

External Measurement



PRECISION MEASUREMENT

Precision measurement requires the use of micrometers. In 1848, the first measuring tool of this type was patented by the French inventor Jean Laurent Palmer as «calibre à vis et à vernier circulaire» (screw calliper with a circular vernier). Today, we continue to make external micrometers with these typical features.

The introduction of the micrometer to the mechanical world came about by the visit of the two american engineers Joseph R. Brown and Lucian Sharpe to the Paris Exhibition in 1867. At that time, their attention was called to the Palmer's invention, which greatly interested them. After some improvements of the Palmer design, the product was manufactured on a large scale and marketed successfully by the two partners.

The story repeated in the past as TESA SA decided to manufacture external micrometers making them the first products produced by the company.

Yet no matter what you measure – internal or external dimensions – all TESA and ETALON micrometers are world-class products in design and quality.

With a very few exceptions (e.g. external micrometers for gear tooth measurements), our micrometers respect the Abbe principle, i.e. the comparator's one (also read in the General Information). Their spindle are ground on modern grinding machines and the profile of the screw is accurately restored with negligible pitch deviations. Such manufacturing conditions are the guarantee for very low measurement uncertainties.

The micrometers of both TESA and ETALON premium brands are robust with ergonomic design.

Besides external micrometers in standard or special versions, we also offer micrometer heads, depth micrometers, full micrometer sets as well as a wide number of accessories plus all what you need for your calibrations. Each model provides either an analogue or a digital indication according to the execution. The models with electrical measuring system also include an RS 232 digital interface.



Max. permissible errors

			
Measuring range/mm	Max. perm. errors*/µm	Number of interference fringes or rings	µm
0 ÷ 25	4	6	2
25 ÷ 50	4	6	2
50 ÷ 75	5	10	3
75 ÷ 100	5	10	3
100 ÷ 125	6		3
125 ÷ 150	6		3
150 ÷ 175	7		4
175 ÷ 200	7		4
200 ÷ 225	8		4
225 ÷ 250	8		4
250 ÷ 275	9		5
275 ÷ 300	9		5
300 ÷ 325	10		5
325 ÷ 350	10		5
350 ÷ 375	11		6
375 ÷ 400	11		6
400 ÷ 425	12		6
425 ÷ 450	12		6
450 ÷ 475	13		7
475 ÷ 500	13		7

* The max. perm. errors include the errors of the measuring element as well as any deviations in flatness and parallelism of the measuring faces plus the errors due to the flexure of the frame.



DIN 863 T1

0,001 mm
0.00005 inMetric/Inch
conversionTungsten carbide
tipped≤100 mm:
Ø 6,5 mm
> 100 mm:
Ø 8 mm

0,5 mm



Max. 10 N

LCD, digit height:
7 mm

Floating zero

Display lock
(except for model
EASY)RS 232
interface,
opto-coupled3V lithium
battery1 to 2 a
(≈ 2000 h/a)Automatic
shut-down after
10 min. Display
setting is maintained as long
as power supply remains
stable.

10°C to 40°C



-10°C to 60°C

80%, non-
condensingProtection
as per
IEC 60529):
IP40 (also valid with used
RS data output) or IP54

Plastic case

Identification
numberMeasuring range
0 to 100: with
SCS calibration
certificateMeasuring range
over 100 mm:
inspection report
along with a declaration of
conformity

TESA MICROMASTER

Electronic Micrometers with Digital Display



With patented TESA capa μ system

- Measuring span of 30 mm or 25 mm.
- Large easy-to-read digital display.
- Models:
 - EASY with a single function key.
 - IP54 with water spray protection as well as IP54 RS with added RS 232 interface.



mm



mm



in



in



MICROMASTER EASY

06030010	0 ÷ 30	0 ÷ 30	0 ÷ 1.2	0 ÷ 1.2	IP40	–
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MICROMASTER IP54

06030020	0 ÷ 30	0 ÷ 30	0 ÷ 1.2	0 ÷ 1.2	IP54	–
06030021	25 ÷ 50	23 ÷ 53	1 ÷ 2	0.9 ÷ 2.1	IP54	–
06030022	50 ÷ 75	48 ÷ 78	2 ÷ 3	1.9 ÷ 3.1	IP54	–
06030023	75 ÷ 100	74 ÷ 104	3 ÷ 4	2.9 ÷ 4.1	IP54	–

MICROMASTER IP54 RS

06030030	0 ÷ 30	0 ÷ 30	0 ÷ 1.2	0 ÷ 1.2	IP54	RS 232
06030031	25 ÷ 50	23 ÷ 53	1 ÷ 2	0.9 ÷ 2.1	IP54	RS 232
06030032	50 ÷ 75	48 ÷ 78	2 ÷ 3	1.9 ÷ 3.1	IP54	RS 232
06030033	75 ÷ 100	74 ÷ 104	3 ÷ 4	2.9 ÷ 4.1	IP54	RS 232
06030071	100 ÷ 125	98 ÷ 127	4 ÷ 5	3.9 ÷ 5.01	IP54	RS 232
06030072	125 ÷ 150	123 ÷ 152	5 ÷ 6	4.9 ÷ 6.01	IP54	RS 232
06030073	150 ÷ 175	149 ÷ 178	6 ÷ 7	5.9 ÷ 7.01	IP54	RS 232
06030074	175 ÷ 200	174 ÷ 203	7 ÷ 8	6.9 ÷ 8.01	IP54	RS 232
06030075	200 ÷ 225	199 ÷ 229	8 ÷ 9	7.9 ÷ 9.01	IP54	RS 232
06030076	225 ÷ 250	224 ÷ 254	9 ÷ 10	8.9 ÷ 10.01	IP54	RS 232
06030077	250 ÷ 275	250 ÷ 279	10 ÷ 11	9.9 ÷ 11.01	IP54	RS 232
06030078	275 ÷ 300	275 ÷ 304	11 ÷ 12	10.9 ÷ 12.01	IP54	RS 232

MICROMASTER Set



06030029	Micromaster Set IP54 RS	0 ÷ 75
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Consisting of:



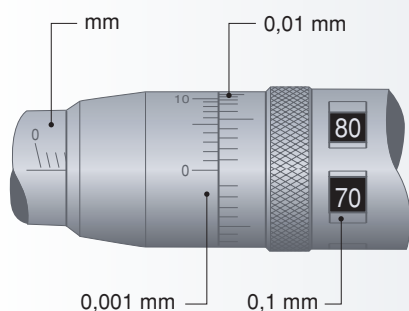
06030030	Micromaster IP54, RS	0 ÷ 30	IP54	RS232
06030031	Micromaster IP54, RS	25 ÷ 50	IP54	RS232
06030032	Micromaster IP54, RS	50 ÷ 75	IP54	RS232
02119021	Setting standard, 50 mm			

Optional Accessory

01961000	1 Lithium battery 3 V, 190 mAh, type CR 2032 – Connecting cables etc., see chapter A.
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TESAMASTER Precision Micrometers with Digital Counter to 0,1 mm

Analogue indication of the full millimetres, hundredths and fractions of hundredth – Accurate, fast reading of the tenths of millimetres – Parallax-free reading of the thousandths of millimetres on vernier.



No	mm	μm	μm
00310001	0 ÷ 25	2	1
00310002	25 ÷ 50	2	1,5
00310003	50 ÷ 75	3	1,5
00310004	75 ÷ 100	3	1,5
00310005	100 ÷ 125	4	2
00310006	125 ÷ 150	4	2,5
00310007	150 ÷ 175	5	3
00310008	175 ÷ 200	5	3
00310009	200 ÷ 225	6	3,5
00310010	225 ÷ 250	6	3,5
No	in	μm	μm
00320001	0 ÷ 1	2	1



DIN 863 T1
NF E 11-095



Vernier reading
to 0,001 mm or
0.0001 in



Scale
division: 0,1 mm
or 0.005 in



Tungsten carbide
tipped



≤ 100 mm:
Ø 6,5 mm
> 100 mm:
Ø 8 mm



0,5 mm



Max. 10 N



Plastic case



Identification
number



Measuring
range
0 to 100 mm
with inspection report and
declaration of conformity



Measuring range
smaller than
100 mm with
a declaration of conformity

ETALON MICRORAPID 226 with 1 mm Revolution

High precision micrometers – Fast, accurate reading – No reading error of the half millimetres – Barrel with pitch to 1 mm – Thimble with 100 graduations – Vernier reading to 0,001 mm.



No	mm	μm	μm
072116406	0 ÷ 25	2	1
072116407	25 ÷ 50	2	1,5
072116408	50 ÷ 75	3	1,5
072116409	75 ÷ 100	3	1,5



DIN 863 T1
NF E 11-095



Parallax-free
vernier reading
to 0,001 mm



Tungsten carbide
tipped



Ø 6,5 mm



1 mm



Max. 10 N



Plastic case



Identification
number



Inspection report
with a declaration
of conformity



DIN 863 T1
NF E 11-095

0 to 100 mm
resp. 0 to 4 in
with vernier

Tungsten carbide
tipped

≤ 100 mm:
Ø 6,5 mm,
> 100 ≤ 200 mm:
Ø 8 mm

0,5 mm

Max. 10 N

Plastic case

Identification
number

Measuring
range
0 to 100 mm
with inspection report and
declaration of conformity

Measuring
range smaller
than 100 mm
with a declaration of
conformity



DIN 863 T1
NF E 11-095

0,01 mm

Tungsten carbide
tipped

Ø 6,5 mm

0,5 mm

Max. 10 N

Plastic case

Identification
number

Inspection report
with a declaration
of conformity

ETALON 260

Standard Models with Analogue Indication

The knurled sleeve only needs to be reversed to render the friction drive built into the thimble inactive.



No	mm	mm	µm	µm
071115887	0 ÷ 25	0,002	2	2
071115888	25 ÷ 50	0,002	2	2
071115889	50 ÷ 75	0,002	3	3
071115890	75 ÷ 100	0,002	3	3
071115891	100 ÷ 125	0,01	4	3
071115892	125 ÷ 150	0,01	4	3
071115893	150 ÷ 175	0,01	5	4
071115894	175 ÷ 200	0,01	5	4

No	in	in	µm	µm
071115899	0 ÷ 1	0.0001	2	2
071115900	1 ÷ 2	0.0001	2	2
071115901	2 ÷ 3	0.0001	3	3
071115902	3 ÷ 4	0.0001	3	3

ETALON Basic to 0,01 mm



No	mm
00119046	0 ÷ 25
00119047	25 ÷ 50
00119048	50 ÷ 75
00119049	75 ÷ 100

Set of 4 ETALON Basic to 0,01 mm

No	mm
00119050	0 ÷ 100

TESA ISOMASTER Standard Models with Analogue Indication

Slanted full millimetres on the barrel are set apart from the straight half millimetres to virtually eliminate reading errors.

The knurled sleeve needs only be reversed to render the friction drive built into the thimble inactive.



No		
	mm	mm
00110101	0 ÷ 25	0,01
00110102	25 ÷ 50	0,01
00110103	50 ÷ 75	0,01
00110104	75 ÷ 100	0,01
00110105	100 ÷ 125	0,01
00110106	125 ÷ 150	0,01
00110107	150 ÷ 175	0,01
00110108	175 ÷ 200	0,01
00110109	200 ÷ 225	0,01
00110110	225 ÷ 250	0,01
00110111	250 ÷ 275	0,01
00110112	275 ÷ 300	0,01
	in	in
00120101	0 ÷ 1	0.0001



DIN 863 T1
NF E 11-095



Tungsten carbide
tipped



≤ 100 mm:
Ø 6,5 mm
> 100 ≤ 300 mm:
Ø 8 mm



0,5 mm



Max. 10 N



Plastic case



Identification
number



Measuring
range
0 to 100 mm
with inspection report and
declaration of conformity



Measuring
range smaller
than 100 mm
with a declaration of
conformity

Set of 4 TESA ISOMASTER

Same execution as above.

The models covering the application range 0 to 100 mm provide the quality that you need at competitive prices.



Plastic case



00110113

mm
0 ÷ 100



 DIN 863 T3
(Style D16)

 0,001 mm
0.00005 in

 Metric/Inch
conversion

 30 mm
measuring span

 0 ≤ 500 mm:
malleable
cast iron.

> 500 ≤ 1000 mm:
steel tube with insulating
grips. Max. flexure of the
frame under a measuring
force of 10 N: see the table
opposite

 Tungsten carbide
tipped

 Ø 8 mm

 0,5 mm

 Max. 10 N

 LCD, digit height:
7 mm

 RS 232

 Additional
technical data:
see page C-3

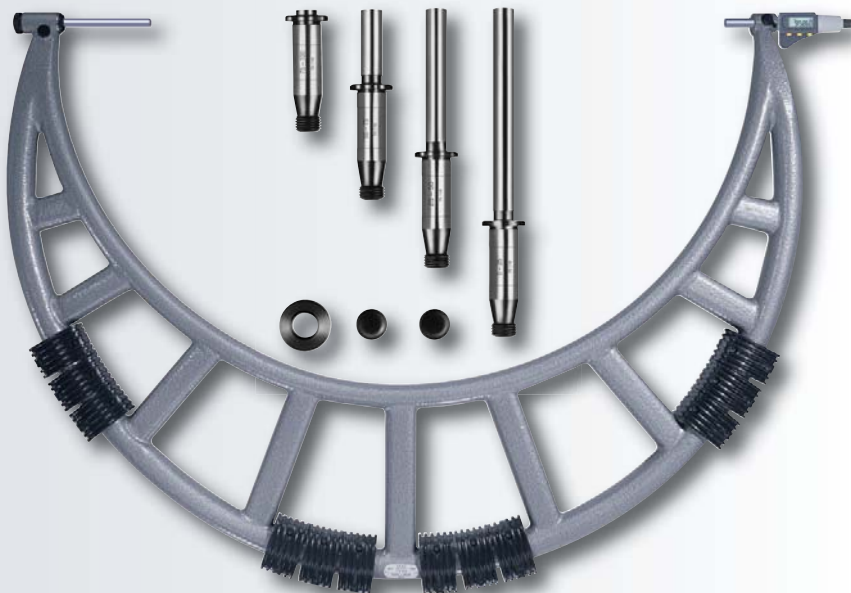
 Wooden case

 Identification
number

 Inspection report
with a declaration
of conformity

MICROMASTER with interchangeable Anvils

All sets include 4 interchangeable anvils with increasing length in steps of 25 mm. Anvils are adjusted (and numbered) in sets, thus rendering the correction of the indication unnecessary whenever an anvil is exchanged.



				
	mm	in	µm	µm
06030047	0 ÷ 100	0 ÷ 3.94	6	3
06030048	100 ÷ 200	3.94 ÷ 7.87	7	4,5
06030049	200 ÷ 300	7.87 ÷ 11.81	8	7
06030050	300 ÷ 400	11.81 ÷ 15.75	9	9
06030051	400 ÷ 500	15.75 ÷ 19.69	10	9
06030052	500 ÷ 600	19.69 ÷ 23.62	11	9
06030053	600 ÷ 700	23.62 ÷ 27.56	12	10
06030054	700 ÷ 800	27.56 ÷ 31.50	13	12
06030055	800 ÷ 900	31.50 ÷ 35.43	14	12
06030056	900 ÷ 1000	35.43 ÷ 39.37	15	16

Measuring range up to 1500 mm also available upon request.

Dial Gauge Element for MICROMASTER

Can replace the interchangeable anvils on AB series micrometers. Make finding the culmination point easier. Ensures a constant measuring force.

Supplied as standard accessory with the ABY series micrometers.



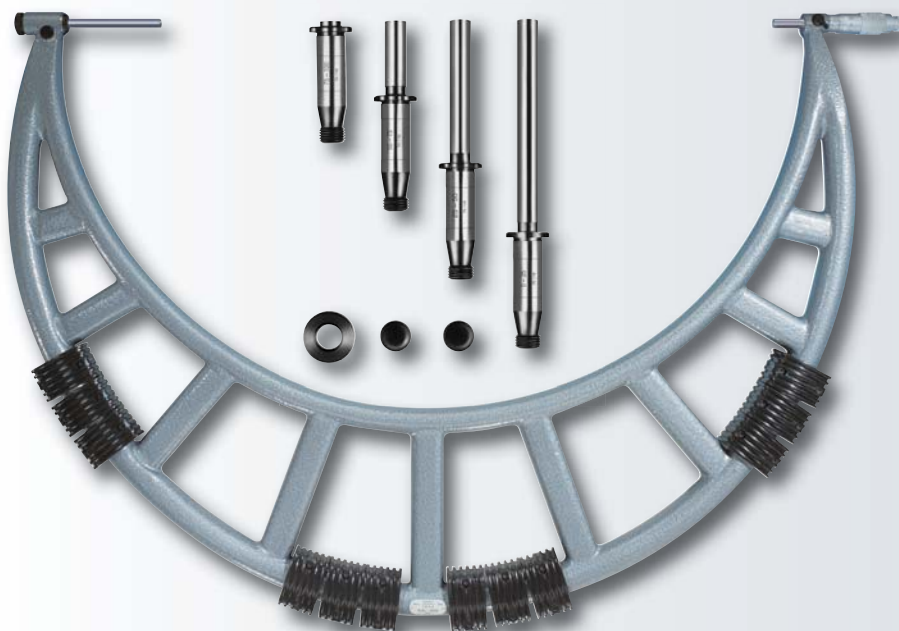
 See next page

 00140301



ISOMASTER AB with interchangeable Anvils

Lightweight, but rugged anvil micrometers. Set No. 00140101 includes 4 interchangeable anvils with increasing length in steps of 25 mm. Anvils are adjusted (and numbered) in pairs, thus rendering any correction of the indication unnecessary whenever an anvil is exchanged.

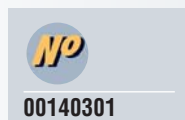


			
	mm	μm	μm
00111901	0 ÷ 100	6	3
00111902	100 ÷ 200	7	4,5
00111903	200 ÷ 300	8	7
00111904	300 ÷ 400	9	9
00111905	400 ÷ 500	10	9
00111906	500 ÷ 600	11	9
00111907	600 ÷ 700	12	10
00111908	700 ÷ 800	13	12
00111909	800 ÷ 900	14	12
00111910	900 ÷ 1000	15	16

Measuring range up to 1500 mm also available upon request.

Dial Gauge Element for AB Series Micrometers

Can replace the interchangeable anvils on these micrometers. Make finding the culmination point easier. Ensures a constant measuring force. Supplied as standard accessory with the ABY series micrometers.



DIN 863 T3
(Style D16)
NF E 11-090



0,01 mm



0 ≤ 500 mm:
malleable
cast iron;
500 ≤ 1000 mm: steel tube
with insulating grips.
Max. flexure of the frame
under a measuring force
of 10 N: see the table
opposite



Tungsten carbide
tipped



8 mm dia.



0,5 mm



Max. 10 N



Wooden case



Identification
number



Declaration
of conformity



± 1,5 mm



0,01 mm



Tungsten carbide
tipped



8 mm dia.



Max. 10 N



Meas. element:
11 mm dia.,
100 mm long.
Dial gauge No. 01410211:
40 mm dial diameter,
two-way dial reading.



Identification
number



With dial gauge
and clamp



Declaration
of conformity



DIN 863 T3
(Style D15)
NF E 11-090

0,01 mm

0 ≤ 500 mm:
malleable
cast iron;
> 500 ≤ 800 mm: steel
tube with insulating grips.
Max. flexure of the frame
under a measuring force
of 10 N: see the table
opposite

Tungsten carbide
tipped

8 mm dia.

0,5 mm

Max. 10 N

Dial gauge:
see on
page C-8

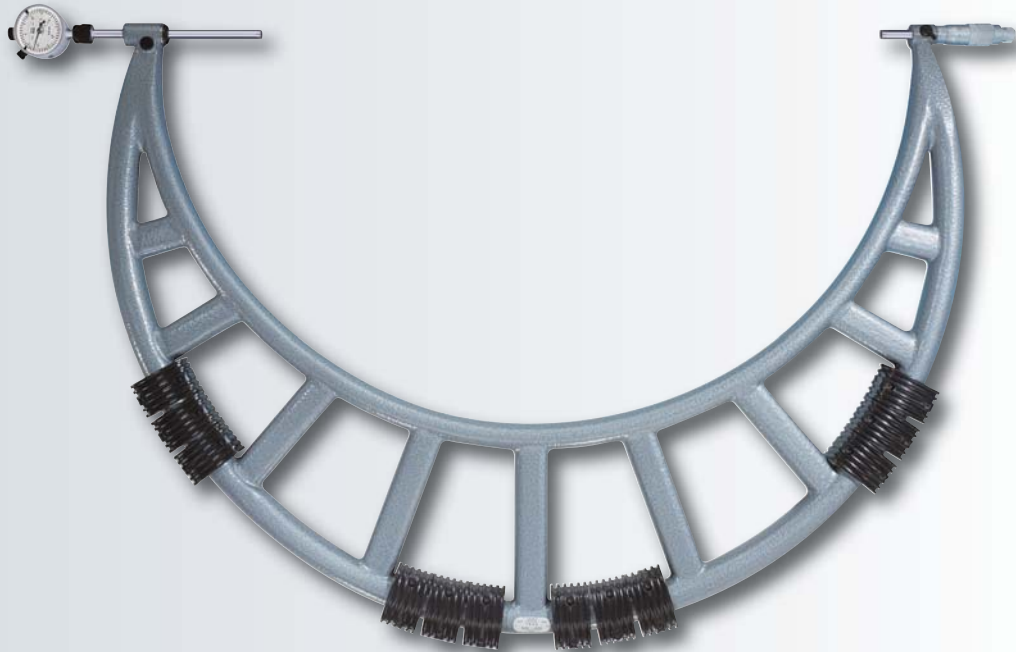
Wooden case

Identification
number

Declaration
of conformity

Series ABY ISOMASTER with Adjustable Dial Gauge Element

Similar to the AB series micrometers, but equipped with the adjustable dial gauge element No. 00140301 that helps you to find the culmination point easier with a constant measuring force.



No	mm	μm	μm
00112001	0 ÷ 100	6	3
00112002	100 ÷ 200	7	4,5
00112003	200 ÷ 300	8	7
00112004	300 ÷ 400	9	9
00112005	400 ÷ 500	10	9
00112006	500 ÷ 600	11	9
00112007	600 ÷ 700	12	10
00112008	700 ÷ 800	13	12

Measuring range up to 1500 mm also available upon request.



DIN 863 T3
(Style D16)
NF E 11-090

Tungsten carbide
tipped

8 mm dia.

Set includes
2 guard plates for
the frame as well
as 1 clamping nut

Identification
number

Interchangeable Anvils for ABY Series ISOMASTER

Set of 4 interchangeable anvils with increasing length in steps of 25 mm. The anvils are adjusted and numbered in pairs, thus eliminating the need for resetting the indication when exchanging either of them.

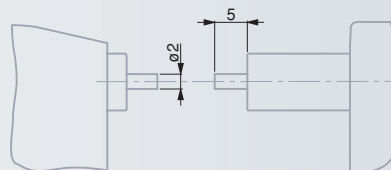
Supplied as standard accessories with the AB series micrometers.

No
00140101



MICRO-ETALON 225 Micrometers with a Dial Indicator

Feature a mobile anvil along with a built-in dial indicator – Ideal for comparative measurements on small part series – Nominal dimension is set on the micrometer while deviations are read on the dial indicator – Retractable anvil by means of a push-button – Rotating dial for fine adjustment, also with adjustable tolerance markers.



DIN 863 T3
(Style D13)



Tungsten carbide
tipped



6,5 mm dia.
Model
with small
measuring faces:
2 mm dia., 5 mm long.



0,5 mm



Anvil:
4,5 to 5,5 N



Micrometer with
vernier reading
to 0,002 mm.
Dial indicator: 0,001 mm.



Dial indicator:
± 0,025 mm



Micrometer:
max. perm.
error of 2 µm.
Dial indicator: 1 µm.



Dial indicator:
repeatability
limit of 0,5 µm.



Plastic case



Declaration
of conformity



Dial indicators to 0,001 mm

072108669

072108691

Model with small measuring faces

072108722



mm

0 ÷ 25

25 ÷ 50

0 ÷ 20

Protective Cover

Made in transparent plastic – Can be mounted on the bezel – Protects the indicator against dust particles and liquids – Prevents both tolerance markers from being accidentally displaced.



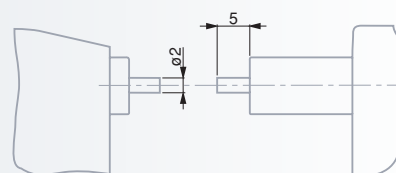
072110978



ETALON MICROSPEL 280

These micrometers have a mobile anvil along with a 8 mm diameter clamping bore for mounting a sensor with linear action such as the TESA GT 21/22 electronic probe (also refer to section O).

Specially designed for batch inspection of small precision parts.



DIN 863 T3
(Style D14)
NF E 11-090



Vernier reading
to 0,002 mm



Tungsten carbide
tipped



6,5 mm dia.
Models
with small
measuring faces:
2 mm dia., 5 mm long.



0,5 mm



Anvil:
2 up to 8 N,
adjustable



Meas. element:
max. perm. error
of 2 μm



Mobile anvil:
repeatability
limit of
0,5 μm.



Adjustable part
support (except
model with small
measuring faces).



Plastic case



Declaration
of conformity



mm

072110816

0 ÷ 25

Model with small measuring faces

072110853

0 ÷ 20

Important

Electronic probe and micrometer stand
are not part of the delivery scope and
must be ordered separately.

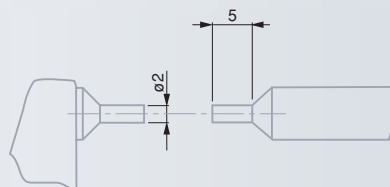
Micrometers with Small Measuring Faces

For measuring grooves, feather grooves, splines and other difficult to reach locations – Small measuring faces specially made to check precision workpieces.

Models MICROMASTER



No	mm	in
06030034	0 ÷ 30	0 ÷ 1.2
06030035	30 ÷ 60	1.2 ÷ 2.3
06030036	60 ÷ 90	2.3 ÷ 3.5
06030037	90 ÷ 120	3.5 ÷ 4.7
<i>Optional Accessory</i>		
01961000	1 Lithium battery 3 V, 190 mAh, type CR 2032. For information on cables etc., see section A.	



DIN 863 T3
(Style D3)

0,001 mm
0.00005 in

Metric/Inch
conversion

Fixed measuring
faces:
tungsten carbide.

Max. 10 N

RS 232
interface,
opto-coupled.

Degree of
protection
(IEC 60529):
IP54 or IP40 with use of
the digital output

For additional
technical data:
see page C-3.

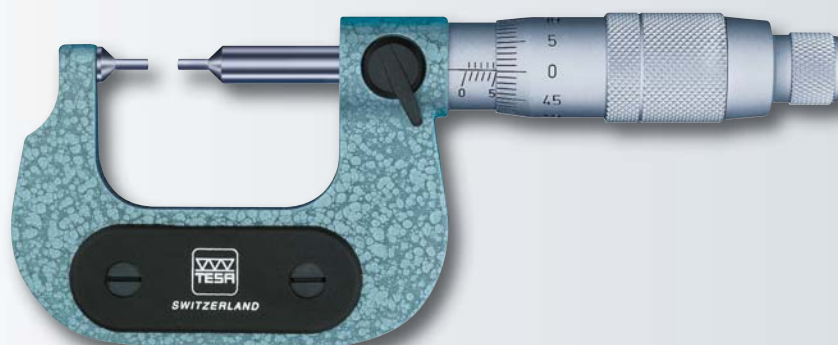
Plastic case

Identification
number

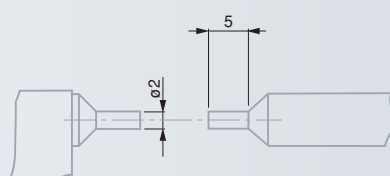
Measuring range
0 to 100: with a
SCS calibration
certificate.

Measuring range
> 100 mm:
inspection report
with a declaration of
conformity.

Models ISOMASTER AD



No	mm
00210101	0 ÷ 25
00210102	25 ÷ 50



DIN 863 T3
(Style D3)
NF E 11-090

0,01 mm

Fixed measuring
faces:
tungsten carbide.

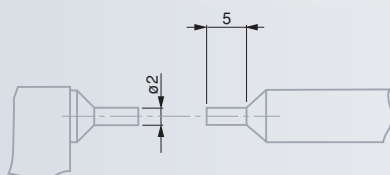
Max. 10 N

Plastic case

Identification
number

Inspection report
with a declaration of
conformity

Model TESAMASTER AD



Nº



00311301

mm

0 ÷ 25



DIN 863 T3
(Style D3)
NF E 11-090



Vernier reading
to 0,001 mm



Scale division
0,1 mm



Fixed measuring
faces:
tungsten carbide



Max. 10 N



Plastic case

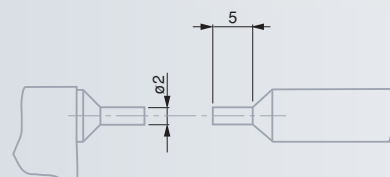


Identification
number



Inspection report
with a declaration
of conformity

Model MICRORAPID



Nº



072116410

mm

0 ÷ 20



DIN 863 T3
(Style D3)
NF E 11-090



0,001 mm.
Parallax-free
reading on vernier



100 divisions



Fixed measuring
faces:
tungsten carbide.



1 mm



Max. 10 N



Plastic case



Identification
number



Inspection report
with a declaration
of conformity

Micrometers with One Spherical Measuring Face

Measure wall thickness of tubing.

Models MICROMASTER



	mm	in
06030079	0 ÷ 30	0 ÷ 1.2
06030080	25 ÷ 50	1 ÷ 2

Model ETALON



	mm
071115940	0 ÷ 25

Micrometers with Two Spherical Measuring Faces

Rounded Measuring faces on anvil and spindle for measuring concave surfaces of workpieces, e.g. ball-bearing guides or walls of tubing.

Models MICROMASTER



	mm	in
06030081	0 ÷ 25	0 ÷ 1
06030082	20 ÷ 50	0.8 ÷ 1.9
06030083	45 ÷ 75	1.8 ÷ 2.9
06030084	70 ÷ 100	2.8 ÷ 3.9



DIN 863 T3
(Style D1)



MICROMASTER:
0.001 mm or
0.00005 in



ETALON:
0.002 mm



Anvil:
tungsten carbide
(MICROMASTER)
or titanium carbide hard-
coating (ETALON).
Tungsten carbide spindle.



Anvil with a
3.5 mm
spherical face
(MICROMASTER) or a
3.25 mm one (ETALON).
Spindle with a flat measuring
face.



Max. 10 N



RS 232 on
MICROMASTER



Other technical
data on
MICROMASTER:
see page C-3.



Plastic case



Identification
number



Inspection report
with a declaration
of conformity



DIN 863 T3
(Style D1)



0.001 mm
0.00005 in



Tungsten
carbide



Spherical,
3.5 mm radius.



Max. 10 N



Additional
technical data:
see page C-3.



Plastic case



Identification
number



Inspection report
with a declaration
of conformity



DIN 863 T3
(Style D1)
NF E 11-090

0,01 mm

Measuring
faces rounded
to 3,25 mm

Titanium
carbide
coated

for model
No. 00112106.
Hardened steel for
other models.

0,5 mm

Max. 10 N

Plastic case

Identification
number

Inspection report
with a declaration
of conformity



Steel ball tip,
hardened and
lapped.
Dull-chrome brass retainer.

Series AAS ISOMASTER

Rounded measuring faces for checking concave surfaces such as ball-bearing guides and tubing walls.



No

mm

00112106	0 ÷ 25 (TiC)
00110901	0 ÷ 25
00110902	25 ÷ 50
00110903	50 ÷ 75
00110904	75 ÷ 100

Spherical Element for External Micrometers

Holder with a ball tip that fits on measuring faces having a 6,5 mm diameter – Serve to measure tubing wall thickness or workpieces with concave surfaces and the like.



No

Ball tip

072103522

5 mm

Micrometers for Soft Materials

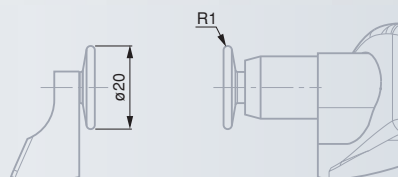
With two large, round-edge measuring faces – Measure the thickness of materials such as paper and plastic sheets, felt, cloth and other soft materials.

Model MICROMASTER

Non-rotating measuring spindle – Without spindle lock.



06030085	0 ÷ 30	0 ÷ 1.2



Model ISOMASTER AF



00210301	0 ÷ 25



Micrometers for Gear Pitch Measurement

Flanges with ring-shaped measuring faces for root tangent lengths W_k on gear pitches, distance between grooves and slots as well as other hard-to-reach locations.

Models MICROMASTER

Non-rotating measuring spindle – Without spindle lock.



No	mm	in
06030041	0 ÷ 30	0 ÷ 1.2
06030042	25 ÷ 55	1 ÷ 2.1
06030043	55 ÷ 85	2.1 ÷ 3.35
06030044	85 ÷ 115	3.35 ÷ 4.5

Models ISOMASTER AE



No	mm
00210201	0 ÷ 25
00210202	25 ÷ 50
00210203	50 ÷ 75
00210204	75 ÷ 100
00210205	100 ÷ 125
00210206	125 ÷ 150

Micrometers for Gear Tooth Measurement

	Max. perm. error* with partial contact of the measuring face μm	Max. perm. error with full contact of the meas- uring face (DIN 863-T1) μm	Flatness μm	Parallelism μm	Max. flexure of the frame μm
0 ÷ 30	10	4	2	5	2
25 ÷ 55	10	4	2	5	2
55 ÷ 85	11	5	2	5	3
85 ÷ 115	12	5	2	6	4

* Disregarding a rim of 1 mm as the measuring faces are being inspected.
For enhanced accuracy, the micrometer should be calibrated in the position of use.



DIN 863 T3
(Style D7)

0,001 mm
0.00005 in

Metric/Inch
conversion

Hardened
steel

Non-rotating
spindle ≤ 85 mm:
25 mm dia.
> 85 ≤ 115 mm: 30 mm dia.

Suitable from
module 0,5

Max. 10 N

RS 232

Additional
technical data:
see page C-3.

Plastic case

Identification
number

Inspection report
with a declaration
of conformity



DIN 863 T3
(Style D7)
NF E 11-090

0,01 mm

Hardened
steel

≤ 100 mm:
25 mm dia.
> 100 ≤ 150 mm:
32 mm dia.

Suitable from
module 0,6

Max. 10 N

Plastic case

Identification
number

Inspection report
with a declaration
of conformity

MICROMASTER with 7 Pairs of Interchangeable Measuring Inserts

Non-rotating spindle – Without spindle lock.



		
06030045	0 ÷ 30	0 ÷ 1.2



0,001 mm
0.00005 in



Metric/Inch
conversion



Micrometer
element with a
max. perm. error
of 4 µm



7,5 mm dia.,
non-rotating
spindle.

With a fixing bore for a
measuring insert.
Adjustable attachment on
anvil for a measuring insert,
with lock.



Hardened
steel



Max. 10 N



RS 232



Additional
technical data
on page C-3



Plastic case



Identification
number



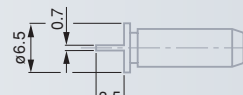
Inspection report
with a declaration
of conformity

Components of a Full Micrometer

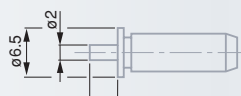
		
Single Micrometer		
06030099	0 ÷ 30	0 ÷ 1.2
Full set of measuring inserts		
00269027		
Includes one pair of the following inserts		
		
00269020	flat	Ø 6,5
00269021	small, flat	Ø 2
00269022	spherical	R = 5
00269023	large, flat	Ø 12
00269024	narrow, flat	0,7
00269025	cone-shaped	Ø 0,3/60°
00269026	knife-edged	0,3/60°
Specially designed measuring faces also available upon request.		



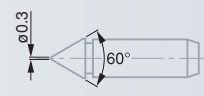
00269020



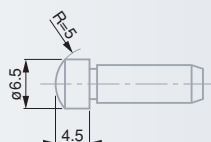
00269024



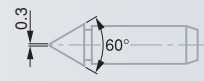
00269021



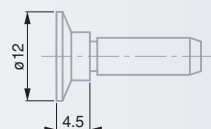
00269025



00269022



00269026



00269023



DIN 863 T3
(Style D12)
NF E 11-090

0,01 mm

Hardened steel
anvil.
Tungsten carbide
spindle

5 mm dia.
on anvil.
6,5 mm dia.
on spindle

0,5 mm

Max. 10 N

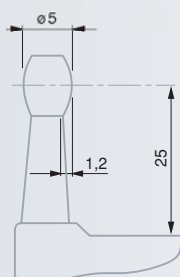
Plastic case

Identification
number

Inspection report
with a declaration
of conformity

ETALON Basic for Tube Wall Thickness Measurement

Barrel-shaped anvil for measuring the tube wall thickness and other curved workpieces.



No



00219066

mm
0 ÷ 25



Vernier reading
to 0,002 mm

Hardened steel
anvils.
Tungsten carbide
spindle.

Anvils:
see drawing.
Spindle:
6,5 mm dia.

0,5 mm

Max. 10 N

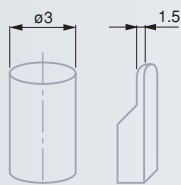
Plastic case

Identification
number

Inspection report
with a declaration
of conformity

ETALON Basic with Two Interchangeable Anvils

Universal micrometer for assembly – Anvils have either a flat or a cylindrical measuring face.



No



00219067

mm
0 ÷ 25

Micrometers with Prismatic Measuring Faces

Measure test pieces with uneven number of grooves such as milling cutters, taps, drills and spline shafts as well as odd polygons. Determine roundness errors on cylindrical surfaces. Angle of the prism aperture is designed for workpieces having a number of 3 or 5 flutes.

Models MICROMASTER

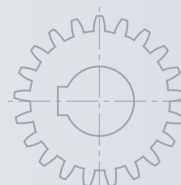
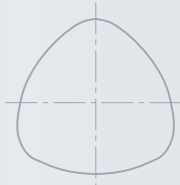
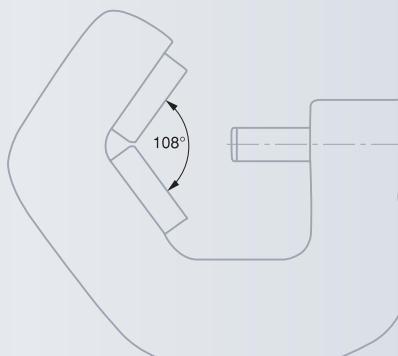
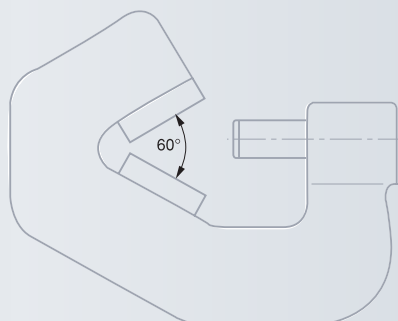


3-flute test pieces (60°)

06030087	1 ÷ 7	0.04 ÷ 0.27
06030088	5 ÷ 20	0.20 ÷ 0.80
06030089	20 ÷ 35	0.80 ÷ 1.38
06030090	35 ÷ 50	1.38 ÷ 1.97
06030091	50 ÷ 65	1.97 ÷ 2.56
06030092	65 ÷ 80	2.56 ÷ 3.15

5-flute test pieces (108°)

06030093	1 ÷ 7	0.04 ÷ 0.27
06030094	5 ÷ 25	0.20 ÷ 0.98
06030095	25 ÷ 45	0.98 ÷ 1.77
06030096	45 ÷ 65	1.77 ÷ 2.56
06030097	65 ÷ 85	2.56 ÷ 3.35



DIN 863 T3
(Style D 10)



0,001 mm
0.00005 in



Metric/Inch
conversion



Tungsten carbide
tipped



Angle of the
prism aperture:
60° for 3-flute test
pieces or 108° for 5-flute test
pieces.



0,75 mm for
3-flute test pieces
or 0,559 mm for
5-flute test pieces.



Max. 10 N



RS 232



Additional
technical data
on page C-3



Plastic case



Identification
number



Inspection report
with a declaration
of conformity

Models ISOMASTER AS



DIN 863 T3
(Style D 10)
NF E 11-090

0,01 mm

Tungsten carbide
tipped

Angle of the
prism aperture:
60° for 3-flute test
pieces or 108° for 5-flute test
pieces.

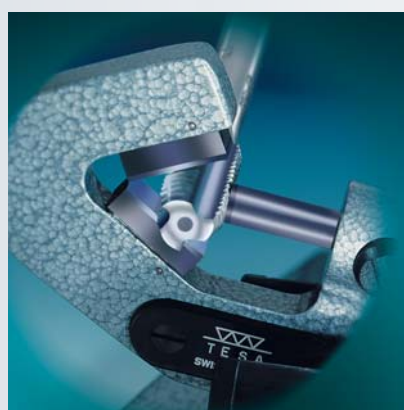
0,75 mm for
3-flute test pieces
or 0,559 mm for
5-flute test pieces.

Max. 10 N

Plastic case

Identification
number

Declaration
of conformity



Nº



mm

3-flute test pieces (60°)

00410001	1 ÷ 7
00410002	5 ÷ 20
00410003	20 ÷ 35
00410004	35 ÷ 50
00410005	50 ÷ 65

5-flute test pieces (108°)

00410102	5 ÷ 25
----------	--------



Hardened steel

Fitted with plastic
guard plates from
nominal dimension
of 20 mm.
Actual size engraved
on the top face

Identification
number

Declaration
of conformity

Cylindrical Setting Standards



Nº



mm



µm



µm

00440001	5	0,5	—
00440002	20	0,7	1
00440003	25	0,7	1
00440004	35	1	1
00440005	45	1,2	1,5
00440006	50	1,2	1,5
00440007	65	1,5	1,5

Micrometers for Thread Measurement

Used for pitch diameter inspection – Anvil with adjustable holder for mounting a measuring insert with prismatic faces – Fine screw adjustment and locking device – Spindle has a fixing bore for a cone-shaped measuring insert.

Models MICROMASTER AC



06030062	0 ÷ 25	0 ÷ 1
06030063	25 ÷ 50	1 ÷ 2
06030064	50 ÷ 75	2 ÷ 3
06030065	75 ÷ 100	3 ÷ 4
06030066	100 ÷ 125	4 ÷ 5
06030067	125 ÷ 150	5 ÷ 6

Important

Measuring Inserts and setting standards must be ordered separately.

Models ISOMASTER AC



00210001	0 ÷ 25
00210002	25 ÷ 50
00210003	50 ÷ 75
00210004	75 ÷ 100

Important

Measuring Inserts and setting standards must be ordered separately.



DIN 863 T3
(Style D18)



0,001 mm
0.00005 in



Metric/Inch
conversion



30 mm
measuring span



Max. 10 N



RS 232



Additional
technical data
on page C-3



Plastic case



Identification
number



Inspection report
with a declaration
of conformity



DIN 863 T3
(Style D 18)
NF E 11-090



0,01 mm



0,5 mm



Max. 10 N



Plastic case



Identification
number



Declaration
of conformity

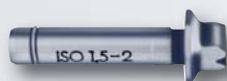


Hardened steel

Fixing rod:
3,5 mm dia.,
15,5 mm longSupplied in sets
or pairs

Interchangeable Thread Inserts for TESA Micrometers Series AC

With measuring faces specially designed for checking pitch diameters.



Pitch in mm

ISO metric threads
60° flank angle

00240000	0,4 ÷ 0,5
00240001	0,5 ÷ 0,6
00240002	0,6 ÷ 0,8
00240003	0,8 ÷ 1,0
00240004	1,0 ÷ 1,25
00240005	1,25 ÷ 1,5
00240006	1,5 ÷ 2,0
00240007	2,0 ÷ 2,5
00240008	2,5 ÷ 3,0
00240009	3,0 ÷ 4,0
00240010	4,0 ÷ 5,0
00240011	5,0 ÷ 6,0

Set of 12 pairs

00240015	0,4 ÷ 6,0
----------	-----------



Threads per in

Whitworth threads
55° flank angle

00250100	60 ÷ 48
00250101	48 ÷ 40
00250102	40 ÷ 32
00250103	32 ÷ 24
00250104	24 ÷ 18
00250105	18 ÷ 14
00250106	14 ÷ 10
00250107	10 ÷ 7
00250108	7 ÷ 4.5
00250109	4.5 ÷ 3

Set of 10 pairs

00250115	60 ÷ 3
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Threads per in

Unified inch-threads UN, UNC, UNF...
60° flank angle

00250000	64 ÷ 42
00250001	42 ÷ 25
00250002	25 ÷ 17
00250003	17 ÷ 10
00250004	10 ÷ 6.5
00250005	6.5 ÷ 4
00250006	4 ÷ 2.5

Set of 7 pairs

00250015	64 ÷ 2.5
----------	----------



Hardened steel

Insulating
sleeve marked
with actual sizeIdentification
numberDeclaration
of conformity

Setting Standards for Screw Thread Micrometers



mm



in

60° flank angle

00240501	25	00250501	1
00240502	50	00250502	2
00240503	75	00250503	3
00240504	100	00250504	4
00240505	125	00250505	5

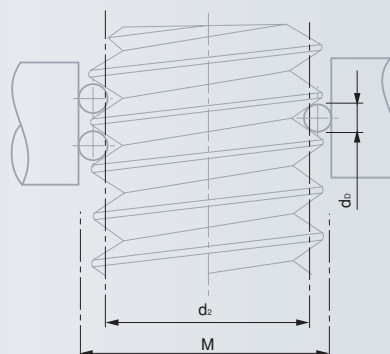
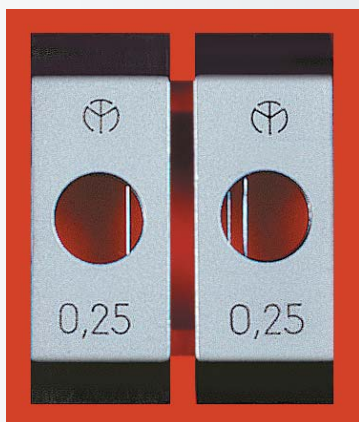
55° flank angle

00240601	25
00240602	50
00240603	75



XB Wires for Screw Threads

For measuring pitch diameter of threads using the three-wire method. Actual flank diameter d_2 can either be determined arithmetically or with the aid of the relevant tables based on the measured actual size M – Suitable for all standard micrometers with a measuring insert having a 6,5 mm diameter.



Steel wires, hardened



Wires are mounted on holders:

2-wire holder rests on anvil while the single wire holder is used on spindle side



Single pairs are supplied in a plastic box, full set in a wooden case



Declaration of conformity



Wires diameter

d_0 mm



ISO metric threads

Pitch in mm



Whitworth threads

Number of threads per in



Unified inch-threads UN, UNC, UNF ...

Number of threads per in

	d_0 mm	Pitch in mm	Number of threads per in	Number of threads per in
00240701	0,17	0,25/0,3	–	–
00240702	0,22	0,35	–	72
00240703	0,25	0,4	60	64
00240704	0,29	0,45/0,5	–	56
00240705	0,335	0,6	48/40	48/44
00240706	0,455	0,7 ÷ 0,8	–	32
00240707	0,53	0,9	32/28	28
00240708	0,62	1,0	26/24	24
00240709	0,725	1,25	22 ÷ 19	20
00240710	0,895	1,5	18/16	18/16
00240711	1,10	1,75	14	14/13
00240712	1,35	2,0	12/11	12/11
00240713	1,65	2,5	10/9	10/9
00240714	2,05	3,0/3,5	8/7	8/7
00240715	2,55	4,0/4,5	6	6
00240716	3,20	5,0/5,5	5/4.5	5/4.5

Set of 16 pairs

00240700 0,17 ÷ 3,20

Micrometer Stands

For micrometers up to 300 mm as well as many other hand-held tools.



TESA

00160201

ETALON

072110123



Clamp aperture: 16 mm (TESA) or 20 mm (ETALON)

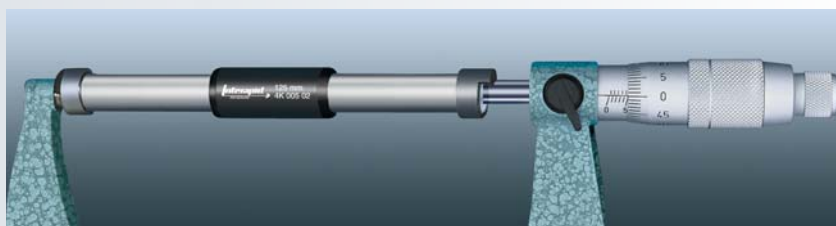


Lacquered cast iron base



Tilt can be locked using a single bolt.

INTERAPID Setting Standards



Hardened steel



Two flat and parallel measuring faces



Cylindrical gauge block with plastic insulating grip and dull-chrome shaft



With lengths:
≤ 175 mm = 10 mm.
≥ 200 mm = 13 mm.



Max. perm. error over the length:
± (1 + L/100) µm, L in mm



Identification number



Inspection report with actual measured length



Declaration of conformity

Nº	mm	Nº	mm
02140001	25	02140021	525
02140002	50	02140022	550
02140003	75	02140023	575
02140004	100	02140024	600
02140005	125	02140025	625
02140006	150	02140026	650
02140007	175	02140027	675
02140008	200	02140028	700
02140009	225	02140029	725
02140010	250	02140030	750
02140011	275	02140031	775
02140012	300	02140032	800
02140013	325	02140033	825
02140014	350	02140034	850
02140015	375	02140035	875
02140016	400	02140036	900
02140017	425	02140037	925
02140018	450	02140038	950
02140019	475	02140039	975
02140020	500	02140040	1000

Guide Collars

Make the positioning of INTERAPID setting standards fast and easy.



Nº	mm	mm
02140103	100 ÷ 175	8
02140108	200 ÷ 1475	8

ETALON Cylindrical Step Gauges

For display setting and calibration.



mm

072112020

5 ÷ 100

072112021

5 ÷ 150



Alloyed steel,
hardened



Diameters
in step of
5 mm (≤ 50 mm)
or 10 mm (> 50 mm).



Max. perm.
errors for nominal
diameters:
 ≤ 80 mm = 1,5 μ m
 $\geq 90 \leq 120$ mm = 2,0 μ m
 ≥ 130 mm = 2,5 μ m



Mounted on a wood
base. Supplied with
dust cover.



Declaration
of conformity

Optical Flats with Two Parallel Faces

Used for examining the flatness and parallelism of the measuring faces on external micrometers as well as other similar measuring instruments.

The difference in length of the optical flats within a set matches a quarter or a third of the spindle pitch of 0,5 mm.



31 mm



Length tolerance
with reference
to the nominal
dimension: ± 100 μ m



Flatness
tolerances for
optical parallels
with lengths:
 $\leq 27,335$ mm = 0,15 μ m
 $\geq 52,00 \div 77,335$ mm =
0,2 μ m



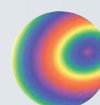
Tolerances
in parallelism for
optical parallels
with lengths:
 $\leq 27,335$ mm = 0,4 μ m
 $\geq 52,00 \div 77,335$ mm =
0,5 μ m



Each set
is supplied in
a wooden case



Declaration
of conformity



mm

02510001

12,00

02510000

12,00 ÷ 12,375

02510101

27,00

02510100

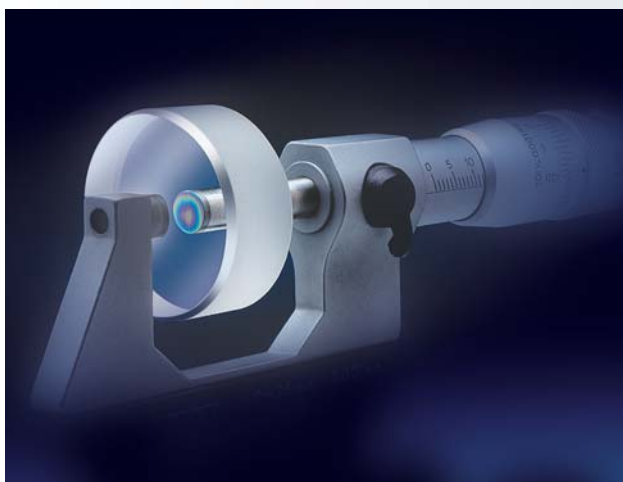
27,00 ÷ 27,335

02510200

52,00 ÷ 52,335

02510300

77,00 ÷ 77,335

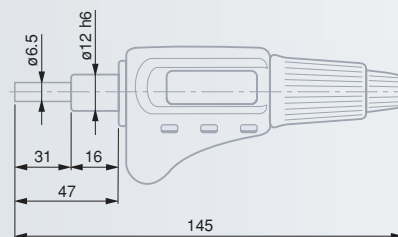


Micrometer Heads

Components commonly used for checking the various displacements on measuring fixtures, coordinate tables, microscopes, machines as well as other special appliances. Mounted on the cylindrical coupling shaft.

Models MICROMASTER

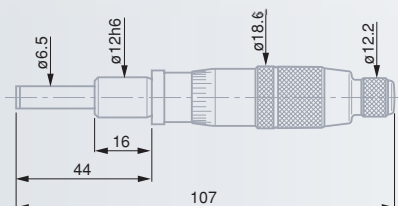
Without spindle lock.



No	mm	mm
06030038	0 ÷ 30	12h6
06030039	30 ÷ 0	12h6
06030040	30 ÷ 0	12h6

Model ISOMASTER AR

Without spindle lock.

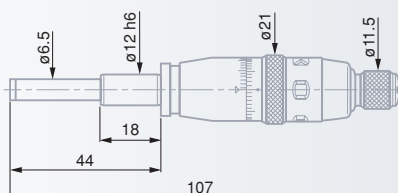


No	mm	mm
00211201	0 ÷ 25	12h6



Model TESAMASTER AR

Without spindle lock.



		
00312301	0 ÷ 25	12h6



DIN 863 T2
(Style E)



Vernier
reading to
0,001 mm



Scale
division to
0,1 mm



Tungsten
carbide
tipped



6,5 mm dia



0,5 mm



Max. perm.
error of 2 µm



Max. 10 N



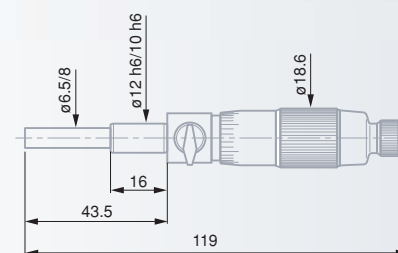
Identification
number



Declaration
of conformity

ETALON 266 Micrometer Heads

With or without spindle lock.



				
	mm	D mm	mm	Spindle lock
072115942	0 ÷ 25	Ø 6,5	12h6	—
072115943	0 ÷ 25	Ø 8	12h6	●
072116258	0 ÷ 25	Ø 6,5	10h6	●



DIN 863 T2
(Style E)
NF E 11-090



Vernier reading
to 0,002 mm



Tungsten carbide
tipped



0,5 mm



Max. perm.
error of 3 µm



Identification
number



Declaration
of conformity

Depth Micrometers

With interchangeable measuring rods provided in sets. The rods are adjusted in steps, each with a step length of 30 or 25 mm, thus eliminating the need for a new display setting when rods are exchanged.

Models MICROMASTER

Non-rotating measuring rod. Sets with a step length of 30 mm.



No



mm



in



mm

06030069 0 ÷ 90 0 ÷ 3.5 50 x 15

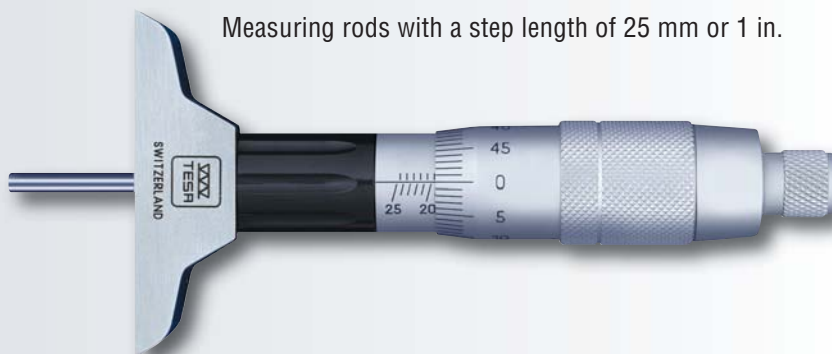
06030070 0 ÷ 180 0 ÷ 7 100 x 15

Optional Accessories

06060021 6 pieces rod set 0 ÷ 180 mm

Models ISOMASTER AQ

Measuring rods with a step length of 25 mm or 1 in.



No



mm



mm

00211002 0 ÷ 75 50 x 15

00211003 0 ÷ 150 50 x 15

00211004 0 ÷ 75 100 x 15

00211005 0 ÷ 150 100 x 15



DIN 863 T2
(Style T)



0,001 mm
0.00005 in



Metric/Inch
conversion



Non-rotating
spindle



Measuring rods
with hardened steel
ends



3 mm dia.
measuring rods



30 mm



RS 232
data output



0,5 mm



Max. perm. error
(meas. element):
3 µm



Plastic case



Identification
number



Inspection report
with a declaration
of conformity



DIN 863 T2
(Style T)
NF E 11-097



0,01 mm



Measuring rods
with hardened
steel ends



3 mm dia.
measuring rods.
Measuring

face on the base:
see table



0,5 mm



Max. perm. error
of the measuring
element: 3 µm



Plastic case



Identification
number



Declaration
of conformity

Tool Sets



TESA Swiss Tool Set



00510033



TESA Swiss Tool Set

Consisting of:



mm



mm

00510041

1 Vernier caliper
TESA SWISSCAL 2

0 ÷ 150 0,02

00560013

1 Depth foot

00110101

1 External micrometer
TESA ISOMASTER

0 ÷ 25 0,01

00560031

1 Suited plastic case



Caliper



DIN 862



Stainless steel,
hardened



Technical data
on page B-8

Depth foot



Stainless steel,
hardened.



75 x 6 mm
measuring faces

Micrometer



DIN 863 T1
NF E-11095



Tungsten carbide
tipped



Technical data
on page C-6

Additional data



Inspection report
with a declaration
of conformity



Caliper



DIN 862



Stainless steel,
hardened



Technical data
on page B-5

Depth foot



Stainless steel,
hardened



75 x 6 mm
measuring face

Micrometer



DIN 863 T1
NF E 11-095



Tungsten carbide
tipped



Technical data
on page C-6

Additional data



Inspection report
with a declaration
of conformity



TESA Duo-Set 1



00530020



TESA Duo-Set 1

Consisting of:



mm

mm

00510008

1 Dial caliper
TESA CCMA-M

0 ÷ 150

0,02

00560013

1 Depth foot

00110101

1 External micrometer
TESA ISOMASTER

0 ÷ 25

0,01

00560031

1 Suited plastic case



Caliper



DIN 862



Stainless steel,
hardened



Technical data
on page B-5

Depth foot



Stainless steel,
hardened



75 x 6 mm
measuring face

Micrometer



DIN 863 T1
NF E 11-095



Tungsten
carbide tipped



Technical data
on page C-4

Additional data



Inspection report
with a declaration
of conformity



TESA Duo-Set 2



00530021



TESA Duo-Set 2

Consisting of:



mm

mm

00510008

1 Dial caliper
TESA CCMA-M

0 ÷ 150

0,02

00560013

1 Depth foot

00310001

1 External micrometer
TESAMASTER

0 ÷ 25

0,001

00560031

1 Suited plastic case



TESA Duo-Set 8



00531101 TESA Duo-Set 8

Consisting of:



mm mm

00530090 1 Caliper
TESA Shop-Cal capa μ system 0 ÷ 150 0,01

00560013 1 Depth foot

00110101 1 External micrometer
TESA ISOMASTER 0 ÷ 25 0,01

00560031 1 Suited plastic case



Caliper

DIN 862



Stainless steel,
hardened



Technical data
on page B-4

Depth foot



Stainless steel,
hardened.



75 x 6 mm
measuring face

Micrometer



DIN 863 T1
NF E 11-095



Tungsten
carbide tipped



Technical data
on page C-6

Additional data



Inspection report
with a declaration
of conformity



TESA Duo-Set 9



00531102 TESA Duo-Set 9

Consisting of:



mm mm

00530090 1 Caliper TESA
TESA Shop-Cal capa μ system 0 ÷ 150 0,01

00560013 1 Depth foot

00310001 1 External micrometer
TESAMASTER 0 ÷ 25 0,001

00560031 1 Suited plastic case



Caliper

DIN 862



Stainless steel,
hardened



Technical data
on page B-4

Depth foot



Stainless steel,
hardened



75 x 6 mm
measuring face

Micrometer



DIN 863 T1
NF E 11-095



Tungsten
carbide tipped



Technical data
on page C-4

Additional data



Inspection report
with a declaration
of conformity



Caliper



Depth foot



Micrometer



Caliper



Depth foot



Micrometer



TESA Duo-Set 16



00531007 TESA Duo-Set 16

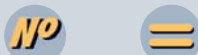
Consisting of:



00530090	1 Caliper TESA Shop-Cal capa μ system	0 ÷ 150	0,01
00560013	1 Depth foot		
06030010	1 External micrometer TESA MICROMASTER EASY	0 ÷ 30	0,001
00560090	1 Suited plastic case		

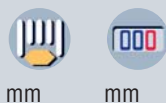
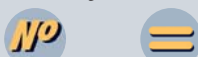


TESA Duo-Set 13



00531004 TESA Duo-Set 13

Consisting of:



00530300	1 Caliper TESA-Cal IP67	0 ÷ 150	0,01
00560013	1 Depth foot		
06030020	1 External micrometer TESA MICROMASTER IP54	0 ÷ 30	0,001
00560090	1 Suited plastic case		



TESA Duo-Set 14

Nº

=

00531005

TESA Duo-Set 14

Consisting of:

Nº

=





mm

mm

00530300

1 Caliper

TESA-Cal IP67

0 ÷ 150

0,01

00560013

1 Depth foot

06030010

1 External micrometer

TESA MICROMASTER EASY 0 ÷ 30

0,001

00560090

1 Suited plastic case



Caliper



DIN 862



Stainless steel, hardened.



Technical data listed on page B-4



Inspection report with a declaration of conformity

Depth foot



Stainless steel, hardened.



75 x 6 mm measuring face

Micrometer



DIN 863 T1, NF E 11-095



Tungsten carbide tipped



Technical data listed on page C-3



SCS calibration certificate



TESA Duo-Set 15

Nº

=

00531006

TESA Duo-Set 15

Consisting of:

Nº

=





mm

mm

00530311

1 Caliper

TESA-Cal IP67, RS

0 ÷ 150

0,01

00560013

1 Depth foot

06030030

1 External micrometer

MICROMASTER IP54, RS

0 ÷ 30

0,001

00560090

1 Suited plastic case



Caliper



DIN 862



Stainless steel, hardened.



Technical data listed on page B-3



Inspection report with a declaration of conformity

Depth foot



Stainless steel, hardened.



75 x 6 mm measuring face

Micrometer



DIN 863 T1, NF E 11-095



Tungsten carbide tipped



Technical data listed on page C-3



SCS calibration certificate