

om Tubes & Fittings Industries



INSTRUMENTATION - VALVES

INSTRUMENTATION

PIPE FITTINGS

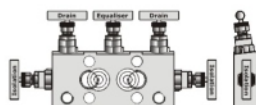
PIPING SOLUTIONS

ADDITIONAL PRODUCTS

Instrument Valves



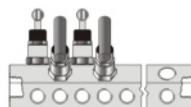
NEEDLE VALVES



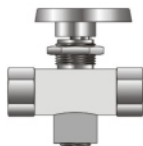
MANIFOLD VALVES



MONOFLANGE VALVES



AIR HEADER DISTRIBUTER



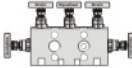
BALL VALVES



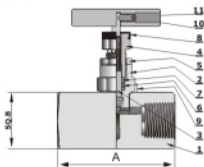
CHECK VALVES

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

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BAR STOCK SCREWED BONNET NEEDLE VALVES (6000 psig/ 414 barg) - PRODUCT CODE : CSNVS



Valve Size		PRODUCT CODE	Orifice	Sq. B	A
Inlet	Outlet				
1/8"NPT(M)	1/8"NPT(M)		3.0	25	62
1/8"NPT(F)	1/8"NPT(F)		3.0	25	44
1/8"NPT(M)	1/8"NPT(F)		3.0	25	53
1/8"NPT(F)	1/8"NPT(M)		3.0	25	53
1/4"NPT(M)	1/4"NPT(M)		3.0	25	71
1/4"NPT(F)	1/4"NPT(F)		3.0	25	53
1/4"NPT(M)	1/4"NPT(F)		3.0	25	62
1/4"NPT(F)	1/4"NPT(M)		3.0	25	62
3/8"NPT(M)	3/8"NPT(M)		3.0	25	71
3/8"NPT(F)	3/8"NPT(F)		3.0	25	53
3/8"NPT(M)	3/8"NPT(F)		3.0	25	62
3/8"NPT(F)	3/8"NPT(M)		3.0	25	62
1/2"NPT(M)	1/2"NPT(M)		4.0	28	80
1/2"NPT(F)	1/2"NPT(F)		4.0	28	62
1/2"NPT(M)	1/2"NPT(F)		4.0	28	71
1/2"NPT(F)	1/2"NPT(M)		4.0	28	71
3/4"NPT(M)	3/4"NPT(M)		4.0	35	91
3/4"NPT(F)	3/4"NPT(F)		4.0	35	64
3/4"NPT(M)	3/4"NPT(F)		4.0	35	78
3/4"NPT(F)	3/4"NPT(M)		4.0	35	78
1"NPT(M)	1"NPT(M)		4.0	42	118
1"NPT(F)	1"NPT(F)		4.0	42	82
1"NPT(M)	1"NPT(F)		4.0	42	100
1"NPT(F)	1"NPT(M)		4.0	42	100

Features

- Bar stock needle valve Design with back seated blowout proof.
- Stem - Ground and thread rolled.
- Hard seat - with non-rotating stem tip, - with rotating stem tip regulating & Soft seat.
- Dust Cap on bonnet pusher protects stem threads from external contamination.
- Packing and sealing are leak tight for easy operation.
- Low torque operating T bar handle.
- Externally adjustable gland
- Bonnet lock pin fitted as standard for 6000 psig and for high pressure lock plate as per the design required.

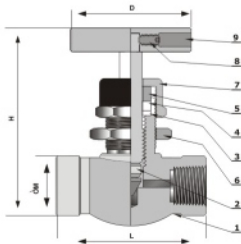
Specifications

- Size - 1/8" to 1-1/2"
- End connection - NPT, BSPT, Socket weld, Butt weld, Tube fitting.
- With straight and angle pattern
- Working Pressure - 6000Psig
- Temperature Rating - PTFE 450°F, (232°C) / Grafoli 700°F (371°C)
- Material - SS 316, SS 304, C.S., F11, Hastelloy, Monel, Valve can be supplied to meet the current revision of NACE MR-01-75 (Sour Gas service).
- Packing - PTFE, Grafoli
- Panel mounting on request.
- All valves are 100% factory tested at 1000psig.
- Lubrication - Dye molly sulphide.

Sr. No.	Description	Qty.	Material
1	Body	1	SS 316
2	Bonnet	1	SS 316
3	Stem (non-rotating tip)	1	SS 316
4	Bonnet Pusher	1	SS 316
5	Check Nut	1	SS 316
6	Packing	2	PTFE/Graphoil
7	Washer	1	SS 316
8	Dust Cap	1	Plastic
9	Stopper Pin	1	SS 316
10	Grub Screw	1	SS
11	Handle	1	SS 304

INTEGRAL BONNET NEEDLE VALVES

Forged - Straight Pattern (6000 psig / 414 barg) -
PRODUCT RANGE : CINVF

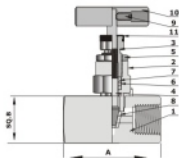


Sr. No.	Description	Material	
1	Body	SS 316/ASTM A 182	CS/ASTM A 105
2	Stem (non-rotating tip)	SS 316/ASTM A 182	SS 316/ASTM A 105
3	Washer	SS 316/ASTM A 182	SS 316/ASTM A 105
4	Packing	PTFE	PTFE
5	Gland	SS 316/ASTM A 182	CS/ASTM A 105
6	Panel nut	SS 316/ASTM A 182	CS/ASTM A 105
7	Gland nut	SS 316/ASTM A 182	CS/ASTM A 105
8	Grub Screw	SS	SS
9	Handle	SS 316/ASTM A 182	SS 316/ASTM A 276

Valve Size		COMFIT PRODUCT RANGE	Orifice	Ø M	L	H1	D
Inlet	Outlet						
1/8"NPT(F)	1/8"NPT(F)	2NF-CINVF	3.0	20	48	63	50
1/4"NPT(F)	1/4"NPT(F)	4NF-CINVF	3.0	26	54	78	50
3/8"NPT(F)	3/8"NPT(F)	6NF-CINVF	4.0	32	54	85	50
1/2"NPT(F)	1/2"NPT(F)	8NF-CINVF	4.0	32	60	85	60
3/4"NPT(F)	3/4"NPT(F)	12NF-CINVF	4.0	38	68	90	60
1"NPT(F)	1"NPT(F)	16NF-CINVF	4.0	44	70	96	60

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

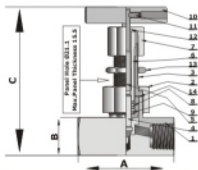
SOFT SEATED SCREWED BONNET NEEDLE VALVES PRODUCT CODE : CSSNV



Nos.	Description	Qty.	Material
1	Body	1	SS 316
2	Bonnet	1	SS 316
3	Bonnet Pusher	1	SS 316
4	Stem	1	SS 316
5	Check Nut	1	SS 316
6	Packing	2	PTFE
7	Gland	1	SS 316
8	Seat	1	PTFE
9	Grub Screw	1	SS
10	Handle	1	SS 304
11	Dust Cap	1	Plastic

Inlet	Outlet	Orifice	A	B
1/4" NPT(F)	1/4" NPT(F)	4.8	62	32
3/8" NPT(F)	3/8" NPT(F)		62	32
1/2" NPT(F)	1/2" NPT(F)		72	35
1/4" NPT(M)	1/4" NPT(F)		62	32
3/8" NPT(M)	3/8" NPT(F)		62	32
1/2" NPT(M)	1/2" NPT(F)		72	35

UNION BONNET NEEDLE VALVES (6000 psig / 414 barg) PRODUCT RANGE : CUBNV



Nos.	Description	Qty.	Material
1	Body	1	SS 316
2	Bonnet Nut	1	SS 316
3	Bonnet	1	SS 316
4	Lower Stem	1	SS 316
5	Upper Stem	1	SS 316
6	Stem Guide	1	PTFE
7	Packing Nut	1	SS 316
8	Packing	1	PTFE
9	Packing Washer	1	SS 316
10	Handle	1	SS 304
11	Grub Screw	1	SS
12	Dust Seal	1	Nylon
13	Locking Nut	1	SS 316
14	Bonnet Seal	1	PTFE

Inlet	Outlet	Orifice	A	B
1/4" NPT(F)	1/4" NPT(F)	6.4	58	30118
3/8" NPT(F)	3/8" NPT(F)	7.9	66	30118
1/2" NPT(F)	1/2" NPT(F)	7.9	76	30118

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

Description

- Soft seated Needle valves are designed for operation with upto 6000 psig (414 barg) rating With Complete standard PTFE stem packing & self centering non-rotating stem, back-seated needle design, it gives complete sealing security. Stem threads above packing protects stem from media.
- This is designed for repetitive bubble-tight shut-off, safety, and a long life with easy maintenance. Online replaceable soft seats give perfect alignment positive tightness at closure.
- This is rising plug design provides good regulation.
- Valve can be supplied CS, SS & also supplied to meet the current revision of NACE MR-01-75 (Sour Gas service).

Features

- Square body bar stock needle valve Design with back seated blowout proof.
- Dust Cap on bonnet pusher protects stem threads from external contamination.
- Packing and sealing are leak tight for easy operation & Packing below threads prevents lubricant washout, thread corrosion, and keeps solids from entering thread area causing galling. This also prevents process contamination.
- Low torque operating T bar handle.
- Bonnet Locking Pin Prevents accidental disassembly of bonnet from valve body.
- On line replacement of valve seat is allowed without removing the valve from the line which offers positive bubble-tight shut-off.

Specifications

- Size - 1/4", 3/8", 1/2"
- End connection - NPT, BSPT, Socket weld, Butt weld, Tube fitting.
- With straight pattern
- Working Pressure - upto 6000psig
- Temperature Rating - PTFE 450°F, (232°C) / Grafoil 700°F (371°C)
- Material - SS 316, SS 304, C.S., F11, Hastelloy, Monel, Valve can be supplied to meet the current revision of NACE MR-01-75 (Sour Gas service).
- Packing - PTFE, Grafoil
- Panel mounting on request.
- All valves are 100% factory tested at 1000 psig.
- Lubrication - Dye molly sulphide.

Purpose

Union Bonnet Valves have been engineered for use at pressures up to 6,000 (414 bar) and temperatures as high as 1,200 °F (649 °C). A non-rotating lower stem helps to extend packing life by removing rotation from the packing area. Stem packing below the threads isolates the thread lubricant from the flow, ensuring adequate lubrication regardless of the media.

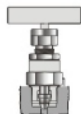
Features

- Union bonnet design ensures high integrity seal under severe service applications
- Packing below the power threads protects thread lubricants from media and isolates the lubricants from the media
- Dust seal in the packing nut protects stem threads from external contamination
- Stem swivel above the packing eliminates entrapment area and increases packing life
- Choice of Grafoil® or PTFE packing
- Choice of Regulating or Blunt stem types. Blunt stem type helps combat wire draw which may occur when two phase flow is present (i.e. steam service)
- 316 stainless steel construction

Specifications

- Size - 1/4", 3/8", 1/2" NPT(F) & 1/4", 3/8", 1/2", 10mm, 12mm OOD
- End connection - NPT, Tube fitting.
- With straight and angle pattern
- Working Pressure - 6000PSig
- Temperature Rating - PTFE 450°F, (232°C) / Grafoil 700°F (371°C)
- Material - SS 316
- Packing - PTFE, Grafoil
- Panel mounting.
- Lubrication - Dye molly sulphide.
- 100% factory tested at 1000 psig.

OPTIONAL SCREWED BONNET DESIGN



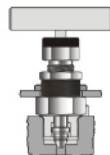
Standard Bonnet



T-Bar Locking Handle



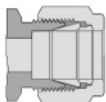
Anti Tamper Stem



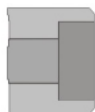
Panel Mounting

Optional End Connection & Stem Tips for Screwed Bonnet Design

OPTIONAL END CONNECTIONS



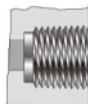
Tube Fitting



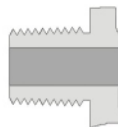
Socket Weld



Butt Weld



Female Thread



Male Thread

OPTIONAL STEM TIPS



Non-Rotating



Rotating



Blunt



Regulating



Soft Tip

OPTIONAL ARRANGEMENT FOR NEEDLE VALVE, MANIFOLD, AIR HEADERS, & GAUGE VALVE

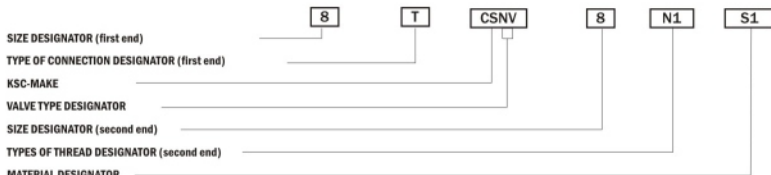
PANEL MOUNTING AVAILABLE.

ANTI TAMPER PROOF AVAILABLE.

HANDLE LOCKING AVAILABLE.

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

ORDERING CODE FOR NEEDLE VALVE



VALVE TYPE DESIGNATOR

Screwed bonnet needle valve.....SNV

END CONNECTION	DESIGNATOR
ODT	T
NPT (male)	NM
NPT (female)	NF
BSP-Tapered (male)	RTM
BSP-Tapered (female)	RTF
BSP-Parallel (male)	RSM
BSP-Parallel (female)	RSF
Pipe - Butt weld	PB
Socket weld	SW

SIZE IN INCH	DESIGNATOR	SIZE IN METRIC	DESIGNATOR
1/8"	2	2	2M
3/16"	3	3	3M
1/4"	4	4	4M
5/16"	5	6	6M
3/8"	6	8	8M
1/2"	8	10	10M
5/8"	10	12	12M
3/4"	12	14	14M
7/8"	12	15	15M
1"	16	16	16M
1-1/4"	20	18	18M
1-1/2"	24	20	20M
		22	22M

BODY PATTERN	DESIGNATOR
STRAIGHT	01
ANGLE	02
CROSS	03

Add the designator suffix to the part number

PACKING	DESIGNATOR
PTFE - Temp -250° F to +450° F	Standard by default
GRAFOIL - Temp 700° F	P1
PEEK - Temp 572° F	P2
BUNA-N - Temp 35° F to 250° F	P3
VITON - Temp 20° F to +400° F	P4

Add the designator suffix to the part number

STEM TIP	DESIGNATOR
NON - ROTATING	Standard by default
ROTATING	ST1
REGULATING	ST1
SOFT TIP	ST3
BLUNT TIP	ST4

Add the designator suffix to the part number

SEAT	DESIGNATOR
HARD SEAT	Standard by default
SOFT SEAT - with STELLITE-6	S1
SOFT SEAT - with PTFE	S2

Add the designator suffix to the part number

MATERIAL	DESIGNATOR
STEEL	S
SS 316	S1
SS 316L	S2
SS 316 / SS 316L	S1S2
SS 304	S3
SS 304L	S4
CARBON STEEL	S5
BRASS	B
ALLOY 20	C20
ALLOY C-276	HC
ALLOY 600	INC
ALLOY 825	INC1
ALLOY 625	INC2
TITANIUM	TI
MONEL	M
MONEL 400	M4
DUPLEX-FS1	D1
DUPLEX-FS3	D3
NACE MR-01-75	NM

HANDLE	DESIGNATOR
T-BAR	Standard by default
ROUND HANDLE	H1

OPTIONAL	DESIGNATOR
PANEL MOUNTING	OP1
ANTITEMPER PROOF	OP2
LOCKING ARRANGEMENT	OP3

Add the designator suffix to the part number

ORIFICE	DESIGNATOR
Ø2.4mm	Ø2.4
Ø3mm	Ø3.0
Ø4.0mm	Standard by default
Ø6.0mm	Ø6.0
Ø7.0mm	Ø7.0
Ø8.0mm	Ø8.0
Ø9.0mm	Ø9.0

Add the designator (orifice size) suffix to the part number

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

Purpose

Bar stock Gauge Needle valves are designed for operation with upto 6000 psig (414 barg) rating. With Complete standard PTFE stem packing & self centering non-rotating stem, back-seated needle design, it gives complete sealing security. Stem threads above packing protects stem from media.

Features

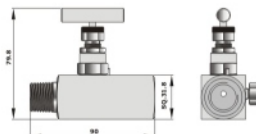
- Bar stock Gauge needle valve Design with back seated blowout proof.
- Hard seat - with non-rotating stem tip, - with rotating stem tip-regulating & Soft seat .
- Bonnet Pusher - Silver plated for anti-galling freezing for increased stem cycle life.
- Dust Cap on bonnet pusher protects stem threads from external contamination.
- Packing and sealing are leak tight for easy operation.
- Low torque operating T bar handle.
- Externally adjustable gland.
- Bonnet lock pin fitted as standard.

Specifications

- Working Pressure - 6000 Psig
- Temperature Rating - PTFE 450°F, (232°C) / Grafoil 700°F (371°C)
- Material - SS 316, SS 304, C.S., F11, Hastelloy, Monel, Valve can be supplied to meet the current revision of NACE MR-01-75 (Sour Gas service).
- Packing - PTFE, Grafoil
- Panel mounting on request.
- All valves are 100% factory tested at 1000 psig.
- Lubrication - Dye molly sulphide.

GAUGE VALVES

GAUGE VALVE with bleed plug



Size : 1/2" NPT(M) x 1/2" NPT(M)
3/4" NPT(M) x 1/2" NPT(M)

Connection : NPT, BSPT



Inlet	Outlet
1/2"NPT(M)	1/2"NPT(F)
3/4"NPT(M)	1/2"NPT(F)

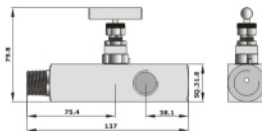
Size : 1/2" NPT(M) x 1/2" NPT(M)
3/4" NPT(M) x 1/2" NPT(M)

Connection : NPT, BSPT



Inlet	Outlet
1/2"NPT(M)	1/2"NPT(F)x3
3/4"NPT(M)	1/2"NPT(F)x3

MULTIPORT GAUGE VALVE



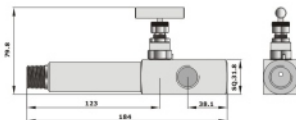
Size : 1/2" NPT(M) x 1/2" NPT(M)
3/4" NPT(M) x 1/2" NPT(M)

Connection : NPT, BSPT



Inlet	Outlet
1/2"NPT(M)	1/2"NPT(F)x3
3/4"NPT(M)	1/2"NPT(F)x3

MULTIPORT GAUGE VALVE with lagging extension



Size : 1/2" NPT(M) x 1/2" NPT(M)
3/4" NPT(M) x 1/2" NPT(M)

Connection : NPT, BSPT



Inlet	Outlet
1/2"NPT(M)	1/2"NPT(F)x3
3/4"NPT(M)	1/2"NPT(F)x3

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

TWO VALVE INSTRUMENT MANIFOLDS Remote Mounting Static Pressure Manifolds Low Pressure 6000 psig (414 barg)

Description

- This is standard design. This two valve manifold is designed for straight type remote mounting for process measurement to static pressure transmitters.
- With a broad selection of KSC fittings connections to a large range of inch or metric tubes is possible.
- It combines one isolation & one bleed / testing calibrate valve in single unit. Process 1/2" NPT(F), Instrument 1/2" NPT(F) & bleed 1/4" NPT(F) are the three connections which are given.

Remote Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With one plug



Remote Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With one plug



Remote Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	1/2" NPT(M)	1/4" NPT(F) With one plug



Remote Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With one plug



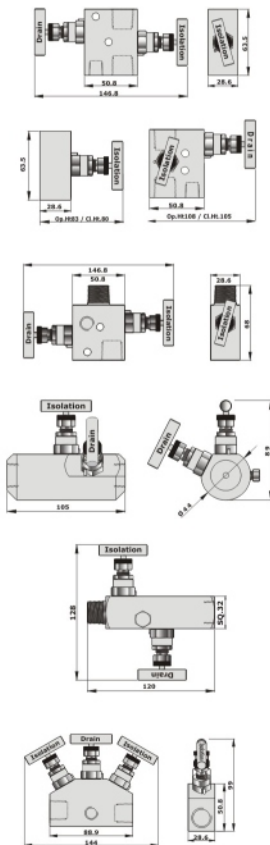
Remote Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(M)	1/2" NPT(F)	1/4" NPT(F) With one plug



Remote Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With one plug
1/2" NPT(M)	1/2" NPT(F)	1/4" NPT(F) With one plug

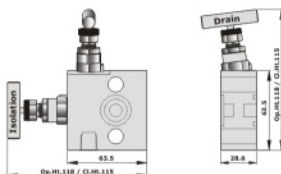


DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

TWO VALVE INSTRUMENT MANIFOLDS

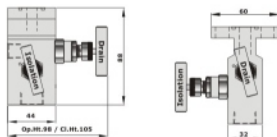
Static Pressure Manifolds

Pressure 6000psiq (414barg)



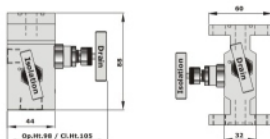
Direct Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	Flanged	1/4" NPT(F) with two plug



Direct Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	Flanged	1/4" NPT(F) with two plug

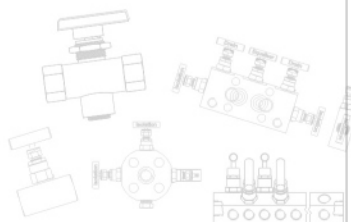


Direct Mounting

Inlet	Outlet	Bleed/Vent/Test
1/2" NPT(F)	Flanged	1/4" NPT(F) with two plug



DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

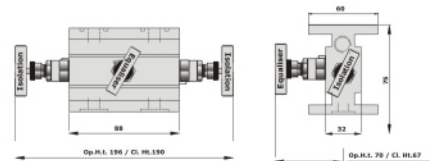
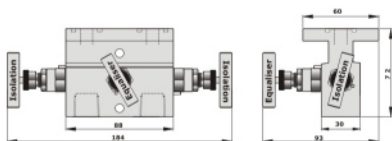
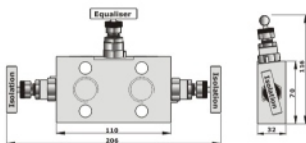
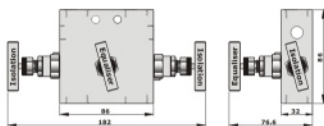


THREE VALVE INSTRUMENT MANIFOLDS

Differential Pressure Manifolds Pressure 6000 psig (414 barg)

Description

This three valve manifold is designed for process measurement to differential pressure transmitters. With a broad selection of KSC fittings connections to a large range of inch or metric tubes is possible.



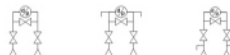
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

Remote Mounting



Inlet	Outlet	Bleed/Vent/ Test
1/2" NPT(F)	1/2" NPT(F)	-----
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) with two plug
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) with two plug

Direct Mounting



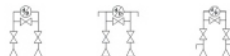
Inlet	Outlet	Bleed/Vent/ Test
1/2" NPT(F)	Flanged	-----
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug

Direct Mounting



Inlet	Outlet	Bleed/Vent/ Test
1/2" NPT(F)	Flanged	-----
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug

Direct Mounting

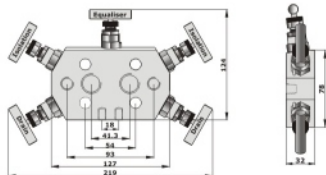
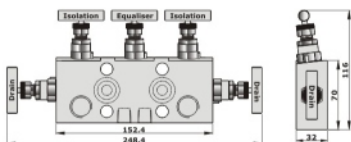
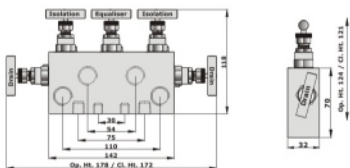
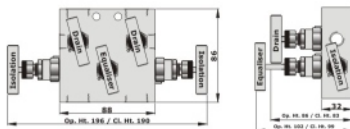


Inlet	Outlet	Bleed/Vent/ Test
Flanged	Flanged	-----
Flanged	Flanged	1/4" NPT(F) With two plug
Flanged	Flanged	1/4" NPT(F) With two plug

FIVE VALVE INSTRUMENT MANIFOLDS

Differential Pressure Manifolds

Pressure 6000 psig (414 barg)



Remote Mounting

Inlet	Outlet	Bleed/ Vent/ Test
1/2" NPT(F)	1/2" NPT(F)	-----
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With two plug

Remote Mounting

Inlet	Outlet	Bleed/ Vent/ Test
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With two plug
1/2" NPT(F)	1/2" NPT(F)	1/4" NPT(F) With two plug



Direct Mounting

Inlet	Outlet	Bleed/ Vent/ Test
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug

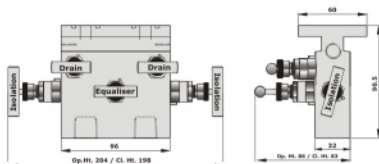


Direct Mounting

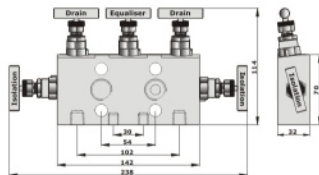
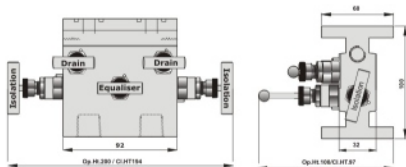
Inlet	Outlet	Bleed/ Vent/ Test
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug



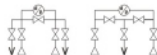
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FIVE VALVE INSTRUMENT MANIFOLDS
Differential Pressure Manifolds
Pressure 6000 psig (414 barg)



Direct Mounting



Inlet	Outlet	Bleed/ Vent/ Test
1/2" NPT(F)	Flanged	1/4" NPT(F) With two plug
1/2" NPT(F)	Flanged	1/4" NPT(F) With one plug

Direct Mounting



Product Code	Inlet	Outlet	Bleed/ Vent/ Test
C5VM DM-04	Flanged	Flanged	1/4" NPT(F) With two plug
C5VM DM-04A	Flanged	Flanged	1/4" NPT (F) With one plug

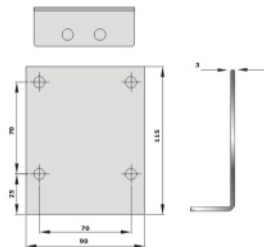
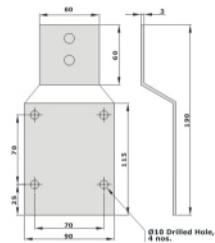
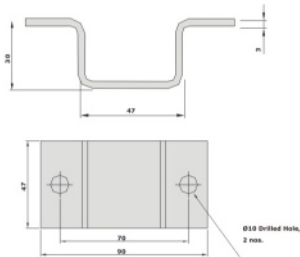
Direct Mounting



Product Code	Inlet	Outlet	Bleed/ Vent/ Test
C5VM DM-05	Pipe	Flange	1/4" NPT(F) With two plug

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BRACKETS



DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

AIR HEADER DISTRIBUTERS PRODUCT CODE : CAHD



Inlet	Drain	Outlet
1/2"	1/4"	1/2"
3/4"	1/4"	3/4"
1/2"	1/2"	1/2"
3/4"	1/2"	3/4"

DESCRIPTION

- Air headers are mainly used for Air distribution and to centralized several connections. It uses in refineries, liquid petroleum gas processing plant, petro-chemical plants, systems difficult to shut off due to solid contents dust, rust, dirt etc.

FEATURES

- Size - Inlet 1/2" x Outlet 1/2", Inlet 3/4" x Outlet 3/4"
- End connections - NPT, BSPT, SW
- Working pressure - 6000 psig (413 bar)
- Temperature rating - PIPE 450°F (232°C), Grafoil - 700°F (371°C)
- Material - SS 316, SS 304, C.S.
- Optional Sour Gas service valves are available conforming to NACE Std. MR - 01 - 75
- Packing - PTFE, Grafoil
- Heat code traceability
- All valves are 100% factory tested at 1000 psig.
- Lubrication - Dye molly sulphide.

BONNET DESIGN

- Screwed Bonnet Design.
- Stem : Ground and thread rolled.
- Hard seat : - with non-rotating stem tip.
- - with rotating stem tip-regulating & Soft seat.
- Dust Cap on bonnet pusher protects stem threads from external contamination.
- Packing and sealing are leak tight for easy operation.

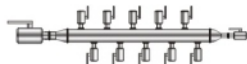
GENERAL BALL VALVES



Size	A	ØB	Bore øC	F
1/4"NPT(F)	52	28	7	100
3/8"NPT(F)	52	28	7	100
1/2"NPT(F)	76	30	10	100
3/4"NPT(F)	92	48	19	125
1"NPT(F)	114	55	24	125
1/4"ODT	62	31	4.8	100
3/8"ODT	68	31	7	100
1/2"ODT	80	30	10	100
3/4"ODT	90	48	15	125
1"ODT	112	60	22	125

Size	A	ØB	Bore øC	F
1/4"NPT(F)	52	28	7	100
3/8"NPT(F)	52	28	7	100
1/2"NPT(F)	76	30	10	100
3/4"NPT(F)	92	48	19	125
1"NPT(F)	114	55	24	125

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.



DESCRIPTION

- Air headers are mainly used for Air distribution and to Centralized several connections. It uses in refineries, liquid petroleum gas processing plant, petro-chemical plants, systems difficult to shut off due to solid contents dust, rust, dirt etc.

FEATURES

- Size - Inlet 1/2" x Outlet 1/2", Inlet 3/4" x Outlet 3/4", Inlet 1" x Outlet 1"
- End connections - NPT, BSPT, flange
- Working pressure - 6000 psig (413 bar)
- Temperature rating - PIPE 450°F (232°C), Grafoil - 700°F (371°C)
- Material - SS 316, SS 304, C.S.
- Optional Sour Gas service valves are available conforming to NACE Std. MR - 01 75
- Packing - PTFE, Grafoil
- Heat code traceability
- All valves are 100% factory tested at 1000 psig.
- Lubrication - Dye molly sulphide.

Comit low pressure Ball Valve offer quick, quarter turn shut off for chemical, petrochemical, oil & gas, pulp & paper, and instrumentation applications. With its blow out resistant stem, The Low-Series is an excellent, cost effective choice for tubing applications ranging in size from 1/4" to 1".

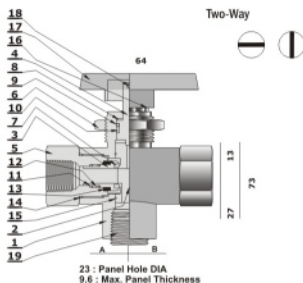
FEATURES

- Blow out resistant stem
- Positive handle stops
- Straight through flow path
- Stainless steel construction

SPECIFICATIONS

- Pressure rating: 2000 psig (137.9 bar) CWP
- Temperature rating: -65 °F to 350 °F (-54 °C to 177 °C)
- Orifice: 7 mm to 22 mm
- Body material: Stainless steel
- Body configuration: Inline
- Port connections: ODT, Male Thread, Female Thread, SW, BW.
- Port size: 1/4" to 1"

INSTRUMENT BALL VALVES (High pressure - series) TWO-WAY/THREE-WAY



FEATURES

- Compact, maximum flow design
- Low operating torque
- Panel mounting
- Ball valves are designed to be operated in a fully open or fully closed position.
- PEEK insertion bearings for longer cycle life.
- For 2way 90° actuation & for 3way 180° actuation.
- Blow-out resistant two-piece ball/stem.
- For 2way 3 piece & for 3way 3 piece body design for easy maintenance.
- Heat code traceability

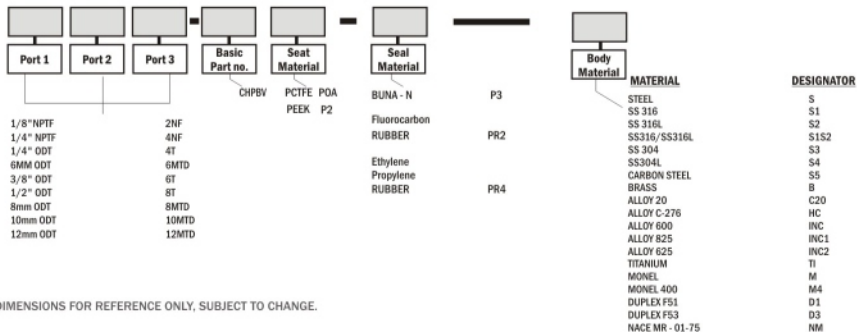
SPECIFICATION

- port connection: Tube compression (DIN-LOK)(Eka-LOK), Female NPT
- 1/8" - 1/2" (6mm to 12mm).
- Orifice - for 2way Ø4.8, for 3way Ø4.8.
- Pressure rating 6000 psig.
- SS 316 material Testing

TESTING

- Standard production testing: valves are 100% factory tested with nitrogen at 1000 psig (69bar) for leakage at the seats and body seals. Both areas are required to have less than 0.1 SCOM leakage. Optional testing is available upon request.

ORDERING CODE FOR INSTRUMENT BALL VALVE



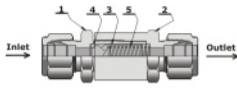
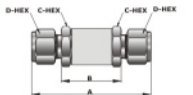
DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

Sr. No.	Description	Material
1	BODY	ASTM A 276 TYPE 316
2	BALL TRUNNION	ASTM A 479 TYPE 316
3	SEAT RETAINER	ASTM A 276 TYPE 316
4	STEM	ASTM A 479 TYPE 316
5	END CONNECTOR	ASTM A 479 TYPE 316
6	PANEL NUT	SS 316
7	SEAT	PEEK
8	STEM WASHER	PTFE/PEEK
9	STEM O-RING BACKUP	PTFE
10	STEM O-RING	FLUOROCARBON RUBBER
11	SEAT RETAINER O-RING BACKUP	PTFE
12	SEAT RETAINER O-RING	FLUOROCARBON RUBBER
13	CUP WASHER SPRING	SS 316 / INCONEL
14	CONNECTOR SEAL	PTFE/PEEK
15	TRUNNION BEARING	VITON/PEEK
16	HANDLE STOP PIN	SS 304
17	HANDLE	NYLON
18	HANDLE SET SCREW	SS
19	PIPE PLUG	SS 316

Pressure Rating @100°f(38°c)		SIZE INLET/OUTLET T	PART NO.	A	B
PSIG	BAR				
10,000	689	1/8" NPT(F)	2NF-CHPBV	37.3	37.3
10,000	689	1/4" NPT(F)	4NF-CHPBV	37.3	37.3
10,000	689	1/4" ODT(F)	4T-CHPBV	52.6	52.6
6,600	455	3/8" ODT	8T-CHPBV	55.6	55.6
6,300	434	1/2" ODT	8T-CHPBV	58.4	58.4
10,000	689	6MM ODT	6MT-CHPBV	52.6	52.6
7975	550	8MM ODT	8MT-CHPBV	52.6	52.6
6525	450	10MM ODT	10MM ODT	55.9	55.9
6162	425	12MM ODT	12MT-CHPBV	58.4	58.4

OM Tubes & Fittings Industries

CHECK VALVES

	<table><thead><tr><th>Sr. No.</th><th>Description</th><th>Qty.</th><th>Material</th></tr></thead><tbody><tr><td>1</td><td>Inlet Body</td><td>1</td><td>SS 316</td></tr><tr><td>2</td><td>Outlet Body</td><td>1</td><td>SS 316</td></tr><tr><td>3</td><td>Poppet</td><td>1</td><td>SS 316</td></tr><tr><td>4</td><td>O-ring</td><td>1</td><td>Viton</td></tr><tr><td>5</td><td>Spring</td><td>1</td><td>SS 316</td></tr></tbody></table>	Sr. No.	Description	Qty.	Material	1	Inlet Body	1	SS 316	2	Outlet Body	1	SS 316	3	Poppet	1	SS 316	4	O-ring	1	Viton	5	Spring	1	SS 316
Sr. No.	Description	Qty.	Material																						
1	Inlet Body	1	SS 316																						
2	Outlet Body	1	SS 316																						
3	Poppet	1	SS 316																						
4	O-ring	1	Viton																						
5	Spring	1	SS 316																						
 FEATURES - Resilient, custom molded, blow-out resistant seat design - Back stopped poppet minimizes spring stress - Back pressure may be required to reseal the valve with nominal require cracking pressure. - Cracking pressures include: 1/3, 1, 5, 10, 25, 50, 75, and 100 psi. - Lubrication : Dye molty sulphide lubricant is used for outer body. Silicon based lubricant is used for poppet. - 100% factory tested for both crack and reseal. - Heat code traceability - It uses in refineries, liquid petroleum gas processing plant, petro-chemical plants, systems difficult to shut off due to solid contents dust, rust, dirt etc.	SPECIFICATIONS - Size - 1/8" to 1" - End connection - NPT,BSP & ODT - Material - SS 316 & BRASS - Optional Sour Gas service valves are available conforming to NACE Std. MR - 01 - 75 - Pressure Rating: SS 316 - size 1/8" to 3/4" - 6000 psig (414bar) CWP size 1" - 5000 psig (345 bar) CWP Brass - size 1/8" to 1" - 3000 psig (207bar) CWP - Temperature Rating : Fluorocarbon Rubber -15 °F to 400 °F (-26 °C to 204 °C) Buna-N Rubber -30 °F to 275 °F (-34 °C to 135 °C) Ethylene Propylene Rubber -70 °F to 275 °F (-57 °C to 135 °C) Neoprene Rubber -45 °F to 250 °F (-43 °C to 121 °C) PTFE -65 °F to 400 °F (-54 °C to 204 °C) - Orifice : 2.0 mm to 16.7 mm APPLICATION - Check valves are designed for uni-directional flow control of fluids & gases in industries such as chemical processing, oil & gas production, power, paper & pulp.																								

Valve Size		Product Code	Orifice	A	B	C	D
Inlet	Outlet						
1/8" NPT(F)	1/8" NPT(F)	2NF-CCHKV	3.2	47.2	—	15.9	—
1/8" BSP(F)	1/8" BSP(F)	2RTF-CCHKV	3.2	47.2	—	15.9	—
1/4" NPT(F)	1/4" NPT(F)	4NF-CCHKV	4.7	61.2	—	19.1	—
1/4" BSP(F)	1/4" BSP(F)	4RTF-CCHKV	4.7	61.0	—	19.1	—
3/8" NPT(F)	3/8" NPT(F)	6NF-CCHKV	9.1	77.0	—	25.4	—
3/8" BSP(F)	3/8" BSP(F)	6RTF-CCHKV	9.1	77.0	—	25.4	—
1/2" NPT(F)	1/2" NPT(F)	8NF-CCHKV	11.5	90.4	—	31.8	—
1/2" BSP(F)	1/2" BSP(F)	8RTF-CCHKV	11.5	90.4	—	31.8	—
3/4" NPT(F)	3/4" NPT(F)	12NF-CCHKV	15.1	103.9	—	34.9	—
3/4" BSP(F)	3/4" BSP(F)	12RTF-CCHKV	15.1	103.9	—	34.9	—
1" NPT(F)	1" NPT(F)	16NF-CCHKV	16.7	122.9	—	41.3	—

CHECK VALVES

2T-CV

CP0

P6

S1

SELECT FROM PAGE NO. 25

CRACK PRESSURE

5 psi	CP5
10 psi	CP10
25 psi	CP25

SEAT MATERIAL

Fluorocarbon Rubber	P6
Buna-N Rubber	P4
Ethylene Propylene Rubber	P7
Neoprene Rubber	P8
PTFE	P1

MATERIAL

STEEL	S
SS 316	S1
SS 316L	S2
SS316/SS316L	S1S2
SS 304	S3
SS304L	S4
CARBON STEEL	S5
BRASS	B
ALLOY 20	C20
ALLOY C-276	HC
ALLOY 600	INC
ALLOY 825	INC1
ALLOY 625	INC2
TITANIUM	T1
MONEL	M
MONEL 400	M4
DUPLEX F51	D1
DUPLEX F53	D3
NACE MR - 01-75	NM

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.



FLANGE CONNECTORS



ADAPTERS



THERMOWELLS



CONDANSATE POT



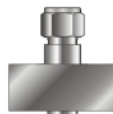
VENT PROTECTORS



GAUGE SNUBBER



SYPHON



KIDNEY FLANGE

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

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- CONTENTS
for Instrument Accessoriespg. 53

Connectors



**Flange Connector
(ANSI, DIN, JIS, FLANGES)**

- Fractional & Metric Tube x Pressure Class.....pg. 54

Adapters



Hose Tube Adapter

- Fractional Stub x Serreated Hose End.....pg. 54



Hose Male Adapter

- Serreated Hose End x NPT(M).....pg. 54

Thermowells

Introduction.....pg.55



Threaded Type (Standard)

- Standard Thermowell - CST..... pg.56
- Heavy Duty Thermowell CHT.....pg.56



Flanged Thermowell

- Standard Thermowell CSTF.....pg.57



SANITARY WELD-IN TYPE

- Standard Thermowell - CSYWTpg.57

ORDERING CODES.....pg.58

Others



Vent Protector

- NPT (M).....pg.59



Condensate Pot

- Conn : NPT, SW, BW.....pg.59



Gauge Snubber

- NPT(F) x NPT(M).....pg.59



Syphon

- NPT(M) - with 180°, 90°, 270°, 360°.....pg.60



Kidney Flange

1/2"NPT (M), NPT (F), ODT.....pg.60

Flush Ring

- 2" to 4", 150# - 2500#.....pg. 61

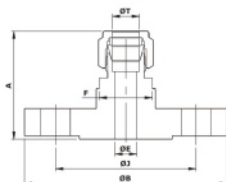
Tee Filter

- Tee Filter.....pg. 62
- Sample Cylinder.....pg. 62

Orifice Plate

- Segmentalpg. 63
- Quadrant Edge.....pg. 63
- Restrictionpg. 63
- RTJpg. 63
- Multistage Restriction.....pg. 63
- Segmental orifice plate.....pg. 64

FLANGE CONNECTOR (ANSI/DIN/JIS FLANGES) FRACTIONAL & METRIC TUBE X PRESSURE CLASS



ANSI Flanges

TUBE OD (ØT)	ANSI Flange NPS	Class	A	B	D	E	F	H	J
(Inch)									
1/4	1/2	150	1.61	3.50	0.60	0.19	13/16	1.32	2.38
3/8	1/2	300	1.79	3.75	0.66	0.28	13/16	1.50	2.62
1/2	1/2	150	1.78	3.50	0.90	0.41	13/16	1.38	2.38
1/2	1	150	1.90	4.25	0.90	0.41	13/16	1.50	3.12
1/2	2	150	2.09	6.00	0.90	0.41	13/16	1.69	4.75
3/4	1	150	1.98	4.25	0.96	0.62	1-1/4	1.58	3.12
1	1	150	2.38	4.25	1.23	0.88	1-3/8	1.90	3.12

DIN Flanges, Pressure Class PN 40

TUBE OD (ØT)	JIS Flange DN	A	B	D	E	F	H	J
(Inch)								
6	25	47.5	115.0	15.3	4.8	20	40.1	85.0
12	15	48.5	95.0	22.8	9.5	20	38.4	65.0
12	25	50.5	115.0	22.8	9.5	20	40.4	85.0
12	50	55.3	165.0	22.8	9.5	20	45.2	125.0
18	15	51.8	95.0	24.4	15.1	32	41.7	65.0
18	25	53.8	115.0	24.4	15.1	32	43.7	85.0
25	25	64.0	115.0	31.3	21.8	35	51.8	85.0

10K-JIS Flanges, Pressure Class

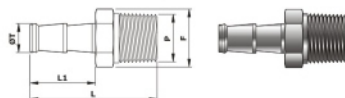
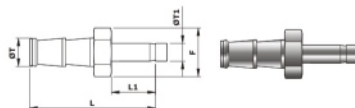
TUBE OD (ØT)	JIS Flange DN	A	B	D	E	F	H	J
(Inch)								
1/4	15	1.66	3.74	0.60	0.19	13/16	1.37	2.76
3/8	15	1.72	3.74	0.66	0.28	13/16	1.43	2.76
1/2	15	1.83	3.74	0.90	0.41	13/16	1.43	2.76
3/4	15	1.91	3.74	0.96	0.62	1-1/4	1.51	2.76
1	25	2.40	4.92	1.23	0.88	1-3/8	1.92	3.54
(mm)								
12	15	46.5	95.0	22.8	9.5	20	36.3	70.0
18	15	48.5	95.0	24.4	15.1	32	38.4	70.0
25	25	61.0	125.0	31.3	21.8	35	48.8	90.0

Hose Tube Adapter ___ Fractional Stub x Serrated Hose End

TUBE OD (ØT)	TUBE OD Ø T 1	LENGTH (L)	LENGTH (L1)	HEX (F)
(Inch)				
1/4	4	1.80	0.64	7/16
3/8	6	2.02	0.72	9/16
1/2	8	2.42	0.98	11/16

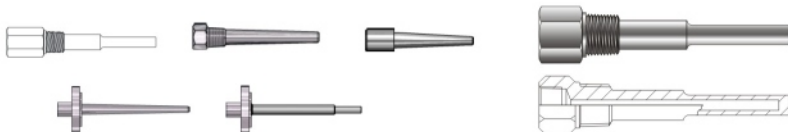
Hose Male Adapter Serrated Hose End x NPT (M)

HOSE SIZE (ØT)	NPT Male Pipe Size (P)	LENGTH (L)	LENGTH (L1)	HEX (F)
(Inch)				
1/4	1/8	1.46	0.8	9/16
1/4	1/4	1.65	0.80	9/16
3/8	3/8	1.83	0.95	11/16
1/2	1/2	2.19	1.10	7/8



DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

THERMOWELL



CONNECTION

Thermowell is available in 4", 6", 8" and 12" lengths to handle pipe diameters from 4" to 24". The Thermowell has process connection 1/2", 3/4", 1" NPT with instrument connection 1/4", 1/2" NPSM. Standard or option NPT or UNEF, are the most widely specified. Threaded, Flanged, Sanitary weld-in, Socketweld & Weld in type connection styles are also available.

U-LENGTH

The U-length (insertion length) of a thermowell indicates its insertion depth into a process vessel or piping system and is measured from the tip of the thermowell to the underside of the threads. The U-length must equal or exceed the length of the sensitive portion of the temperature instrument's stem or bulb. Thermowells are available in U lengths from 2-1/2" to 22-1/2".

MATERIAL

The material chosen must be compatible with the process medium to which it is exposed. In applications of high pressure or velocity, the material may be chosen for its strength or durability. Thermowells in a variety of materials, including: SS 316, SS 304, Brass, Carbon Steel, Monel, Hastelloy. Other alloys or compounds may also be available. Threaded, welded and Van Stone flanged thermowells are made from forgings or bar stock. Raised face flanged and sanitary thermowells are of a two-piece welded

BORE

The bore of each Thermowell is designed to fit the sensing element of a specific Temperature Instrument.

SHANK

Thermowells are available in stepped, tapered, and straight shank configurations. Stepped shank thermowells are normally used on standard duty applications. Tapered shank thermowells are designed for use on heavy duty applications. Straight shank thermowells are designed for use with instruments that have wide stem diameters or short stem lengths.

LAGGING EXTENSION

Lagging extension thermowells are used on applications where insulation covers the vessel or piping system. The extension length (T-length) is the measurement between the instrument connection and process connection of the thermowell.

TESTING

All Thermowells can be ordered with a protective cap and chain supplied as an option.

OPERATING TEMPERATURES AND PRESSURES

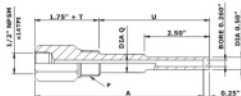
MATERIAL	F° C°	TEMPERATURE							
		0 -18	300 149	500 260	700 371	900 482	1100 593	1300 704	1500 816
CARBON STEEL SS 316 SS 304 MONEL HASTELLOY	Stress Values In (PSI)	11,300	11,000	11,000	9,000	7,750	6,500	---	---
		18,800	14,600	12,500	11,300	10,800	10,300	4,100	1,200
		18,800	14,100	12,100	11,100	10,200	8,900	3,700	1,400
		16,600	13,600	13,100	13,100	8,000	---	---	---
		29,800	29,300	27,600	26,400	25,900	---	---	---

TYPES OF THERMOWELL

TYPES	CONNECTION	ELEMENT	SENSOR LENGTH
Threaded types	Pipe thread 1/2", 3/4", 1" NPT	1/4", 3/8"	4", 6", 9", 12", 15", 18", 24"
Flanged type	Flange size 1", 1-1/2", 2", 2-1/2", 3", 3-1/2", 4"	1/4", 3/8"	4", 6", 9", 12", 15", 18", 24"
Sanitary weld-in type	Out side dia 1-3/8", 1-1/2"	1/4", 3/8"	4", 6", 9", 12", 15", 18", 24"
Socketweld type	Pipe Size 3/4", 1"	1/4", 3/8"	4", 6", 9", 12", 15", 18", 24"
weld-in type	Pipe Size 3/4", 1"	1/4", 3/8"	4", 6", 9", 12", 15", 18", 24"

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

STANDARD THERMOWELL With threaded-connection MODEL : CST



COMMENTS :-

- 1) CAP AND CHAIN SUPPLIED AS AN OPTION.
- 2) SPECIFY ANY SPECIAL FINISHES.
- 3) STANDARD WELL IS STEPPED AS SHOWN TO 0.5"

OD

EXCEPT U = 2 1/2".

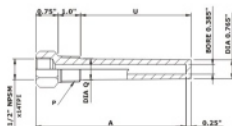
- 4) STRAIGHT SHANK SUPPLIED AS AN OPTION.
- 5) 1-1/8" HEX solid bar stock used for 1/2" NPT & 3/4"
- 3/4"

NPT process connection. 1-3/8" HEX solid bar stock used for 1" NPT process connection.

PROCESS CONNECTION 'P'	SENSOR LENGTH 'A'	INSERTION LENGTH 'U'	SHANK DIA 'Q'
1/2"NPTx14TPI	4"	2-1/2"	1/2"
	6"	4-1/2"	5/8"
	9"	7-1/2"	5/8"
	12"	10-1/2"	5/8"
	15"	13-1/2"	5/8"
	18"	16-1/2"	5/8"
	21"	19-1/2"	5/8"
3/4"NPTx14TPI	24"	22-1/2"	5/8"
	4"	2-1/2"	1/2"
	6"	4-1/2"	3/4"
	9"	7-1/2"	3/4"
	12"	10-1/2"	3/4"
	15"	13-1/2"	3/4"
	18"	16-1/2"	3/4"
1"NPTx11.5TPI	21"	19-1/2"	3/4"
	4"	2-1/2"	3/4"
	6"	4-1/2"	7/8"
	9"	7-1/2"	7/8"
	12"	10-1/2"	7/8"
	15"	13-1/2"	7/8"
	18"	16-1/2"	7/8"
	21"	19-1/2"	7/8"
	24"	22-1/2"	7/8"

HEAVY DUTY THERMOWELL With threaded-connection MODEL : CHT

PROCESS CONNECTION 'P'	SENSOR LENGTH 'A'	INSERTION LENGTH 'U'	SHANK DIA 'Q'
1/2"NPTx14TPI	3-1/2"	2"	5/8"
	4"	2-1/2"	STRAIGHT
	6"	4-1/2"	STEM
	9"	7-1/2"	ONLY
	12"	10-1/2"	
3/4"NPTx14TPI	4"	2-1/2"	7/8"
	6"	4-1/2"	7/8"
	9"	7-1/2"	7/8"
	12"	10-1/2"	7/8"
	15"	13-1/2"	7/8"
	18"	16-1/2"	7/8"
	21"	19-1/2"	7/8"
1"NPTx11.5TPI	24"	22-1/2"	7/8"
	4"	2-1/2"	1-1/16"
	6"	4-1/2"	1-1/16"
	9"	7-1/2"	1-1/16"
	12"	10-1/2"	1-1/16"
	15"	13-1/2"	1-1/16"
	21"	19-1/2"	1-1/16"
	24"	22-1/2"	7/8"



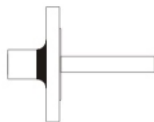
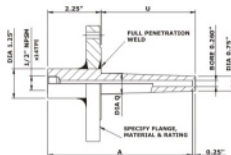
COMMENTS :-

- 1) CAP AND CHAIN SUPPLIED AS AN OPTION.
- 2) SPECIFY ANY SPECIAL FINISHES.
- 3) LAGGING EXTENSIONS ABOVE ARE STANDARD. SPECIFY ADDITIONAL LAGGING EXTENSIONS AS NEEDED.

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

STANDARD THERMOWELL With Flanges - Connection

MODEL : CSTF



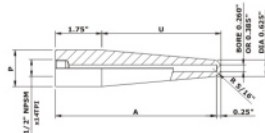
COMMENTS:-

- 1) CAP AND CHAIN SUPPLIED AS AN OPTION.
- 2) SPECIFY ANY SPECIAL FINISHES.
- 3) 1" FLANGE & SMALLER, Q = 7/8, UPTO U = 10
1 1/2" FLANGE & SMALLER, Q = 1 1/16, FOR U > 10
- 4) SELECT FLANGE SIZE FROM GIVEN BELOW TABLE
[a] add prefix to given product code for flange rating & flange size
[b] add suffix to given product code for material).

FLANGE SELECTION					
Flange Rating	150#	300#	600#	900# & 1500#	2500#
Flange Size	1", 1-1/2"	1", 1-1/2"			
	2", 2-1/2"	2" 2-1/2"	1", 1-1/2"	1", 1-1/2"	1", 1-1/2"
	3", 3-1/2"	3", 3-1/2"	2", 2-1/2"		
	4"	4"			

SENSOR LENGTH 'A'	INSERTION LENGTH 'U'
4"	2"
6"	4"
9"	7"
12"	10"
15"	13"
18"	16"
21"	19"
24"	22"

SANITARY WELD-IN TYPE THERMOWELLS MODEL : CSYT



COMMENTS:-

- 1) CAP AND CHAIN SUPPLIED AS AN OPTION.
- 2) SPECIFY ANY SPECIAL FINISHES.
- 3) SPECIFY ADDITIONAL LAGGING EXTENSIONS AS NEEDED.
- 4) DESIGNED TO MEET 3A SANITARY REQUIREMENTS.
- 5) OTHER P DIMENSIONS AVAILABLE AS AN OPTION

OUTSIDE DIA 'P'	SENSOR LENGTH 'A'	INSERTION LENGTH 'U'
1-3/8"	4"	2-1/2"
1-3/8"	6"	4-1/2"
1-3/8"	9"	7-1/2"
1-3/8"	12"	10-1/2"
1-1/2"	15"	13-1/2"
1-1/2"	18"	16-1/2"
1-1/2"	24"	22-1/2"

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

ORDERING CODES OF THERMOWELL

C CST 8N 8N 2B 1C 140 200 S1 S1

COM-FIT MAKE MODEL NO.

THREADED

CST
CSTL
CSIT
CSITL
CHT
CHTL
CLT
CSTB

SOCKET WELD

CSWT

FLANGED

CSTF
CHTF

VAN STONE

CVST

SANITARY

CSYWT
CSY

WELD IN TYPE

CWT
CWTL

PROCESS CONNECTION

SCREWED

1/2" NPT 8N
3/4" NPT 12N
1" NPT 16N

PIPE SOCKET WELD

3/4" PIPE 12P
1" PIPE 16P

FLANGE SIZE

1" 16
1-1/2" 24
2" 32
2-1/2" 40
3" 48
3-1/2" 56
4" 64

FLANGE RATING

150# 1P
300# 2P
600# 3P
900# 4P
1500# 5P
2500# 6P

SANITARY FLANGE SIZE

1" 16S
1-1/2" 24S
2" 32S
2-1/2" 40S
3" 48S
4" 64S

INSTRUMENT CONNECTION

1/2" NPT 8N
1/2" NPSM 8NP

BORE DIAMETER

0.260" 2B
0.385" 3B
0.437" 4B
0.512" 5B
0.635" 6B
0.702" 7B

CONTOUR

TAPERED 1C
STRAIGHT 2C
STEPPED 3C

INSERTION (U) LENGTH

1-3/8" 140
2" 200
2-1/2" 250
4" 400
4-1/2" 450
7" 700
7-1/2" 750
10" 1000
10-1/2" 1050
13" 1300
13-1/2" 1350
16" 1600
16-1/2" 1650
19" 1900
19-1/2" 1950
22" 2200
22-1/2" 2250

LAGGING LENGTH

2" 200
3" 300

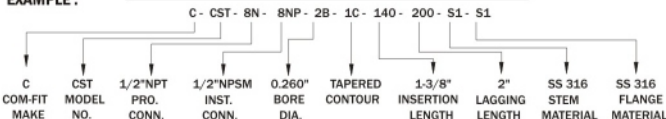
STEM MATERIAL

SS 316 S1
SS 316L S2
SS 304 S3
SS 304L S4
CS S5
CS 105 CS1
CS 108 CS2
BRASS B
ALLOY 20 C20
ALLOY C276 XX
ALLOY 600 INC
INCONEL I
MONEL M
HASTELLOY H
TITANIUM T1

FLANGE MATERIAL

STEEL S
SS 316 S1
SS 316L S2
SS 316L/SS316L S1S2
SS 304 S3
SS 304L S4
CARBON STEEL S5
BRASS B
ALLOY 20 C20
ALLOY C - 276 HC
ALLOY 600 INC
ALLOY 825 INC1
ALLOY 625 INC2
TITANIUM T1
MONEL M
MONEL 400 M4
DUPLEX-F51 D1
DUPLEX-F53 D3
NACE MR - 01-75 NM

EXAMPLE :



Note : If material or dimensions are not shown above, please consult with the manufacturer. Plug and Chain available upon request (optional).

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

Vent Protector__NPT(M)



CONDENSATE POT

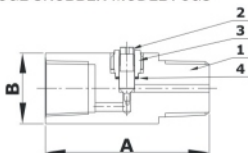
FEATURES

- Body, fabricated from seamless pipe and weld caps.
- All pipe connections are 3000# half couplings & mounted with plastic caps.
- All welding as per ASME SEC. IX & butt weld joints will be 100% radiographed & fillet weld will be D.P. tested.
- All material will have mother test certificates.
- Piping code compliance ASME B31.1 and PED category I, Module - A.
- Heat code traceability.

TYPES

INLET	DRAIN	OUTLET	COMFIT PRODUCT CODE
1/2"	1/4"	1/2"	CAHDB - 8F - 4F - 8F
3/4"	1/4"	3/4"	CAHDB - 12F - 4F - 12F
1/2"	1/2"	1/2"	CAHDB - 8F - 8F - 8F
3/4"	1/2"	3/4"	CAHDB - 12F - 8F - 12F

GAUGE SNUBBER MODEL : CGS



SPECIFICATIONS

- Size - 1/4", 3/8", 1/2"
- End connection - NPT
- Material - SS 316 & BRASS
- Pressure Rating :
SS 316 - size 1/4", 1/2" - 5000 psig
Brass - size 1/4", 1/2" - 3000 psig

NPT Thread Size (P)	LENGTH (L)	HEX (F)
(Inch)		
1/4	0.78	9/16
3/8	0.81	11/16
1/2	1.03	7/8
3/4	1.06	1-1/16
1	1.31	1-3/8

TECHNICAL SPECIFICATIONS

- Pipe Size : 2", 3", 4", 6"
- Length : 8", 10", 12" & larger.
- Body Pipe : 40, 60, 160, XXS (Schedule Pipe) Seamless Pipe.
- Material : SS 316, SS 304, C.S., ASTM A 106 Gr. B
- Optional Sour Gas service valves are available conforming to NACE Std. MR - 01 - 75
- NPT thread as per ANSI B2.1
- Socketweld as per ANSI B16.11
- Buttweld as per ANSI B16.9
- All condensate are 100% Factory tested prior to shipment.
- Hydrostatic Shell Test is performed at 1.5 times the working pressure.

FEATURES & BENEFITS

- Pressure Pulsation Dampener
- Protects pressure gauges against pressure perturbation, surges, and fluid hammers.
- Can isolate the gauge for service or replacement.
- Available in both Stainless Steel and Brass in 1/4", and 1/2" NPT connection sizes.
- Fine thread adjustable valve allows user to fine tune harmful harmonic vibration from fluid systems
- Simple . Clever . Economical
- Most economical "life insurance" for instrumentation reliability.
- Precision ball affords shock protection during pressure spikes or fluid hammer conditions.

Sr. No.	Description	Qty.	Material
1	Body	1	SS 316
2	Stem	1	SS 316
3	Gland	1	SS 316
4	Packing	1	VITON

VALVE SIZE		C	D
INLET 'A'	OUTLET 'B'		
1/4" NPT (F) X 18TPI	1/4" NPT (F) X 18TPI	52	22
1/4" NPT (F) X 18TPI	1/4" NPT (F) X 18TPI	52	22
1/2" NPT (F) X 14TPI	1/2" NPT (F) X 14TPI	62	32
1/2" NPT (F) X 14TPI	G1/2" NPT (F) X 14TPI	62	32

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

SYPHON MODEL : CS



STYLE-1
180°



STYLE-2
90°



STYLE-3
270°



STYLE-4
360°

SIZE	COMFIT PRODUCT CODE	A	B	C	D
1/4"NPT(M)x18TP	4NM - CS	98	64	49.0	81.5
1/2"NPT(M)x14TP	8NM - CS	229	114	114.5	171.5
1/4"NPT(M)x18TP	4NM - CS	98	64	49.0	81.5
1/2"NPT(M)x14TP	8NM - CS	229	114	114.5	171.5

DESCRIPTION

- The Syphon Tube is connected between the pressure gauge & process in applications where high temperature vapours or fluids are present or temperature above 65 Deg C for eg. steam. It acts as a cooling coil and protects the gauge from high temperature vapours, also siphons help in dissipating heat.

SPECIFICATIONS

- Size - 1/4" & 1/2"
- End connection - NPT, Socket weld, Butt weld
- Coil style - 180°/90°, 270°/360°
- Working Pressure - upto 3000 psig related to pipe thickness.
- Material - SS 316, SS 304, C.S., Brass (Seamless & Welded pipe)

KIDNEY FLANGE MODEL : CKF



Bolts



Oval flange



Gasket



NPT(F)



Blind



NPT(M)



Butt Weld



Socket Weld

DESCRIPTION

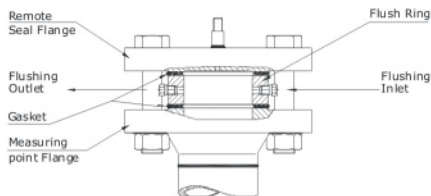
- Oval flange connection for simple and safe from process measurement impulse instrument or manifold.

SPECIFICATIONS

- Size : 1/2"
- Connections : ODT, NPT(F), NPT(M), Blind, Butt weld (pipe sch 40, 80, 160), Socket weld (pipe sch 40, 80, 160)
- Working Pressure - 6000 Psig (413 barg)
- Material - SS 316
- Bolting - High tensile carbon steel bolts for bolting 7/16" UNF x 40 long
- Sealing - PTFE std., graphite optional.

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

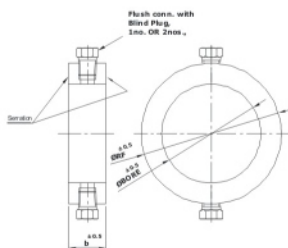
FLUSH RING MODEL : FR



DESCRIPTION

Flushing ring are required for flange-mounted and sandwich-type remote seals, if the danger exists that the process conditions and the geometry of the connection could cause the medium to form deposits or blockages. The flushing ring is clamped between the process flange and the remote seal. Deposits can be flushed away from the diaphragm through the holes in the side, or the pressure volume can be vented. Different nominal diameters and forms permit adaptation to the respective process flange.

PROCESS CONNECTION	STANDARD	OPTIONS
ASNE B16.5	SIZE : 2", 3", 4", 5" PRESSURE CLASS : 150# - 2500 # RF Ra 3.2....6.2m	OTHER SIZES acc ASME FF, groove, RJ, RTJ Other finishes
DIN 2501 DIN EN 1092-1	DN50/80/100/125 PN16....400 bar From D (DIN 2526)	Other forms and finishes On request

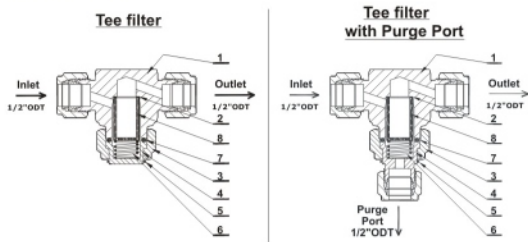


Flusing ring for flanges RF and RTJ

FLUSHING HOLES	b (RF)	b (RTJ)
1no.x1/4"NPT	20	35
2nos.x1/4"NPT	20	35
1no.x1/2"NPT	35	50
2nos.x1/2"NPT	35	50
1nos.x3/4"NPT	41	60
2nos.x3/4"NPT	41	60

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

TEE FILTER



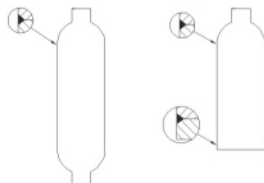
Sr. No.	Description	Qty.	Material
1	Body	1	ASTM A182 type F316
2	Washer	1	SS
3	Nut	1	ASTM A479 type 316
4	Cap	1	ASTM A479 type 316
5	Circlip	1	SS
6	Spring	1	SS 316
7	O-ring Seal	1	Fluorocarbon
8	Element	1	SS 316



- Tee Filters use for protection of instrumentation systems from undesirable materials.
- Filter element replacement achievable without removing body from the system. Compact, high strength forged body design with effective filtration area.
- Material of Construction: Stainless steel
- Standard sintered metal micron ratings : 2, 10, 50, and 100

- Port connections : include 1/8" to 1/2" ODT, 1/8" to 1/2" male and female, NPT.
- Pressure Ratings : Stainless Steel - 6000 psig (414 bar) CWP
- Installation : Best installation practice is to orient the cap downward. This helps to prevent contaminants from entering the system during element change.

SAMPLE CYLINDERS



DOUBLE ENDED SINGLE ENDED

PRESSURE RATING PSIG (BAR)	INTERNAL VOLUME CM ³ ±5 %
500 (34.4)	150
	300
	500
1800 (124)	40
	50
	75
	150
	300
1800 (124)	1000
	2250
	3785
1800 (124)	150
	300
	500
5000 (344)	150
	300
	500
1800 (124)	150
	300
	500

- Body made of seamless tubing provides consistent wall thickness, size, and capacity.
- Heavy-wall end connections provide strength and resist flaring.
- Full-penetration gas tungsten arc-weld construction provides leak-tight sample containment.
- Single Ended Cylinders
 - 150, 300, and 500 cm³ sizes meet a variety of sampling needs.
 - 304L & 316L stainless steel construction resists intergranular corrosion.
 - Testing cylinders are hydrostatically proof tested at 1000 psig (69 bar) minimum.

Double-Ended Cylinders

- Sizes from 40 to 3785 cm³ (1 gal)
- Working pressures up to 5000 psig (344 bar)
- 304L and 316L stainless steel materials resist intergranular corrosion.
- 304L and 316L stainless steel double-ended cylinders are available with TC requirements.
- Testing
 - Each cylinder is hydrostatically tested to at least 1.5 times the working pressure. All testing of cylinders is witnessed by a -approved independent inspection.

DIMENSIONS FOR REFERENCE ONLY, SUBJECT TO CHANGE.

ORIFICE PLATES

- Its cost is low
- It can be used in a wide range of pipe sizes
- It is well-known and has predictable characteristics
- It is available in many materials



INTRODUCTION OF FLOW MEASUREMENT

Measurement of flow rate and quantity is the oldest of all measurements of process variables in the field of instrumentation. It is made for determining the proportions and the amount of material flowing in or out of process. For the purpose of cost accounting, such measurement is often required to be made for steam, water and gas services. Without flow measurements, plant material balancing, quality control and even the operation of any continuous process would be almost impossible.

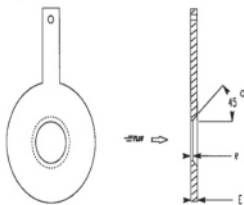
General Description

Orifice plates are designed as per BS EN ISO 5167. Orifice plate can be supplied complete with ANSI B16.36 orifice flanges.

Orifice plates are the simplest and cheapest form of primary elements and are used more frequently than all other types. An orifice plate is inserted in the line and the differential pressure across it is measured. There are five types of orifice plates which are listed below;

1. Concentric orifice plate
2. Eccentric orifice plate
3. Segmental orifice plate
4. Quadrant edge orifice plate
5. Restriction orifice plate

MATERIALS



Standard material grades include

- Stainless steel 304/316
- Stainless steel 304
- Hastelloy C276
- Duplex stainless steel
- Super duplex stainless steel
- Monel 400
- Inconel 625/825

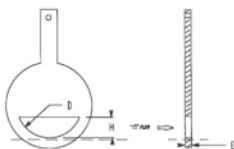
Concentric Square Edge Orifice Plate

It is mostly widely used. These plates have a sharp, square edged hole bored in a flat thin plate with or without bevel at the outlet depending on size & usage. It has a circular hole (orifice) in the middle, and is installed in the pipe line with the hole concentric to the pipe.

Eccentric Orifice Plate

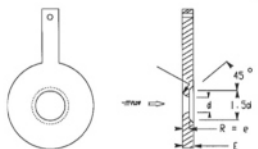
It is similar to the concentric plate except for the offset hole which is bored tangential to circle, concentric with the pipe and of a diameter equal to 98% of that of the pipe. Location of the bore prevents damming of solid materials or foreign particles and makes it useful for measuring fluids containing solids, oils containing water and wet steam. The eccentric orifice plate is used where liquid fluid contains a relatively high percentage of dissolved gases, and installed with the bore tangential to upper surface of the pipe when the flowing material is liquid and tangential to the lower surface of the pipe when the fluid is a gas.

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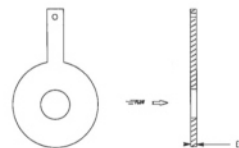
Segmental Orifice Plate

This orifice plate is used for the same type of services as the eccentric orifice plate. It has a hole which is a segment of a circle, the diameter of which is customarily 98% of the pipe diameter.



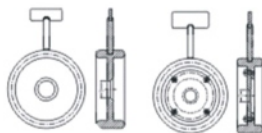
Quadrant Edge Orifice Plate

This type of orifice plate is used for flows such as heavy crudes, syrups and slurries, and viscous flows. It is constructed in such a way that the edge is rounded to form a quarter-circle. The plate has a concentric opening with a rounded upstream edge rather than the sharp, square edge normally used.



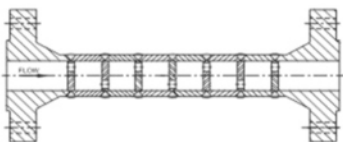
Restriction Orifice Plate

These plates are used to restrict flow or reduce pressure.



RTJ Orifice Plate

These plates are either made out of single piece or screwed "O" ring joint holder. These are used with WNRTJ flanges for high pressure application



Multistage Restriction Orifice Plate

These assemblies have several orifice plates welded or assembled into one assembly for controlled stage wise pressure drop.

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