

# Fluid metering, inc.

## DIRECT DRIVE PUMP

PRECISE VERSATILITY IN FLUID DISPENSING



Patent pending

The FDD Direct Drive is a compact, linearly driven, ceramic piston pump capable of dispensing less than 1 microliter with both precision and accuracy.

Comprised of three moving components with a vastly optimized driving mechanism providing ZERO mechanical backlash, the unique properties of FDD Direct Drive negates the need for software compensation to deliver repeatable, consistent performance and process reliability.

Through the use of FMI's CeramPump® technology, the FDD Direct Drive provides microfluidic control solutions to accelerate product development suited for a wide range of OEM and Life Sciences applications.

### FEATURES

- Anti-backlash mechanisms
- Rotary encoder with over 4000 pulses per revolution
- Linearly driven
- High precision, fine pitch lead screw
- FMI CeramPump® technology
- Only three moving components
- Optical sensor
- Compact Design

### BENEFITS

- Consistent volumes even when switching directions
- Accurate positional feedback with resolution of 0.02°
- Pulseless "smooth" flow with up to 97% stability
- Extreme accuracy and precision down to less than 1 µL
- Chemical inertness and longer lifetime
- Superior trouble-free performance and reliability
- Proper and repeatable indexing
- Simplified design lowers cost of installation



Fluid Metering Direct Drive components are certified to ISO 9001:2015 standard and meet EU RoHS and REACH requirements

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### PUMP SPECIFICATIONS

- DIMENSIONS:**

6.44" x 1.66" x 2.30"  
(163.57 x 42.16 x 58.42 mm)

- SHIPPING WEIGHT:** 1.3 lbs

- WETTED MATERIAL:**

Ceramic (Zirconia)  
PVDF | UHMW-PE | FKM

- DISPENSE VOLUME:**

3  $\mu$ L

Accuracy  $\pm 2\%$   
Precision  $< \pm 1\%$

150  $\mu$ L

Accuracy  $\pm 0.1\%$   
Precision  $< 0.1\%$

- TYPICAL ACCURACY:**

1  $\mu$ L  $\leq \pm 2\%$

- DISPENSE RESOLUTION:**

0.031  $\mu$ L/Full Step

- PUMP PRESSURE RATING:**

100psi (6.86 Bar)

- FLOW RATE:**

Minimum 0.105  $\mu$ L/sec @ 1 rpm  
Maximum 62.8  $\mu$ L/sec @ 600 rpm

### DRIVE MOTOR SPECIFICATIONS

**RATED CURRENT:**

1.5 amp

**MOTOR FRAME:**

NEMA Size 17 (43 mm)

**STEP ANGLE:**

1.8° Full Step

**MOTOR SPEED:**

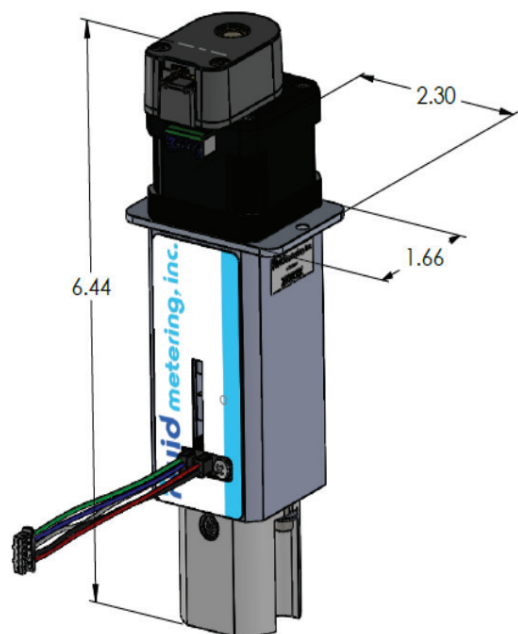
Up to 2000 step/sec

**MOTOR DIRECTION:**

Aspirate: Clockwise  
Dispense: Counter Clockwise

**OPERATING TEMPERATURE:**

-20°C TO +50°C



## CONTACT US TODAY TO DISCUSS YOUR NEXT PROJECT

We offer customized solutions to meet specific application and design requirements.

Whether it is a small tweak to an existing technology or full development project, we partner with you to create an ultra-precise microfluidic solution that delivers on all your objectives.