



Fluid Measuring Systems

Installation and Instruction Manual



Oval Gear Flow Meter
Type : BFLC

PLEASE READ THIS SAFETY INFORMATION CAREFULLY BEFORE USE.

Read and retain this instruction manual to assist you in the operation and maintenance of this product. If you have any problems with the meter, refer to the maintenance and trouble shooting sections of this manual.

This manual contains connection and operating instructions for meters with Mechanical Displays. 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 has 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 pump (in line) applications.



WARNING

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.

To prevent damage from dirt or foreign matter it is recommended that a Y or Basket type 60 mesh strainer be installed as close as possible to the inlet side of the meter. Contact your local representative for advice.



CAUTION

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

To prevent damage caused by air purge slowly fill the meter with fluid. To reduce pressure build up turn off the pump at the end of each day.

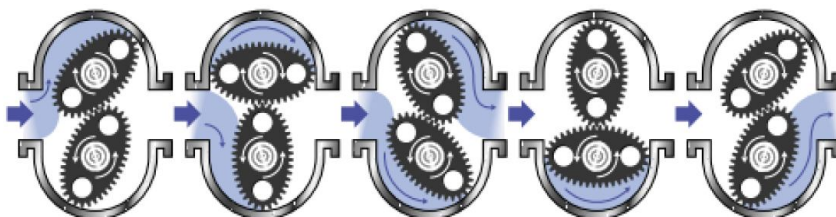
Maintenance can be carried out to the liquid crystal displays and pulse units without removing or isolating the meter from the line. When maintenance to any other part of the meter is required, the meter must be isolated and the line pressure reduced.

The reed switch pulse unit can cause inaccurate rate counts when used with high speed counters. It is advised that a debounce circuit be used.

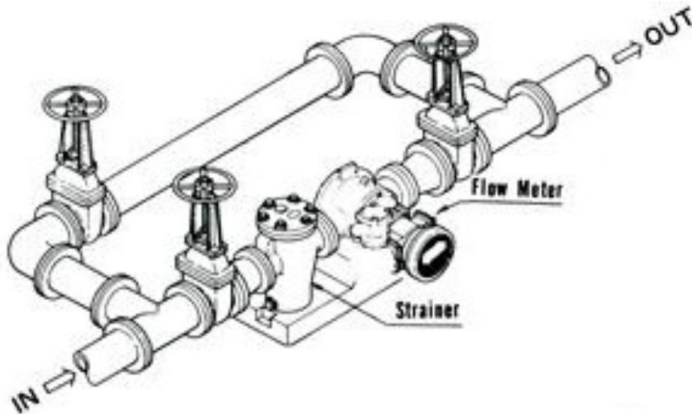
OPETATING PRINCIPLE

When fluid passes through the meter the rotors turn, as shown below. The magnets which are located in the rotors will pass across the pulser

circuit board (containing either Reed switches or Hall Effect sensors). A signal is generated which is then sent by the Pulse Circuit Board (PCB) to the relevant LC display or receiving instrument..



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 interrupting production. (see figure above)

2) Use thread sealant on all pipe threads.

3) For pump applications ensure pipe work has the appropriate working pressure rating to match the pressure output of the pump. See

Meter Specifications section for further details.

4) Install a wire mesh strainer, Y or basket type 60 mesh (250 micron), as close as possible to the inlet side of the meter.

5) Ensure that the meter is installed so that the flow of the liquid is in the direction of the arrows embossed on the meter body.

6) The meter can be installed in any orientation as long as the meter shafts are in a horizontal plane. (Refer to figures to the right for correct installation) The register assembly may be orientated to suit the individual.

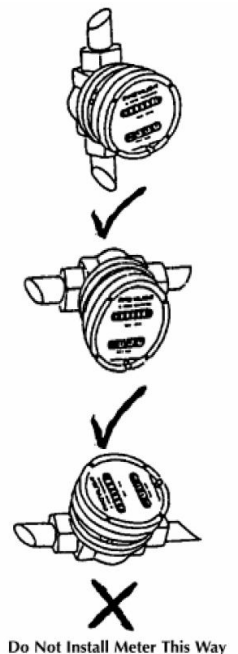
Note: Incorrect installation can cause premature wear of meter components.

7) Do not over tighten meter connections. Note: Incorrect installation can cause premature wear of meter components.

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 decreases.



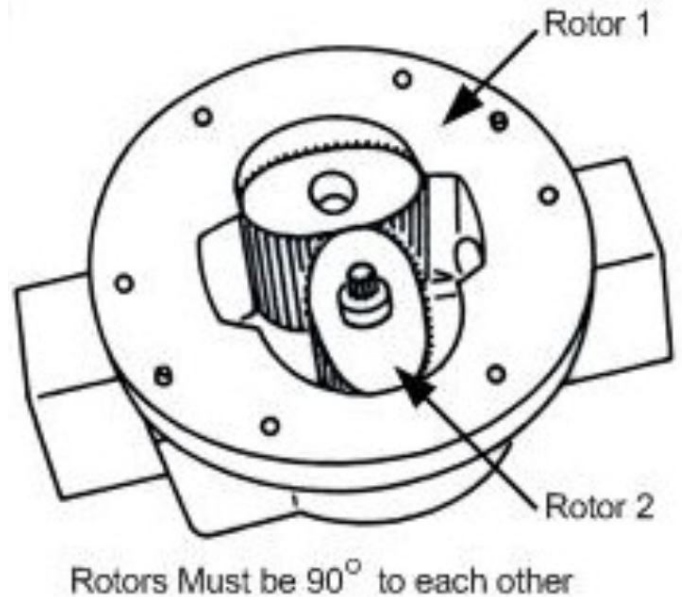
MEINTENANCE PROCEDURE

Disassembly

Ensure that the fluid supply to the meter is disconnected, and the line pressure is released before disassembly.

Refer to the exploded parts diagram and parts list, for item numbers.

- 1) Remove the four screws located on the face of the register. Then remove the face plate cover including register assembly.
- 2) Remove the four register mounting screws and remove the lower half of the register housing.
- 3) Remove the cover plate screws and remove the cover plate .
- 4) Remove the meter cap screws and remove the meter cap.
- 5) Remove rotors.



Resassembly

- 1) Before reassembling check the condition of the rotors (replace if necessary).
- 2) Check that the smooth side of the rotors (not the plug side) is facing you when inserting the rotors, the smooth side of the rotor is the magnet side. There is no difference between rotor one or rotor two.
- 3) Replace the rotors (Item 3) onto the shafts at 90 degrees to each other (refer Fig) and 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 the other rotor.
- 4) Re-check the operation of the rotors
- 5) Inspect the gears in the meter cap for wear.
- 6) Replace the o'ring into groove in the meter cap, if the o'ring has grown or is damaged in any way replace it with a new part.
- 7) Replace the meter cap making sure that the gear on the rotor is meshing correctly with the gear in the meter cap. Insert the cap head screws and tighten in a diagonal sequence .
- 8) Replace the cover plate inspect the o-ring , bevel gear ,for wear or damage. (Replace if necessary).

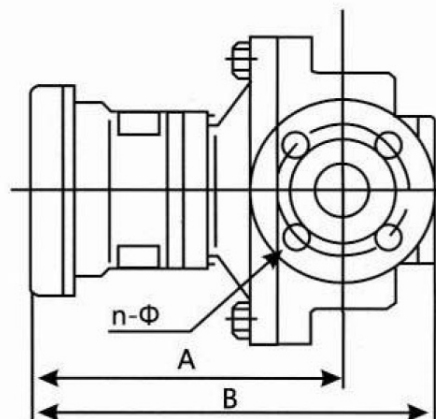
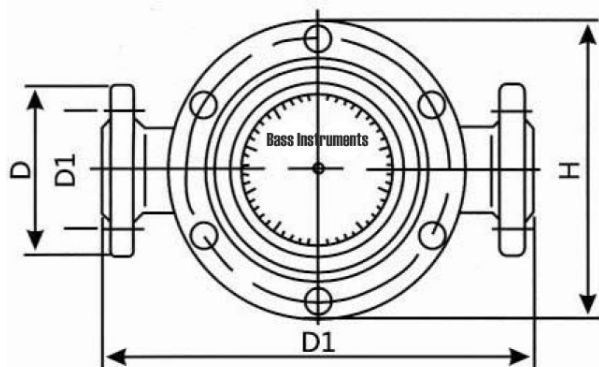
TROUBLESHOOTING GUIDE

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) Fluid is too viscous c) Excess wear caused by incorrect installation	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
Fluid flows but no reading on meter	a) Bevel gear is loose on shaft b) Rotor drive gear is damaged c) Transmission gears damaged d) Register gears damaged	a) Tighten grub screws b) Replace rotor c) Replace gears d) Replace register assembly
Fluid leaks into register	a) Seal worn or damaged on the cover plate	a) Replace seal (Check seal compatibility with fluid)

ORDERING

mode					Instruction
BLFC	<input type="checkbox"/> /	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diameter	10				10mm
	15				15mm
	20				20mm
	25				25mm
	40				40mm
	50				50mm
	80				80mm
	100				100mm
	150				150mm
	200				200mm
Instrument type		1			Standard type
		2			High temperature type
		3			High viscosity type
Instrument material			1		Cast iron
			2		Cast steel
			3		Stainless steel
Signal output type				1	No signal output
				2	Pulse output
				3	4-20mA output
BLFC	50/	1	1	1	Selection example

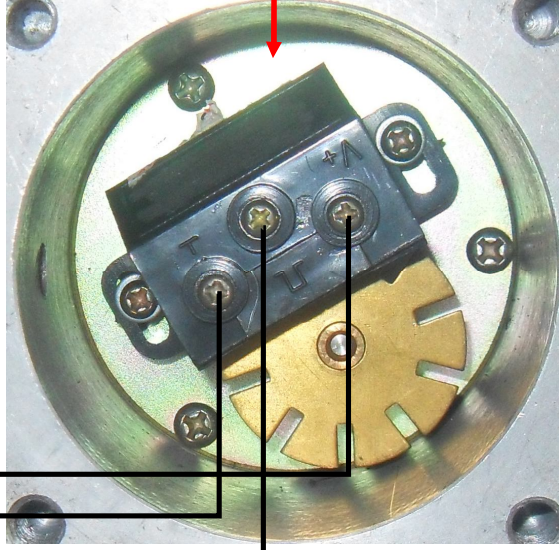
DIMENSIONS



Diameter	Instrument material	L	H	B	A	D	D1	n	Φ
DN10	Cast iron	150	100	210	165	90	60	4	14
DN15	Cast iron	170	118	226	175	95	65	4	14
	Cast steel	200	138	232	180	105	75	4	14
	Stainless steel	245	120	226	172	95	65	4	14
DN20	Cast iron	200	150	238	180	105	75	4	14
	Cast steel	250	164	220	160	125	90	4	18
	Stainless steel	236	150	238	225	105	75	4	14
DN25	Cast iron	260	180	246	194	115	85	4	14
	Cast steel	300	202	252	185	135	100	4	18
	Stainless steel	287	195	246	232	115	85	4	14
DN40	Cast iron	245	180	271	200	145	110	4	18
	Cast steel	300	202	293	208	165	125	4	23
	Stainless steel	265	178	349	265	145	110	4	18
DN50	Cast iron	340	250	372	285	160	125	4	18
	Cast steel	384	262	394	312	175	135	4	23
	Stainless steel	265	178	349	265	160	125	4	18
DN65	Cast iron	420	325	433	360	195	160	8	18
	Stainless steel	365	260	436	319	180	145	4	18
DN80	Cast iron	420	325	433	360	195	160	8	18
	Cast steel	450	337	452	332	210	170	8	23
DN100	Cast iron	515	418	458	380	220	180	8	18
	Cast steel	555	442	478	310	250	200	8	25
DN150	Cast iron	540	510	557	400	280	240	8	23
	Cast steel	540	510	557	347	300	250	8	26
DN200	Cast iron	700	650	720	476	335	295	12	23
	Cast steel	650	650	720	476	360	310	12	26

WIRING

for pulse output



+ : Supply 24VDC (+)

- : Supply 24VDC (-)

Π : Pulse Output (push-pull)



RST ÖLÇÜ KONTROL ENST.VE
OTOMASYON HİZ.SAN.TİC.LTD.ŞTİ
Cihangir Mah.Osman Paşa Cad.No:42
Avcılar/İSTANBUL

Tel : 0212 422 67 41

Faks : 0212 422 00 46

www.rst-elektronik.com

info@rst-elektronik.com