PRESSURE MEASURING

WITH FLR FLUSHING RING

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Introductions

The flush ring is made of bar stock or forged material. The ring contains one or two flush holes. The flush holes can be selected in most common sizes. The flush ring is clamped between process and instrument flange and is therefore limited by the pressure rating of either of those flanges. All kind of facings are available on the flush ring.

Size, rating and Facing

Flashing ring materials

The flashing ring can be supplied in several materials. Some of the standard materials are:

Material	UNS
AISI 316(L)	S31603
AISI 304L	S30400
AISI 310 MoLn	S31050
AISI 321	S32100
Alloy 400	N04400
Alloy 600	N06600
Alloy 625	N06625
Alloy C-276	N10276
Duplex F55	S32750
Nickel 201	N02201
Titanium Gr. 2	R50400
Zirconium coated	R60702

Flange size, rating

ASME B16.5			
Size	**Rating**	**Facing**	**Roughness**
1" to 4"	cl. 150 - cl. 2500	RF, LMF, SGF	Ra 3.2-6.3 µm
		RJF	Ra <1.6 µm

EN 1092-1			
Size	**Rating**	**Type**	**Roughness**
DN20 to DN100	PN10-400	B2, C, D, G, H	Ra <0.8-3.2 µm

API ISO 10423			
Size	**Rating**	**Facing**	**Roughness**
1-13/16" to 3-1/16"	69 – 138 MPa	6BX – RJF	Ra <1.6 µm
2-1/16" to 3-1/8"	13.8 – 34.5 MPa	6B-RJF	Ra <1.6 µm

JIS B2220			
Size	**Rating**	**Type**	**Roughness**
DN25 to DN100	10-20K	RF	Ra 3.2-12.5 µm

Specification

Ring thickness

Thickness of the ring is depending on flush hole size. The dimensions tables are based on ½" flush connections. For ¼", ¾", BW, SW connection below rules can be followed.

Flush size	RF /B1 facing	RJF facing
¼"	20.0	B = 20 + 2*E
½"	35.0	50.0
¾"	40.0	B = 40 + 2*E
Butt weld ½" / 20mm	24.0	35.0
Butt weld ¾" / 28mm	30.0	
Socket weld ½"	33.5	50.0
Socket weld ¾"	41.0	B = 41 + 2*E

Flush connections

Flush ports can be made in all kind of variations both threaded as weld connection.

Cleanliness of the wetted parts

Flush size	following standard
G ¼", G ½", G ¾"	ISO 228 thread (acc DIN 3852-2 / ISO 1179-4)
¼", ½", ¾" NPT	ASME B1.20.1
Butt weld ½" / 20mm	ASME B16.9 / EN 12627
Butt weld ¾" / 28mm	
Socket weld ½"	ASME B16.11 / EN 12760
Socket weld ¾"	

All parts are standard cleaned from excessive oil and grease. Whenadditional requirements are needed, the parts can be cleaned according customer requirements and cleaning specifications.

Assemblies

The flush rings are typical used for vent or drain the process when installed under a pressure instrument like a pressure gauge orpressure transmitter. Venting the process can be made easy by installing a needle valve, extension pipe or welding neck flange to the flush ring. These assemblies are common practice for ARAMAK and can be welded, tested and assembled in advance .

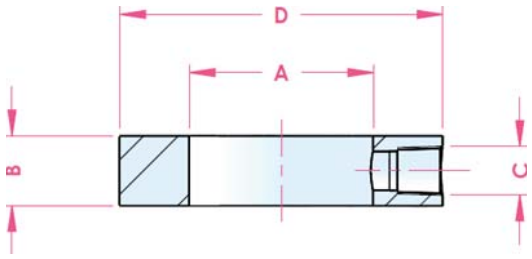
Material Certification

Material traceability and related certification are applicable for all process wetted parts. Material certification possibilities depend on the type of ring, the assembly construction and the materials used. Material certification is in accordance with EN10204 3.1.

Additional material certification and testing can be provided on request, such as Positive Material Identification (PMI), Intergranular corrosion (IGC) testing, material certification in accordance with EN10204 3.2, NACE conformity for ISO-15156 (MR-0175) and/or ISO-17945 (MR-0103), NORSOK M-630 and many more.

Dimensions table

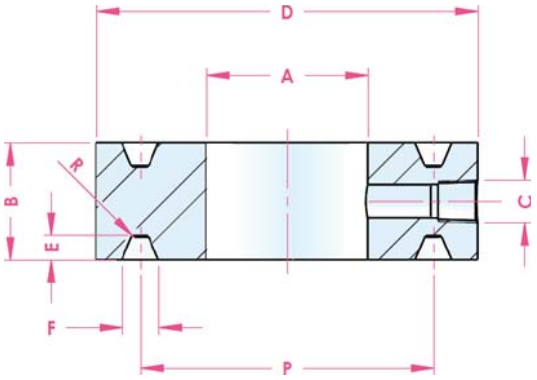
ASME 16.5 RF facing



size	rating	D	A	B	C
¾"	cl. 150-2500	43	21.0	30	½" NPT
1"		51	26.6		
1.25"		63.5	35.1		
1.5"		73.0	40.9		
2"		92	52.5		
2.5"		105	62.7		
3"		127.0	77.9		
4"		157.2	102.3		

Dimensions table

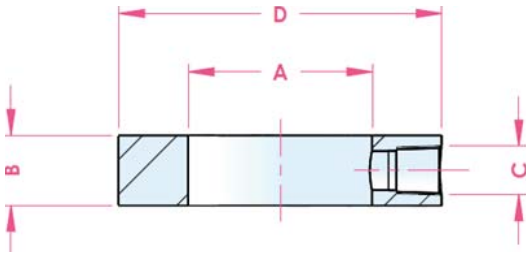
ASME 16.5 RJF facing



size	rating	D	A	B	E	F	P	R	C	Ring #
1"	cl. 150	63.5	26.6	50.0	6.4	8.7	47.62	0.8	½" NPT	15
	cl. 300 cl. 400-600	70.0					50.80			16
	cl. 900-1500	71.5								
1.5"	cl. 2500	82.6	40.9				60.33			18
	cl. 150						65.07			19
	cl. 300 cl. 400-600	90.5					68.27			20
	cl. 900-1500	92.0								
2"	cl. 2500	114.0	52.5		7.9	11.9	82.55			23
	cl. 150	102.0			6.4	8.7				22
	cl. 300 cl. 400-600	108.0								23
	cl. 900-1500	124.0			7.9	11.9	95.25			24
3"	cl. 2500	133.0	77.9				101.60			26
	cl. 150				6.4	8.7	114.30			29
	cl. 300 cl. 400-600	146.0					123.83			31
	cl. 900	156.0			7.9	11.9				
	cl. 1500	168.0					136.52			35
	cl. 2500				9.5	13.5	127.00	1.5		32
4"	cl. 150	171.0	102.3		6.4	8.7	149.22	0.8		36
	cl. 300 cl. 400 cl. 600	175.0			7.9	11.9				37
	cl. 900	181.0								
	cl. 1500	194.0					161.92			39
	cl. 2500	203.0			11.1	16.7	157.18	1.5		38

Dimensions table

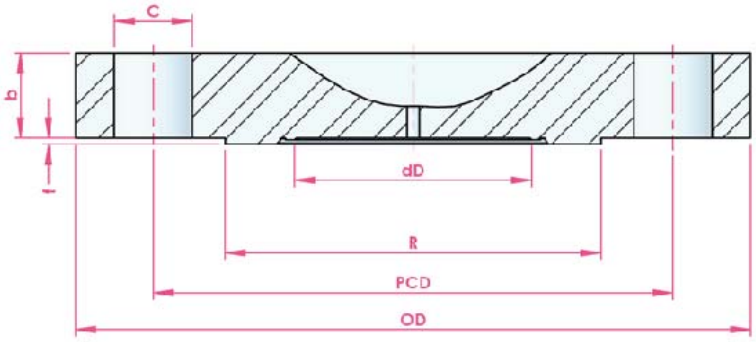
ASME 16.5 FF facing



size	Rating	D	A	B	C
DN20	PN10-100	58.0	22.3	35	½" NPT
DN25	PN10-400	68.0	28.5		
DN32	PN10-100	78.0	37.2		
DN40		88.0	43.1		
DN50	PN10-400	102.0	53.9		
DN80		138.0	80.9		
DN100	PN10-16	158.0	104.3		
	PN25-100	162.0	104.3		

Dimensions table

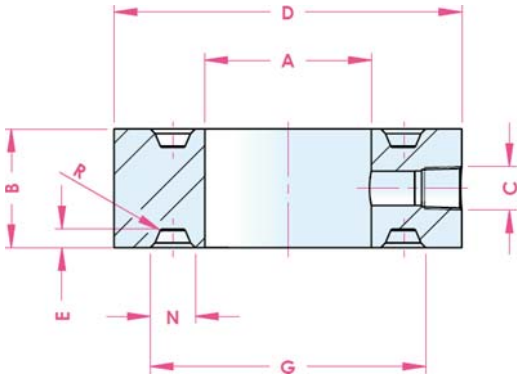
EN 1092-1 type B1/B2: Raised face



size	rating	OD	b	PCD	C / pcs	dD	R	f	G
DN25	PN10-40	115.0	18.0	85.0	14.0 / 4x	35	68.0	2.0	40.1
	PN63-100 PN160	140.0	24.0	100.0	18.0 / 4x				
	PN250	150.0	28.0	105.0	22.0 / 4x				
	PN320	160.0	34.0	115.0					
	PN400	180.0	38.0	130.0	26.0 / 4x				
DN40	PN10-40	150.0	18.0	110.0	18.0 / 4x	45 54	88.0		51.6
	PN63-100 PN160	170.0	26.0 28.0	125.0	22.0 / 4x				
	PN250	185.0	34.0	135.0	26.0 / 4x				
	PN320	195.0	38.0	145.0					
	PN400	220.0	48.0	165.0	30.0 / 4x				
DN50	PN10-40	165.0	20.0	125.0	18.0 / 4x	54 60	102.0	3.0	66.4
	PN63	180.0	26.0	135.0	22.0 / 4x				
	PN100 PN160	195.0	28.0 30.0	145.0	26.0 / 4x				
	PN250	200.0	38.0	150.0	26.0 / 8x				
	PN320	210.0	42.0	160.0					
	PN400	235.0	52.0	180.0	30.0 / 8x				
DN80	PN10-40	200.0	24.0	160.0	18.0 / 8x		138.0		
	PN63	215.0	28.0	170.0	22.0 / 8x				
	PN100 PN160	230.0 230.0	32.0 36.0	180.0	26.0 / 8x				
	PN250	255.0	46.0	200.0	30.0 / 8x				
	PN320	275.0	55.0	220.0					
	PN400	305.0	68.0	240.0	33.0 / 8x				
DN100	PN10-16	220.0	20.0	180.0	18.0 / 8x	75 89	158.0		89.2
	PN25-40	235.0	24.0	190.0	22.0 / 8x				
	PN63	250.0	30.0	200.0	26.0 / 8x				
	PN100 PN160	265.0	36.0 40.0	210.0	30.0 / 8x		162.0		
	PN250	300.0	54.0	235.0	33.0 / 8x				
	PN320	335.0	65.0	265.0	36.0 / 8x				
	PN400	370.0	80.0	295.0	39.0 / 8x				

Dimensions table

API 6A 10423 – Type 6Bx



size	Rating (MPa)	B	D	A	G	N	E	ring	C	R
1-13/16”	69	50.0	105.0	46.0	77.7	11.8	5.6	BX-151	½”	0.8
	103.5		106.0							
	138		117.0							
2-1/16"	69		111.0	53.0	86.2	12.7	5.9	BX-152		
	103.5		114.0							
	138		132.0							
2-9/16"	69		132.0	66.0	102.7	14.1	6.8	BX-153		
	103.5		133.0							
	138		151.0							
3-1/16"	69		152.0	78.0	119.0	15.4	7.5	BX-154		
	103.5		154.0							
	138		171.0							

Ordering Information

FLR-	XX	XX	XX	XX	XXX	XX	XX	XXX
Standards								
ASME 16.5 RF facing	RF							
ASME 16.5 RTJ	RJ							
ASME 16.5 FF facing	FF							
EN 1092-1 type B1/B2	B1							
EN 1092-1 B1 type	EB							
EN 1092-1 type E	EE							
ISO 10423 6BX Type	IS							
API 6A 10423 – Type 6B	A6							
Other	OT							
Size								
DN 25 (1 in.)		25						
DN 40 (11/2 in.)		40						
DN 50 (2 in.)		50						
DN 65 (21/2 in.)		65						
DN 80 (3 in.)		80						
DN 90 (31/2 in.)		90						
DN 100 (4 in.)		10						
Others		99						
Rating								
ANSI Class 150			A1					
ANSI Class 300			A2					
ANSI Class 600			A3					
ANSI Class 900			A4					
ANSI Class 1500			A5					
ANSI Class 2500			A6					
PN 10			P1					
PN 16			P2					
PN 25			P3					
PN 40			P4					
PN 63			P5					
PN 100			P6					
PN 160			P7					
Material								
316 / 316L stainless				I1				
Alloy 625				I6				
Alloy C276				I8				
Titanium				I2				
Tantalum				I3				
Nickel 200				I4				
Other				P5				

Ordering Information

Flush connection mounting					
Open ports		I1			
Blind plug		I2			
Extended Nipple		I3			
Needle valve		I4			
Ball Valve		I5			
Gate Valve		I6			
Other		P5			
Flushing Connection Size					
1/4" NPT			NA		
1/2" NPT			N1		
3/4" NPT			N2		
1/2" Butt Weld			N3		
3/4" Butt Weld			N4		
1/2" Socket Weld			N5		
3/4" Socket Weld			N6		
G ¼ with ISO 1179-4 port connection			N7		
G ½ with ISO 1179-4 port connection			N8		
Other			N0		
Flushing Port Qty.					
1 Side				1	
2 Side				2	
Certification					
Material certificates					C0
Material NACE MR0175					C1
Material NACE MR0103					C2
100% dimensional check					C3
Hardness survey					C4
Impact testing @ –196 °C (–320.8 °F)					C5
Others					C6

Contact us

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