



Metalworking

TESA's INTERAPID 312 Dial Test Gauge Shows Enduring Power of Analog in a Digital Age

James Langford | Dec 19, 2023

The key to efficiently turning out machined products that meet exacting customer specifications—no matter how exotic the metal or intricate the workpiece—is maintaining rigorous quality control from the beginning.

That's where the TESA INTERAPID 312 dial test indicator comes in—but not where its usefulness ends. Machinists can use the analog metrology tool at the start of the production process to ensure correct positioning of their workpiece as well as at the end to check for any defects.

Such capabilities are crucial for metalworking businesses trying to maintain both productivity and profitability in a market inundated with high-strength materials that can be more difficult to cut and shape at the same time that their available labor force is shrinking, with a worker shortfall expected to reach **2.1 million** by 2030.

A best-in-class indicator, the INTERAPID 312 includes a revolution counter; inclined, easy-to-read dial; a jeweled mechanism fitted with ball bearings; and hard steel or tungsten carbide contact points.

On the market for more than 50 years, the device is known for its long-term reliability, says Uwe Burkardt, marketing director for TESA, a unit of Lausanne, Switzerland-based Hexagon that specializes in metrology equipment.

"We have feedback from some customers who say they have used it for 20 years or more," he explains. "When they use their measurement instruments, they need to be able to trust that the results are exact rather than open to interpretation. Part of what our customers are buying from us is that trust."

Client confidence is borne out by TESA's leading position in the global market for precision metrology tools, which include height gauges, calipers, micrometers and dial gauges as well as lever-type dial test indicators such as the INTERAPID 312.

Not only does the device's one-piece solid case design shield it from the potential hazards of manufacturing environments, but it also has subtler features that make it popular.

Using the INTERAPID 312 during pre-machining setup, with the center of a bore as the reference point, is made simpler because the indicator can be mounted on the machine, the company explains.

Another popular trait is lines on the right side of the dial face: Since machinists often have to read an indicator when it's facing away from them by using a mirror, the markings make it easier to distinguish right from left and avoid misinterpreting the results.

Money-Saving Design Hallmarks

The INTERAPID is available in both a horizontal model, whose dial face is mounted parallel to the insert axis, and a vertical model, whose dial face is mounted at a right angle to the insert axis.

It's designed to give a true reading when the angle of attack is 12 degrees, a technical asset that lets users see an absolute value without having to correct a read value.

The INTERAPID also has a very high sensitivity, very light measuring pressure that helps avoid scratching parts.

Together, those features limit the potential for having to scrap a workpiece and start over, with its high costs in terms of lost—and potentially extremely expensive—metals as well as in wasted work hours.

That's a boon to productivity, and ultimately to the bottom line, for an industry fighting to shorten cycle time and amp up feed rates while grappling with supply-chain disruption, high interest rates and high inflation.

It explains why customers like DERO Feinmechanik AG, a Switzerland-based maker of sophisticated precision parts used in everything from machine tools to medical technology and chemical and food industries, have been relying on the tool for decades.

"There is no better instrument in the field of processing technology in the workshop than the TESA INTERAPID 312," says Michel Degen, a member of DERO Feinmechanik AG's board and the grandson of the company's co-founder.

Today, DERO uses more than 100 TESA INTERAPID 312 lever dial test indicators, according to a case study. Each of the company's workplaces is equipped with several of the instruments.

Despite modernization of machine tools, the ability to determine reference points with a lever dial test indicator remains a quick and easy solution that users appreciate because they can ensure accuracy during each step of machining, Degen says.

The TESA INTERAPID 312 has a resolution of 2 microns on the dial, which allows highly precise verification of dimensions.

"We are very satisfied, as we manufacture our parts in less time and thereby ensure the highest quality," he adds. "For this reason, the TESA INTERAPID 312 is our preferred choice, as it was in my father's time."

How do precision metrology tools benefit productivity in your business? Tell us in the comments below.