DIAPHRAGM BALANCED
MODEL LD

APPLICATION:

Used as oil or water dump valves on separators, treaters, knockouts, and other similar liquid accumulators.

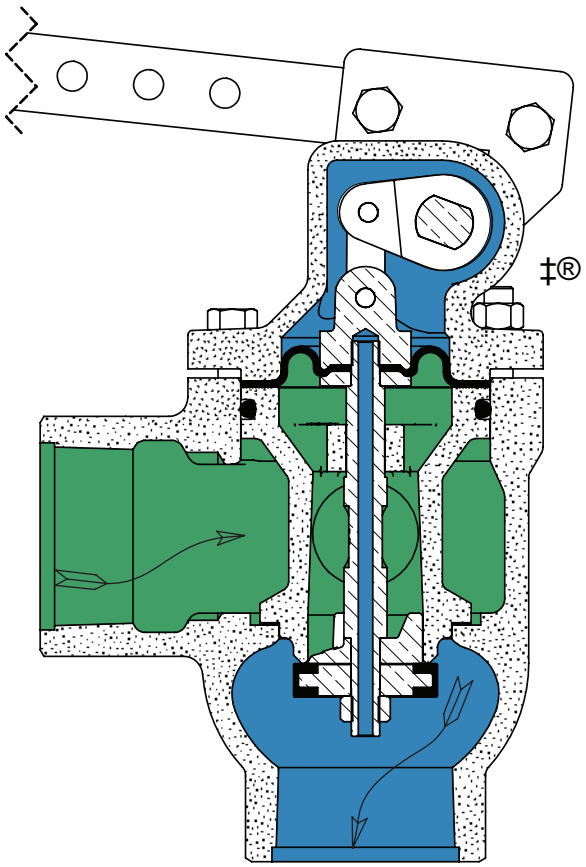
FEATURES:

Balanced, single soft seat
Teflon packed, rotary stuffing box
All internal parts easily be removed with valve in line

CERTIFICATIONS:

Canadian Registration Number (CRN):
0C16234.24567890NTY (Ductile)
0C15610.24567890NTY (Steel)
Kimray is an ISO 9001- certified manufacturer.

Stem and Seat Assembly
Separator Fluid pressure
Downstream Pressure

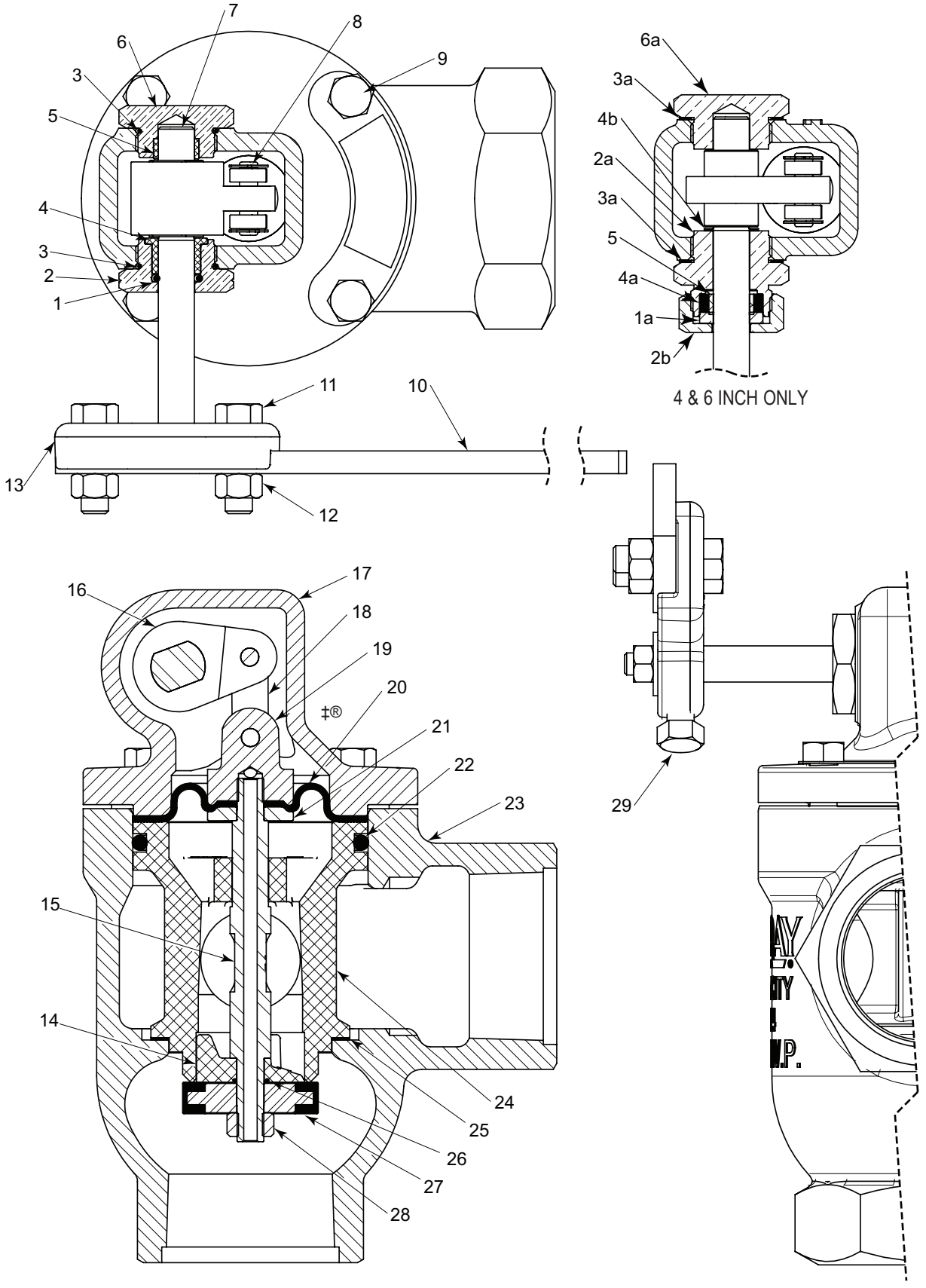


Standard Configuration Code †	Order Code	Line Size	Connection Type	Body Type	Max Δ P psig	Max. W.P. psig ††	Cv	Cf
DLD2SAADFLS	CBA	2"	NPT	Angle	125	300	23.3	0.79
DLD2SATDFLS	CHA			Thru				
DLD2ARADFLS	CBB		150RF	Angle		250		
DLD2ARTDFLS	CHB			Thru				
DLD3SAADFLS	CBC	3"	NPT	Angle			43.8	
DLD3SATDFLS	CHC			Thru				
DLD3ARADFLS	CBE		150RF	Angle				
DLD3ARTDFLS	CHE			Thru				
DLD4ARADFLS	CBF	4"	150RF	Angle			70.1	
DLD4ARTDFLS	CHF		150RF	Thru				
DLD6ARADFLS	CBG	6"	150RF	Angle			277	
DLD6ARTDFLS	CHG		150RF	Thru				

NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 03:I - 03:VI
† For Corrosive service remove last "S" & replace with "C"
† For code builder see page 03:00.2
†† Max W.P. values based on -20°F to 100°F.

DIAPHRAGM BALANCED
MODEL LD PARTS DRAWING



All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.
‡ Configuration of Mechanical Oil Valve is a trademark of Kimray, Inc.

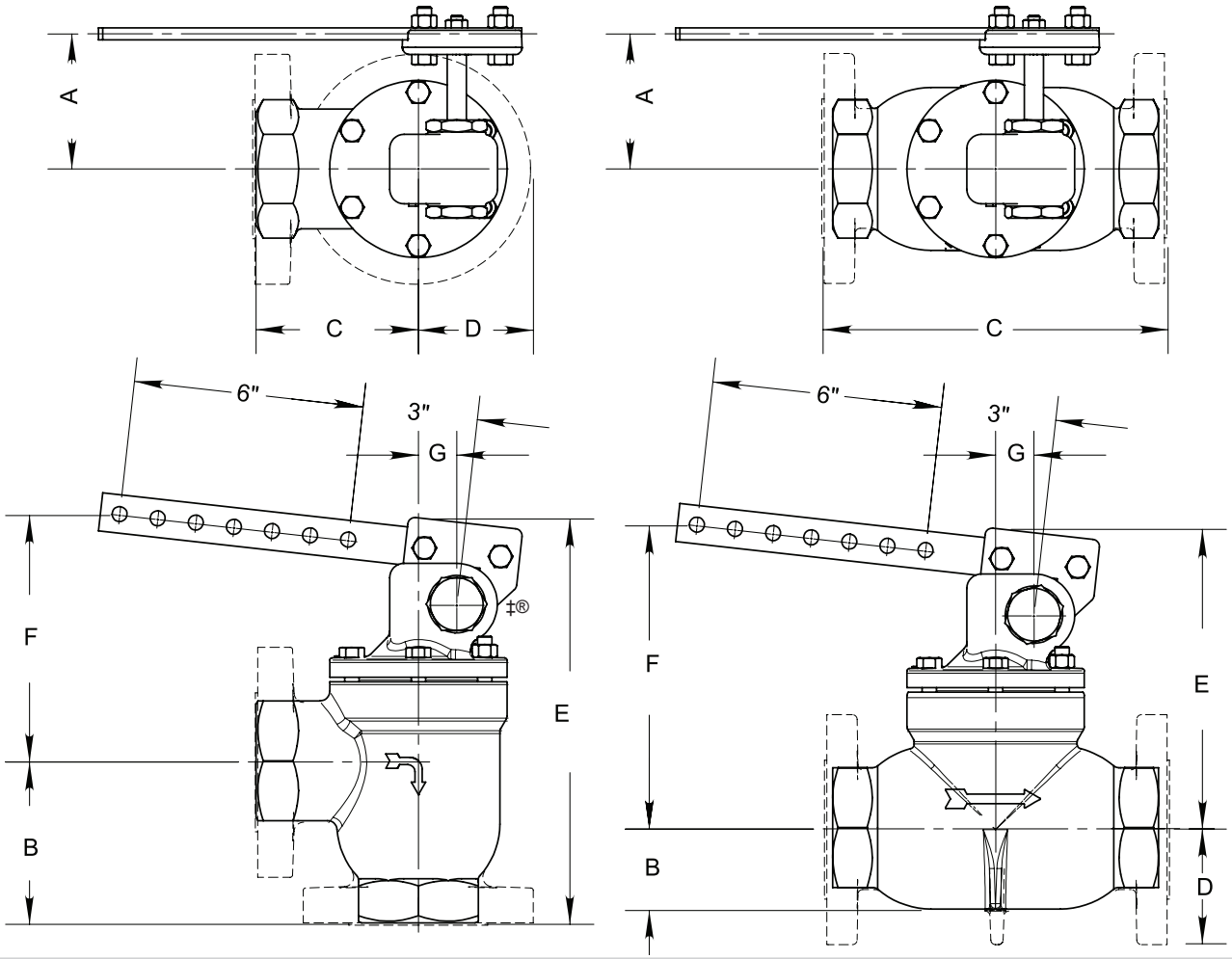
DIAPHRAGM BALANCED
MODEL LD PARTS LIST

ITEM	QTY.	DESCRIPTION	PART NO. STANDARD 2 INCH	STANDARD 3 INCH	STANDARD 4 INCH	STANDARD 6 INCH	CORROSIVE 2 INCH	CORROSIVE 3 INCH	CORROSIVE 4 INCH	CORROSIVE 6 INCH
1	1	O-Ring ✱	154HSNPS	491HSNPS	----		154HSNPS	491HSNPS	----	
1a	1	Follower	----		350	1785	----		350SS6	1785SS6
2	1	Stuffing Box	7661	7593	----		7661S6	7593S6	----	
2a	1	Stuffing Box	----		359	1779	----		359SS6	1779SS6
2b	1	Nut	----		347	1778	----		347SS6	1778SS6
3	2	O-Ring ✱	2131HSN	5226HSN	----		2131HSN	5266HSN	----	
3a	2	Gasket ✱	----		366	1789	----		366	1789
4	1	Bushing ✱	7660	7592	----		7660	7592	----	
4a	(Qty)	Packing Ring ✱	----		353 x (1)	1787 x (2)	----		353 x (1)	1787 x (2)
4b	1	Thrust Washer ✱	----		362	1788	----		362	1788
5	1	Packing ✱	7662	355	356	1786	7662	355	356	1786
6	1	Trunnion Plug	7522	7523	----		7522S6	75236	----	
6a	1	Trunnion Plug	----		369	1777	----		369SS6	1777SS6
7	1	Shaft — Old Style	7404	7408	7427	7449	7404S6	7408S6	7427S6	7449S6
		Shaft — New Style	7609	7610	7611	7612	7609S6	7610S6	7611S6	7612S6
8	2	Link Pin w/ Snap Ring ◊ ✱ (kit includes Snap Rings only)	316	317		1790	316SS6	317SS6		1790SS6
9	(Qty)	Bolt	1672 (4)	1672 (6)	1672 (8)	81 (8)	1672 (4)	1672 (6)	1672 (8)	81 (8)
10	1	Lever Bar — Standard	340				340			
		Lever Bar — Optional 16 inches	340L16				340L16			
		Lever Bar — Optional 20 inches	340L20				340L20			
		Lever Bar — Optional 24 inches	340L24				340L24			
		Lever Bar — Optional 30 inches	340L30				340L30			
		Lever Bar — Optional 36 inches	340L36				340L36			
11	2	Bolt	247				247			
12	2	Nut	241				241			
13	1	Lever Hub	7600	7601	7602	7603	7600	7601	7602	7603
14	1	Ratio Plug ◊	332DEL	333DEL	334	2348	2976SS6	2977SS6	2978SS6	3072SS6
15	1	Stem ◊	326	327	328	2350SS6	326SS6	327SS6	328SS6	2350SS6
16	1	Trunnion Hub — Old Style ◊	7403	7407	7454	7453	7403S6	7407S6	7454S6	7453S6
		Trunnion Hub — New Style ◊	7613S6	7614S6	7615S6	7616S6	7613S6	7614S6	7615S6	7616S6
17	1	Bonnet	295	296	297	1767	295‡	296‡	297‡	1767‡
18	2	Link ◊	318SS6	319SS6		2352SS6	318SS6	319SS6		2352SS6
19	1	Nut ◊	2972	2973	322	2346	2972SS6	2973S6	322SS6	2346SS6
20	1	Diaphragm ◊ ✱	335	336	4700	4315	335	336	4700	4315
21	1	Plate ◊	323SS6	324SS6	325SS6	2347	323SS6	324SS6	325SS6	2347SS6
22	1	O-Ring ◊ ✱	329HSN	330HSN	331	2353	329HSN	330HSN	331HSN	2353HSN
23	1	Body — NPT Angle	2384	2379	----	----	2384‡	2379‡	----	----
		Body — NPT Thru	3080	3086	----	----	3080‡	3086‡	----	----
		Body — 150RF Angle	2385	2382	2383	2344	2385‡	2382‡	2383‡	2344‡
		Body — 150RF Thru	3082	3087	3090	3091	3082‡	3087‡	3090‡	3091‡
24	1	Cage ◊	304DEL	305DEL	306	2345	2966SS6	2967SS6	2968SS6	3071SS6
		Gasket	----	----	----	----	7575	7576	----	----
		Optional Split Cage — Cage ◊	1751	1759	1761	2357	3097SS6	3098SS6	13099SS6	2357
		Optional Split Cage — Seat ◊	1752PH	1760PH	1762PH	2358PH	1752SS6	1760SS6	1762SS6	2358SS6
25	1	Gasket ◊ ✱	276	277	309	2354	276	277	309	2354
26	1	O-Ring ◊ ✱	----	----	920HSN	807HSN	----	----	920HSN	807HSN
27	1	Seat ◊ ✱	7498HSN	7499HSN	----		7498HSN	7499HSN	----	
		Seat ◊	----		165HSN	2356HSN	----		165HSN	2356HSN
		Seat Disc ◊ ✱	----		160	2349	----		2494SS6	3077SS6
28	1	Lock Nut	173	906		175	173SS6	174SS6		175SS6
29	1	Set Screw	7608				7608			
	2	Lifting Ring (not shown)	----	7559		----	----	7559		----
							‡ Coated Parts available with "E" shell material			
Cage Assemblies		Standard Cage	CBS	CBT	CBU	CBZ	CBSS6	CBTS6	CBUS6	CBZS6
		Split Cage	CBS1	CBT1	CBU1	CBZ1	CBS1S6	CBT1S6	CBU1S6	CBZ1S6
			◊ These parts are stocked as Cage Assemblies.							
Repair Kits			RTJ	RTK	RTL	RTM	RTJ	RTK	RTL	RTM
			✱ These parts are recommended spare parts and are stocked as repair kits.							

Table 1 - Flow Coefficient(Cv) for Lever Operated Dump Valves												
Line Size	**Trim Size in. (mm)**	**Trim Type**	**Cf**	Valve Opening Percentage								
				10	20	30	40	50	60	70	80	90	100
LD - Diaphragm Balanced													
2"	**1 1/2 in (38mm)**	**Linear (Nominal)**	**0.79**	5.0	8.5	11.7	14.6	17.0	19.0	20.5	21.6	22.6	23.3
3"	**2 1/4 in (57 mm)**		**0.79**	6.7	11.1	15.6	20.3	24.8	29.2	33.4	37.2	40.7	43.8
4"	**3 in (76 mm)**		**0.79**	12.0	18.9	25.8	32.8	39.9	46.9	53.7	60.0	65.7	70.1
6"	**4.88 in (124 mm)**		**0.79**	14.2	21.0	31.6	61.2	98.3	139.0	179.7	217.6	250.2	277.0
LP - Piston Balanced Throttling													
2"	**1 1/2 in (38mm)**	**Linear (Nominal)**	**0.75**	3.5	5.0	7.4	9.6	11.8	13.9	16.2	18.4	20.4	22.7
	2 in (51 mm)		**0.75**	6.6	12.3	18.4	24.2	29.5	34.1	38.0	41.2	44.0	47.0
3"	**3 in (76 mm)**		**0.75**	12.7	18.7	29.0	41.0	52.9	63.4	71.9	78.4	83.7	89.0
LB - Piston Balanced													
2"	**2 in (51 mm)**	**Linear (Nominal)**	**0.79**	5.0	8.5	11.7	14.6	17.0	19.0	20.5	21.6	22.6	23.3
3"	**3 in (76 mm)**		**0.79**	6.7	11.1	15.6	20.3	24.8	29.2	33.4	37.2	40.7	43.8
4"	**4 in (76 mm)**		**0.79**	12.0	18.9	25.8	32.8	39.9	46.9	53.7	60.0	65.7	70.1

Kimray flow equations conform to ANSI/ISA - 75.01.01-2002
Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985

DIMENSIONS
MODEL: LD & LP



LINE SIZE	MATERIAL	BODY TYPE & END CONNECTION	A	B	C	D	E	F	G
2 in	DUCTILE	NPT / ANGLE	3 3/4 in	4 1/4 in	4 1/4 in	3 in	10 5/8 in	6 3/4 in	1 in
		NPT / THRU	3 11/16 in	2 1/8 in	8 1/2 in	3 in	7 7/8 in	8 1/4 in	1 in
		FLANGED / ANGLE	3 3/4 in	4 1/4 in	4 1/4 in	3 in	10 5/8 in	6 3/4 in	1 in
		FLANGED / THRU	3 11/16 in	2 1/8 in	9 in	3 in	7 7/8 in	8 1/4 in	1 in
	STEEL	FLANGED / ANGLE	3 3/4 in	4 5/16 in	4 5/16 in	3 in	10 7/8 in	6 3/4 in	1 in
		FLANGED / THRU	3 11/16 in	2 1/8 in	9 1/8 in	3 in	7 7/8 in	8 1/4 in	1 in
3 in	DUCTILE	NPT / ANGLE	3 3/4 in	6 1/8 in	5 1/2 in	3 3/4 in	13 13/16 in	7 1/8 in	1 3/8 in
		NPT / THRU	3 3/4 in	2 7/8 in	12 in	3 3/4 in	9 9/16 in	8 15/16 in	1 3/8 in
		FLANGED / ANGLE	3 3/4 in	5 1/2 in	5 1/2 in	3 3/4 in	13 3/16 in	7 1/8 in	1 3/8 in
		FLANGED / THRU	3 3/4 in	2 7/8 in	12 3/16 in	3 3/4 in	9 9/16 in	8 15/16 in	1 3/8 in
		GROOVED / ANGLE	3 3/4 in	5 1/2 in	5 1/2 in	3 3/4 in	13 13/16 in	7 1/8 in	1 3/8 in
	STEEL	FLANGED / ANGLE	3 3/4 in	5 1/2 in	5 1/2 in	3 3/4 in	13 3/8 in	8 15/16 in	1 3/8 in
4 in	DUCTILE	FLANGED / ANGLE	3 3/4 in	6 1/2 in	6 1/2 in	4 1/2 in	15 in	9 1/4 in	1 3/8 in
		FLANGED / THRU	3 13/16 in	3 11/16 in	15 in	4 1/2 in	10 9/16 in	11 1/2 in	1 3/8 in
	STEEL	FLANGED / ANGLE	3 3/4 in	6 1/2 in	6 1/2 in	4 1/2 in	15 1/16 in	9 1/4 in	1 3/8 in
6 in	DUCTILE	FLANGED / ANGLE	4 1/16 in	10 1/4 in	7 11/16 in	5 1/2 in	21 5/8 in	12 5/8 in	1 5/8 in
		FLANGED / THRU	4 1/16 in	4 7/8 in	22 1/16 in	5 1/2 in	14 7/8 in	16 1/16 in	1 5/8 in
	STEEL	FLANGED / ANGLE	4 1/16 in	10 1/4 in	7 3/4 in	5 1/2 in	21 7/16 in	12 5/8 in	1 5/8 in

FLANGE DIMENSIONS ARE ANSI 125/150 STANDARD.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.
‡ Configuration of Mechanical Oil Valve is a trademark of Kimray, Inc.

Table 2 - Seal Options Dump Valves		
Part	**Standard Material**	**Optional Material**
O-rings	HSN	FKM
Diaphragm	HSN	FKM
Seat	HSN	FKM

Table 3 - Seal Options Trunnion Assemblies		
Part	**Standard Material**	**Optional Material**
O-rings	HSN	FKM

Table 4 - Seal Specifications			
		HIGHLY SATURATED NITRILE	**FKM**
	Kimray Suffix	HSN	V
Resistance	**Abrasion**	G-E	G
	Acid	G-E	G-E
	Chemical	F	E
	Cold	G	P
	Flame	P	E
	Heat	E	E
	Oil	E	E
	Ozone	G	G-E
	Set	G	G-E
	Tear	F	F
	Water/Steam	E	P
	Weather	G	E
	CO2	G	G
	H2S	F	P
	Methanol	E	P
Properties	**Dynamic**	G	G
	Electrical	F	F
	Impermeability	G	G
	Tensile Strength	G-E	G
	Temp. Range	-20° to +300°F	-15° to +400°F
		-29° to +149°C	-26° to +204°C
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT			

Table 5 - Material Options Diaphragm Balanced Dump Valves		
Part Description	**Standard Material**	**Corrosive Material**
Body	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Ratio Plug	2 & 3 inch Delrin (ASTM D4181), 4 & 6 inch Ductile (ASTM A395)	316SS (ASTM A351)
Cage	2 & 3 inch Delrin (ASTM D4181), 4 & 6 inch Ductile (ASTM A395)	316SS (ASTM A351)
Stuffing Box	2 & 3 inch 303SS (ASTM A582), 4 & 6 inch Brass (ASTM B-16)	316SS (ASTM A479)
Bonnet	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Seat Disc	4 & 6 inch Ductile (ASTM A395)	4 inch 316SS (ASTM A351)
Stem	2, 3 & 4 inch 303SS (ASTM A582), 6 inch 316SS (ASTM A213)	316SS (ASTM A351)

Table 6 - Material Options Piston Balanced Throttling Dump Valves		
Part Description	**Standard Material**	**Corrosive Material**
Body	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Ratio Plug Full Port	2 inch 316 Powder Metal (ASTM 316-N1-25), 3 inch Powder Metal (F-008)	316 Powder Metal (ASTM 316-N1-25)
Stuffing Box	303SS (ASTM A582)	316SS (ASTM A479)
Bonnet	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Stem	303SS (ASTM A582)	316SS (ASTM A484)
Piston	2 inch 316SS (ASTM A484) , 2 inch reduced & 3 inch 303SS (ASTM A582)	316SS (ASTM A484)
Cylinder	303SS (ASTM A582)	316SS (ASTM A484)

Table 7 - Material Options Piston Balanced Dump Valves		
Part Description	**Standard Material**	**Corrosive Material**
Body	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Ratio Plug	2 & 3 inch Delrin (ASTM D4181), 4 inch Ductile (ASTM A395)	316SS (ASTM A351)
Cage	Ductile (ASTM A395)	316SS (ASTM A351)
Stuffing Box	2 & 3 inch 303SS (ASTM A582), 4 inch Brass (ASTM B-16)	316SS (ASTM A479)
Bonnet	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Seat Disc	4 inch Ductile (ASTM A395)	4 inch 316SS (ASTM A351)
Stem	303SS (ASTM A582)	316SS (ASTM A479)
Piston	316SS (ASTM A351)	316SS (ASTM A351)
Cylinder	2 & 3 inch 303SS (ASTM A582), 4 inch 316SS (ASTM A351)	316SS (ASTM A249)

Table 8 - Material Options Trunnion Assemblies		
Part Description	**Standard Material**	**Corrosive Material**
Bonnet	Ductile (ASTM A395)	
Plate	Steel SA515 Grade 70 Plate	
Stuffing Box	Brass B-16 C-36000 HO2	316SS (ASTM A479)
Union Nut	Ductile (ASTM A395)	
Weld Neck	Schedule 100 Pipe ASTM A-106 grade C	

KIMRAY INC.®

CODE BUILDER
D SERIES

Series:
D = Dump Valve

Model:
LD = Lever Operated Diaphragm Balanced
LP = Lever Operated Piston Balanced Throttle (2 & 3 inch only)
LB = Lever Operated Piston Balanced

Line Size:
2 = 2 NPS
3 = 3 NPS
4 = 4 NPS
6 = 6 NPS

End Connection:
SA = FNPT (2 & 3 NPS only)
AR = 150RF

Body Type:
A = Angle
T = Thru

Shell Material:
D = Ductile Iron
E = Ductile Iron w/Coating

Inner Valve Size:
F = Full Port
R = Reduced Port (LP only)

Actuator:
L = Lever Operated

Service Type:
S = Standard
C = Corrosive

D	LD	2	SA	A	D	F	L	S	

Options: Additional cost and lead times will apply
If multiple options required input in sequential order
Leave blank if no options required

1 = NACE Certification (Corrosive Option Only)
2 = Hydrostatic Test Certification
3 = MTR (Shell Components)
H = HSN Elastomers
V = FKM Elastomers
X = Export (Hydrostatic test, MTR & 3.1)

Not all selections available on all products listed.
See product pages 03:10.1 - 03:20.7 for available options