

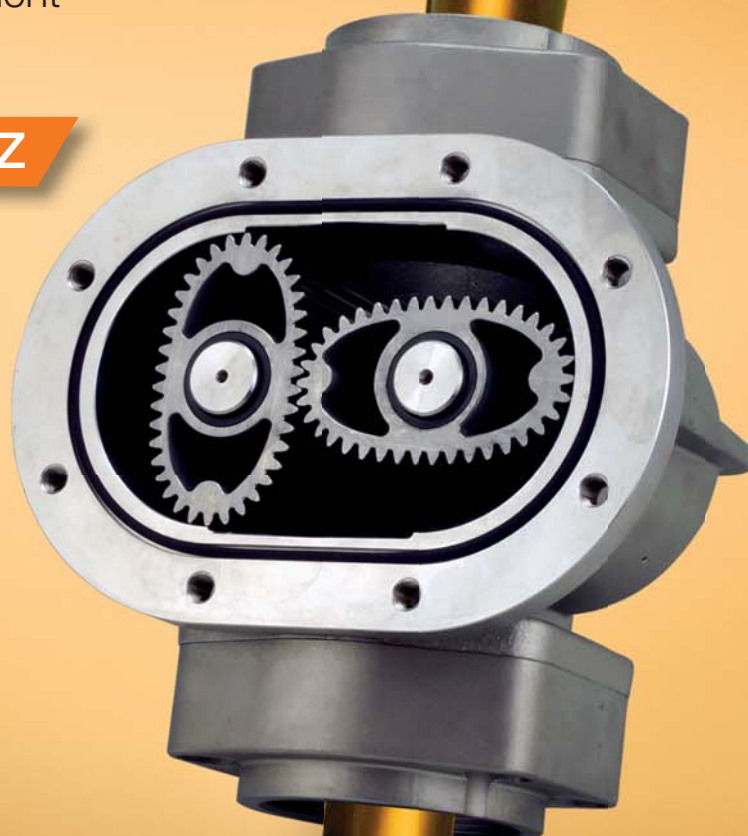
FLOW · PRESSURE · LEVEL · TEMPERATURE · ANALYSIS



Oval Wheel Flowmeters

for flow measurement
of various liquids

DON/OVZ



measuring
·
controlling
·
analysing



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DON



Measuring range: 0.5 - 36 l/h ... 150 - 2500 l/min

Accuracy: $\pm 0.2 \dots 1$ % of reading

p_{max} 100 bar

t_{max} 150 °C

Viscosity range: 0 ... 1000 cP
(1 000 000 cP special version)

Material: stainless steel, aluminium, PPS

Output: pulses (reed/hall), 4 - 20 mA, LCD-Display,
(measuring, counting or dosing), mechanical counter

Power supply:

LCD-Display: 24 V_{DC}

Hallsensor: 8 ... 30 V_{DC}

4 - 20 mA current output: 16 ... 32 V_{DC}

OVAL WHEEL FLOW METER FOR (ALMOST) EVERY NEED...

Oval Wheel Flow Meters Model DOM are versatile and economical flow meters, which fulfill almost every need in liquid flow metering. Whether it is about precise control of additives amount into a mixing tank in each batch or simply about transferring diesel fuel from delivery truck into your storage tank, an KOBOLD oval wheel flow meter is there to provide you accurate readings.

Oval Wheel Flow Meters Model DON are designed to measure clean liquids up to 1000 cP, while variation of density does not affect the measurement, nor does the liquid conductivity.

At higher viscosities (>1000 cP), special rotors are used.

Furthermore, this kind of flow meter doesn't require any inlet/ outlet runs. Consequently, it needs a smaller installation space compared with other flow meters..

The DON may be delivered with pulse output, 4-20 mA analogue output, LCD-Display or mechanical display..

Examples of applications covered by oval wheel flowmeters:

- Volume measurement/dosing of petroleum products in storage tanks
- Dosing/filling of gear oil, e.g. as a substitute device for ultrasonic flowmeters.
- Monitoring of lubrication loops in test benches
- Fuel measurement in control facilities and test systems

Loading / unloading of solvents

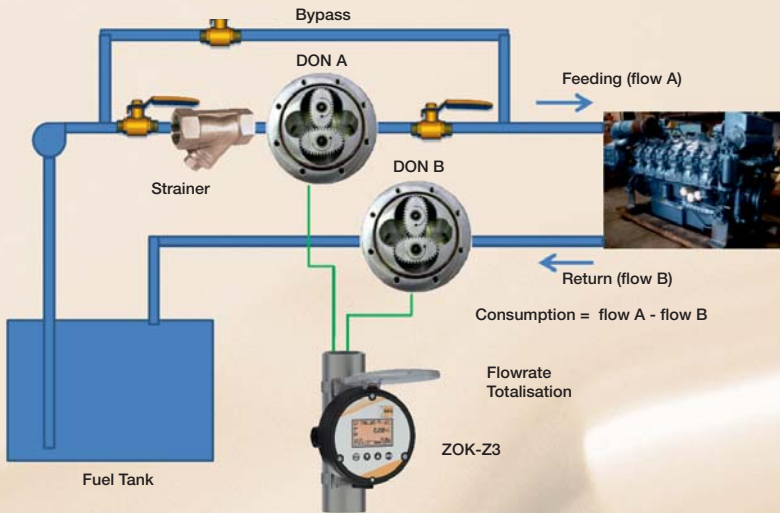
Solvents measured in a printing shop of automotive industry include low viscous liquids, which have low lubricating characteristic as well.

The volume of transferred solvents were confirmed by using level gauges available at each storage tank. But it caused ambiguities.

Due to the type of fluids and classification of the surrounding area, an oval wheel flow meter model DON was used to optimise the measurement. The pulse output was connected to remote data acquisition system for transfer log.



Fuel Consumption in Diesel Engines



Oval Wheel Flow Meters Model DON may be used for fuel consumption measurement in diesel engines using the dual flow inputs and the 'A minus B' setting. A pair of DON flowmeters is used with a single electronic model ZOK-Z3 to give a net reading of fuel consumption.

In this off-shore application, a fuel consumption measurement system has been effectively implemented on diesel engines in small ships/vessels. Here we used a pair of stainless steel flowmeters (DON-S15... for flows upto 550l/h per flowmeter) and one ZOK-Z3 per engine.

As choking of the flowmeter or strainer in main line may result in higher differential pressure and result in diminishing fuel to the engine, an alternative is to use a pressure relief valve in the bypass line. Higher inlet pressure opens the pressure relief valve and ensures a constant supply to the diesel engine. In selective cases, the choice of „pulsating flow” option may be recommendable.

With this installation, the fishermen are now in a position to monitor the actual real time fuel consumption and adapt the ship speed to optimise it. In general, the return of investment is implemented within a month.

Oval Wheel Flow Meters - Flow Measurement of High Viscous Resins

Production processes in manufacturing of abrasives and superabrasives require precise dosage of even high viscous resins (e.g. 1500 cP). The adjacent application picture shows one dosing skid in such application.

Each skid comprises of the following components:



- 1) Main tank
- 2) Secondary tank with low level alarm, always ensuring enough products and no air in the circuit
- 3) Manual valve to close the circuit
- 4) Peristaltic pump
- 5) Oval Wheel Flowmeter
- 6) Pressure Switch (safety against high pressure)
- 7) 3-way valve (for manual or automated operation)
- 8) Outlet pipes for manual product collection

Task:

At higher viscosities and depending on temperature fluctuations, the peristaltic pump (positive displacement pump comprising of flexible tube and of roller(s) displacing the medium from one end of the flexible tube to the other) is not

able to displace the medium completely. This means that some part of the medium flows back through the flowmeter resulting in error readings. In addition, the operating pressure developed by the small sized peristaltic pump is quite low.

Solution:

Oval wheel flowmeters model DON can be provided with special cut rotors reducing the pressure drop by 50%. Choosing the optional Quad Hall Sensor Dual Pulse Output provides two out of phase pulse outputs „A” and „B”, so that net flow rate „A minus B” may be computed correctly by the PLC. Net flow rate could also be computed using ZOK-Z3 electronic with a pulse discriminator in between. With these features, we are in a position to solve all problems associated with this application and conduct very fine dosing of resins, resulting in an improved repeatability and quality of the finished abrasives.

OVZ



Measuring range: 0.3 - 8 ... 1,6 - 40 l/min

Accuracy: ± 2.5 of full scale

p_{max} 40 bar

t_{max} 80 °C

Viscosity range: 10 ... 800 mm²/s

Material: POM, PMMA, PSU, aluminium

Output: pulses, 4 - 20 mA, display 3-digit, switching output, open collector

Power supply: standard 24 V_{DC}

Heavy duty equipment needs protection you can count on

Task: Cone crusher lubrication monitoring



Mobile cone crushers are used to turn raw materials such as rocks, minerals, ores, reclaimed glass and ceramic into graded usable product. They are versatile and convenient, producing the materials needed for construction at the place where they are needed, saving time and cutting down on transport costs on large civil, mining and recycling projects.

The rocks are fed into a fixed cone which has a rotating eccentric cone inside it. By varying the gap between the cones, the size of product produced can be controlled. At the heart of a mobile cone crusher is the bearing assembly. This is subject to massive pressures, and vibrations, and the machines are used in harsh climatic conditions throughout the world, day in day out.

The bearing assembly is very expensive, is often time consuming to replace and subject to a long delivery time. Correct lubrication of the bearing assembly is therefore paramount to avoid costly downtime. Therefore a dependable means of monitoring the oil supply is required, that will work in extremes of temperature, and be as rugged and as reliable as the rest of the machine.

Solution:

The OVZ flow monitor from Kobold ticks all the boxes. It has a robust durable aluminium body and PMMA cover, which acts as a sight glass, allowing engineers to see at a glance that all is well with the precious oil flow. Its positive displacement technology means that it is viscosity compensated when subjected to temperature extremes. The electronics have been epoxy encapsulated for full protection from ingress or vibration. They combine a wide voltage supply range, DC-DC convertor with interference filter, for a faithful output signal allowing optimal lubrication control.

The OVZ offers great value insurance and accurate, reliable performance; whether used in Australia or Alaska!



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