MECHANICAL FLOWMETER
MODI FLOW EASY/EASY TOP

MODI FLOW EASY

MODI FLOW EASY TOP

The mechanical flow meters ModiFlow: PRO are suitable for measuring the flow of a wide range of fluid viscosities with exceptional leels of repeatability and durability, applying in the petroleum, chemical, food industry, etc. They can be used in the fuel sector to measure the flow of liquids such as: diesel oil, heating oil, biodiesel etc.

Thanks to the use of an aluminum body of the device and high-quality components, a high durability and lifetime of the flowmeter have been achieved..

ATTENTION: Before using the device, read and follow the instructions in this manual. Incorrect installation or use of the device may cause a threat to the users and the environment.

MAIN FEATURES:

- The EASY TOP flowmeter has oval rotors responsible for measuring the flowing liquid, while the EASY flowmeter is equipped with a float chamber measuring the flow.
- The body withstands high pressure and is made of aluminum.
- The flowmeter has rotational-mechanical indicators located on the top of the flowmeter.
- The rotors in the EASY TOP model are made of high-strength metal alloys.
- The EASY TOP flowmeter operates on the oval rotor principle. Two oval rotors rotate on stainless steel shafts and sweep the measuring chamber. Each revolution of the rotors measures a precise volume of liquid through the meter.
- The EASY flow meter performs the measurement based on the chamber in which the float rotor is mounted. The fluid flow starts the rotor which transmits the flow data via a gear wheel.
- You can install the flow meters EASY i EASY TOP: either horizontally or vertically and can be used in either pumped or gravity feed applications. An upstream filter is recommended to prevent particles damaging of the flow meter.
- This volume is independent of the viscosity and density of the liquid.

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I. TECHNICAL SPECIFICATION:

The manufacturer guarantees the accuracy and repeatability of the measurement of the device, with a continuous flow of at least 20 L/min.

Model	EASY TOP	EASY
Inlet/Outlet	25 mm	
Min. flow rate	10 l/min.	
Max. flow rate	120 l/min.	
Accuracy	± 0,5%	± 1%
Partial indication	4 digit	
Total indication	8 digit	
Repeatability	≤0,03%	≤0,05%
Max. viscosity	1000 cP	
Working pressure	0,3 MPa	

II. WORKING PRINCIPLE

The oval gear EASY TOP flow meter measurement part is mainly composed of two pitch elliptical gears and its housing component. According to the amount of gears turned laps the flow meter calculates the volume of the liquid flow. The EASY flow meter has a chamber equipped with a float rotor, the rotation of which counts the amount of the flowing liquid.

III. OPERATION MANUAL OF ELECTRONIC MODI FLOW METER

1. Start-up: The flow meter is ready for use and the measurement is performed automatically by the liquid flow.
2. Cancel of the current indication: Turn the knob on the left side of the flow meters (away from you) so that the indication of the 4-digit counter is zeroed.
3. Checking the total value: The total indicator (TOTAL) is located on the bottom of the flowmeter (8 digits) and has no reset function.

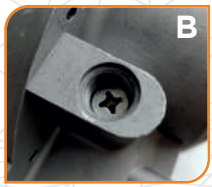
IV. PARAMETER SETTING - CALIBRATION

The device (EASY TOP and EASY) is pre-calibrated for use with diesel fuel. After installing the meter in the system, it is recommended to perform verification or recalibration to make sure that the readings are accurate. Remove the adjusting screw (A) and bleed the system. Then reset the current display. Using a verified measuring vessel (minimum 20 liters), start pouring the liquid with the nozzle fully open, until the vessel is full. Read the meter reading:

1) If the indicated value is higher than the actual value, turn the adjusting screw (B) counterclockwise with a screwdriver,
2) If the indicated value is less than the actual value, turn the adjustment screw (B) clockwise with a screwdriver, Repeating the entire operation (transfering and adjusting with the adjusting screw B) should be repeated until satisfactory indications are obtained.
   After obtaining satisfactory indications, screw in the adjusting screw (A).

MODI FLOW EASY

MODI FLOW EASY TOP



V. MAINTENANCE

If the flow meter is properly installed in the system, no maintenance is required.
It is recommended to periodically verify that the housing has no mechanical damage and the body has no visible leaks.

VI. INSTALLATION AND USE

1. No specific requirements on the front and back of the flow meter pipeline, it can be installed horizontally or vertically. During the installation, this flow meter axis of rotation should be parallel to the ground. Please stick to **picture 1**.

Picture 1

Picture 2

2. The direction of the flow meter installation should be the same as shown in the direction of the arrow with the liquid flow to the meter shell: While choosing the position of installation you should pay attention to the ease of reading..

3. The flow meter should be installed on the output end of the pump, if installed in the suction side, the pressure loss of the flow meter filter will lead to the increase of the pump negative suction pressure, the liquid at the outflow of the pump shaft also causes the flow meter error increases, the flange of the pump suction side should be designed to prevent leakage, otherwise, it can also cause the error increases to the flow meter.

4. A filter should be installed at the front of the flow meter, to prevent greater than 0.2 mm tiny particles blocking the flow meter, and the filter should be easy to clean.

5. The flow meter is preferably mounted in front of the one-way valve, only unidirectional flow of the liquid within the pipe, to prevent the reverse rotation of the counting gear.

6. The flow meter recommendations shown in Picture 2, the bypass valve can be installed in the vertical or the other direction of the pipeline, from the top down, from bottom to top, right to left, from left to right..

7. When using the flow meter, make sure the internal is filled with liquid, if the liquid is mix with a gas, the measuring is a mix of gas and liquid volume, this will cause an error accuracy off the measurement. If the liquid is mixed with gas, an oil and gas separator must be installed.

8. When the flow rate exceeds the specified maximum flow, the speed of the oval gear increases and wear oft he gears increases, and the pressure loss increased dramatically, so it should be avoided, although it is still measured below the minimum flow, the error increases, the viscosity of the liquid flow meter 10 Pa.s starts the flow at about 1 % of the maximum flow rate..

9. Each flow meter is factory calibrated with diesel fuel at room temperature. Due to temperature changes, the viscosity of the oil changes and amounts to approximately 13 Pa.s at room temperature. The theoretical volumetric flow meter measuring the viscosity of the fluid changes does not affect the accuracy of the measurement because the flow rate measurement is generated in the gap that exists between the inner wall and the oval gear. Even though it is subject to changes due to changes in viscosity, its effect on measurement accuracy is minimal.

10. For high-density fluids, remember that heating the fluid will reduce its viscosity allowing flow through the device. When using the meter outdoors, ensure optimal working conditions. Slime build-up (e.g. from low temperatures) on components measuring instruments may damage the device.

11. The temperature of the measured fluid must not be higher than the maximum value given in the data table technical. Exceeding this will block the device. Changing the temperature of the fluid causes an error liquid measurement related to viscosity change. An increase in temperature will cause an increase in volume in the measuring chamber space, so the flow will be slower.

12. Pressure loss proportional to the square of the liquid flow, the liquid viscosity increases, the pressure loss is also increased.

VIII. KONTROLA I USUWANIE USTEREK

SYMPTOMS		REASON	REPAIR	REMARKS
The failure of the oval gear rotation		Installation is jammed. Gear impurities are in the flow meter.	Disassemble, clean and reinstall it.	
		The measured fluid is dirty, the filter is clogged by impurities.	Clean the filter.	
		The measured pressure of the liquid is too small.	Increase the pressure.	
The oval gear rotates but is partially blocked		The drive wheel stuck.	Remove impurities, if cause gear damage, replace the gear.	
Gear turns, abnormal noise		Exceeding the specified value due to the over run of the flow rate.	Adjust the flow rate to the specified value.	
The error is too large	Negative difference	The flow is too small and below the specified value.	Change the smaller diameter of the flowmeter connection to a larger one	
		Leak in the system.	Check the leak.	
		The counter has been used for too long, significant wear of the oval gear wheel.	Replace the worn element or buy a new device.	
	Positive difference	Liquid is containing gas.	Install the oil separator and gas in front of the flow meter, or repair the leak in the system.	
		The Liquid viscosity has a large difference with the testing liquid viscosity.	Check measured liquid.	Consult with the manufacturer.