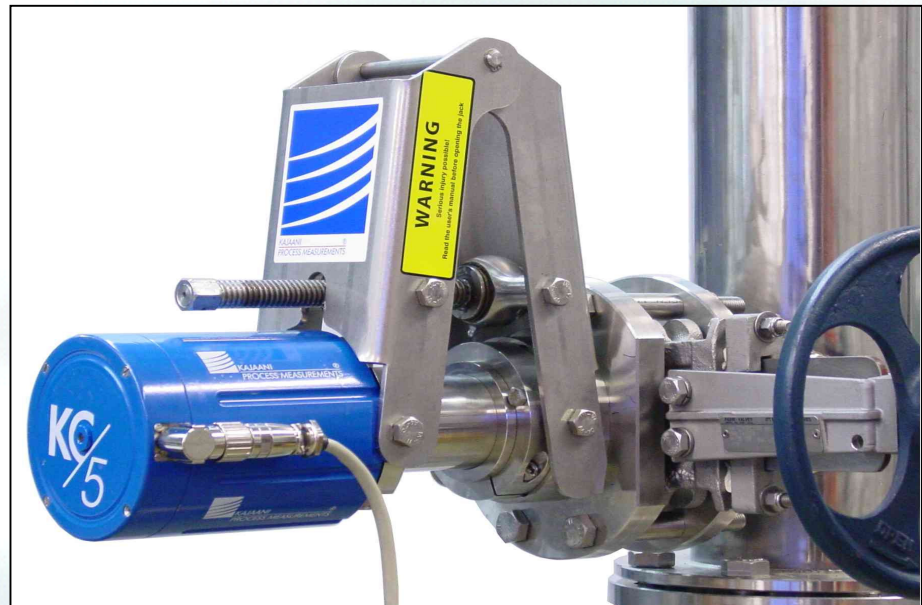
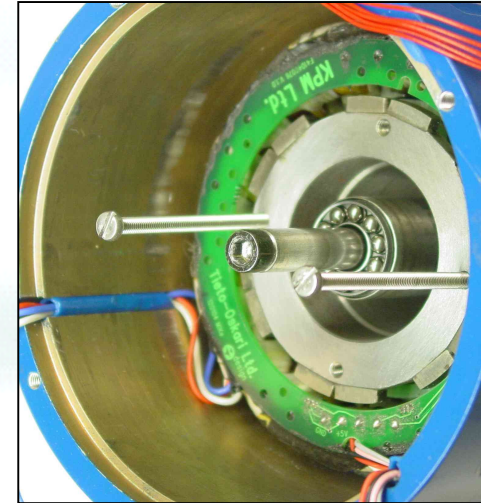


## KC/5 - Revolutionary Design Rotary Consistency Transmitter



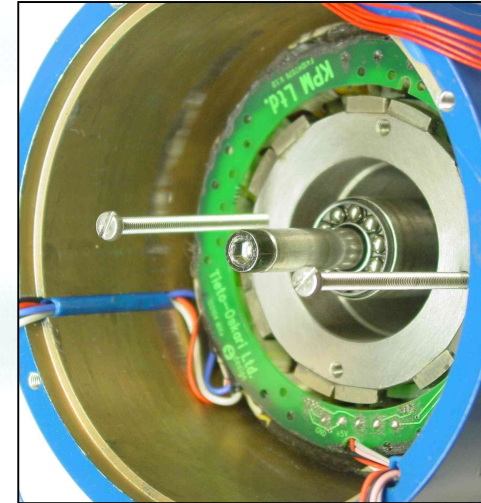
## KC/5 Rotary Sensor with Direct Drive Servo Motor

- Direct Drive Servo Motor
  - Stator integrated to sensor housing
  - Permanent Magnetic Rotor integrated to Drive Shaft
- No motor maintenance
  - No wearable Drive Belt
  - No wearable Motor Parts
    - no bearings
    - no brushes
- Light Weight – only 15 kg / 33 lbs
  - One person can easily handle



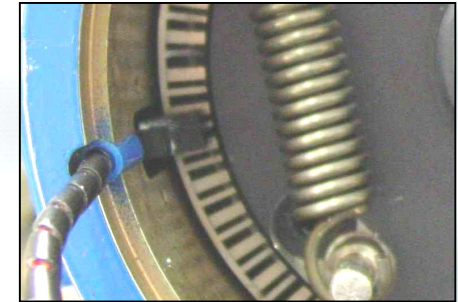
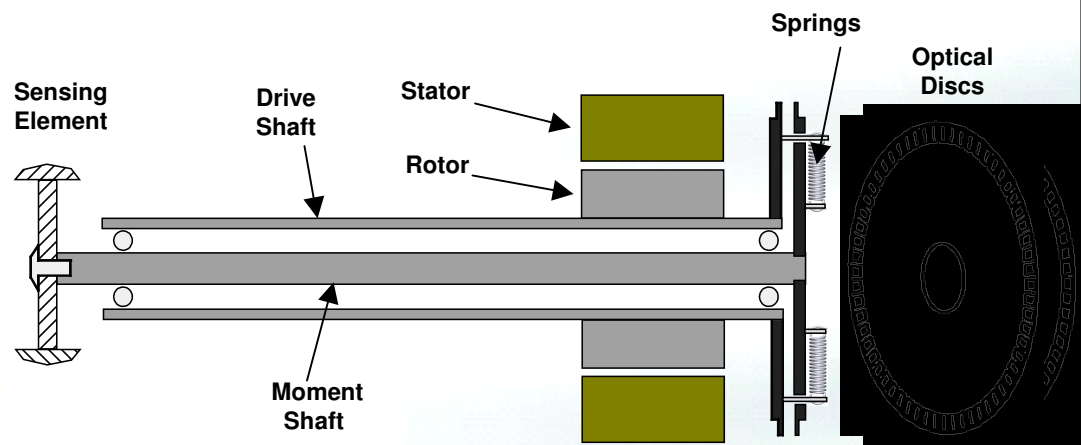
## KC/5 only single phase AC supply needed

- Single Phase Supply 85 -264 VAC/150W
  - No 3-phase Power needed
  - Motor run by 48 VDC Power
    - Supplied from the Power/Display unit

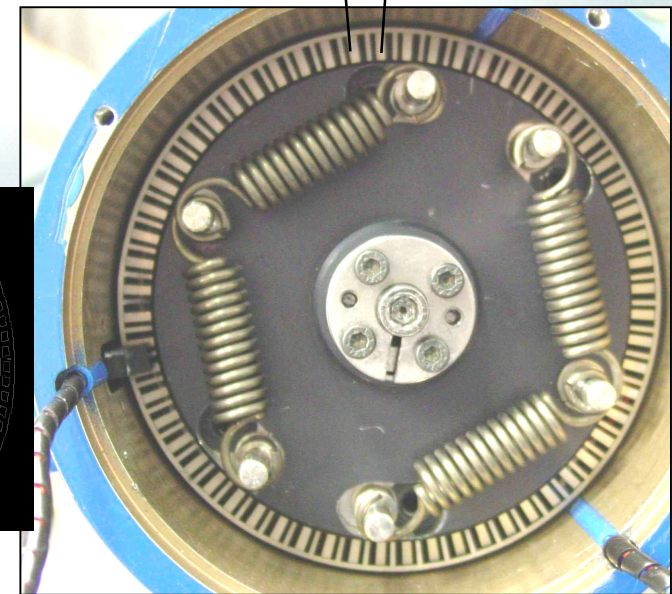


## KC/5 Measurement Principle

- Precision torque measurement
  - Measurement is based on the phase shift of the windows in the discs.
  - Full range 1.5 – 16% covered by same sensing element
  - Sensitivity better than 0,003 %
  - Springs not in contact with process

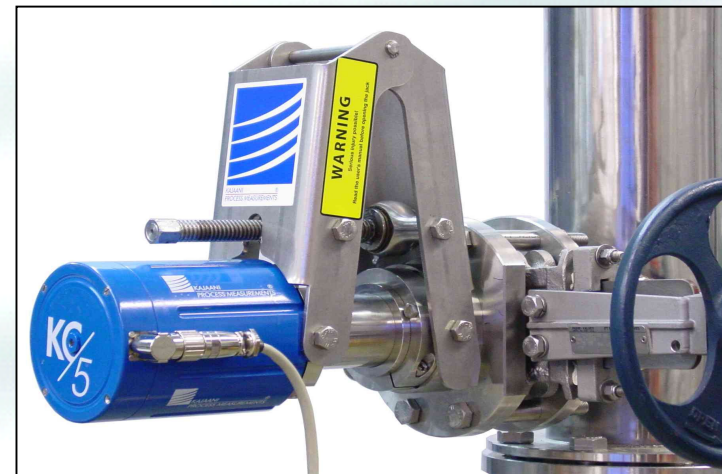
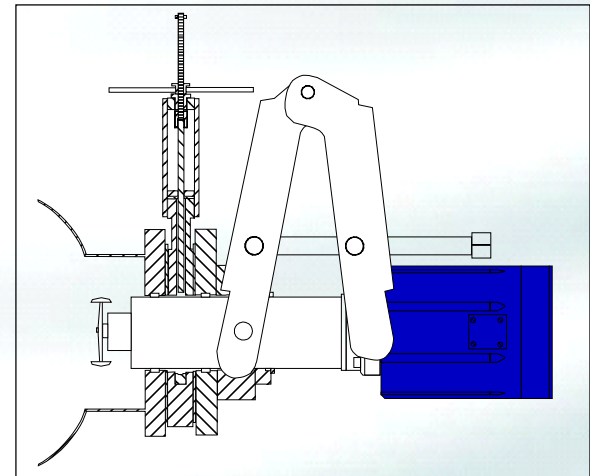


Phase  
difference



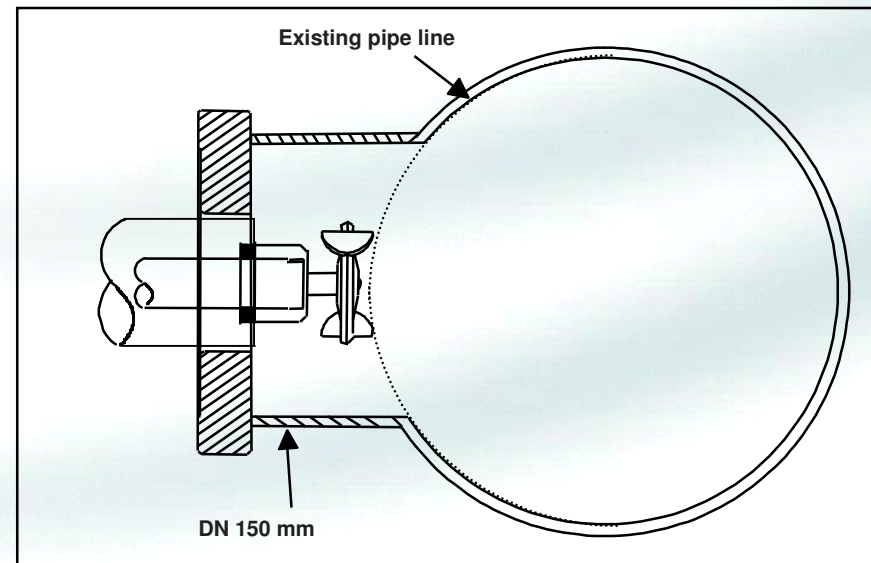
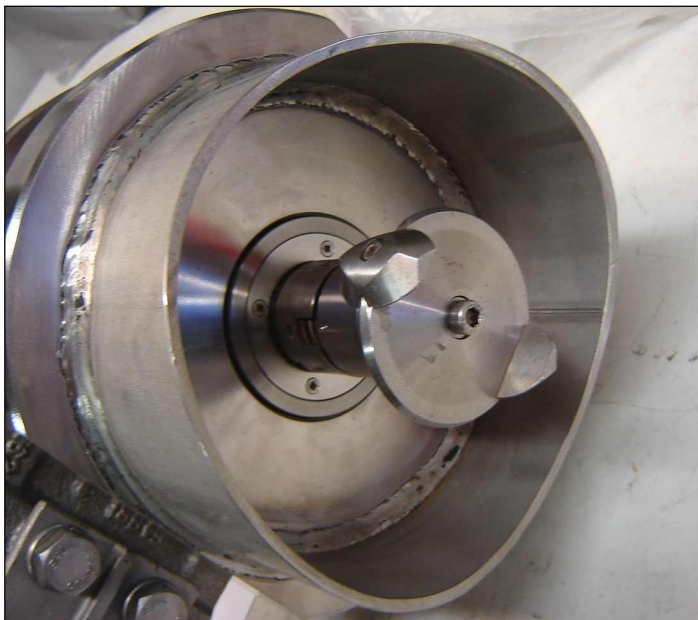
## KC/5 Removable without process shutdown

- Gate Valve installation
  - PN10, PN16 and PN25 gate valves
  - Sensor installation by one person
  - Adjustable insertion depth
  - Flange installation available without gate valve



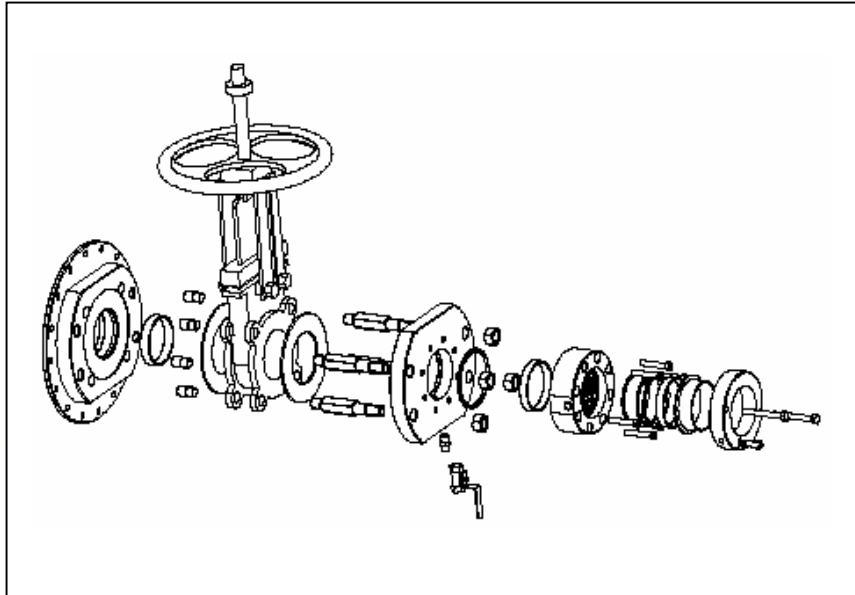
## KC/5 Measurement chamber

- KPM measuring chamber
- Fits to pipe sizes 150 mm (6") or bigger without expansion
  - Expansion available to smaller lines



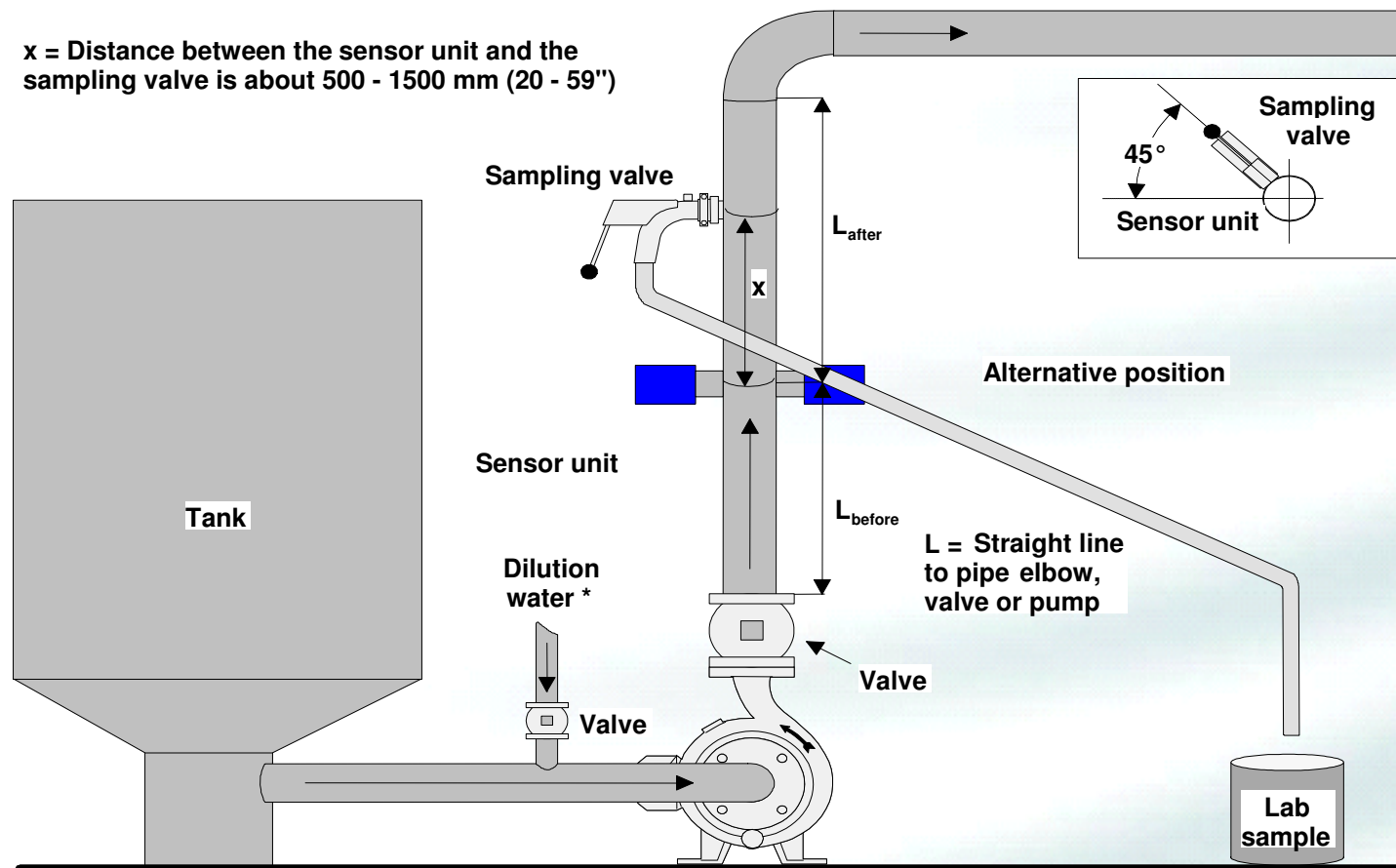
## KC/5 Installation to MEK vessel

- Adapter available to fit KC/5 to existing measuring chamber without welding
- Valve installation enables removal from process without process shutdown and draining the line



## KC/5 Installation

$x$  = Distance between the sensor unit and the sampling valve is about 500 - 1500 mm (20 - 59")



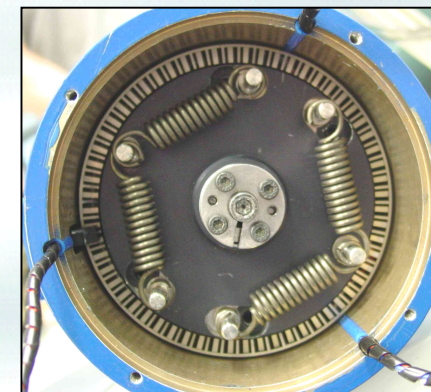
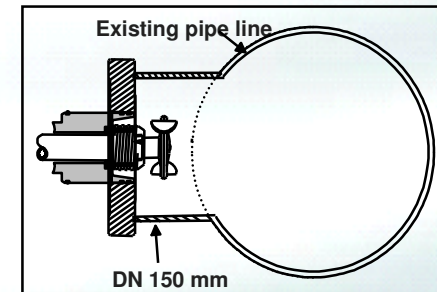
**Installation location rules:**

1. The axis of the sensor and the pump shaft should be perpendicular to each other.
2. Align pump shaft with valve stem .



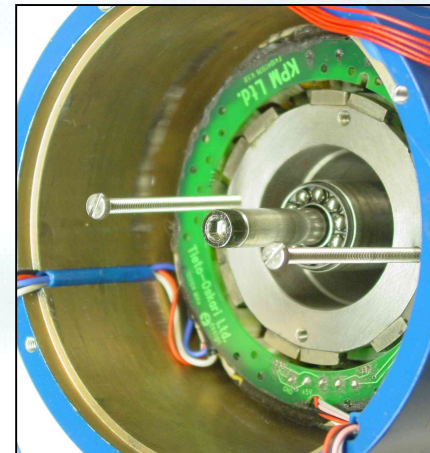
## KC/5 High Performance combined with Flexibility

- Fast measurement response
  - Small measurement chamber
  - Instantaneous response to Cs changes
  - True digital measurement
- Torque measurement with precision springs that do not drift over time
- All Applications 1.5 – 16% covered by one Sensing Element
  - Wide Torque Measurement Range (0-2000mNm)



## KC/5 Top Performance combined with Flexibility

- Adjustable rotation speed 300 - 650 RPM
  - Better performance over full consistency range (low speed at high Cs, high speed at low Cs)
- Auto-Reverse Rotation Feature is programmable
  - Automated cleaning to remove foreign material from sensing element while in service
  - Auto Zero function



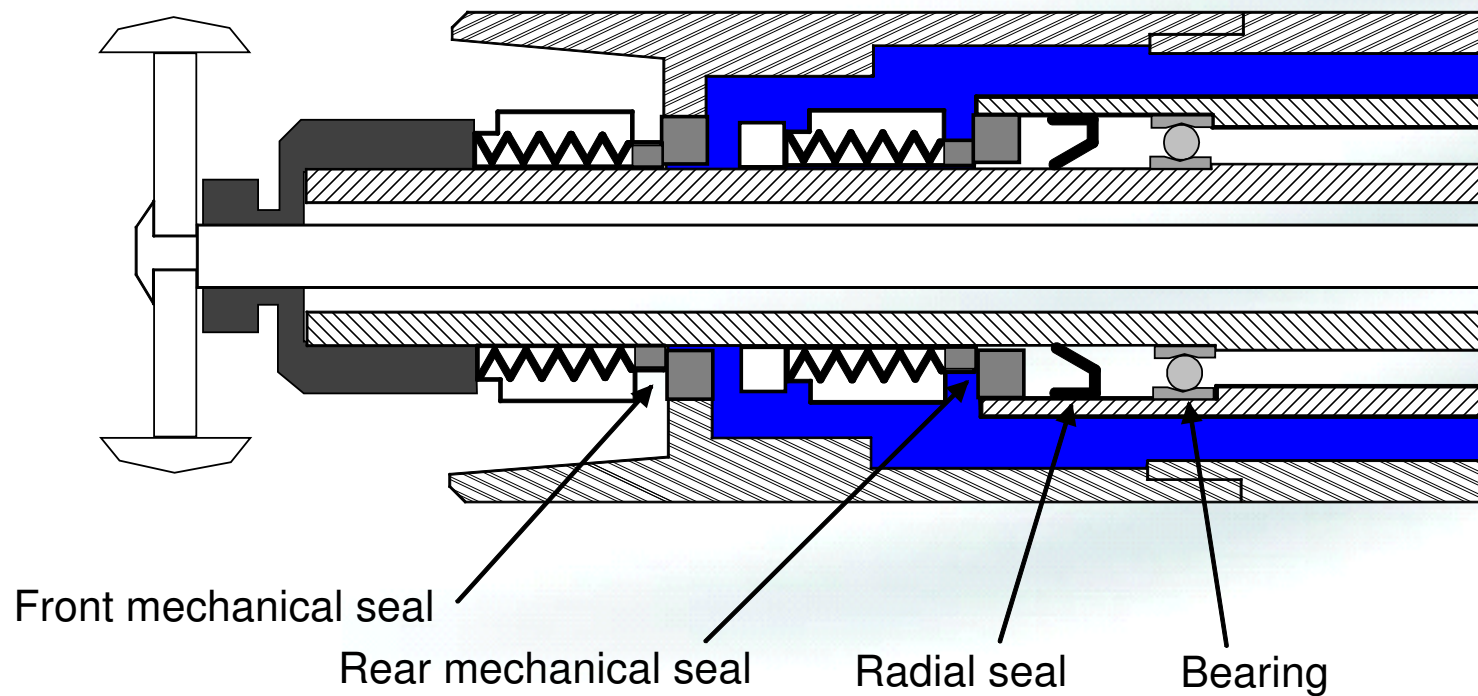
## KC/5 Maintenance features

- On-line sensitivity check with torque brake
  - Performance can be proven while in sensor is in line
- Powerful diagnostics
  - Data log helps to analyze if the problem is process or instrument related
  - Motor power measurement for bearing and seal condition monitoring



## KC/5 – Dual Seal System

- Significantly extends seal life
- Two mechanical seals in tandem system
- Economical standard stock type mechanical seals



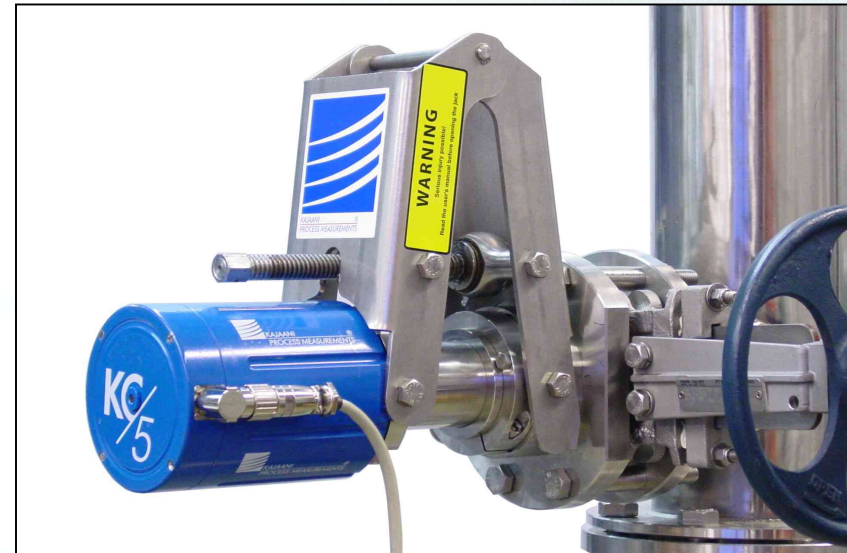
## Quick and Easy maintenance in the Mill

- Easy maintenance with standard tools and by instrument person
  - Mechanical Seal change within one hour
  - Complete rebuild / repair in 4 hours
- Sensors interchangeable without recalibration
  - Standardized setup with torque settings



## Seal Water Options

- Mill Seal Water
  - 6mm (1/4") connectors in the sensor
- Self-contained Seal Cooling Water Tank
  - Integrated into Installation Jack
  - Heat generated by the seal makes water to circulate

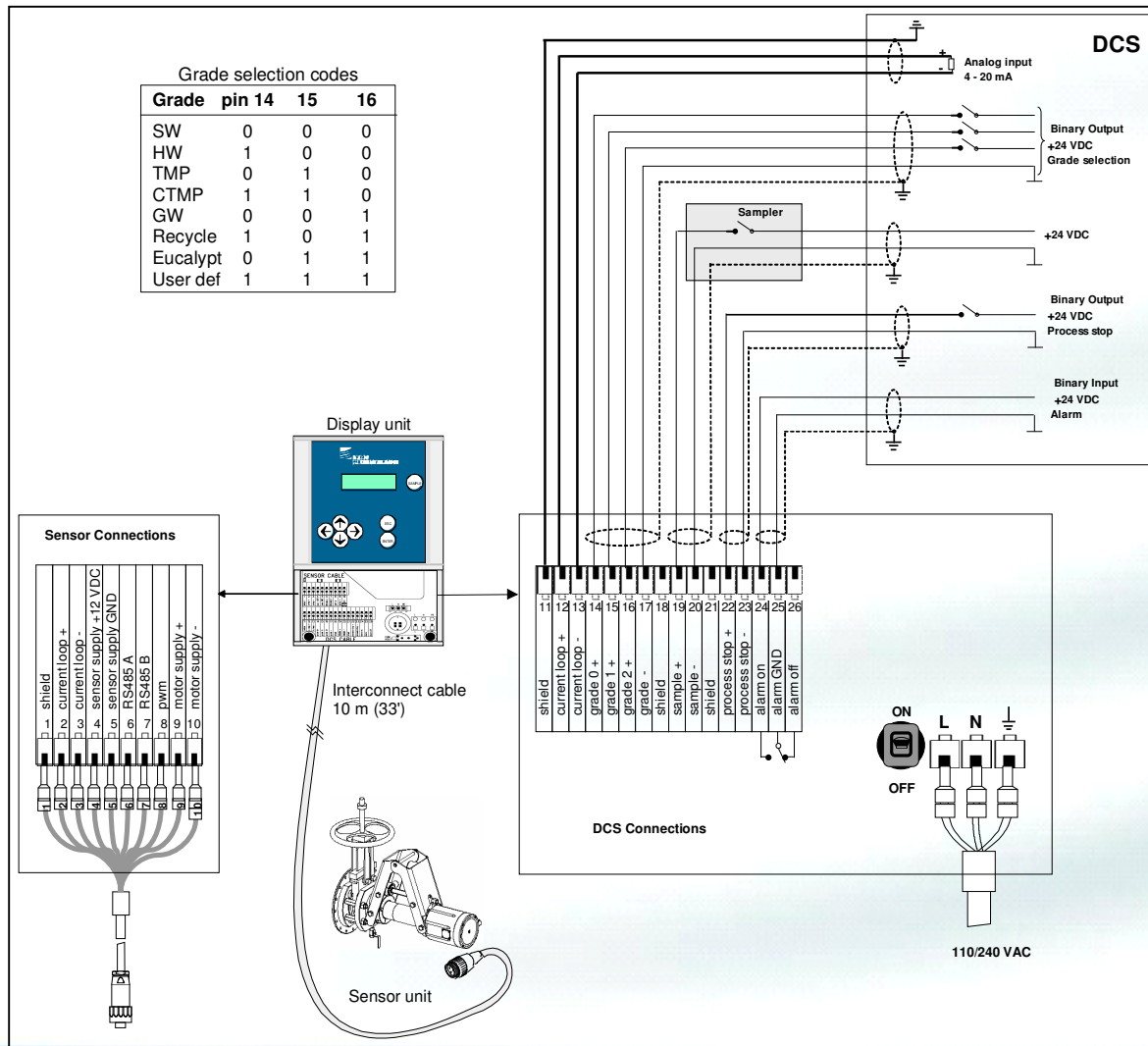


## KC/5 Calibration alternatives

- 8 Selectable Precalibration Grades with linear response to consistency
  - Sensor measures close to real consistency in line immediately after set up
- Quick-Cal procedure
  - Automatic calibration parameter tuning when laboratory consistency value is entered on transmitter setup
- Sample Button
  - averages 30 seconds process data for a sample
  - alternatively binary input from sampling valve
- Time stamp and memory for 10 samples
- Calibration parameter calculation
  - Calculates automatically calibration (slope and zero) from 3 – 10 samples stored



## KC/5 Electrical Connections





## KC/5 Specifications

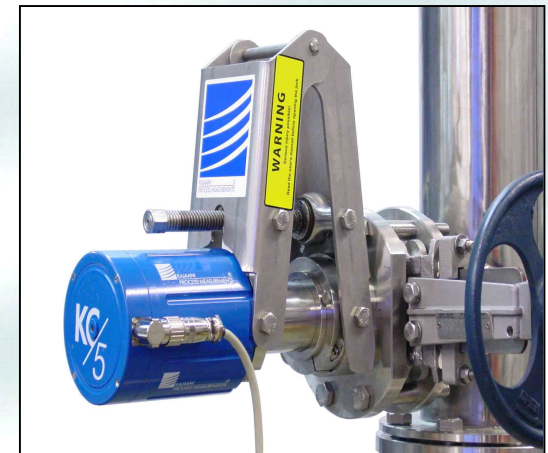
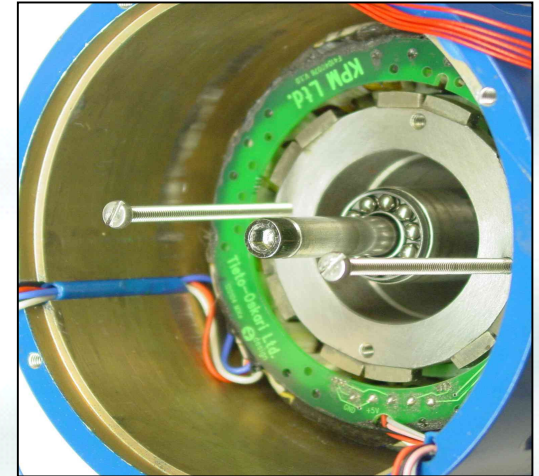
- Output signals 4 - 20 mA + HART®, FDT/DTM,  
Foundation Fieldbus - Profibus PA available  
5 BI, 3 grade, sampling, process stop  
1 BO for alarm
- Supply voltage Single Phase 85 -264 VAC, 150W  
Motor 48 VDC, supplied internally
- Measuring range 1,5 - 16 % with same sensing element
- Sensitivity Better than 0.003 % Cs
- Process pipe size 150 mm (6") or larger
- Process pressure PN25, Gate valve PN10, PN16 or PN25
- Process connection KPM Measurement Chamber or  
BTG MEK adapter
- Flow velocity 0 - 5 m/s (1.6 - 16 ft/s)

## KC/5 Specifications cont.

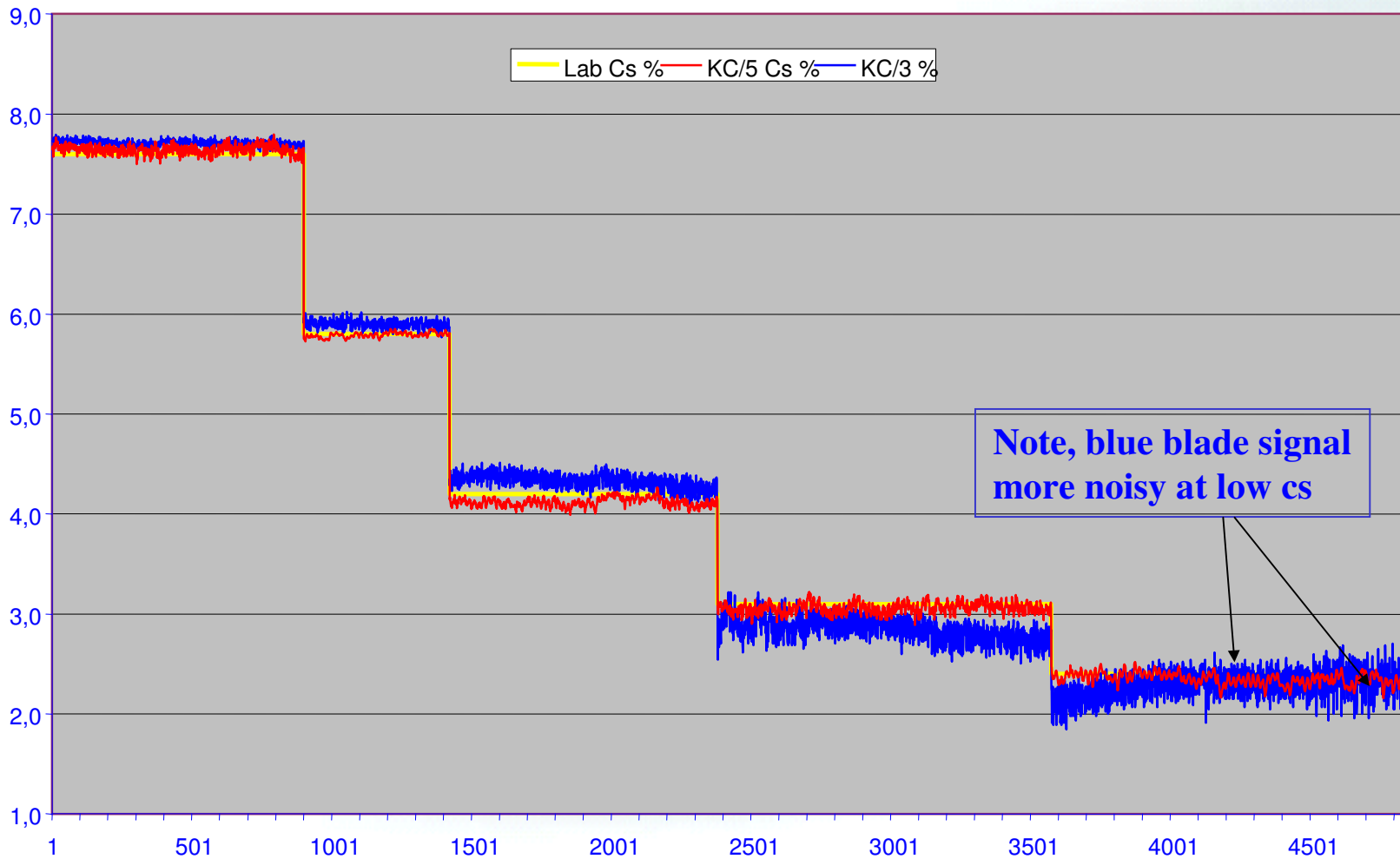
- Weight
  - Transmitter 15 kg
  - Remote Unit 6 kg
  - Installation parts 19 kg
- Materials
  - Sensor AISI 316L or Titanium,
  - Installation parts and Gate valve, AISI 316, Titanium or SMO
- Process temperature
  - 0 - 120 °C, 60 °C with integrated seal water
- Ambient temperature
  - Sensor 0 - 60 °C, Display unit 0 - 50 °C
- Enclosure class
  - Sensor and display IP 66 (NEMA 4X)
- Damping
  - Electronic 0 – 99 seconds
- Low voltage & EMC
  - IEC 6100-4-3 and CISPR 11

## KC/5 Summary

- No Drive Belt - Direct Drive Servo Motor
- Light Weight - only 15 kg / 33 lbs
- No 3-phase Power; Single phase 85 -264 VAC supply
- Removable without Shutdown or draining the Line; Gate Valve Installation
- Fits to BTG measuring Vessel with Adapter
- Excellent sensitivity, better than 0,003 %
- Adjustable Insertion Depth, Rotation Speed and Rotation Direction for best Performance
- All Applications and Consistencies covered by one Sensing Element
- Self-contained Seal Cooling available (no seal water supply needed)



## Rotary signal vs. Blade signal



Note, blue blade signal more noisy at low cs