

BMD - Plug Gauges



Easy-to-use, self-indicating and self-centering bore gauge for the measurement of inner - and outer diameter, with highest precision and absolute accurate results.

Field of application is the production of high-precision bores within a standard range of $\varnothing$ 2.0 mm (T-BMD) up to 270 mm in serial production.

Plug Gauge BMD allows:

- Static and dynamic measurement
- Detection of dimensional deviations and shape defects
- As a hand tool in bores directly at the machine
- Fitting in measuring fixtures and machines

A wide selection of basic types in the standard program, supplemented by useful accessories, ensures that nearly all bores encountered in current practice can be measured precisely. Its flexible platform allows a wide area of application:

- Standard- und Through bores: from 2.0 to 270 mm,
- Measurement of Blind Bores (Flat-Bottom): from 2,0 (T-BMD-FB) to 150 mm,
- Measurement of O.D.: from 20 to 100 mm,
- Multiplane plug gauges: from 21 mm,
- Internal gear gauges: from 10 mm cylinder diameter
- 3-Point Measurement: from 8.0 to 100 mm,
- For very small diameters from 2.0 mm to 3.0 mm
- Measurement of parallel distances: from 1.0 (T-BMD-PA) to 30 mm
- Special sizes, shapes and models, e. g. tapered bores
- Extension or limitations of the measuring range, adjustment of the measuring pressure, air supply,...

BMD (standard design) have a hard chrome coating on guiding cylinders, with approx. 1000 HV. Most of them are suitable for rough measurement conditions.

Repeatability:

- 2-point design $\leq 1 \mu\text{m}$
- 3-point design $\leq 2 \mu\text{m}$

The selection of gauging contact material depends on composition and design of the work piece:

- Carbide,
- Hard chrome,
- Ceramic,
- Ruby,
- Plastic,
- Diamond.



BMD for automatic measurement



BMD for crankshafts



BMD for measuring outside diameter



BMD for parallel wall gaps



BMD for tapered bores



BMD with 2 guide cylinders



BMD-PK with carbide bars



Depth stop designed for clamping to BMD guide cylinders



Multiplane plug gauges

Gear Gauges

Internal & External

Flexible indicating 2-point measuring instruments for internal and External gear gauging

Measurement of internal and external gear gauges, taper and ovality. Applicable for internal and external gear gauges (straight-sided or helical) and for gears with even or odd numbered teeth.

Internal Gear Gauges:

- Range between balls $M_i = 3.5$ to 333 mm
- Starting from $M_i = 9.3$ mm (T-ZM3!) the ball anvils are interchangeable
- Measuring range from 0.6 to 3 mm, depending on model
- Identical to Split-Ball and Plunger Probe system Measurement of diameter and length
- Alternative: self-centering Plug Gauge BMD-IV (starting from cylinder- $\varnothing$ 10 mm) for serial measurement



AV



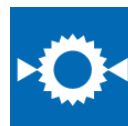
T-ZM



ZM

External Gear Gauges:

- Range over balls $M_a = 0 - 140$ mm
- Available in four measuring ranges: $M_a = 0-30$, $0-70$, $30-70$ and $70-140$ mm
- Ball anvils are interchangeable
- Optional: Checking stand



EG

Balls are made of carbide. Many ball diameters are available on stock as well as roller anvils. For zero setting, please use measured sample components or setting masters. Mechanical and digital indicators storing the MIN-value can be used. **Special designs on request.**