



SRZ-Serie

Operating Instructions

General

Helical flow meters (hereinafter referred to as »SRZ«) are positive displacement meters: Two highly accurate cycloid-shaped screw spindles mesh and rotate inside a cylindrical housing with two overlapping holes in the form of a figure 8, which forms the measuring chamber. The medium flows in axial direction and rotates the spindles. The medium is forced along the measuring chamber bores by the profile of the spindles. This happens without pulsation and with minimum leakage.

A pickup will inductively detect the speed of the spindle pair through the housing via a pole wheel with a high number of gears. The speed of the spindles is absolutely proportional to the volume flow over a very wide range. Pulses per volume unit will finally serve the evaluation (please see pickup and amplifier datasheets.) The K-factor (calibration factor) of the helical flow meter defines the exact pulserate per litre.



Evaluation

The K-factor is individually determined for each SRZ, this factor specifies the exact pulse rate per litre. The K-factor can be found in the *calibration record*, which is supplied with every SRZ. The calibration record contains specifications to adjust the evaluation equipment.

- *Max. measuring error* referring to the instantaneous flow rate
- *Max./min. frequency* with corresponding flow values
- *K-factors* for different flow rates
- *Average K-factor* valid for the entire flow rate of the SRZ

The following equation applies:

$$Q = \frac{f \cdot 60}{K}$$

Q = flow rate in litres per minute
f = output frequency in Hz
K = K-factor of the SRZ in pulses per litre

Preparation

Mechanical and electrical installations, start up and maintenance shall only be effected by qualified and authorised personnel. Make sure the measuring range of the meter cannot be exceeded by more than 20%. Please purge your pipe system before installing the SRZ. Particles must not enter the SRZ as they could block the screw spindles. This is particularly important for the smallest size SRZ 10. As a precaution the use of the following filters for the measuring medium is recommended:

SRZ 10:120 micron
40:200
100,400: ...300

Installing the SRZ

The SRZ should be mounted in flow direction (calibration direction). In- and outlet bores are indicated by an arrow on the type plate. The flow meter can be mounted either horizontally or vertically. Only with low flow rates and viscosities is it recommend to install the SRZ in a vertical position.

The mounting direction is not relevant with reverse flow as in this case the flow meter will have been calibrated for both flow directions.

Our standard SRZ are bored to suit inch screwed fittings. Additional sealing is superfluous. Never should fibrous sealants such as hemp or teflon strip be used when different connections require additional sealing.

Sources of Interference

Magnetic fields and similar sources of interference close to the SRZ might affect the pickups. Cables connecting pickup and amplifier and/or evaluation electronics have to be screened, preferably braid-screened.

Vibrating pipes can have a resonance effect on the pickup, especially on inductive types. You may prevent this by avoiding a metallic contact between pickup tip and the bottom of the pickup bore in the SRZ meter fitting the pickup as follows:

- screw in the pickup handtight without using force
- slacken pickup by $\frac{1}{4}$ turn
- tighten the lock nut

Gas bubbles in the system will falsify measuring results. SRZ meters are pure volumetric meters. Meters installed in hazardous areas must only be operated completely filled with measuring medium.

Maintenance

- Helical flow meters have to be purged with an adequate solvent if there is no permanent flow or if the meters will not be in use for a long period of time. Purging is particularly important when fluids are likely to harden with particles remaining in the flow meter.
- The calibration of the gear flow meter should be checked after about 8,000 hours of permanent operation.
- For further servicing the SRZ should be sent back to KEM. Individual training of customers' experts by KEM is available to carry out service on site.

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