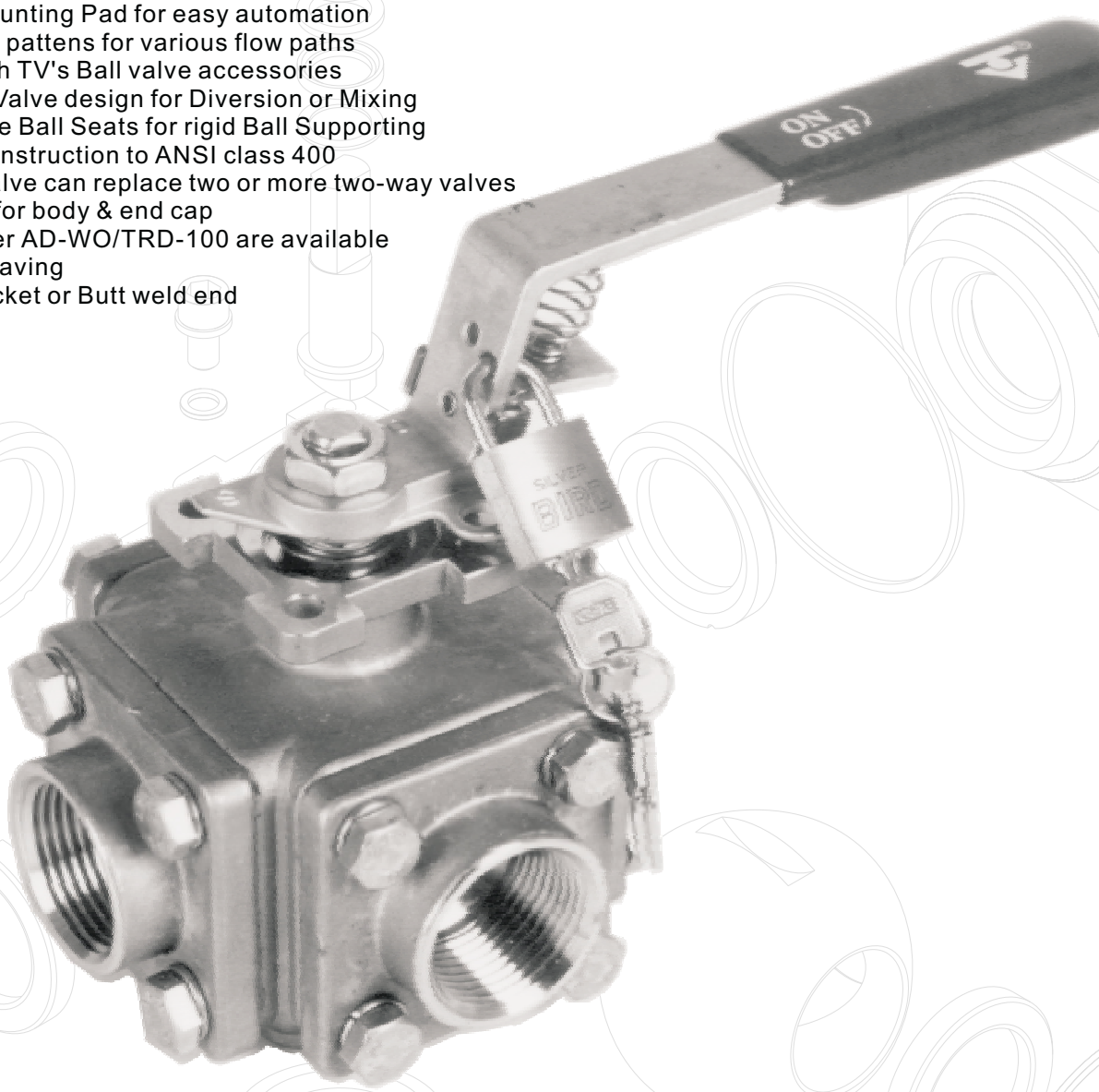
Series 33M

MULTI-PORT HIGH PERFORMANCE BALL VALVES 3, 4 & 5 WAY

TÜV CERT ISO9001

FEATURES:

- Patented "Sealmaster™" Stem Arrangement
- Double Stem Sealing to comply with TA-Luft Requirements
- Blow-out Proof Stem
- Anti-Static devices
- Built-in ISO 5211 Mounting Pad for easy automation
- Optional Ball & Body pattens for various flow paths
- Easy to interface with TV's Ball valve accessories
- Extremely versatile Valve design for Diversion or Mixing
- Features Four or Five Ball Seats for rigid Ball Supporting
- Heavy Duty Body Construction to ANSI class 400
- Cost efficient-one valve can replace two or more two-way valves
- Investment Casting for body & end cap
- Optional Castings per AD-WO/TRD-100 are available
- Compact for space saving
- Weld in place for Socket or Butt weld end



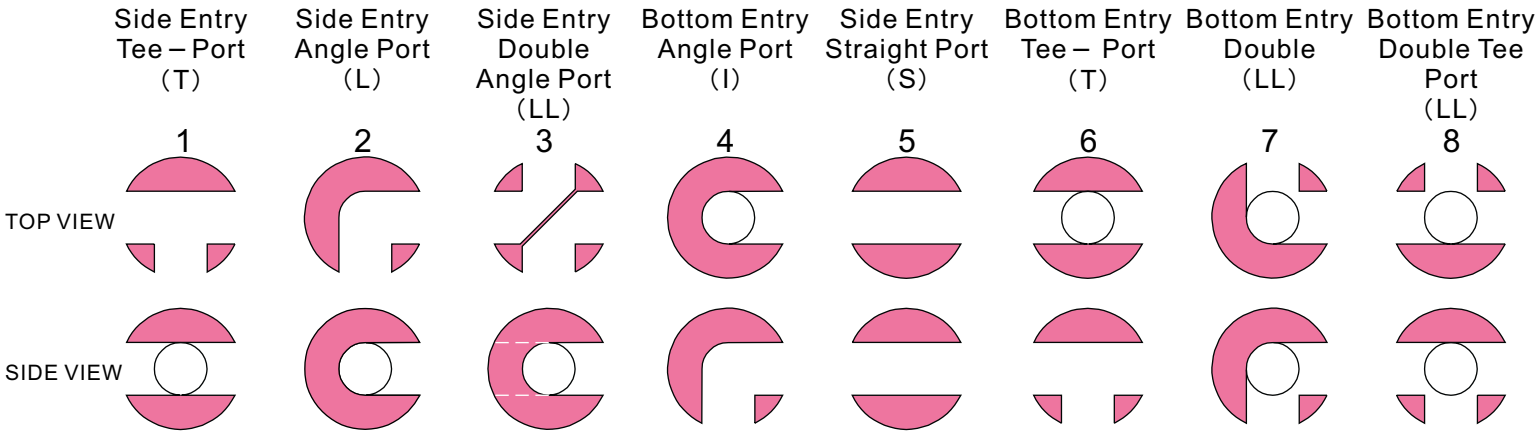
MANUAL OR AUTOMATED 3/8 " - 2" (DN10 - DN50)

Flow Patterns

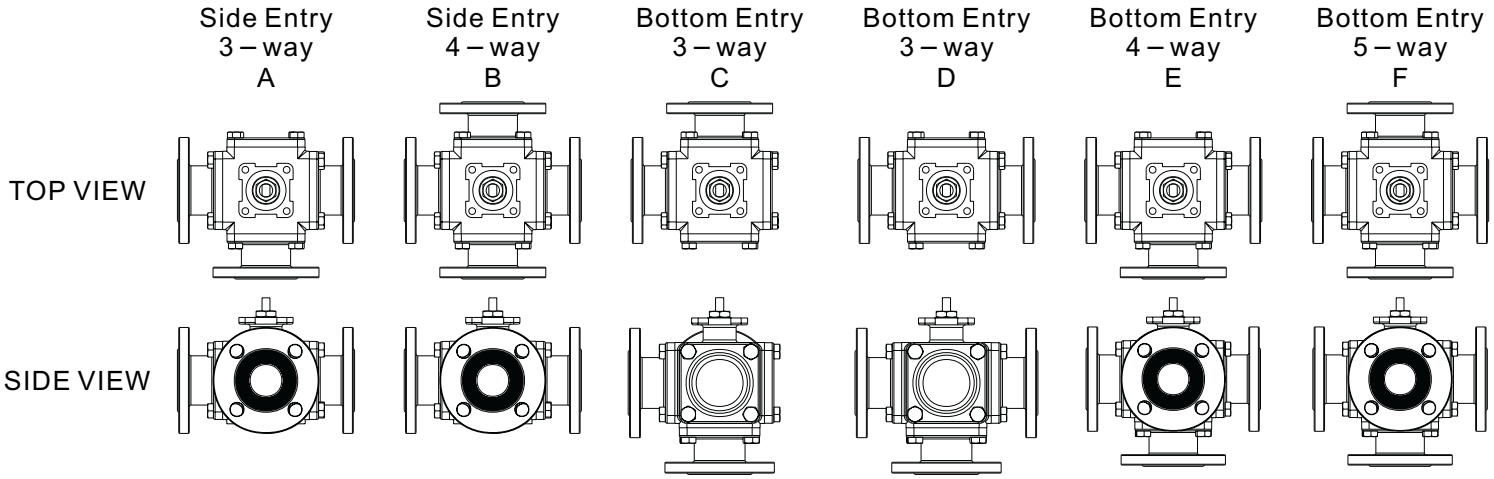
The TV Multi-port Valve is an Ideal choice for many piping design involving diverting or mixing. In certain applications, a single 33M-Series valve can replace two, three or four 2-way valves to reduce cost and space. TV 33M-Series valves have a positive seal at every port, and offer a wide variety of possible flow configurations.

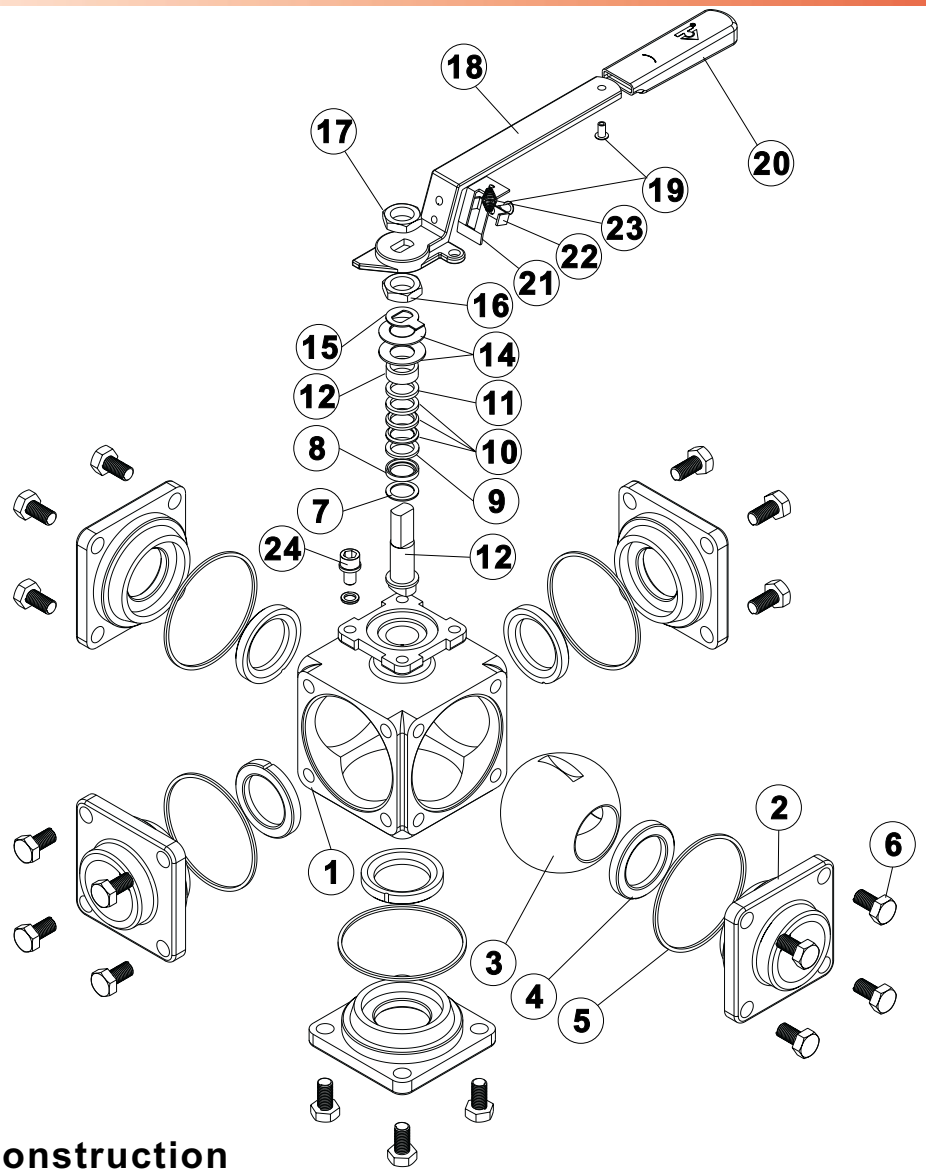
33M-series valves are available in 3,4 and 5-way designs. Positive shut off can be achieved on any of the exiting ports. By specifying an Angle Port, Tee Port, Double Angle Port, Double Tee Port or other bottom entry design ball, flow direction can be adjusted for virtually any application.

Ball Port Configuration



Body Port Configuration

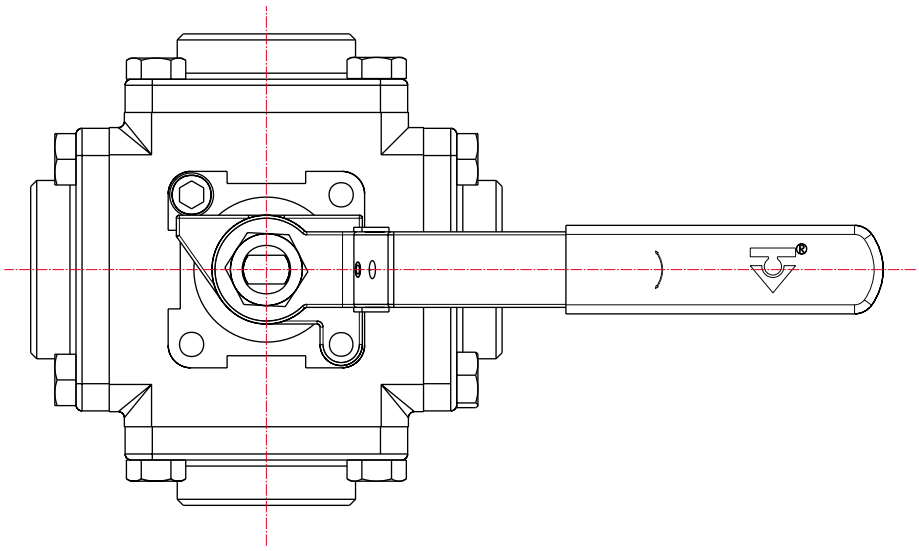


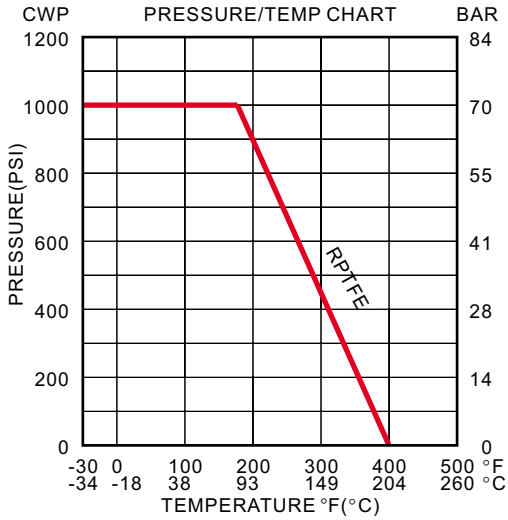


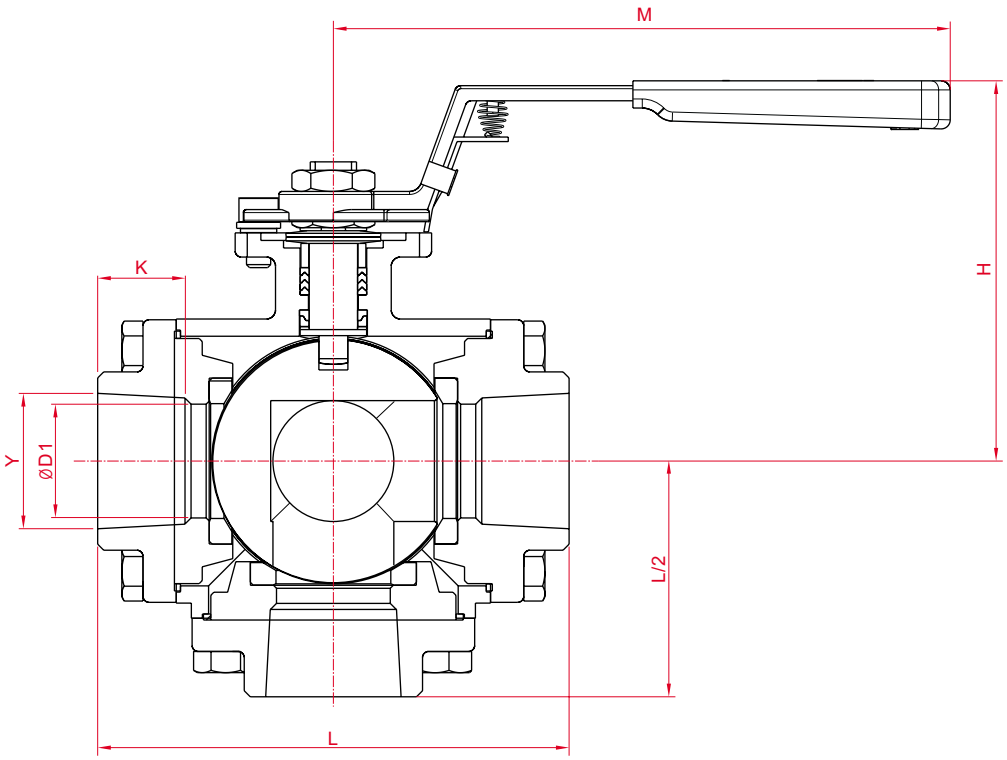
Material of construction

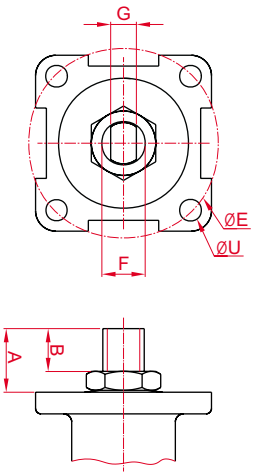
N0	PART NAME	MATERIAL		Q'TY
1	BODY	ASTM A351 Gr. CF8M	ASTM A216 Gr. WCB	1
2	CAP	ASTM A351 Gr. CF8M	ASTM A216 Gr. WCB	4or5
3	BALL	SS316		1
4	BALL SEAT	RPTFE		4or5
5	BODY GASKET	PTFE		4or5
6	BOLT	A193 Gr.B8	A193 Gr.B7	16or20
7	LOWER THRUST WASHER	50% S.S POWER/50% PTFE		1
8	COMPRESS RING	SUS316		1
9	UPPER THRUST WASHER	TFM1600		1
10	V-RING STEM PACKING	PTFE		1SET
11	BUSHING	50% S.S POWER/50% PTFE		1
12	ANTI-STATIC STEM	A276 TYPE 316		1
13	GLAND	SUS304		1
14	BELLEVILLE WASHER	SUS301	WCB 1075	2
15	LOCK SADDLE	SUS304		2
16	STEM NUT	SUS304	S45C	1
17	BOLT NUT	SUS304	S45C	1
18	HANDLE	SUS304		1
19	RIVET	SUS304		2
20	HANDLE SLEEVE	VINYL		1
21	LOCKING TRIGGER	SUS304		1
22	FIX PLATE	SUS304		1
23	SPRING	SUS304		1
24	STOP BOLT	A193 Gr.B8	A193 Gr.B7	1

Multi-Port Valve with threaded end



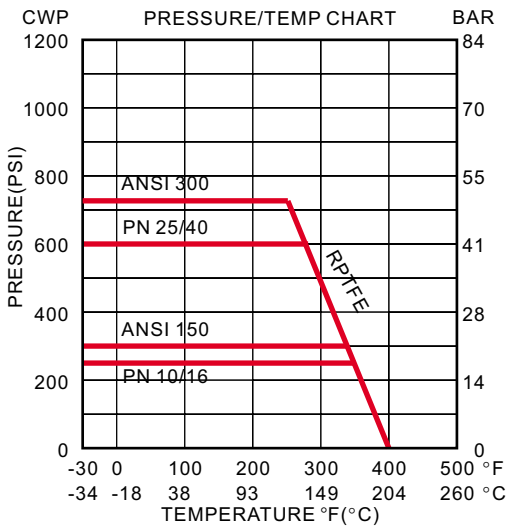


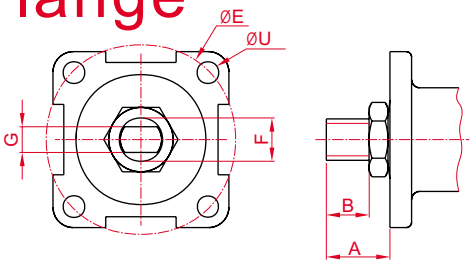


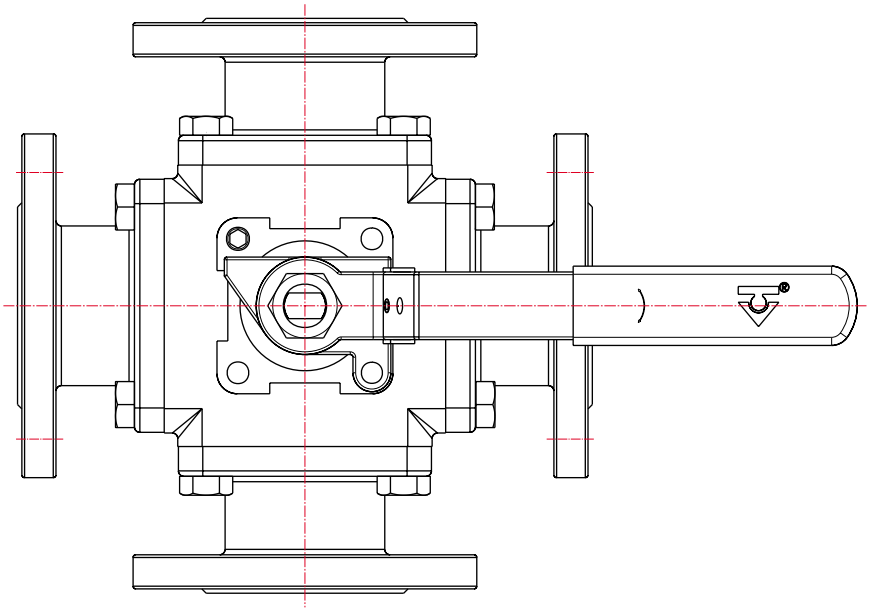


SIZE		DN		ØD1	Y	K		H	L	M	A	B	G	ØE	ØF	ØU
F	R	F	R			F	R									
3/8"	1/2"	10	15	12	BUTT WELD THREAD END SOCKET WELD	20	20	63.5	71	115	12.5	5.5	6.3	42	12	M5
1/2"	3/4"	15	20	17.6		21.5	21.5	82	84.5	130	18	11.2	6.3	42	12	M5/5.5
3/4"	1"	20	25	20		20.8	20.8	86	90.8	130	17.5	11.5	8	50	14	M6/6.5
1"	1¼"	25	32	25		23.3	23.3	98	103.3	165	20	12	8	50	14	M6/6.5
1¼"	1½"	32	40	32		20	20	100	141	200	23.5	14	9.5	70	16	M8/8.7
1½"	2"	40	50	38		20	27	116	156	200	23.5	14	9.5	70	16	M8/8.7

Multi-Port Valve with Flange

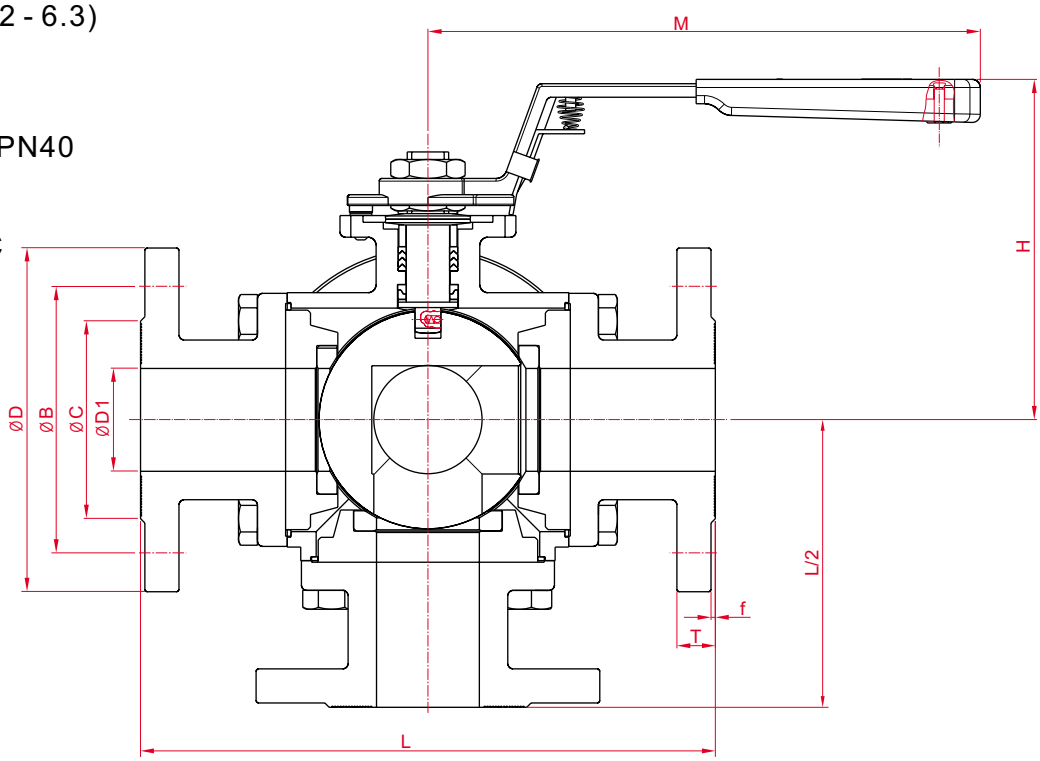






ANSI STANDARD:
RATING : ANSI B16.34 CLASS 150
(BS5351 CLASS150)
ANSI B16.34 CLASS 300
(BS5351 CLASS 300)
CONNECTION:
SERRATED FINISH (Ra 3.2 - 6.3)
(BS1560 PART 2 RF)

DIN STANDARD:
RATING : DIN 3357 PN10-PN40
CONNECTION:
DIN2501/1 PN10-PN40
FACING DIN2526 FORM C



SIZE	DN	A	B	ØB	ØB *	ØB **	ØC	ØC *	ØC **	ØD	ØD *	ØD **	ØD1	ØE	F	G	H	L	L *	L **	M	Øn	Øn *	Øn **	f	f *	f **	T	T *	T **	ØU
½"	15	18	11.2	60.5	66.5	65	35	45	89	95	95	17.6	42	12	6.3	82	148.2	154.4	157.8	130	16	16	14	1.6	1.6	2	11.2	14.3	16	M5/5.5
¾"	20	17.5	11.5	70.0	82.5	75	43	58	98	117	105	20	50	14	8	86	154.4	164.1	168.3	130	16	19	14	1.6	1.6	2	11.2	15.9	18	M6/6.5
1"	25	20	12	79.5	89.0	85	51	68	108	124	115	25	50	14	8	98	168.4	181	182	165	16	19	14	1.6	1.6	2	11.2	17.5	18	M6/6.5
1½"	40	23.5	14	98.5	114.5	110	73	88	127	156	150	38	70	16	9.5	116	212.4	223.4	218	200	16	22	18	1.6	1.6	3	14.2	20.7	18	M8/8.7

* Dimension for Class 300 **Dimension for DN 10/40

CV FACTORS FOR 33M SERIES BALL VALVE

SIZE	STRAIGHT THRU		SIDE		LL PORT	
	CV	KV	CV	KV	CV	KV
1/2"	16	13	10	8	8	7
3/4"	24	20	14	12	12	10
1"	45	38	25	21	22	18
1 1/4"	58	49	32	27	27	23
1 1/2"	100	84	56	47	46	39

Formula for Flow of Liquids

$$Q=Cv\sqrt{\triangle P/G} \qquad Q=Kv\sqrt{\triangle P/G}$$

$$Cv=Q\sqrt{G/\triangle P} \qquad Kv=Q\sqrt{G/\triangle P}$$

$$\triangle P=G\left(\frac{Q}{Cv}\right)^2 \qquad \triangle P=G\left(\frac{Q}{Kv}\right)^2$$

Where: Q = Flow in U.S. Gallon per Minute(GPM)
△P = Pressure Drop (PSI)
G = Specific Gravity at Flow Conditions (water=1.0)
Cv = Valve Flow Coefficient

Where: Q = Flow in m^3/h
△P = Pressure Drop (Bar)
G = Specific Gravity at Flow Conditions (water=1.0)
Kv = Valve Flow Coefficient

ORDERING INFORMATION

33M MULTI PORT	THREADED END(NPT)	REDUCED PORT	SS316	RPTFE	1-1/2"	1000 CWP	T-HANDLE	TEE-PORT	3-WAY
33M	N	3	1	R	G	D	3	1	A

33 MULTI PORT

END CAP TYPE		PORT TYPE		BODY,CAP/ BALL,STEM		SEAT MATERIAL		SIZE		PRESSURE		HANDLE TYPE		BALL PORT CONFIGURATION		BODY PORT CONFIGURATION	
B	BUTT WELD	1	FULL PORT	1	CF8M/316	R	RPTFE	B	3/8"	A	ANSI 150	1	STANDARD HANDLE W/LOCK	1	Tee-Port(T)	A	3-way
F	FLANGE	3	REDUCED PORT	4	WCB/316	O	OTHER	C	1/2"	B	ANSI 300	2	STANDARD HANDLE	2	Angle Port(L)	B	4-way
N	THREADED END(NPT)							D	3/4"	D	PN63/1000cwp	3	T - HANDLE	3	Double Angle Port(LL)	C	Bottom Entry 3-way
P	THREADED END(PF)							E	1"	E	PN10/40	4	EXTENDED HANDLE	4	Bottom Entry Angle Port(I)	D	Bottom Entry 3-way
S	SOCKET WELD							F	1-1/4"			5	OVAL HANDLE	5	Side Entry Straight Port(S)	E	Bottom Entry 4-way
O	OTHER							G	1-1/2"			6	EXTENDED T-HANDLE	6	Bottom Entry Tee-Port(T)	F	Bottom Entry 5-way
								H	2"			7	POSILOCK HANDLE	7	Bottom Entry Double(LL)		
												8	BARE SHAFT	8	Bottom Entry Double Tee-Port(LL)		

• *ALL VALVES 100% AIR TESTED UNDER WATER AT 100 PSI, FOR BUBBLE TIGHT*

AGENT: