

# FLUID OPERATED CONTROLLERS

F



**KIMRAY**



**CODE BUILDER**  
**F SERIES (LEVEL CONTROLS)**

Series:

F = Float Operated Controllers

Model:

PL = GEN 3 Pneumatic Level Controller

Connection Size:

2 = 2 NPS  
 3 = 3 NPS  
 4 = 4 NPS  
 5 = 5 NPS (HU only)

End Connection:

**S4 = 4000 psi MNPT - 2 inch only**  
 AR = 150 RF - 2,3,4 inch only  
 BR = 300 RF - 2,3,4 inch only  
 DR = 600 RF - 2,3,4 inch only  
 ER = 900 RF - 2,3,4 inch only  
 FR = 1500 RF - 2 inch only  
 DJ = 600 RTJ - 2,3,4 inch only  
 EJ = 900 RTJ - 2,3 inch only  
 FJ = 1500 RTJ - 2 inch only  
 HU = Hammer Union - 3,4,5 inch only

Mounting Type:

L = Left Side Mount  
 R = Right Side Mount

Displacer Type:

Displacer Extensions:

**A = None**  
 B = 6 inch  
 C = 12 inch  
 D = 18 inch

1 = 1 7/8 x 12	PVC 4000 psi
2 = 1 7/8 x 20	
3 = 2 3/4 x 14 1/4	
4 = 2 1/2 x 12	
5 = 1 7/8 x 5 11/16	
6 = 1 3/4 x 12	
7 = 1 3/4 x 20	
316SS 2000 psi	

Service Type:

**S = Standard**  
 C = Corrosive

**F PL 2 S4 L 1 A 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)  
 A = AFLAS Elastomer  
 H = HSN Elastomer  
 X = Export (Hydrostatic test, MTR & 3.1)

Not all selections available on all products listed.  
 See product pages 08:10.1 - 08:30.3 for available options



GEN 3 PNEUMATIC LEVEL CONTROLLER  
MODEL PL

**APPLICATIONS:**

Liquid level controller for oil and gas separators, water knockouts, gas scrubbers and accumulators.

Liquid interface control in fluids of 0.20 minimum differential specific gravities with the standard displacer. Other displacers are available to control liquid interface to 0.10 minimum specific gravities.

Operates any diaphragm control valve requiring not more than 45 psig diaphragm pressure.

**FEATURES:**

- Compact design fits in production units & other tight spaces.
- Snap or throttle control in one pilot
- Easily convert b/tw left/right mount & direct/indirect action
- Non-bleed pilot (Preferred EPA Natural Gas Star BMP)
- 1/4" NPT vent ports for optional emissions capture
- No vent gas in enclosure
- Simple pilot removal
- Powder coated enclosure
- Vibration resistant
- PVC Displacer (Std.) (4000 psi, 175°F);
- 316 SS Displacer (Optional) (2000 psi, 450°F)
- 40 micron supply gas filter
- Paraffin cleanout port

**CERTIFICATIONS:**

- NACE MR0175 compliant Wetted Parts option available
- documents available upon request, specify when ordering
- Canadian Registration Number (CRN):  
0H23619.2

Kimray is an ISO 9001- certified manufacturer.

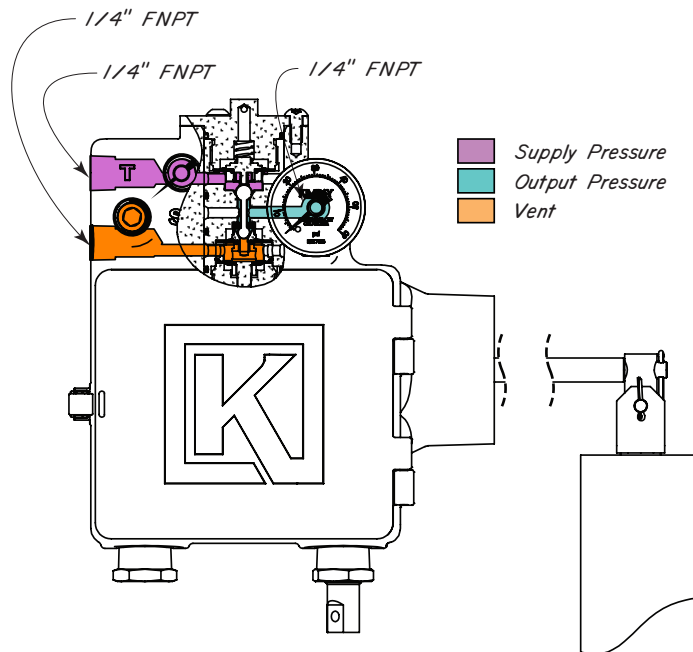


Image above shown in left mount

Left Hand		Right Hand		Line Size	Connection Type	Temp Range <sup>†††</sup>	Supply Press. psig	Max. W.P. <sup>††</sup> psig
Standard Configuration Code <sup>†</sup>	Order Code	Standard Configuration Code <sup>†</sup>	Order Code					
FPL2S4L1AS	LCL	FPL2S4R1AS	LCR	2"	NPT	-15F - 175F	5 - 45	4000
FPL2ARL1AS	LCA	FPL2ARR1AS	LCJ		150RF			285
FPL2BRL1AS		FPL2BRR1AS			300RF			740
FPL2DRL1AS	LCC	FPL2DRR1AS	LCM		600RF			1480
FPL2FRL1AS	LCE	FPL2FRR1AS	LCO		900RF / 1500RF			3705
FPL2DJL1AS		FPL2DJR1AS			600RTJ			1480
FPL2FJL1AS		FPL2FJR1AS			900RTJ / 1500RTJ			3705
FPL3ARL1AS	LCU	FPL3ARR1AS	LDD	3"	150RF			285
FPL3BRL1AS	LCV	FPL3BRR1AS	LDE		300RF			740
FPL3DRL1AS	LCW	FPL3DRR1AS	LDF		600RF			1480
FPL3ERL1AS		FPL3ERR1AS			900RF			2220
FPL3DJL1AS		FPL3DJR1AS			600RTJ			1480
FPL3EJL1AS		FPL3EJR1AS			900RTJ			2220
FPL3HUL1AS	LDC	FPL3HUR1AS	LDL		H.U.			3000
FPL4ARL1AS	LDM	FPL4ARR1AS	LDV	4"	150RF	285		
FPL4BRL1AS	LDN	FPL4BRR1AS	LDW		300RF	740		
FPL4DRL1AS	LDO	FPL4DRR1AS	LDX		600RF	1480		
FPL4ERL1AS		FPL4ERR1AS			900RF	2220		
FPL4DJL1AS		FPL4DJR1AS			600RTJ	1480		
FPL4HUL1AS	LDU	FPL4HUR1AS	LED		H.U.	1500		
FPL5HUL1AS	LEM	FPL5HUR1AS	LEV		5"	H.U.	1500	

**NOTES:**

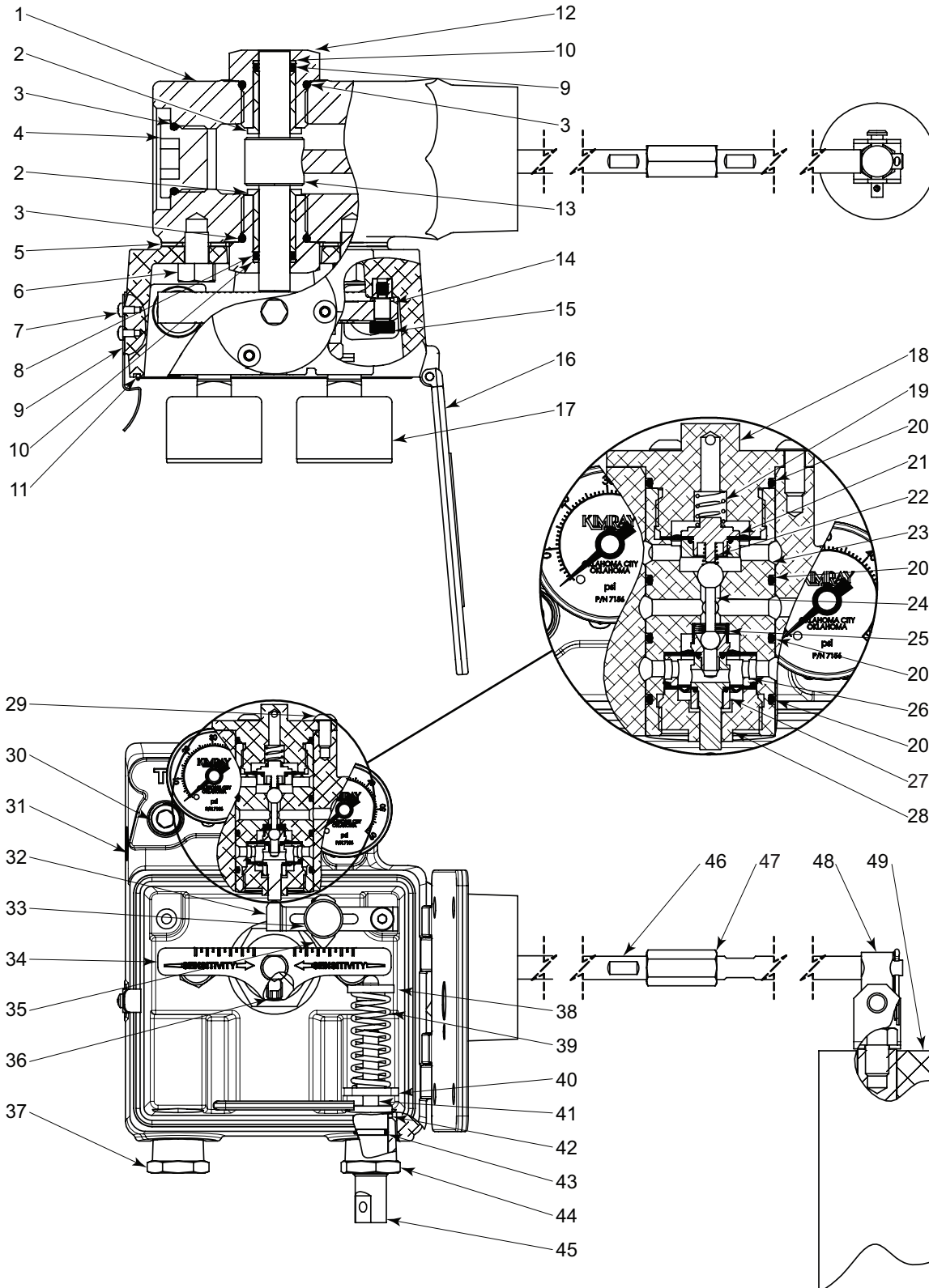
For standard & optional seals, metals, material specifications & dimensions see technical data on pages 08:I - 08:VII

<sup>†</sup> For Corrosive service remove last "S" & replace with "C"

<sup>†</sup> For code builder see page 08:00.2

<sup>††</sup> Max W.P. values based on -20°F to 100°F.

GEN 3 PNEUMATIC LEVEL CONTROLLER  
 MODEL PL





GEN 3 PNEUMATIC LEVEL CONTROLLER  
MODEL PL

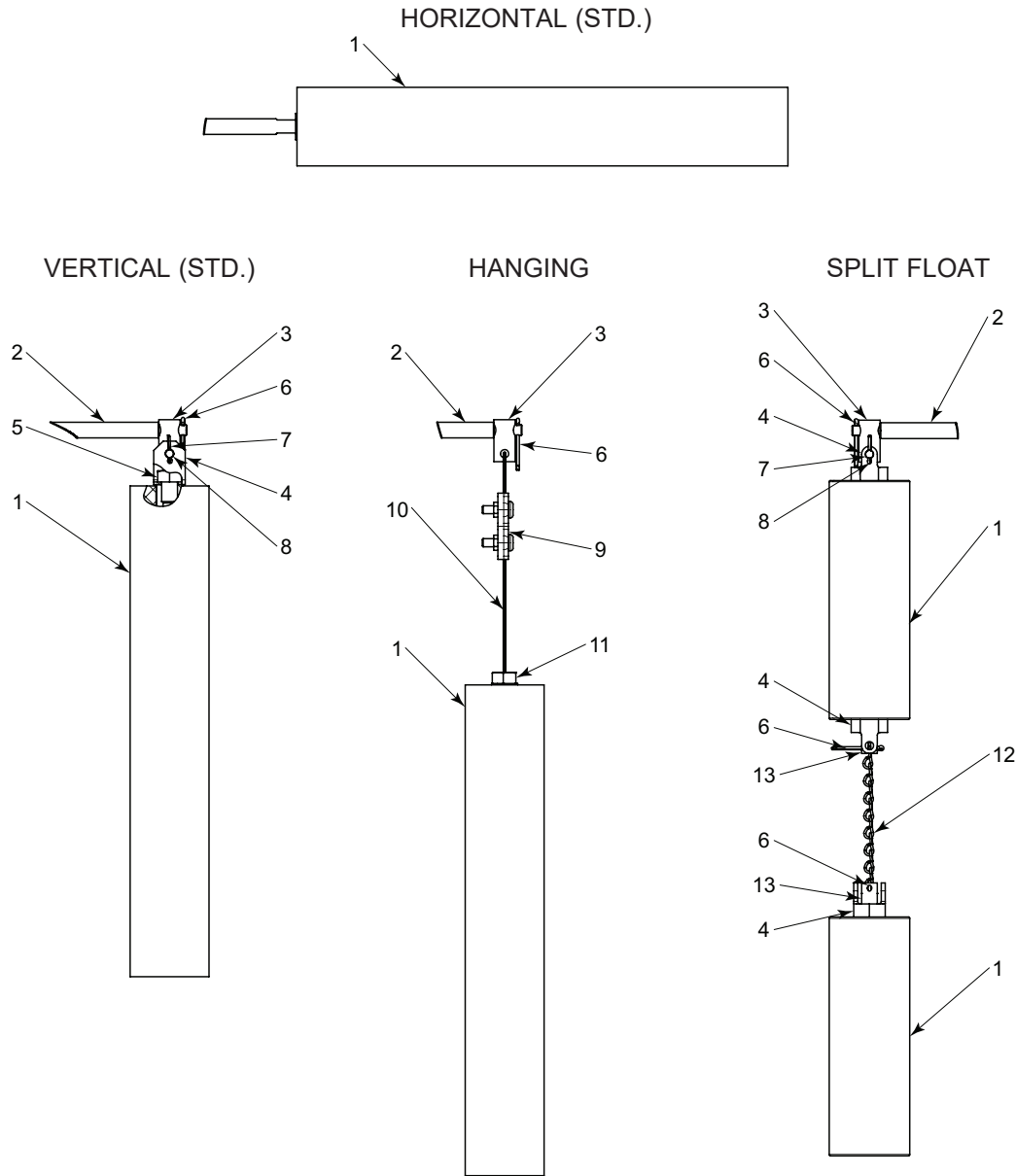
ITEM	QTY.	DESCRIPTION	PART NUMBER			
			2 INCH	3 INCH	4 INCH	5 INCH
1	1	Body				
		MNPT	7736	----	----	----
		150RF	7820	7826	7833	----
		300RF	7821	7827	7834	----
		600RF	7822	7828	7835	----
		900RF		7829	7836	----
		1500RF	7823	----	----	----
		600RTJ	7824	7831	7838	----
		900RTJ	7825	7832	----	----
		1500RTJ		----	----	----
		Hammer Union	----	7759	7760	7761

ITEM	QTY.	DESCRIPTION	PART NO		ITEM	QTY.	DESCRIPTION	PART NO	
			STANDARD	CORROSIVE				STANDARD	CORROSIVE
2	2	Flanged Bearing *	7678		27	1	Lower Diaphragm Assy. ◇ *	7096AS	
3	3	O-Ring, Fitting *	7679V		28	1	Bottom Cartridge Cap ◇	7743	
4	1	Socket Plug	7667S6		29	3	Pilot Screw	7739	
5	1	Mount Gasket *	7754		30	3	NPT Socket Plug	7762	
6	2	Mount Screw	7908		31	1	Enclosure	7735AS	
7	2	Latch Screw	7752		32	1	Pilot Lever	7673	
8	2	O-Ring, Shaft *	7758V		33	1	Sensitivity Knob	7742	
9	1	Latch	7947		34	1	Torque Lever	7672	
10	2	Back-Up Standard *	7680V		35	1	Sensitivity Fulcrum	7674	
		Shaft PTFE (AFLAS kit only)	7819		36	1	Torque Level Set Screw	7749	
11	1	Cover Seal	7763		37	1	Hex NPT Plug	7756	
12	2	Bearing Hub	7666	7666S6	38	1	Upper Spring Plate	7675	
13	1	Torque Shaft	7668	7668S6	39	1	Spring Standard (Yellow)	7725	
14	1	Pilot Washer *	7751				Heavy (Red)	7726	
15	1	Pilot Lever Screw	7740		40	1	Lower Spring Plate	7676	
16	1	Enclosure Cover	7737		41	1	Spring Adjuster Set Screw	7750	
17	2	Gauge	7156		42	1	Spring Adjuster Washer *	7727	
18	1	Top Cartridge Cap ◇	7745		43	1	O-Ring, Spring Adjuster *	7748	
19	1	Booster Spring ◇ *	585L		44	1	Spring Adjuster Bushing	7757	
20	4	O-Ring, Pilot ◇ *	5226V		45	1	Spring Adjusting Knob	7677	
21	1	Upper Diaphragm Assy. ◇ *	7102AS		46	1	Displacer Arm	7681	
22	1	Conical Spring ◇ *	5469		47	1	Displacer Arm Coupling	5454	
23	1	Cartridge Body ◇	7744		48	1	Rod Assembly	7723A	
24	1	Pilot Plug ◇ *	112				Optional 6" Arm Extension	5543L6	
25	1	Spring ◇ *	5541				Optional 12" Arm Extension	5543L12	
26	1	Diaphragm Spacer ◇ *	5475				Optional 18" Arm Extension	5543L18	
Repair Kits			RYC		* These parts are recommended spare parts and stocked as repair kits.				
Pilot Assembly			YBZ		◇ These parts are stocked as Pilot Assembly				

ITEM	QTY.	DESCRIPTION	PART NO	WEIGHT	MAX TEMP	MAX PSI	MIN DIFF. SP.GR.	MATERIAL	SPRING P/N BASED ON EXTENSION LENGTH			
									NO Ext.	6" Ext.	12" Ext.	18" Ext.
49	1	Displacers										
		1 7/8" x 12" Lg	7637A	1lb 15oz	175°F	4000	>0.20	PVC	7725	7725	7725	7725
		2 1/2" x 12" Lg	7639A	3lb 0.5oz	175°F	4000	>0.15	PVC	7725	7725	7726	7726
		1 7/8" x 20" Lg	7638A	3lb 5oz	175°F	4000	>0.15	PVC	7725	7725	7726	7726
		2 3/4" x 14 1/4" Lg	7640A	4lb 5oz	175°F	4000	>0.1	PVC	7725	7726	7726	7726
		1 3/4" x 12" Lg	5461SS6	1lb 15oz	450°F	2000	>0.20	316SS	7725	7725	7725	7725
		1 3/4" x 20" Lg	5461SS6L20	3lb 0oz	450°F	2000	>0.17	316SS	7725	7725	7726	7726

ACCESSORIES (not shown)	
ITEM	DESCRIPTION
Hex Key	7845
Filter	7847

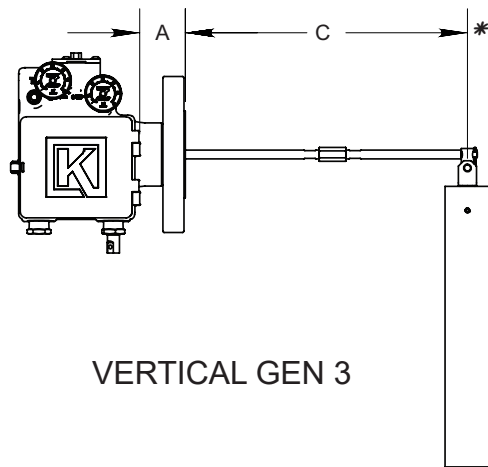
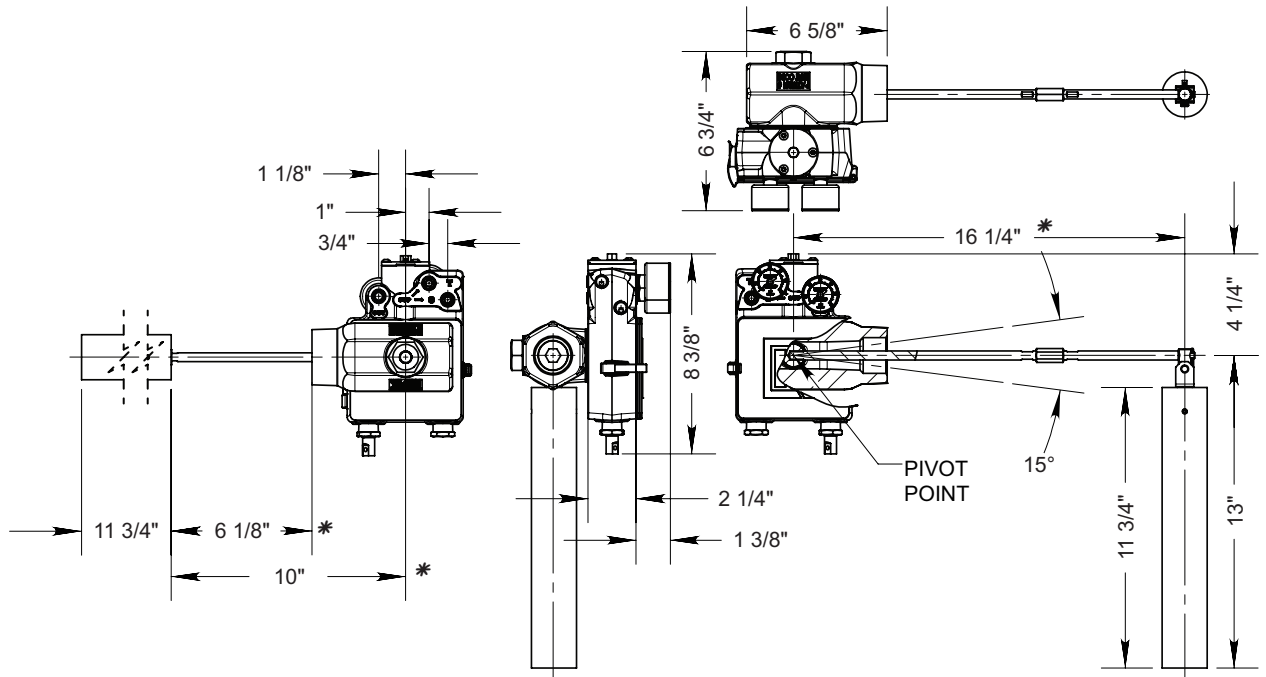
EXTENSION RODS KITS				
Extension Kit	Length	Coupling	Spring	Arm Ext.
LPA	6"	5454	7726	5543L6
LPB	12"	5454	7726	5543L12



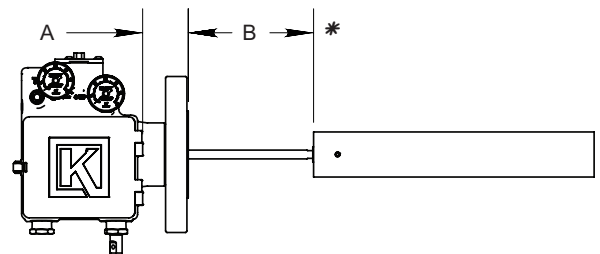
ITEM	DESCRIPTION	HORIZONTAL (STD.)		VERTICAL (STD.)		HANGING		SPLIT	
		PART NO	QTY.	PART NO	QTY.	PART NO	QTY.	PART NO	QTY.
1	Displacer	7637A	1	7637A	1	7637A	1	* 5560	2
2	Displacer ARM			5453	1	* 5453	1	* 5453	1
3	Hanger Block			6541	1	* 6541	1	* 5546SS6	1
4	U Bracket / Bushing			7577	1		1	* 6557SS6	3
5	Bolt			7696S6	1				
6	Cotter Pin			363	1	* 363	1	* 363	3
7	Clevis Pin			7168	1			* 7168	1
8	Cotter Pin			7169	1			* 7169	1
9	Cable Clamp					* 7722S6	1		
10	Cable (10 foot length)					* 7711S6	1		
11	Vented Bolt					* 7943S6	1		
12	Chain (8 foot length)							* 2826	1
13	Screw							* 5547SS6	2
	Coupling (not shown)					* 5454	1	* 5454	1
	Kit Number					LXX		CMP	



*DIMENSIONS*  
**CONTROLLER SIDE MOUNT**



VERTICAL GEN 3



HORIZONTAL GEN 3

FLANGES		150#			300#			600#			900#			1500#		
TYPE	SIZE	A	B *	C *	A	B *	C *	A	B *	C *	A	B *	C *	A	B *	C *
GEN 3 Raised Face	2"	1 31/32	5 1/2	11 11/16	2 5/32	5 5/16	11 1/2	2 15/32	5	11 3/16	----	----	----	2 31/32	4 1/2	10 11/16
	3"	1 31/32	5 1/2	11 11/16	2 11/32	5 1/8	11 5/16	2 23/32	4 3/4	10 15/16	3 11/32	4 1/8	10 5/16	4 3/32	3 3/8	9 9/16
	4"	2 5/32	5 5/16	11 1/2	2 15/32	5	11 3/16	2 31/32	4 1/2	10 11/16	2 29/32	4 9/16	10 3/4	3 17/32	3 15/16	10 1/8
	6"	----	----	----	----	----	----	----	----	----	----	----	----	4 13/32	3 1/16	9 3/32
GEN 3 Ring Joint	2"	----	----	----	----	----	----	2 17/32	4 15/16	11 1/8	----	----	----	2 23/32	4 3/4	10 15/16
	3"	----	----	----	----	----	----	2 15/32	5	11 3/16	3 1/32	4 7/16	10 5/8	----	----	----
	4"	----	----	----	----	----	----	3 1/32	4 7/16	10 5/8	----	----	----	----	----	----

\* Dimensions shown are with standard float arms. Optional extension rods would add the length of the extension to this dimension



SEALS

Table 1 - Controller / Sensor Seal Options			
Product Type	Part	Standard Material	Optional Material
Electric	Mounting Piece	FKM	AFLAS®, HSN,
Pneumatic	Mounting Piece	FKM	AFLAS®, HSN,
	Pilot Seals	FKM	N/A

Table 2 - Level Switch Seal Options			
Product Type	Part	Standard Material	Optional Material
Electric Switch	O-rings	FKM	AFLAS®, HSN
Pneumatic Switch	O-rings	FKM	N/A
	Diaphragm	FKM	LTN

Table 3 - Seal Specifications						
		NITRILE	LOW TEMP NITRILE	HIGHLY SATURATED NITRILE	FKM	AFLAS®
	Kimray Suffix	-	LTN	HSN	V	AF
Resistance	Abrasion	G	G	G-E	G	G
	Acid	F	F	G-E	G-E	E
	Chemical	F	F	F	E	E
	Cold	G	E	G	P	P
	Flame	P	P	P	E	E
	Heat	G	G	E	E	E
	Oil	G-E	G-E	E	E	E
	Ozone	P	P	G	G-E	E
	Set	G	G	G	G-E	P
	Tear	F	F	F	F	P
	Water/Steam	F	F	E	P	G
	Weather	F	F	G	E	E
	CO2	F-G	F-G	G	G	G
	H2S	P	P	F	P	E
	Methanol	F	P	E	P	P
Properties	Dynamic	G	G	G	G	G
	Electrical	F	F	F	F	G-E
	Impermeability	G	G	G	G	G
	Tensile Strength	G	G	G-E	G	F
Temp. Range		-20° to +250°F	-30° to +250°F	-20° to +300°F	-15° to +400°F	+15° to +450°F
		-29° to +121°C	-34° to +121°C	-29° to +149°C	-26° to +204°C	-9° to +232°C
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT						



<b>Table 4 - Material Options</b>			
	<b>Component</b>	<b>Standard Material</b>	<b>Optional Material</b>
<b>Pneumatic GEN3 Level Controllers</b>	Body	Steel (ASTM SA352LCB)	N/A
	Pilot	Aluminum (ASTM B221 6061-T6)	N/A
	Shaft & Bearing Hubs	Steel (ASTM)	316SS (ASTM A240)
	Bearings	Polyimide filled PTFE	N/A
	Levers	Steel (FLN2C-4005)	N/A
	Displacer	PVC	316SS (ASTM A 240)
	Spring	17-7SS (ASTM A313)	N/A
<b>Pneumatic Level Switches</b>	Body	Aluminum (ASTM B221 6061-T6)	N/A
	Float	316SS (ASTM A 240)	HDPE (ASTM D4976)
<b>External Float Cages</b>	Electronic & Pneumatic Level Switch Float Cage	Steel (ASTM SA352LCB)	316SS (ASTM A351 CF8M)
	Horizontal GEN II Float Cage	ASTM A-106 GR. B	N/A
	Vertical External GEN II Float Cage	SA-106B, SA-234 WPB, SA-516-70	N/A