1 YEAR WARRANTY

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User's Guide

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FPD3000 Series
FPD3200 Series
FPD3300 Series

1/4" - 4" Oval Gear Flowmeter with Pulse Output or Digital Display

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Installation

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General

To the Owner

Please read and retain this instruction manual to assist you in the operation and maintenance of this product.

This manual contains connection and operating instructions for the FPD Flowmeter series with Pulse outputs.

Models with a Liquid Crystal Display have an additional LCD instruction manual supplied. If you need further assistance, contact your local representative or distributor for advice.

This Flow Meter has incorporated the oval rotor principal into its design. This is proven to be a reliable and highly accurate method of measuring flow.
Exceptional repeatability and high accuracy over a wide range of fluid viscosities and flow rates are features of the oval rotor design.

With a low pressure drop and high pressure rating oval rotor flow meters are suitable for both gravity and (in-line) pump applications.

IMPORTANT INFORMATION

FLUID COMPATABILITY

Before use, confirm the fluid to be used is compatible with the meter. Refer to Industry fluid compatibility charts or consult your local representative for advice.

STRAINER

To prevent damage from dirt or foreign matter it is recommended that a Y or Basket type mesh strainer be installed as close as possible to the inlet side of the meter.

When a strainer is installed it should be regularly inspected and cleaned. Failure to keep the strainer clean will dramatically effect flow meter performance.
Contact your local representative for advice.

AIR PURGE / LINE PRESSURE

To prevent damage caused by air purge slowly fill the meter with fluid.

To reduce pressure build-up turn off the
at the end of each day.

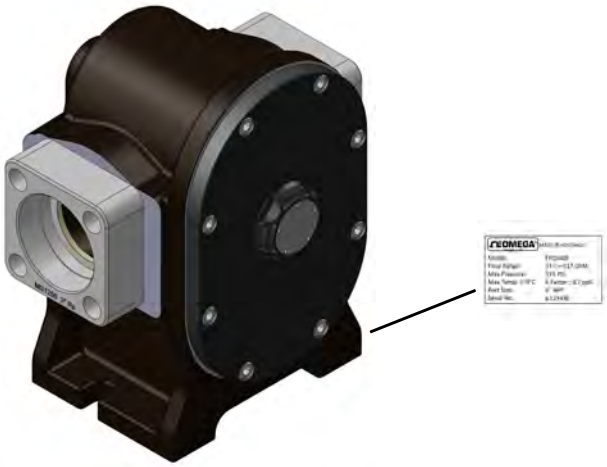
REED SWITCH

The reed switch can cause inaccurate rate counts when used with high speed counters.
It is advised that a low speed counter is used or alternatively a denounce circuit be installed.

FLOWMETER DATA

1/4" - 2" sizes: Flowmeter data is etched in the pulser cavity. To view twist off the pulser/display counter clockwise.

3" and 4" sizes: Flowmeter data is located on the footmount.

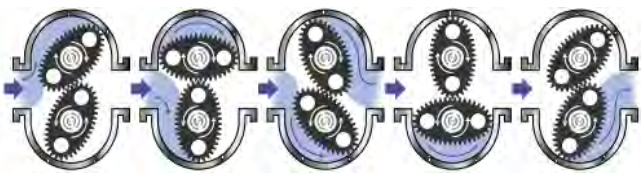


OPERATING PRINCIPLE

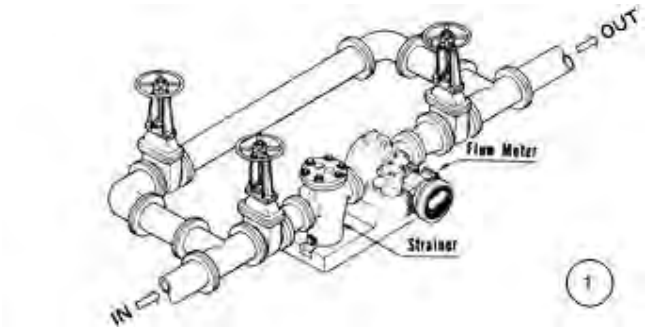
Fluid passing through the meter causes the rotors to turn, as shown below.
One of the rotors (the active rotor) is fitted with magnets.

The passing of the magnets are picked up by the sensing elements (Reed and Hall Effect sensors) located in the Pulser Circuit Board.
The excitation of these switches provides a 'Raw Pulse Output' which relates to the K-Factor.
(*e.g. KF 36 = 36 pulses per litre of fluid passed*)

This Pulse Output Signal can either be fed directly to an external receiving element (e.g. Data Logger or PLC) or alternatively to an LC Display which conditions the Pulse input signal to display volume of flui passed. *(e.g. Display 1 Litre per for every 36 pulses received*)



INSTALLATION PROCEDURE



1. It is recommended that when setting up pipe work for meter installations, a bypass line be included in the design. This provides the facility for a meter to be removed for maintenance without interrupt ing production. (*see figure above*)

2. Use thread sealant on all pipe threads.

3. For pump applications ensure pipe work and Meter have the appropriate working pressure rating to match the pressure output of the pump. Refer to Meter Specifications section for further details.

4. Install a wire mesh strainer, Y or basket type as close as possible to the inlet side of the meter.
   Meter 1/4" 74 micron / 200 mesh
   Meter 1/2"- 2" 250 micron / 60 mesh
   Meter 3"- 4" 400 micron / 40 mesh

5. Note: The Flowmeter can accept flow in any direction.

6. The meter can be installed in any orientation as long as the meter shafts are in a horizontal plane. (*Refer to diagram below for correct installation)*
   .

Note: Incorrect installation can cause premature wear of meter components.
The LC display may removed by loosening the 4 mounting screws and be orientated as required.

7. Do not over tighten meter connections. .

8. It is important that after initial installation you fill the line slowly, high speed air purge could cause damage to the rotors.

9. Test the system for leaks.

10. Check the strainer for swarf or foreign material, after the first 200 litres check periodically, particularly if the flow rate is noted to be decreasing.

MAINTENANCE PROCEDURE

DISASSEMBLY

Note: Maintenance can be carried out to the liquid crystal displays and pulse output modules without having to remove or isolate the meter from the process line.
When maintenance to any other part of the meter is required, the meter must be isolated and the line pressure released.
Refer to the *exploded parts* diagram on (see Fig for item numbers.

Note: *It is advisable to mark all components with a marker pen before disassembly, to ensure all the components are replaced to their correct position during the reassembly process.*

1. Remove the meter cap by loosening the bolts on the underside of the meter body. (*see FIG 1)*

2. Remove the O-Ring from the O-Ring groove in the meter cap.
   Wipe clean of grease and store in clean place

3. Remove rotors from the meter body

4. Remove the shafts from the meter body.

REASSEMBLY

1. Before reassembling check the condition of the rotors (replace if necessary).

2. Replace the shafts into the meter body.

3. There are two Rotor Types.
   Active and ***Neutral.***
   The Active Rotor can be identified by a **Dimple** on the face of the rotor. (see Fig 2)

   Caution: The active rotor is always fitted nearest 'dimple' on the meter body
   (see FIG 3)

   Replace Active Rotor.
   Check the dimpled face (smooth side) of the rotor is the lead-in face when fitting onto the shaft and into the meter body. (see Fig 2).

   Replace Neutral Rotor. Check that the smooth side of the rotor is the leading face when fitting onto the shaft. (*see FIG 2)*
   Fit the neutral rotor onto the shafts ensuring that the rotor pair are at 90 degrees to one another.
   (see *FIG 3)*

   Check their operation by turning either of the rotors. If the rotors are not in mesh correctly, or do not move freely, remove one of the rotors and replace correctly at 90 degrees to one another

4. Smear the O-Ring with a light film of grease.
   Replace the O-Ring into groove in the meter cap.
   The O-Ring will need to be replaced if it has grown or is damaged in anyway.

5. Replace the meter cap.

6. Insert the cap head screws and tighten in a diagonal sequence 1, 5, 7, 3, etc.
   (see **Meter Torque Ratings,** page 15)

7. Test the meter by turning the rotors with a finger or by applying very low air pressure (no more than a good breath) to one end of the meter, before returning the meter to service.

FIG 1

FIG 2

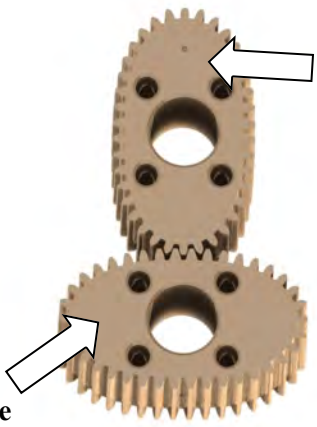
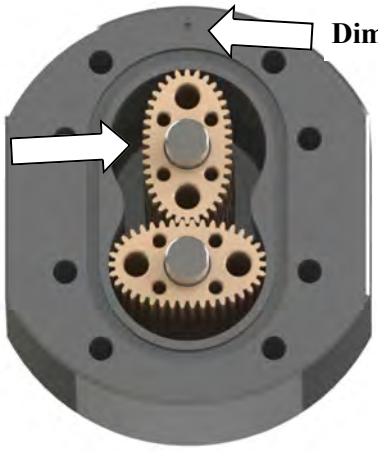


FIG 3



FLOWMETER SPECIFICATIONS

series FPD3002, FPD3202, FPD3302 1/4"		Metric	US
Flow Range	Below 5 cP	2 to 100 LPH	0.5 to 26 GPH
	5 to 1000 cP	0.5 to 100 LPH	0.13 to 26.4 GPH
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3002 / FPD3202**	-40°C - 80°C	-40°F - 176°F
	FPD3302/FPD3202-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		6895 kPa	1000 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

series FPD3003, FPD3203, FPD3303 1/4"		Metric	US
Flow Range	Below 5 cP	25 to 500 LPH	6.6 to 132 GPH
	5 to 1000 cP	15 to 500 LPH	4 to 132 GPH
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3003 / FPD3203**	-40°C - 80°C	-40°F - 176°F
	FPD3303 / FPD3203-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		6895 kPa	1000 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

series FPD3004, FPD3204, FPD3304 1/2"		Metric	US
Flow Range	Below 5 cP	3 to 25 LPM	0.8 to 6.6 GPM
	5 to 1000 cP	2 to 30 LPM	0.5 to 8 GPM
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3004 / FPD3204**	-40°C - 80°C	-40°F - 176°F
	FPD3304 / FPD3204-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		13790 kPa	2000 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

FLOWMETER SPECIFICATIONS

series FPD3034, FPD3234, FPD3334 3/4"		Metric	US
Flow Range	Below 5 cP	8 to 70 LPM	2 to 18.5 GPM
	5 to 1000 cP	3 to 80 LPM	0.8 to 21 GPM
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3034 / FPD3234**	-40°C - 80°C	-40°F - 176°F
	FPD3334 / FPD3234-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		13790 kPa	2000 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

series FPD3005, FPD3205, FPD3305 1"		Metric	US
Flow Range	Below 5 cP	10 to 100 LPM	2.6 to 26 GPM
	5 to 1000 cP	6 to 120 LPM	1.6 to 32 GPM
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3005 / FPD3205**	-40°C - 80°C	-40°F - 176°F
	FPD3305 / FPD3205-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		13790 kPa	2000 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

series FPD3006, FPD3206, FPD3306 1½"		Metric	US
Flow Range	Below 5 cP	15 to 235 LPM	4 to 62 GPM
	5 to 1000 cP	10 to 250 LPM	2.6 to 66 GPM
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3006 / FPD3206**	-40°C - 80°C	-40°F - 176°F
	FPD3306 / FPD3206-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		8274 kPa	1200 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

FLOWMETER SPECIFICATIONS

series FPD3007, FPD3207, FPD3307 2"		Metric	US
Flow Range	Below 5 cP	15 to 500 LPM	4 to 130 GPM
	5 to 1000 cP	15 to 500 LPM	4 to 130 GPM
K-Factor	Pulses per unit of measure	Etched in Pulser cavity (see pg 5)	
Max Temperature	**FPD3007 / FPD3207**	-40°C - 80°C	-40°F - 176°F
	FPD3307 / FPD3207-HT	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]	**FPD3007 / FPD3307**	6895 kPa	1000 psi
	FPD3207 / FPD3207-HT	8274 kPa	1200 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

series FPD3008, FPD3208, FPD3308 3"		Metric	US
Flow Range	Below 5 cP	60 to 600 LPM	17 to 170 GPM
	5 to 1000 cP	20 to 733 LPM	5 to 194 GPM
K-Factor	Pulses per unit of measure	Refer to Flowmeter Data Plate (see pg 5)	
Max Temperature	**FPD3008 / FPD3208 / FPD3308**	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		1200 kPa	175 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

series FPD3009, FPD3309 4"		Metric	US
Flow Range	Below 5 cP	220 to 1000 LPM	60 to 250 GPM
	5 to 1000 cP	120 to 1200 LPM	30 to 300 GPM
K-Factor	Pulses per unit of measure	Refer to Flowmeter Data Plate (see pg 5)	
Max Temperature	**FPD3009 / FPD3309**	-40°C - 120°C	-40°F - 248°F
Maximum Operating Pressure[1]		1200 kPa	175 psi
Accuracy of Reading		±0.25% available with reduced flow range ±0.5% standard	
1. Conforms to Directive 97/23/EC—Cat 1			

FLOWMETER SPECIFICATIONS

High Viscosity Applications

Ensure the Flowmeter is fitted with 'High Viscosity Rotors' if the fluid being metered is 1000 cP or above

High Viscosity Rotors	For Fluids above 1000 Centipoise (cP)

DIGITAL DISPLAYS

The Flow meter series is supplied with either a Blind Pulser and Digital Display option.

If the Flow meter is supplied with an LC Display fitted, please consult the appropriate Instruction Manual, as advised below, for all programming and wiring instructions.

Analog Output (4-20mA)

Analog outputs are available as an auxiliary display signal by including either of the following LC displays with your flowmeter. These may be fitted to the meter or remote (wall mount) types.

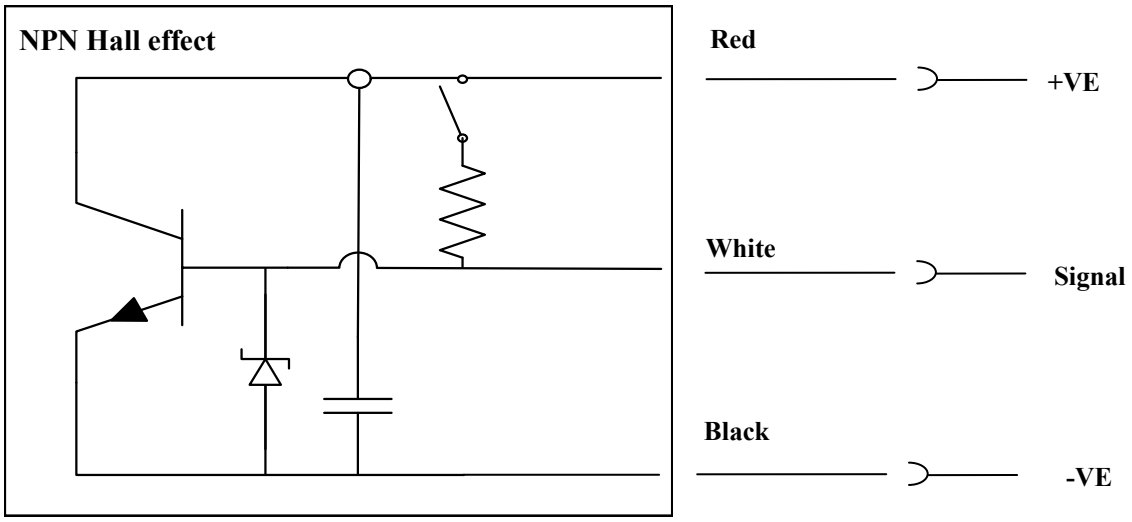
Display Type **-D** 12mm LC Display (No output options)

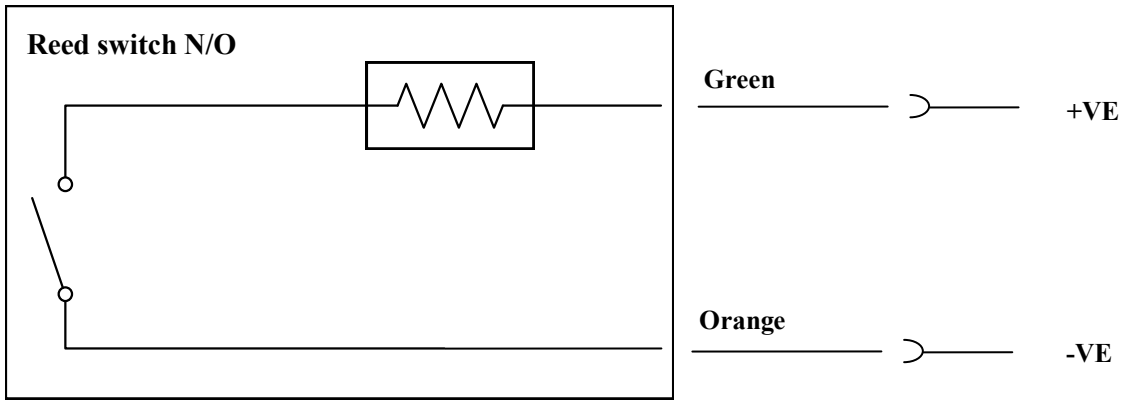
Display Type **-D-A** 12mm LC Display with analog output module

Pulser Specifications

Output Signals	Standard Pulse Meter		2x Digital (Square Wave)
Reed Switch (Mechanical Sensor)	Current	Maximum	500mA
	Voltage	Maximum	30V DC
	Contact Rating	Maximum[1]	10W
Hall Effect IC (Electronic Sensor)	Maximum Current		7.5mA
	Operating Voltage		4.5V to 24V DC
	Transistor Type		Open-Collector NPN

1. Contact rating maximum is 10W. Neither current nor voltage maximums should be exceeded in achieving this.





WIRING DIAGRAM 2 PCB (for Digital Display)

Reed Switch

To maximise the life of the reed switch contacts, the pulse board comes equipped with a 1k8Ω current limiting resistor in series with the reed switch as standard.
These resistors are user swappable should you require a different value for your system.

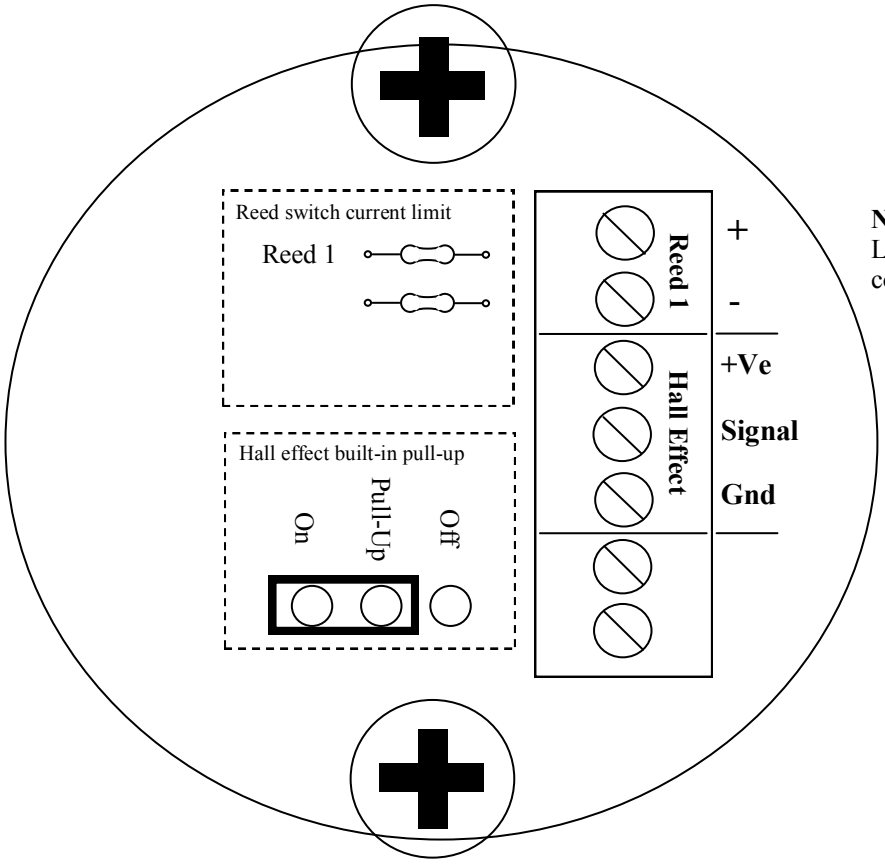
NPN Open Collector Hall Effect Sensor

The output for the hall effect sensor is NPN (current sinking, open collector). For correct operation, it is advisable to have a pull -up resistor installed.
The hall effect sensor is equipped with a 1k8Ω pull-up resistor between signal and supply as standard.
This in-built pull-up resistor can be bypassed by moving the jumper pin to the off position if required.
A pull-up resistor of your choosing can be installed between signal and supply, provided the in-built pull-up resistor be by-passed first.

Pulser Specifications

Output Signals	Standard Pulse Meter		2x Digital (Square Wave)
Reed Switch (Mechanical Sensor)	Current	Maximum	500mA
	Voltage	Maximum	30V DC
	Contact Rating	Maximum[1]	10W
Hall Effect IC (Electronic Sensor)	Maximum Current		7.5mA
	Operating Voltage		4.5V to 24V DC
	Transistor Type		Open-Collector NPN

1. Contact rating maximum is 10W. Neither current nor voltage maximums should be exceeded in achieving this.

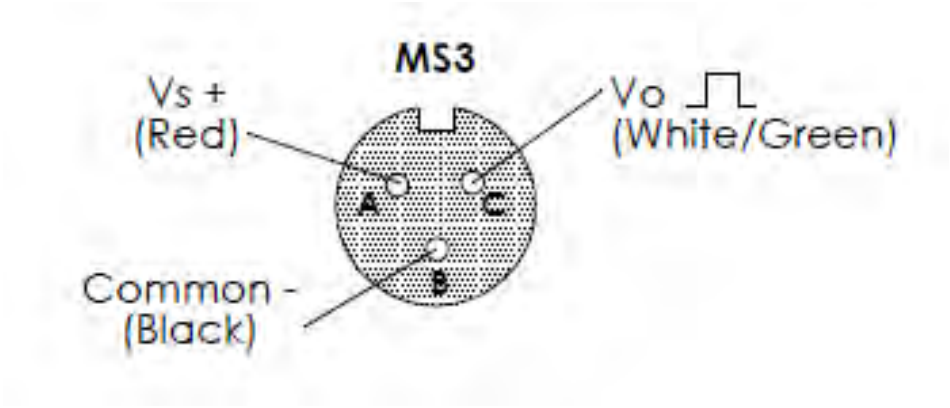


Note:
Local Display is connected to Reed 1

WIRING DIAGRAM 3 — High Temperature type -HT

Pulser Specifications

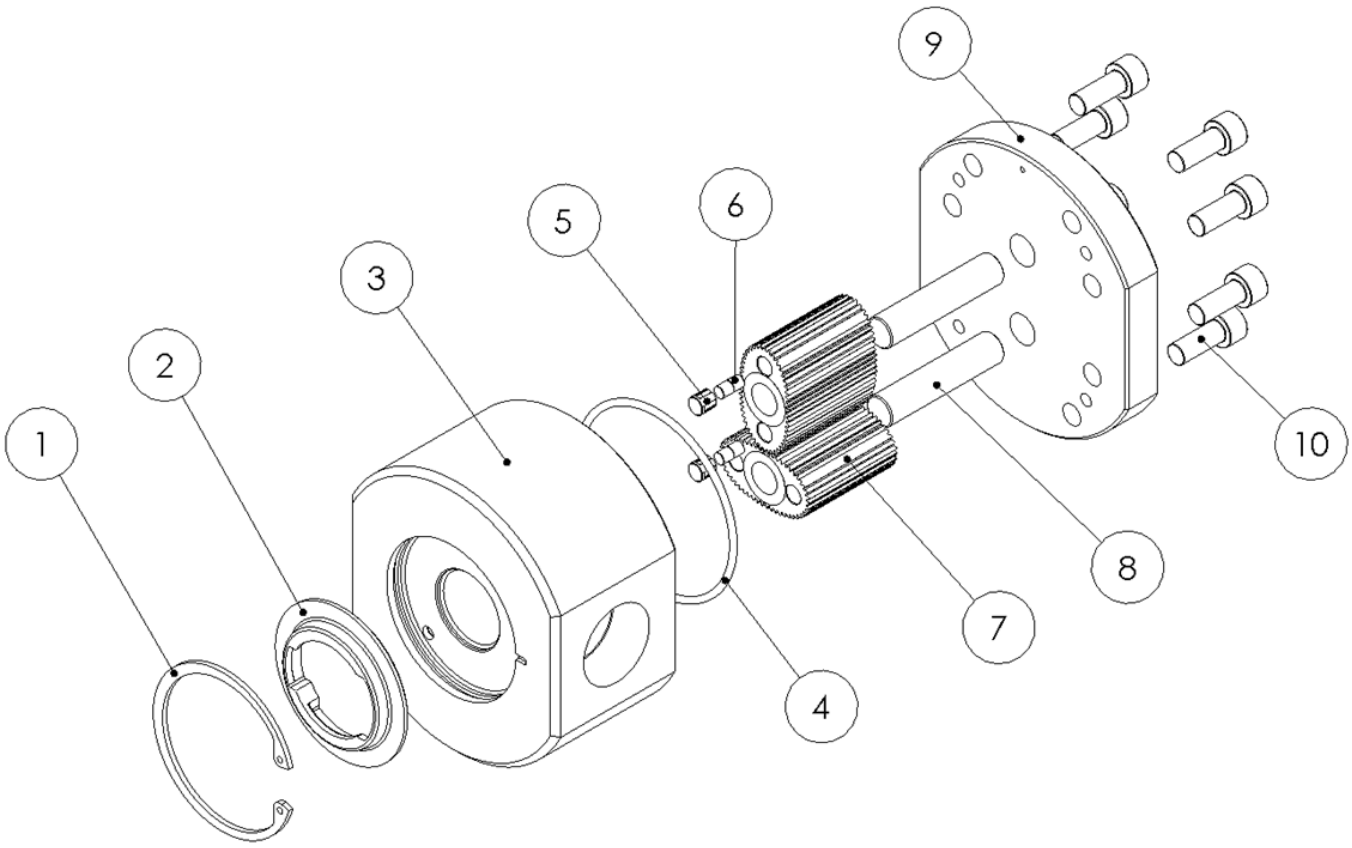
SENSOR TYPE	OMNI POLAR	NPN
SPECIFICATIONS	Construction	Stainless Steel Housing
	Operating Voltage	4.5 to 30V DC
	Maximum Current	18mA
	Temperature Range	-40 - 150oC
		-40 - 302oF



TROUBLESHOOTING GUIDE

Problem	*Cause*	*Remedy*
Fluid will not flow through meter	a) Foreign matter blocking rotors b) Line strainer blocked c) Damaged rotors d) Meter connections over tightened e) Fluid is too viscous	a) Dismantle meter, clean rotors (strainer must be fitted in line) b) Clean strainer c) Replace rotors (Strainer must be fitted in line) d) Re-adjust connections e) See specifications for maximum viscosity
Reduced flow through meter	a) Strainer is partially blocked b) Fluid is too viscous	a) Clean strainer b) See specifications for maximum viscosity
Meter reading inaccurate	a) Fluid flow rate is too high or too low b) Air in fluid c) Excess wear caused by incorrect instal-lation	a) See specifications for minimum and maximum flow rates b) Bleed air from system c) Check meter body and rotors. Replace as required. Refer to installation instructions
Meter not giving a pulse signal	a) Faulty hall effect sensor b) Faulty reed switch c) Magnets failed	a) Replace PCB Board b) Replace PCB Board c) Replace magnets
LCD register not working	a) Battery not connected properly b) Battery flat c) Faulty wiring connections d) Faulty LC Display e) Faulty connection from LC Display	a) Check battery connections b) Replace battery c) Check wiring for loose or faulty connections d) Replace LC Display e) Check wiring connections

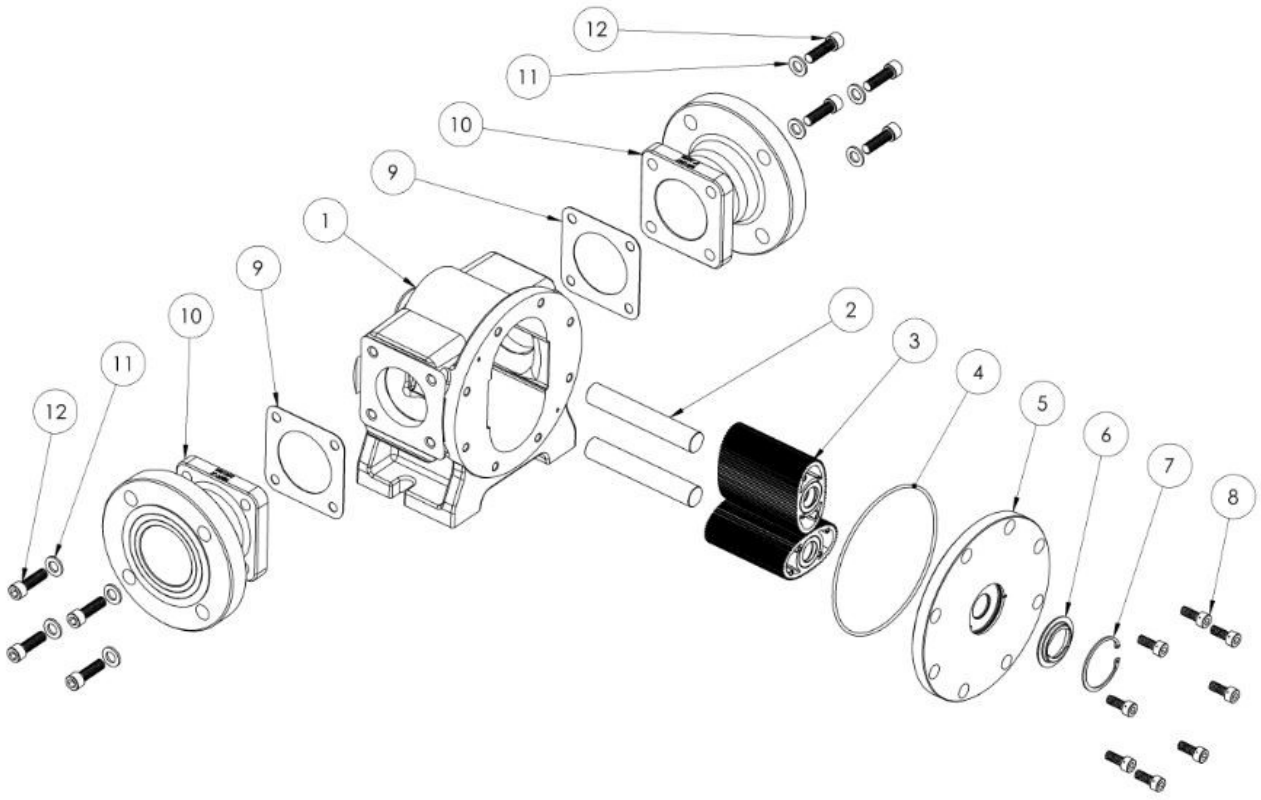
EXPLODED DIAGRAM models FPD3x02, 3x03, 3x04, 3x34, 3x05, 3x06, 3x07



PARTS IDENTIFICATION

METER COMPONENTS	ITEM NO.
CIRCLIP	1
CAM	2
METER BODY	3
METER CAP O-RING	4
MAGNET HOUSING	5
MAGNETS	6
ROTORS	7
ROTOR SHAFTS	8
METER CAP	9
METER CAP SCREWS	10

EXPLODED DIAGRAM models FPD3x08 and FPD3x09



PARTS IDENTIFICATION

PART DESCRIPTION	Item No.
Meter Body	**1**
Rotor Shafts	**2**
Rotors	**3**
Meter Cap O-Ring	**4**
Meter Cap	**5**
Cam	**6**
Circlip	**7**
Meter Cap Bolts	**8**
Flange Seals	**9**
Process Connection (Flanged or Threaded)	**10**
Flange Washers	**11**
Flange Bolts	**12**

Meter Torque Ratings FPD3000, FPD3200, FPD3300			
Series	**Pressure (psi)**	**Torque (Nm)**	**Lubrication**
FPD3x02	1000	6.5 Nm	Yes
FPD3x03	1000		
FPD3x04	2000		
FPD3x34	2000	15 Nm	Yes
FPD3x05	2000		
FPD3x06	1200	33 Nm	Yes
FPD3007,3307/3207	1000/1200		
FPD3x08	175		
FPD3009,3309	175		

SPARE PARTS KITS

Spare Kit options, for both Flowmeter and Display/Pulser modules, are available as replacement components.

- **Pulser Kit / LC Display Module**
  - Replacement PCB complete with electronic housing.
  - LC Display module (Electronic housing not included)
- **Rotor Kit**
  - Rotor assembly (includes Meter Cap bolts and O-Ring)
- **Seal Kit**
  - O-Rings/Gaskets (includes Meter Cap Bolts)

SPARE KITS – DISPLAY AND PULSER MODULE	
Description	**Complete Pulser or Display**
Compact Pulser	FPD3000-PULSER
Digital Register	FPD3000-D
Digital Register with 4-20mA output	FPD3000-D-A
High Temperature	FPD3000-PULSER-HT

SPARE PARTS KITS

spare kits Series FPD3x02		FPD3002	FPD3302	FPD3202
ROTOR KIT	***Standard***	FPD3002-rotor	FPD3302-rotor	FPD3202-rotor
	High Temp			FPD3202-HTrotor
SEAL KIT		FPD3002-seal	FPD3302-seal	FPD3202-seal

spare kits Series FPD3x03		FPD3003	FPD3303	FPD3203
ROTOR KIT	***Standard***	FPD3003-rotor	FPD3303-rotor	FPD3203-rotor
	High Viscosity		FPD3303-HVrotor	FPD3203-HVrotor
	High Temp			FPD3203-HTrotor
SEAL KIT		FPD3003-seal	FPD3303-seal	FPD3203-seal

spare kits Series FPD3x04		FPD3004	FPD3304	FPD3204
ROTOR KIT	***Standard***	FPD3004-rotor	FPD3304-rotor	FPD3204-rotor
	High Viscosity		FPD3304-HVrotor	FPD3204-HVrotor
	High Temp			FPD3204-HTrotor
SEAL KIT		FPD3004-seal	FPD3304-seal	FPD3204-seal

spare kits Series FPD3x34		FPD3034	FPD3334	FPD3234
ROTOR KIT	***Standard***	FPD3034-rotor	FPD3334-rotor	FPD3234-rotor
	High Viscosity		FPD3334-HVrotor	FPD3234-HVrotor
	High Temp			FPD3234-HTrotor
SEAL KIT		FPD3034-seal	FPD3334-seal	FPD3234-seal

spare kits Series FPD3x05		FPD3005	FPD3305	FPD3205
ROTOR KIT	***Standard***	FPD3005-rotor	FPD3305-rotor	FPD3205-rotor
	High Viscosity		FPD3305-HVrotor	FPD3205-HVrotor
	High Temp			FPD3205-HTrotor
SEAL KIT		FPD3005-seal	FPD3305-seal	FPD3205-seal

SPARE PARTS KITS

spare kits Series FPD3x06		FPD3006	FPD3306	FPD3206
ROTOR KIT	***Standard***	FPD3006-rotor	FPD3306-rotor	FPD3206-rotor
	High Viscosity		FPD3306-HVrotor	FPD3206-HVrotor
	High Temp			FPD3206-HTrotor
SEAL KIT		FPD3006-seal	FPD3306-seal	FPD3206-seal

spare kits Series FPD3x07		FPD3007	FPD3307	FPD3207
ROTOR KIT	***Standard***	FPD3007-rotor	FPD3307-rotor	FPD3207-rotor
	High Viscosity		FPD3307-HVrotor	FPD3207-HVrotor
	High Temp			FPD3207-HTrotor
SEAL KIT		FPD3007-seal	FPD3307-seal	FPD3207-seal

spare kits Series FPD3x08		FPD3008	FPD3308	FPD3208
ROTOR KIT	***Standard***	FPD3008-rotor	FPD3308-rotor	FPD3208-rotor
	High Viscosity		FPD3308-HVrotor	
SEAL KIT		FPD3008-seal	FPD3308-seal	FPD3208-seal

spare kits Series FPD3x09		FPD3009	FPD3309
ROTOR KIT	***Standard***	FPD3009-rotor	FPD3309-rotor
	High Viscosity		FPD3309-HVrotor
SEAL KIT		FPD3009-seal	FPD3309-seal

WETTED PARTS

Wetted parts series FPD3x02	FPD3002	FPD3302	FPD3202
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS Standard	PPS	St.St	PPS
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

Wetted parts series FPD3x03	FPD3003	FPD3303	FPD3203
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS Standard	PPS	St.St	PPS
High Viscosity		St.St.	St.St
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

Wetted parts series FPD3x04	FPD3004	FPD3304	FPD3204
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS - Standard	PPS	St.St	PPS
High Viscosity		St.St.	St.St
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

WETTED PARTS

Wetted parts series FPD3x34	FPD3034	FPD3334	FPD3234
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS - Standard	PPS	St.St	PPS
High Viscosity		St.St.	St.St
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

Wetted parts series FPD3x05	FPD3005	FPD3305	FPD3205
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS - Standard	PPS	St.St	PPS
High Viscosity		St.St.	St.St
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

Wetted parts series FPD3x06	FPD3006	FPD3306	FPD3206
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS - Standard	PPS	Alum	PPS
High Viscosity		Alum	St.St
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

WETTED PARTS

Wetted parts series FPD3x07	FPD3007	FPD3307	FPD3207
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS - Standard	PPS	Alum	PPS
High Viscosity		Alum	St.St
High Temp			St. St
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES		CA	CA
O-RINGS	FKM	K	K

Wetted parts series FPD3x08	FPD3008	FPD3308	FPD3208
METER BODY	Alum	Alum	St.St
METER CAP	Alum	Alum	St.St
ROTORS - Standard	Alum	Alum	St.St
High Viscosity		Alum	
ROTOR SHAFTS	St.St	St.St	St.St
ROTOR BUSHES	CA	CA	CA
O-RINGS	FKM	K	K

Wetted parts series FPD3x09	FPD3009	FPD3309
METER BODY	Alum	Alum
METER CAP	Alum	Alum
ROTORS - Standard	Alum	Alum
High Viscosity		Alum
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	FKM	K

WETTED PARTS

K - *FEP/PTFE Encapsulated*

SS - *Stainless Steel 316*

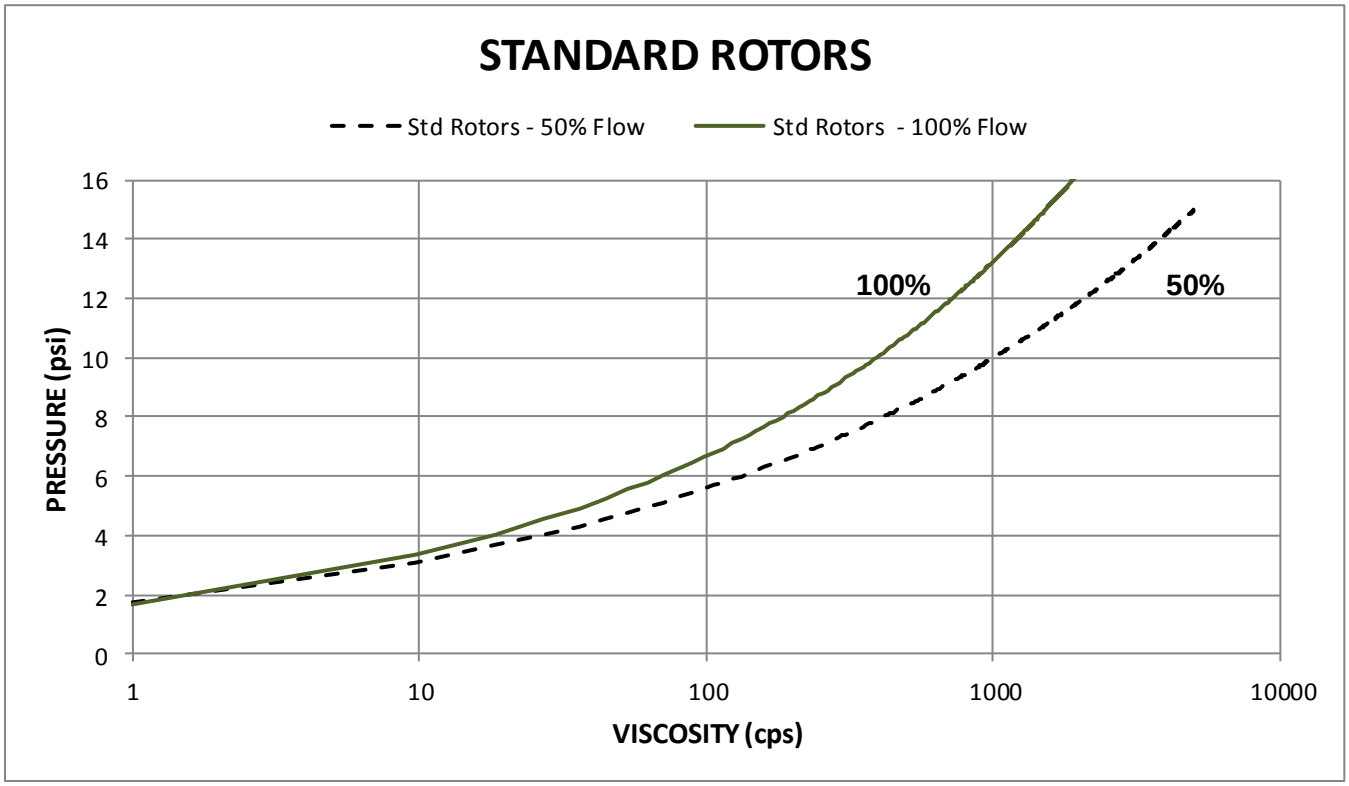
Al - *Aluminium AA610*

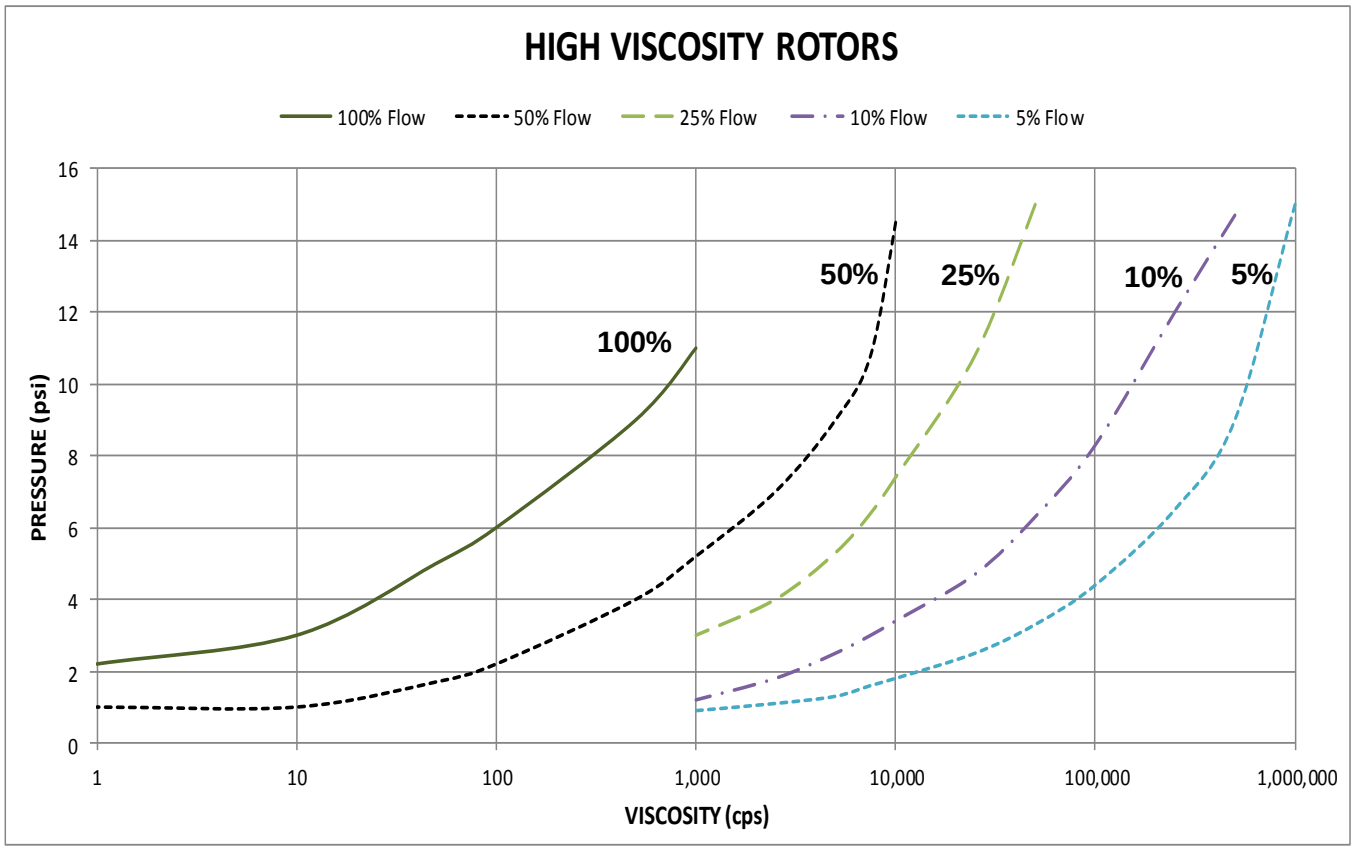
CA - *Carbon*

FKM - *Fluoroelastomer*

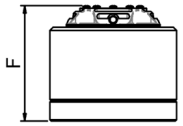
PPS - *Polyphenylene Sulphide (PPS Resin)*

PRESSURE DROP v VISCOSITY

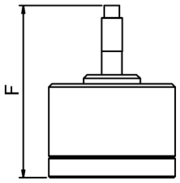




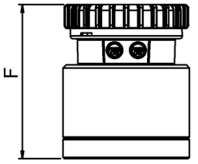
Standard



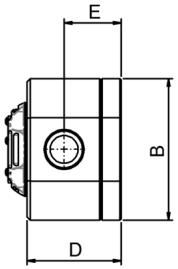
Type -HT

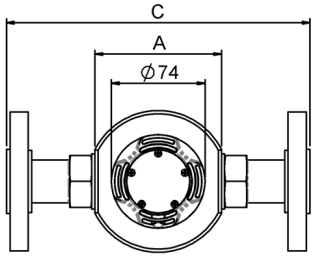


Type -D or -D-A

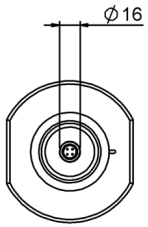


Pulser - Standard

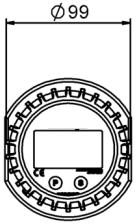




High Temp

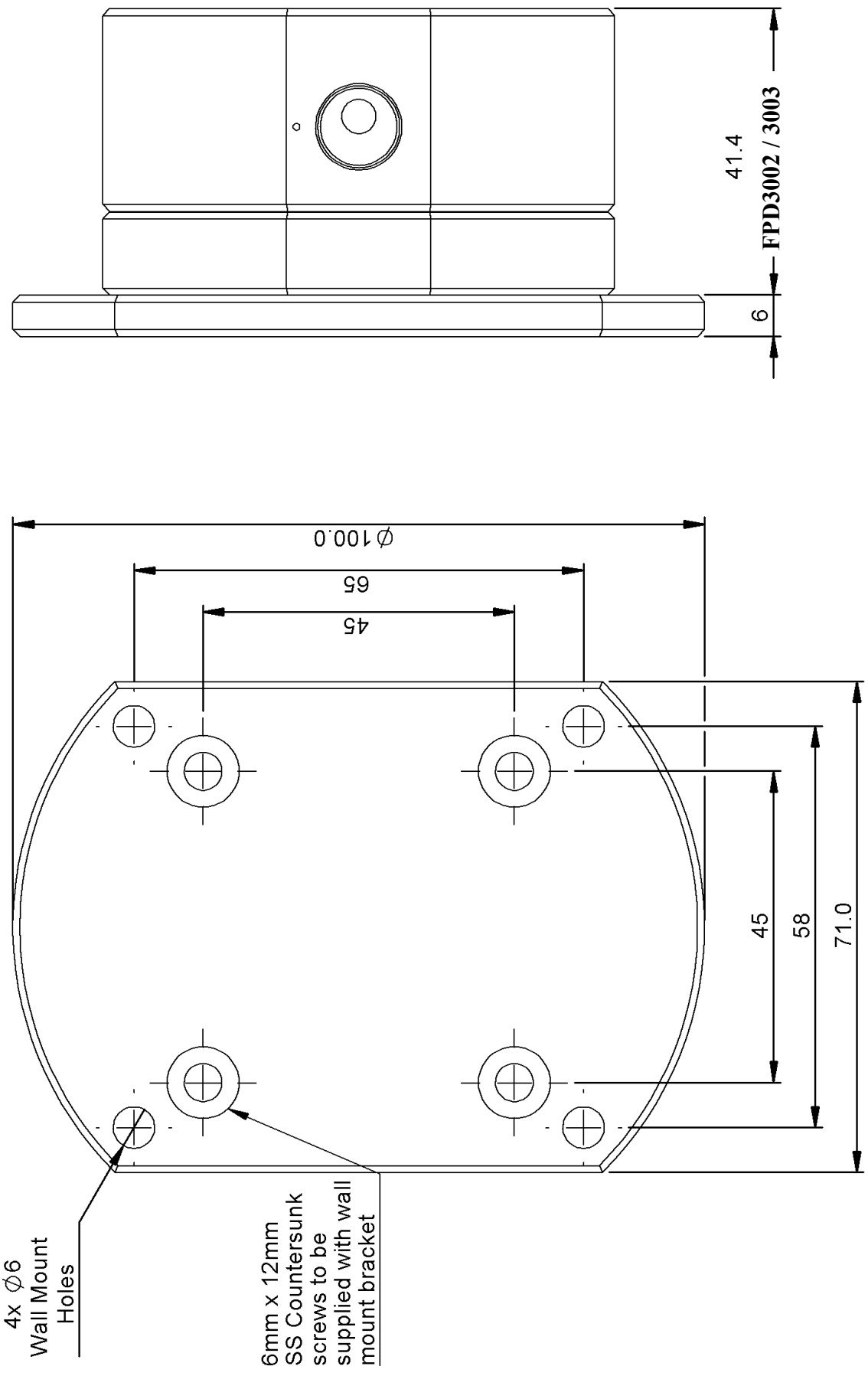


Digital Display

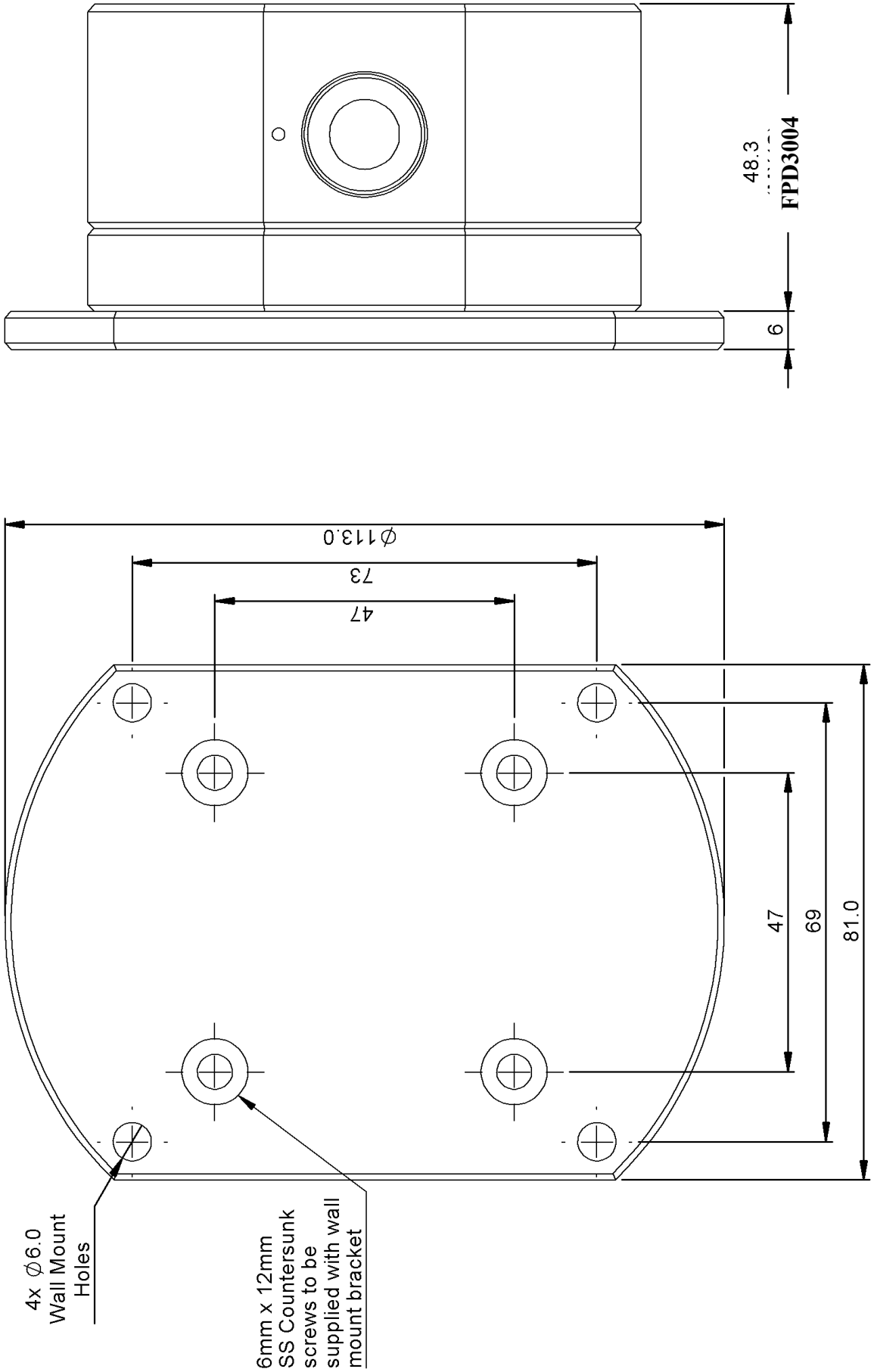


MODEL	METER AND FLANGE DIMENSIONS						PULSER and DISPLAY HEIGHT - (F)		
	PORT SIZE	A	B	C	D	E	Standard	High Temp Type HT	Digital Display Types –D or –D-A
FPD3002	¼”	71mm	74mm	n/a	42mm	25mm	59mm	104mm	90mm
FPD3003	¼”	71mm	74mm	n/a	42mm	24mm	59mm	104mm	90mm
FPD3004	½”	81mm	87mm	n/a	49mm	28mm	66mm	111mm	97mm
FPD3034	¾”	100mm	112mm	n/a	62mm	37mm	79mm	124mm	110mm
FPD3005	1”	100mm	112mm	240mm	75mm	45mm	92mm	137mm	123mm
FPD3006	1 1/2”	120mm	137mm	240mm	103mm	61mm	120mm	165mm	151mm
FPD3007	2”	140mm	163mm	264mm	124mm	72mm	141mm	186mm	172mm

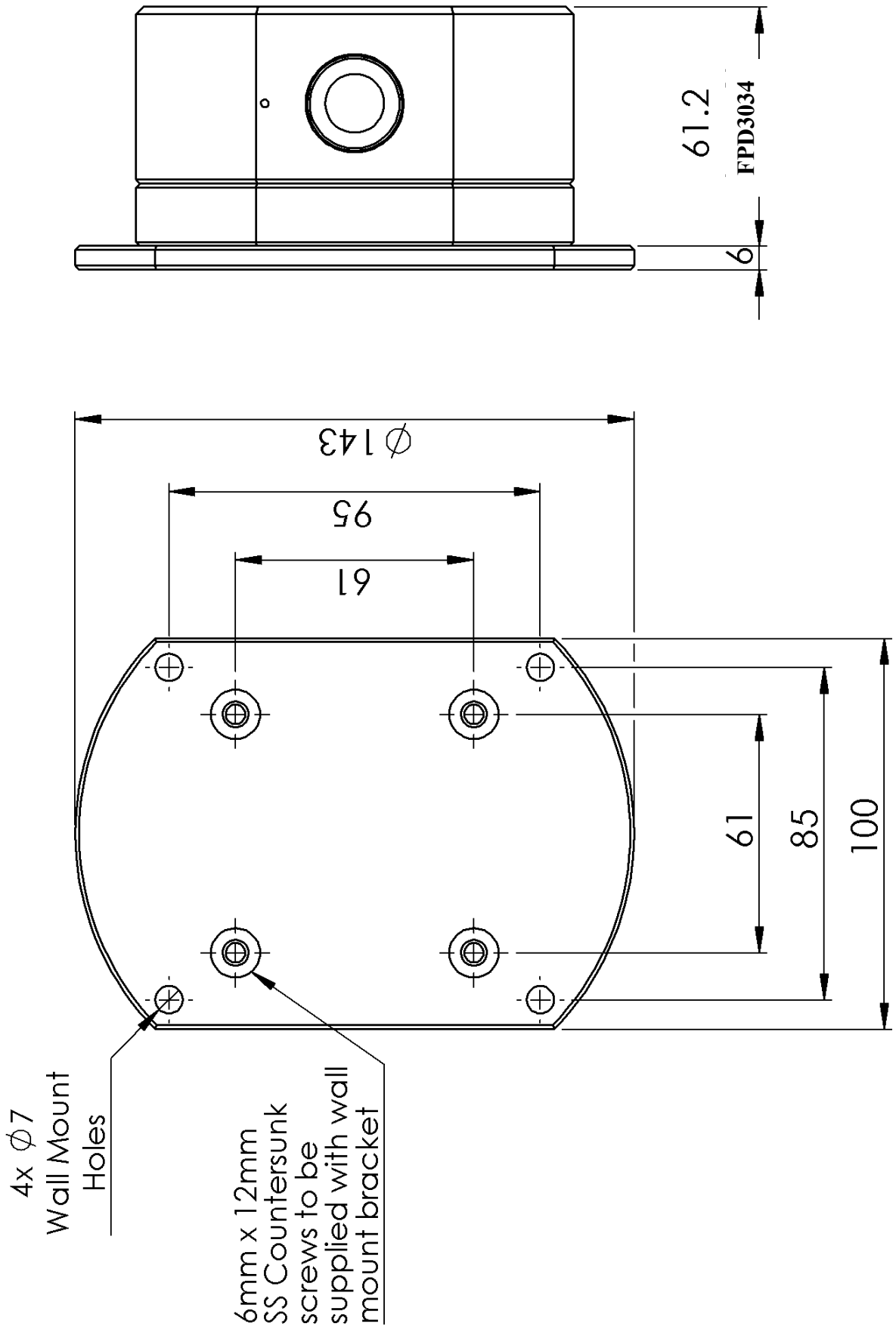
Aluminium Wall Mount bracket to suit model FDP3002 - 3003



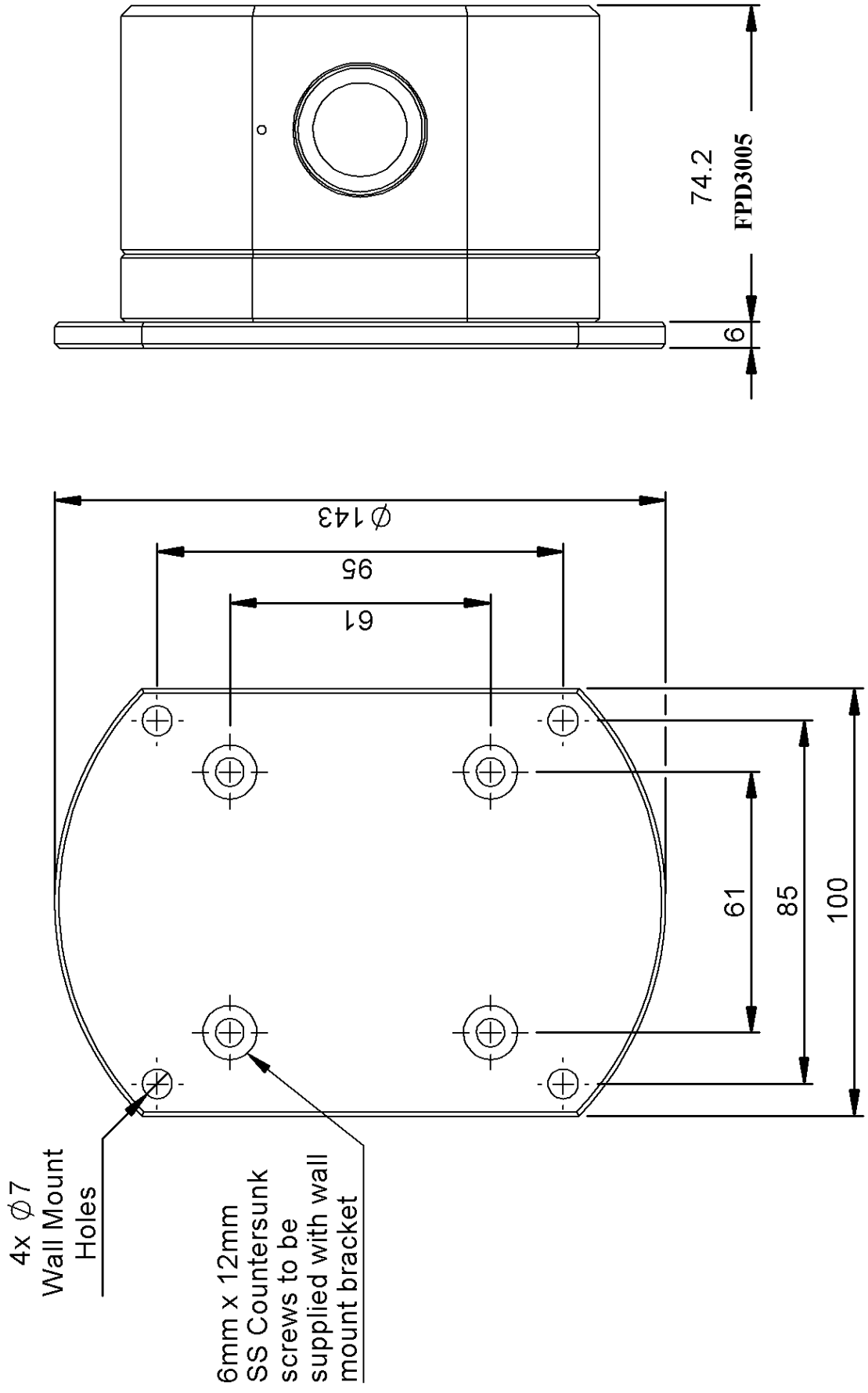
Aluminium Wall Mount bracket to suit model FDP3004

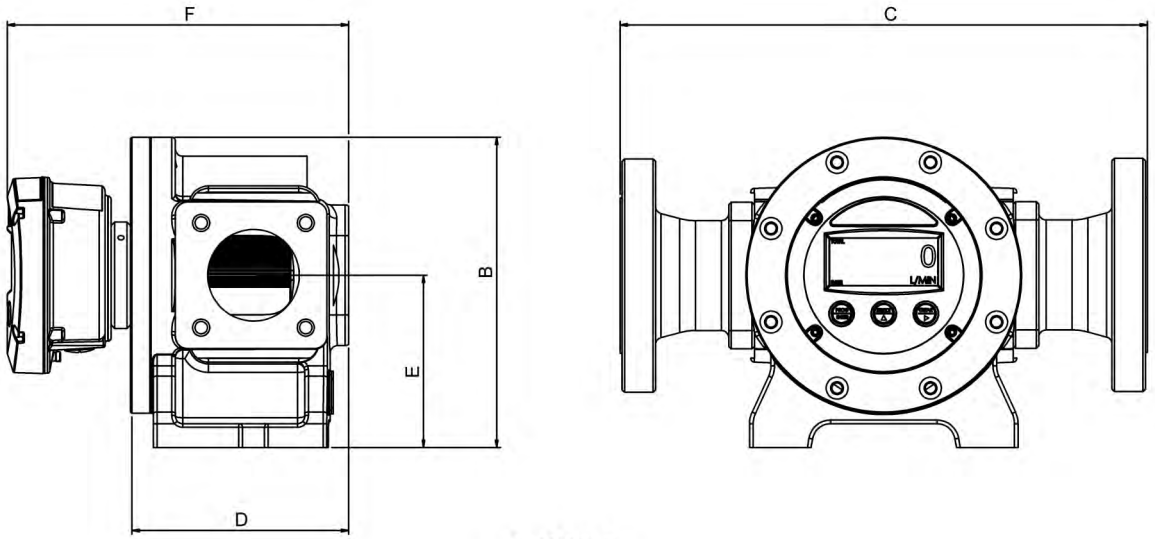


Aluminium Wall Mount bracket to suit model FDP3034



Aluminium Wall Mount bracket to suit model FDP3005

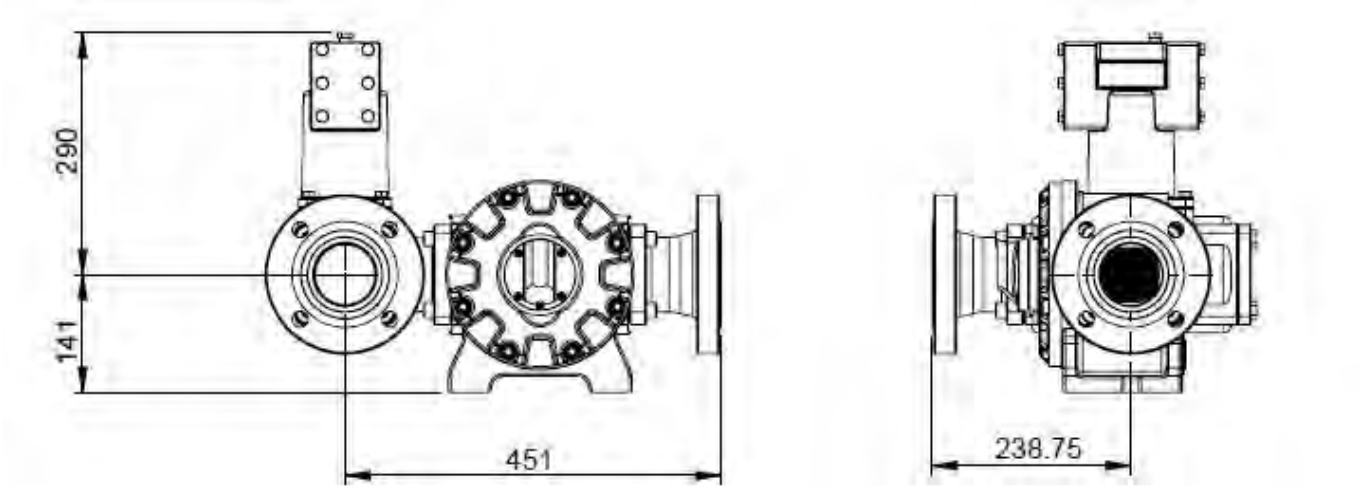




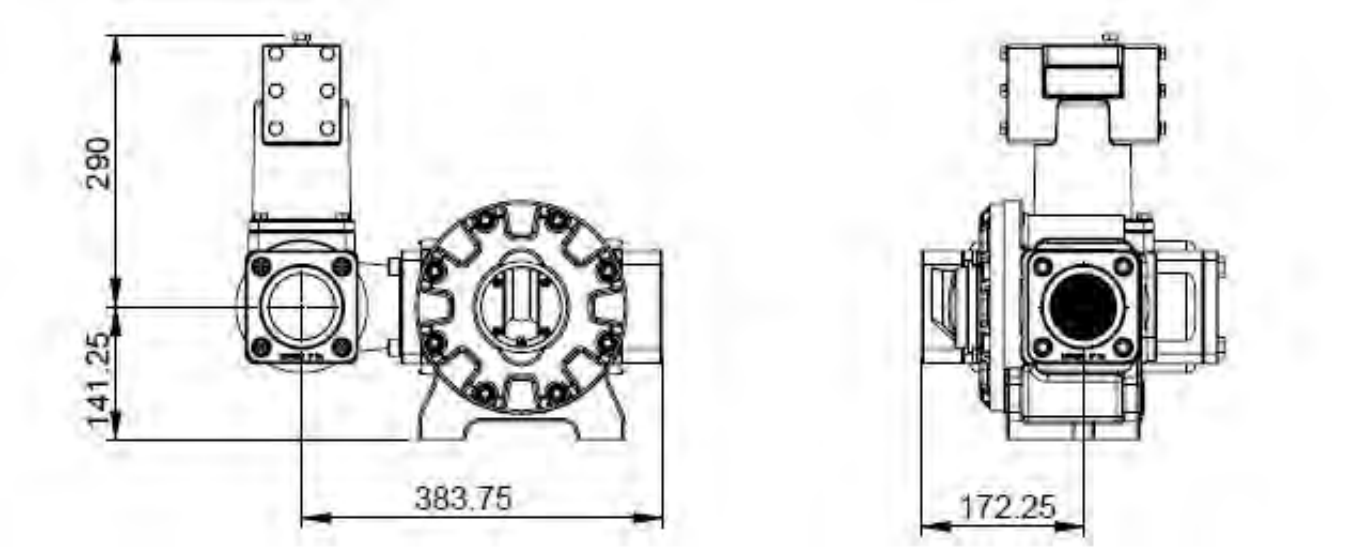
FPD3008 Series

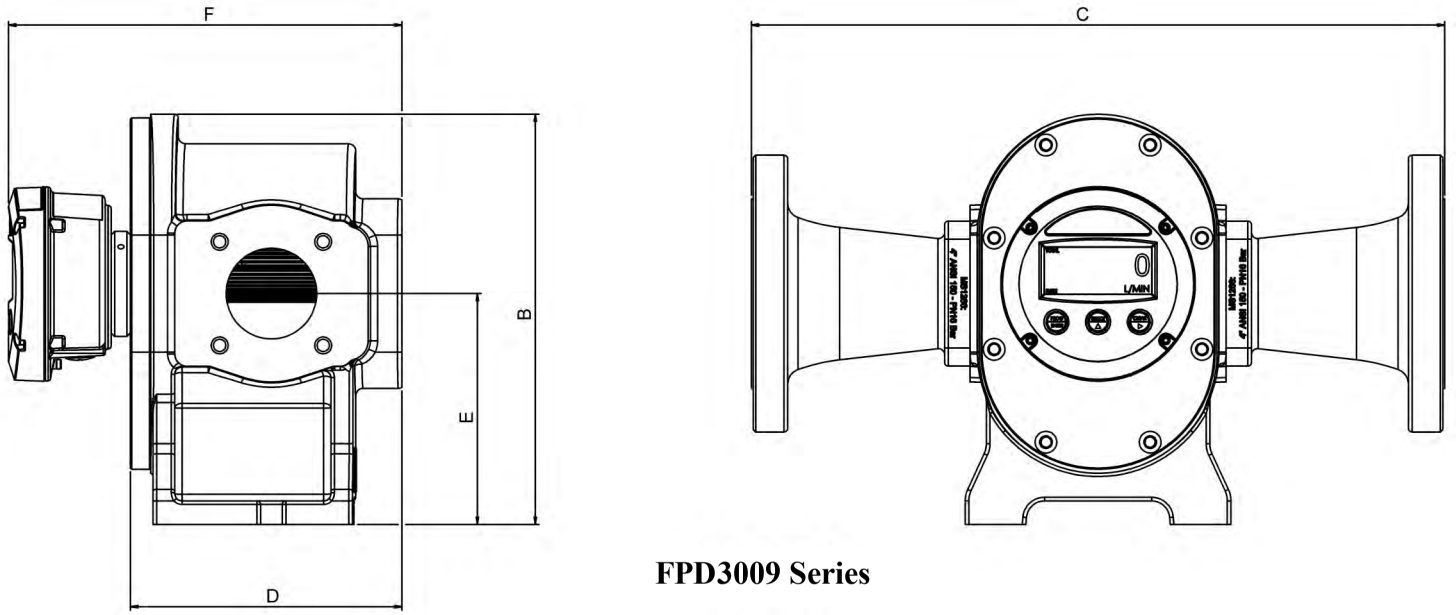
Meter Size	Process Connection	METER AND FLANGE DIMENSIONS					PULSER AND DISPLAY Height (Dimension F)		
		Port Size	B	C	D	E	Standard	High Temp Type HT	Digital Display Types –D / –D-A
FPD3008 FPD3308	ANSI	3”	254mm	436mm	179mm	141mm	196mm	241mm	227mm
	NPT			302mm					
FPD3208	ANSI			349mm					
	NPT			260mm					

3” Flange



3” Threaded Connection

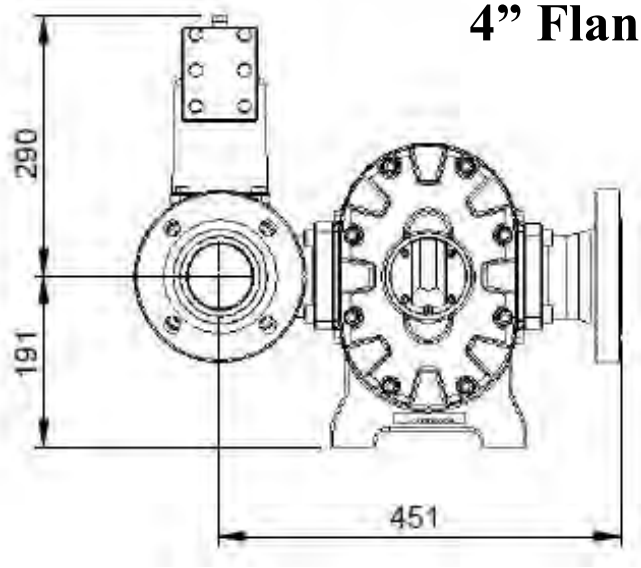


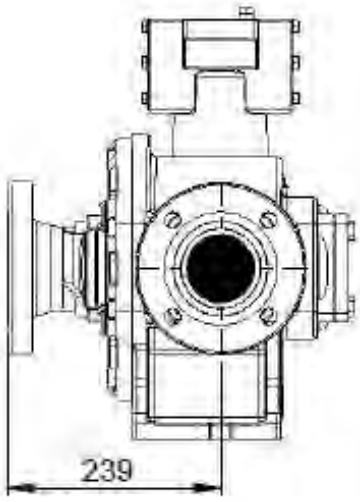


FPD3009 Series

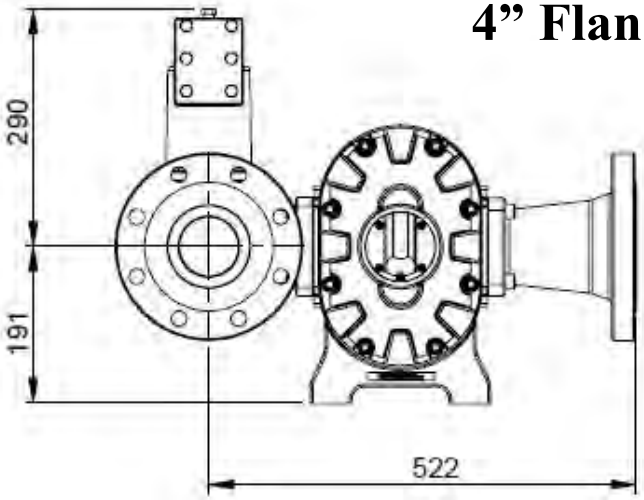
Meter Size	Process Connection	METER AND FLANGE DIMENSIONS					PULSER AND DISPLAY Height (Dimension F)		
		Port Size	B	C	D	E	Standard	High Temp Type HT	Digital Display Types –D / –D-A
FPD3009 FPD3309	ANSI	4”	340mm	436mm	225mm	191mm	276mm	287mm	273mm
	NPT	3”		302mm					

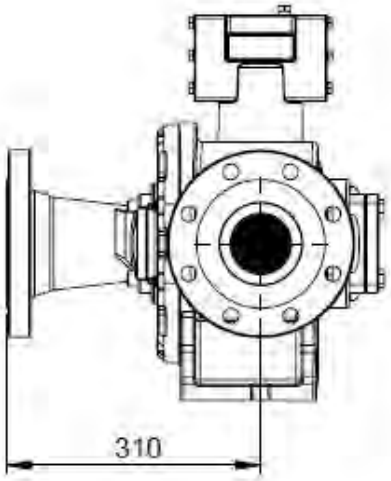
4” Flange



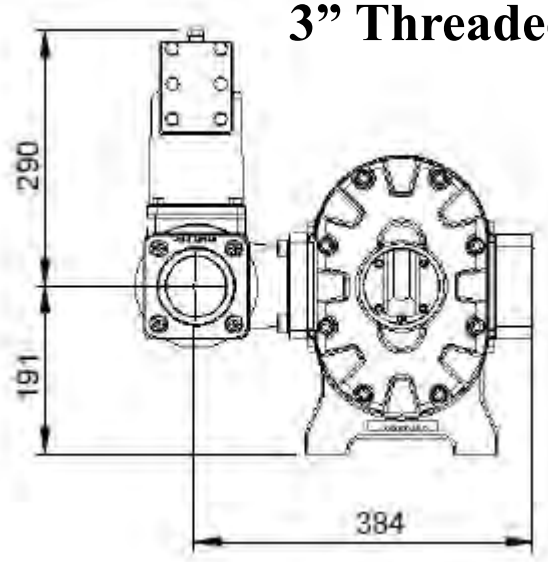


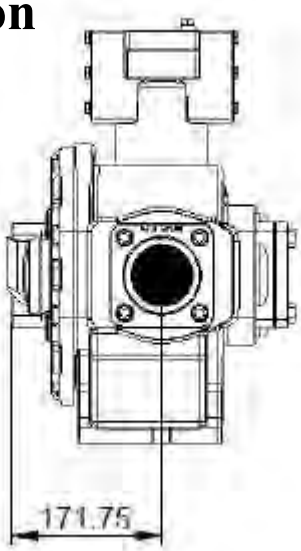
4” Flange





3” Threaded Connection





WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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