framatome

Speed Measurement

Controlling, monitoring and diagnosis of safety-related rotating machines operating in harsh conditions

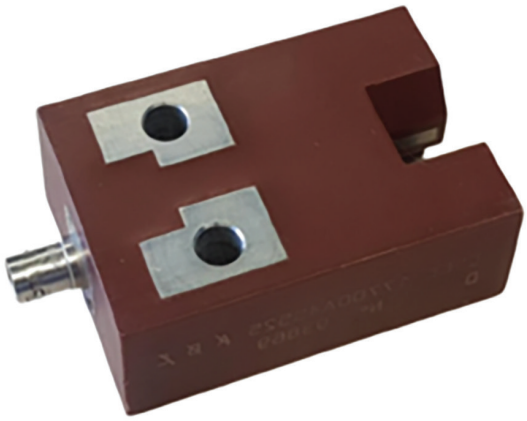
Framatome provides proven speed measurement solutions for safety-relating rotating machines. Built on robust technology and decades of nuclear expertise, our solutions support our customers to enhance plant safety, optimize operations and improve equipment reliability throughout the entire lifecycle.

Challenge

Maintaining the safe and reliable operation of critical rotating equipment requires accurate speed measurement that can be trusted in every situation.

Nuclear operators need qualified instrumentation that delivers precise and dependable data even under the most demanding environmental conditions, while enabling effective control, condition monitoring, and early fault detection.

Ensuring this level of performance is essential to strengthen plant safety, optimize operational efficiency, and improve equipment reliability throughout the asset lifecycle.



Framatome speed measurement sensor

Solution

Framatome supplies the complete measurement chain – from speed detection at the machine to conditioning and processing cabinet– all from one trusted source.

To measure the speed of the main coolant pumps, we offer a qualified industry-proven rotational speed measurement sensor for Class 1E applications, adapted to withstand the most challenging environmental conditions. The sensor is qualified to operate even in harsh conditions and is compliant with international standards.

Framatome also provides the suitable TXS signal conditioning module which is qualified according to RCC-E, IEC and IEEE. This module delivers standardized analog and digital outputs for reliable speed monitoring.

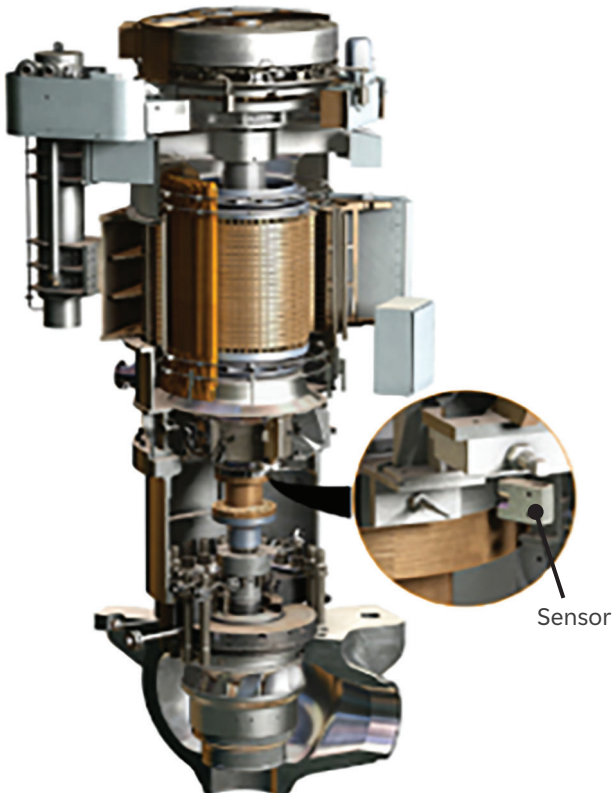
Framatome offers not only a full range of speed measurement solutions but also related services — from system design to installation and commissioning including reporting, training, consulting and maintenance — meeting our customers' needs for plant safety on the long term.

Customer benefits

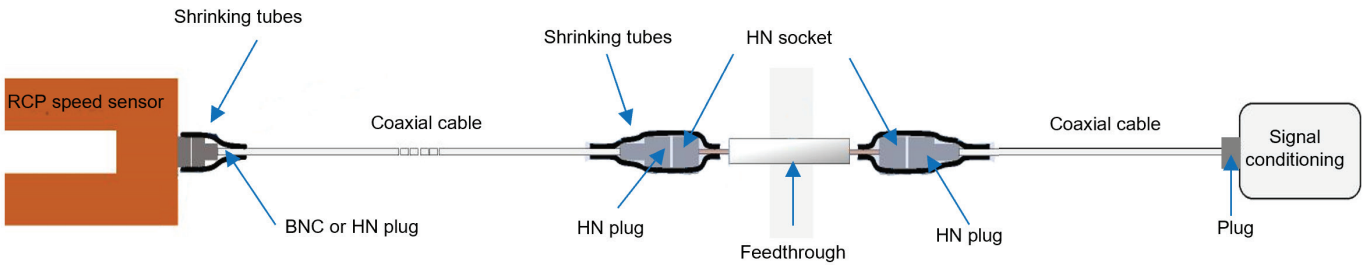
- Improved safety thanks to reliable and accurate speed measurement
- Proven and qualified speed measurement sensors for safety-related machines
- Maximized performance in harsh conditions due to robust sensor design and manufacturing
- No power supply required (passive sensor)
- End-to-End speed measurement solutions expertise

Technical information

- Variable reluctance sensor consisting of a magnetic circuit with a permanent magnet and an impregnated coil
- No power supply required (passive sensor)
- Target is a ferromagnetic pin mounted on the rotating shaft of the pump
- Induction of an AC-voltage each time the target passes the sensor
- The generated output signal is proportional to the shaft speed and also affected by air gap and target geometry
- Output signal amplitude exceeding 1 V peak-to-peak at a nominal speed of 1500 rpm
- The sensor is approximately 10 cm long and can be easily mounted on a support plate using the two integrated 8,5 mm fixing holes
- Suitable for use in harsh environments (e. g. high temperature, pressure, radiation, humidity, electromagnetic disturbances, vibration)
- Qualified according to RCC-E K1 and IEC / IEEE

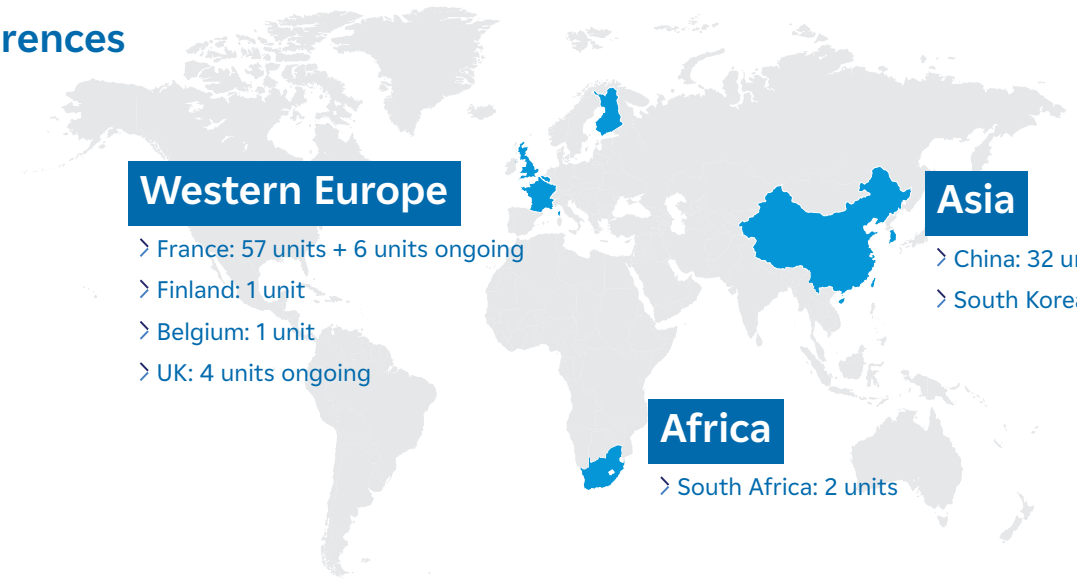


Typical sensor installation on a pump



A fully qualified and proven speed measurement chain

References



Western Europe

- France: 57 units + 6 units ongoing
- Finland: 1 unit
- Belgium: 1 unit
- UK: 4 units ongoing

Asia

- China: 32 units
- South Korea: 2 units

Africa

- South Africa: 2 units

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