

Orifice flange assembly

Model : F500

Spec. sheet no. **FD05-01**

Description

Orifice flange assembly is used in conjunction with orifice plate for flow measurement of smaller or medium size pipes at lower or medium pressure ranges. The flange connection is a RF type and the differential pressure tapping system is the flange taps.



Specification

Flange mounting type

Welding neck
Slip-on
Socket-weld
Ring-joint welding neck

Nominal diameter

25 ~ 600 mm
1" ~ 24"

Flange ratings

JIS 10, 20, 30, 40 and 63 K
ANSI (or JPI) 150, 300, 600 and 900 Lb RF

Flange material

A105, A182-F304, A182-F316, A182-F11,
A182-F22 and A350-LF2

Materials of bolts and nuts

Stud bolts : SNB7, A193-B7 and A194-B8
Nuts : S45C, A194-2H and A194-8
Jack bolts and nuts : S25C and A307

Gasket

Thickness : 4.5 mm
Material : Spiral wound gaskets

Piping connection method

ANSI 150 Lb : Insertion welding type (Slip-on type)
ANSI 300, 600 Lb : Butt welding type (Welding neck)
ANSI 900 Lb : Butt welding neck (Ring-joint WN)

Differential pressure piping connection

Select referring to the model number construction table

Orifice bore type

Concentric square edged orifice
Quadrant edged orifice
Eccentric orifice
Segmental orifice

Flow claculation standards

ISO 5167-1 and 2 2003
AGA-3
ASME MFC-3M (R.W Miller)
L.K. Spink
JIS Z 8762

Plate thickness

3,6,9 and 12 mm

Tab handle

Welded to orifice plate

Plate material

Standard : 304SS and 316L SS
Non-standard : Monel, Hastelloy B/C, Titanium etc.

Drain and vent hole

Per ASME recommendations
Not drilled for orifice bores smaller than 25.4 mm

Markings

Upstream side of tab handle stamped "Upstream" and with bore type and size, line size, tag number and flange rating

Special markings

Special marking may be furnished to meet special requirement

Main order

Ordering information

1. Base model

F500 Orifice flange assembly

2. Type

W Welding neck
O Socket-weld
S Slip on
J RTJ
K Other

3. Line size

JIS	mm	ANSI	inch	DIN	mm
J015	15A	A001	½B	D015	15A
J020	20A	A002	¾B	D020	20A
J025	25A	A003	1B	D025	25A
J040	40A	A004	1½B	D040	40A
J050	50A	A005	2B	D050	50A
J065	65A	A006	2½B	D065	65A
J080	80A	A007	3B	D080	80A
J100	100A	A008	4B	D100	100A
J125	125A	A009	5B	D125	125A
J150	150A	A010	6B	D150	150A
J200	200A	A011	8B	D200	200A
J250	250A	A012	10B	D250	250A
J300	300A	A013	12B	D300	300A
J350	350A	A014	14B	D350	350A
J400	400A	A015	16B	D400	400A
J450	450A	A016	18B	D450	450A
J500	500A	A017	20B	D500	500A
J600	600A	A018	24B	D600	600A
J700	700A	A019	28B	D700	700A
J800	800A	A020	32B	D800	800A
J000	1,000A	A021	40B	D000	1,000A
XXXX	Other				

4. Tap nipple

A ½" NPT(M) / 75L and 150L
B ½" NPT(M) / 150L and 150L
O Other
N None

5. Flange rating

JIS	ANSI	DIN
J010	JIS 10K	A010 ANSI 150 Lb
J016	JIS 16K	A020 ANSI 300 Lb
J020	JIS 20K	A030 ANSI 600 Lb
J030	JIS 30K	A040 ANSI 900 Lb
J040	JIS 40K	A050 ANSI 1,500 Lb
J063	JIS 63K	A060 ANSI 2,500 Lb
XXXX	Other	

6. Material

C A105
4 A182 F304
5 A182 F316
6 A182 F316L
Z Other

7. Bolt / Nuts material

1 B7 / 2H
2 B8 / 8
O Other

8. Gaskets material

N Non Asbestos 1.5T
T Teflon 1.5T
S Spiral wound 4.5T
O Other

9. Options 1 (Meter run)

1 Flanged
2 Welded
3 None

10. Options 2 (Tab valve)

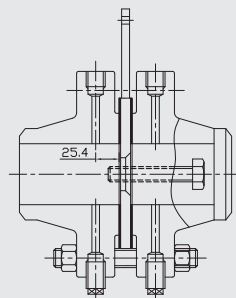
1 Yes
2 No

1	2	3	4	5	6	7	8	9	10
F500	W	A011	N	A020	C	1	N	1	1

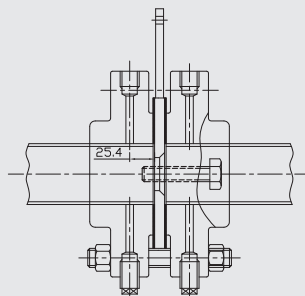
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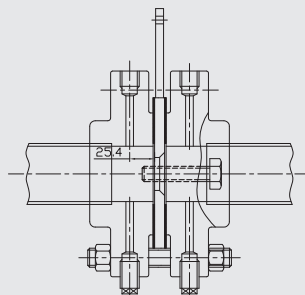
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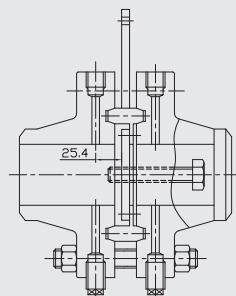
Model : F500-W



Model : F500-S



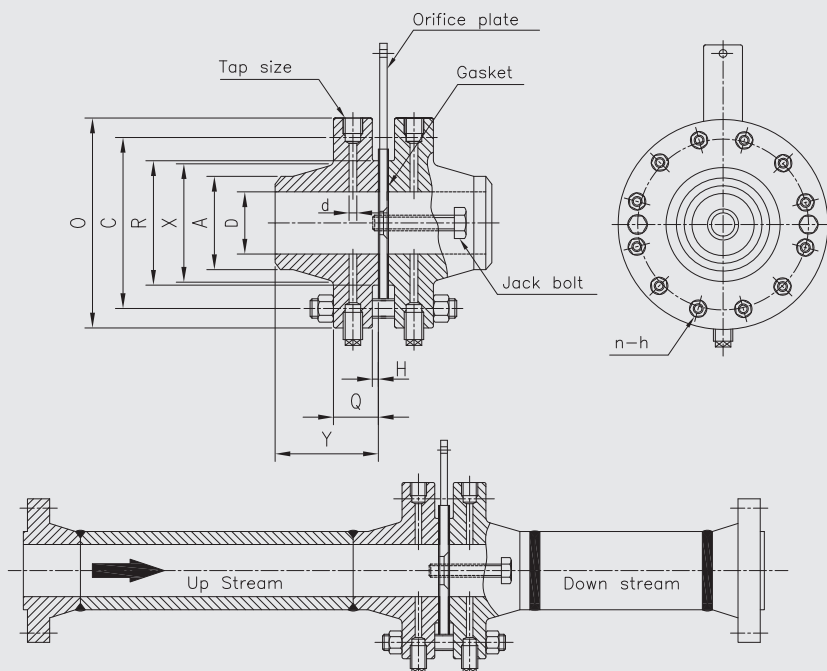
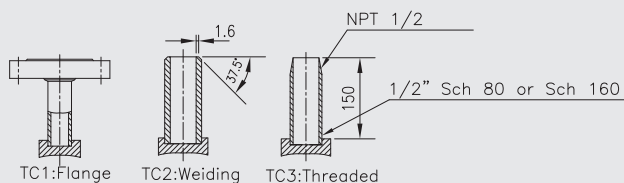
Model : F500-O



Model : F500-J

Dimension

Option : Tap Connection



For ANSI 300 Flanges

Nominal Pipe Size	Diam of Flange O	Thickness of Flange Q	D. of Hub of Wedge A	Diam of Hub X	Length Through Hub Y	Pitch Diam of Groove E	Depth of Groove F	Diam of Tap Holes d	Diam of Bolt Circle C	Number of Bolt	Bolt Size
1-1/2	155	38.1	48.3	69.9	85.9	68.3	6.4	6.4	114.3	4	3/4
2	165	38.1	60.5	84.1	85.9	82.6	7.9	6.4	127.0	8	5/8
2-1/2	191	38.1	73.2	100.1	88.9	101.6	7.9	6.4	149.4	8	3/4
3	210	38.1	88.9	117.3	88.9	123.8	7.9	9.5	168.1	8	3/4
4	254	38.1	114.3	146.1	91.9	149.2	7.9	12.7	200.2	8	3/4
5	279	38.1	141.2	177.8	101.6	181.0	7.9	12.7	235.0	8	3/4
6	318	38.1	168.4	206.2	100.1	211.1	7.9	12.7	269.7	12	3/4
8	381	41.1	219.2	260.4	111.3	269.9	7.9	12.7	330.2	12	8/7
10	445	47.8	273.1	320.5	117.3	323.9	7.9	12.7	387.4	12	1
12	521	50.8	323.9	374.7	130	381.0	7.9	12.7	450.9	16	1-1/8
14	584	53.8	355.6	425.5	142.7	419.1	7.9	12.7	514.4	16	1-1/8

For ANSI 900 Flanges

Nominal Pipe Size	Diam of Flange O	Thickness of Flange Q	D. of Hub of Wedge A	Diam of Hub X	Length Through Hub Y	Pitch Diam of Groove E	Depth of Groove F	Diam of Tap Holes d	Diam of Bolt Circle C	Number of Bolt	Bolt Size
1-1/2	178	44.5	48.3	69.9	95.3	68.3	6.4	6.4	124.0	4	1
2	216	44.5	60.5	104.6	108.0	95.3	7.9	6.4	165.1	8	7/8
2-1/2	244	47.5	73.2	124.0	111.1	108.0	7.9	6.4	190.5	8	1
3	241	44.5	88.9	127.0	108.0	123.8	7.9	9.5	190.5	8	7/8
4	292	50.9	114.3	158.8	120.7	149.2	7.9	12.7	235.0	8	1-1/8
5	349	57.2	141.2	190.5	133.4	181.0	7.9	12.7	279.4	8	1-1/4
6	381	62.0	168.4	235.0	146.1	211.1	7.9	12.7	317.5	12	1-1/8
8	470	69.9	219.2	298.5	168.5	269.9	7.9	12.7	393.7	12	1-3/8
10	546	76.3	273.1	368.3	190.6	323.9	7.9	12.7	469.9	16	1-3/8
12	610	85.6	323.9	419.1	206.6	381.0	7.9	12.7	533.4	20	1-3/8
14	641	92.3	355.6	450.9	219.3	419.1	11.1	12.7	568.8	20	1-1/2

For ANSI 600 Flanges

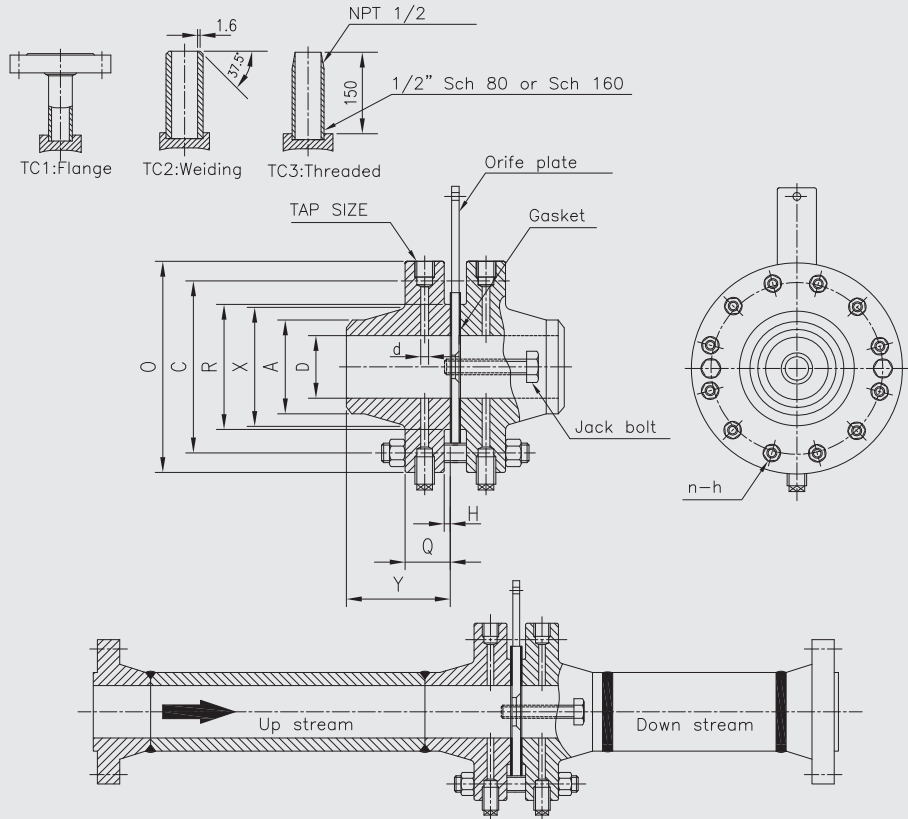
Nominal Pipe Size	Diam of Flange O	Thickness of Flange Q	D. of Hub of Wedge A	Diam of Hub X	Length Through Hub Y	Pitch Diam of Groove E	Depth of Groove F	Diam of Tap Holes d	Diam of Bolt Circle C	Number of Bolt	Bolt Size
1-1/2	155	38.1	48.3	69.9	85.9	68.3	6.4	6.4	114.3	4	3/4
2	165	38.1	60.5	84.1	85.9	82.6	7.9	6.4	127.0	8	5/8
2-1/2	191	38.1	73.2	100.1	88.9	101.6	7.9	6.4	149.4	8	3/4
3	210	38.1	88.9	117.3	88.9	123.8	7.9	9.5	168.1	8	3/4
4	273	44.5	114.3	152.4	108.0	149.2	7.9	12.7	215.9	8	7/8
5	330	50.9	141.2	189.0	120.7	181.0	7.9	12.7	266.7	8	1
6	356	54.2	168.4	222.3	123.7	211.1	7.9	12.7	292.1	12	1
8	419	62	219.2	273.1	139.8	269.9	7.9	12.7	349.3	12	1-1/8
10	508	69.9	273.1	342.9	158.8	323.9	7.9	12.7	431.8	16	1-1/4
12	559	72.9	323.9	400.1	161.8	381.0	7.9	12.7	489.0	20	1-1/4
14	603	76.3	355.6	431.8	171.5	419.1	7.9	12.7	527.1	20	1-3/8

For ANSI 1,500 Flanges

Nominal Pipe Size	Diam of Flange O	Thickness of Flange Q	D. of Hub of Wedge A	Diam of Hub X	Length Through Hub Y	Pitch Diam of Groove E	Depth of Groove F	Diam of Tap Holes d	Diam of Bolt Circle C	Number of Bolt	Bolt Size
1-1/2	178	44.5	48.3	69.9	95.3	68.3	6.4	6.4	124.0	4	1
2	216	44.5	60.5	104.6	108.0	95.3	7.9	6.4	165.1	8	7/8
2-1/2	244	47.5	73.2	124.0	111.1	108.0	7.9	6.4	190.5	8	1
3	267	54.2	88.9	133.4	123.7	136.5	7.9	9.5	203.2	8	1-1/8
4	311	60.2	114.3	162.1	130.4	161.9	7.9	12.7	241.3	8	1-1/4
5	375	79.6	141.2	196.9	161.8	193.7	7.9	12.7	292.1	8	1-1/2
6	394	89.0	168.4	228.6	177.9	211.1	9.5	12.7	317.5	12	1-3/8
8	483	98.4	219.2	292.1	219.3	269.9	11.1	12.7	393.7	12	1-5/8
10	584	114.4	273.1	368.3	260.4	323.9	11.1	12.7	482.6	12	1-7/8
12	673	130.4	323.9	450.9	288.8	381.0	14.3	12.7	571.5	16	2
14	749	139.8	355.6	495.3	304.9	419.1	15.9	12.7	635.0	16	2-1/4

Dimension

Option : Tap Connection



For JIS 10K Flanges

Nominal Pipe Size Inch/mm	Diag. of Flange O	Thickness of Flange Q	D of Hub of Wedge A	Diag. of Hub X	Length Through Hub Y	Diag. of Raised Face F	Height of Raised Face E	Diag. of Top Holes d	Diag. of Bolt Circle C	Number of Bolt	Bolt Size
1 25	125	38.1	34.0	50	80	70	1	6.4	70	4	M16
1 1/4 32	135	38.1	42.7	60	80	80	2	6.4	100	4	M16
1 1/2 40	140	38.1	48.6	66	83	85	2	6.4	105	4	M16
2 50	155	38.1	60.5	80	83	100	2	6.4	120	4	M16
2 1/2 65	175	38.1	76.3	98	86	120	2	6.4	140	4	M16
3 80	185	38.1	89.1	112	86	130	2	9.5	150	8	M16
3 1/2 90	195	38.1	101.6	122	86	140	2	9.5	160	8	M16
4 100	200	38.1	114.3	132	90	155	2	12.7	175	8	M16
5 125	250	38.1	139.8	160	95	185	2	12.7	210	8	M20
6 150	280	38.1	165.2	190	100	215	2	12.7	240	8	M20
8 200	330	38.1	216.3	238	110	265	2	12.7	290	12	M20
10 250	350	38.1	241.8	264	110	285	2	12.7	310	12	M20
12 300	445	38.1	318.5	346	120	370	3	12.7	400	16	M22
14 350	490	38.1	355.6	386	130	415	3	12.7	445	16	M22
16 400	560	38.1	406.4	442	130	475	3	12.7	510	16	M24

For JIS 30K Flanges

Nominal Pipe Size Inch/mm	Diag. of Flange O	Thickness of Flange Q	D of Hub of Wedge A	Diag. of Hub X	Length Through Hub Y	Diag. of Raised Face F	Height of Raised Face E	Diag. of Top Holes d	Diag. of Bolt Circle C	Number of Bolt	Bolt Size
1 25	130	38.1	34.0	54	83	70	1	6.4	95	4	M16
1 1/4 32	140	38.1	43.1	64	84	80	2	6.4	105	4	M16
1 1/2 40	160	38.1	49.1	70	86	90	2	6.4	120	4	M20
2 50	165	38.1	61.0	86	86	105	2	6.4	130	8	M16
2 1/2 65	200	38.1	76.9	104	90	130	2	6.4	160	8	M20
3 80	210	38.1	89.7	118	90	140	2	9.5	170	8	M20
3 1/2 90	230	38.1	102.3	130	90	150	2	9.5	185	8	M22
4 100	240	38.1	115.1	142	92	160	2	12.7	195	8	M22
5 125	275	38.1	140.7	172	102	195	2	12.7	230	8	M22
6 150	325	38.1	166.2	204	102	235	2	12.7	275	12	M24
8 200	370	42	217.5	256	112	280	2	12.7	320	12	M24
10 250	450	48	268.7	314	118	345	2	12.7	390	12	M30
12 300	515	52	320.0	370	130	405	3	12.7	450	16	M30
14 350	560	54	357.2	412	144	450	3	12.7	495	16	M30
16 400	630	60	408.3	468	150	510	3	12.7	560	16	M36

For JIS 16/20K Flanges

Nominal Pipe Size Inch/mm	Diag. of Flange O	Thickness of Flange Q	D of Hub of Wedge A	Diag. of Hub X	Length Through Hub Y	Diag. of Raised Face F	Height of Raised Face E	Diag. of Top Holes d	Diag. of Bolt Circle C	Number of Bolt	Bolt Size
1 25	125	38.1	34.0	50	80	70	1	6.4	90	4	M16
1 1/4 32	135	38.1	42.7	60	80	80	2	6.4	100	4	M16
1 1/2 40	140	38.1	48.6	66	83	85	2	6.4	105	4	M16
2 50	155	38.1	60.5	80	83	100	2	6.4	120	8	M16
2 1/2 65	175	38.1	76.3	98	86	120	2	6.4	140	8	M16
3 80	200	38.1	89.1	112	86	135	2	9.5	160	8	M20
3 1/2 90	210	38.1	101.6	124	86	145	2	9.5	170	8	M20
4 100	225	38.1	114.3	138	90	160	2	12.7	185	8	M20
5 125	270	38.1	139.8	170	95	195	2	12.7	225	8	M22
6 150	365	38.1	165.2	202	100	230	2	12.7	260	12	M22
8 200	350	38.1	216.3	252	110	275	2	12.7	305	12	M22
10 250	430	38.1	241.8	312	115	345	2	12.7	380	12	M24
12 300	480	38.1	318.5	364	120	395	3	12.7	430	16	M24
14 350	540	40	355.6	408	132	440	3	12.7	480	16	M30
16 400	605	46	406.4	456	138	495	3	12.7	540	16	M30

For JIS 40K Flanges

Nominal Pipe Size Inch/mm	Diag. of Flange O	Thickness of Flange Q	D of Hub of Wedge A	Diag. of Hub X	Length Through Hub Y	Diag. of Raised Face F	Height of Raised Face E	Diag. of Top Holes d	Diag. of Bolt Circle C	Number of Bolt	Bolt Size
1 25	130	38.1	34.4	54	83	70	1	6.4	95	4	M16
1 1/4 32	140	38.1	43.1	64	84	80	2	6.4	105	4	M16
1 1/2 40	160	38.1	49.1	70	86	90	2	6.4	120	4	M20
2 50	165	38.1	61.0	86	86	105	2	6.4	130	8	M20
2 1/2 65	200	38.1	76.9	104	90	130	2	6.4	160	8	M20
3 80	210	38.1	89.7	118	90	140	2	9.5	170	8	M20
3 1/2 90	230	38.1	102.3	130	90	150	2	9.5	185	8	M22
4 100	250	38.1	115.1	152	92	160	2	12.7	205	8	M22
5 125	300	40	140.7	192	104	200	2	12.7	250	8	M22
6 150	355	44	166.2	220	108	240	2	12.7	295	12	M24
8 200	405	50	217.5	270	120	290	2	12.7	345	12	M30
10 250	475	56	268.7	330	126	355	2	12.7	410	12	M30
12 300	540	60	320.0	380	138	410	3	12.7	470	16	M36
14 350	585	64	357.2	426	154	455	3	12.7	515	16	M36
16 400	645	70	408.3	476	160	515	3	12.7	570	16	M36

