

# Transducers by HBM

## Fields of small and medium torque



measurement with confidence

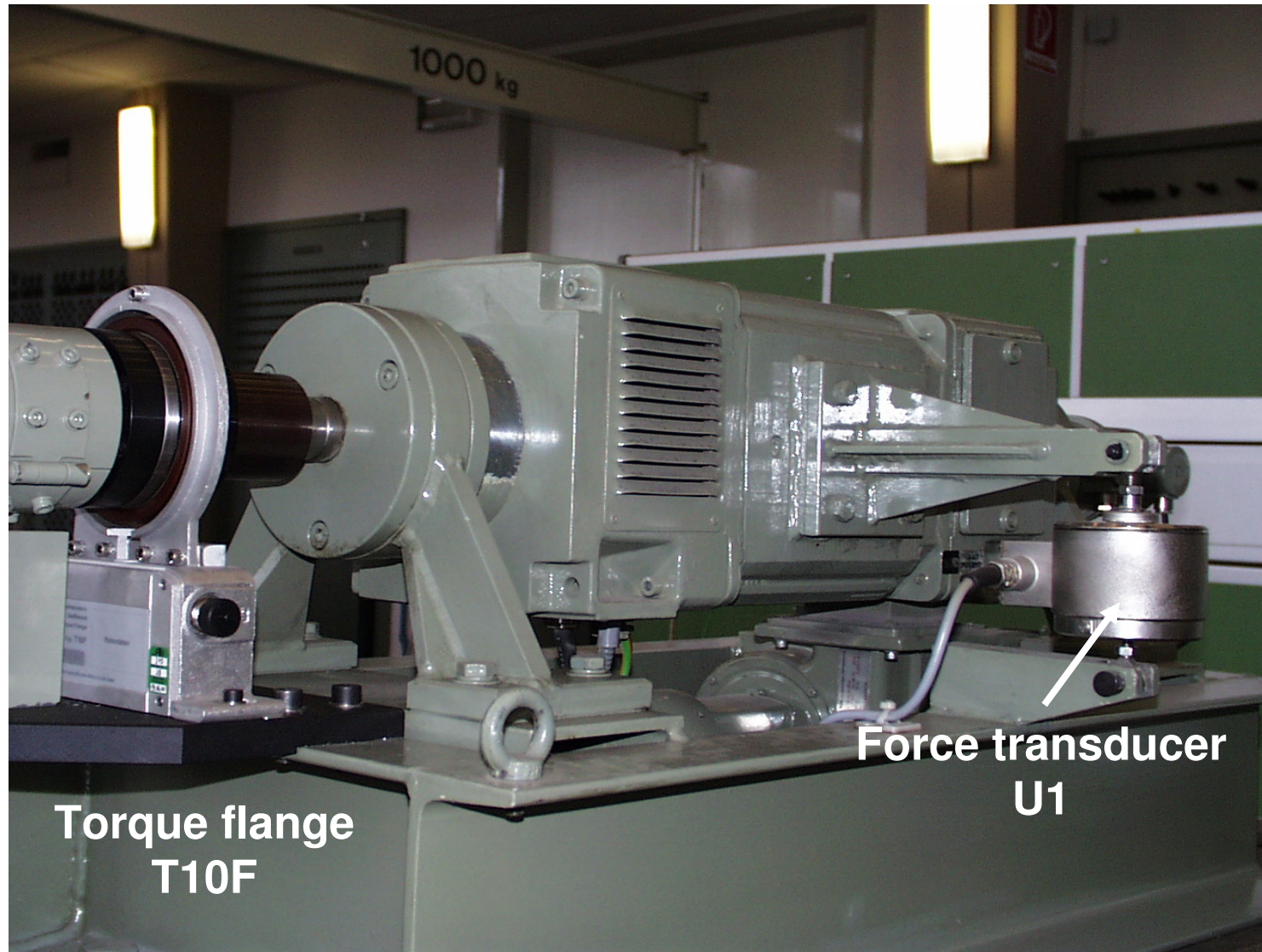


**T5**

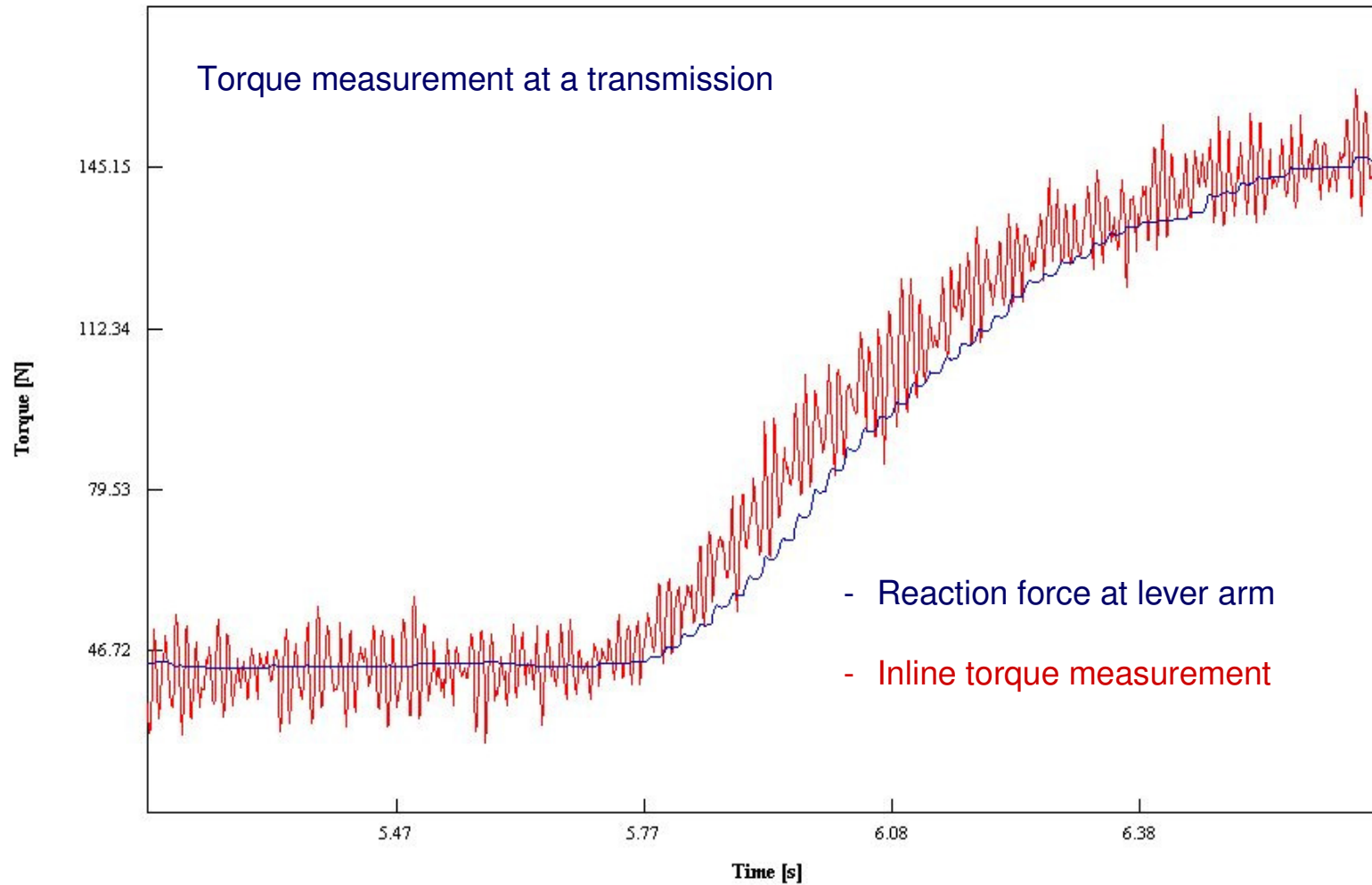
**T20WN**



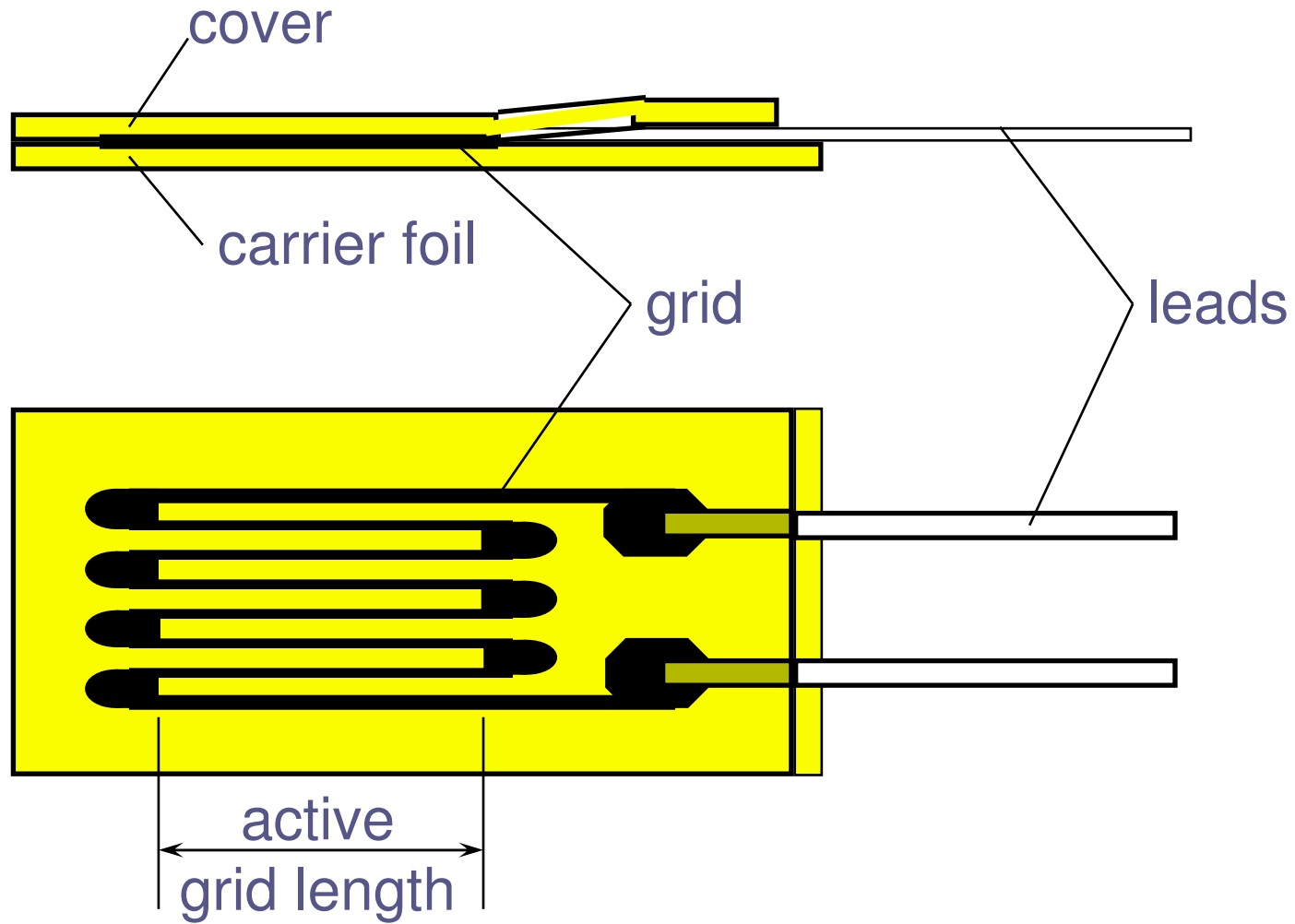
# Comparison of torque measuring methods



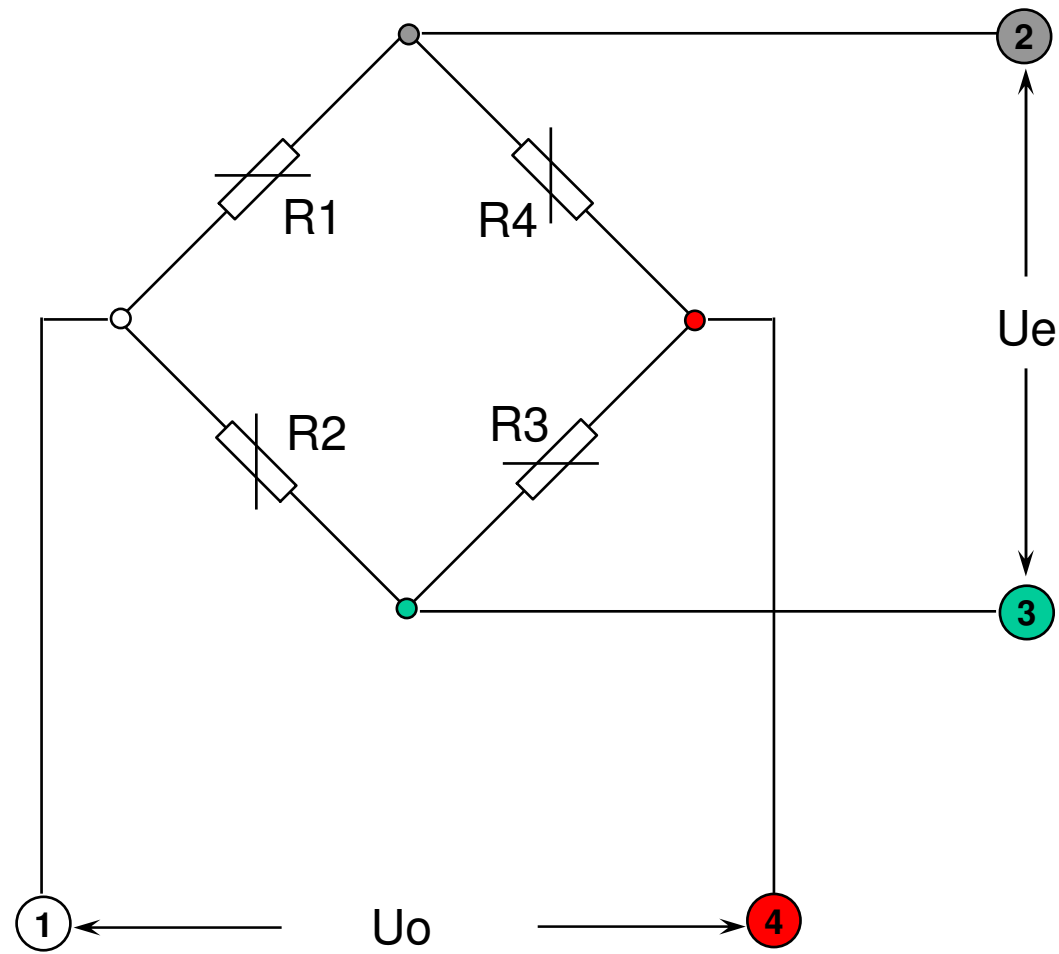
# Comparison of torque measuring methods



# Principle of a foil strain gauge

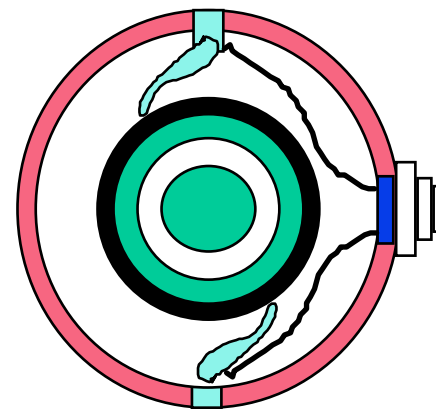
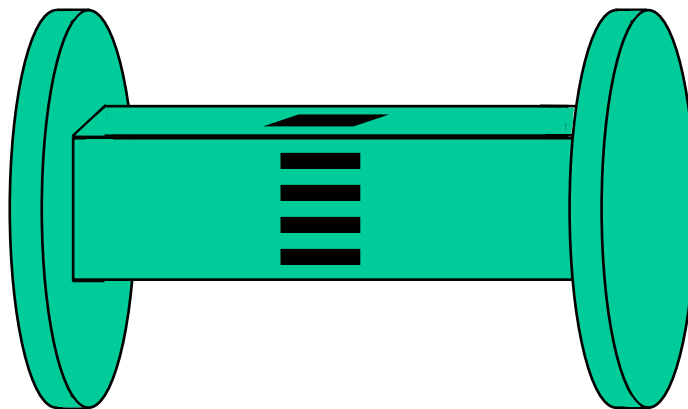


# Wheatstone Bridge



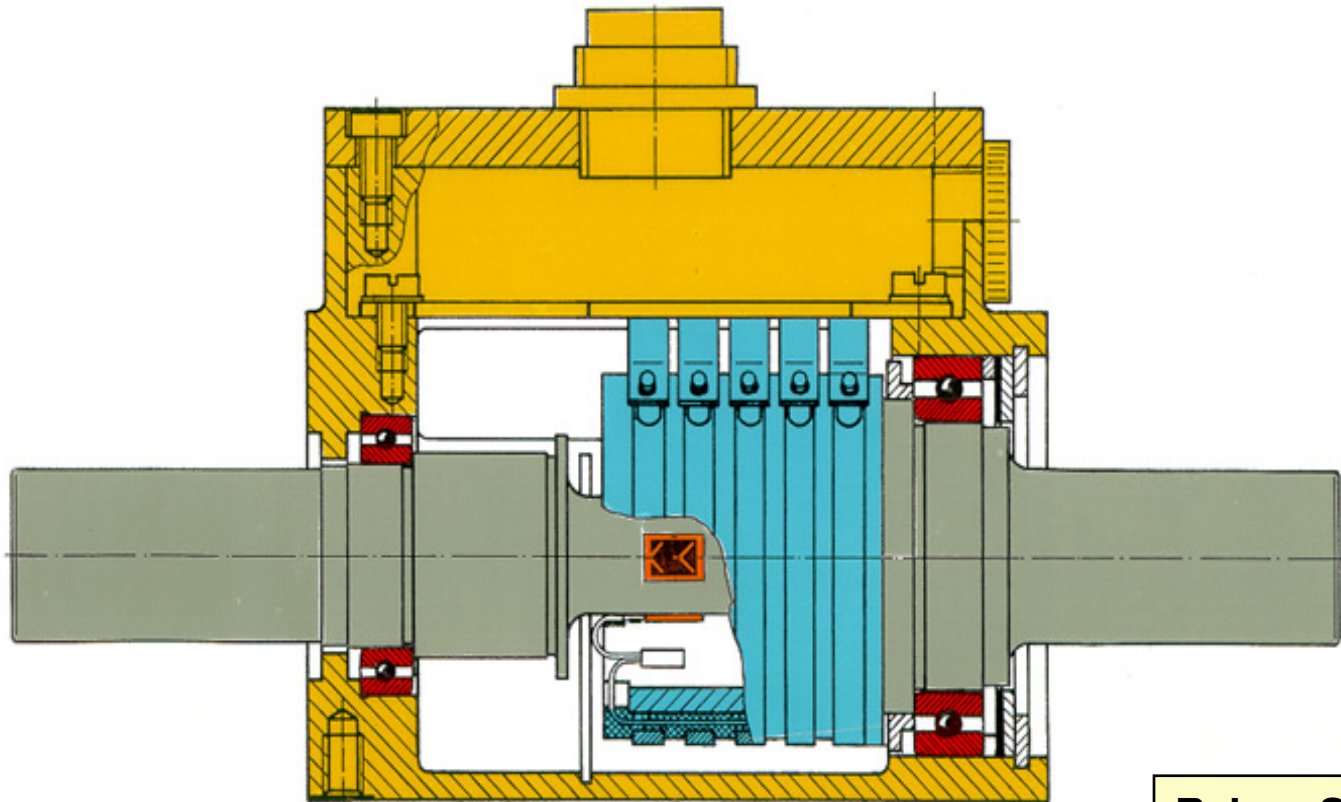
# Torque Transducer T5

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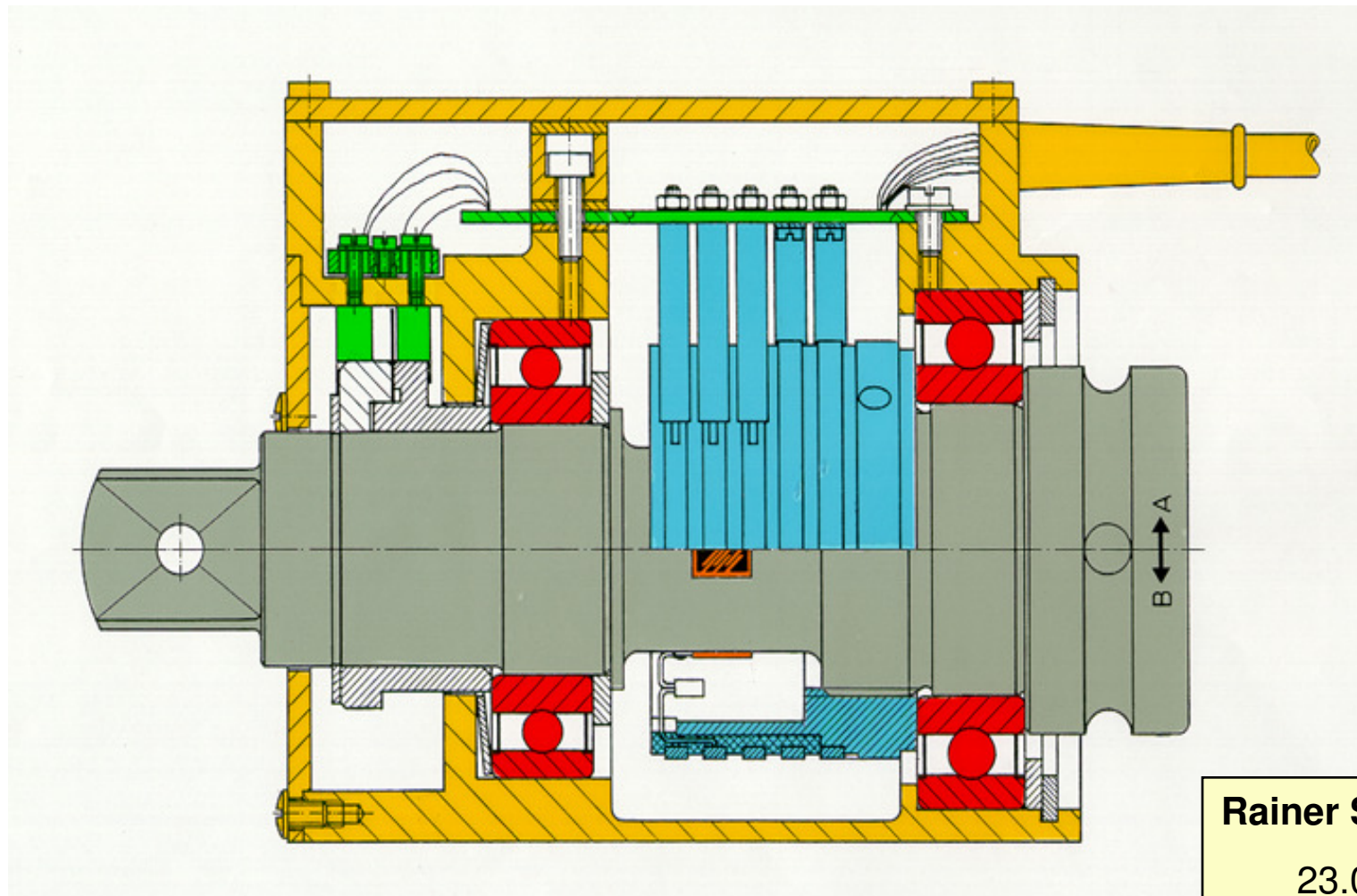
# Principle of the T5 torque transducer

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**Rainer Schicker:**  
23.05.02

# Principle of the T4WA torque transducer



**Rainer Schicker:**  
23.05.02



## Features of torque transducer T5

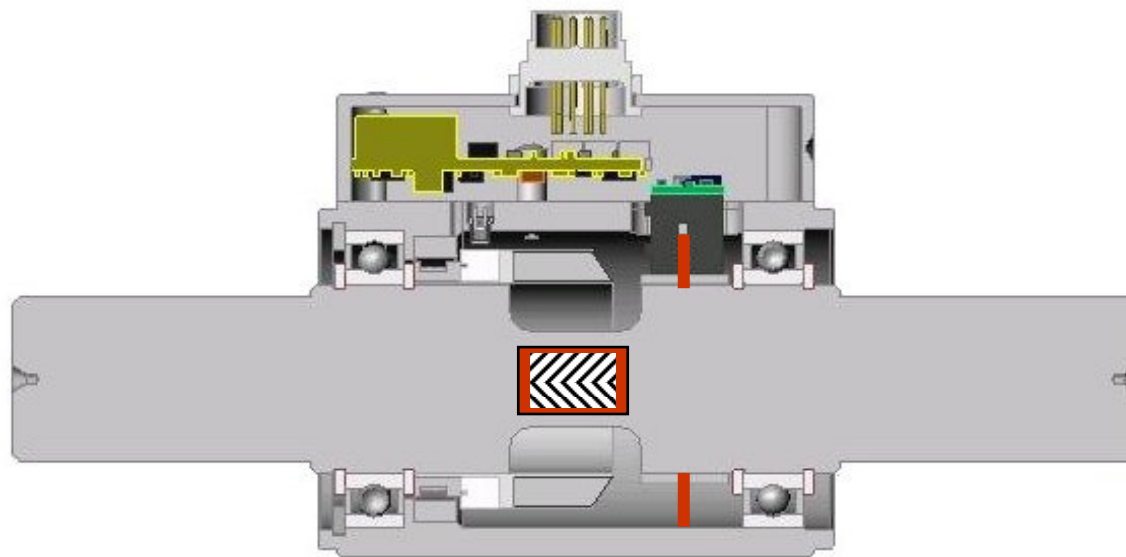
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- **Meas. ranges:  $\pm 10 \dots \pm 200 \text{ N}\cdot\text{m}$**
  - **Accuracy class: 0,1 %**
  - **Max. speed:  $4000 \text{ min}^{-1}$**
  
  - **Signal transmission with slip rings**
  - **Torque signal output:  $\pm 2\text{mV/V}$**
  - **Torque introduction via non-play friction joint**
  
  - **Bearings on both sides of the measuring system**
  - **Small moment of inertia**
  - **Compact design**
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# Torque Transducer T20WN

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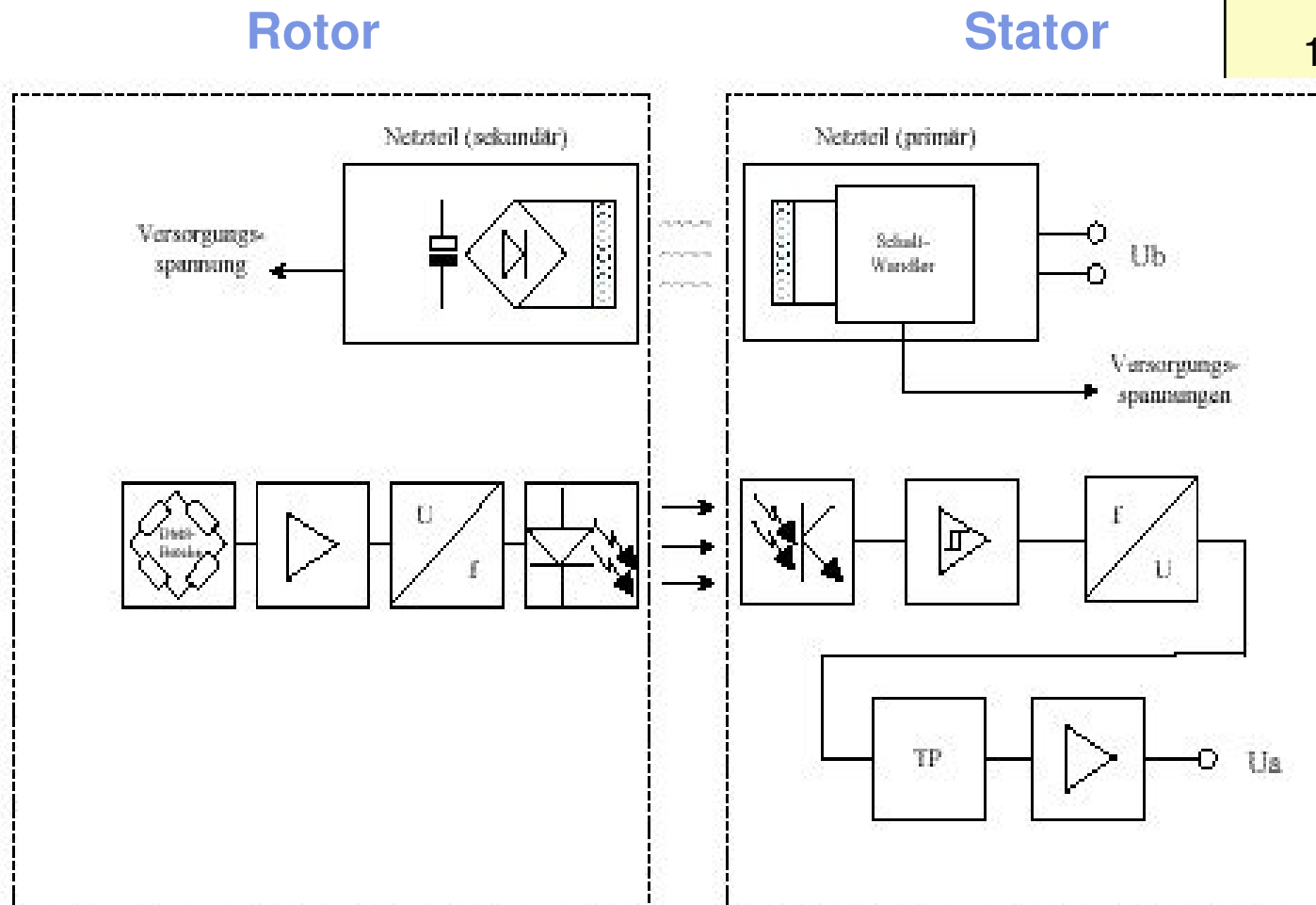


# Principle of the non-contact torque transmission

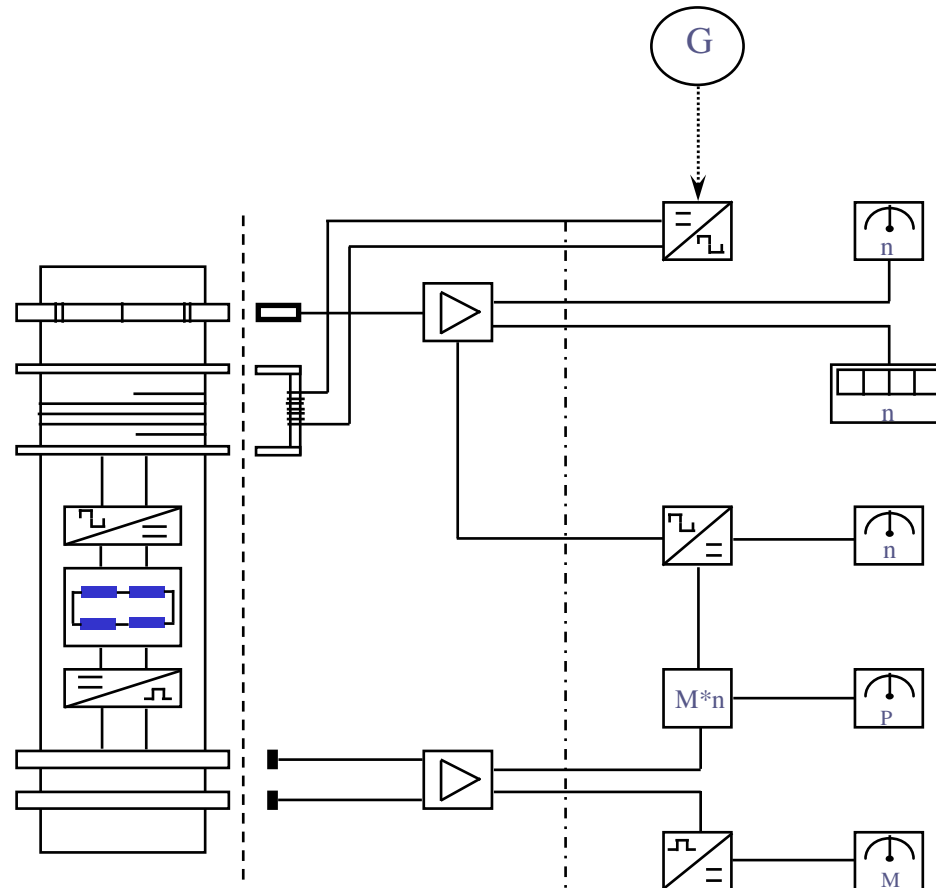


## T20WN Torque transducer

Rainer Schicker:  
14.06.2002



# Principle of the T20WN torque transducer



## Features of torque transducer T20WN

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- **Meas. ranges:  $\pm 0,1 \dots \pm 200 \text{ N}\cdot\text{m}$**
  - **Accuracy class:  $0,2 \%$**
  - **Max. speed:  $10,000 \text{ min}^{-1}$ ; (with speed meas.:  $3,000 \text{ min}^{-1}$ )**
  
  - **Non-contact, torque signal output  $\pm 10\text{V}$**
  - **Integrated speed/angle measuring system:  $2 \cdot 360$  pulses/rev, TTL level**
  - **Torque introduction via non-play friction joint**
  
  - **Bearings on both sides of the measuring system**
  - **Small moment of inertia**
  - **Compact design / Housing can be used as supporting bearing**
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**Static and dynamic measurement of torque, speed, and angle of rotation in laboratory, test department, and experimental applications, and in the fields of production monitoring and quality assurance**

- ➔ **Motor car accessory test rigs (controllers, switches)**
  - ➔ **Office and business machines**
  - ➔ **Small-size motor test rigs**
  - ➔ **Measurement of bearing friction moments**
  - Viscosity measurement**
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➔ **Test of impeller type centrifugal fans with vacuum cleaners**

**Md: 1 ... 2Nm, n: 10,000rpm**

➔ **Test of stepper motors for direct addressing**

**Md: 1.2 ... 1.5Nm, n: 1,400rpm**

➔ **Test of magnetic clutches**

**Md: 0.01 ... 1Nm**

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# Mounting

T20WN Torque transducer





# Mounting

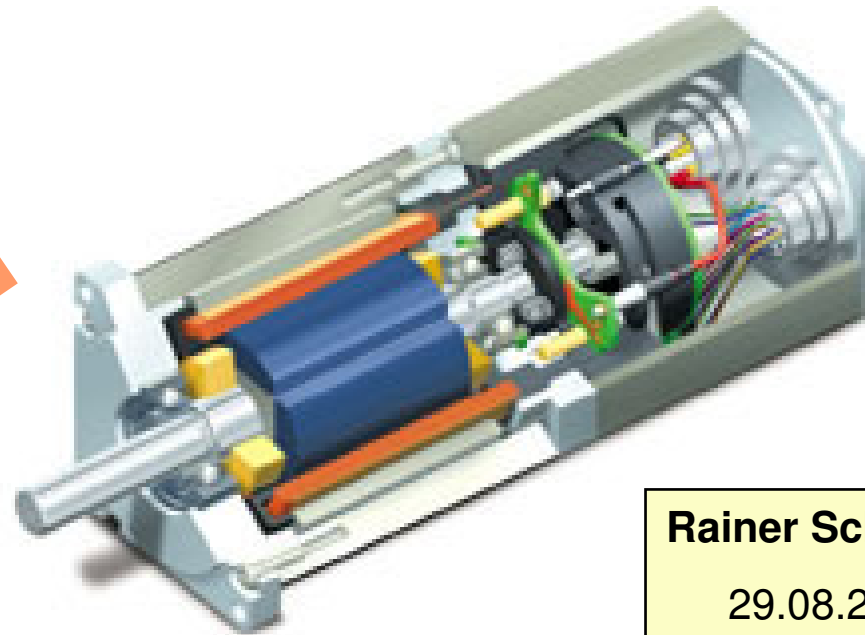
## T20WN Torque transducer





**Rainer Schicker:**  
14.06.2002

Press release:  
maxon motor  
August 2002  
[www.maxonmotor.com](http://www.maxonmotor.com)



**Rainer Schicker:**  
29.08.2002

The maxon EC45 4-pole ventures into new dimensions, away from typical high-speed to high torque motors. The industrial version of this brushless micromotor, which has a quadratic cross-section of 45 mm edge length, is around 100 mm long and at 5000 rpm, supplies a continuous torque of around 0.25 N·m

# Prices

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**-10%**



**1867 ÷ 2164 EUR**



**3050 ÷ 3223 EUR**

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**thank you ...**  
... for your attention



**Köszönöm a figyelmet**



measurement with confidence