

# BALL VALVE



## FDG TECHNOLOGIES VALVE SOLUTIONS

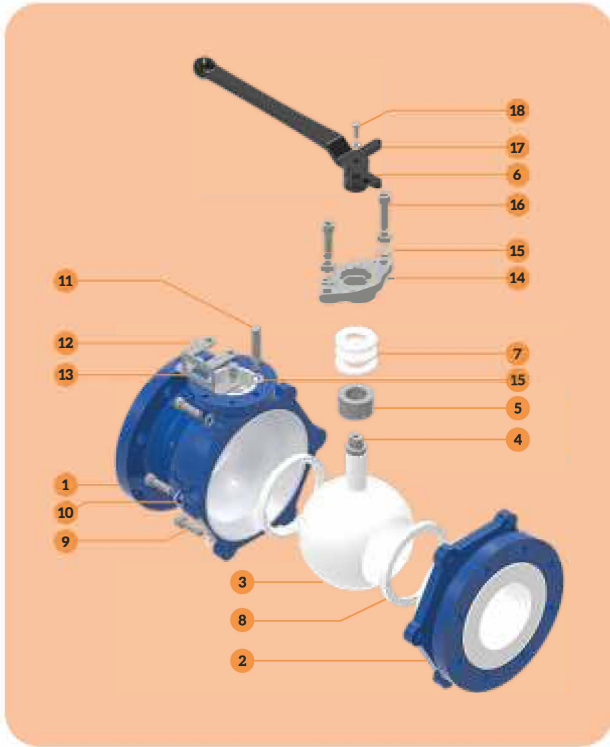
**for Corrosive  
Applications**



# PFA LINED BALL VALVE

## SIDE SPLIT - FULL PORT

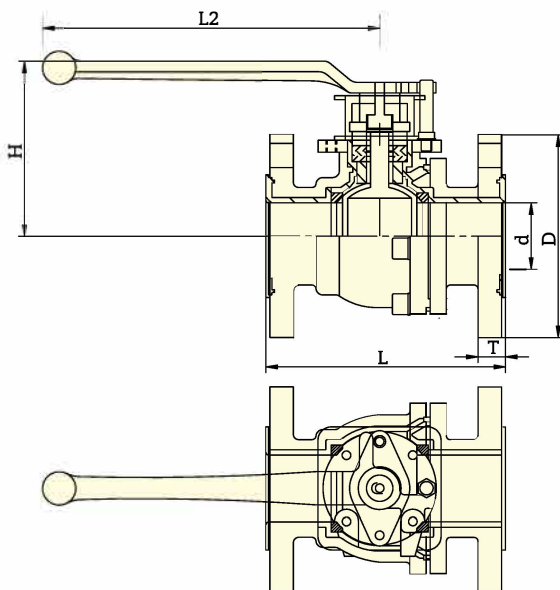
### LEVER OPERATED



### PART LIST

PART NO.	DESCRIPTION	MATERIAL OF CONSTRUCTION	QTY.
1	Body	ASTM A 216 GR. WCB + PFA LINED	1
2	Side Piece	ASTM A 216 GR. WCB + PFA LINED	1
3	Ball	CF8 INSTERTED PFA LINED	1
4	Stem Integral To Ball	CF8 + PFA LINED	1
5	Bush	PTFE	1
6	Handle	CS EPOXY PAINTED	1
7	Chevron	PTFE	3-6
8	Seat	PTFE	2
9	Allen Bolt For Body	ASTMA A 193 GR.B7	4-8
10	Allen Bolt Washer	STEEL	4-8
11	Stopper Pin	MILD STEEL	1
12	LOTO Clamp Bolts	SS 304	2
13	LOTO Clamp	SS 304	1
14	Gland Cover	ASTM A 351 GR. CF8	1
15	Plain Washer For Gland Cover	SS 304	2
16	Allen Bolt for Gland Cover	SS 304	2
17	Plain Washer For Handle	SS 304	1
18	Hex Bolt For Handle	SS 304	1

### SECTIONAL VIEW



### DIMENSIONS

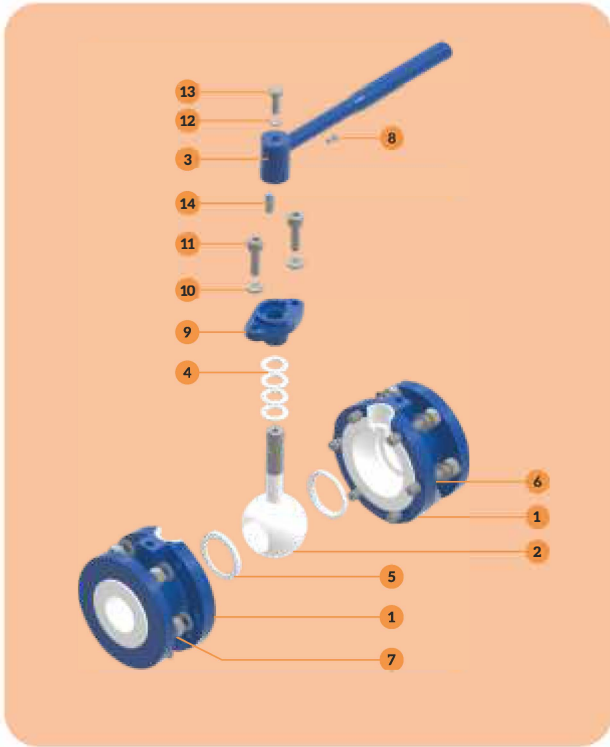
Size	L ±0.12		d ±0.04		D ±0.04		L2 ±0.11		H ±0.20		T +0.11/-0.00		PCD ±0.062		n	Ø	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM		INCH	MM
1"	5.00	127	0.94	25	4.25	108	7.00	178	4.76	121	0.67	17	3.10	79	04	5/8	16
1.5"	6.49	165	1.57	40	5.00	127	10.00	254	5.35	136	0.74	18.8	3.85	98	04	5/8	16
2"	7.00	178	1.96	50	5.98	152	10.00	254	5.47	139	0.81	20.5	4.76	121	04	3/4	19
3"	7.99	203	2.95	75	7.51	191	12.00	305	6.96	177	0.98	24.90	5.98	152	04	3/4	19
4"	9.00	229	3.93	100	9.00	229	12.00	305	8.11	206	0.98	24.90	7.51	191	08	3/4	19
6"	10.50	267	5.90	150	11.00	280	19.60	498	10.7	272	1.10	27.90	9.48	241	08	7/8	22

All Dimensions are in Inches & mm unless otherwise specified. PCD of the Valve can be provided in ANSI / DIN / JIS. Tolerances are given in Inches.

# PFA LINED BALL VALVE

## CENTRE SPLIT - FULL PORT

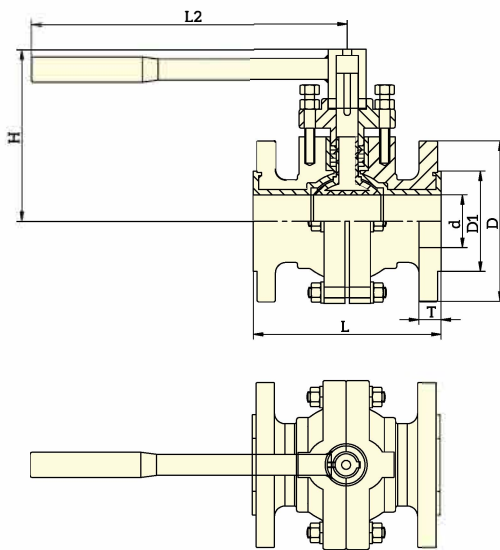
### LEVER OPERATED



### PART LIST

PART NO.	DESCRIPTION	MATERIAL OF CONSTRUCTION	QTY.
1	Body	ASTM A 216 GR. WCB + PFA LINED	2
2	Ball With Integral Stem	CF8 INSERTED PFA LINED	1
3	Handle	CS EPOXY PAINTED	1
4	Chevron	PTFE	4-6
5	Seat	PTFE	2
6	Studs	ASTM A 193 GR. B7	4-10
7	Nuts	ASTM A 193 GR. 2H	8-20
8	Stopper Pin	ALEN BOLT HT 10.9	1
9	Gland Cover	ASTM A 216 GR. WCB	1
10	Plain Washer For Gland Cover	MS GALVANISED	2
11	Allen Bolt for Gland Cover	HT GRADE 10.9	2
12	Plain Washer for Handle	STEEL GALVANIZED	1
13	Hex Bolt For Handle	HT 10.9	1
14	Key For Handle	HT STEEL	1

### SECTIONAL VIEW



### DIMENSIONS

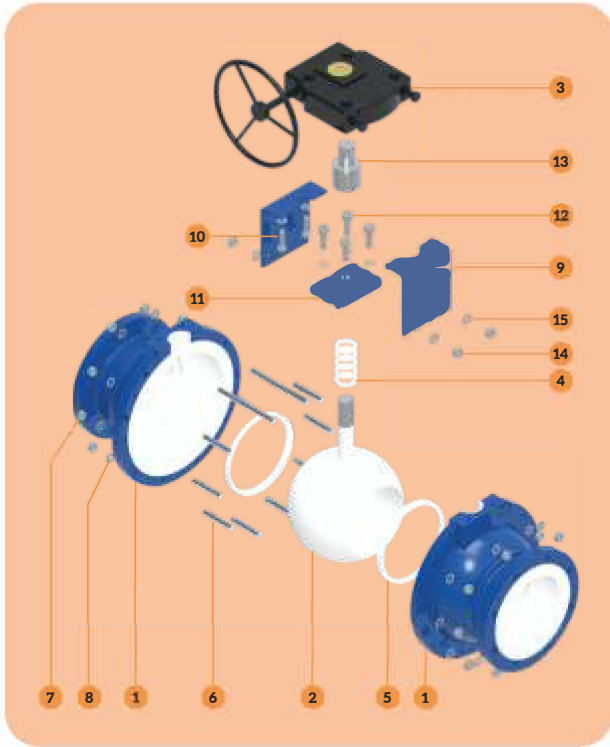
Size	L ±0.12		d ±0.04		D ±0.04		D1 ±0.08		L2 ±0.11		H(Approx)		T +0.11 / -0.00		PCD ± 0.062		n	Ø	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM		INCH	MM
0.5"	4.25	108	0.51	13	3.50	89	1.38	35	7.87	200	4.33	110	0.55	14	2.36	60	04	5/8	16
0.75"	4.65	118	0.75	19	3.85	98	1.69	43	7.87	200	4.92	125	0.55	14	2.75	70	04	5/8	16
1"	5.00	127	0.94	25	4.25	108	2.00	51	7.87	200	4.92	125	0.63	16	3.10	79	04	5/8	16
1.5"	6.49	165	1.57	40	5.00	127	2.87	73	9.84	250	5.31	135	0.74	19	3.85	98	04	5/8	16
2"	7.00	178	1.96	50	5.98	152	3.62	92	12.20	310	6.30	160	0.80	20.50	4.76	121	04	3/4	19
2.5"	7.48	190	2.55	65	7.00	178	4.13	105	12.79	325	6.49	165	0.90	23	5.51	140	04	3/4	19
3"	7.99	203	2.95	75	7.51	191	5.00	127	12.79	325	6.89	175	0.98	25	5.98	152	04	3/4	19
4"	9.00	229	3.93	100	9.00	229	6.18	157	13.77	350	7.87	200	0.98	25	7.51	191	08	3/4	19
6"	10.50	267	5.90	150	11.00	280	8.50	216	19.68	500	12.20	310	1.10	28	9.48	241	08	7/8	22

All Dimensions are in Inches & mm unless otherwise specified. PCD of the Valve can be provided in ANSI / DIN / JIS. Tolerances are given in Inches.

# PFA LINED BALL VALVE

## CENTRE SPLIT - FULL PORT

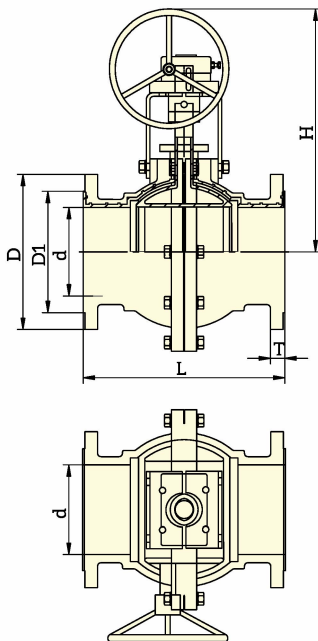
### GEAR OPERATED



### PART LIST

PART NO.	DESCRIPTION	MATERIAL OF CONSTRUCTION	QTY.
1	Body	ASTM A 216 GR. WCB + PFA LINED	2
2	Ball With Integral Stem	CF8 INSERTED PFA LINED	1
3	Gear Box	CAST IRON EPOXY PAINTED	1
4	Chevron	PTFE	5
5	Seat	PTFE	2
6	Studs	ASTM A 193 GR. B7	12-16
7	Nuts	ASTM A 194 GR. 2H	24-32
8	Washers For Studs	STEEL	24-32
9	Gear Box Mounting Clamps	MS GALVANIZED / SS	2
10	Gear Box Clamp Allen Bolts	HT 10.9	4
11	Gland Cover	ASTM A 216 GR.WCB	1
12	Allen Bolt For Glad Cover	HT 10.9	4
13	Coupler Spindle / Gearbox	SS 304	1
14	Clamp Mounting Nuts	HT	4
15	Clamp Mounting Washers	HT	4

### SECTIONAL VIEW



### DIMENSIONS

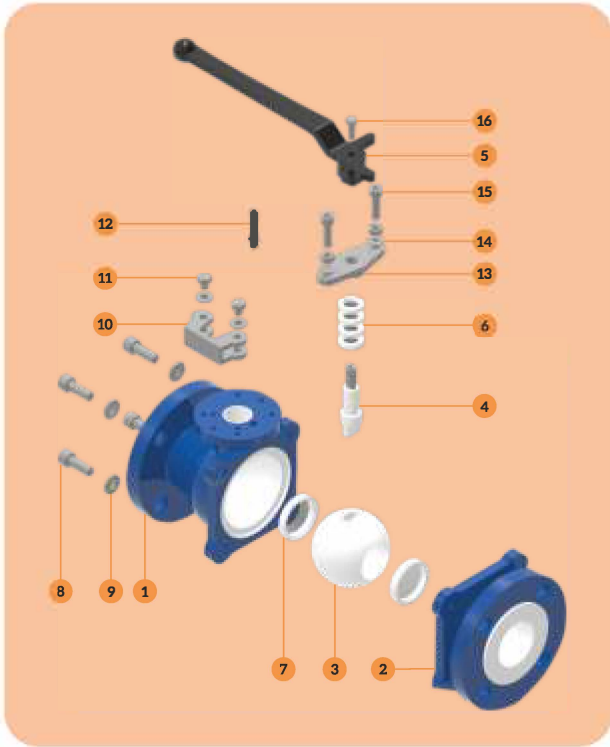
Size	L ±0.12		d ±0.04		D ±0.04		D1 ±0.08		H (Approx)		T +0.11/-0.00		PCD ±0.062		n	Ø	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM		INCH	MM
8"	17.99	457	7.87	200	13.50	343	10.62	270	22.63	575	1.18	30	11.73	298	08	7/8	22
10"	20.98	533	9.84	250	15.98	406	12.75	324	24.60	625	1.29	33	14.25	362	12	1	25
12"	24.01	610	11.81	300	19.09	485	15.00	381	27.95	710	1.37	35	17.00	432	12	1	25

All Dimensions are in Inches & mm unless otherwise specified. PCD of the Valve can be provided in ANSI / DIN / JIS. Tolerances are given in Inches.

# PFA LINED BALL VALVE

## SIDE SPLIT - REDUCED PORT

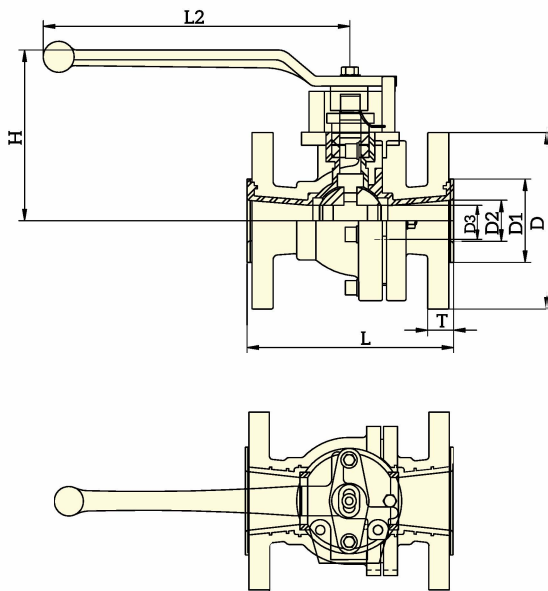
### LEVER OPERATED



### PART LIST

PART NO.	DESCRIPTION	MATERIAL OF CONSTRUCTION	QTY.
1	Body	ASTM A 216 GR. WCB + PFA LINED	1
2	Side Piece	ASTM A 216 GR. WCB + PFA LINED	1
3	Ball	CF8 INSERTED PFA LINED	1
4	Spindle	CF8 INSERTED PFA LINED	1
5	Handle	CS EPROXY PAINTED	1
6	Chevron	PTFE	4/5
7	Seat	PTFE	2
8	Allen Bolt For Body	ASTM A 193 GR. B7	4
9	Plain Washer	HT STEEL	4
10	Locking Clamp	SS 304	1
11	Hex Bolt For Locking Clamp	SS 304	2
12	Stopper Pin	STEEL	1
13	Gland Cover	ASTM A 351 GR. CF8	1
14	Plain Washer for Gland Cover	SS 304	2
15	Allen Bolt for Gland Cover	SS 304	2
16	Hex Bolt For Handle	SS 304	1

### SECTIONAL VIEW

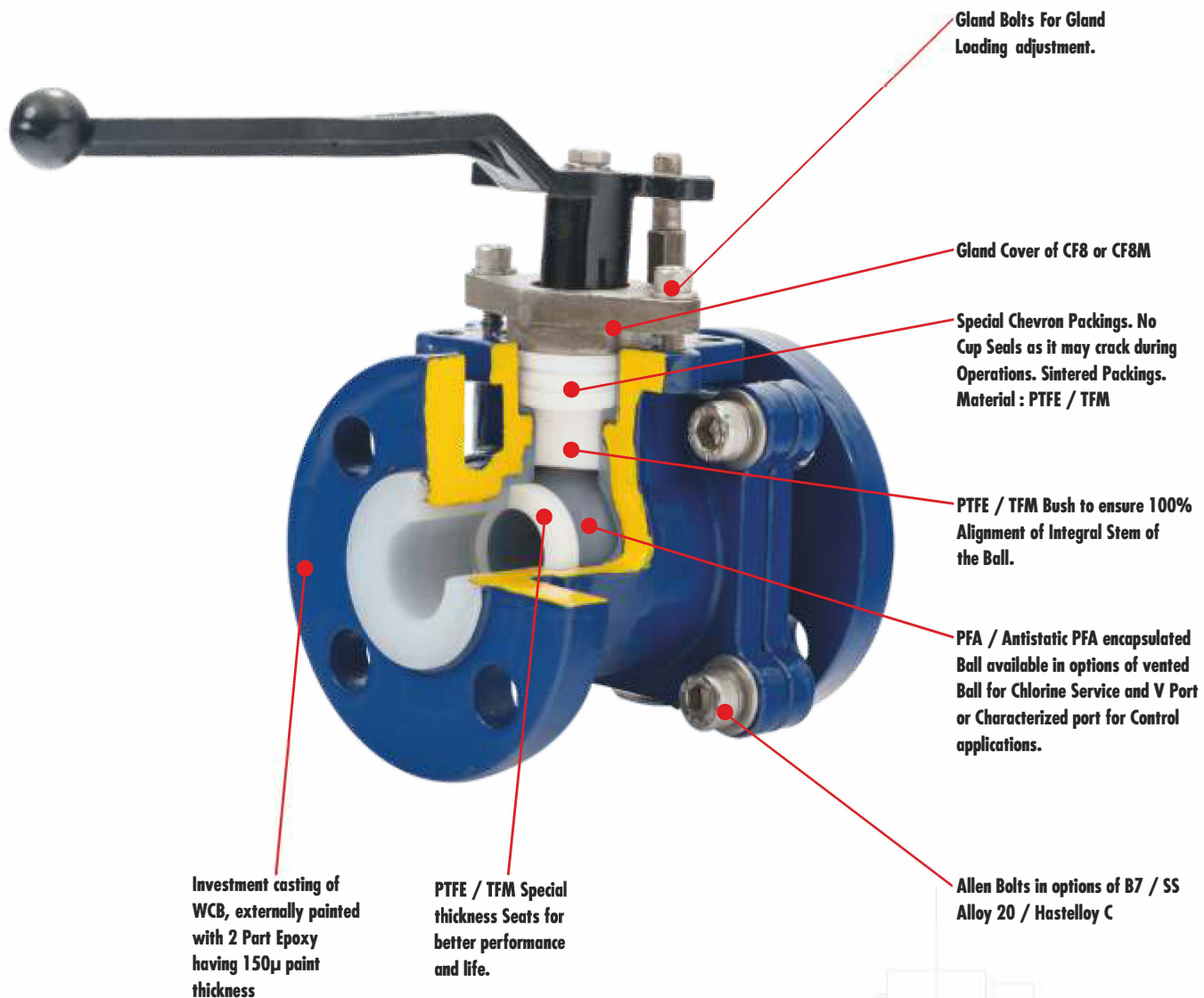


### DIMENSIONS

Size	L ±0.12		D2 ±0.04		D1 ±0.08		D ±0.04		L2 ±0.11		H ±0.20		T +0.11/-0.00		PCD ± 0.062		n	Ø	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM		INCH	MM
1"	5.00	127	0.94	25	2.00	51	4.25	108	7.00	178	4.76	121	0.67	17	3.10	79	04	5/8	16
1.5"	6.49	165	1.57	40	2.87	73	5.00	127	10.00	254	5.35	136	0.74	18.8	3.85	98	04	5/8	16
2"	7.00	178	1.96	50	3.62	92	5.98	152	10.00	254	5.47	139	0.81	20.5	4.76	121	04	3/4	19
3"	7.99	203	2.95	75	5.00	127	7.51	191	12.00	305	6.96	177	0.98	24.90	5.98	152	04	3/4	19
4"	9.00	229	3.93	100	6.18	157	9.00	229	12.00	305	8.11	206	0.98	24.90	7.51	191	08	3/4	19

All Dimensions are in Inches & mm unless otherwise specified. PCD of the Valve can be provided in ANSI / DIN / JIS. Tolerances are given in Inches.

## BALL VALVE FEATURES



## PRODUCT DESIGN AND TESTS PERFORMED

DESIGN PARAMETERS	STANDARD	
DESIGN STD	BS EN 17292	
SHELL DESIGN	ANSI B 16.34	
FACE TO FACE DIM.	ANSI B 16.1	
FLANGE CONNECTION RATING	ANSI B 16.5, 150# / DIN PN 10 / JIS	
TESTING STANDARD	API 598 / BS EN 12266-1	
CONNECTION	FLANGED, RF	

TEST PERFORMED	API 598	API 598
SIZES	0.5" TO 4"	6" TO 12"
HIGH PR. SHELL TEST HYDRO	420 PSI	225 PSI
HIGH PR. SEAT TEST HYDRO	270 PSI	165 PSI
LOW PR. SEAT PNEUMATIC	105 PSI	75 PSI

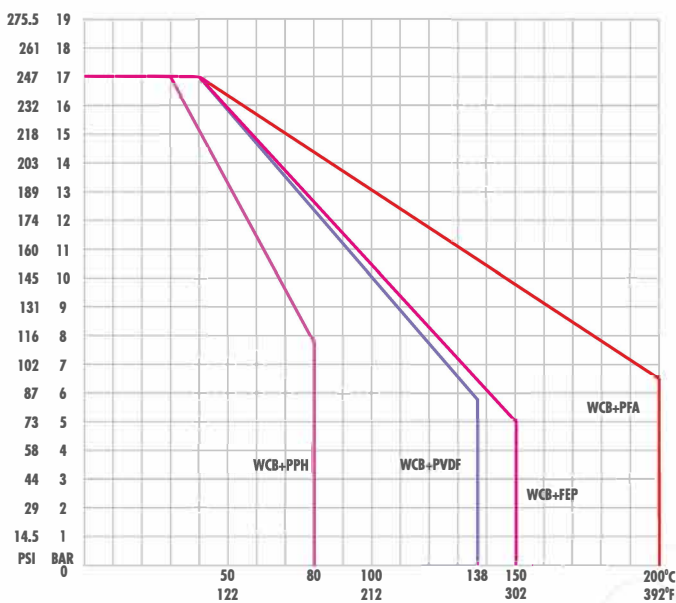
  

SPARK TEST	KVDC
SPARK TEST	20 KDVC

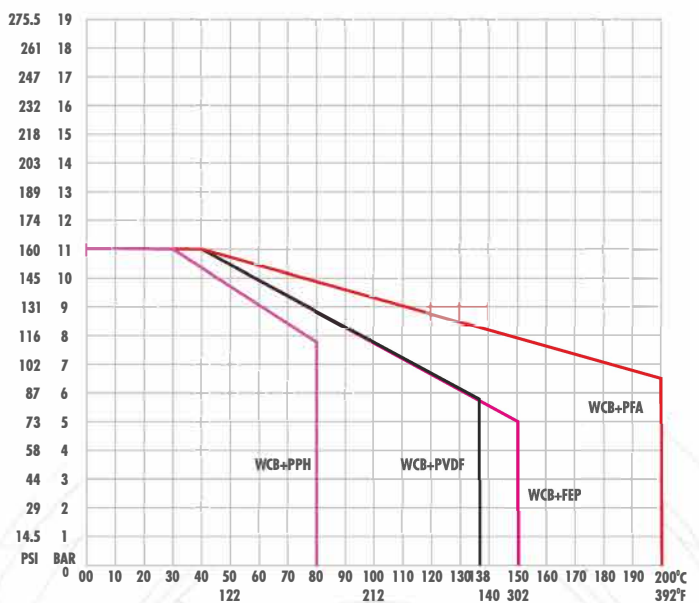
## VALVE Cv & TORQUE VALUES

SIZE	Cv FULL PORT	Cv RED. PORT	TORQUE NM FULL PORT	TORQUE NM REDU PORT	TORQUE INCH-LBS FULL PORT	TORQUE INCH-LBS REDUCED PORT
0.5"	15	-	10	-	88	-
0.75"	25	-	12	-	106	-
1"	50	39	12	10	106	88
1.5"	185	50	20	18	177	159
2"	320	191	25	22	221	195
3"	805	330	40	35	354	310
4"	1600	790	65	50	575	443
6"	4500	-	180	-	1593	-
8"	8300	-	280	-	2478	-
10"	11725	-	350	-	3098	-
12"	18100	-	500	-	4425	-

## PRESSURE - TEMPERATURE GRAPH



FOR 17 BAR ( 250 PSI )  
RATING VALVES



FOR 11 BAR ( 160 PSI )  
RATING VALVES

## VALVE CODE USED

TYPE OF VALVE	CODE
FULL PORT SIDE SPLIT BALL VALVE	BV1
FULL PORT CENTRE SPLIT BALL VALVE	BV2
REDUCED PORT SIDE SPLIT BALL VALVE	BV3

BODY CASTING	CODE
ASTM A 216 GR. WCB	C1
ASTM A 351 GR. CF 8	C2
ASTM A 351 GR. CF8M	C3

TRIM INSERTS	CODE
ASTMA A 351 GR. CF8	T2
ASTM A 351 GR. CF8M	T3
ASTM A 890 GR. 4A(CD3MN)	T5

LINING MATERIAL	CODE
PFA	L1
FEP	L2
PVDF	L3
ETFE	L4
PPH	L6
ANTISTATIC PFA	L7

BODY BOLTS	CODE
SS 304	F2
SS 316	F3
HIGH TENSILE	F4
ASTM A 193 GR. 87	F5

OPERATION	CODE
LEVER	L
GEAR	G
BARE STEM	B

## VALVE CODE USED

LOCKING	CODE
PROVIDED	Y
NOT PROVIDED	N

SIZE											
0.5"	0.75"	1"	1.5"	2"	2.5"	3"	4"	6"	8"	10"	12"

CODE											
0H	75	01	1H	02	2H	03	04	06	08	10	12

## HOW TO READ CODE

CODE	BV1-C1-T3-L1-F5-L-Y-02	
VALVE TYPE	BALL VALVE FULL PORT	BV1
BODY CASTING	ASTM A 216 GR.WCB	C1
TRIM INSERT	ASTM A 351 GR.CF8M	T3
LINING MATERIAL	PFA	L1
FASTNERS	ASTM A193 GR.B7	F5
OPERATION	LEVER	L
LOCKING ARRANGEMENT	PROVIDED	Y
VALVE SIZE	2"	02

## WEIGHT CHART / VALVE

SIZE	WT. IN	WT. IN	WT. IN	WT. IN	WT. IN	WT. IN
	KGS	LBS	KGS	LBS	KGS	LBS
	CENTRE	CENTRE	SIDE	SIDE	SIDE	SIDE
	SPLIT	SPLIT	SPLIT	SPLIT	SPLIT	SPLIT
	FULL	FULL	FULL	FULL	REDUCED	REDUCED
	PORT	PORT	PORT	PORT	PORT	PORT
0.5"	3	7	-	-	-	-
0.75"	3.8	8.5	-	-	-	-
1"	4.5	10	4.5	10	4.2	9.25
1.5"	7.5	16.5	7.6	17	7.4	16
2"	12.2	27	10.4	23	11	24
2.5"	15	33	-	-	-	-
3"	21	46	20	44	19.5	43
4"	33	73	33	73	28	62
6"	65	143	60	132	-	-
8"	135	297	-	-	-	-
10"	206	453	-	-	-	-
12"	322	708	-	-	-	-





Pneumatically actuated Ball Valve



Electrically actuated Ball Valve



V-PORT Ball options available for control applications

## ACTUATION OPTIONS OFFERED BY UNP

ACTUATOR TYPE	SINGLE ACTING / SPRING RETURN	DOUBLE ACTING
FAIL POSITION	OPEN/CLOSE	STAY PUT
AIR SUPPLY PRESSURE	4/5 BAR OR 58/72 PSI	4/5 BAR OR 58/72 PSI
BODY MATERIAL OFFERED	ALANODIZED/CF8 OR CF8M	ALANODIZED/CF8 OR CF8M
MAKE OFFERED	EL-O-MATIC/ROTEX/I-TORK	EL-O-MATIC/ROTEX/I-TORK

## SOLENOID VALVES OFFERED

SOLENOID VALVE	SINGLE ACTING /SPRING RETURN ACTUATOR	DOUBLE ACTING ACTUATOR
TYPE	3/2 WAY NAMUR/ NON- NAMUR	5/2 WAY NAMUR/ NON- NAMUR
COIL RATING	24/110/220 V AC OR 24/110 V DC	24/110/220 V AC OR 24/110 V DC
COIL INSULATION CLASS	F OR H	F OR H
COIL HOUSING	WEATHER PROOF/EX-PROOF/ FLAME PROOF OR IS	WEATHER PROOF/EX-PROOF/ FLAME PROOF OR IS
SOLENOID VALVE BODY MATERIAL	ALLUMINIUM/SS 316/ SS 316L	ALLUMINIUM/SS 316/ SS 316L
GLAND CONNECTION	¼" / ½" or ¾" NPT	¼" / ½" or ¾" NPT

## LIMIT SWITCHES OFFERED

LIMIT SWITCH	MECHANICAL MICROSWITCH	PROXIMITY TYPE
SWITCHES OFFERED	HONEYWELL OR SIMILAR	P & F OR SIMILAR
NO. OF SWITCHES	1 NO + 1 NC OR 2 NO + 2 NC	1 NO + 1 NC OR 2 NO + 2 NC
HOUSING TYPE	WEATHER PROOF / FLAME PROOF	WEATHER PROOF / FLAME PROOF

UNP PROVIDES ELECTRO PNEUMATIC POSITIONERS OF YTC / SIEMENS OR ANY OTHER MAKE OF CUSTOMER PREFERENCE