



HEIDENHAIN



Product Information

TS 750

TS 150

Workpiece Touch Probes
for Grinding Machines

TS 750 and TS 150

Workpiece touch probe

HEIDENHAIN has been developing and manufacturing touch probes for workpiece and tool measurement on machine tools for over 35 years now, setting standards with wear-free optical sensors, for example.

The **TS 750** is equipped with high-precision pressure sensors. The trigger pulse is obtained through force analysis. The forces that arise during probing are processed electronically. This method delivers extremely homogeneous probing accuracy over 360°.

With the TS 750, the deflection of the stylus is measured by multiple pressure sensors that are arranged in the stylus holder.

The probing forces arise immediately upon the first probing contact (see figure 1: **2**). The signals generated by the sensors are processed, and a trigger signal is generated. The relatively low probing forces involved provide high probing accuracy and repeatability, virtually without any effect on the measured object. The deflection forces of the springs only come into play during further deflection until the machine stops moving (see figure 1: **3**).

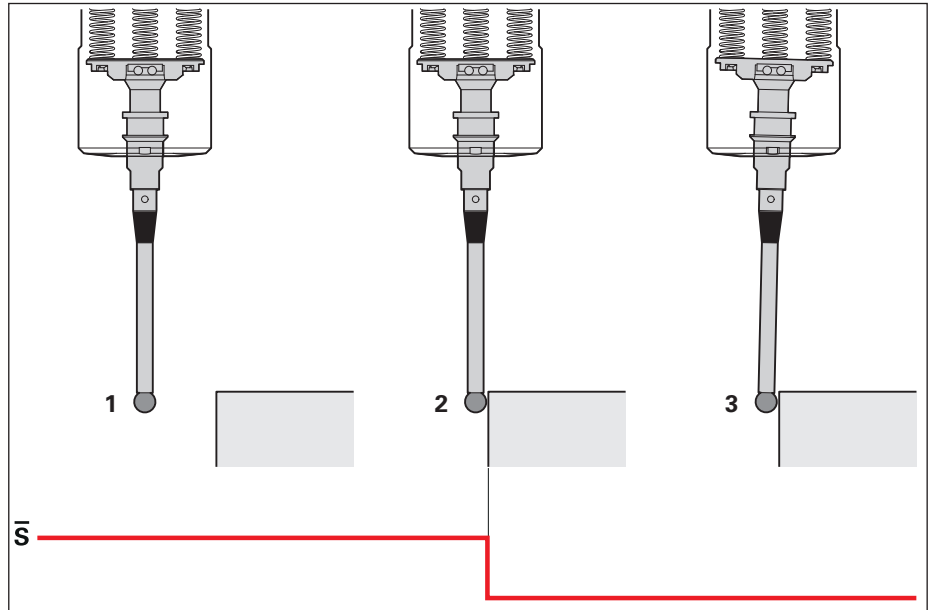
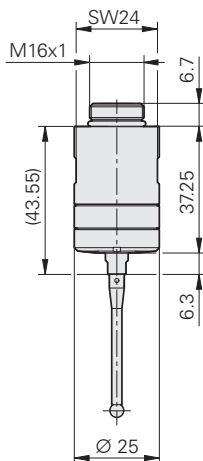
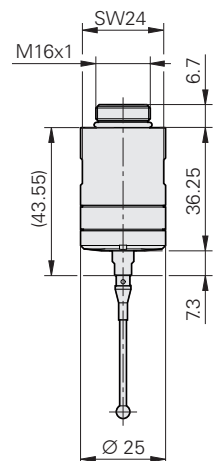


Figure 1: Trigger signal of the TS 750

TS 750



TS 150

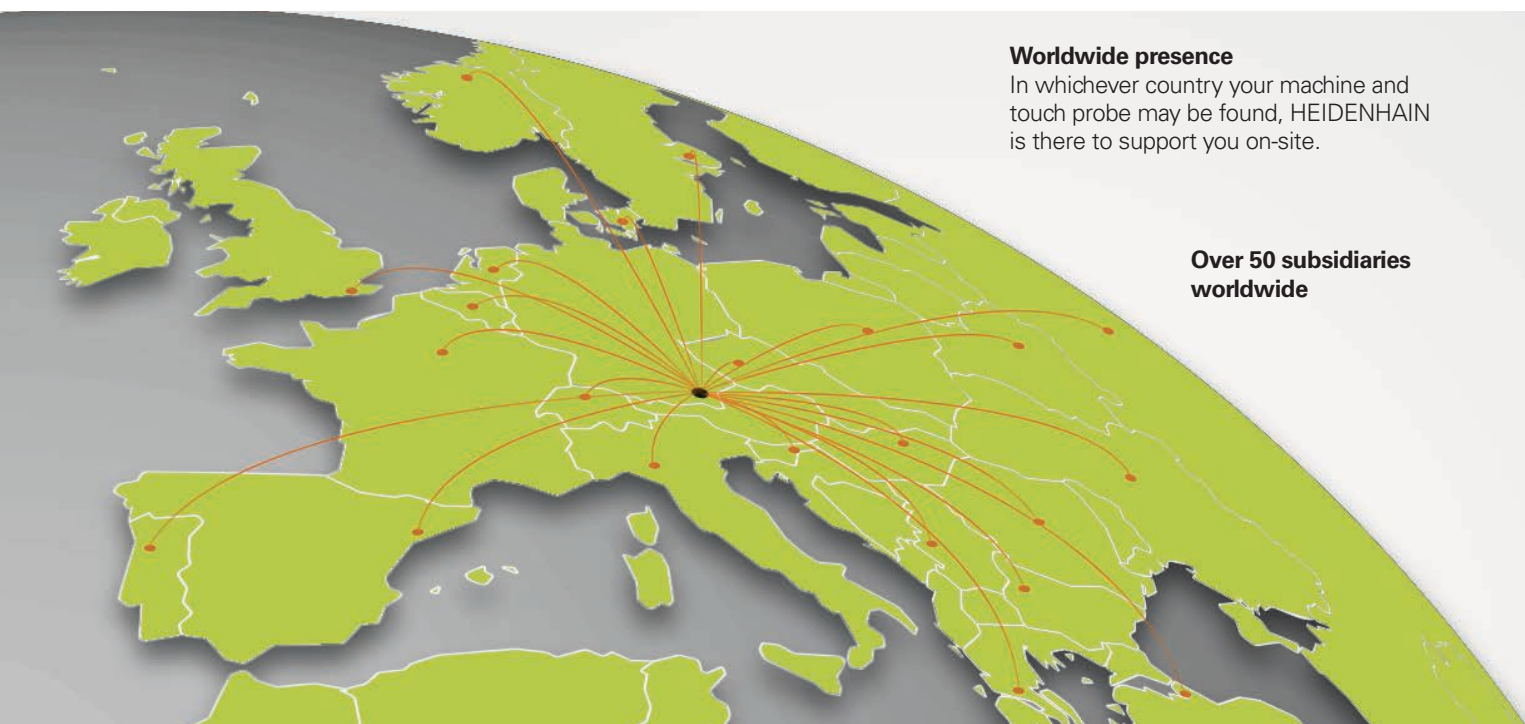
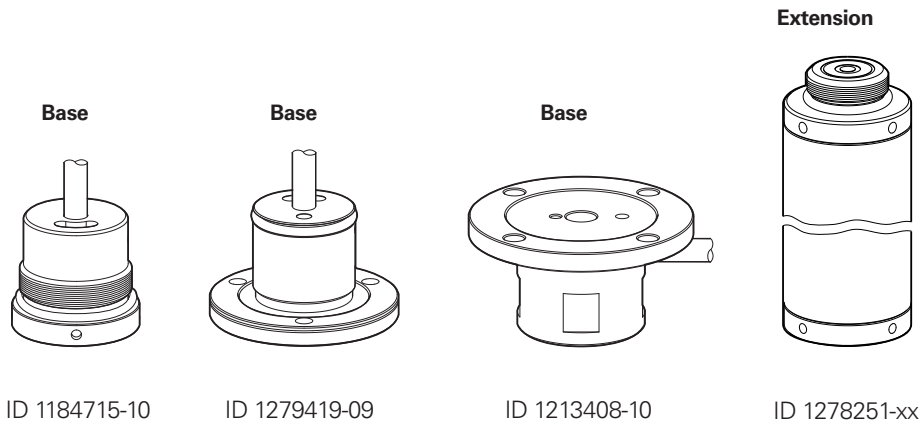


Workpiece touch probe	TS 750	TS 150
Probing accuracy	$\leq \pm 1 \mu\text{m}$ with use of the T434 standard stylus (at a probing speed of 500 mm/min)	$\leq \pm 5 \mu\text{m}$ with use of the T404 standard stylus (at a probing speed of 1000 mm/min)
Probe repeatability Repeated probing from one direction	$2 \sigma \leq 0.25 \mu\text{m}$	$2 \sigma \leq 1 \mu\text{m}$
Probing force	<i>Axial:</i> $\approx 1.5 \text{ N}$ <i>Radial:</i> $\approx 0.2 \text{ N}$	<i>Axial:</i> $\approx 7 \text{ N}$ <i>Radial:</i> $\approx 1 \text{ N}$
Deflection of probe contact	$\leq 5 \text{ mm}$ in all directions (with stylus length $L = 40 \text{ mm}$)	
Deflection forces	<i>Axial:</i> $\approx 8 \text{ N}$ <i>Radial:</i> $\approx 1 \text{ N}$	
Probing speed	$\leq 3 \text{ m/min}$	
Protection EN 60529	IP68	
Operating temperature	10 °C to 40 °C	
Storage temperature	-20 °C to 70 °C	
Mass without base	$\approx 0.1 \text{ kg}$	$\approx 0.1 \text{ kg}$
Fastening*	<ul style="list-style-type: none"> • Base with M22x1 thread and axial cable outlet • Base with three M3 screws and axial cable outlet • Base with four M3 screws and axial cable outlet • Optional: touch-probe extension with M16x1 thread 	
Electrical connection*	Two-pole sliding contact on the mounting base	
Signal transmission	Cable: $\leq 25 \text{ m}$	
Supply voltage ¹⁾	DC 15 V to 30 V at $\leq 85 \text{ mA}$ (without load)	
Output signals ¹⁾	Trigger signals S and \bar{S} (square-wave signal and its inverted signal) Floating trigger output	
HTL signal levels ¹⁾	$U_H \geq 20 \text{ V}$ at $-I_H \leq 20 \text{ mA}$ $U_L \leq 2.8 \text{ V}$ at $-I_L \leq 20 \text{ mA}$ at rated voltage of DC 24 V	

* Please select when ordering

¹⁾ Via UTI 150

Accessories



Worldwide presence

In whichever country your machine and touch probe may be found, HEIDENHAIN is there to support you on-site.

Over 50 subsidiaries worldwide

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This Product Information document supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is placed.



Further information:

Comply with the requirements described in the following documents to ensure correct operation of the touch probe:

- Brochure: *Cables and Connectors* 1206103-xx
- Brochure: *Touch Probes for Machine Tools* 1113984-xx