E-3: Round Table TC3

Moderator: A. Sawla & D. Peschel

Traceability in Torque Measurement

Round Table - TC3
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PTB, Germany
www.ptb.de

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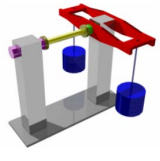

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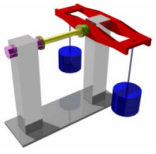
Traceability in Torque Measurement

1. **About the influences on the calibration results obtained on calibration systems with supported or unsupported beams** (Diedert Peschel)
   16:35 - 17:05

2. **Discussion on calibration results for alternating torque in comparison with single cw and acw torque calibrations** (Dirk Röske)
   17:05 - 17:35

3. **Aspects of traceability of torque transducers in power test stands (influence of speed of rotation, on-site calibration, ...)**
   (Georg Wegener)
   17:35 - 18:05

4. **Conclusions**



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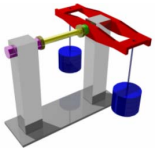
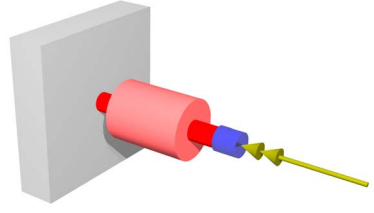


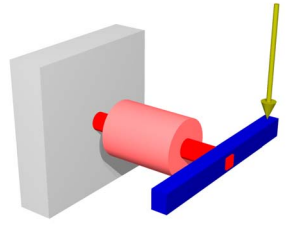
About the influences on the calibration results obtained on calibration systems with supported or unsupported beams

Important specific aspects in such applications are among others:

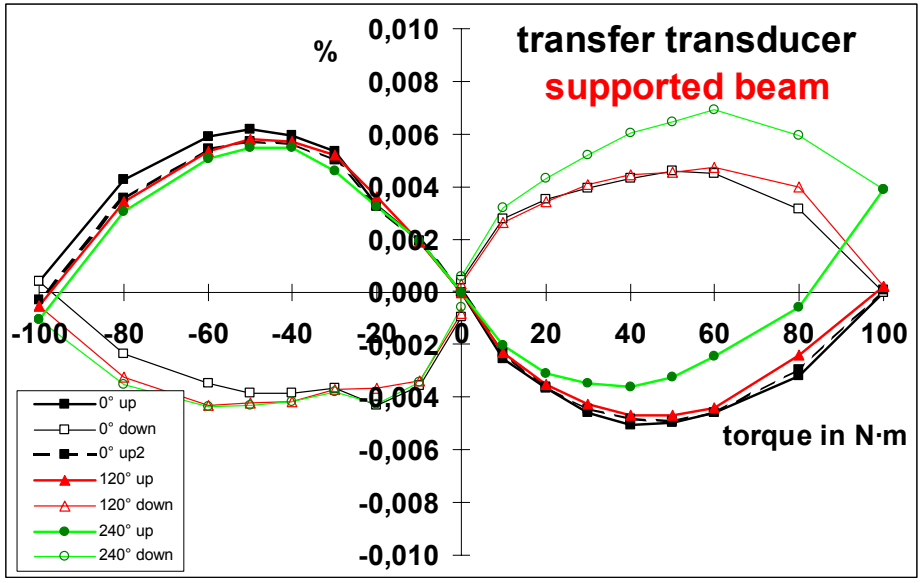
In case of using supported beams and adaptation of the test piece with couplings with low stiffness for bending the calibration will realised under pure torque conditions.

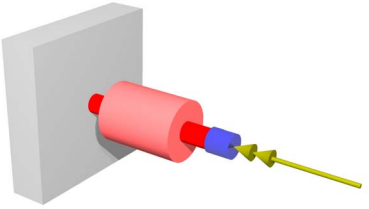


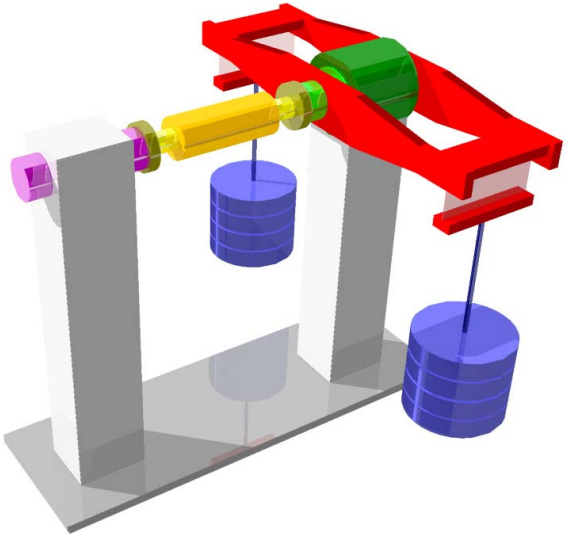
Unsupported beams generate additionally bending moment and side force so that the calibration conditions are very different from pure torque conditions.



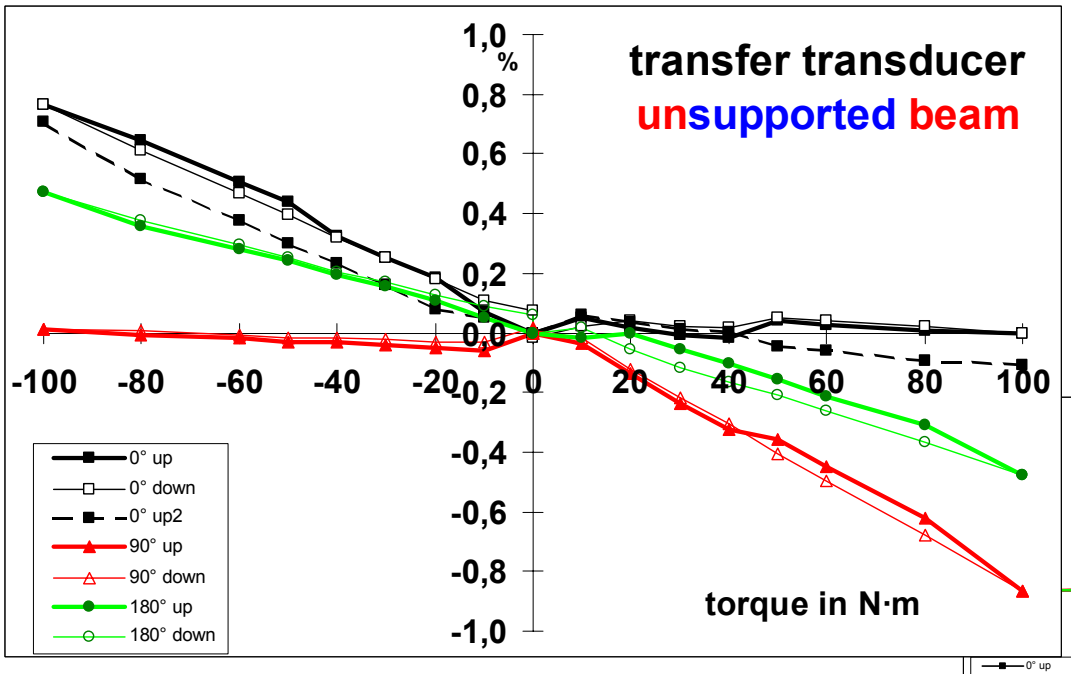
Realisation of a supported beam in a torque standard maschine

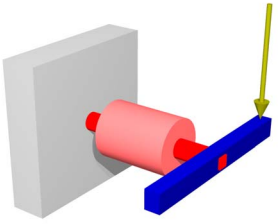


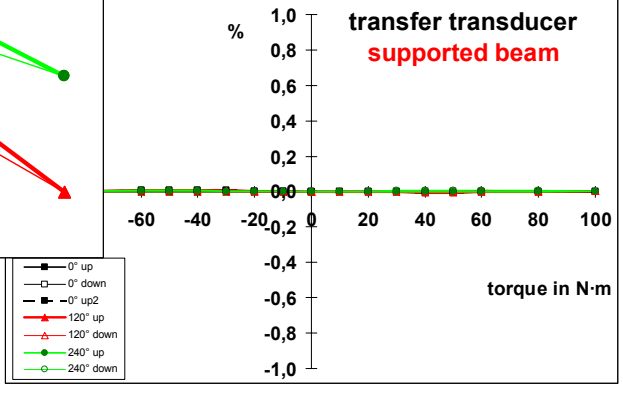


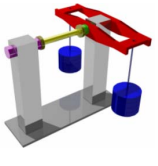


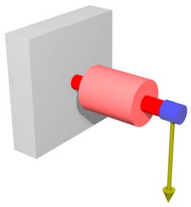
Realisation of a unsupported beam in a torque calibration maschine

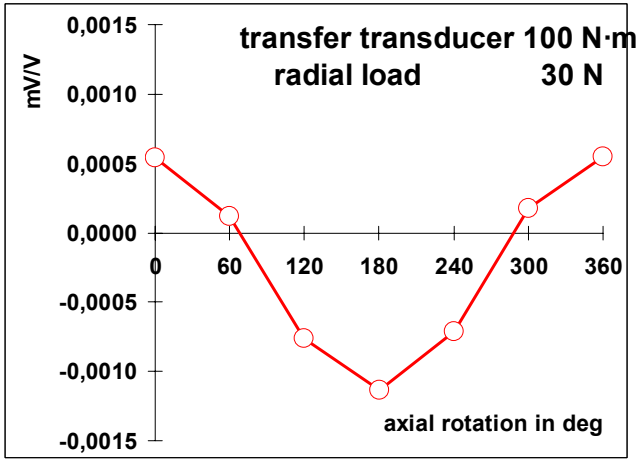










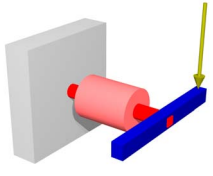


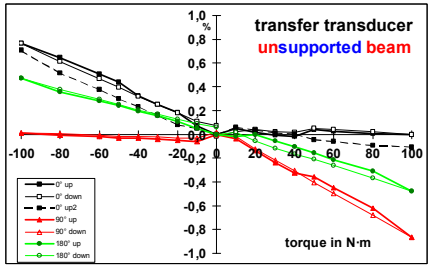
$S_{100\ N\cdot m}$ = 1,3 mV/V

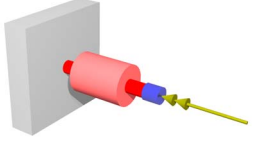
$l_{calibr.\ Beam}$ = 333 mm

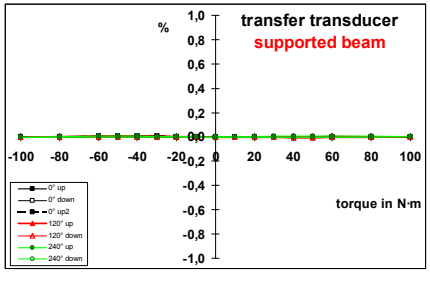
$F_{100\ N\cdot m}$ = 300 N

b_{cf} = 1,5 %





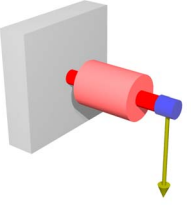




Entwurf VDI/VDE 2630
Sensoren für Schraubsysteme
Anweisungen für die Rückführbare Kalibrierung
in Anlehnung an DIN 51309

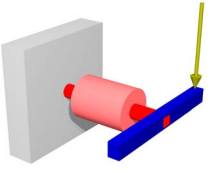
Project: VDI/VDE 2630
Sensors for srew systems
requirements for traceable calibrations
in accordance to DIN 51309

step 1



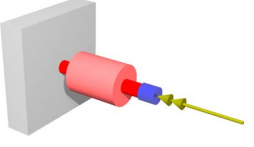
6 x 60° with
80 N

step 2



10 x b_{cf}

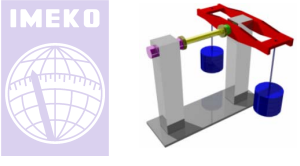
or



0,1 x b_{cf}

for step 1 only 10 % of the force read out from the diagram to measure the parameter *b_{cf}* (sensitivity for parasitic forces and moments)

transducer 1000 N·m with 80 N radial force



End of this presentation.
Thank you for your kind attention!