

# Orifice plate with a holding ring

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

## 4. Bore type

**C** Concentric edge  
**E** Eccentric  
**Q** Quadrant edge  
**S** Segmental

## 5. Flange rating

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

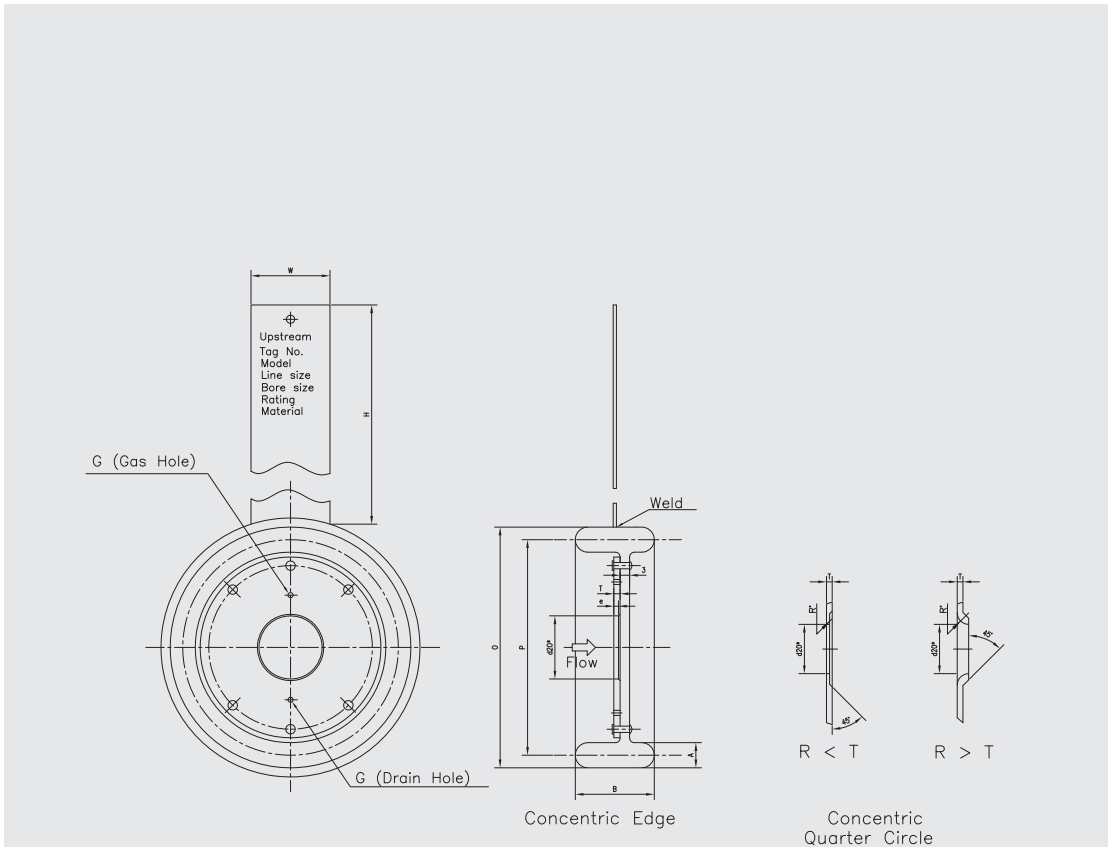
## 8. Drain / vent

**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
<b>F300</b>	<b>P3</b>	<b>J150</b>	<b>C</b>	<b>J020</b>	<b>6</b>	<b>6</b>	<b>D0</b>

Sample ordering code

## Dimension



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

For ANSI 300 (Oval type)

For ANSI 300 (Octagonal type)

Nominal Pipe Size	HOLDING RING				Thickness of Edge of Hole C	Dia. of Hole C	Thickness of Plate T	Tab handle		
	Outside W	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

Nominal Pipe Size	Holding Ring				Thickness of Edge of Hole	Dia. of Hole	Thickness of Plate	Tab Handle		
	Outside D.	Pitch D.	Width A	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	380.0	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