

Ring type joint orifice plate

Model : F300

Spec. sheet no. **FD03-01**

Description

A holding ring assembly is a combination of a holder ring and an orifice plate designed for Ring type joint (RTJ) flanges of ANSI or JPI specifications. The holding ring has a function of holding the orifice plate and also a function as a gasket to prevent leakage of the process fluid.

This metallic sealing system is applicable to a fluid of high temperature and high pressure, the pressure tapping system is normally the flange tap type.



Specification

Orifice bore type

Concentric square edged orifice
Quadrant edged orifice

Flow calculation standards

ISO 5167-1 and 2 2003
AGA-3
ASME MFC-3M and 14M
JIS Z 8762
BS 1042

Flange ratings

ANSI class 300, 600, 900 and 1,500 Lb
Ring type joint (RTJ)

Pressure taps

Flange taps

Plate thickness

3, 6, 9 and 12 mm

Tab handle

Welded to ring

Holding ring

Riveted to plate
Types : Octagonal or oval

Drain and vent hole

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

Markings

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

Special markings

Special marking may be furnished to meet Specific requirement

Materials

Plate : 304SS and 316L SS
Holding ring : Soft Iron, 304SS and 316SS
Rivets : 304SS and 316SS
Tab Handle : 304SS and 316SS

Nominal pipe sizes available

Orifice bore type	Pipe size	Pipe diameter given in the applicable standards
Concentric square edge	1½" ~ 14"	40 ~ 350 mm
Quadrant edge	1½" ~ 6"	40 ~ 150 mm

Main order

Ordering information

1. Base model

F300 Ring type joint orifice plate

2. Type

P3 Plate with holding ring (Oval type)
P4 Plate with holding ring (Octagonal type)

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. Bore type

C Concentric edge
E Eccentric
Q Quadrant edge
S Segmental

5. Flange rating

JIS		ANSI		DIN	
J010	JIS 10K	A010	ANSI 150 Lb	P010	PN 10
J016	JIS 16K	A020	ANSI 300 Lb	P016	PN 16
J020	JIS 20K	A030	ANSI 600 Lb	P025	PN 25
J030	JIS 30K	A040	ANSI 900 Lb	P040	PN 40
J040	JIS 40K	A050	ANSI 1,500 Lb		
J063	JIS 63K	A060	ANSI 2,500 Lb		

6. Plate material

4 304SS
6 316L SS
H Hastelloy-C
M Monel
O Other

7. Ring material

4 304SS
6 316L SS
H Hastelloy-C
M Monel
O Other

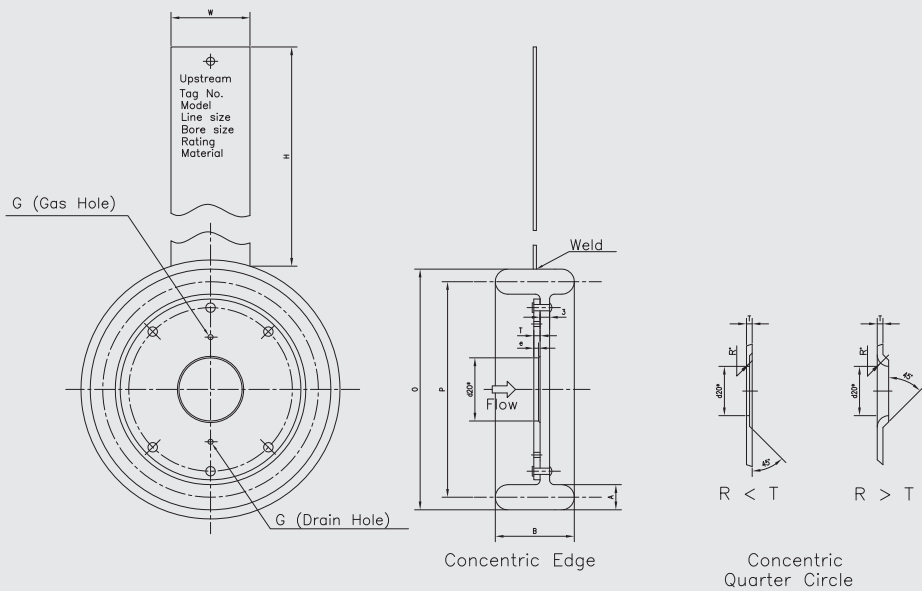
8. Drain / vent

D0 Drain (Not drilled for orifice bores smaller than 25.4 mm)
V0 Vent (Not drilled for orifice bores smaller than 25.4 mm)
N0 None

1	2	3	4	5	6	7	8
F300	P3	J150	C	J020	6	6	D0

Sample ordering code

Dimension



* d20 : Orifice dia. AT 20°C : Refer to orifice claculated sheet

For ANSI 300 (Oval type)

Nominal Pipe Size	HOLDING RING				Thickness of Edge e	Dia. of Hole C	Thickness of Plate t	Tab handle		
	Outside Dia. D	Pitch P	Width W	Height H				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	93.7	82.6	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	112.7	101.6	11.1	27	0.5~0.8	1.6	3	25	120	3
3	134.9	123.8	11.1	27	0.5~0.8	1.6	3	25	130	3
4	160.3	149.2	11.1	27	0.8~1.2	1.6	3	38	130	3
5	192.1	181.0	11.1	27	0.8~1.2	1.6	3	38	150	3
6	222.2	211.2	11.1	27	0.8~1.2	1.6	3	38	150	3
8	281	269.9	11.1	27	1.5~2.0	1.6	3	38	150	3
10	335	323.9	11.1	27	$e = T$	2.0	6	38	160	6
12	392.1	381.0	11.1	27	$e = T$	2.5	6	38	160	6
14	430.2	419.1	11.1	27	$e = T$	2.5	6	38	160	6

For ANSI 300 (Octagonal type)

Nominal Pipe Size	Holding Ring				Thickness of Edge $\frac{1}{8}$	Dia. of Hole $\frac{1}{8}$	Thickness of Plate $\frac{1}{8}$	Tab Handle		
	Outside Dia.	Pitch $\frac{1}{8}$	Width	Height				Width $\frac{1}{8}$	Height	Thickness $\frac{1}{8}$
1 1/2	76.7	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	93.2	82.6	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	112.7	101.6	11.1	27	0.5~0.8	1.6	3	25	120	3
3	134.9	123.8	11.1	27	0.5~0.8	1.6	3	25	130	3
4	160.3	149.2	11.1	27	0.8~1.2	1.6	3	38	130	3
5	192.1	181.0	11.1	27	0.8~1.2	1.6	3	38	150	3
6	222.2	211.2	11.1	27	0.8~1.2	1.6	3	38	150	3
8	281	269.9	11.1	27	1.5~2.0	1.6	3	38	150	3
10	335	323.9	11.1	27	$e = T$	2.0	6	38	160	6
12	392.1	381.0	11.1	27	$e = T$	2.5	6	38	160	6
14	430.2	419.1	11.1	27	$e = T$	2.5	6	38	160	6

Dimension for F300 series

For ANSI 600 (Oval type)

Nominal Pipe Size	HOLDING RING				Thickness of Edge e	Dia. of Hole G	Thickness of Plate T	Tab Handle		
	Outside Dia. D	Pitch Dia. d	Width A	Height B				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	93.7	82.6	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	112.7	101.6	11.1	27	0.5~0.8	1.6	3	25	130	3
3	134.9	123.8	11.1	27	0.5~0.8	1.6	3	25	130	3
4	160.3	149.2	11.1	27	0.8~1.2	1.6	3	38	130	3
5	192.1	181.0	11.1	27	0.8~1.2	1.6	3	38	150	3
6	222.2	211.2	11.1	27	0.8~1.2	1.6	3	38	150	3
8	281	269.9	11.1	27	1.5~2.0	1.6	3	38	150	3
10	335	323.9	11.1	27	e = T	2.0	6	38	160	6
12	392.1	381.0	11.1	27	e = T	2.5	6	38	160	6
14	430.2	419.1	11.1	27	e = T	2.5	6	38	160	6

FOR ANSI 600 (OCTAGONAL TYPE)

Nominal Pipe Size	Holding Ring				Thickness of Edge e	Dia. of Hole G	Thickness of Plate T	Tab Handle		
	Outside Dia. D	Pitch Dia. d	Width A	Height B				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	93.7	82.6	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	112.7	101.6	11.1	27	0.5~0.8	1.6	3	25	130	3
3	134.9	123.8	11.1	27	0.5~0.8	1.6	3	25	130	3
4	160.3	149.2	11.1	27	0.8~1.2	1.6	3	38	130	3
5	192.1	181.0	11.1	27	0.8~1.2	1.6	3	38	150	3
6	222.2	211.2	11.1	27	0.8~1.2	1.6	3	38	150	3
8	281	269.9	11.1	27	1.5~2.0	1.6	3	38	150	3
10	335	323.9	11.1	27	e = T	2.0	6	38	160	6
12	392.1	381.0	11.1	27	e = T	2.5	6	38	160	6
14	430.2	419.1	11.1	27	e = T	2.5	6	38	160	6

For ANSI 900 (Oval type)

Nominal Pipe Size	Holding Ring				Thickness of Edge e	Dia. of Hole G	Thickness of Plate T	Tab Handle		
	Outside Dia. D	Pitch Dia. d	Width A	Height B				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	106.4	95.3	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	119.1	108.0	11.1	27	0.5~0.8	1.6	3	25	130	3
3	134.9	123.8	11.1	27	0.5~0.8	1.6	3	25	130	3
4	160.3	149.2	11.1	27	0.8~1.2	1.6	3	38	130	3
5	192.1	181.0	11.1	27	0.8~1.2	1.6	3	38	150	3
6	222.2	211.2	11.1	27	0.8~1.2	1.6	3	38	150	3
8	281	269.9	11.1	27	1.5~2.0	1.6	3	38	150	3
10	335	323.9	11.1	27	e = T	2.0	3	38	160	3
12	392.1	381.0	11.1	27	e = T	2.5	6	38	160	6
14	430.2	419.1	15.9	32	e = T	2.5	6	38	160	6

For ANSI 900 (Octagonal type)

Nominal Pipe Size	Holding Ring				Thickness of Edge e	Dia. of Hole G	Thickness of Plate T	Tab Handle		
	Outside Dia. D	Pitch Dia. d	Width A	Height B				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	106.4	95.3	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	119.1	108.0	11.1	27	0.5~0.8	1.6	3	25	130	3
3	134.9	123.8	11.1	27	0.5~0.8	1.6	3	25	130	3
4	160.3	149.2	11.1	27	0.8~1.2	1.6	3	38	130	3
5	192.1	181.0	11.1	27	0.8~1.2	1.6	3	38	150	3
6	222.2	211.2	11.1	27	0.8~1.2	1.6	3	38	150	3
8	281	269.9	11.1	27	1.5~2.0	1.6	3	38	150	3
10	335	323.9	11.1	27	e = T	2.0	3	38	160	3
12	392.1	381.0	11.1	27	e = T	2.5	6	38	160	6
14	430.2	419.1	15.9	32	e = T	2.5	6	38	160	6

For ANSI 1,500 (Oval type)

Nominal Pipe Size	Holding Ring				Thickness of Edge e	Dia. of Hole G	Thickness of Plate T	Tab Handle		
	Outside Dia. D	Pitch Dia. d	Width A	Height B				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	106.4	95.3	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	119.1	108.0	11.1	27	0.5~0.8	1.6	3	25	130	3
3	147.6	136.5	11.1	27	0.5~0.8	1.6	3	25	130	3
4	173	161.9	11.1	27	0.8~1.2	1.6	3	38	130	3
5	204.8	193.7	11.1	27	0.8~1.2	1.6	3	38	150	3
6	223.9	211.2	12.7	27	0.8~1.2	1.6	3	38	150	3
8	285.8	269.9	15.9	27	1.5~2.0	1.6	3	38	160	3
10	339.8	323.9	15.9	27	e = T	2.0	3	38	160	3
12	403.2	381.0	22.2	27	e = T	2.5	6	38	190	6
14	444.5	419.1	25.4	32	e = T	2.5	6	38	190	6

For ANSI 1,500 (Octagonal type)

Nominal Pipe Size	Holding Ring				Thickness of Edge e	Dia. of Hole G	Thickness of Plate T	Tab Handle		
	Outside Dia. D	Pitch Dia. d	Width A	Height B				Width W	Height H	Thickness t
1 1/2	76.2	68.3	7.9	27	0.3~0.5	1.6	3	25	110	3
2	106.4	95.3	11.1	27	0.5~0.8	1.6	3	25	110	3
2 1/2	119.1	108.0	11.1	27	0.5~0.8	1.6	3	25	130	3
3	147.6	136.5	11.1	27	0.5~0.8	1.6	3	25	130	3
4	173	161.9	11.1	27	0.8~1.2	1.6	3	38	130	3
5	204.8	193.7	11.1	27	0.8~1.2	1.6	3	38	150	3
6	223.9	211.2	12.7	27	0.8~1.2	1.6	3	38	150	3
8	285.8	269.9	15.9	27	1.5~2.0	1.6	3	38	160	3
10	339.8	323.9	15.9	27	e = T	2.0	3	38	160	3
12	403.2	381.0	22.2	27	e = T	2.5	6	38	190	6
14	444.5	419.1	25.4	32	e = T	2.5	6	38	190	6