



TESA
TECHNOLOGY



**WILLRICH PRECISION
I N S T R U M E N T**
THINK MEASUREMENT... THINK WILLRICH

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INTERAPID 313

LEVER-TYPE
DIAL TEST
INDICATORS



INTERAPID 313
A Swiss icon, reinvented
for unparalleled precision
and readability.

For more than 75 years, INTERAPID instruments have embodied Swiss quality, durability, and precision.

INTERAPID Switzerland has established itself as a leading name in the field of precision measurement. The sturdy and unique design of its products is valued by professionals worldwide and sets the benchmark in precision engineering.

INTERAPID's classic models - particularly the legendary Model 312 - have stood the test of time thanks to the high quality of their components and their durable design. Used daily in countless workshops, they have earned the trust of users and established themselves as the gold standard for reliability.

Building on this legacy, TESA is continuing the INTERAPID philosophy with the new INTERAPID 313. Drawing inspiration from the iconic INTERAPID 310, 311 and 312 models, it retains their key features, geometry, ergonomics, and reliability, whilst incorporating improvements designed to meet the demands of modern metrology.

Carefully developed in Switzerland by our engineering team, the INTERAPID 313 features key enhancements that fulfill the latest standards in precision measurement:

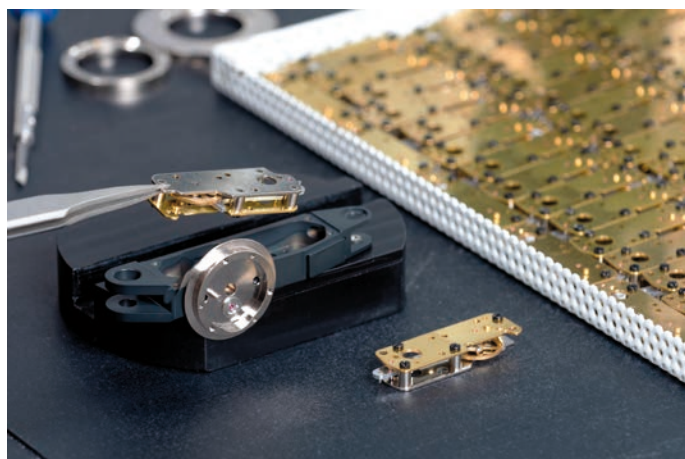
- Strong heritage: Continuing over 75 years of INTERAPID tradition
- Swiss Made: Designed and assembled in Switzerland in accordance with the highest standards of quality and precision
- Modernized ergonomics and design: Intuitive handling combined with clean, refined aesthetics
- Easier to read: Measurements can be read more quickly and conveniently
- Superior quality and accuracy: Stable and reliable measurement performance, even in demanding applications
- Durable and repairable: Sturdy design backed up by availability of spare parts and simplified maintenance
- Compatibility: Existing INTERAPID accessories are fully compatible with the Model 313, ensuring continuity and performance

Proudly Swiss Made, the INTERAPID 313 continues a tradition of excellence that is trusted by professionals who demand the highest level of precision every day, ensuring continuity and performance.

** INTERAPID Switzerland is a brand owned by TESA Precision Measurement Instruments SARL.*



Our expertise



The movement is composed of rubies to ensure the long life of the instrument.



Operator know-how ensures the precision and repeatability of the instrument, thanks to meticulous assembly with adjustments in the order of microns.



Each instrument is individually tested on a test bench to confirm its function and measurement accuracy.

Product description

Simplified installation with the swivelling shank Ø 4 mm

Improved readability of the measurement thanks to the numbers on the outer edge of the dial

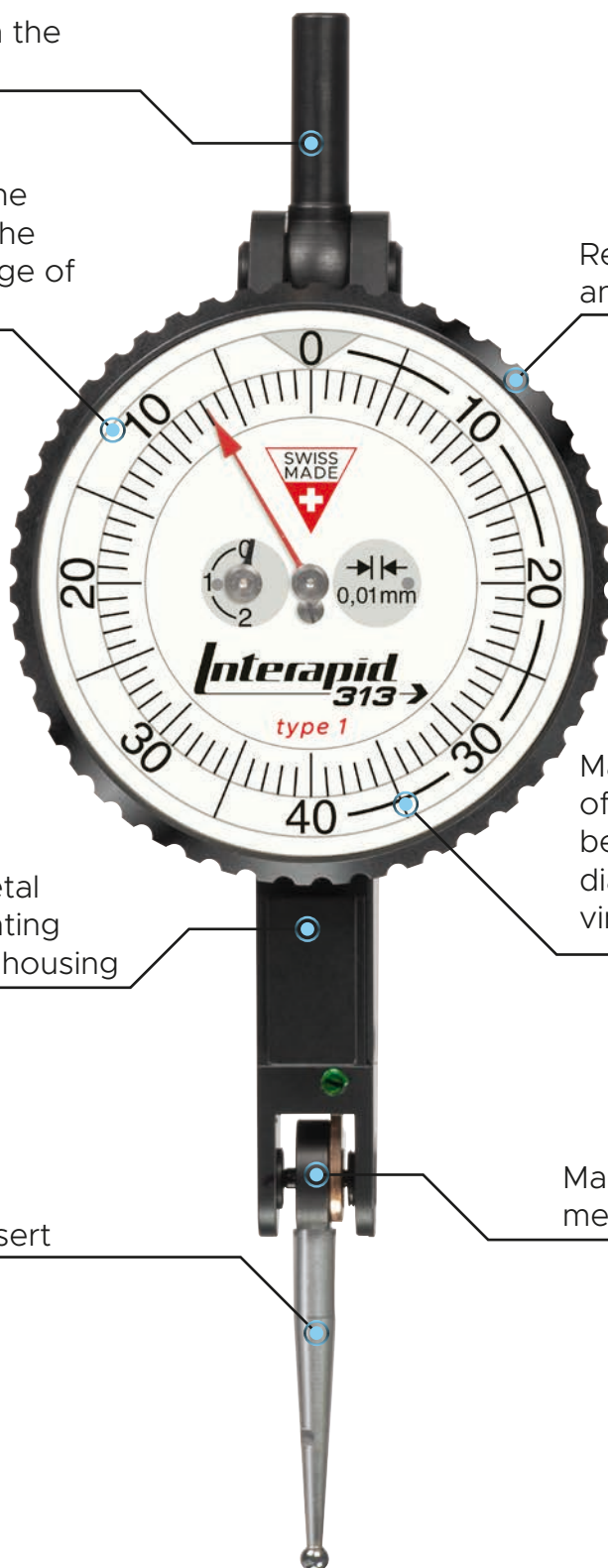
Reinforced rotating bezel and dial for zeroing

Matt chromium-plated metal casing with dovetail mounting machined in the indicator housing

Markings on the outside of the dial to distinguish between the two sides of the dial for measurements involving a mirror

180° rotatable probe
M 1,4 tungsten carbide insert

Main swivel on an amply dimensioned angular bearing





INTERAPID 313

Lever-type dial test indicators

The story of the INTERAPID product range continues, building on the company's expertise and reputation for precision and quality.

A benchmark in the field of lever-type indicators, this instrument owes its success to its reliability and unique features.

Some of the many practical advantages of this instrument include its extended measuring range of up to 1.6 mm that allows for the inspection of parts with large dimensional variations and its mounting shank for quick and convenient setup.

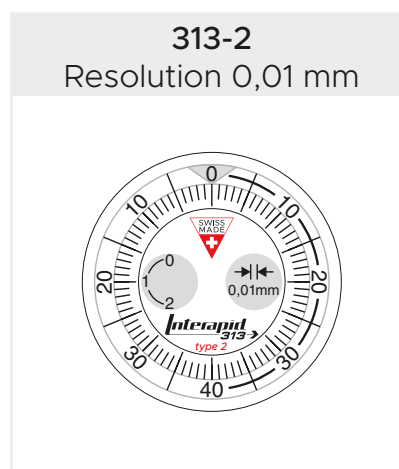
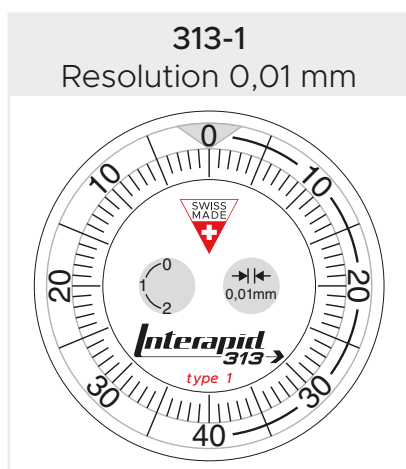
The dial provides an enhanced reading experience, with numerals positioned on the outer part of the dial to make the process of reading measurements faster and more convenient. A marking on the outside of the dial helps the user to distinguish between the two sides of the dial when taking measurements in low-light conditions using a mirror.

- Measuring range up to 1,6 mm
- Precision movement mounted on rubies
- Secondary pointer with revolution counter
- Swivelling shank Ø 4 mm



INTERAPID 313 metric

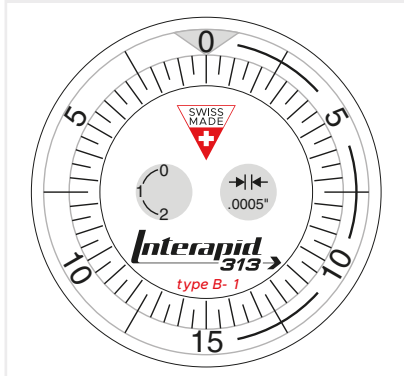
Models	074111566 313-1	074111567 313-2
Measuring range (mm)	1,6	1,6
Resolution (mm)	0,01	0,01
Dial, Ø (mm)	40,4	30,8
Stroke/revolution (mm)	0,8	0,8
Circular scale	0-40-0	0-40-0
Measuring insert length (mm)	23	23
Indication error over the measurement range (retractable and extendable plunger) MPE _{tot} (µm)	18	18
Indication error over the measurement range (retractable plunger) MPEE (µm)	14	14
Partial indication error (over 1 revolution) MPEP (µm)	10	10
Partial indication error (over 1/2 revolution) MPEP (µm)	5	5
Partial indication error (over 1/10 revolution) MPEP (µm)	3	3
Hysteresis of the indication error MPEH (µm)	4	4
Repeatability of the indication error MPER (µm)	3	3
Measurement force (N)	0,10	0,10



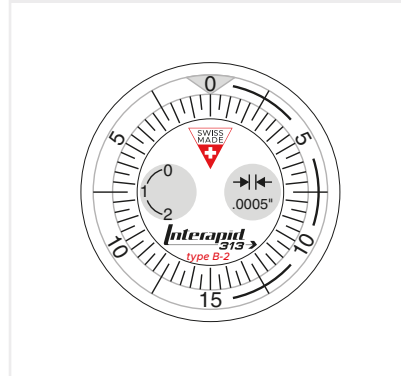
INTERAPID 313 imperial

Models	074111570 313 B-1	074111571 313 B-2	074111572 313 B-3	074111573 313 B-4
Measuring range (in)	0.06	0.06	0.016	0.016
Resolution (in)	0.0005	0.0005	0.0001	0.0001
Dial, Ø (in)	1.59	1.21	1.59	1.21
Stroke/revolution (in)	0.03	0.03	0.008	0.008
Circular scale	0-15-0	0-15-0	0-4-0	0-4-0
Measuring insert length (in)	0.85	0.85	0.48	0.48
Indication error over the measurement range (retractable and extendable plunger) MPE _{tot} (in)	0.00070	0.00070	0.00040	0.00040
Indication error over the measurement range (retractable plunger) MPEE (in)	0.00055	0.00055	0.00025	0.00025
Partial indication error (over 1 revolution) MPEP (in)	0.00040	0.00040	0.00015	0.00015
Partial indication error (over 1/2 revolution) MPEP (in)	0.00020	0.00020	0.00012	0.00012
Partial indication error (over 1/10 revolution) MPEP (in)	0.00012	0.00012	0.00012	0.00012
Hysteresis of the indication error MPEH (in)	0.00015	0.00015	0.00015	0.00015
Repeatability of the indication error MPER (in)	0.00012	0.00012	0.00005	0.00005
Measurement force (N)	0,10	0,10	0,30	0,30

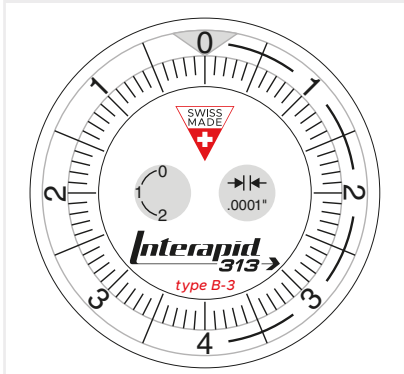
313 B-1
Resolution 0.0005 in



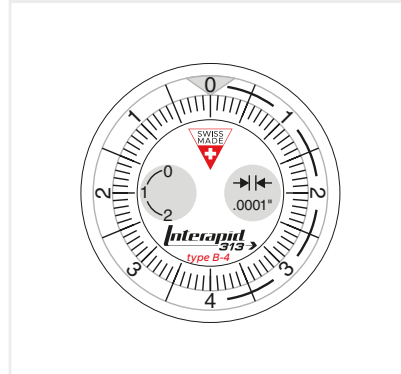
313 B-2
Resolution 0.0005 in



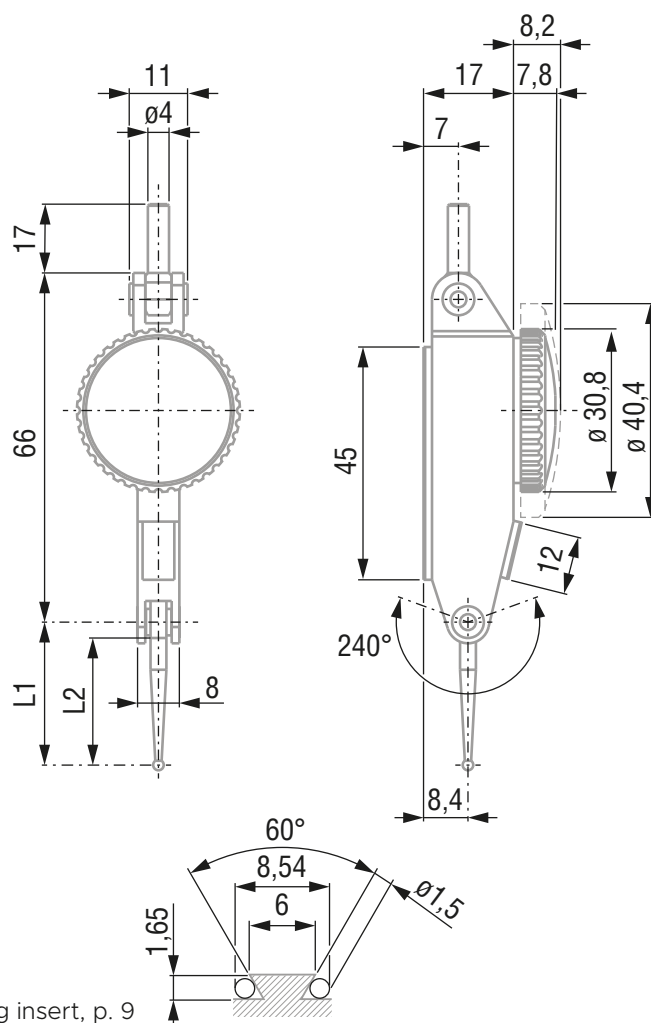
313 B-3
Resolution 0.0001 in



313 B-4
Resolution 0.0001 in



Dimensions



L1 and L2, see table of measuring insert, p. 9

Delivery



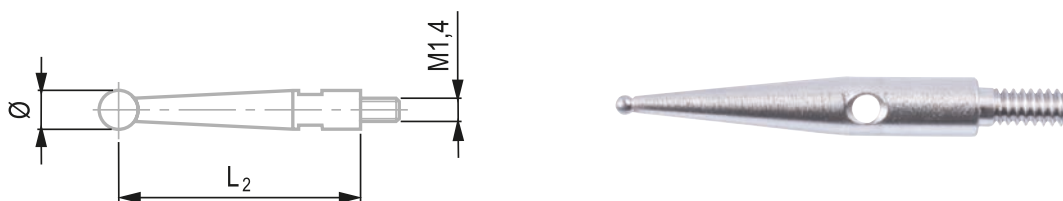
The lever-type dial test indicator is supplied with:

- Measuring insert with 2 mm tungstene carbide ball tip
- Wrench for insert mounting
- User manual
- Declaration of conformity

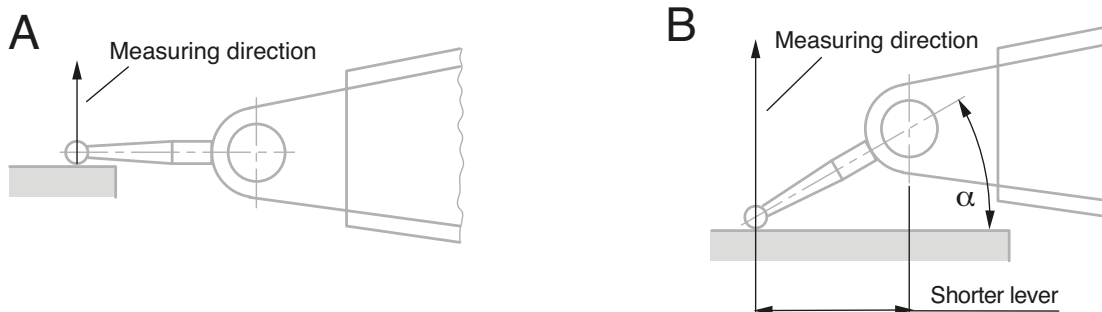


Measurement inserts

Part numbers	Compatibility Unit/Resolution	Ball, Ø mm	Ball material	L1, mm	L2, mm
074112111	Metric / 0,01	1	Tungsten carbide	27,02	23,00
074112112	Metric / 0,01	2	Tungsten carbide	27,02	23,00
074112113	Metric / 0,01	3	Tungsten carbide	27,02	23,00
074112211	Imperial / 0.005	1	Tungsten carbide	25,65	21,62
074112212	Imperial / 0.005	2	Tungsten carbide	25,65	21,62
074112213	Imperial / 0.005	3	Tungsten carbide	25,65	21,62
074112221	Imperial / 0.001	1	Tungsten carbide	16,13	12,10
074112222	Imperial / 0.001	2	Tungsten carbide	16,13	12,10
074112223	Imperial / 0.001	3	Tungsten carbide	16,13	12,10



The mounting thread is M1.4; the original keys fitted to all lever-type dial test indicators can be replaced by keys of the same length but different diameter.



Note on the use of INTERAPID 313 lever-type dial test indicators;

If the position of the key is parallel to the surface of the workpiece (Fig. A), the ratio of 1:1 is correct. The read value does not require any correction. Otherwise (angle α , Fig. B), the effective length of the lever changes. The read values must then be corrected.

Please refer to the user manual.

Accessories



074108942
074108943



01840404
01850404



01840405
01850405



074106026
074106931



01840406
01850406



01840407

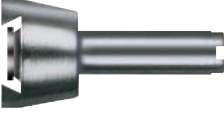
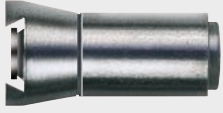


01840408
01840409



01840501

Part numbers	Unit	Designation
074108942	Metric	Reducing sleeve, Ø 8 mm - Ø 4 mm
074108943	Imperial	Reducing sleeve, Ø 3/8 in - Ø 5/32 in
01840404	Metric	Swivel holder with dovetail grip, shaft = Ø 8 x 25 mm
01850404	Imperial	Swivel holder with dovetail grip, shaft = Ø 3/8 x 1 in
01840405	Metric	Swivel holder with dovetail grip, shaft = Ø 8 x 90 mm
01850405	Imperial	Swivel holder with dovetail grip, shaft = Ø 3/8 x 3-5/8 in
074106026	Metric	Swivel holder with dovetail grip, Ø 4 and Ø 7 mm, shaft = Ø 8 x 133 mm
074106931	Imperial	Swivel holder with dovetail grip, Ø 4 and Ø 7 mm, shaft = Ø 3/8 x 5-1/4 in
01840406	Metric	Angular swivel holder, shaft = Ø 8 x 25 mm, clamping Ø 8 mm
01850406	Imperial	Angle holder with cylindrical shank, Ø 3/8 in, shaft = Ø 3/8 x 3.5 in
01840407	Metric	Swivel holder with dovetail grip, fine adjustment device, shaft = Ø 8 x 125 mm
01840408	Metric	Mounting rod with dovetail clamp, swivelling, shaft = Ø 4 x 64,35 mm
01840409	Metric	Mounting rod with dovetail clamp, swivelling, shaft = Ø 8 x 64,35 mm
01840501	Metric	Centering holder, Ø 4 mm, shaft = Ø 4 x 25 mm

	074106331		01860401 074108603
	01840104 01850104		01840105 01850105

Part numbers	Unit	Designation
074106331	Metric	Swivel holder with dovetail grip, Ø 4 and Ø 5,5 mm, bar = 6 x 12,6 x 76 mm
01860401	Metric	Dovetail clamp with dovetail clamp, clamping = Ø 5,6 and Ø 9,5 mm
074108603	Imperial	Dovetail clamp with dovetail clamp, clamping = Ø 7/32 and 5/32 in
01840104	Metric	Mounting rod with dovetail clamp, shaft = Ø 4 x 13 mm
01850104	Imperial	Mounting rod with dovetail clamp, shaft = Ø 5,55 x 13 mm
01840105	Metric	Mounting rod with dovetail clamp, shaft = Ø 8 x 13 mm
01850105	Imperial	Mounting rod with dovetail clamp, shaft = Ø 6,35 x 13 mm

Supports



01639070



01639007

Part numbers	Designation	Height, mm	Base dimension, mm
01639070	Magnetic support EASY	450	60x50x55
01639007	Magnetic support UJ15	152	Ø 35x42

Dovetail fixing bracket with circular clamping Ø 8 mm



For 75 years, INTERAPID has been synonymous with absolute precision. From generation to generation, it is not only the instruments that evolve, but also the exceptional expertise that is passed down, ensuring that machinists can have complete confidence—both today and in the future.

Interapid
313→

