

## MEK STRATUS

### Rotating Consistency Transmitter



#### FEATURES

- ▶ Rotating shear-force measurement with improved force-balance principle
- ▶ Versatile
- ▶ Single-phase power supply, small pipe connections
- ▶ Small and light, pre-calibrated at delivery
- ▶ Reliable, smart, and compact construction

#### BENEFITS

- ▶ Excellent accuracy and repeatability, no hysteresis; ideal for critical applications
- ▶ Can be used for almost all types of consistency measurements
- ▶ Low installation cost
- ▶ Easy installation, quick start-up
- ▶ Low maintenance, self-diagnostic

### General

The MEK STRATUS takes in-line, rotating, consistency measurement to a new level. Combining the most robust measuring method with unique, next-generation two-motor technology results in unrivaled performance in a format that provides significantly reduced installation and maintenance costs. The transmitter is supplied by single-phase power. In new installations, the small flange version yields minimized pipe connections, while the large flange version fits the conventional studs and measuring vessels.

The versatility of the MEK series is retained with the new generation MEK. Hence, it can be optimized for every application in the entire process: from the blow line after the digester, in screening and washing stages, and in the bleach plant through the machine chest.

Its total flexibility is accompanied by ultra-high measurement precision, with a construction providing extreme compactness, minimized maintenance requirements, and longer lifetime.

The MEK STRATUS is operated using the BTG STRATUS Platform. Status is visualized over a long distance with the BTG status ring. Settings and follow-up handling are handled through the BTG STRATUS App or through the large touchscreen display on the BTG STRATUS Field Interface. Work with present and future communication interface requirements, from analog output with HART® to field buses and OPC UA.

Building on BTG's unsurpassed experience and success with rotating consistency measurement and control, the MEK STRATUS is the sixth generation of rotating transmitters from BTG and is based on the successful and widely proven MEK rotating transmitters, sold in more than 50,000 units.

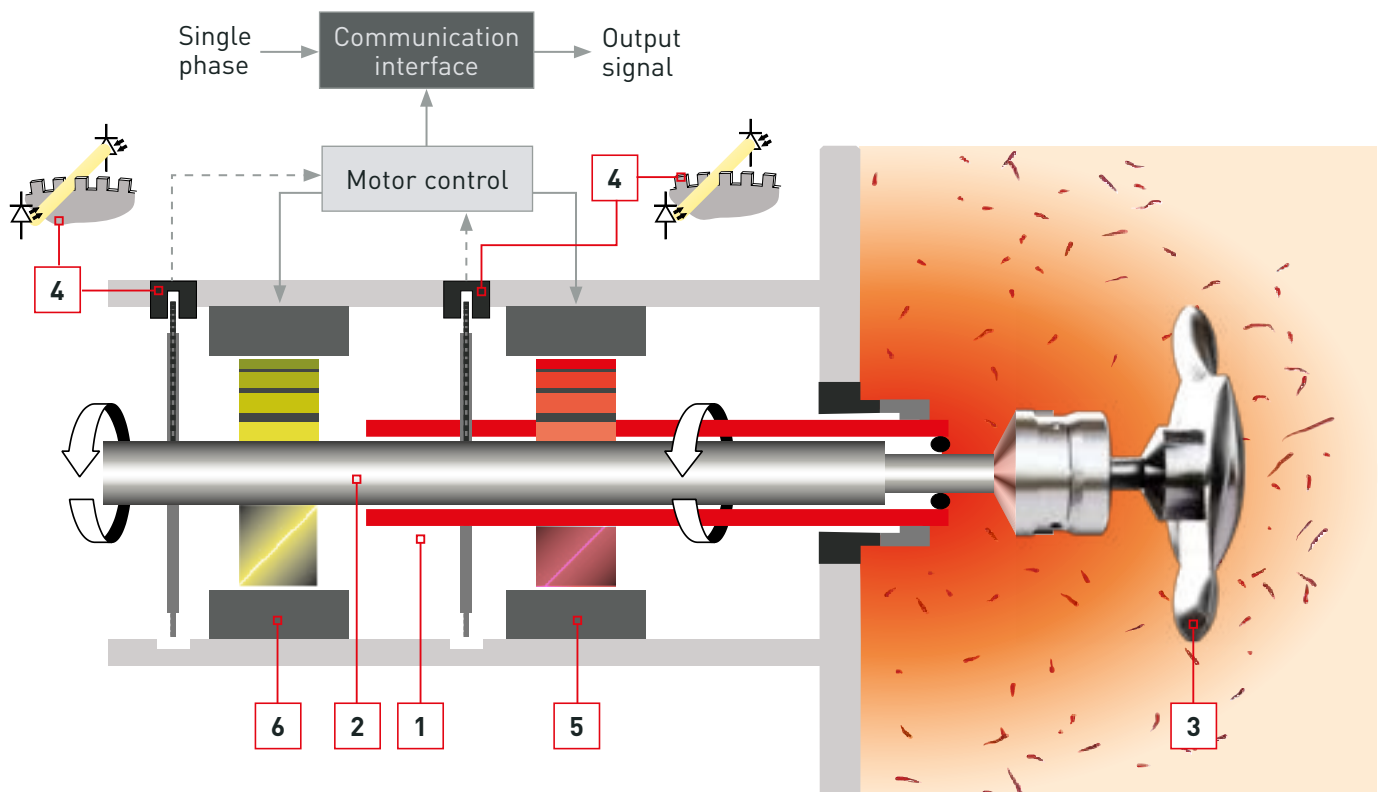


Use QR code or link for more information  
[www.btg.com/files/mekstratus/](http://www.btg.com/files/mekstratus/)

## Measuring principle/measurement

Rotating consistency measurement is based on measuring the reaction torque (or shear-force) from a sensing element, which has a strong physical relation to the fiber consistency. The accepted technology comprises a double-shaft system with an outer hollow-shaft (1) and an elastically connected inner (measuring) shaft (2) to which the sensing element (3) is attached. The outer shaft is driven by a motor (5) and, to achieve long-term stability and minimum sensitivity to disturbances, a feed-back system counterbalances the reaction torque at the sensing element, keeping the measuring shaft in a controlled position within the hollow-shaft.

The MEK STRATUS takes advantage of an improved system following the principle of force-balance (patented). A so-called direct drive of the sensing element is achieved by applying a second motor (6) for driving the measuring shaft and sensing element attached to it. The two motors are driven individually but at the same speed, with a controlled angular displacement, measured by optical encoders (4). Exploiting the total controllability and perfect relationship between the torque and current of the motors (5,6), which are of brushless permanent magnet type, results in extreme precision and accuracy in the torque – and consistency – measurement.



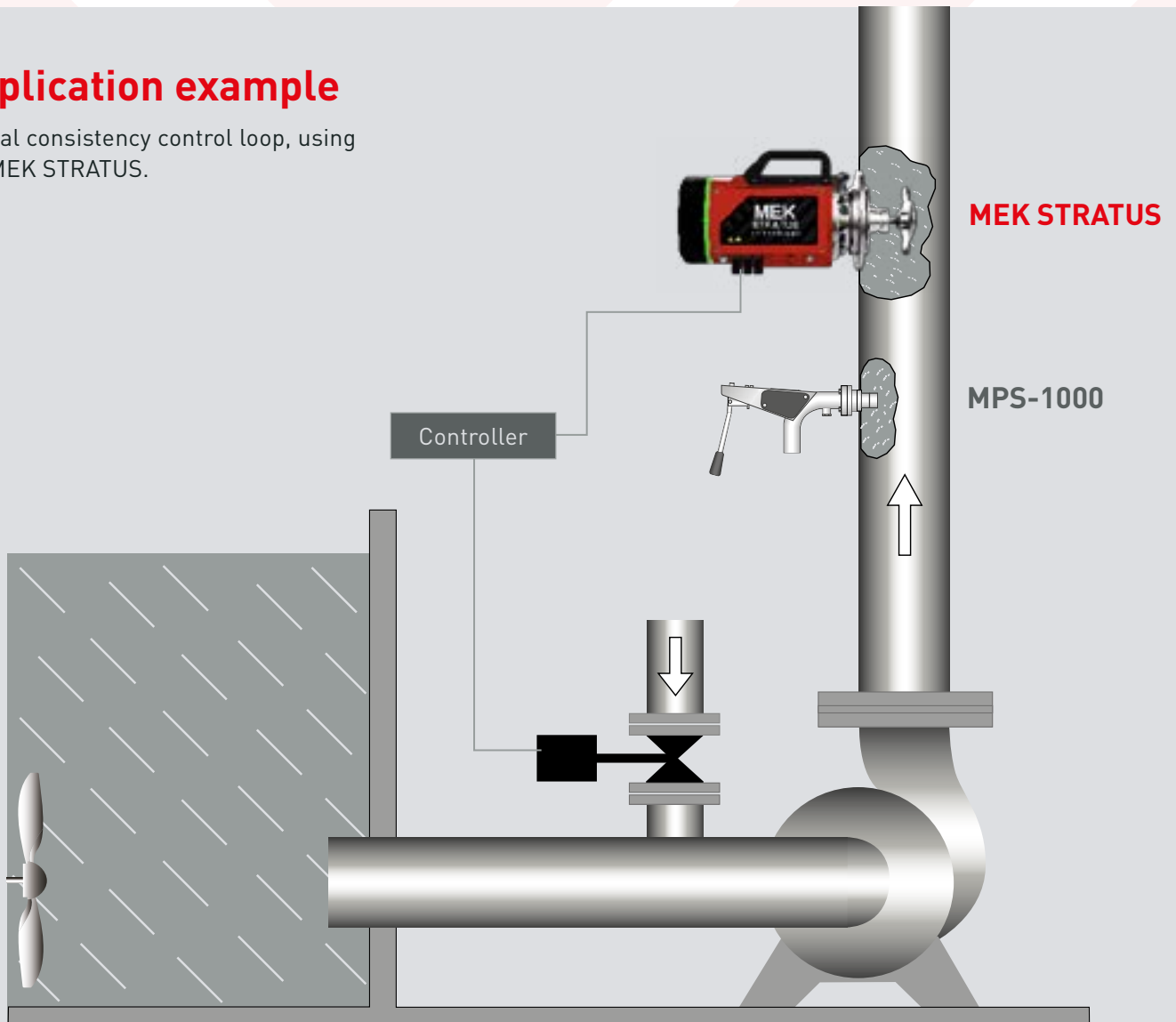
- 1 Outer shaft
- 2 Inner (measuring) shaft
- 3 Sensing element
- 4 Optical encoders
- 5 Motor on outer shaft
- 6 Motor on inner shaft (for consistency measurement)

# MEK STRATUS

Rotating Consistency Transmitter

## Application example

Typical consistency control loop, using the MEK STRATUS.



## User interface

For the best user experience, BTG has developed two types of interfaces. The BTG STRATUS App is the new user-friendly way to set up, calibrate and monitor the MEK STRATUS. It is available for both iOS and Android mobile devices. Using the app, there is no need for a junction box with a display; all connections are made directly on the sensor.

There is also our brand-new BTG STRATUS Field Interface, a traditional robust junction box with a large and user-friendly touchscreen. Both options provide the best, most intuitive user experience, with graphs and easy handling. experience, with graphs and easy handling.



BTG reserves the right to make technical improvements.

## TECHNICAL DATA / SPECIFICATIONS

Complete technical data is available in the MEK STRATUS user manual.

### General

#### Type

MEK STRATUS in-line, rotating, consistency transmitter for pulp suspensions

#### Manufacturer

BTG Instruments AB, Säffle, Sweden

#### Measuring principle

Rotating shear-force measurement

#### Consistency limits

1 to 18% fiber consistency

#### Repeatability

$\sigma = 0.002\% Cs$

#### Flow limits

0.5 to 5 m/s [1.6 to 16.4 fps] depending on application

#### Process Pressure

25 bar at 120 °C, [363 psi at 248 °F]  
with Ø180 mm flange  
16 bar at 120 °C, [232 psi at 248 °F]  
with Ø270 mm flange

#### Media temperature

Min. 0 °C [32 °F]  
Max. 120 °C [32 °F]

#### Ambient temperature

Max. 50 °C [122 °F] without cooler  
Max. 60 °C [140 °F] with cooler

#### Material wet parts

Stainless steel equiv. to EN 1.4404/ASTM 316L or Avesta 254 SMO depending on application

#### Protective rating

IP65, equivalent to NEMA 4X

#### Weight

17 kg [37 lb] with Ø180 mm flange  
21 kg [46 lb] with Ø270 mm flange

#### Calibration sets

Four separate calibration sets, controllable using a binary-coded switch (Only in Field Interface)

#### Alarms and diagnostics

Status ring for NAMUR NE107 color indication.  
Motor and electronics supervision, high/low temperature, load levels, humidity, vibration, etc.

#### User interface

BTG STRATUS App for phone or tablet. Alternative BTG STRATUS Field Interface with large touchscreen.

#### Transmitter flange

Ø180 mm: 80-150 mm [3-6"] pipe using measuring vessel,  $\geq 200$  mm [8"] pipe using saddle or weld-in stud  
Ø270 mm: 100-250 mm [4-10"] pipe using measuring vessel, min 300 mm [12"] using weld-in stud.  
Backwards compatible with all MEKs.

#### Communication

Analog output, 4-20 mA  
Digital In/Interlock, +24V. Alternative for 110-240 VAC.  
Digital in/Sample  
Digital out/Alarm  
Analogue in 4-20 mA/Compensation  
OPC UA over TCP/IP  
Bluetooth, 5.0 LE  
2xDigital in for calibration sets. (Only in Field Interface)

#### Electrical connection

100-240 $\pm$ 10% VAC, 50/60 Hz, Single phase.

#### Power consumption

Maximum 512 VA

### Safety & directives

#### EU-directives

Designed in accordance with relevant CE standards.

#### Quality Assurance

Quality-assured in accordance with ISO 9001.

### Your local BTG office



Use QR code or link for more information  
[www.btg.com/contact/](http://www.btg.com/contact/)