19	10	2.1	22215A60	22005687G
80	3	10	56	22	10	2.9	33215A60	33005687G
100	4	10	56	22	16	3.4	44215A60	44005687G
150	6	10	67	25	16	6.4	66215A60	66005687G
200	8	15	80	25	16	7.5	88212510	88005687G
250	10	15	95	29	23	12.7	AA212510	AA005687G
300	12	15	110	32	23	14.8	BB212510	BB005687G
350	14	15	115	38	27	22	CC212510	CC005687G
400	16	20	130	41	27	32	DD212510	DD005687G
450	18	20	134	44	35	41	EE212510	EE005687G
500	20	20	147	48	39	52	FF212510	FF005687G
600	24	20	198	54	47	81	HH212510	HH005687G

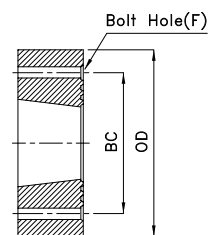


* For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Common flange dimensions

Common dimensions for flanges with JIS B2220 10 kg/cm² drilling.

Size		OD (mm)	BCD (mm)	Bolt hole (mm)	Bolt size	Bolt holes
(mm)	(inch)					
25	1	125	90	19	M16	4
40	1.5	140	105	19	M16	4
50	2	155	120	19	M16	4
80	3	185	150	19	M16	8
100	4	210	175	19	M16	8
125	5	250	210	23	M20	8
150	6	280	240	23	M20	8
200	8	330	290	23	M20	12
250	10	400	355	25	M22	12
300	12	445	400	25	M22	16
350	14	490	445	25	M22	16
400	16	560	510	27	M24	16
450	18	620	565	27	M24	20
500	20	675	620	27	M24	20
600	24	795	730	33	M30	24
650	26	845	780	33	M30	24
700	28	905	840	33	M30	24
750	30	970	900	33	M30	24
900	36	1120	1050	33	M30	28
1000	40	1235	1160	39	M36	28



Stud bolt lengths

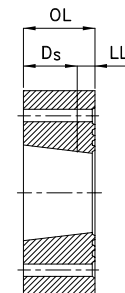
Recommended stud bolt lengths for flanges with JIS B2220 10 kg/cm² drilling.

Size		Heavy duty to		Loose ring to		
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	110	-	90	-	-
40	1.5	120	-	100	-	-
50	2	150	130	120	110	100
80	3	150	130	120	120	100
100	4	150	140	120	130	110
125	5	180	-	140	-	-
150	6	190	160	150	140	120
200	8	200	170	150	140	120
250	10	240	200	180	170	140
300	12	270	220	190	170	140
350	14	290	240	200	200	160
400	16	310	260	220	210	170
450	18	320	270	230	230	180
500	20	340	290	240	250	190
600	24	460	380	310	290	220
700	28	460	-	310	-	-
750	30	460	-	310	-	-
900	36	510	-	340	-	-
1000	40	750	-	460	-	-

Heavy-duty flanges JIS B2220 16 kg/cm²

Filament-wound heavy-duty flanges with integral Quick-lock (1 - 6 inch) or Taper/Taper (8 - 24 inch) socket end for adhesive bonding.

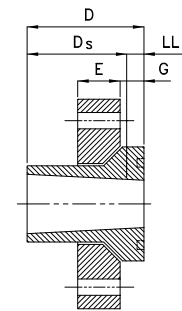
Size		Laying length (mm)	OL (mm)	Average weight (kg)	Part number	
(mm)	(inch)				(2000M)	(7000M)
25	1	3	30	0.5	11215360H	11715360H
40	1.5	3	35	1.1	QQ215360H	QQ715360H
50	2	4	50	1.3	22215360H	22715360H
80	3	5	51	1.8	33215360H	33715360H
100	4	5	51	2.8	44215360H	44715360H
125	5	5	62	3.5	55215360H	55715360H
150	6	6	63	4.5	66215360H	66715360H
200	8	6	71	5.0	882153J8H	887153J8H
250	10	6	86	9.5	AA2153J8H	AA7153J8H
300	12	5	100	14.5	BB2153J8H	BB7153J8H
350	14	8	108	21	CC2153J8H	CC7153J8H
400	16	8	118	27	DD2153J8H	DD7153J8H
450	18	8	122	32	EE2153J8H	EE7153J8H
500	20	8	135	40	FF2153J8H	FF7153J8H
600	24	8	186	58	HH2153J8H	HH7153J8H



Loose-ring flanges JIS B2220 16 kg/cm²

Filament-wound loose ring (stub end) flanges with integral Quick-Lock (2 - 6 inch) Taper/Taper (8 - 16 inch) socket.

Size		Laying length (LL) (mm)	Overall length (D) (mm)	Flg thk (E) (mm)	Stub length (G) (mm)	Average weight (kg)	Part number*	
(mm)	(inch)						Stub end (2000M)	Flange ring
50	2	10	56	19	10	2.0	22215A60	22005687H
80	3	10	56	22	10	3.5	33215A60	33005687H
100	4	10	56	22	16	4.1	44215A60	44005687H
150	6	10	67	25	16	8.1	66215A60	66005687H
200	8	15	80	25	16	9.5	88212510	88005687H
250	10	15	95	29	23	17.0	AA212510	AA005687H
300	12	15	110	32	23	21	BB212510	BB005687H
350	14	15	115	41	27	33	CC212510	CC005687H
400	16	20	130	48	27	44	DD212510	DD005687H

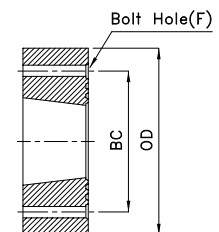


* For 7000M part number, replace "21" or "19" (3rd and 4th digit of stub end part number) with "71" or "69" respectively, e.g. 12" 7000M stub end part number is BB712510.

Common flange dimensions

Common dimensions for flanges with JIS B2220 16 kg/cm² drilling.

Size		OD (mm)	BCD (mm)	Bolt hole (mm)	Bolt size	Bolt holes
(mm)	(inch)					
25	1	125	90	19	M16	4
40	1.5	140	105	19	M16	4
50	2	155	120	19	M16	8
80	3	200	160	23	M20	8
100	4	225	185	23	M20	8
125	5	270	225	25	M22	8
150	6	305	260	25	M22	12
200	8	350	305	25	M22	12
250	10	430	380	27	M24	12
300	12	480	430	27	M24	16
350	14	540	480	33	M30	16
400	16	605	540	33	M30	16
450	18	675	605	33	M30	20
500	20	730	660	33	M30	20
600	24	845	770	39	M36	24



Stud bolt lengths

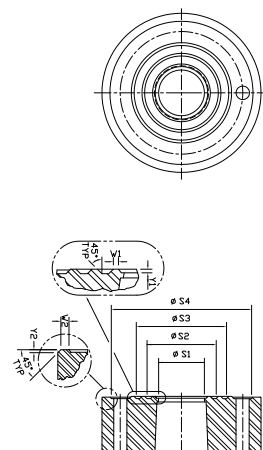
Recommended stud bolt lengths for flanges with JIS B2220 16 kg/cm² drilling.

Size		Heavy duty to		Loose ring to		
(mm)	(inch)	Heavy duty (mm)	Loose ring (mm)	Steel (mm)	Loose ring (mm)	Steel (mm)
25	1	110	-	90	-	-
40	1.5	120	-	10	-	-
50	2	150	130	120	110	100
80	3	160	140	130	120	110
100	4	160	150	130	130	120
125	5	180	-	150	-	-
150	6	190	170	150	150	130
200	8	210	180	160	150	130
250	10	240	210	180	170	150
300	12	270	220	200	180	150
350	14	300	260	230	220	190
400	16	320	280	240	230	200
450	18	330	-	250	-	-
500	20	350	-	260	-	-
600	24	460	-	330	-	-

Seal ring dimensions

Reference seal ring dimensions for Quick-Lock and Taper/Taper flanges.

Size (mm)	(inch)	S1 (mm)	S2 (mm)	S3 (mm)	S4 (mm)	W1 (mm)	W2 (mm)	Y1 (mm)	Y2 (mm)
25	1	33.9	-	-	100.8	4.5	-	0.9	0.6
40	1.5	47.1	-	-	119.4	4.5	-	0.9	0.6
50	2	73.4	91.4	-	144.1	2.4	2.4	0.9	0.5
80	3	89.5	104.9	120.7	178.3	2.4	2.4	0.9	0.5
100	4	111.8	134.3	158.1	216.0	2.5	2.5	1.1	0.6
125	5	140.5	159.5	178.5	244.5	2.5	2.5	1.1	0.6
150	6	167.5	186.4	205.5	268.8	2.5	2.5	1.1	0.6
200	8	219.5	239.5	259.5	331.5	2.8	2.8	1.5	1.0
250	10	272.5	292.5	312.5	395.5	2.8	2.8	1.5	1.0
300	12	323.5	344.4	368.5	462.5	2.8	2.8	1.5	1.0
350	14	355.3	376.0	396.6	495.3	2.8	2.8	1.5	1.0
400	16	403.1	430.9	458.7	582.5	2.8	2.8	1.5	1.0
450	18	453.4	482.6	511.8	603.2	3.9	3.9	1.5	1.0
500	20	504.4	533.7	562.9	658.1	3.9	3.9	1.5	1.0
550	22	558.5	586.0	613.4	727.6	5.4	5.4	1.5	1.0
600	24	609.3	636.5	663.7	765.2	5.4	5.4	1.5	1.0
650	26	661.7	687.8	714.0	820.5	5.4	5.4	1.5	1.0
700	28	711.2	737.6	764.0	859.5	5.4	5.4	1.5	1.0
750	30	763.5	788.4	814.3	948.2	5.4	5.4	1.5	1.0
800	32	807.5	834.4	860.3	994.7	5.4	5.4	1.5	1.0
900	36	918.0	949.2	982.5	1100.9	6.5	6.5	1.5	1.0
1000	40	1057.5	1098.5	1139.5	1251.8	6.5	6.5	1.5	1.0



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