



## Standard Liquid End Configuration Data & Materials of Construction

Drive Assembly	Liquid End No.	Size Code	Materials of Construction				Accessory	Tubing & Connections
			Head & Fittings	Balls	Liquifram™	Check Valve		
B91 ■ - B92 ■ - B71 ■ - B72 ■ - B11 ■ - B12 ■ -	498SI†	0.9	PVC/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	490SI†	0.9	Acrylic/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	499SI†	0.9	Acrylic/PVDF	PTFE	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	398SI†	0.9	PVC/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	393SI†	0.9	PVDF/PVDF	Ceramic	Fluorofilm™	PVDF/PTFE	4FV	PE .375" O.D.
	392SI†	0.9	PVDF/PVDF	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	85HV	0.9	Polypropylene	316 S.S.	Fluorofilm™	PTFE		PE .5" O.D. Vinyl .938" O.D.
	86HV	0.9	Acrylic/PP	316 S.S.	Fluorofilm™	Viton®		PE .5" O.D. Vinyl .938" O.D.
	495SI†	0.9	Polypropylene	Ceramic	Fluorofilm™	PTFE	4FV	PE .375" O.D.
297	0.9	316 S.S.	316 S.S.	Fluorofilm™	316 S.S.		Pipe 1/4" NPT M	
B93 ■ - B73 ■ - B13 ■ -	468SI†	1.8	PVC/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	460SI†	1.8	Acrylic/PVC	Ceramic	Fluorofilm™	PVC/Polyprel®	4FV	PE .375" O.D.
	469SI†	1.8	Acrylic/PVDF	PTFE	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	368SI†	1.8	PVC/PVC	Ceramic	Fluorofilm™	PVC/Polyprel®	4FV	PE .375" O.D.
	363SI†	1.8	PVDF/PVDF	Ceramic	Fluorofilm™	PVDF/PTFE	4FV	PE .375" O.D.
	362SI†	1.8	PVDF/PVDF	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .375" O.D.
	465SI†	1.8	Polypropylene	Ceramic	Fluorofilm™	PTFE	4FV	PE .375" O.D.
	75HV	1.8	Polypropylene	316 S.S.	Fluorofilm™	PTFE		PE .5" O.D. Vinyl .938" O.D.
	76HV	1.8	Acrylic/PP	316 S.S.	Fluorofilm™	Viton®		PE .5" O.D. Vinyl .938" O.D.
277	1.8	316 S.S.	316 S.S.	Fluorofilm™	316 S.S.		Pipe 1/4" NPT M	
B94 ■ - B74 ■ - B14 ■ -	312SI#†	3.0	PVDF/PVDF	.375 Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .5" O.D.
	313SI#†	3.0	PVDF/PVDF	.375 Ceramic	Fluorofilm™	PVDF/PTFE	4FV	PE .5" O.D.
	318SI#†	3.0	PVC/PVC	.375 Ceramic	Fluorofilm™	PVC/Polyprel®	4FV	PE .5" O.D.
	410SI#†	3.0	Acrylic/PVC	.375 Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE .5" O.D.
	415SI#†	3.0	Polypropylene	Ceramic	Fluorofilm™	PTFE	4FV	PE .5" O.D.
	418SI#†	3.0	PVC/PVC	.375 Ceramic	Fluorofilm™	PVC/Polyprel®	4FV	PE .5" O.D.
	419SI#†	3.0	Acrylic/PVDF	.375 PTFE	Fluorofilm™	PVDF/Polyprel®	4FV	PE .5" O.D.
	217	3.0	316 S.S.	316 S.S.	Fluorofilm™	316 S.S.		Pipe 1/4" NPT M

#These liquid ends use 3/8" diameter valve balls. Pump output may be reduced in some applications. Size 3.0 liquid ends use the accessory type AutoPrime valve.

### Output Information with Standard Liquid End

Series	Gallons per Hour*		Liters per Hour*		mL/cc per Minute*		mL/cc per Stroke		Maximum Injection Pressure
	Min	Max	Min	Max	Min	Max	Min	Max	
B11, B71, B91	0.002	1.6	0.006	6.1	0.10	101	0.10	1.01	150 psi (10.30 Bar)
B12, B72, B92	0.003	2.5	0.009	9.5	0.16	158	0.16	1.58	100 psi (6.90 Bar)
B13, B73, B93	0.005	4.5	0.017	17.0	0.28	284	0.28	2.84	50 psi (3.4 Bar)
B14, B74, B94	0.007	7.0	0.027	26.5	0.44	442	0.44	4.42	30 psi (2.07 Bar)

\*Minimum output is based on 1 stroke per minute and 10% stroke setting, minimum output can be reduced further in external mode. Series B9 pumps may be programmed for strokes per hour for lower outputs.

### AutoPrime™ Liquid End Configuration Data & Materials of Construction

Drive Assembly	Liquid End No.	Size Code	Materials of Construction				Accessory	Tubing & Connections
			Head & Fittings	Balls	Liquifram™	Check Valve		
B92, B91, B72 B71, B12, B11	D90HI	0.9	Acrylic/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE 0.375" O.D.
	D98HI	0.9	PVC/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE 0.375" O.D.
B93, B73, B13	D60HI	1.8	Acrylic/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE 0.375" O.D.
	D68HI	1.8	PVC/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE 0.375" O.D.
B94, B74, B14	D10HI	3.0	Acrylic/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE 0.5" O.D.
	D18HI	3.0	PVC/PVC	Ceramic	Fluorofilm™	PVDF/Polyprel®	4FV	PE 0.5" O.D.

### Output Information – AutoPrime™ Liquid Ends (Liquid end models beginning with “D”)

Series	Maximum Output				Maximum Pressure	
	GPH	Liters/hr	mL/cc per minute	mL/cc per stroke	PSI	Bar
B11, B71, B91	1.4	5.3	88.3	0.88	150 psi	10.3
B12, B72, B92	2.3	8.7	145.1	1.45	100 psi	6.9
B13, B73, B93	4.0	15.1	252.4	2.52	50 psi	3.4
B14, B74, B94	6.8	25.7	429.1	4.29	30 psi	2.07

AutoPrime™ liquid ends have 3 check valves: suction on the bottom; discharge on the front; and autoprime bleed on the top. By design, a repeatable portion of the process fluid continuously bleeds through the top check valve to be returned to the chemical supply. The result is the assurance that any gas in the head is automatically relieved thus eliminating air-binding. The maximum output per the tables above is reduced to account for the continuous bleed.

■ See front page for voltage code specifications.

Plastic heads with tubing connection include 1/2" NPT and 1/2" BSP.

† To specify 1/2" NPT male, change 'I' to 'P'.

To specify black, UV resistant tubing, change 'I' to 'U'.

To specify 3FV, change 'S' to 'T'.

**3FV** indicates that the pump is equipped with an LMI Three Function Valve (pressure relief, priming aid, line drain).

**4FV** indicates that the pump is equipped with an LMI Four Function Valve. This diaphragm type, anti-syphon/pressure relief valve is installed on the pump head. It provides anti-syphon protection and aids priming, even under pressure.

Fluorofilm™ is a copolymer of PTFE and PFA.

Polyprel® is an elastomeric PTFE copolymer.

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