



APPLICATION REPORT Life Sciences

Clamp-on flow measurement of Water for Injection (WFI)

- Continuous flow monitoring of ultrapure, non-conductive water at a pharma plant
- Installation of 100 flowmeters without process interruption or need to cut pipes
- Non-contact and leak-free flow metering in accordance with strict hygienic requirements of regulatory authorities



1. Background

In the fast growing South Korean pharma market, GC Pharma has established itself as a leading developer and supplier of biopharmaceuticals. Headquartered in Yongin, South Korea, the company operates several production plants in Korea and abroad.

As in the whole of the industry, water of different quality is a basic ingredient and solvent in the manufacture of the company's medicines and pharmaceutical liquids. An essential component in aseptic processing operation is Water for Injection (WFI), which is – next to potable, purified or highly purified water – widely used in pharma production.

2. Measurement requirements

WFI is a distilled, ultrapure water of extremely high quality and without significant contamination. As per international pharmacopoeias, its electrical conductivity must be kept below $1.3 \mu\text{S}/\text{cm}$ (at $25^\circ\text{C} / 77^\circ\text{F}$). Continuous monitoring and tracking of WFI is critical and mandatory in sterile drug production.

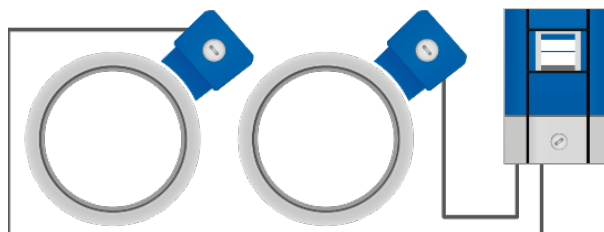
Medium:	Water for Injection (WFI)
Pressure:	Max. 40 barg / 580 psig
Flow rate:	3 t/h
Conductivity:	$<1.3 \mu\text{S}/\text{cm}$ at $25^\circ\text{C} / 77^\circ\text{F}$

GC Pharma was searching for a flowmeter able to measure the non-conductive liquid reliably while at the same time fulfilling the high demands for hygienic plant operation.

3. KROHNE solution

KROHNE supplied the OPTISONIC 6300 stationary clamp-on flowmeter for flow measurement of WFI. This clamp-on device is perfectly suitable for the hygienic measurement of such a non-conductive liquid. It can be easily attached to the outside of any pipe at virtually any location where inline measurement is not possible or desirable.

Over 100 flow sensors of the OPTISONIC 6300 have been installed on the outside of various WFI pipelines, ranging in size from DN15...100 / ½...4". The flowmeters were ordered as dual pipe configuration, i.e. two clamp-on flow sensors were connected to just one single signal converter with 2 x current outputs (active) and 2 x pulse outputs (passive). This way, two independent flow measurements can be carried out using just one single converter.



Dual pipe configuration:
Two clamp-on flow sensors connected to one signal converter

4. Customer benefits

GC Pharma benefits from safe and reliable flow measurement that complies with the highest hygienic requirements stipulated by the FDA and other drug regulatory authorities. Given the non-contact measurement of the clamp-on flowmeters, the customer never has to care for hygienic issues usually associated with inline flowmeters, like gaskets, hygienic connections or potential leakage points.

Unlike with inline flowmeters, there was also no need for process shut-down during installation, thus production was not affected. Another benefit was the immediate start-up of the devices without special training.

Due to the cost-effective dual pipe configuration, the customer saved on time, effort and additional signal converters. This in turn resulted in space-saving installations and less installation time.

Given that the OPTISONIC 6300 is a non-calibrated flowmeter and did thus not need to be customized, delivery was very fast.

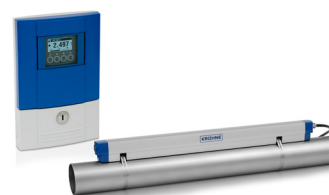


Clamp-on flowmeter measuring
Water for Injection (WFI)

5. Product used

OPTISONIC 6300

- Ultrasonic clamp-on flowmeter for permanent flow measurement of conductive and non-conductive liquids
- Stationary device, for installation at any location without process interruption or need to cut pipes
- Bi-directional measurement where inline measurement is not possible or desirable
- Up to +200°C / +392°F
- For pipes DN15...4000 / ½...160"



Contact

Would you like further information about these or other applications?
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