

LMI PD Series Product Introduction



Agenda

- **PD Product Introduction**
 - Features and Benefits
 - Precision Capacity Performance
 - Proven Fluid Handling
 - Enhanced Functionality
- **PD Product Overview**
 - Model Nomenclature (Codification)
 - Drive End Configuration
 - Liquid End Configuration
- **Q&A**



Product Introduction



Introducing LMI PD Series

The pump you've been waiting for

Introducing the PD Series chemical metering pump, the new standard in water treatment. This upgrade to LMI's most popular series includes an improved drive design, all new electronics, and proven FASTPRIME™ liquid ends. Available in Manual or Enhanced Control models, the PD Series pump fits seamlessly into your process control application. The Manual model offers straightforward control without the need for tedious calculations. Its split-scale dial ensures precision, even at lower flow rates. The Enhanced model offers external control and a large graphical display to provide intuitive access to advanced features such as calibration assist, system and user totalizers, the new StayPrime™ Degassing Technology, and more.



We are a proud member of Accudyne Industries, a leading global provider of precision-engineered, process-critical and technologically advanced flow control systems and industrial compressors. Delivering consistently high levels of performance, we enable customers in the most important industries and harshest environments around the world to accomplish their missions.

Two Models: Manual and Enhanced

Manual Model



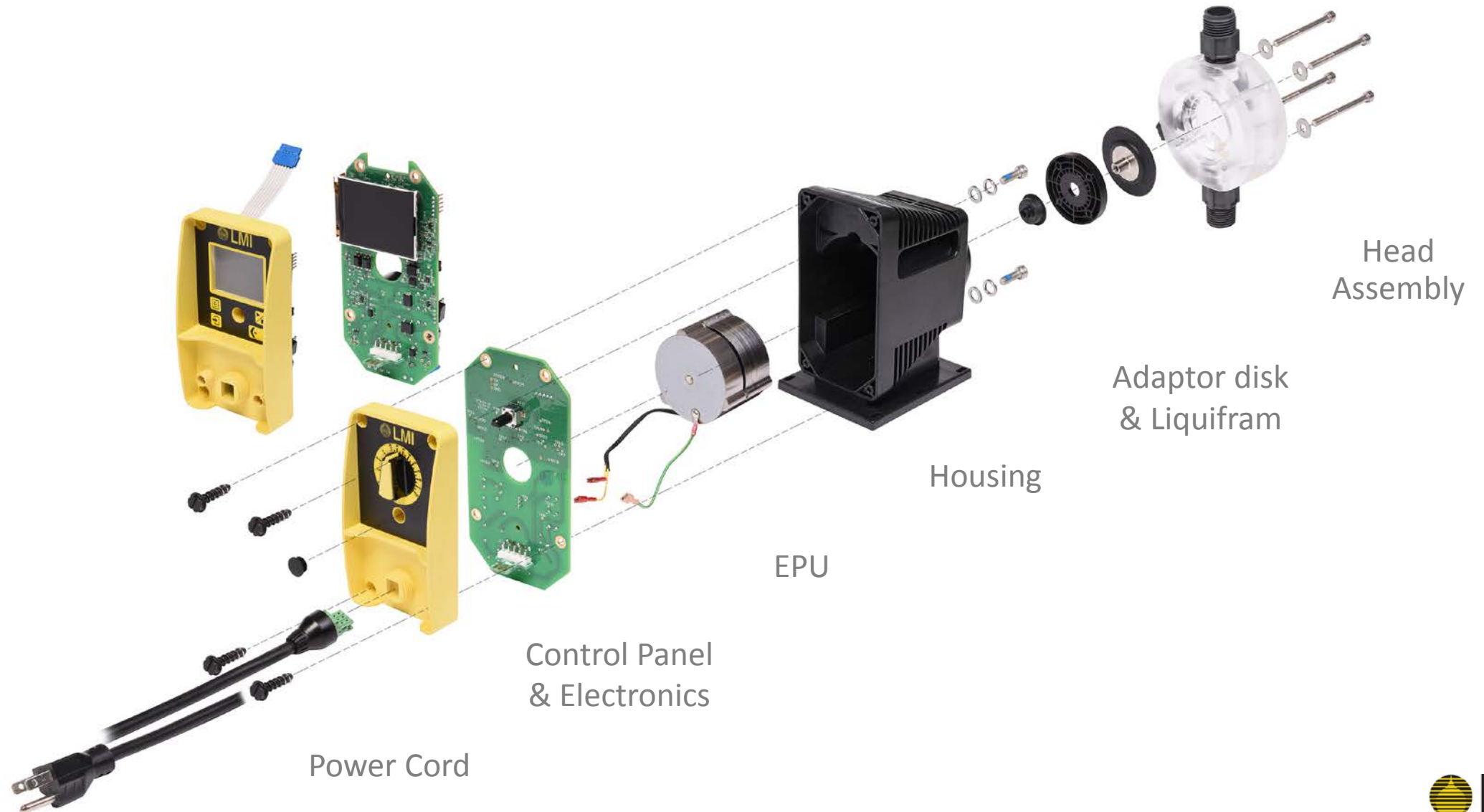
PD0

Enhanced Model



PD7

PD Series – Exploded View





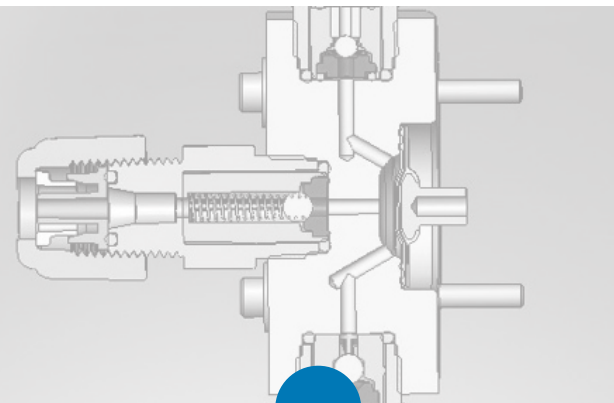
Product Highlights

PD Platform features

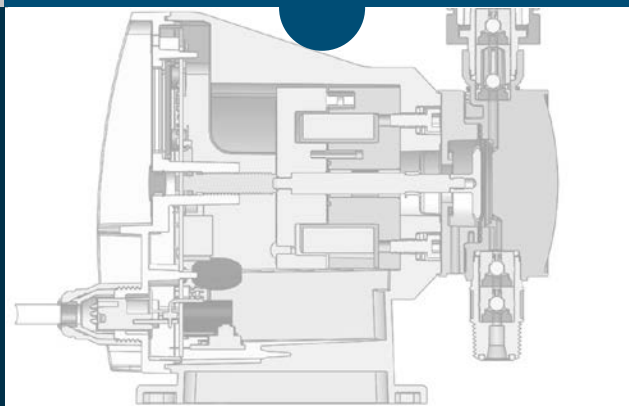
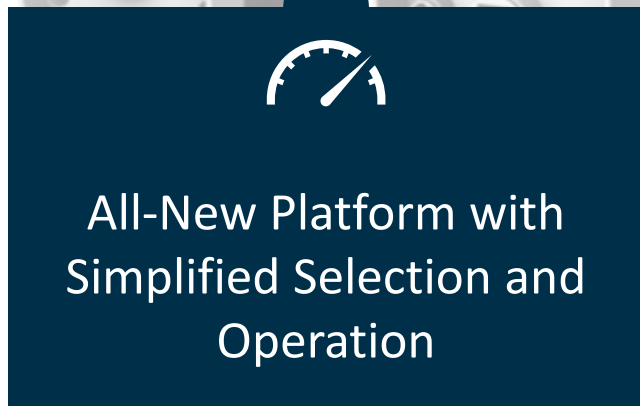
PD7 Only



Precision Performance &
Reliable Operation



Enhanced Functionality
through Software



Proven Fluid Handling
Technologies



All-New Platform Features

Feature	PD0	PD7
Improved Drive Mechanism Upgraded materials for stronger magnetic field	✓	✓
Advanced Electronics Dynamic compensation for temp & voltage Low in-rush current for frequent power cycling	✓	✓
Simplified Capacity Control Dual-scale dial or 5 Button Keypad	✓	✓
Proven Liquid Ends FastPrime™ or AutoPrime™ (Degassing Option)	✓	✓
Digital Display & Graphical User Interface 2.4" Color LCD & easy to use software		✓
Control Inputs <ul style="list-style-type: none">• External Pulse• Remote Start/Stop• Tank Level Indication		✓
Enhanced Functionality <ul style="list-style-type: none">• Calibration Assist• System and User Totalizer• StayPrime™ Degassing Technology		✓



Common drive platform with universal power supply and common components result in a truly global product

Constant stroke length simplifies operation and keeps pump calibrated across full adjustable range

Graphical interface makes pump functionality visually intuitive and easy ensure safe operation

Purpose built for every stakeholder in the Value Chain

- Supply Chain
- Manufacturing
- Channel Partners
- End Users

Precision Capacity Performance

Max Stroke Rate

160 Strokes Per Minute

Max Flow

2.0 GPH (7.8 LPH)

Max Pressure

250 PSI (17.3 BAR) – Plastic LEs

450 PSI (30.6 BAR) – 316 SS

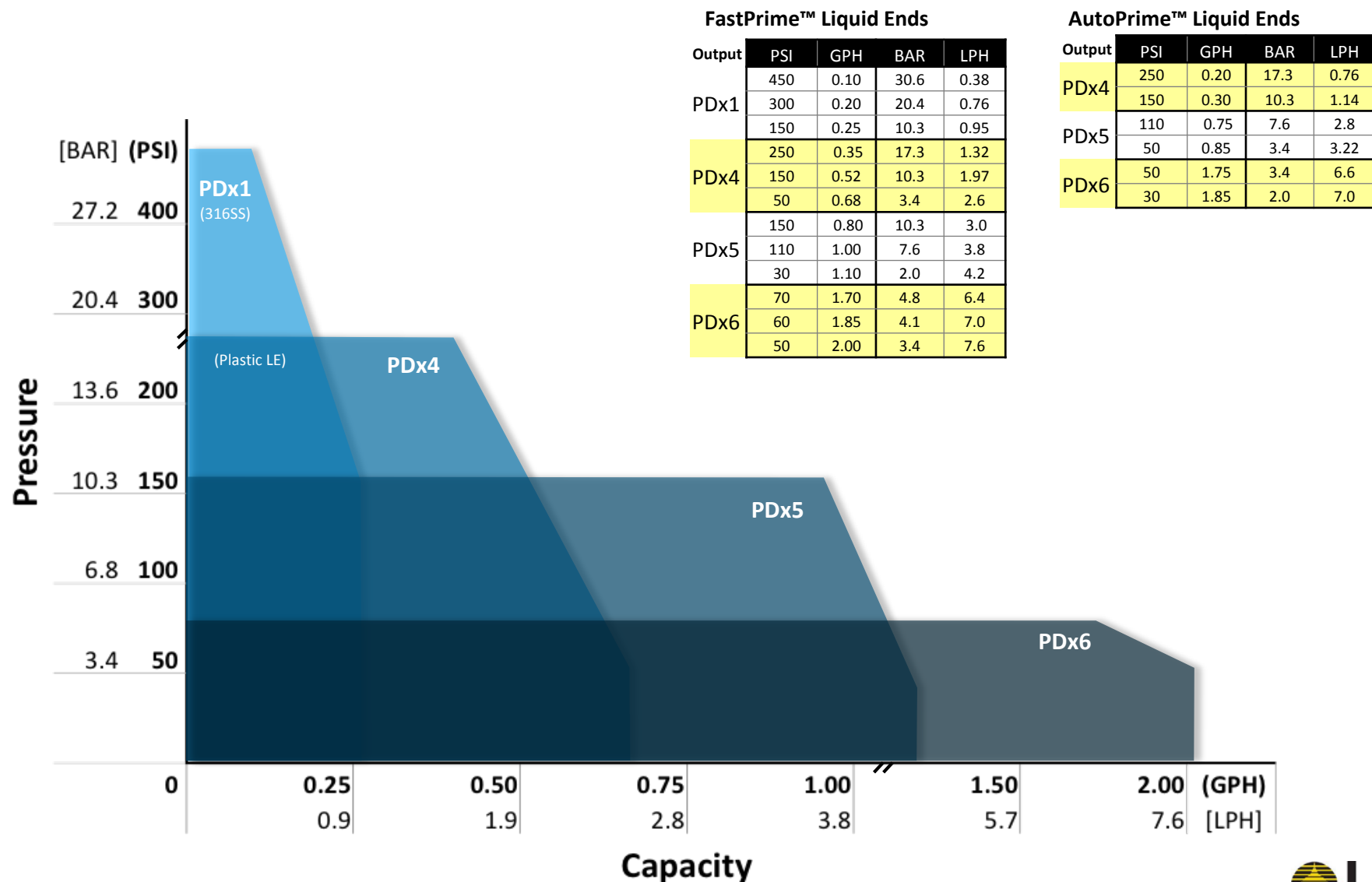
Accuracy

+/- 3% Steady State

+/- 3% Repeatable

Other

- Indoor/Outdoor Use
NEMA 4X; IP65
- Universal Power Supply
115-230V, 50/60 Hz
- Agency Certified
NSF 61 (50 Pending), ETL, CE



Proven Fluid Handling

Liquid End Options

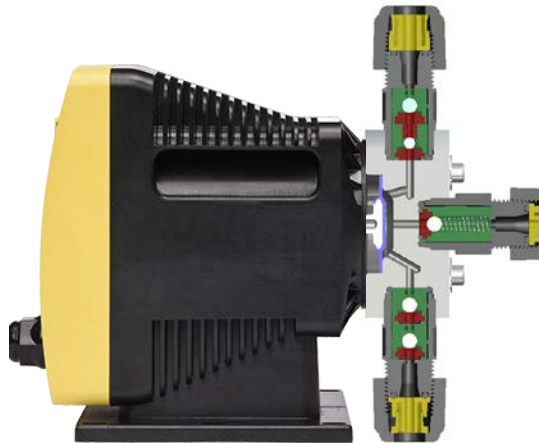
FastPrime™ (Standard)

An **integrated priming port** allows for quick and easy priming



AutoPrime™ (Degassing)

An **integrated degassing valve** provides self-priming operation

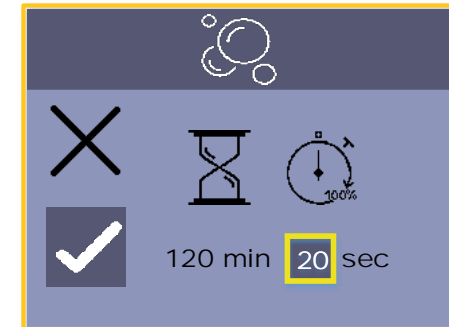


Software enabled feature

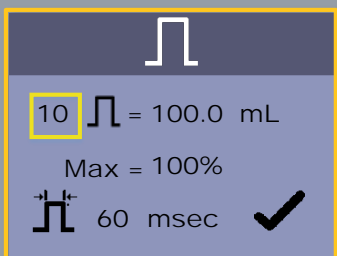
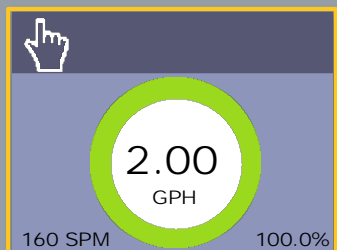
StayPrime™ Degassing Technology



Onboard software monitors pump idle time and initiates a priming cycle to help maintain prime



FastPrime and AutoPrime LEs augmented by StayPrime Degassing Technology



Advanced Software

Calibration Assist



CALIBRATION

Simply draw from a calibration column and adjust on-screen

System & User Totalizer



TOTALIZER

An "odometer" that logs system and user resettable data

StayPrime™



STAYPRIME™

Mitigate the risk of losing prime during idle periods between operation

Degassing Technology

Intuitive Configuration

External Control



PULSE INPUT

Control flow rate with an incoming digital pulse signal

Remote Start/Stop



REMOTE SWITCH

Remotely start and stop with an external switch

Tank Level Indication



LEVEL SWITCH

Highly visible indication of low and empty tank levels

LMI PD Series

The New Standard in Water Treatment



Key Value Driver



Durable Construction



NEMA 4X / IP65; F1 rated UV resistance and UV protected display; Glass-filled polypropylene housing with integrated handle



Reliable Operation



Built on decades of expertise; proven liquid ends; detailed flow curves; extensive development testing with rigorous lab testing and global field test validation; NSF, CE, ETL agency certifications



Easy to Use



Straightforward operation; linear calibration across the full adjustable range; highly visual graphical interface on PD7; simply scan QR code for support documentation and training videos



Easy of Maintain



RPM kits simplify routine preventative maintenance; no special tools required, modular architecture simplifies repair; maintenance reminder on PD7



Trusted Partner



Supported globally by world-class distribution partners that help tackle any application; backed by LMI's full 2 year warranty



Widely Available



Global stocking distributors provide best-in-class lead time around the world; supported by three (3) final assembly locations with flexible configuration afforded by platform design



Deliver Value

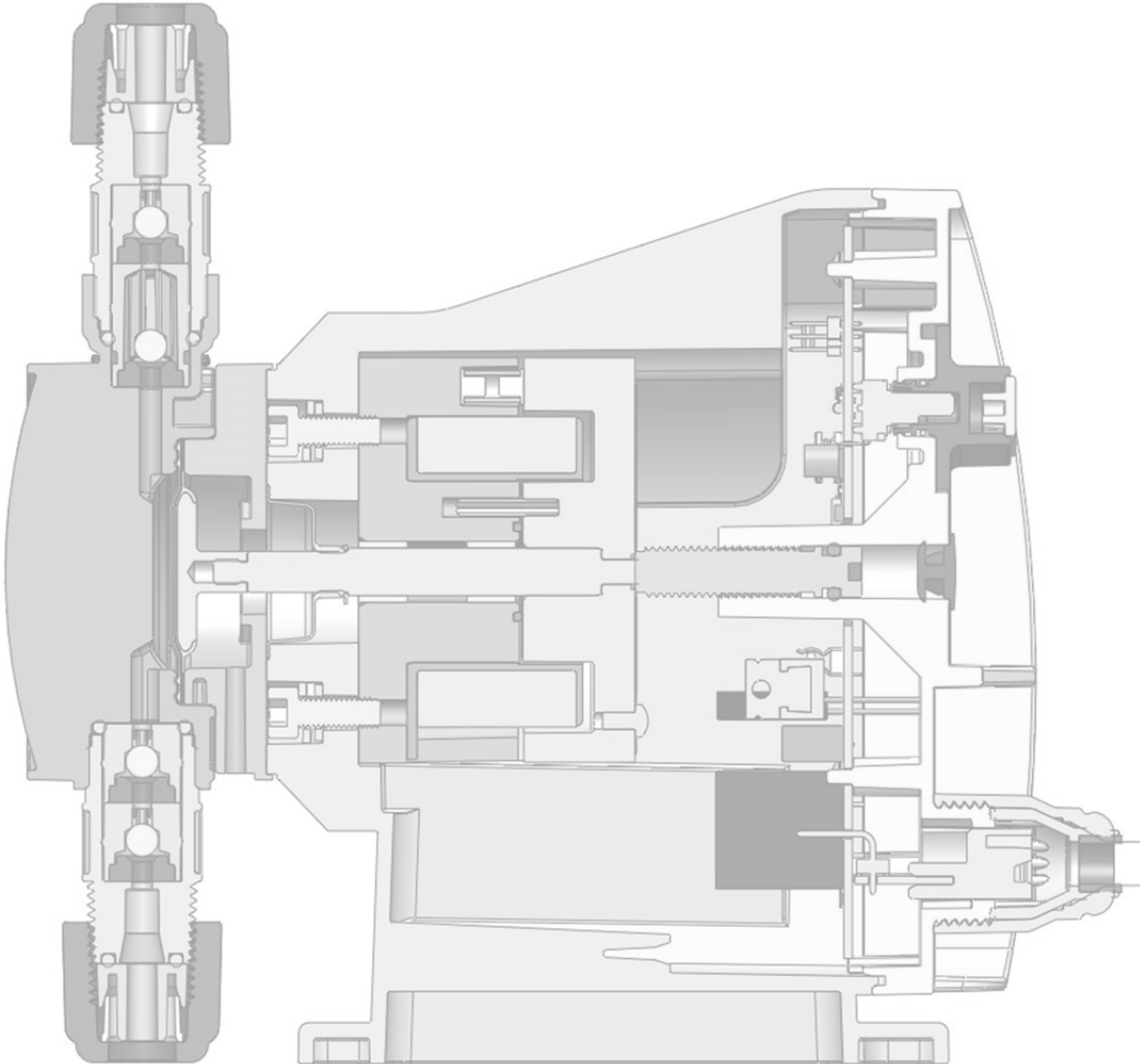


All-new design improves performance while remaining an affordable solution to a broad range of application challenges

LMI PD Series Product Overview

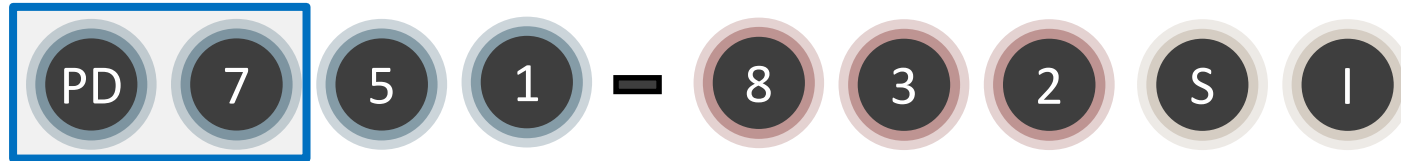


Product Overview



- Model Nomenclature (Codification)
- Drive End Configuration
 - Control Codes
 - PD7 Inputs and Interface
- Liquid End Configuration
 - FastPrime and AutoPrime
 - Check Valves
 - 4 Function Valve
 - Tubing Connection System
- Certifications
- Selling Points
- Q&A

PD Series - Nomenclature



Series designation is “PD”:

- “P” = Next generation P pump
- “D” = Digital electronics

Control Code designation is “0” or “7”:

- PD0 – Single Manual Control Knob
- PD7 – Pulse Input/Single Manual Control



Model numbering in line with conventional LMI coding

LMI Model Numbering



Drive End

PD 7 5 1

Model Code

Control Code

Output Code

Voltage Code



Liquid End

8 3 8 N I

Liquid end Code

Liquifram Size Code

Material Code

Head / Valve Code

Tubing Code

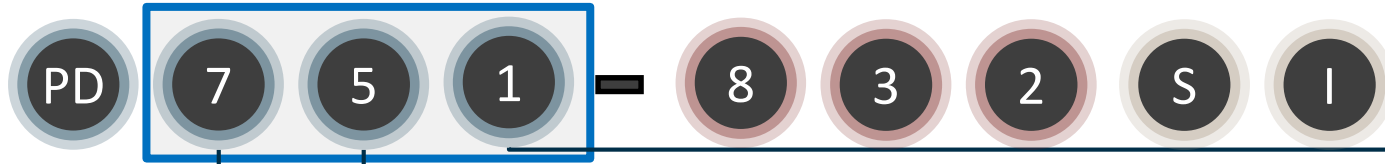
Drive + Liquid End = Pump





Drive End

Series PD – Drive End Model Code



Control Code

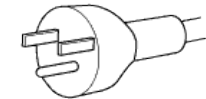
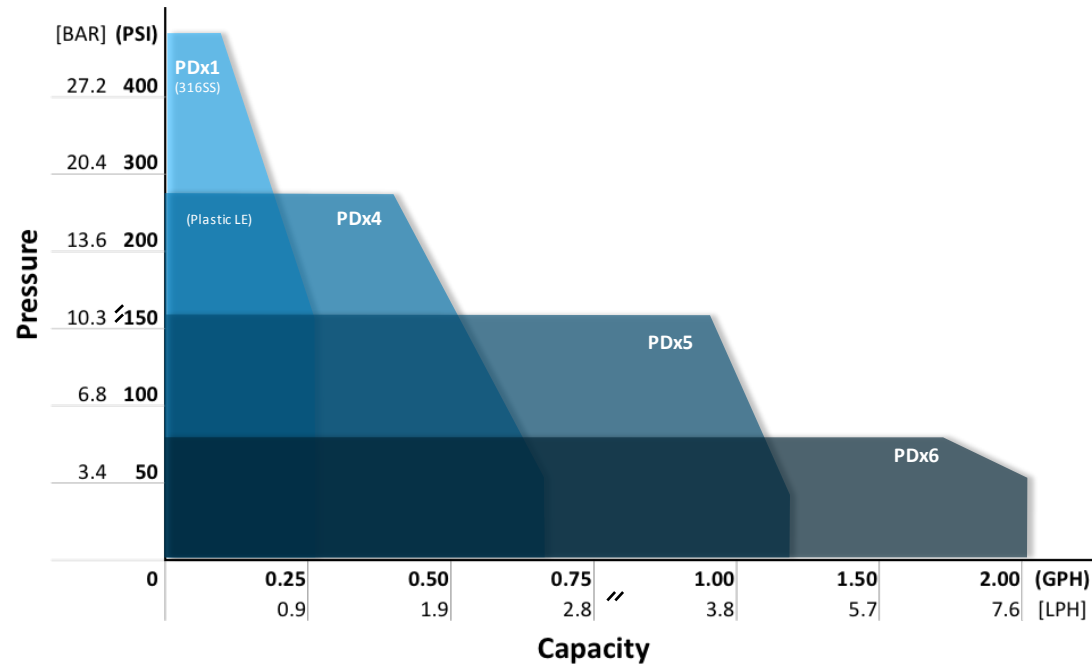
- 0 – Single Manual Control
- 7 – Pulse Input/
Advanced Features
Single Manual Control

Output Code

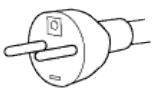
- 1 – .30 GPH (0.95 l/h) – 450 PSI (30.6 Bar) – Liquifram Code=0, 160 SPM
- 4 – .68 GPH (2.57 l/h) – 250 PSI (17.2 Bar) – Liquifram Code=2, 160 SPM
- 5 – 1.1 GPH (4.2 l/h) – 150 PSI (10.2 Bar) – Liquifram Code=3, 160 SPM
- 6 – 2.0 GPH (7.6 l/h) – 70 PSI (4.8 Bar) – Liquifram Code=4, 160 SPM

Power Code

- 1 – 110-120V US Plug, UL
- 2 – 220-240V US Plug, UL
- 3 – 220-240V DIN Plug, CE
- 5 – 220-240V UK Plug, CE
- 6 – 220-240V Aust/NZ Plug



North America
(NEMA 5-15)



Europe
(CEE (7) VII)



China
(GB 1002-1996)



UK
(BS1363/A)

Series PD – Control Codes

PD0



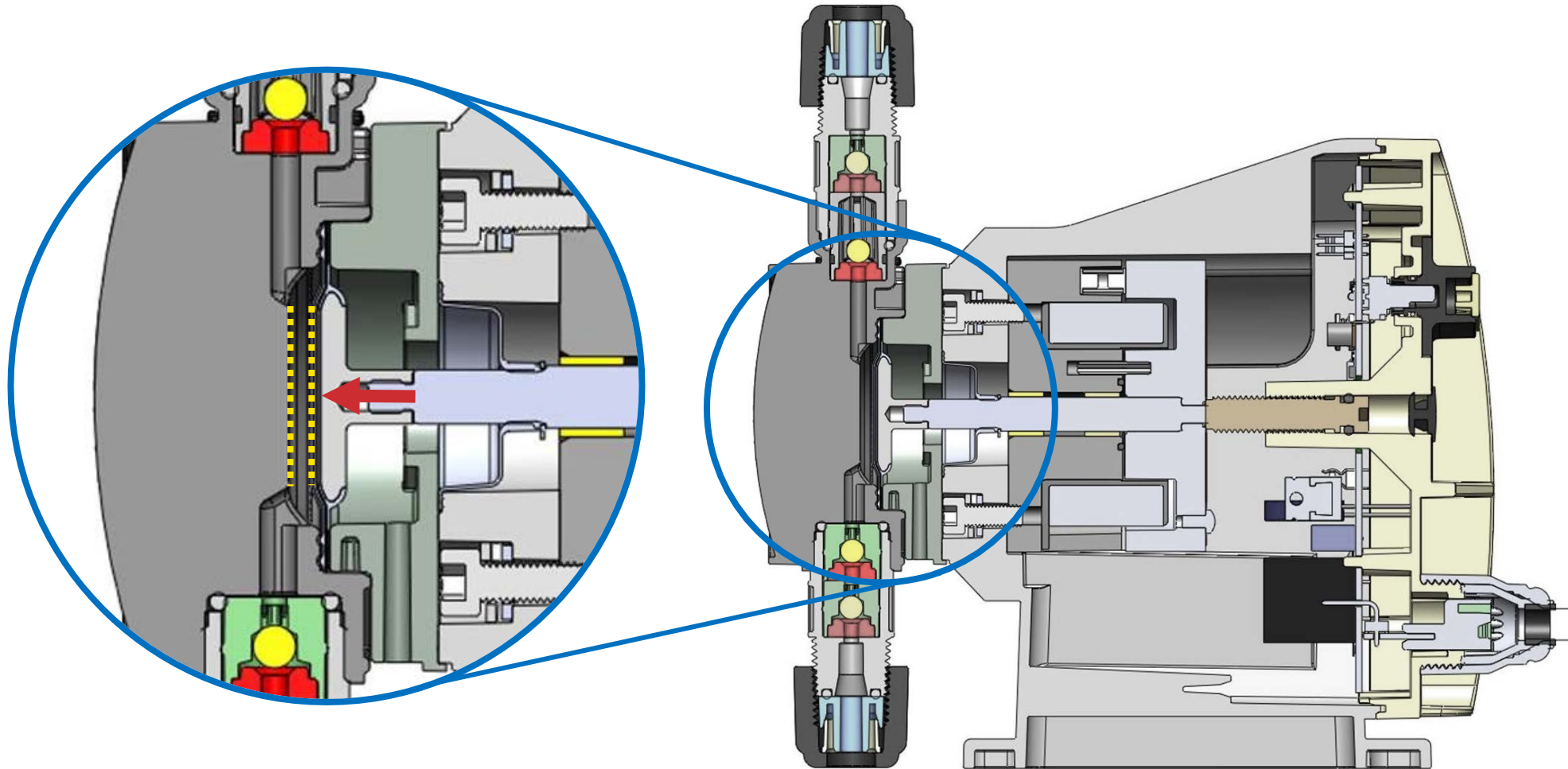
- Fixed Stroke Length at 100%
- Manual Speed Control
- Improved drive mechanism
- Universal voltage (95 to 240 VAC)

PD7



- Universal voltage (95 VAC to 240 VAC)
- On/Off pushbutton
- Speed up/down pushbutton
- Menu selection Mode pushbutton
- Enter/Confirm pushbutton
- Digital LCD indicating :
 - Theoretical flow
 - Stroking frequency
 - Percent capacity
 - Operating Mode
 - Status Alerts

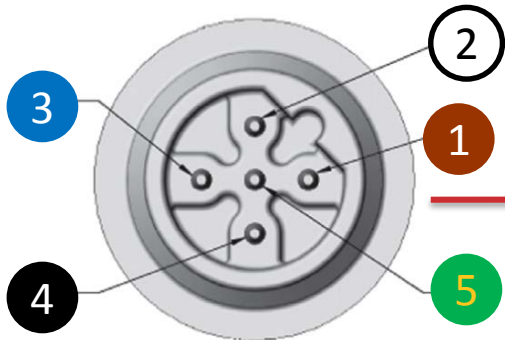
Full Stroke Length



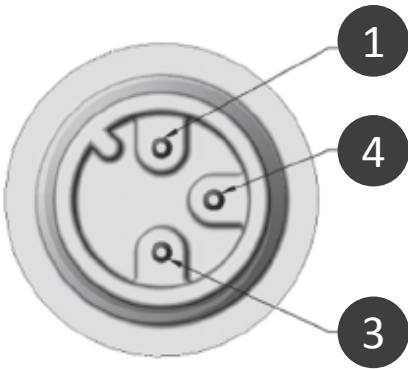
Maximum displacement optimizes flow performance and ensures linearity

Series PD – PD7 Inputs

External Pulse Control & Remote Start Stop



Tank Level Control








PIN	Wire	Signal
1	Brown	Remote on/off
2	White	Ground-return
3	Blue	External pulse input
4	Black	Power supply. 24V, 75 ma
5	Green-Yellow	No connection

PIN	Signal
1	Tank empty
3	Tank low
4	Ground -return

Series PD – PD7 Navigation


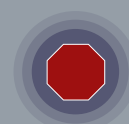

Keypad

-  Menu / Back
-  Enter / Confirm
-  Start / Stop
-  Left / Decrease
-  Right / Increase





Menu

-  Manual
-  Ext. Control
-  Calibration
-  Totalizers
-  StayPrime™
-  Units
-  System Info

Alerts

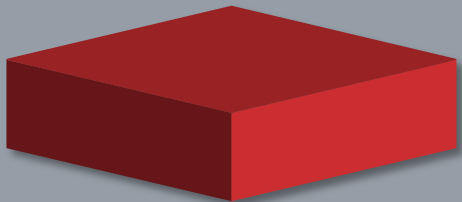
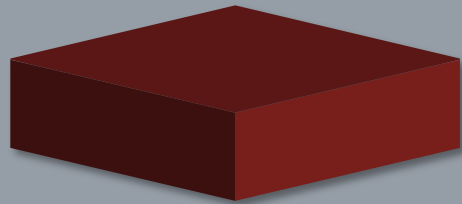
-  Empty Tank
-  Low Tank
-  Remote Stop
-  Service Notification

Status Indication

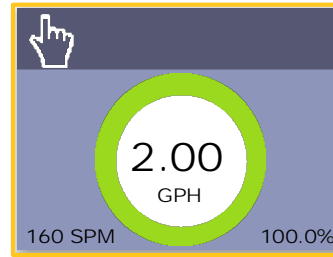
-  1.56 GPH Stopped
-  2.00 GPH Started
-  1.56 GPH Low Tank Warning
-  1.80 GPH Empty Tank (Stopped)

Series PD – PD7 User Interface

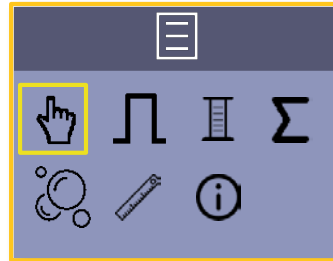
Three layer interface



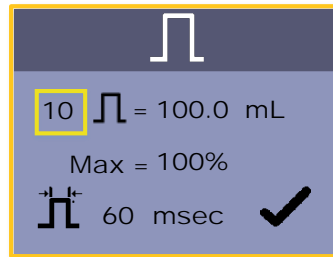
Home



Menu



Settings



Home (operation)

- Flow Rate
- Stroke Rate
- % Capacity
- Status Indicator Ring
- Operating Mode(s)
- Status Alerts

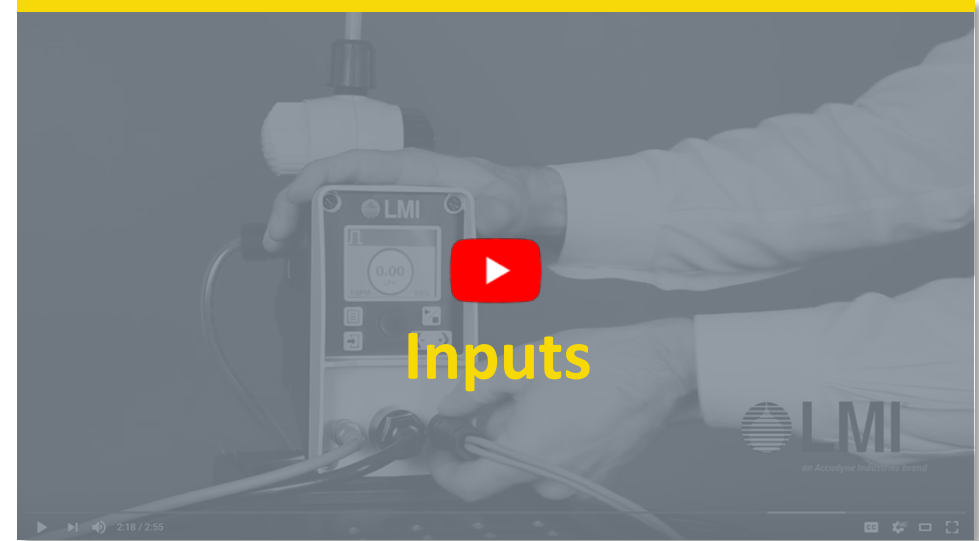
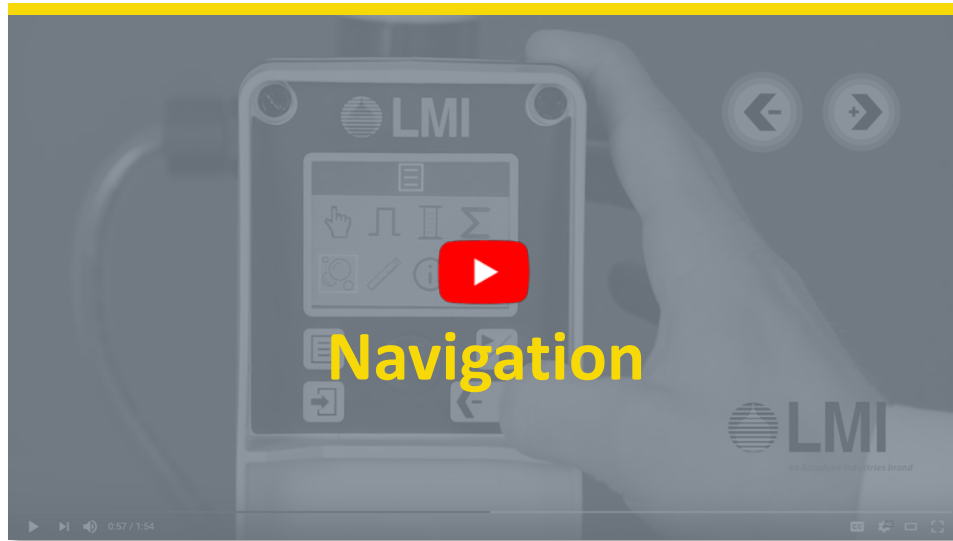
Menu (modes)

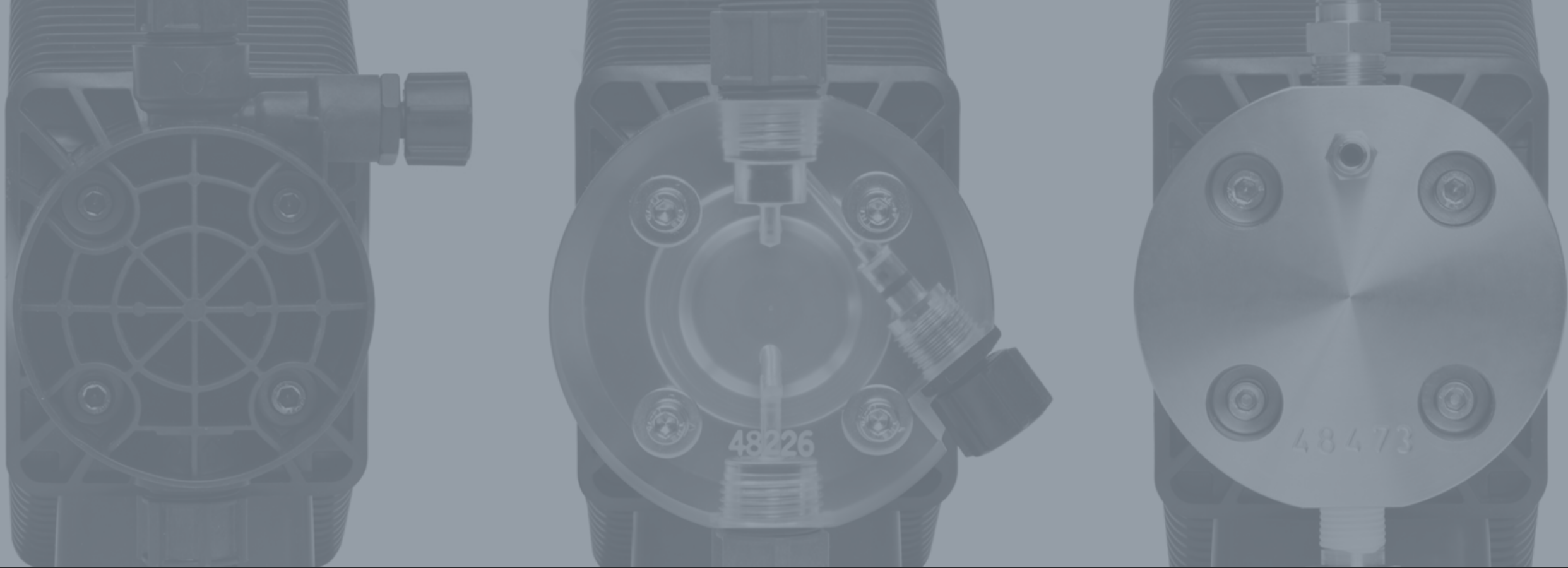
- Manual
- External Control
- Calibration
- Totalizer
- StayPrime™ Degassing Technology
- Units
- System Info

Settings (configuration)

- Setting Configuration
- Setting Engage/Confirm

PD7 Training Videos





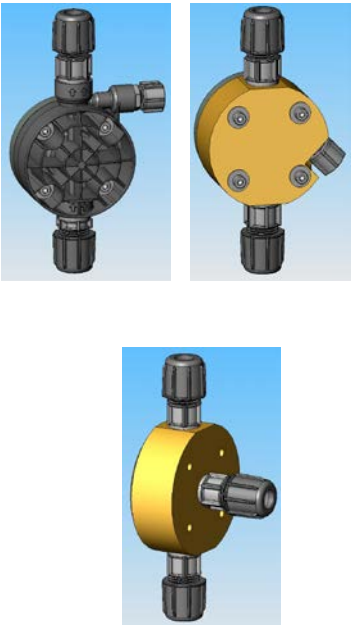
Liquid End

Series PD – Liquid End Model Code



Liquid End Type Code

- 7 – FastPrime, Single Ball (China)
- 8 – Molded FastPrime, Dbl Ball
- 9 – Machined FastPrime, Dbl Ball
- A – Machined AutoPrime, Dbl Ball



Liquifram Size Code

- 0 – 0.2 in²
- 2 – 0.4 in²
- 3 – 0.8 in²
- 4 – 1.6 in²



L.E. Material (Head/Fitting/Ball/Seat/O-ring)

0 – Acrylic	PVC	Ceramic,	Polyprel [®] ,	Polyprel [®]
2 – PVDF	PVDF	Ceramic,	Polyprel [®] ,	Polyprel [®]
3 – PVDF	PVDF	Ceramic,	PTFE,	PTFE
5 – PP,	PP	Ceramic,	PTFE,	PTFE
8 – PVC	PVC	Ceramic,	Polyprel [®] ,	Polyprel [®]
9 – Acrylic	PVDF,	PTFE,	Polyprel [®] ,	Polyprel [®]
7 – SS	SS	SS,	PTFE,	PTFE



Head / Valve Code

- S – FastPrime Head + 4FV
- N – FastPrime Head
- A – Auto Prime Head
- H – Auto Prime Head + 4FV



Connection Code

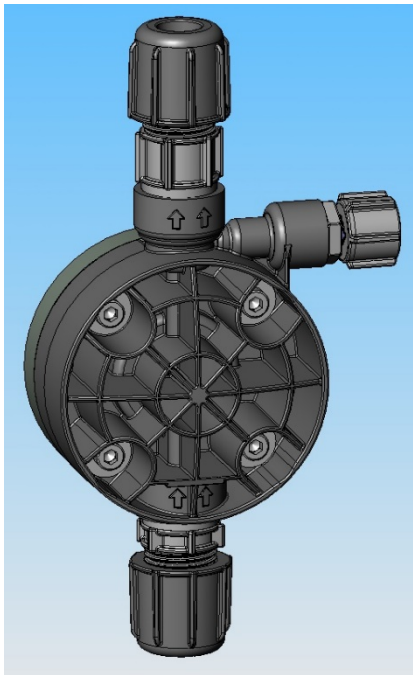
- I – Inch Tubing
- M – Metric
- P – 1/4" NPT 316ss Heads



Series PD – Liquid End Types

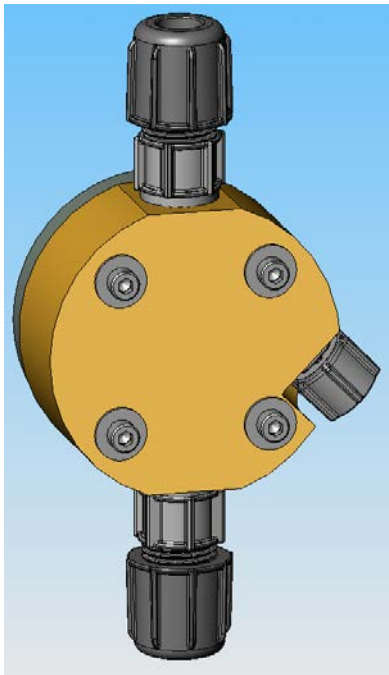
FASTPRIME™

Molded FASTPRIME™ Head



8X2
8X3
8X8

Mach FASTPRIME™ Head

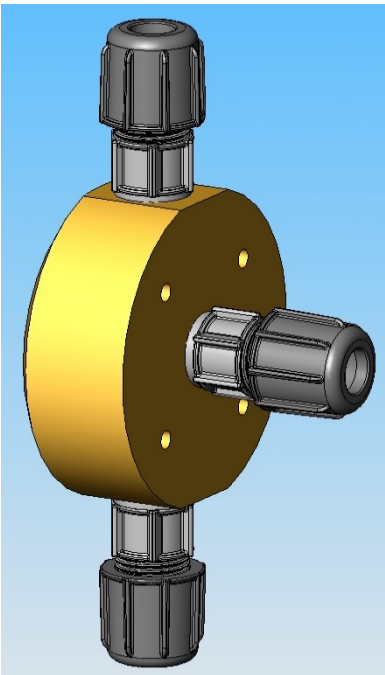


9X5
9X7
9X8
9X9
9X0

(7x8)

AUTOPRIME™

Mach AUTOPRIME™ Head



AX8
AX0

Molded FastPrime; Machined FastPrime; Machined AutoPrime

Series PD – FastPrime™ Liquid End Types



Machined FASTPRIME™ LE
with 4FV



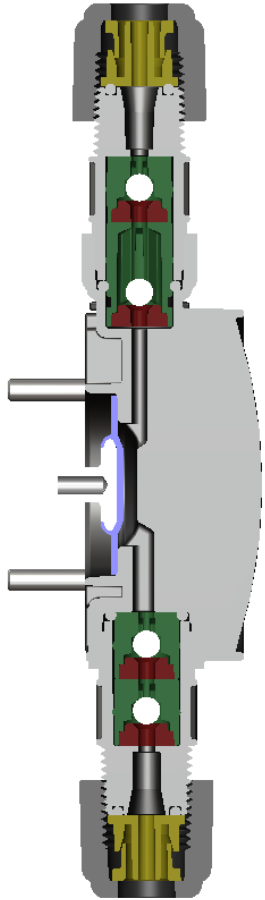
Molded FASTPRIME™ LE
with 4FV



SS FASTPRIME™ LE

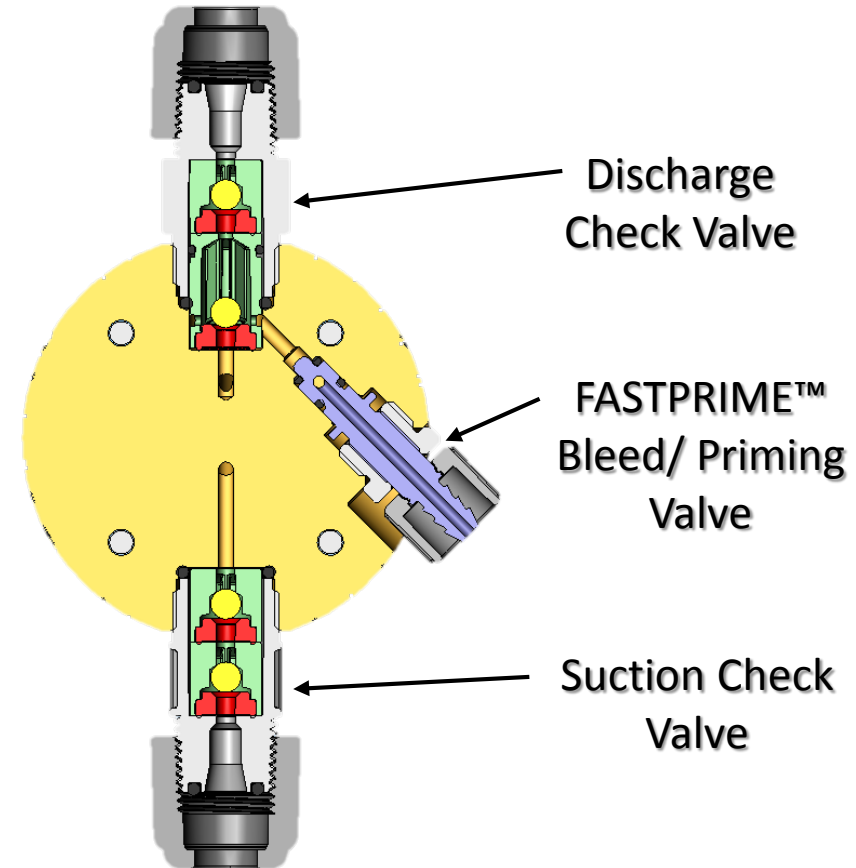
FastPrime™ Liquid Ends

Series PD – FastPrime™ Liquid End Design



Primes the pump without having to depressurize discharge tubing

- Double ball checks
- Molded PVDF and PVC
- Machined PP, PVC or Acrylic

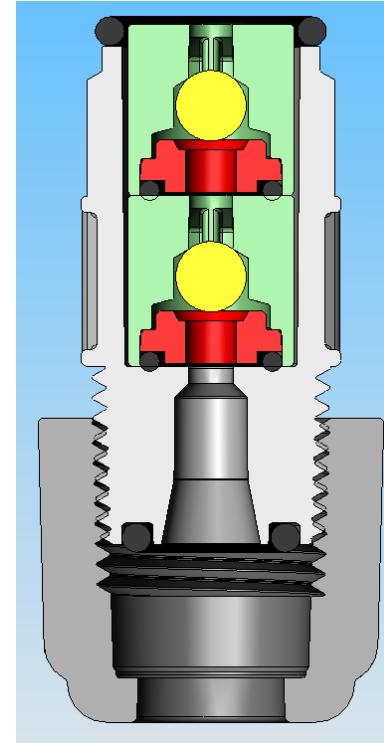


FastPrime Liquid Ends

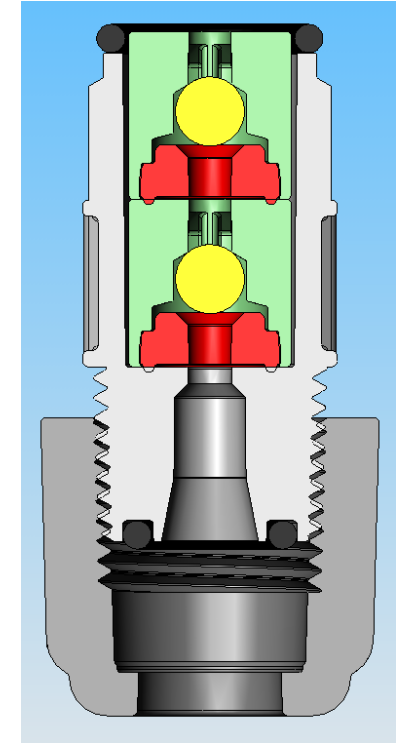
Series PD – Check Valve Design

Double ball check valves

- Ball sizes .250" and .188" (reduced from .375" and .281" due to smaller displacements at higher speeds)
- Universal tubing connections eliminate need for metal clamp rings (see next slide)
- Design accommodates machined seats (PTFE) or molded seats (AFLAS)
- Multiple O-ring materials are included (AFLAS, PTFE)



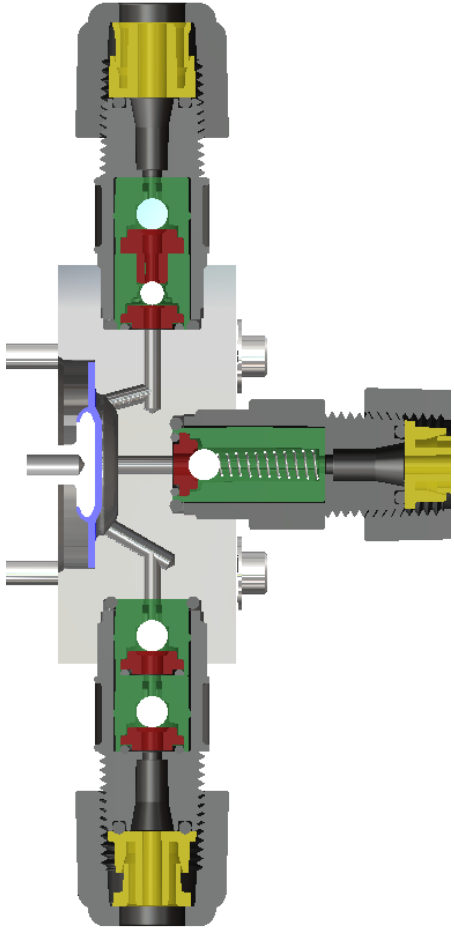
Machined Seat



Molded Seat

Check Valves

Series PD – AutoPrime™ Liquid End



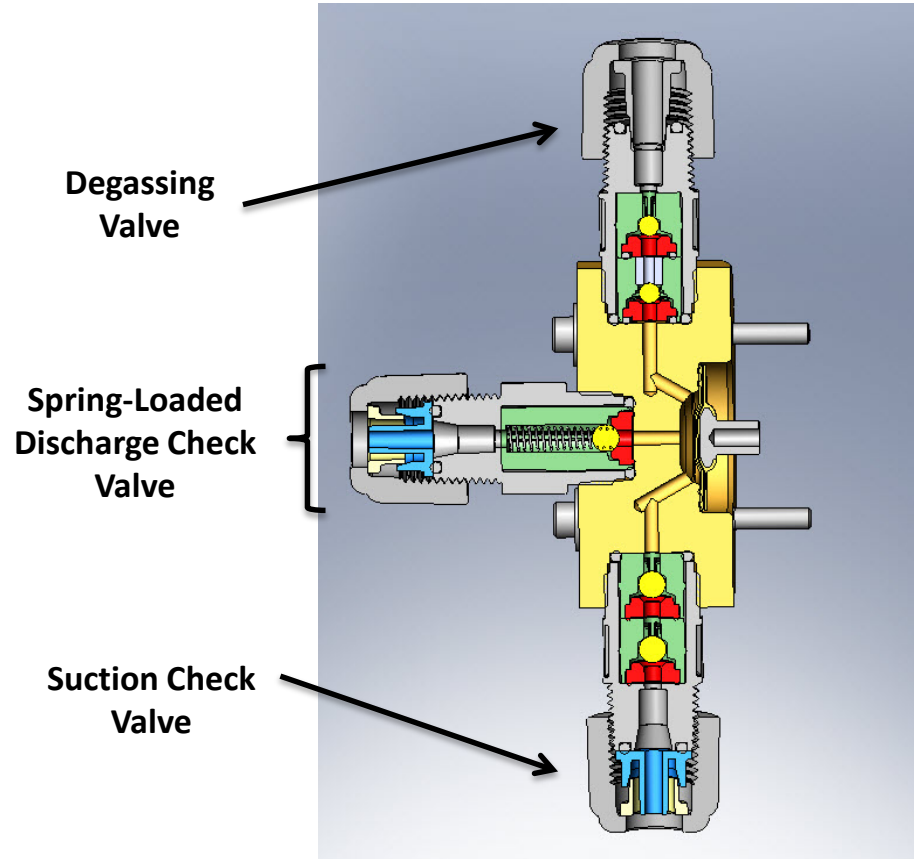
Machined AUTOPRIME™ LE



Machined AUTOPRIME™ LE
with 4FV

AUTOPRIME™ Liquid End

Series PD – AutoPrime™ Liquid End Design



- Improved Compact design
- Addition of second ball in the de-gassing valve to prevent back-flow
- Does not have Anti-Siphon
- 4FV can be added onto Discharge C.V. for additional features
- Machined Head Only (No molded version) Acrylic and PVC Only
- Max. Pressure Rating 250 PSI

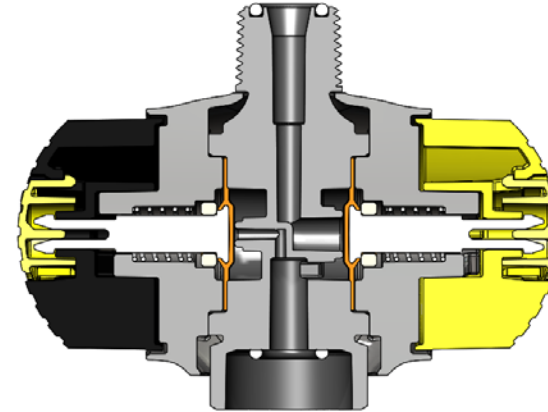
AUTOPRIME™ Head

Series PD – Four Function Valve (4FV)



The Four Functions:

- Anti-Siphon
- Back Pressure
- Pressure Relief
- Pressure Release

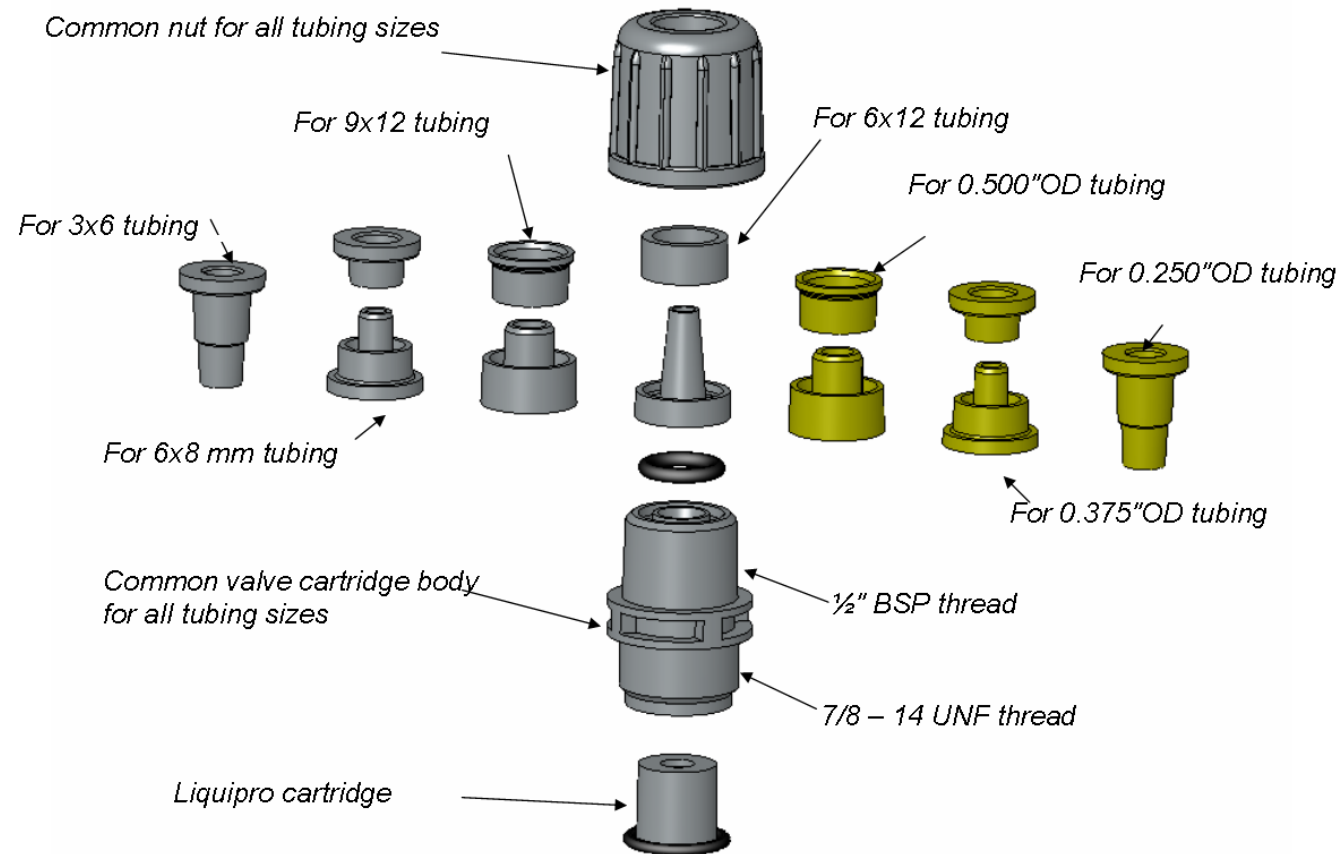


Features:

- Improved diaphragm sealing arrangement
- Mounts onto discharge C.V. fitting allowing customer control of rotational alignment
- Incorporates double ball design

Valve operation

Series PD – Tubing Connection System



Always use LMI supplied tubing

Agency Approvals and Certifications



ETL, CETL Certification on relevant models



CE-EMC Certification on relevant models



NSF Certification include

NSF 50 (Pool and Spa) - Pending

NSF 61 (Drinking Water System Components)

NSF 372 (Meets NSF “Lead-Free” Requirements)

LMI PD Series

The New Standard in Water Treatment



Key Value Driver



Durable Construction



NEMA 4X / IP65; F1 rated UV resistance and UV protected display; Glass-filled polypropylene housing with integrated handle



Reliable Operation



Built on decades of expertise; proven liquid ends; detailed flow curves; extensive development testing with rigorous lab testing and global field test validation; NSF, CE, ETL agency certifications



Easy to Use



Straightforward operation; linear calibration across the full adjustable range; highly visual graphical interface on PD7; simply scan QR code for support documentation and training videos



Easy of Maintain



RPM kits simplify routine preventative maintenance; no special tools required, modular architecture simplifies repair; maintenance reminder on PD7



Trusted Partner



Supported globally by world-class distribution partners that help tackle any application; backed by LMI's full 2 year warranty



Widely Available



Global stocking distributors provide best-in-class lead time around the world; supported by three (3) final assembly locations with flexible configuration afforded by platform design



Deliver Value



All-new design improves performance while remaining an affordable solution to a broad range of application challenges



Questions?

Series PD – NEW Size Code Zero (SC0) Liquifram

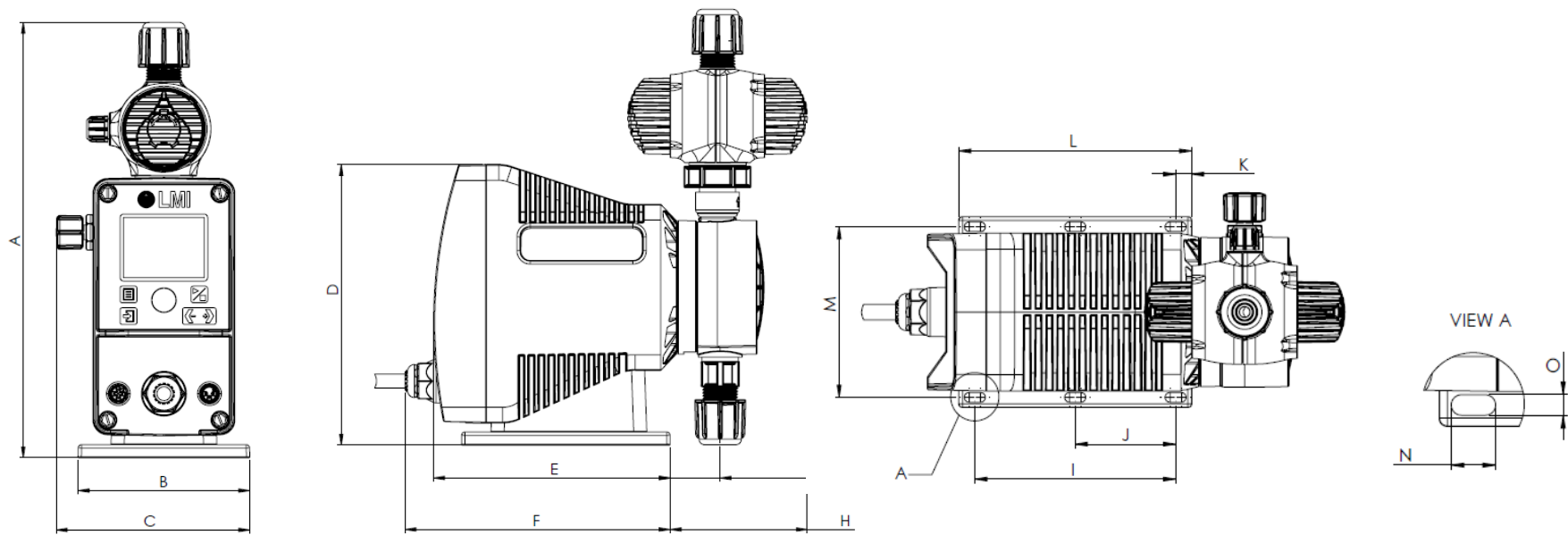
New
Size Code 0



Current
Size Code 1



Dimensional Comparison



Series Dim	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
PD	10.44 [265]	4.09 [104]	4.6 [117]	6.72 [171]	5.67 [144]	3.29 [84]	1.2 [31]	3.29 [84]	4.31 [109]	2.15 [55]	0.35 [9]	5.00 [127]	3.66 [93]	0.45 [11]	0.20 [5]
P	9.98 [254]	4.10 [104]	4.10 [104]	6.30 [160]	5.62 [143]	-	-	3.73 [95]	4.07 [103]	-	0.19 [5]	4.45 [113]	3.66 [93]		
A/P+	10.70 [272]	4.72 [120]	4.93 [125]	6.23 [158]	5.17 [131]	5.50 [140]	1.2 [31]	3.86 [98]	-	-	1.54 [39]	4.58 [116]	4.28 [109]	0.37 [9]	0.21 [5]
AA	13.14 [334]	4.00 [102]	4.00 [102]	7.86 [200]	7.37 [187]	-	-	3.13 [79]	4.24 [108]	2.12 [54]	0.40 [10]	5.03 [128]	3.52 [89]	0.45 [11]	0.20 [5]
AD	11.23 [285]	4.06 [103]	4.60 [117]	7.76 [197]	7.68 [195]	7.98 [202.]	1.22 [31]	3.12 [79]	4.24 [108]	2.12 [54]	0.34 [86]	6.50 [165]	3.52 [90]	0.45 [11]	0.20 [5]
B/C	12.26 [311]	5.70 [145]		7.56 [192]				6.81 [173]	4.50 [114]			4.70 [119]	5.16 [131]		





THANK YOU

Contact Us



info@lmipumps.com



Visit us on the web at lmipumps.com



Follow LMI and Milton Roy on LinkedIn



Check out our YouTube