Top Gauge 200 (TG200) are modular gauging heads, designed to meet any applications that require the dimensional control on grinding machines, lapping machines and high precision lathes.

Benefits
- Accuracy
- Sturdiness
- Production stability
- Versatility
- Compatibility
- Easy maintenance

Applications
- External diameters on continuous or interrupted surfaces
- Internal diameters for continuous or interrupted surfaces, with or without oscillation
- Continuous or interrupted internal re-tooling
- Continuous or interrupted flat surfaces
- Taper control
- Roundness and shape analysis
Accessories | Brackets

Various options of brackets and fine slides are available. Their ensure the correct re-tooling and mechanical setup of the measuring system. The most suitable type is defined according to the destination of the machine (volumes and production flexibility), to the measuring range and to the mechanical characteristics of the working area (center height, topology of the table, etc.). In addition, coolant distributors are optionally available in order to ensure the thermal stabilization.

Precision
- Sub-micron accuracy and repeatability by zeroing on master
- Sensitivity and linearity regardless the cable length
- Universal damping system for interrupted surfaces
- High thermal stability

Sturdiness
- Body in thermally stabilized stainless steel
- IP67 protection degree
- Anti-crash solutions
- Resistance to chemical agents

Productivity and ease of use
- Automatic recognition of the setup parameters of the measuring head installed in the machine without calibrations (PLUG & PLAY BALANCE system)
- Adjustable pre-stroke and overstroke
- Adjustable or fixed pneumatic retraction
- Adjustable measuring force
- Wide measurement range for multi-diameter applications without retooling
- Accessories for quick re-tooling (slides, zeroing guides, brackets)
- Fully automatic production without surveillance
- Machine down time reduction in case of replacement due to fault or crash (PLUG & PLAY BALANCE system)

Connectivity
- TOP GAUGE 200 measuring head is connected to the control unit with an interface designed to ensure the quality of the measurement regardless of the length of the extension cables.
  - Digital inputs and outputs
  - Profibus DP or Profinet
  - BCD or binary codes through parallel interface

Versatility
- The TG200 modular body is compatible with other measurement systems on the market
- In case of retrofitting, it is possible to adapt the components already mounted on the machine (slides, brackets and fingers), thus ensuring the system economy.
- The integral cable of the measuring head TG200 can be replaced without involving the transducers

Compatibility
- The TG200 modular body is compatible with other measurement systems on the market
- In case of retrofitting, it is possible to adapt the components already mounted on the machine (slides, brackets and fingers), thus ensuring the system economy.
- The integral cable of the measuring head TG200 can be replaced without involving the transducers

Applications
- External diameters on continuous or interrupted surfaces
- Internal diameters for continuous or interrupted surfaces, with or without oscillation
- Multi-diameter without mechanical re-tooling
- Continuous or interrupted flat surfaces
- Through head gauging
- Active or passive positioning
- Thickness calibration
- Roundness and shape analysis

Benefits
- Accuracy
- Sturdiness
- Production stability
- Versatility
- Compatibility
- Easy maintenance
A wide range of fingers for every type of surfaces / materials is available. The choice is based on the type of contact, the length, the offset and the zeroing adjustment.

As for the fingers, it is possible to choose among different types of standard contact for internal (1), external (2), positional (3) or special (4) made of diamond or tungsten carbide. Shape and materials are selected according to the application.

A complete range of slides and fine slide enables the movement of the measuring units from the rest position, for the workpiece loading / unloading operations, to the working position.

The various models are differentiated according to the stroke, to the type of drive circuit (hydraulic or pneumatic) and to the mounting orientation (horizontal or vertical). Optionally position sensors are available.

<table>
<thead>
<tr>
<th>Type</th>
<th>Linearity and sensitivity range</th>
<th>SETTINGS</th>
<th>Plug&amp;Play BALANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG200 Wide</td>
<td>±6250 µm</td>
<td>Retraction Pre-stroke Overstroke</td>
<td>VM25</td>
</tr>
<tr>
<td>TG200 Positional</td>
<td>±2500 µm</td>
<td>x x x x</td>
<td>VM25</td>
</tr>
<tr>
<td>TG200 Small</td>
<td>±1000 µm</td>
<td>o o o o</td>
<td>VM15/VM15</td>
</tr>
<tr>
<td>TG200 Small Basic</td>
<td>±1000 µm</td>
<td>o o o o</td>
<td>VM9-GA</td>
</tr>
</tbody>
</table>

* with 120 mm finger

- Pneumatic connection for retraction circuit
- Integral cable with connector
- Interface for finger
- Interface for bracket
- Pre-stroke adjustment
- Overstroke and retraction adjustment
- Measuring force adjustment

**TG200 Range | Applications**

**TG200 Wide**
- External or internal diameters on continuous or interrupted surfaces
- Multi-diameter without mechanical re-tooling
- Active or passive positioning on continuous or interrupted surfaces and shoulders
- Active or passive centering
- Lengths measuring
- Continuous or interrupted flat surfaces

**TG200 Positional**
- Active or passive positioning on continuous or interrupted surfaces and shoulders
- Active or passive centering
- Distance between shoulders

**TG200 Small**
- External or internal diameters on continuous or interrupted surfaces
- Thickness calibration
- Retrofitting of applications made with TG50 or TG100 measuring heads
- Continuous or interrupted flat surfaces
- Active positioning

**TG200 Small Basic**
- Active positioning
- External or internal diameters on continuous or interrupted surfaces
- Retrofitting of applications made with TG50 or TG100 measuring heads

**Technical Features**
- Transducer linearity: ± 2.5 mm
- Sensitivity error: ± 2%
- Repeatability: 0.1 µm
- Accuracy: 0.1 µm
- Measuring rate: 0.1 µm
- Measuring point: Precision or separable
- Measuring stroke: 0.1 µm
- Max. force: Hydraulic and software
- Damping: Hydraulic and software
- Type of pivot: no wear
- Finger max length: 120 mm
- Finger offset (offset): Max 40 mm
- Type of retraction: Pneumatic: 4-7 bar
- Retraction stroke: Fixed or adjustable
- Measuring force: Adjustable: 80 g - 300 g
- Pre-stroke: Adjustable
- Overstroke: Adjustable
- Damping: Hydraulic and software

**Accessories**
- Fingers and Zeroing guide
- Feelers
- Slides and Fine slide

**TG200 Gauge for machine tools**

**Contact point**
TG200 Range | Applications

**TG200 | Wide**
- External or internal diameters on continuous or interrupted surfaces
- Multiple-diameter without mechanical re-tooling
- Active or passive positioning on continuous or interrupted surfaces and shoulders
- Active or passive centring
- Lenghts measuring
- Continuous or interrupted flat surfaces

**TG200 | Positional**
- Active or passive positioning on continuous or interrupted surfaces and shoulders
- Active or passive centring
- Distance between shoulders

**TG200 | Small**
- External or internal diameters on continuous or interrupted surfaces
- Thickness calibration
- Retrofitting of applications made with TG50 or TG100 measuring heads
- Continuous or interrupted flat surfaces
- Active positioning

**TG200 | Small Basic**
- Active positioning
- External or internal diameters on continuous or interrupted surfaces
- Retrofitting of applications made with TG50 or TG100 measuring heads

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**Technical Features**

- Transducer linearity: ± 2.5 mm
- Sensitivity error: ± 2%
- Repeatability: 0.1 µm
- Accuracy: 0.1 µm
- Displayed resolution: 0.1 µm
- Thermal drift: < 0.1 µm /°C
- Thermal stability: < 0.2 µm /24h
- Type of pivot: no wear
- Finger max length: 120 mm
- Finger offset (offset): Max 40 mm
- Type of retraction: Pneumatic: 4-7 bar
- Retraction stroke: Fixed or adjustable
- Measuring force: Adjustable: 80 g - 300 g
- Pre-stroke: Adjustable
- Overstroke: Adjustable
- Damping: Hydraulic and software

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**TG200 Range | Applications**

- **Exteral or internal diameters on continuous or interrupted surfaces**
- **Multiple-diameter without mechanical re-tooling**
- **Active or passive positioning on continuous or interrupted surfaces and shoulders**
- **Active or passive centring**
- **Lenghts measuring**
- **Continuous or interrupted flat surfaces**

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**Accessories**

- **Fingers and Zeroing guide**
  - A wide range of fingers for every type of surfaces / materials is available. The choice is based on the type of contact, the length, the offset and the zeroing adjustment.

- **Feeler**
  - As for the fingers, it is possible to choose among different types of standard contact for internal (1), external (2), positional (3) or special (4) made of diamond or tungsten carbide. Shapes and materials are selected according to the application.

- **Slides and Fine slide**
  - A complete range of slides and the slide enables the movement of the measuring units from the rest position, for the workplace loading / unloading operations, to the working position.
  - The various models are differentiated according to the stroke, to the type of drive circuit (hydraulic or pneumatic) and to the mounting orientation (horizontal or vertical). Optional position sensors are available.
**TG200 Range** | **Applications**

**TG200 | Wide**
- External or internal diameters on continuous or interrupted surfaces
- Multi-diameter without mechanical re-tooling
- Active or passive positioning on continuous or interrupted surfaces and shoulders
- Active or passive centring
- Lengths measuring
- Continuous or interrupted flat surfaces

**TG200 | Positional**
- Active or passive positioning on continuous or interrupted surfaces and shoulders
- Active or passive centring
- Distance between shoulders

**TG200 | Small**
- External or internal diameters on continuous or interrupted surfaces
- Thickness calibration
- Retrofitting of applications made with TG50 or TG100 measuring heads
- Continuous or interrupted flat surfaces
- Active positioning

**TG200 | Small Basic**
- Active positioning
- External or internal diameters on continuous or interrupted surfaces
- Retrofitting of applications made with TG50 or TG100 measuring heads

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**TECHNICAL FEATURES**

<table>
<thead>
<tr>
<th>Type</th>
<th>Linearity and sensitivity range</th>
<th>Repeatability</th>
<th>Measuring force adjustment</th>
<th>Pre-stroke adjustment</th>
<th>Overstroke adjustment</th>
<th>Damping</th>
<th>Contact point</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG200 Wide</td>
<td>±2025 µm</td>
<td>0.1 µm</td>
<td>80 g - 300 g</td>
<td>Adjustable</td>
<td>Adjustable</td>
<td>Hydraulics</td>
<td>Yes</td>
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<td>Adjustable</td>
<td>Hydraulics and software</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Top Gauge 200 (TG200) modular measuring heads can be used for any in-process dimensional control. Their modularity and wide range of accessories allow the usage for all applications on precision machine tools.

**Applications**
- External diameters for continuous or interrupted surfaces
- Internal diameters for continuous or interrupted surfaces, with or without oscillation
- Multi-diameter without re-tooling reduction
- Continuous or interrupted flat surfaces
- Through head gauge
- Active or passive positioning
- Thickness calibration
- Roundness and shape analysis

**Benefits**
- Accuracy
- Sturdiness
- Production stability
- Versatility
- Compatibility
- Easy maintenance

Top Gauge 200 (TG200) are modular gauging heads, designed to meet any applications that require the dimensional control on grinding machines, lapping machines and high precision lathes.

The measurement method is based on the comparison with a master.

**Specifications**
- Sub-micron accuracy and repeatability by zeroing counterparts
- Sensitivity and linearity regardless the cable length
- Universal damping system for interrupted surfaces
- High thermal stability

**PRODUCTIVITY and EASE OF USE**
- Automatic recognition of the setup parameters of the measuring head installed in the machine without calibrations (PLUG & PLAY BALANCE system)
- Adjustable pre-stroke and overstroke
- Adjustable or fixed pneumatic retraction
- Adjustable measuring force
- Wide measurement range for multi-diameter applications without retooling
- Accessories for quick re-tooling (slides, zeroing guides, brackets)
- Fully automatic production without surveillance
- Machine down time reduction in case of replacement due to fault or crash (PLUG & PLAY BALANCE system)

**COMPATIBILITY**
- The TG200 modular body is compatible with other measurement systems on the market
- In case of retrofitting, it is possible to adapt the components already mounted on the machine (slides, brackets and fingers), thus ensuring the system economy.
- The integral cable of the measuring head TG200 can be replaced without involving the transducer.

**CONNECTIVITY**
- TOP GAUGE 200 measuring head is connected to the control unit with an interface designed to ensure the quality of the measurement regardless of the length of the extension cables.
- According to the configuration of the machine and the control unit, the interfacing signals may be:
  - Digital inputs and outputs
  - PROFIBUS DP or Profinet
  - BCD or binary codes through parallel interface

**VERSATILITY**
- Top Gauge 200 (TG200) measuring heads can be used for any in-process dimensional control. Their modularity and wide range of accessories allow the usage for all applications on precision machine tools.

In combination with the VAD2, VM15 and VM+QA control units:
- Monitoring of internal and external diameters both on continuous and interrupted surfaces
- Thickness control and calibration
- Active and passive positioning on shoulders

**APPLICATIONS WITH QUICK ZERO**
- Application with quick ZERO bracket
- Application with fast retooling bracket
- Application with fixed bracket

**APPLICATIONS WITH FAST RETOOLING**
- Application with fast retooling bracket
- Application with fixed bracket

**APPLICATIONS WITH FIXED BRACKET**
- Application with fixed bracket

**APPLICATIONS WITH QUICK ZERO**
- Application with quick ZERO bracket

**COMPATIBILITY**
- TORQGAUGE 200 (TG200) measuring heads are modular gauging heads, designed to meet any applications that require the dimensional control on grinding machines, lapping machines and high precision lathes.

The measurement method is based on the comparison with a master.

**SPECIFICATIONS**
- Sub-micron accuracy and repeatability by zeroing counterparts
- Sensitivity and linearity regardless the cable length
- Universal damping system for interrupted surfaces
- High thermal stability

**PRODUCTIVITY and EASE OF USE**
- Automatic recognition of the setup parameters of the measuring head installed in the machine without calibrations (PLUG & PLAY BALANCE system)
- Adjustable pre-stroke and overstroke
- Adjustable or fixed pneumatic retraction
- Adjustable measuring force
- Wide measurement range for multi-diameter applications without retooling
- Accessories for quick re-tooling (slides, zeroing guides, brackets)
- Fully automatic production without surveillance
- Machine down time reduction in case of replacement due to fault or crash (PLUG & PLAY BALANCE system)

**COMPATIBILITY**
- The TG200 modular body is compatible with other measurement systems on the market
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  - BCD or binary codes through parallel interface

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- Monitoring of internal and external diameters both on continuous and interrupted surfaces
- Thickness control and calibration
- Active and passive positioning on shoulders

**APPLICATIONS WITH QUICK ZERO**
- Application with quick ZERO bracket
- Application with fast retooling bracket
- Application with fixed bracket

**APPLICATIONS WITH FAST RETOOLING**
- Application with fast retooling bracket
- Application with fixed bracket

**APPLICATIONS WITH FIXED BRACKET**
- Application with fixed bracket

**APPLICATIONS WITH QUICK ZERO**
- Application with quick ZERO bracket

**COMPATIBILITY**
- The TG200 modular body is compatible with other measurement systems on the market
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