OSIMESS probe with accessories

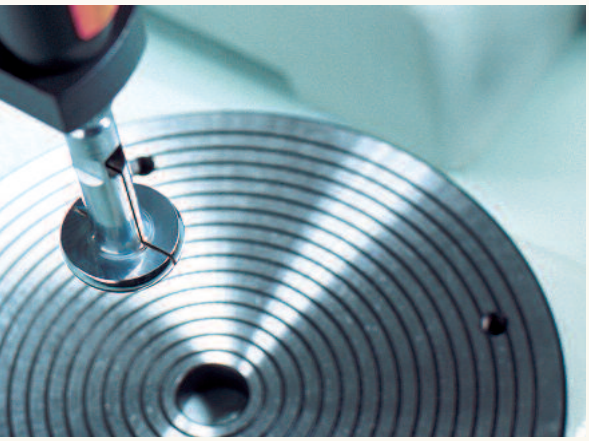
measuring stand OSM 5 and OSM 6 with accessories

OSIMESS

Two-point measuring instrument for bores from ø 1,0 mm

The OSIMESS internal measuring instrument is a mechanical two-point comparison instrument for the fast manual measuring of small bores in the diameter range from 1 to 40 mm.

The holder can be quickly adapted to the measuring range required by means of different exchangeable probes and the corresponding needles. No additional tool is necessary. A precision indicator, a dial gauge or an electronic probe can either be used to display the measuring value.



Applications

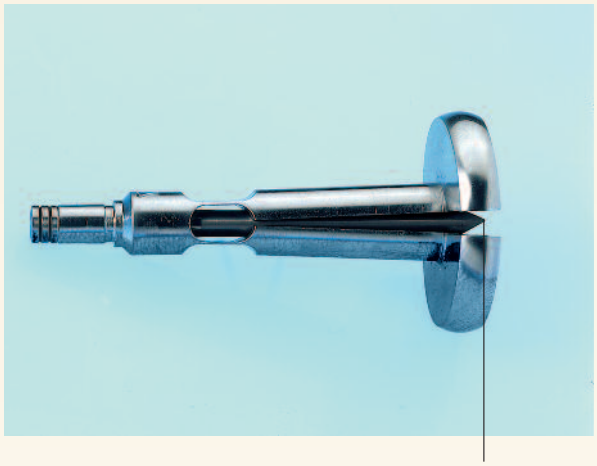
With the OSIMESS, it is not only possible to detect deviations from the nominal diameter, but also deviations in shape within the bore to be measured (thus far as possible with the two-point contact comparator method), like roundness, conical form, widening in a curve, convex or concave barrel shapes can be measured. This is not possible when checking the bore with a conventional plug gauge.
The robust design is conceived for the use in praxi:

- directly on the production machine
- in the incoming or final inspection
- in the room for precision measuring

Construction

- Indicating unit (dial gauge, precision indicator, etc...)
- Holder either with or without retraction
- Probe
- Needle
- Setting reference (for example setting ring)
- Options: depth stop, measuring depth extension, etc.

To minimise wear and stress on the probe and on the work piece, as well as to facilitate the insertion in the bore to be measured, we recommend the holder with retraction for all standard probes up to 4 mm and for all blind hole versions.



Linear contact between needle and probe

Function

The springy slit OSIMESS probes are split open by the wedge of the needle located between the two halves of the split probe, due to the spring power of the indicating unit, for example a dial gauge. As a result, the measuring surfaces of the probe are lying close to the wall of the bore. Through the precisely grinded wedge of the needle, the radial movements of the split probe are transferred free of backlash to the indicating unit. The needle and the probe are exactly coordinated geometrically.

Advantages

Highest precision

With a repeatability ≤ 1 µm (manual measuring), the user can fulfil the highest demands for measuring accuracy.

High measuring certainty

The wisely limited measuring travel and the ideal adaptation of the radii on the probe provides an optimal centring accuracy.

Easy handling

The probe centres and guides the measuring instrument automatically in the bore through the circular measuring contacts of the two probe halves. The user only has to search for the reversal point (minimum value) on the indicating unit by oscillating the measuring instrument.

High service life

The special method of transmitting the measuring travel via two wedge-shaped surfaces ensures a long service life due to a low specific surface strain (line contact).
Furthermore, all wearing parts are hard-chrome plated or out of tungsten carbide. All needles are as a standard made of tungsten carbide.

High flexibility

All probes are clamped with a clamping cylinder Ø 5 h7, so that all probes from Ø 1 to 40 mm can be assembled quickly to the holder. Different accessories are available. The OSIMESS is a cost-effective internal measuring instrument.

TECHNICAL DATA

	Nominal dim. d mm	Measuring range mm	Nominal dim. d mm	Measuring range mm	Nominal dim. d mm	Measuring range mm
of single probes						
from	1,00	0,95	4,50	4,15	13,00	12,20
to	4,00	4,20	12,00	12,50	20,00	20,70
	1,00	0,95 - 1,15	4,50	4,15 - 4,80	13,00	12,20 - 13,50
	1,10	1,07 - 1,25	5,00	4,70 - 5,30	14,00	13,40 - 14,70
	1,20	1,17 - 1,35	5,50	5,20 - 5,80	15,00	14,40 - 15,70
	1,30	1,27 - 1,45	6,00	5,70 - 6,30	16,00	15,40 - 16,70
	1,40	1,37 - 1,55	6,50	6,20 - 6,80	17,00	16,40 - 17,70
	1,75	1,50 - 1,90	7,00	6,70 - 7,30	18,00	17,40 - 18,70
	2,00	1,80 - 2,20	7,50	7,20 - 7,80	19,00	18,40 - 19,70
	2,25	2,05 - 2,45	8,00	7,70 - 8,30	20,00	19,40 - 20,70
	2,50	2,30 - 2,70	8,50	8,20 - 8,80		
	2,75	2,55 - 2,95	9,00	8,70 - 9,30		
	3,00	2,80 - 3,20	10,00	9,20 - 10,50		
	3,25	3,05 - 3,45	11,00	10,20 - 11,50		
	3,50	3,30 - 3,70	12,00	11,20 - 12,50		
	3,75	3,55 - 3,95				
	4,00	3,80 - 4,20				
Measuring depth MT (mm)	Nominal dim. d	Measuring range MT	Nominal dim. d	Measuring range MT	Nominal dim. d	Measuring range MT
	1,00 - 1,40	13	4,5 - 6,5	41	13 - 20	45
	1,75 - 2,25	17	7,0 - 12,0	45		
	2,50 - 4,00	25				
Front distance h* (mm)	1 - 4:	h = d/2	4,5 - 12:	h = 2,2	13 - 20:	h = 2,5
No. of setting rings	15		13		8	
No. of measuring needles	3		2		1	
for dimension from/to	1 - 1,4		4,5 - 9,0		10 - 20	
	1,75 - 2,25		10 - 20		-	
	2,5 - 4		-		-	

*** standard design**

probes and meas. needles > 20 mm on request

OSIMESS internal precision measuring instrument
Ø 4,5-12 mm in wooden box

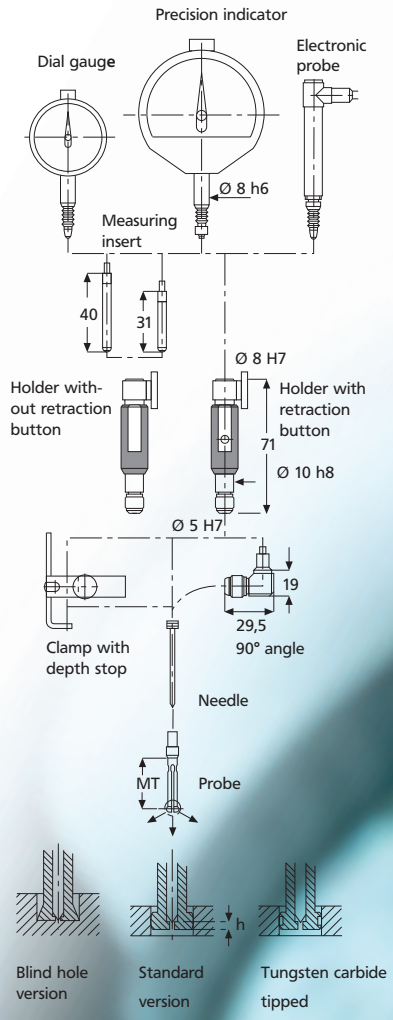
Technical Data OSIMESS

Application range	1 - 20	mm	
Repeatability	f_w ≤ 1	µm	(manual measurement)
Max. deviation	f_e ≤ 3	µm	for probes Ø 1-9 mm
	≤ 4	µm	for probes Ø 10-20 mm
Hysteresis	f_u ≤ 2	µm	
Shank for dial gauge	Ø 8 h6		
Holder clamping	Ø 10 h7		

Delivery

We supply a complete set of probes in a wooden box with holder and needle (depth stop, setting rings and precision indicator as an option).

Single probes, needles, setting rings, and holders are available separately. Please contact us!



Accessories

Holder with retraction

To minimise wear and stress on the probes, a holder with retraction should be used for small diameters. By taking off the measuring pressure of the indicating unit, the probe can be inserted easily into the bore to be measured.

Angle piece

90° deviation for awkwardly positioned bores.

Setting rings

They are available for the nominal dimensions of the probe. Further dimensions are available on request. The nominal Ø and the dimension deviation are engraved on the setting rings.

Depth stops

They are adapted to the individual application. They are especially useful in case of repeatable measurements with a precisely defined measuring depth.

Floating holder

It is especially suitable for the use with automatic measuring stations or with the measuring stand OSM5 and OSM 6, either for measuring series or for measuring in larger work pieces or whenever a high measuring accuracy is required. The floating holder allows the measuring instrument clamped-in to move radially by 0,5 mm. Furthermore, it provides a higher measuring certainty, because the probe is centred in the real measuring axis in the work piece.

Measuring depth extensions MTV

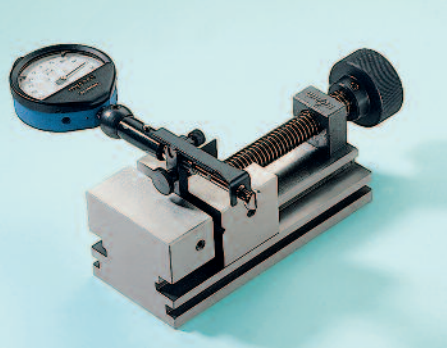
For measuring bores with a large depth, using probes > 10 mm; they are made of Invar steel (minimizes the influence of temperature changes) and are clamped between the holder and the probe. For Ø < 10 mm the probe and needle are available in special lengths. This enables stable and accurate measurements, also with larger measuring depths.

Variants

To master the large number of special versions, we have added the following variants to our standard programme:

- probes fitted with tungsten carbide
- probes for special profiles - so-called OSF probes, for example for grooves and recesses
- special measuring depths up to 1000 mm
- blind bore design from h = 0,2 mm from the bore bottom
- probes for plane parallel distances with flattened probe halves
- on request, from Ø 0,5 mm and > 20 mm

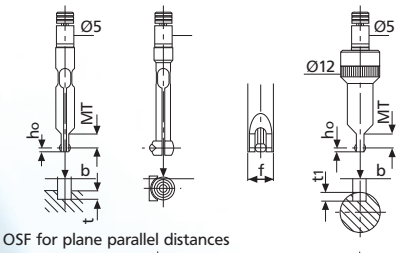
Furthermore, we also solve measuring problems which are not "standard."



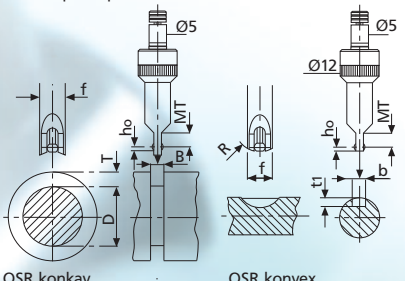
OSIMESS holder with clamp and depth stop

Floating holders

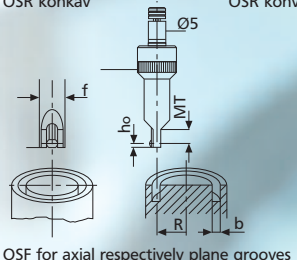
OSIMESS probe in blind bore design OSS (left)
OSIMESS probe in standard design OS (right)



OSF for plane parallel distances



OSR konkav OSR konvex



OSF for axial respectively plane grooves

Probes OSF in special design

Measuring stands OSM for internal precision measuring instruments

General characteristics

In combination with the OSIMESS, SUBITO® or OD plug gauge internal precision measuring instruments, the measuring stands OSM 5 and OSM 6 ease the checking of series of similar work pieces, especially with bores with tight tolerances.

Advantages

- Fast and accurate measuring, since it is not necessary to search for the reversal point
- High accuracy through a precise rack guidance
- Universal use
- Easy handling
- Minimal wear and stress for the probe and for the work piece
- Centring bore 11H7 in the middle of the table plate for floating work piece support and for floating gauge block holder

The OSM 5 has a larger table plate and a larger lift, so that larger work pieces can also be measured. The OSM 5 can also be used to measure depth and thickness.

Accessories OSM 5

- floating holder (see OSIMESS accessories page 6)
- clamping unit OSM 5 to clamp SUBITO® and OD holders
- measuring travel limitation for the OSIMESS holder with retraction in order to minimise wear and stress for the probe and for the work piece

Further accessories OSM 5 and OSM 6

Floating work piece support

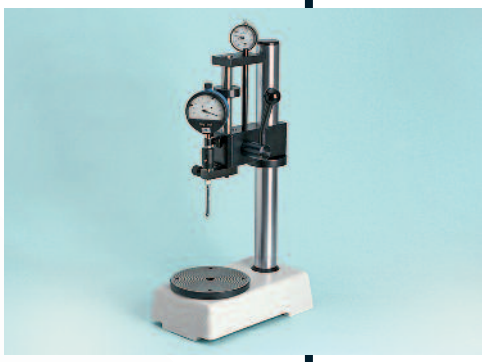
Due to the floating work piece support, the bore axis is aligned automatically to the measuring axis, which is especially useful when measuring small and light work pieces.

Floating gauge block holder

The floating gauge block holder is useful for setting intermediate diameters. Any dimension settings can be realised by using gauge blocks as a reference.

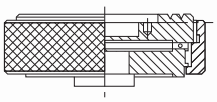
TECHNICAL DATA

	OSM 5 mm	OSM 6 mm
Length	230	230
Width	130	130
Height	400	265
Table diameter	120	80
Adjustment of the lift device	up to 250	up to 130
Max. lift	88	40
Max. work piece ø	200	144

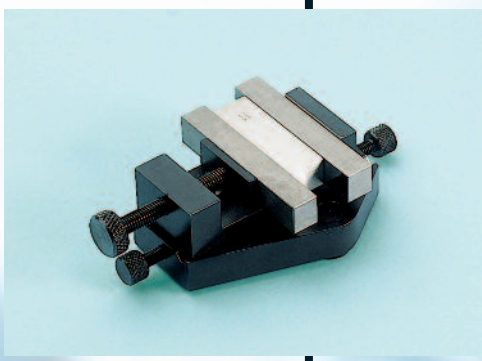


Measuring stand OSM 5

Measuring stand OSM 6



Floating work piece support for measuring stands OSM



Floating gauge block holder

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