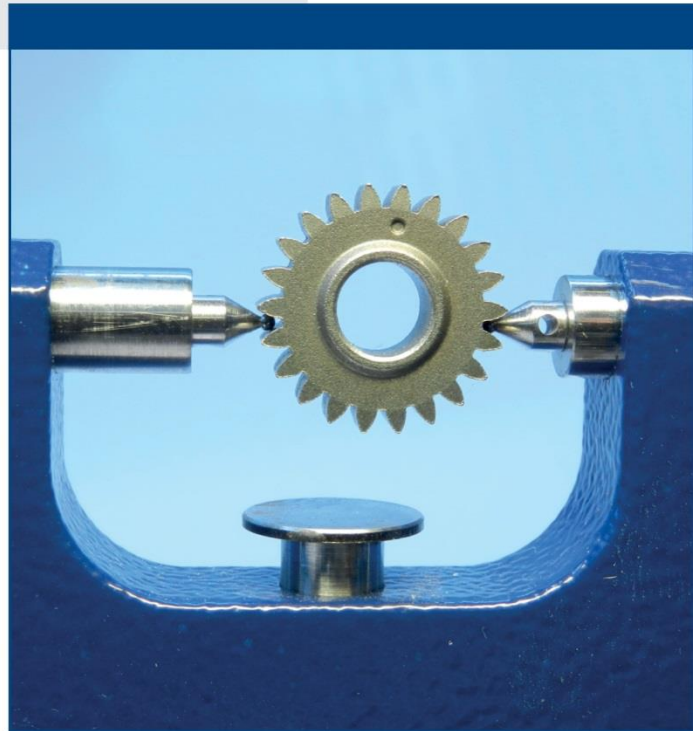




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Measuring Pins Measuring Ball Inserts

A first step to inspection of size

 *pure
perfection*

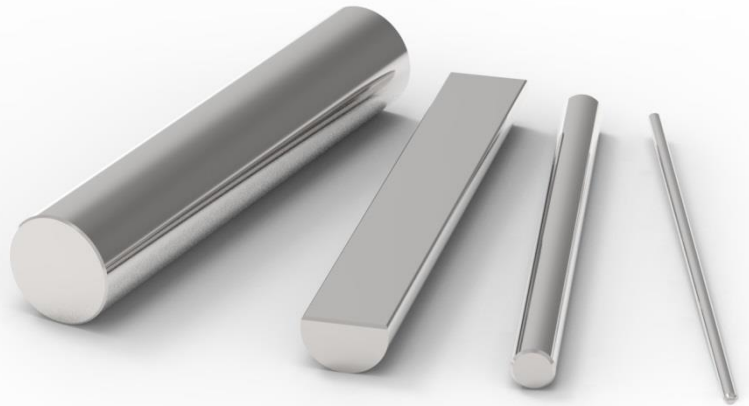
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Measuring Pins

Measuring pins are used for size inspections. They are only suitable for spur gears. If the part is very wavy, the measuring pins will contact only on the highest points. Therefore there is difference to the measurement with measuring balls.

For precise measurements, as it is required for gages or masters, the real true size of the measuring pin has to be figured out and the dimension to be inspected has to be corrected accordingly. During the use the measuring pins wear. That is why they have to be controlled within the scope of the wear measurement.

FRENCO offers measuring pins made of different kind of materials with different accuracy:



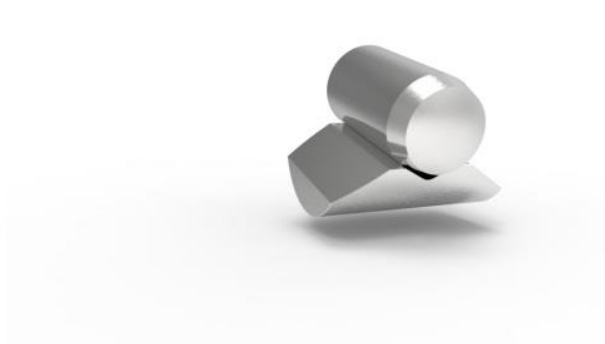
Material	Accuracy	Use
steel	± 0.001 mm	Standard items
carbide	± 0.001 mm	Precision items
carbide	± 0.0005 mm	Gauge inspection Masters and Artefacts

Measuring Pin and Ball Inserts

Fix measuring pin



Oscillating measuring pin



Measuring tips



Design	Radius
M 2 thread	smaller than 0.75 mm
M 2.5 thread (Standard)	smaller than 0.75 mm
M 3 thread	smaller than 0.75 mm

Carbide measuring balls



Design (Grade 25, 1500 HV)	for ball ϕ
Soldered onto shaft, M 2.5 thread, excl. AF	1 to 7 mm
Soldered onto shaft, M 4 thread, incl. AF	5 to 12 mm
Ball with internal thread M4	10 to 25 mm

Measuring ball insert M2,5 without width across flats

for balls with ϕ 1 – 7 mm



Measuring ball with internal thread M4

for balls with ϕ 10 – 25 mm



Measuring ball insert M4 with width across flats

for balls with ϕ 5 – 12 mm



Measuring balls, inserts of measuring balls and inserts of measuring pins are always made of tungsten carbide because otherwise the wear

Radius Disks



Frenco Product Range



High Precision Gears and Splines H

Gear and Spline Gauges
Master Gears, Master Wheels
Artefacts, Masters
Punches, Dies & Electrodes
Profiled Clamping Systems
Gear and Spline Manufacture



Rotation Measuring Systems R

Instruments with Measuring Circles
Multiple Inspector
Gear Flank Analysing
Linear Gear Flank Analyser Rack
Gear Flank Analyser
Double Flank Gear Roll Inspection



Instruments for Size Inspection Series V

Measuring Pins and Ball Inserts
Instruments, Rocking Type
Instruments with Face Stop
Instruments with Guiding Profiles
Circumferential Backlash Instrument
Customized Solutions



Gear & Spline Inspection P

DAkKS-Calibration
Monitoring of Inspection Equipment
Workpiece Inspections
Analysis of Deviations



Know-How-Transfer K

Software
Training, Seminars, Workshops
Consulting and Calculations
Literature and Documentations
National and International Standards



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