

Application Sheet

Flow measurement on pumps

1. Encountered customer problematic

Pump size optimisation is beginning to be taken into account by the players on this market. It entails for them **to find the best sized equipment**, the most suitable to meet their needs while **saving energy**.

2. Users

- » Pump manufacturer, design & engineering firms, operations and maintenance departments.

3. Description of the encountered types of application

Non intrusive flow measurement with external probes. The searched precision is : +/- 2 %.

This operation allows **determining the wear condition of pumps during regular inspections** and detecting upstream any possible early aging of them.

Our portable flowmeters allow in a few minutes :

- measuring the flow of a pump to be replaced ;
- validating the flow of a new pump or a repaired pump in its application environment ;
- selecting a pump model.



Measurement of nitrogen flow at pump outlet



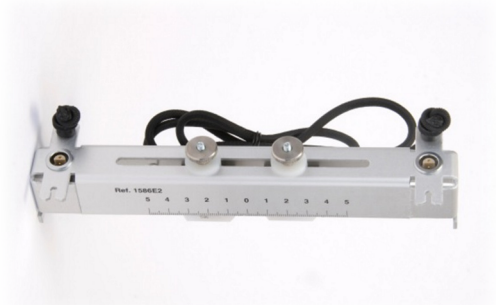
Check of a worn water discharge pump

4. Equipment used

- » UF801P or MINISONIC P portable converters



- » The choice of probes will depend on the kinds of fluids and the diameter range to be measured. Our large choice of probes allows measuring pipe diameters from 8 mm to 10 metres and up to 180°C.



5. Customer advantages

- » Rapid, easy and high-performance measurements (possibility of leaving the device in situ several weeks by using the mains electrical network or an external battery)
- » Budget savings in the project due to a more appropriate pump choice and the optimisation of the maintenance periodicity
- » Check of the maintenance's effectiveness
- » No shutdown of production to install the equipment (not necessary to stop the process)
- » Measurement without pressure drop
- » Measurement performable in suction or discharge (depending on the straight lengths available)
- » Possible arbitration in case of dispute between an end customer and a pump manufacturer

6. Performance

- » Depending on the straight lengths available and the knowledge of his installation (pipe thickness and condition), measurement uncertainty can reach 2%.
- » The performance of the devices allows obtaining a measurement even on ancient pipes in less than 5 minutes.

7. Possible transposition to other cases (other types of application)

Our devices can also be used to :

- » Define the clogging condition of filters
- » Give the inlet and outlet flow of heat exchangers
- » Check the flow of a machine-tool cooling liquid

8. Competitive advantages of ultrasonic transit time flow measurement

- » Installation of probes under load
- » Measurement dynamic
- » Repeatability
- » Quick installation

9. Other Ultraflux products to meet any type of described application

Once the pump is installed, we can check it by applying two different measurement approaches :

- » Regular timely measurement using a portable flowmeter (case presented above)
- » Continuous measurement using a fixed device (presented below)

- » MINISONIC 600/2000



This single- or dual-chord device is most often used for the continuous measurement of the flow of liquid fluids. Extremely versatile, it allows taking measurements on diameters from 12 mm to 6 metres. It is to be coupled to intrusive or clamp-on probes.

- » NON INTRUSIVE PROBES



Non intrusives probes – also called “clamp-on” probes – allow making an installation without any intervention on the pipes. These probes are ideal when straight lengths necessary for a homogeneous flow are available.

- » INTRUSIVE PROBES



Intrusive probes can be installed under load. They allow taking a measurement with a high level of precision because they can be installed on several “sections of the line” and thus give a more well-balanced measurement of the hydraulic profile.

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