



CE JOHANSSON AB



# Dimensional Metrology

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## CEJ Mikrokator Comparators

### CEJ Mikrokator Comparators

The Mikrokator is a mechanical instrument for measuring length, which thanks to its unique design allows graduations down to 0.1  $\mu\text{m}$ .

The instrument is unsurpassed in terms of accuracy. The measuring operation is purely mechanical, from the measuring tip to the pointer measuring is completely free from friction or backlash. Thanks to its rugged construction, the Mikrokator may be used even in tough workshop environments.

We offer a large number of models, with scale divisions from 0.005 mm (.0002") to 0.0001 mm (.000002"). Precision, linearity, repeatability and sensitivity are all features included in the CEJ Mikrokator. This is a guarantee of high accuracy, reliability and a long life span. In spite of all these unique features, the Mikrokator is incredibly robust. CE Johansson Mikrokators are still manufactured and assembled in the Eskilstuna factory.



## Technical Specifications - CEJ Mikrokators, Metric types

Type	Art. no.	Shank Ø mm	Measuring Range µm	Scale division µm	Mean Measuring Force N ca.	Variation of Measur- ing Force N ca.
500A-2	8300-02102	8	400	5	100	70
500A-3	8300-02103	8	200	2	75	40
500A-4	8300-02104	8	100	1	75	35
500A-4-15g	8300-02104-15g	8	100	1	15	7
500A-5	8300-02105	8	50	0.5	75	25
500A-7	8300-02107	8	30	0.2	75	25
509-4	8307-05004	30	200	1	250	100
509-7	8307-05007	30	40	0.2	250	55
510-3	8308-05003	30	100	2	250	45
510-4	8308-05004	30	60	1	250	35
510-5	8308-05005	30	36	0.5	250	30
510-7	8308-05007	30	20	0.2	250	30
510-9	8308-05109	30	6	0.1	250	30

## Technical Specifications - CEJ Mikrokators, Inch types

Type	Art. no.	Shank Ø mm	Measuring Range inch	Scale division inch	Mean Measuring Force N ca.	Variation of Measur- ing Force N ca.
500EA-2	8300-52002	8	.0160	.0002	100	70
500EA-3	8300-52003	8	.0080	.0001	75	40
500EA-4	8300-52004	8	.0040	.00005	75	35
500EA-5	8300-52105	8	.0020	.00002	75	25
500EA-6	8300-52106	8	.0012	.00001	75	25
509E-4	8307-55004	30	.0100	.0005	250	100
509E-55	8307-55005	30	.0020	.0002	250	55
510E-2	8308-55002	30	.0060	.0001	250	45
510E-4	8308-55004	30	.0024	.00005	250	35
510E-5	8308-55005	30	.0014	.00002	250	30
510E-6	8308-55006	30	.0008	.00001	250	30
510E-8	8308-55008	30	.0002	.000002	250	30

## Mikrokators - Special Features

In order to take full advantage of the Mikrokator capacity, a Mikrokator with special features is needed for certain measurements. When needed, the Mikrokator is available in a number of different designs. When ordering, please quote codes given below.

**F Overtravel**

1.0 mm (.04") in type 500  
0.5 mm (.02") in types 510 and 509  
Standard in all types 500 and 510-9. Optional extra in all other Mikrokators.

**Z Zero-adjusting Screw**

Standard in type 500. Optional extra in types 509 and 510.

**P Adjustable measuring force, 0-12 N**

Optional extra in types 509 and 510.

**7V Adjustable measuring force, 0.3-12 N**

Optional in types 509-7, 509E-55 and from 510-4 to 510-9.  
With a measuring scale on the shank.

**C 3/8" Shank**

Optional in type 500(E).

When taking measurements on delicate objects, the measuring force is crucial in avoiding damage. The above options are specially designed with this in mind.

Mikrokators type 500 are available with a shank of length 55 mm on request.

## CEJ Mikrokator Comparator Stands

### Measuring Stands for Mikrokators type 509 and 510 - Art. no. 8318-01003

Extremely robust precision stands for the inspection of measures and tolerances within the  $\mu\text{m}$  range.

With measuring arm for instruments with shank diameter 30 mm.

Measuring table 8321-01013 is included. The largest possible measure between table and contact tip is 180 mm.

Maximum measuring depth is 80 mm. Weight 11 kg.

Fast and simple fine adjustment with high sensitivity.

Ground and chrome plated column.

Cast iron foot.



### Measuring Stands for Mikrokators type 500 - Art. no. 8318-01004

Extremely robust precision stands for the inspection of measures and tolerances within the  $\mu\text{m}$  range.

With measuring arm for instruments with shank diameter 8 mm.

Measuring table 8321-01013 is included. The largest possible measure between table and contact tip is 190 mm.

Maximum measuring depth is 80 mm. Weight 11 kg.

Fast and simple fine adjustment with high sensitivity.

Ground and chrome plated column.

Cast iron foot.



### Mikrokator Stand, Extra Stable - Art. no. 8317-20001

Extremely robust stands for the inspection of measures and tolerances within the  $\mu\text{m}$  range. For Mikrokators type 500, 509 and 510.

#### Art. no. Description

8317-20001 Mikrokator stand, extra stable, for shank diameter 30 mm

8317-20002 Mikrokator stand, extra stable, with height adjustment, for shank diameter 30 mm

8317-20003 Holder arm 30 mm

8317-20004 Holder arm 8 mm

8321-01014 Holder for measuring table

8321-01015 Adjustable measuring table holder, for tables 8321-01013 and 8321-01003.



# CEJ Mikrokator Accessories

## Mikrokator Accessories

### Height Adjustment Adapter

Art. no. 8318-01020

Allows quick and accurate height adjustments. The adapter also prevents the measuring arm from turning around the column when the height is adjusted. This is particularly important during differential measurements. The adapter reduces the actual measuring height of the stand by approx. 25 mm. Only for stands 8318-01003 and 8318-01004



### Adjustable measuring support

Art. no. 8318-01021

The support is to be attached to the column of the stand to provide a back stop, e.g. when measuring cylindrical workpieces. Dimension of the supporting plate: 80x16 mm. Adjustment range 0-50 mm behind the centre line of the contact tip.



### Lifting Lever for Mikrokators 509 and 510

Art. no. 8318-05001

To be attached to the shank of Mikrokators types 509 and 510 for lifting the measuring tip.



### Measuring Table 35x90x30 mm

Art. no. 8321-01013

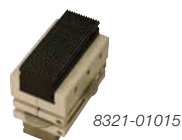
Provided with two measuring surfaces. One surface is flat and the opposite side is grooved with 0.6 mm wide bars. Flatness tolerance 0.002 mm. Material: Steel, hardened and stress relieved, black oxidized finish, measuring surfaces lapped.



### Adjustable Measuring Table Holder

Art. no. 8321-01015

To be used with Measuring Table 8321-01013 and 8321-01003.



### Measuring Table 35x85x30 mm

Art. no. 8321-01016

As 8321-01013 Material: Carbide measuring surface



### Adapter 30/8 mm

Art. no. 6050-30001

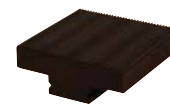
Adapter without friction or backlash. Utilized to replace an instrument with 30 mm shank with an instrument with 8 mm shank. Suitable for all stands with a 30 mm holder and all contact tips for 509 and 510 Mikrokators. Attention! The contact tip shown in the picture is not included.



### Measuring table 90x90x30 mm

Art. no. 8321-01003

Provided with one measuring surface. The surface is grooved with 0.6 mm wide bars. Flatness tolerance 0.002 mm. Material: Steel, hardened and stress relieved, black oxidized finish, measuring surface lapped.



### Measuring Table for Three Point Support

Art. no. 6051-30171

Suits holder 8321-01014. For stands in series 8317.



## Mikrokator Contact Tips

### Contact tips for Mikrokators type 509 and 510

Art. no.	Description	Diameter mm
8317-31001	Spherical, carbide (standard) *	5
8317-32001	Flat, carbide	3
8317-32003	Flat, carbide	10
8317-01003	Holder for 8317-01004	-
8317-01004	Measuring Needle, spherical point	1,5
8343-01004	Flat, adjustable, carbide	10

\*Also available with ruby ball, art. no. 8317-31002

### Contact tips with carbide or ruby ball for Mikrokators type 500A

Art. no.	Description	Length mm
8315-32005	Type M504A-5	5
8315-32010	Type M504A-10	10
8315-32015	Type M504A-15, standard	15
8315-32020	Type M504A-20	20
8315-02015	Type M504A-15 with ruby ball	15



Spherical Ø5 mm  
8317-31001 - Carbide ball  
8317-31002 - Ruby ball



Flat Ø10 mm  
8317-32003  
Carbide



Plane Ø 3 mm  
8317-32001  
Carbide



8315- Length  
see table above



Flat, adjustable, Ø10 mm  
8343-01004  
Carbide



Measuring Needle,  
spherical point Ø15 mm  
8317-01004  
with holder 8317-01003



## CEJ Dial Gauges

### Dial Gauge 8336-20 - Clockwise Graduation



### Technical Specifications

Graduation	0.01 mm
Measuring Range	10 mm
Measuring range per revolution	1 mm
Diameter of external ring	58 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01020

### Dial Gauge 8336-21 - Shock-Proof, Clockwise Graduation



### Technical Specifications

Graduation	0.01 mm
Measuring Range	10 mm
Measuring range per revolution	1 mm
Diameter of external ring	58 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01021

### Dial Gauge 8336-22 - Shock-Proof, Symmetrical Graduation



### Technical Specifications

Graduation	0.01 mm
Measuring Range	2 mm
Measuring range per revolution	1 mm
Diameter of external ring	58 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01022

**Dial Gauge 8336-23 - Shock-Proof, Clockwise Graduation****Technical Specifications**

Graduation	0.005 mm
Measuring Range	5 mm
Measuring range per revolution	0.5 mm
Diameter of external ring	58 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01023

**Dial Gauge 8336-24 - Shock-Proof, Symmetrical Graduation****Technical Specifications**

Graduation	0.01 mm
Measuring Range	0.9 mm
Measuring range per revolution	0.9 mm
Diameter of external ring	58 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01024

**Dial Gauge 8336-25 - Shock-Proof, Symmetrical Graduation****Technical Specifications**

Graduation	0.01 mm
Measuring Range	2 mm
Measuring range per revolution	1 mm
Diameter of external ring	40 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01025



**Dial Gauge 8336-26 - Symmetrical Graduation****Technical Specifications**

Graduation	0.01 mm
Measuring Range	0.4 mm
Measuring range per revolution	0.4 mm
Diameter of external ring	40 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01026

**Dial Gauge 8336-125 - Shock-Proof, Clockwise Graduation****Technical Specifications**

Graduation	0.01 mm
Measuring Range	1 mm
Measuring range per revolution	1 mm
Diameter of external ring	40 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01125

**Dial Gauge 8336-26 - Long Measuring Spindle, Symmetrical Graduation****Technical Specifications**

Graduation	0.01 mm
Measuring Range	0.4 mm
Measuring range per revolution	0.4 mm
Diameter of external ring	40 mm
Diameter of shank	8h6
Accuracy according to	DIN 878
Art. no.	8336-01226

# Indicator Stand

## Indicator Stand M11

An "indicating stand" for indicating and transferring of measures.  
The foot is equipped with dovetail guides.

**Specifications:**

Foot size	65 x 250 mm
Measuring height	285 mm
Measuring depth	145 mm
Column Ø	30 mm
Attachment bore	Ø 8 mm
Weight	5.5 kg
Order no.	8320-01001

## Accessories:

Fine adjustment	8320-01025
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## Indicator Stand UMM-2

A robust stand with parallel measuring arm (8465.01005).  
The foot is equipped with dovetail guides for the attachment of a measuring table, e.g. 8462.01015 in the Combicheck System.

**Specifications:**

Foot size	65 x 250 mm
Measuring height	225 mm
Measuring depth	100 mm
Column Ø	30 mm
Attachment bore	Ø 8 mm
Weight	4.5 kg
Order no.	8320-01002



### Indicator Stand M11D

An "indicating stand" with a Diabase foot. Suitable for indicating and transferring of measures when working on a surface plate.

**Specifications:**

Foot size	100 x 150 mm
Measuring height	335 mm
Measuring depth	150 mm
Column Ø	30 mm
Attachment bore	Ø 8 mm
Weight	3 kg
Order no.	8320-01004
Accessories:	
Fine adjustment	8320-01025



### Indicator Stand M118

The bottom and the Vee-guide are magnetic.

**Specifications:**

Magnetic force	500 N
Foot size	60 x 75 mm
Measuring height	355 mm
Measuring depth	170 mm
Column Ø	30 mm
Attachment bore	Ø 8 mm
Weight	3 kg
Order no.	8320-01011
Accessories:	
Fine adjustment	8320-01025



# CEJ Inside Micrometers

## CEJ Inside Micrometer Sets

To be used for internal measurements. The measuring anvils have carbide surfaces. The scale division is 0.01 mm over the measuring range. Measuring range of the micrometer head is 25 mm. The extension rods are equipped with insulation against heat (not applicable to 25 and 50 mm rods). The metal surfaces have matt chromium-plating. The CEJ Inside Micrometers are available in sets, where you may combine your own measuring range, or as fixed inside micrometer. The internal micrometer sets are supplied in a case, with holders. Quotations for customized internal micrometers are available on request.

Art. no.	Micrometer type	Range of application mm
8236-33010	M130	75-475
8237-33010	M130	75-1275
9236-33010	M158	100-500
8237-33011	M158	100-1300



Inside Micrometer Set M130

## CEJ Fixed Inside Micrometers M158

Fixed inside micrometers are also available as standard in lengths from 550 mm up to 1500 mm, in 25 mm intervals. Quotations for other dimensions are available on request.

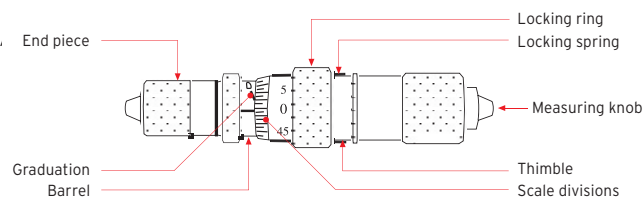


Art. no.	Range of application mm	Accuracy $\mu\text{m}$
8245-33011	100-125	3.5
8245-33012	125-150	3.5
8245-33013	150-175	4.0
8245-33014	175-200	4.0
8245-33015	200-225	5.0
8245-33016	225-250	5.0
8245-33017	250-275	5.0
8245-33018	275-300	5.0
8245-33019	300-325	6.0

Art. no.	Range of application mm	Accuracy $\mu\text{m}$
8245-33020	325-350	6.0
8245-33021	350-375	6.0
8245-33022	375-400	6.0
8245-33023	400-425	7.0
8245-33024	425-450	7.0
8245-33025	450-475	7.0
8245-33026	475-500	7.0
8245-33027	500-525	7.0
8245-33028	525-550	7.0

## Accessories

Art. no.	Description	Accuracy, $\mu\text{m}$
8235-33010	Head M130 75-100 mm	$\pm 5$
8235-30010	End piece M130	
8235-30008	Measuring knob M130	
6015-70120	End piece M158	
6015-81120	Measuring knob M158	
8235-11012	Extension 25 mm	$\pm 0.75$
8235-11013	Extension 50 mm	$\pm 1.0$
8235-11031	Extension 100 mm	$\pm 1.5$
8235-11032	Extension 200 mm	$\pm 2.5$
8235-11033	Extension 400 mm	$\pm 3.5$
8235-11041	Extension 1000 mm	$\pm 9$
8235-11049	Extension 1500 mm	$\pm 11$
8235-11050	Extension 2000 mm	$\pm 15$
8233-01025	Holder for inside micrometer	
8235-01001	Locking ring	
8235-01002	Locking spring, pair	



Micrometer head M130

## CEJ Inside Micrometers - Light weight

### CEJ Inside Micrometer Sets - Light weight

Light weight version made out of carbon fibre. To be used for internal measurements. The measuring anvils have carbide surfaces. The scale division is 0.01 mm over the measuring range. Measuring range of the micrometer head is 25 mm. The extension rods are equipped with insulation against heat (not applicable to 25 and 50 mm rods). The metal surfaces have matt chromium-plating. The CEJ Inside Micrometers are available in sets, where you may combine your own measuring range, or as fixed inside micrometer. The internal micrometer sets are supplied in a case, with holders. Quotations for customized internal micrometers are available on request.

Art. no.	Micrometer type	Range of application mm
8236-33010C	M130	75-475
8237-33010C	M130	75-1275
9236-33010C	M158	100-500
8237-33011C	M158	100-1300



Inside Micrometer Set M130

### CEJ Fixed Inside Micrometers M158 - Light weight

Light weight version made out of carbon fibre. Fixed inside micrometers as standard in lengths from 550 mm up to 1500 mm, in 25 mm intervals. Quotations for other dimensions are available on request.

Art. no.	Range of application mm	Accuracy $\mu\text{m}$
8245-33011	100-125	3.5
8245-33012	125-150	3.5
8245-33013	150-175	4.0
8245-33014	175-200	4.0
8245-33015C	200-225	5.0
8245-33016C	225-250	5.0
8245-33017C	250-275	5.0
8245-33018C	275-300	5.0
8245-33019C	300-325	6.0



Art. no.	Range of application mm	Accuracy $\mu\text{m}$
8245-33020C	325-350	6.0
8245-33021C	350-375	6.0
8245-33022C	375-400	6.0
8245-33023C	400-425	7.0
8245-33024C	425-450	7.0
8245-33025C	450-475	7.0
8245-33026C	475-500	7.0
8245-33027C	500-525	7.0
8245-33028C	525-550	7.0

### Accessories

Art. no.	Description	Accuracy, $\mu\text{m}$
8235-33010	Head M130 75-100 mm	$\pm 5$
8235-30010	End piece M130	
8235-30008	Measuring knob M130	
6015-70120	End piece M158	
6015-81120	Measuring knob M158	
8235-11012	Extension 25 mm	$\pm 0.75$
8235-11013	Extension 50 mm	$\pm 1.0$
8235-11031C	Extension 100 mm	$\pm 1.5$
8235-11032C	Extension 200 mm	$\pm 2.5$
8235-11033C	Extension 400 mm	$\pm 3.5$
8235-11041C	Extension 1000 mm	$\pm 9$
8235-11049C	Extension 1500 mm	$\pm 11$
8235-11050C	Extension 2000 mm	$\pm 15$
8233-01025	Holder for inside micrometer	
8235-01001	Locking ring	
8235-01002	Locking spring, pair	

### Dial Gauge unit for Inside Micrometer

Art.no. 8237-33008  
Complete with Dial Gauge 8336-01025



# Combicheck

## Combicheck

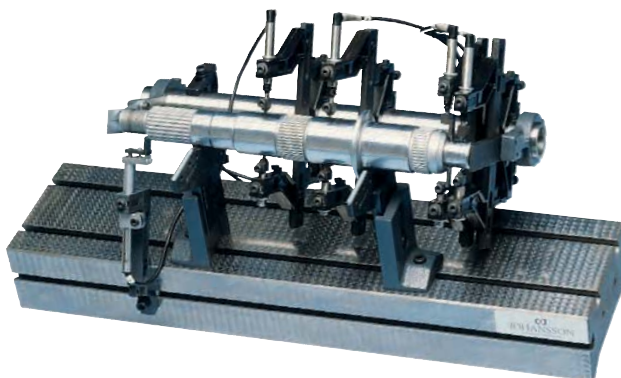
Combicheck is a flexible system of standard elements for building inspection fixtures. The system has been on the market since the 1960s and is today one of the most common and widespread fixture systems.

Combicheck can utilize the complete C E Johansson range of length measuring indicators, e.g. Dial Gauges, Mikrokators, Metem Digital Gauging System and Pneumatic Measuring Devices. It may be integrated into machine tool CNC systems for full measuring control. Combicheck is so robust that it can advantageously be used by operators in a workshop environment.

Choice of reading-, calculation- or control devices should be made in view of

- quantities, dimensions, tolerance ranges and batch sizes
- operator capability and extent of automation
- co-ordination with the machining operations

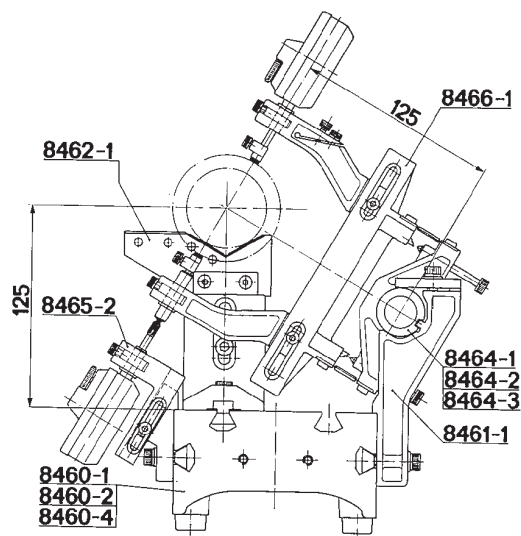
All Combicheck elements are represented in the following pages. They are divided into groups by reference to their function. More detailed size information etc. is obtained through the CEJ Combicheck catalogue, or at [www.cej.se](http://www.cej.se).



## Combicheck Standard Accessories

8460 Base Plates	CEJ Art. no.
Width 125, length 250 mm	8460-01001
Width 125, length 500 mm	8460-01002
Width 125, length 1000 mm	8460-01004
Width 255, length 250 mm	8460-01010
Width 255, length 500 mm	8460-01011
Width 255, length 1000 mm	8460-01013

8461 Brackets	CEJ Art. no.
Mounting bracket for horizontal column	8461-01001
Mounting bracket for vertical column	8461-01002
Mounting bracket for roller slide	8461-01003
Mounting bracket, universal	8461-01004



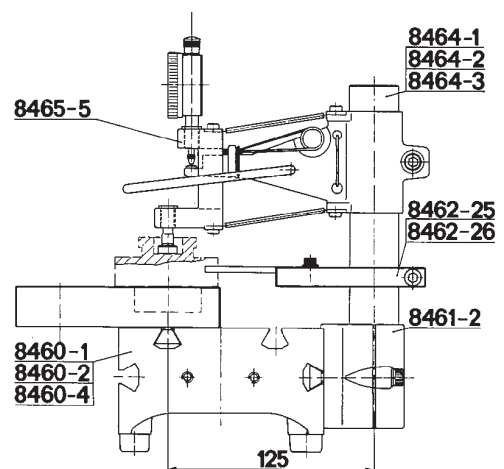
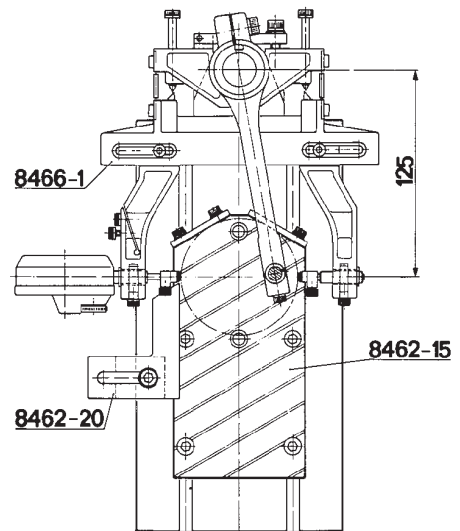
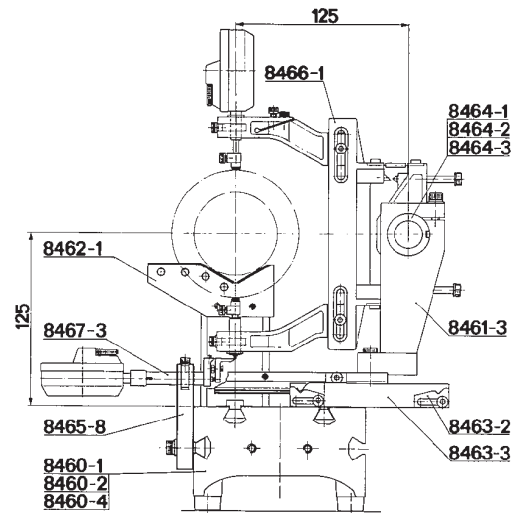


Combicheck Standard Accessories

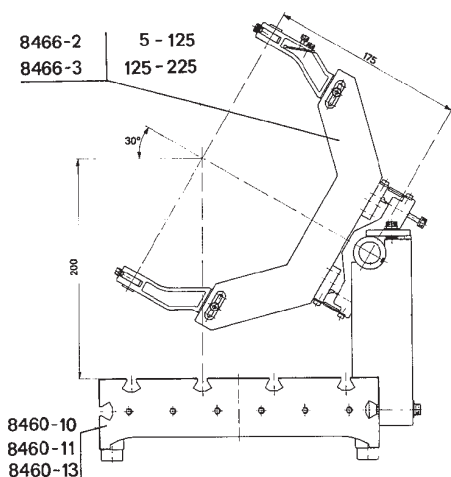
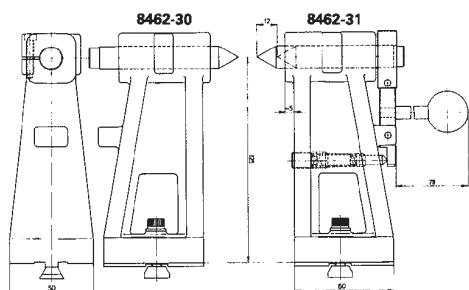
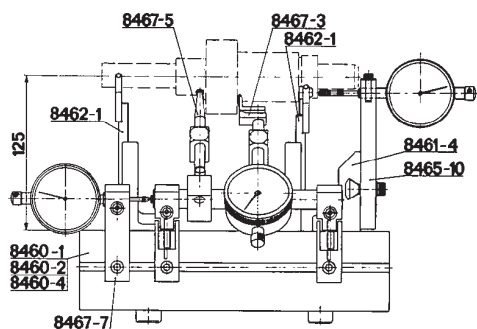
8462	CEJ Art. no.
Vee-block support 120°, measuring range Ø 5-80 mm	8462-01001
Holder	8462-01003
Holder plate	8462-01004
Vee-plate 120°, measuring range Ø 5-80 mm	8462-01005
Vee-plate 108°, measuring range Ø 5-80 mm	8462-01006
Axial stop	8462-01007
Guide	8462-01008
Vee-plate 120° for conical components, Ø 5-80	8462-01011
Vee-plate 108° for conical components, Ø 5-80	8462-01012
Roller Vee-support, Ø 32-102 mm	8462-01013
Measuring table, width 80 mm, length 160 mm	8462-01015
Insert guide, length 70 mm	8462-01020
Vee-locator 120°, measuring range Ø 10-70 mm	8462-01025
Vee-locator 120°, measuring range Ø 70-125 mm	8462-01026
Axial stop arm, length 145 mm	8462-01027
Centre support, movable centre, height 200 mm	8462-01028
Centre support, fixed centre, height 200 mm	8462-01029
Centre support, fixed centre, height 125 mm	8462-01030
Centre support, movable centre, height 125 mm	8462-01031
Point centre, Ø 14, 60°, length 90 mm	8462-01032

8463 Transport Devices	CEJ Art. no.
Roller slide, width 50, length 65 mm	8463-01001
Roller slide, width 80, length 125 mm	8463-01002
Stop attachment	8463-01003
Handle, length 65 mm	8463-01004
Handle, length 120 mm	8463-01005

8464 Columns	CEJ Art. no.
Column Ø 30, length 200 mm	8464-01001
Column Ø 30, length 350 mm	8464-01002
Column Ø 30, length 600 mm	8464-01003
Dovetail attachment length 198 mm	8464-01005
Dovetail attachment length 348 mm	8464-01006



Combicheck Standard Accessories



8465 Instrument holder, bore Ø 8 or 3/8"	CEJ Art. no.
Measuring Range Ø 0-160 mm	8465-01001
Measuring Range Ø 0-160 mm	8465-01002
Straight	8465-01004
Parallel measuring arm	8465-01005
Pivoted	8465-01006
Length 76 mm	8465-01008
Length 101 mm	8465-01009
Length 126 mm	8465-01010
Length 151 mm	8465-01011
Length 176 mm	8465-01012

8466 Measuring Frames, bore Ø 8 or 3/8"	CEJ Art. no.
c-c 125, measuring range Ø 0-125	8466-01001
c-c 175, measuring range Ø 0-125	8466-01002
c-c 175, measuring range Ø 125-225	8466-01003

8467 Length Measuring Elements, bore Ø 8 or 3/8"	CEJ Art. no.
Length Measuring Elements	8467-01001
length measuring head 90°	8467-01003
Measuring arm, length 80 mm	8467-01005
Instrument holder	8467-01007

8468 Measuring organs (measuring anvils etc.)	CEJ Art. no.
Chisel anvil, length 2 mm	8468-01001
Chisel anvil, length 6 mm	8468-01002
Chisel anvil, length 12 mm	8468-01003
Chisel anvil, length 3.5 mm	8468-01004
Chisel anvil, length 5 mm	8468-01005
Chisel anvil, length 8 mm	8468-01006
Chisel anvil, length 12 mm	8468-01007
Chisel anvil, length 16 mm	8468-01008
Chisel anvil, length 6.5 mm	8468-01009
Chisel anvil, length 10 mm	8468-01010
Support anvil Ø 8, length 35 mm	8468-01015
Support anvil Ø 8, length 60 mm	8468-01016
Measuring tip, plane, Ø 4, length 6 mm	8468-01025
Measuring tip, plane, Ø 4, length 10 mm	8468-01026
Measuring tip, plane, Ø 7.7, length 3 mm	8468-01029

Combicheck Standard Accessories

8468 Measuring organs (measuring anvils etc.) CEJ Art. no.

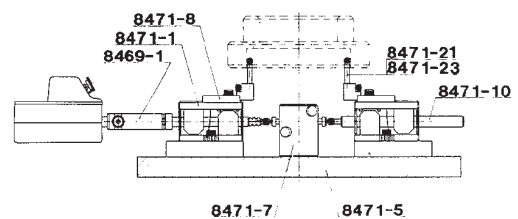
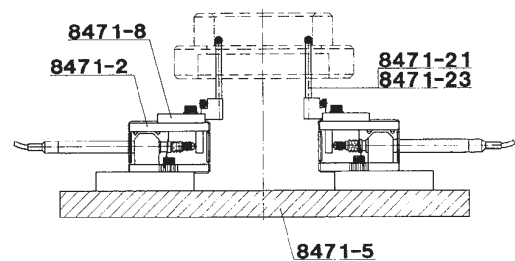
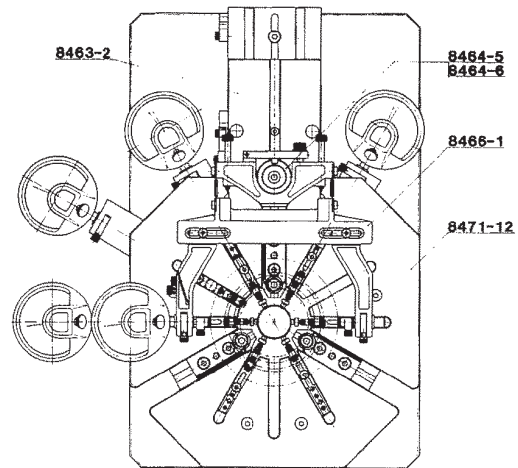
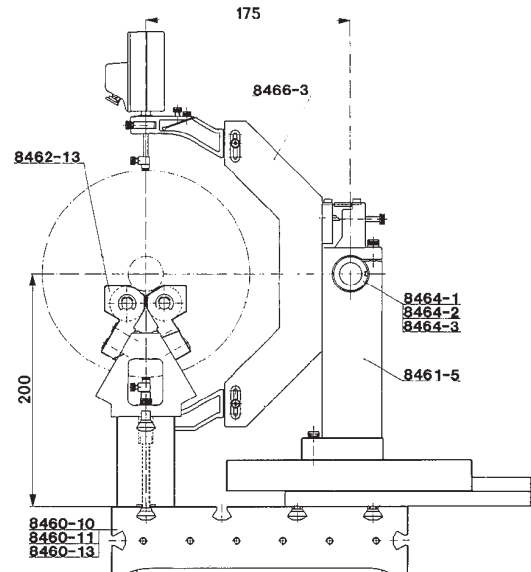
Measuring tip, spherical, R8, length 5 mm	8468-01030
Measuring tip, plane, Ø 1.5, length 8 mm	8468-01031
Measuring tip, tapered, length 10 mm	8468-01032
Measuring tip, plane, Ø 1.5x1.5, L=21 mm	8468-01033
Extension, length 10 mm	8468-01035
Extension, length 30 mm	8468-01036
Extension, length 40 mm	8468-01037
Spindle for measuring tip	8468-01040
Adapter, threaded M2,6	8468-01041
Measuring tip, carbide ball, L=5 [M504A-5]	8315-32005
Measuring tip, carbide ball, L=10 [M504A-10]	8315-32010
Measuring tip, carbide ball, L=15 [M504A-15]	8315-32015
Measuring tip, carbide ball, L=20 [M504A-20]	8315-32020

8469 Other elements, bore Ø 8 or 3/8" CEJ Art. no.

Extension shaft, length 60	8469-01001
Angle head 45°, length 60	8469-01003
Angle head, 90°, length 60	8469-01004
Angle head, 45°, length 20	8469-01005
Angle head, 90°, length 20	8469-01006
Pressure arm	8469-01007
Spring loaded plunger	8469-01008
Mounting arm	8469-01020
Link	8469-01021

8471 Internal measuring elements CEJ Art. no.

Length meas. element, relative, bore Ø 8 or 3/8"	8471-01001
Length meas. element, single, bore Ø 8 or 3/8"	8471-01002
Height measuring element, bore Ø 8	8471-01003
Base plate	8471-01005
Measuring support	8471-01006
Centre piece	8471-01007
Anvil support	8471-01008
Link	8471-01009
Shaft	8471-01010
Location anvil	8471-01011
Cover plates	8471-01012
Spacer, Ø 12, height 1 mm	8409-01110
Spacer, Ø 12, height 2 mm	8409-01111
Spacer, Ø 12, height 4 mm	8409-01112
Spacer, Ø 12, height 7 mm	8409-01113



# Combifix

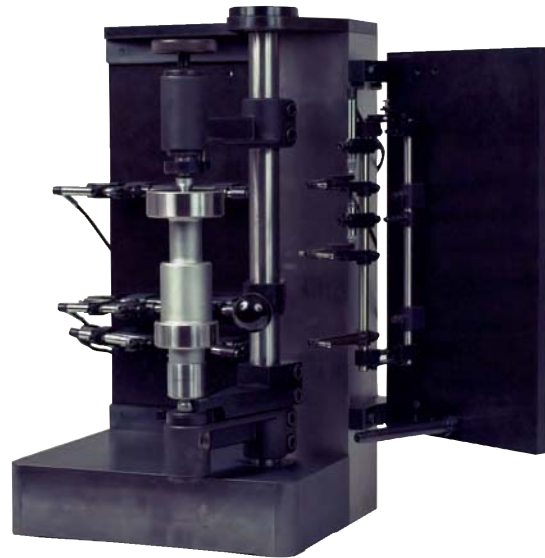
## Combifix

Combifix is a system of standard elements, which are used to build multigauging fixtures. Combifix is especially useful for quick and frequent measurements in workshop environments.

The strength of the Combifix system is that it is relatively cheap to build a fixture for gauging one specific workpiece. If the workpiece is modified or taken out of production, the investment in Combifix is not wasted-the standard elements can be used as components in the next gauging fixture.

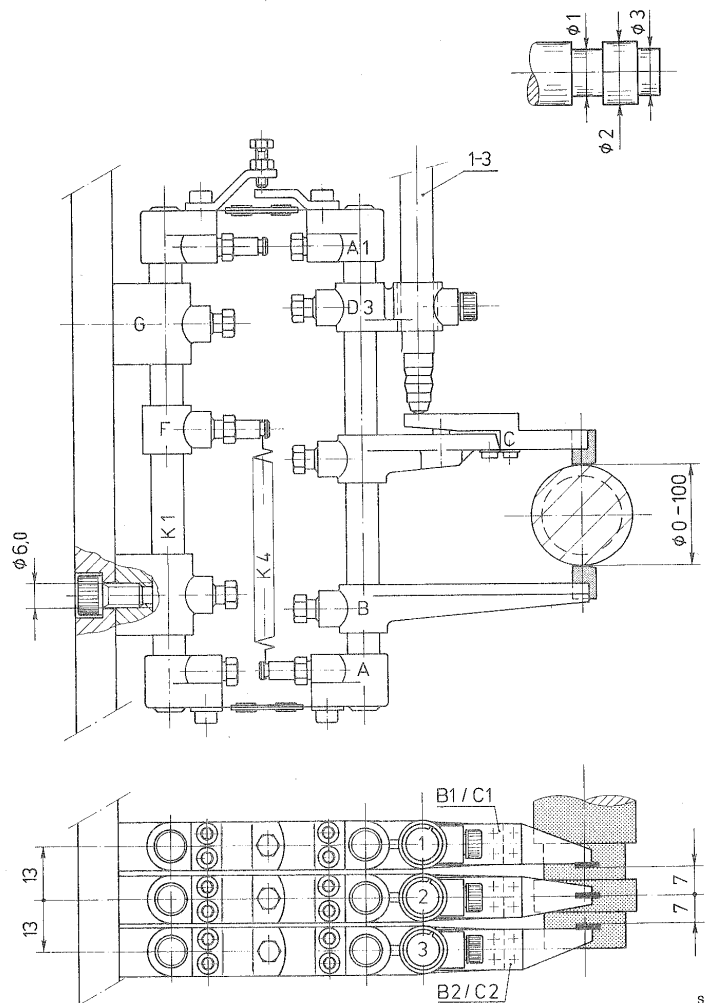
The Combifix may be used with the complete C E Johansson range of length measuring indicators, e.g. dial gauges, Mikrokators, Metem Digital Gauging System and Pneumatic Gauges. It may be integrated into machine tool CNC systems for full measuring control.

In the following pages there are examples of different Combifix multigauging fixtures, as well as an overview of all Combifix elements. Detailed dimensional data and descriptions are available in the CEJ Combifix catalogue and at [www.cej.se](http://www.cej.se).



## Parts for Measuring Frames

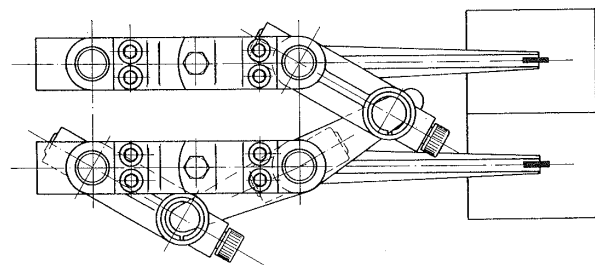
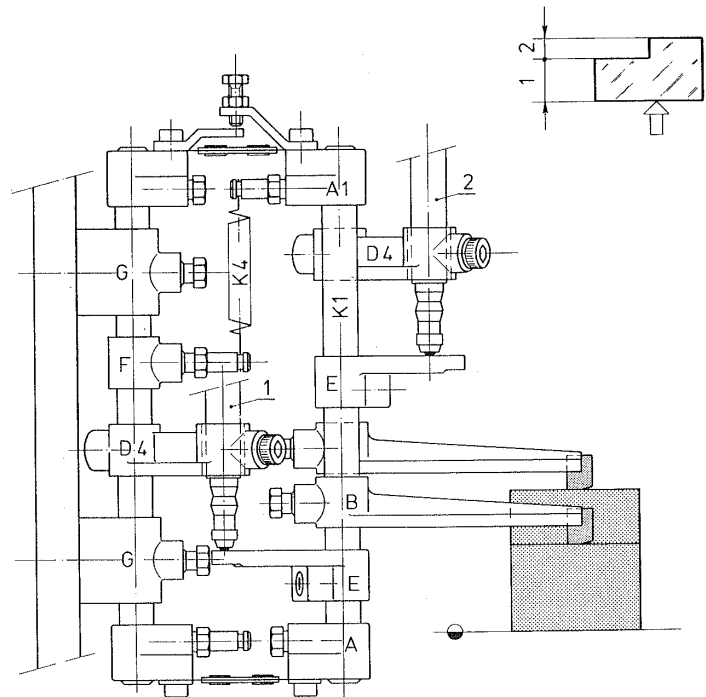
Frame Bridges	CEJ art. no.
A	8472-01001
A1	8472-01002
A2	8472-01003
Fixed Measuring Arms	CEJ art. no.
B	8472-01004
B1	8472-01005
B2	8472-01006
B3	8472-01007
B4	8472-01008
B5	8472-01009
B6	8472-01010
B7	8472-01011
B8	8472-01012
B9	8472-01013
Mobile Measuring Arms	CEJ art. no.
C	8472-01014
C1	8472-01015
C2	8472-01016
C3	8472-01017
C4	8472-01018
C5	8472-01019
C6	8472-01020
C7	8472-01021
C-S	8472-01022
C1-S	8472-01023
C2-S	8472-01024



Scale 1:

Parts for Measuring Frames

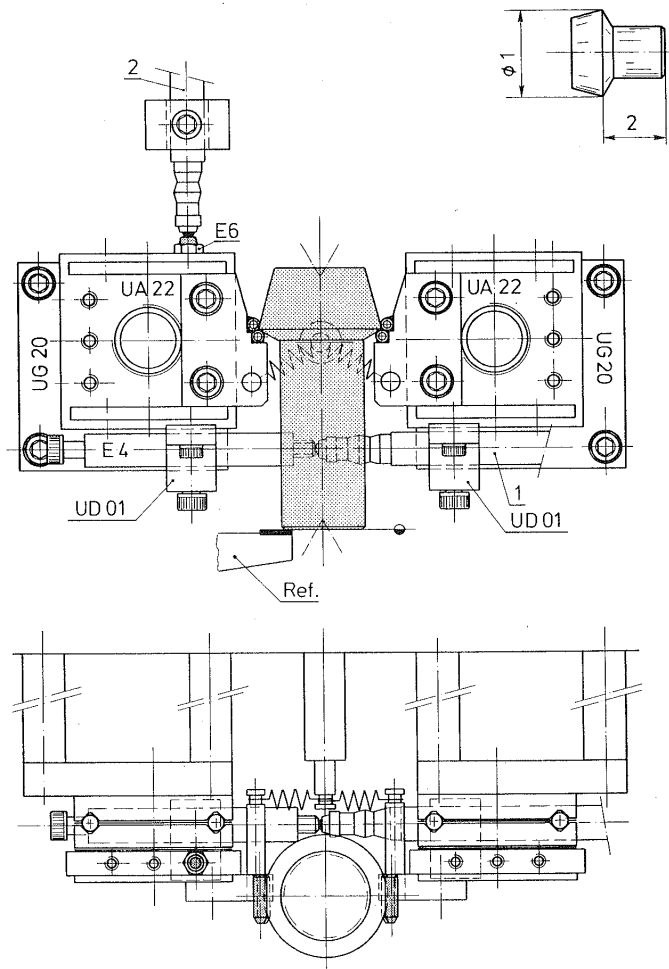
Gauge holder	CEJ art. no.
D2	8472-01025
D3	8472-01026
D4	8472-01027
Measuring Stop	CEJ art. no.
E	8472-01028
E2-25	8472-01030
E3	8472-01031
E4-60	8472-01033
E4-110	8472-01035
E4-210	8472-01037
E5	8472-01038
E6	8472-01039
Spring Bracket	CEJ art. no.
F	8472-01040
F1	8472-01041
F2-11	8472-01042
F2-17	8472-01043
F2-20	8472-01044
Brackets for measuring elements	CEJ art. no.
G	8472-01046
G5	8472-01047
Measuring anvils	CEJ art. no.
H20	8472-01048
H40	8472-01049
H60	8472-01050
H2-20	8472-01051
H2-40	8472-01052
H2-60	8472-01053
H33-20	8472-01054
H33-40	8471-01027
H33-60	8471-01029
H35-20	8472-01057
H35-40	8471-01021
H35-60	8471-01023
Slot Measuring Anvil	CEJ art. no.
J5	8472-01060
J6	8472-01061



Accessories	CEJ art. no.
K Screw	8472-01062
K1-50 Shaft	8472-01063
K1-75	8472-01064
K1-100	8472-01065
K1-125	8472-01066
K1-150	8472-01067
K1-175	8471-01068
K1-200	8471-01069
K1-250	8472-01070
K2 Conical Locking Nut	8472-01071
K4-19 Draw Spring	8472-01072
K4-29	8472-01073
K4-37	8472-01074
K4-45	8472-01075
K4-55	8472-01076
K5 Screw	8472-01077
K6 Locking Screw	8472-01078
K7 Clamping Sleeve	8472-01079
K7E	8472-01080

Parts for Coordinate Measurements

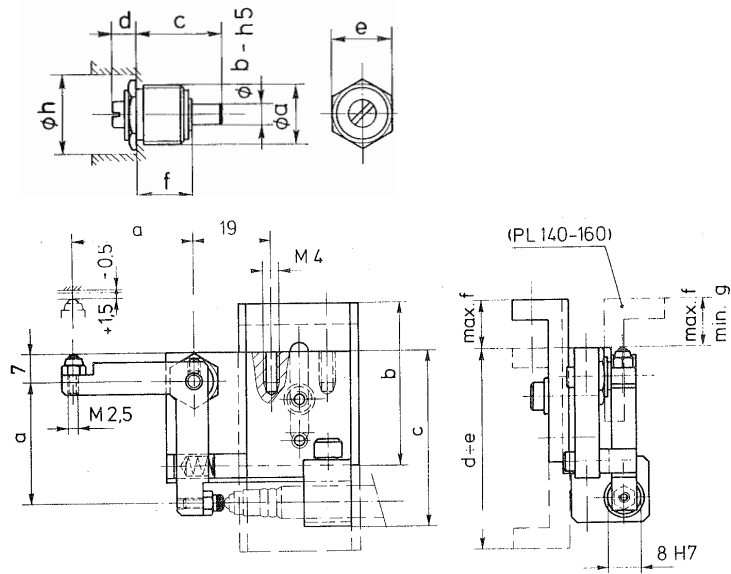
Coordinate Table	CEJ art. no.
UA21	8472-01219
UA22	8472-01220
UA51	8472-01221
UA52	8472-01222
Finding Units	CEJ art. no.
UB20	8472-01223
UB21	8472-01224
UB22	8472-01225
UB50	8472-01226
Measuring Element Attachments	CEJ art. no.
UG20	8472-01230
UG50	8472-01231
Gauge holder	CEJ art. no.
UD01	8472-01227
UD02	8472-01228





Rockers w. Ball Bearings

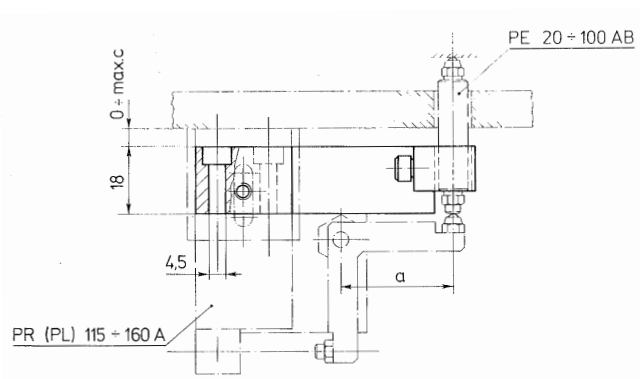
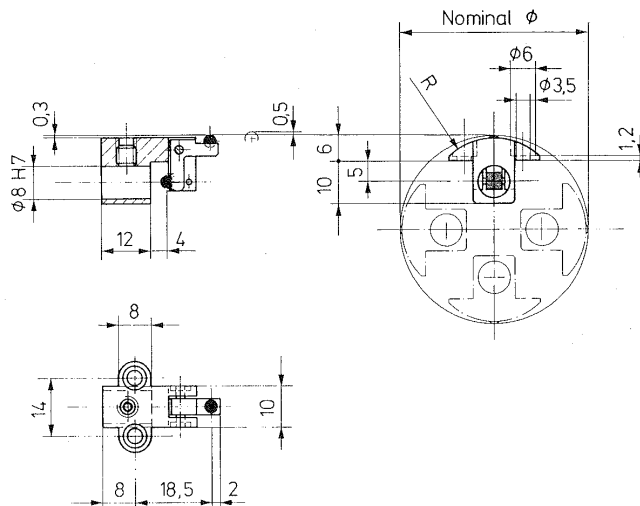
Ball Bearing for measuring arms	CEJ art.no.
MA00	8472-01117
MA01	8472-01118
MA02	8472-01119
MA03	8472-01120
MA04	8472-01121
MA10	8472-01122
MA11	8472-01123
MA12	8472-01124
MA13	8472-01125
MA14	8472-01126
MA20	8472-01127
MA21	8472-01128
MA22	8472-01129



Rocker w. Ball Bearing	CEJ art.no.
PL115	8472-01152
PL120	8472-01153
PL130	8472-01154
PL140	8472-01155
PL150	8472-01156
PL160	8472-01157
PL215	8472-01158
PL220	8472-01159
PL230	8472-01160
PL240	8472-01161
PL250	8472-01162
PL260	8472-01163
PL315	8472-01164
PL320	8472-01165
PL330	8472-01166
PL340	8472-01167
PL350	8472-01168
PL360	8472-01169
PL415	8472-01170
PL420	8472-01171
PL430	8472-01172
PL440	8472-01173
PL450	8472-01174
PL460	8472-01175
PL515	8472-01176
PL520	8472-01177
PL530	8472-01178
PL540	8472-01179
PL550	8472-01180
PL560	8472-01181

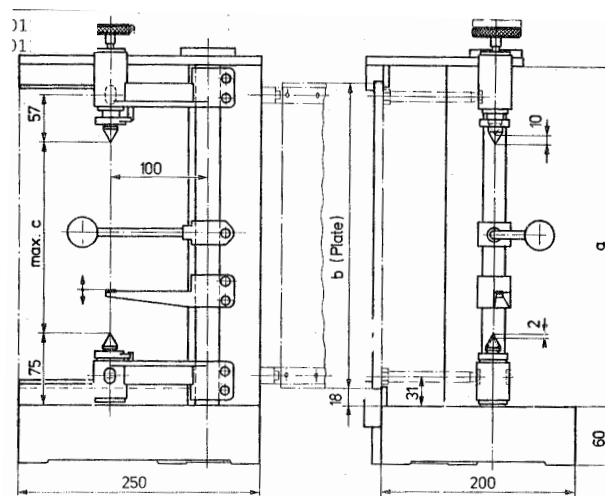
Rocker w. Ball Bearing	CEJ art.no.
PR115	8472-01189
PR120	8472-01190
PR130	8472-01191
PR140	8472-01192
PR150	8472-01193
PR160	8472-01194
PR215	8472-01195
PR220	8472-01196
PR230	8472-01197
PR240	8472-01198
PR250	8472-01199
PR260	8472-01200
PR315	8472-01201
PR320	8472-01202
PR330	8472-01203
PR340	8472-01204
PR350	8472-01205
PR360	8472-01206
PR415	8472-01207
PR420	8472-01208
PR430	8472-01209
PR440	8472-01210
PR450	8472-01211
PR460	8472-01212
PR515	8472-01213
PR520	8472-01214
PR530	8472-01215
PR540	8472-01216
PR550	8472-01217
PR560	8472-01218

Rocker w. Ball Bearing	CEJ art.no.
PM01	8472-01182
PM02	8472-01183
PM03	8472-01184
PM04	8472-01185
PM10	8472-01186
Attachments	CEJ art.no.
PG15	8472-01146
PG20	8472-01147
PG30	8472-01148
PG40	8472-01149
PG50	8472-01150
PG60	8472-01151
Gauge holder	CEJ art.no.
PD01	8472-01130
PD02	8472-01131
Measuring anvils	CEJ art.no.
PE01	8472-01132
PE02	8472-01133
PE03	8472-01134
PE04	8472-01135
PE05	8472-01136
PE20	8472-01137
PE30	8472-01138
PE40	8472-01139
PE50	8472-01140
PE60	8472-01141
PE70	8472-01142
PE80	8472-01143
PE90	8472-01144
PE100	8472-01145

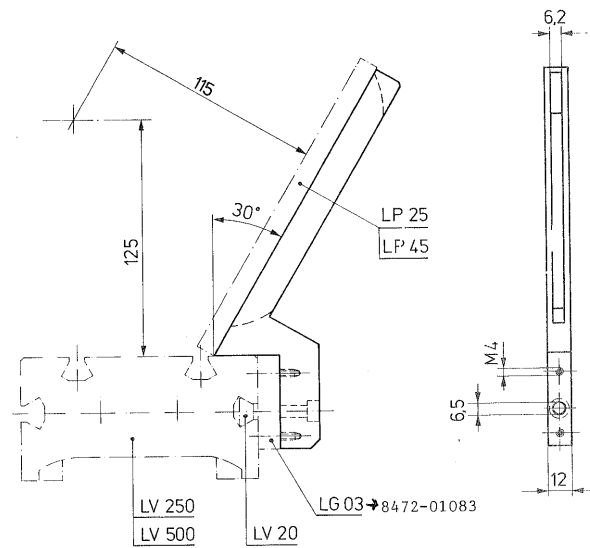


Basic Fixtures with Charging Device

Roller Slide	CEJ art.no.
LR300	8472-01102
LR310	8472-01103
LR320	8472-01104
LR330	8472-01105
Pivoting Fixture	CEJ art.no.
LS200	8472-01110
LS400	8472-01111
LS600	8472-01112



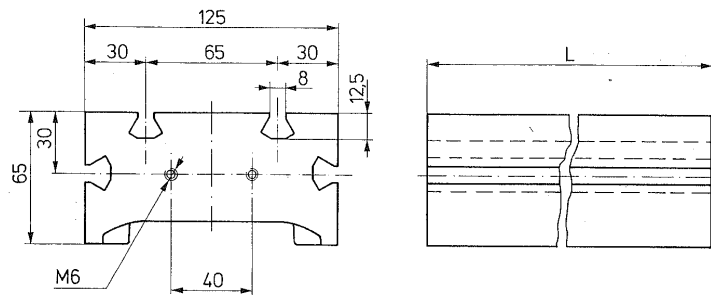
Roller Table	CEJ art.no.
LT100	8472-01114
LT150	8472-01115
LT250	8472-01116
Exchangeable Plates	CEJ art.no.
LP01	8472-01089
LP02	8472-01090
LP20	8472-01092
LP40	8472-01095
LP60	8472-01097
Groove Plates	CEJ art.no.
LP25	8472-01093
LP45	8472-01096
Plate Holder	CEJ art.no.
LG01	8472-01081



Base Plates with Accessories

Base Plate	CEJ art.no.
LV250	8460-01001
LV500	8460-01002
LV1000	8460-01004

Accessories for Base Plates—see the CE Johansson Combicheck range.



# UD - Universal Measuring Units

## UD-Universal Measuring Units

The UD Measuring Units are flexible measuring devices intended for inspecting rings and ball bearings, with the following additional versatile areas of application:

- external and internal diameters
- large measuring ranges
- inspecting out-of-roundness: two- and three-point measurements.
- height measurements
- thickness of material, radially
- skewness

In addition, the different measurements may be combined. Add a high level of accuracy, an attractive price and the fact that the device has been around on the market for decades and you will get a product that you can rely on in many different inspection contexts. All in one device.



### Technical data

The UD Unit is available in two sizes. It is made of cast iron and all essential parts are corrosion protected with a durable powder coat finish. The measuring units are combined with standard accessories for various types of measurements.

TECHNICAL DATA	UD-1	UD-2
CEJ ART.NO.	8409-01011	8409-01012
Measuring range, outside Ø, mm	5 - 140	5 - 310
Measuring range, inner Ø, mm	14 - 165	14 - 340
Top Ø of table, mm	165	340
Length, mm	180	320
Width, mm	182	360
Height, mm	100	125

### Basic Accessories Set

This set of selected accessories is recommended as an initial base, to be extended when necessary. The smallest possible inner diameter that can be checked with these accessories is 31 mm.

CEJ ART.NO.	PARTS INCLUDED	
8409-01030	2 pcs Studs	8462-00041
	1 pce Stud	8462-00043
	3 pcs Measuring discs	8409-01060
	3 pcs Spacers	8409-01110
	3 pcs Spacers	8409-01111
	3 pcs Spacers	8409-01112
	3 pcs Spacers	8409-01113
	1 pce Vee nut	8409-01130
	3 pcs Nuts M6/M6	8409-01132
	1 pce Adapter	8409-01050

### Recommended Dial Gauges

The UD Unit is used with gauges with a standard shank, Ø8 h6 or Ø30 h6. Depending on the requirements to be met, you may select one of the many different models and types available on the market.

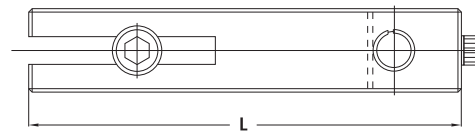


UD-Standard Accessories

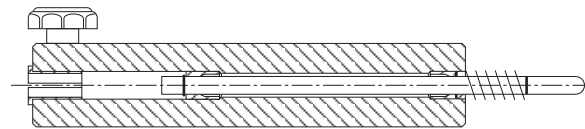
Description	Picture no.	CEJ art. no.
Instrument holder L=76	1	8465-01008
" L=101	1	8465-01009
" L=126	1	8465-01010
" L=151	1	8465-01011
" L=176	1	8465-01012
Spacing piece for indicators ø 8 mm	2	8409-01050
Measuring hook, inwards, carbide tip, radius 2,5	3	
A=19 B=16 C=5 D=23		8409-31070
A=25,5 B=22,5 C=6 D=23		8409-31071
A=30,5 B=27,5 C=6 D=23		8409-31072
Measuring hook, outwards, carbide tip, radius 2,5	4	
A=25,5 B=21,5 C=11 D=38		8409-31080
A=32 B=28 C=11 D=45		8409-31081
A=39 B=35 C=11 D=45		8409-31082
A=46 B=42 C=11 D=45		8409-31083
Measuring plane D=18 H=5	5	8409-01102
Measuring table (2-point) D=50 H=20	6	8409-01100
Measuring table (3-point) D=50 H=20	7	8409-01101
Measuring support, carbide edge, radius 1,5	8	
L=40 H=20 A=12 B=32		8409-31095
Measuring arm, carbide tip, radius 2,5	9	
L=50 H=12 A=42 B=25		8409-31090
Meas. disc D=15 H=2 R=1	10	8409-01060
" D=15 H=4 R=1	10	8409-01061
" D=27 H=1 R=0,5	10	8409-01065
" as 8409-01061 but with carbide	10	8409-31061
Yoke upper H=2	11	8409-01105
Yoke lower H=5	12	8409-01106
Spacer ø 12, höjd 1		8409-01110
" ø 12, höjd 2		8409-01111
" ø 12, höjd 4		8409-01112
" ø 12, höjd 7		8409-01113
Flange sleeve for 8409-01011, hight 20		8409-01125
Flange sleeve for 8409-01012, hight 25		8409-01126
Stud length 15		8462-00039
" length 25		8462-00040
" length 35		8462-00041
" length 45		8462-00042
" length 55		8462-00043
" length 65		8462-00044
" length 75		8462-00045
Vee groove nut, M6, length 15		8461-00011
Vee groove nut, M6, rounded border		8409-01130
Screw countersunk 6x14		8409-01131
Nut M6M6		8409-01132
Angle stand for 8409-01011, inclination 35°		8409-01036
Angle stand for 8409-01012, inclination 18°		8409-01037

Apart from the accessories included in the basic accessories set, there are a number of standard accessories, which allow measurements of inside diameters down to 14 mm. All measures in the left hand table are stated in mm.

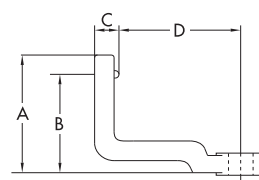
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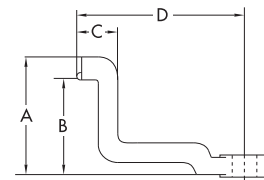
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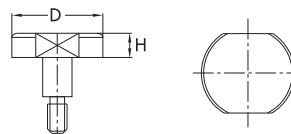
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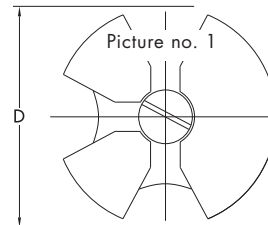
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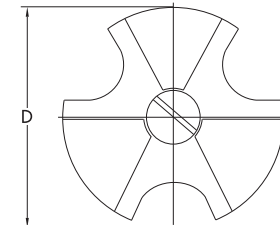
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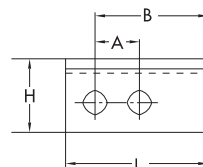
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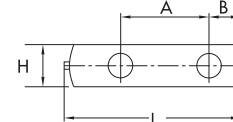
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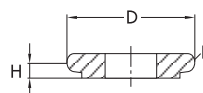
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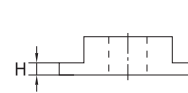
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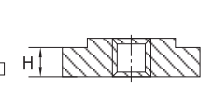
Picture no. 10



Picture no. 11



Picture no. 12



# CEJ Depth Measuring Gauge

## CEJ Depth Measuring Gauge

CEJ Depth Measuring Gauge is used for accurate measurements of inner distance, directly in conjunction with the machining operation or at the final inspection. As a reading device you may use a Dial Gauge, a Mikrokator or an Inductive Probe, connected to an electronic measuring instrument.

The Depth Measuring Gauge is equipped with a wide range of standard accessories, e.g.

- Exchangeable Measuring Tables  $\varnothing$  35-115 mm.
- Measuring pistons, lengths up to 104 mm.
- Measuring Anvils and Measuring Plates  $\varnothing$  8-55 mm for measurements in places which are difficult to access.
- The measuring force may be adjusted to 200, 500 or 750 grams by changing the measuring force spring.

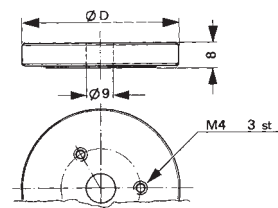
Depth Measuring Gauge Art. no. 8412-01001 comes without dial gauge, measuring table or measuring piston.



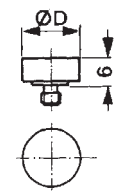
Depth Measuring Gauge  
8412-01001

## Standard accessories

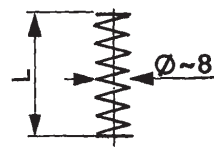
Picture	Description	CEJ Art. no.
1	Measuring table D=35 mm	8412-01005
1	Measuring table D=45 mm	8412-01006
1	Measuring table D=55 mm	8412-01007
1	Measuring table D=65 mm	8412-01008
1	Measuring table D=75 mm	8412-01009
1	Measuring table D=85 mm	8412-01010
1	Measuring table D=95 mm	8412-01011
1	Measuring table D=105 mm	8412-01012
1	Measuring table D=115 mm	8412-01013
3	Contact tip D= 8 mm	8412-01040
3	Contact tip D= 10 mm	8412-01041
3	Contact tip D= 12 mm	8412-01042
5	Meas force spring, P=2 N, L=30 mm*	8412-01065
5	Meas force spring, P=5 N, L=30 mm	8412-01066
5	Meas force spring, P=7.5 N, L=30 mm	8412-01067
6	Holder for measuring table*	8412-01070
7	Bushing*	8412-01075



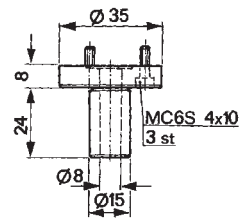
Picture no. 1



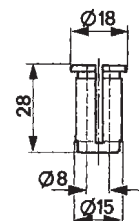
Picture no. 3



Picture no. 5



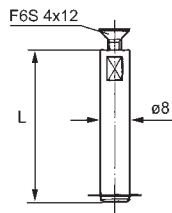
Picture no. 6



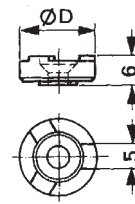
Picture no. 7

\* included in art. no. 8412-01001





Picture no. 2



Picture no. 4

Picture	Measuring Piston	CEJ Art. no.
2	L= 40 mm A= 0-4 mm	8412-01015
2	L= 45 mm A= 4-9 mm	8412-01016
2	L= 50 mm A= 9-14 mm	8412-01017
2	L= 55 mm A= 14-19 mm	8412-01018
2	L= 60 mm A= 19-24 mm	8412-01019
2	L= 65 mm A= 24-29 mm	8412-01020
2	L= 70 mm A= 29-34 mm	8412-01021
2	L= 75 mm A= 34-39 mm	8412-01022
2	L= 80 mm A= 39-44 mm	8412-01023
2	L= 85 mm A= 44-49 mm	8412-01024
2	L= 90 mm A= 49-54 mm	8412-01025
2	L= 95 mm A= 54-59 mm	8412-01026
2	L= 100 mm A= 59-64 mm	8412-01027
2	L= 105 mm A= 64-69 mm	8412-01028
2	L= 110 mm A= 69-74 mm	8412-01029
2	L= 115 mm A= 74-79 mm	8412-01030
2	L= 120 mm A= 79-84 mm	8412-01031
2	L= 125 mm A= 84-89 mm	8412-01032
2	L= 130 mm A= 89-94 mm	8412-01033
2	L= 135 mm A= 94-99 mm	8412-01034
2	L= 140 mm A= 99-104 mm	8412-01035

Picture	Measuring disc	CEJ Art. no.
4	D=14 mm	8412-01043
4	D=16 mm	8412-01044
4	D=18 mm	8412-01045
4	D=20 mm	8412-01046
4	D=22 mm	8412-01047
4	D=24 mm	8412-01048
4	D=26 mm	8412-01049
4	D=28 mm	8412-01050
4	D=30 mm	8412-01051
4	D=32 mm	8412-01052
4	D=34 mm	8412-01053
4	D=36 mm	8412-01054
4	D=38 mm	8412-01055
4	D=40 mm	8412-01056
4	D=45 mm	8412-01057
4	D=50 mm	8412-01058
4	D=55 mm	8412-01059

# CEJ Metem Electronic Measuring System

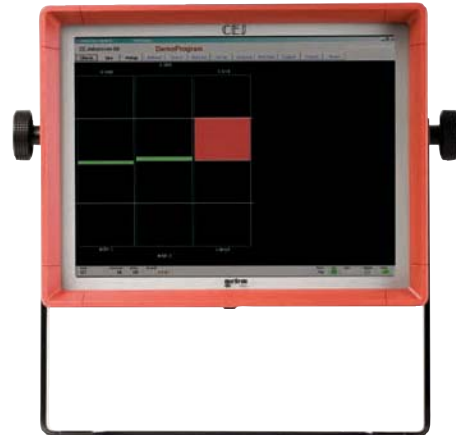
CE Johansson offers the market's most flexible measuring system for retrieval, presentation, feed-back and measurement control. The Metem System includes a number of elements that constitute a flexible area of application in length measuring electronics. The Metem System, in combination with fixtures or stand-alone measuring equipment, handles everything from the most simple demands to more demanding applications with measurement control applied to unmanned production cells.

## Metem 3000s Industrial Computer

Metem 3000s is an Industrial Computer for tough workshop environments. Suitable for applications in production shops.

Art. no. 8644-01303  
Art. no. 8644-01304

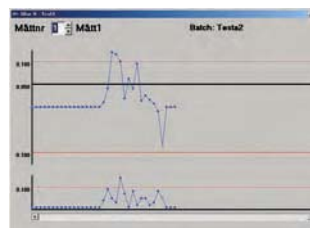
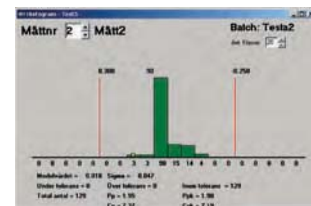
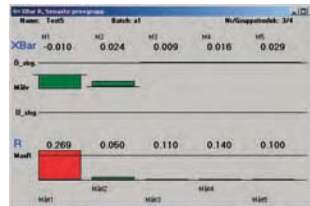
Metem 3000s with table stand  
Metem 3000s with swivel stand for mounting on fixture cabinets etc.



## Metem 3005 SPC Software

Metem 3005 is a powerful, operator friendly SPC software for the retrieval and presentation of measurement data. Metem 3005 allows feed-back to converting machines with process control servers. Also includes a simple plc function for the control of fixtures etc.

Art. no. 8990-10082 Metem 3005



Batch: 123

Serial	Time	Mått 1	Mått 2	Mått 3	Mått 4	Mått 5	Acceptans
1	11:42:00	0.018	0.024	0.009	0.018	0.029	
2	11:42:01	0.018	0.024	0.009	0.018	0.029	
3	11:42:02	0.018	0.024	0.009	0.018	0.029	
4	11:42:03	0.018	0.024	0.009	0.018	0.029	
5	11:42:04	0.018	0.024	0.009	0.018	0.029	
6	11:42:05	0.018	0.024	0.009	0.018	0.029	
7	11:42:06	0.018	0.024	0.009	0.018	0.029	
8	11:42:07	0.018	0.024	0.009	0.018	0.029	
9	11:42:08	0.018	0.024	0.009	0.018	0.029	
10	11:42:09	0.018	0.024	0.009	0.018	0.029	

## Metem 9002 Probe Interface

Metem 3000s is a probe interface, allowing the connection of 16 probe signals.

Art. no. 8644-01138 Metem 9002 Probe Interface



## Metem 551 and 552

### Metem Display Instrument

Metem 551 and 552 are respectively, analogue and digital measuring instruments, used with indicating hand gauges like bore and shaft gauges or with probes in a measuring stand, etc..

Metem 551 and 552 are designed for dimensional measuring and inspection. The measurements can be made with bore or shaft gauges, or with measuring stands. Metem 551 is an analogue instrument for metric and inch units. The instrument reading is adjustable from  $\pm 10 \mu\text{m}$  to  $\pm 1000 \mu\text{m}$  ( $\pm .0003''$  to  $\pm .03''$ ). Metem 552 displays the measuring results digitally, in metric or inch units. The display ranges are  $\pm 20 \mu\text{m}$ ,  $\pm 200 \mu\text{m}$  and  $\pm 2000 \mu\text{m}$  ( $\pm .0007''$ ,  $\pm .0020''$  and  $\pm .0020''$ ).



Metem 552 with digital display  
Art. no. 8646-01004



Metem 551 with analogue display  
Art. no. 8646-01003

Batteries for Metem 551 and 552  
Art. no. 8646-00024

### Technical Data Metem 551 and 552

Scales/Display	M551 8646-01003	$\pm 3$ [ $\pm 30$ divisions] and $\pm 10$ [ $\pm 20$ divisions]
	M552 8646-01004	LCD, 4 digits, 3 updates/sec
Total error of calibration, linearity and stability [with one probe]	M551 8646-01003	$\pm 2\%$ of the displayed value
	M552 8646-01004	$\pm 2\%$ of the displayed value
Zero setting		$\pm 125 \mu\text{m}$ , depending on range
Probe inputs		4 (+A, -A, +B, -B)
Functions	one probe, A: one probe, B: two probes:	+A, -A +B, -B +A+B, +A-B or -A+B, -A-B
Output signals	analogue signal, M551 analogue signal, M552 accuracy of output signal in contact load capacity impedance out	$\pm 1\text{V}$ at maximum reading $\pm 2\text{V}$ at maximum range $\pm 0.5\%$ 2 mA 1 ohm
Size		width 155 mm, height 105 mm, depth 200 mm
IP rating		IP50 according to IEC 529

## Metem 2000

### Metem 2000 Display Unit

Metem 2000 is a very competent display unit for digital measuring probes and gauge probes. It is possible to connect up to 30 digital measuring probes and/or gauge probes to Metem 2000. Metem 2000 is a breakthrough in ergonomic design. The ordinary numeric display of measurement values is extended with an "auto adapted" alpha numeric display. During the charging process, this display window with 24 characters is guiding the operator through a suite of menus.

In the function mode, the "auto adapted" display is showing the function (defined during the set-up) of four programmable push buttons, giving direct access to suitable control functions. You may connect Metem digital probes as well as Metem gauge probes to Metem 2000.



### Technical Data Metem 2000

Art. no.	8644-01200
Numerical display	9 digit LED indicators with polarity and decimal point.
Size of display	999.999 99 mm or 39.370078 inch, with automatic suppression of redundant leading zeroes.
Maximum resolution with gauge probes	0.05 $\mu\text{m}$ or 2 micro inch
with digital measuring probes M946	0.05 $\mu\text{m}$ or 2 micro inch
with digital measuring probes M947	0.1 $\mu\text{m}$ or 5 micro inch
with digital measuring probes M948	0.5 $\mu\text{m}$ or 20 micro inch
with digital measuring probes M949	0.5 $\mu\text{m}$ or 20 micro inch
Information display	24 characters alphanumeric display with two function modes.
Indicating lamps for tolerance limits	Show Hi/OK/Lo for the detection of limit values
Program number display	Independent one digit display.

## Metem Analogue Probes

CE Johansson analogue Metem probes have the highest quality and accuracy. The most important capability parameters are repeatability and linearity. The Metem probes retain the same sensitivity all along the measuring stroke, and the linearity quoted for the standard probes includes sensitivity dependent errors.

The design of the Metem probes is robust, and they are suitable for measuring labs as well as for workshops. Thanks to the standard shank size ( $\varnothing 8h6$ ), the probes may be used in a large number of applications; in multigauging fixtures with Metem instruments, in measuring stands, in indicating hand gauges, such as bore gauges etc.

Other features are:

- Measuring spindle with ball bearing in probes M910, M911, M913, M917 and M919 for smooth motion and freedom from play.
- Membrane bearing of the measuring spindle in M916 makes the spindle movement friction-free.
- Calibrated for connection to all Metem instruments.
- Mechanically adjustable zero point (not in M916).

### Probes with Spring push



In a conventional "pen probe", the measuring tip is pushed outwards by a built-in spring. Probes with spring push are available in types M910, M911, M913 and M919. These probes have an axial cable outlet, but the cable may easily be angled  $90^\circ$  by mounting the enclosed radial outlet adapter. The probes may be delivered with a spiral braided cable as standard. This is very convenient when using the probe in connection with indicating hand gauges, for example. Cable length 450 mm, when extended about 2 m.

### Probes with Pneumatic push



When fitting the probe in a fixture, you have to construct a mechanism, which brings the probe in contact with the workpiece to be measured. One variant of M910, M911 and M913 ensures that the contact tip is always located in the innermost position. When affected by compressed air via a connection nipple, the contact tip is pushed out into the measuring position. The compressed air has to pass through a  $\leq 0.5 \mu\text{m}$  filter. A pneumatic returning force is a cost effective way of producing the contact tip movement, especially when a large number of probes are to be manipulated at the same time. This also allows fast and safe automatic charging of components into fixtures.

### Probes with vacuum retract



Is used in order to reduce wear and risk of probe breakdown when charging workpieces manually or by robot into a measuring fixture. M910, M911 and M913 can be delivered with this feature. They have an axial cable outlet with a nipple for the connection of a vacuum pump.

### Contact tips for narrow spaces

In applications with very narrow spaces, the extremely compact probes M916 and M917 may be used. In spite of its compact size, the diameter of attachment is  $\varnothing 8h6$ . The cable outlet for M917 is axial, but in M916 it is radial. Please observe that the zero point is not adjustable in M916.



### Technical data

#### LINEARITY

According to current practice, the linearity is stated as a percentage of the reading. Metem measuring probes are exceptionally linear, with constant sensitivity all along the measuring range.

#### MEASURING FORCE

The measuring force stated is valid when the probe is in a horizontal position. When used in a vertical position, about 0.1 N should be added to this value, to take into account the weight of the moving anchor. In probes equipped with a gaiter, the springs included have been adjusted to take into account the elasticity of the gaiter ( $\pm 20\%$ ).

#### MECHANICALLY ADJUSTABLE ZERO POINT

The possibility of adjusting the probe's zero point above the measuring movement is a valuable feature of all Metem probes (excl. M916 and M919).

This may be utilized to place the tip in the optimum measuring position, while the risk of influence from workpieces being moved is diminished.

#### COMPATIBLE SENSITIVITY

The complete range of Metem measuring probes, from  $\pm 1$  mm measuring range and larger, produce the same output voltage when the scale reading is at maximum. Because of that, every probe may be used with the amplifier adjusted

to the same nominal sensitivity. (Does not apply to M910 or M919).

#### CABLES

All probes are supplied with 2 m of screened cable as a standard, and the cover material chosen provides good resistance to cutting fluids.

#### IP RATING

All Metem analogue probes (except the low force probes) are certified for IP65.

#### COMPRESSED AIR

In order to maximize the life span of the Metem analogue probes with pneumatic retract, the compressed air shall be both clean and dry.

#### IP RATING

All Metem probes are equipped with Viton gaiters to stop moisture and dust entering. Viton is chemically inert and does not deteriorate when exposed to cutting fluids. All probes fulfil IP65 according to BS 5490:1977 category 2.

#### CE MARKING

All our measuring probes are in complete compliance with relevant regulations, including EMC directives 89/336/EEG, but are not supplied with the CE marking (components are not to be marked). As the recommended carrier frequency is only 10 kHz, it is unlikely that any connected interfaces or amplifiers will display any EMC problems.

However, if connected to electronic digital circuits with fast transients, the probes may act as "antennas". The probes and the cables are screened, but in such cases the shielding of the complete system installation should be reviewed.



## PROBE HEAD-SPRING PUSH

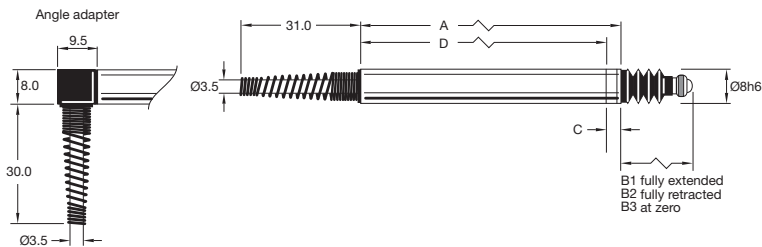
Spring push							
Axial cable	Type	M916	M917	M911	M913	M910	M919
	Art. no.	8647-01033	8647-01035	8647-01024	8647-01028	8647-01020	8647-01100
Spiral cable	Type			M911S	M913S	M910S	
	Art. no.			8647-01025	8647-01029	8647-01021	
Measuring Range	mm	± 0.25	± 0.5	± 1.0	± 2.5	± 5.0	± 10.0
Movement outwards from zero point (±0.5)	mm	0.28	0.65	1.15	2.65	5.15	10.15
Movement inwards from zero point	mm	0.30	0.85	1.35	3.35	5.85	10.85
Adjustable zero point		No.	Yes	Yes	Yes	Yes	No.
Zero point adjustment range*	mm	—	0.5	1.0	1.5	1.5	—
Repeatability	µm	< 0.10,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5
Linearity	%	70	70	70	70	70	70
Measuring force at the electrical zero point	N	—	—	30	30	30	—
Measuring force at the electrical zero point, low force probes N		1–10	1–10	1–10	1–10	1–10	1–10
Supply voltage	V <sub>eff</sub>	2–20	2–20	2–20	2–20	2–20	2–20
Frequency range of the supply voltage	kHz	73.5	73.5	73.5	73.5	7.35 ***	7.35 ***
Sensitivity at 10 kHz	mV/V/mm ±0.5%	0° ±2°	0° ±2°	0° ±2°	0° ±2°	0° ±2°	1° ±2°
Phase shift input-output, at 10 kHz		3	3	3	3	3	3
Calibration voltage	V	10	10	10	10	10	10
Calibration frequency	kHz	2	2	2	2	2	2
Calibration load	kΩ	-10 to +80	-10 to +80	-10 to +80	-10 to +80	-10 to +80	-10 to +80
Operating Temperature	°C	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100
Storage Temperature	°C	<0.03,IP65	<0.03,IP65	<0.01,IP65	<0.01,IP65	<0.01,IP65	<0.01,IP65
Temperature Coefficient **							
IP rating							

\* Reduction of outwards movement  
 \*\* % of the total measuring length/°C  
 \*\*\* Reduced 10 times

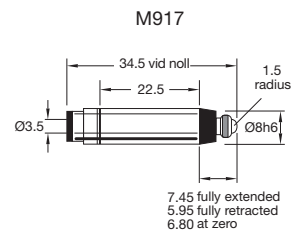
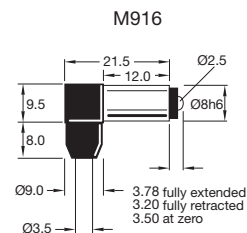
Viton is a trade mark, registered by DuPont Dow Elastomers

## SPRING PUSH

Type	Art. no.	A	B <sup>1</sup>	B <sup>2</sup>	B <sup>3</sup>	C	D
M910	8647-01020	91.00	25.40	14.40	20.25	4.00	87.00
M911	8647-01024	46.00	13.40	11.40	12.75	3.50	42.50
M913	8647-01028	67.00	17.40	11.40	14.75	4.00	63.00
M919	8647-01100	133.00	42.40	21.40	33.75	3.00	130.00



## PROBES FOR NARROW SPACES



PROBE HEAD-PNEUMATIC AND VACUUM

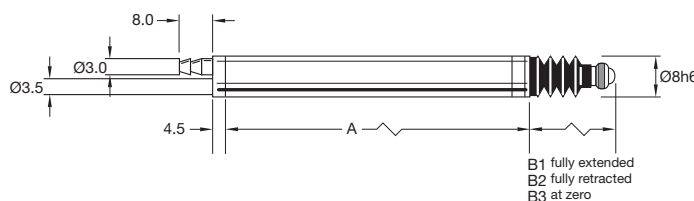
Axial cable	Type Art. no.	Pneumatic push			Vacuum retract		
		M911P 8647-01034	M913P 8647-01045	M910P 8647-01023	M910V 8647-01022	M911V 8647-01026	M913V 8647-01030
Measuring Range	mm	± 1.0	± 2.5	± 5.0	± 5.0	± 1.0	± 2.5
Movement outwards from zero point (±0.5)	mm	1.30	2.80	5.30	5.30	1.30	2.80
Movement inwards from zero point	mm	1.70	3.20	5.70	5.70	1.70	3.20
Adjustable zero point		Yes	Yes	Yes	Yes	Yes	Yes
Zero point adjustment range*	mm	1.0	1.5	1.5	1.5	1.0	1.5
Repeatability	µm	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5	< 0.15,0.50,5
Linearity	%	80	85	70	70	70	70
Measuring force at 0.4 bar	N	280	250	250	70	70	70
Measuring force at 1.0 bar	N	18	18	18	70	70	70
Measuring force at 0.3 bar, low force probes	N	110	110	110	70	70	70
Measuring force at 1.0 bar, low force probes	N	1-10	1-10	1-10	1-10	1-10	1-10
Supply voltage	V <sub>eff</sub>	2-20	2-20	2-20	2-20	2-20	2-20
Frequency range of the supply voltage	kHz	73.5	73.5	7.35 ***	7.35 ***	73.5	73.5
Sensitivity at 10 kHz	mV/V/mm ±0.5%	0° ±2°	0° ±2°	0° ±2°	0° ±2°	0° ±2°	0° ±2°
Phase shift input-output, at 10 kHz		2	2	2	2	2	2
Calibration voltage	V	10	10	10	10	10	10
Calibration frequency	kHz	2	2	2	2	2	2
Calibration load	kΩ	-10 to +80	-10 to +80	-10 to +80	-10 to +80	-10 to +80	-10 to +80
Operating Temperature	°C	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100
Storage Temperature	°C	<0.01,IP65	<0.01,IP65	<0.01,IP65	<0.01,IP65	<0.01,IP65	<0.01,IP65
Temperature Coefficient **							
IP rating							

\* Reduction of outwards movement  
 \*\* % of the total measuring length/°C  
 \*\*\* Reduced 10 times

Viton is a trade mark, registered by DuPont Dow Elastomers

PNEUMATIC PUSH AND VACUUM RETRACT

Type	Art. no.	A	B <sup>1</sup>	B <sup>2</sup>	B <sup>3</sup>
M910P	8647-01023	98.00	25.40	14.40	20.10
M911P	8647-01034	51.00	13.90	10.90	12.60
M913P	8647-01045	73.00	17.40	11.40	14.60
M910V	8647-01022	98.00	25.40	14.40	20.10
M911V	8647-01026	51.00	13.90	10.90	12.60
M913V	8647-01030	73.00	17.40	11.40	14.60





### METEM ANALOGUE PROBES

The working principle of Metem analogue probes is mainly based on two small transformers sharing the same magnetical core. When the core is moved, the output signal from one of the transformers increases while the other decreases. The "imbalance current" is a measure of the core position, and the best linearity is present around the middle point, where the transformers are almost in balance.

A Metem probe is sensitive, reliable and has good repeatability.

The accepted working method is to measure a perfect workpiece (an adjustment standard) and then measure the unknown piece. In this way accuracy is derived from the adjustment standard and the measuring probe is used as a tool of comparison. The standard is to be measured once a day, or whenever the temperature is changing, in order to efficiently calibrate away all other variables deriving from fixtures, etc. The probe output signal returns to the original state when the power has been switched off. Metem probes work with alternating current and the supporting electronics must include modulators/demodulators, amplifiers and controls for zero setting and amplification adjustment.

### PERFORMANCE

The functioning principles for analogue measuring probes have been known for over a hundred years, and the design has been refined over more than a quarter of a century. The most important capability parameters are repeatability and linearity. The Metem probes retain the same sensitivity all along the measuring stroke, and the linearity quoted for the standard probes includes sensitivity dependent errors.

### CONTACT TIPS

Most of the contact tip options with a standard M2.5 thread that are available on the market fit Metem probes. C E Johansson offers a wide range of measuring tips and tip extensions. The measuring tips that are standard for each probe type are presented below.

Art. no.	Description	For Probe Type
8647-01019	Carbide ball Ø 3.85 mm	910,911,913
8647-01036	Carbide, radius 1.5 mm	917

### CABLE EXTENSIONS

The probe cables are 2 meters long as standard. Cable extensions up to 10 meters are available for large distances between measuring probe and instrument.

Art. no.	Type	Length
8648-01024	M964-1	1 m.
8648-01025	M964-2	2 m.
8648-01026	M964-3	3 m.
8648-01027	M964-4	4 m.

Art. no.	Type	Length
8648-01028	M964-5	5 m.
8648-01029	M964-6	6 m.
8648-01030	M964-8	8 m.
8648-01031	M964-10	10 m.

# Metem Digital Probes

Metem digital measuring probes are electronic length indicators being utilized for the inspection of diameters, thickness, conicity etc.

Metem digital probes are used in the same way as common inductive probes. While inductive probes require electronic adaption and amplification circuits, digital probes are completely integrated with their own electronics, in order to supply a digital output signal compatible with a computer interface or directly to the display unit Metem 2000.

## Digital Measuring Probes

Metem digital measuring probes are an improvement on the Metem inductive probes, and use same probe head (and are therefore similarly robust). In-stead of utilizing the current balance in a transformer, the in-built coils are parts of frequency sensitive circuits. When the core is moved, the coil inductance change and cause a frequency alteration. By comparing frequencies the core movement can be calculated. The "smart" connector for the digital probe contains an error correction table, which is downloaded during a laser calibration procedure in the factory. The resulting corrected measuring values are therefore linear all over the measuring range. The digital probe is superior to the inductive probe in all ways.

## System Configuration

Metem digital measuring probes include a probe head and probe electronics, which may be connected directly to a display unit or to a PC.

## Probe Head of Digital Measuring Probes

The probe head in digital probes have the same external size as a Metem inductive probe with similar measuring range, and may be mounted in the same fixtures with the same holders. The probe heads are available with spring measuring force, pneumatic measuring force and a variant with low measuring force.

## Probe electronics

The probe head electronics are contained in a "smart" connector, which is connected to the probe head via a 2 m cable. Besides managing the control of the measuring probe itself, the electronics contain buffers for connecting each measuring point to the data bus. This compact, "smart" connector is connected directly to the digital display unit Metem 2000, or to a network with the help of a "T-Con" network unit.

## Measurements with Digital Measuring Probes

Even though the digital probe is superior to inductive probes, we still recommend calibration against an adjustment standard. This will provide assurance against long time drift or errors deriving from expansion or contraction of the supporting fixture or machine. The performance values stated include all mechanical errors in the probe head and possible errors in the electronic supporting modules.

## Absolute Measurements

Metem digital probes are absolute measuring devices, which means that when switched on they return to the correct initial value, regardless of any movements that have taken place during the switched-off time span.

## Fixtures for Several Applications

The performance of an inductive measuring probe is at its peak at the zero point, which leads to specially adapted fixtures for every type of component to be measured. The digital probe may be used in any position, all over the measuring range. Resetting to different alternative adjustment standards can be performed by simply pushing a button. This allows different component types to be measured in the same fixture.

### Probes with Spring push and Pneumatic push



*Probes with springing measuring force*



*Probes with Pneumatic push*

In a conventional "pen probe", the measuring tip is pushed outwards by a built-in spring. When fitting the probe in a fixture, you have to construct a mechanism, which brings the probe in contact with the workpiece to be measured.

A pneumatic measuring force is a cost effective way of producing the contact tip movement, especially when a large number of probes have to be manipulated at the same time. This also allows fast and safe automatic charging of components into fixtures.

### Low Force Probes



*Probes with low measuring force*

Probes with low measuring force, or Feather Touch, have been designed especially to gauge delicate surfaces such as car windscreens, TV tubes, pharmaceutical bottles, electro-mechanical components and plastic parts.

A conventional probe exercises a measuring tip force of about 0.7 N, but these low force probes only produce 0.18 N, when used in a horizontal position. This reduction is achieved by exchanging the naturally elastic, traditional gaiter for a packing ring with small tolerances. In pneumatic variants the air leakage through this packing ring is less than 0.6 millilitre per second at an air pressure of one bar ( $10^5$  Pa), which minimizes the risk of contamination of the surface to be measured. In spite of the minor air stream, the probe bearing is constantly de-aired. This prevents the accumulation of dust (the use of filtered air is recommended).

Exchangeable nylon tips are used to protect against surface damage. When measuring e.g. warm glass, carbide tips may be used. A steel braid around the cable gives extra protection in such applications where down-time is critical.

In order to obtain the lowest possible force, low measuring force probes are available without any spring (type no. with suffix "F"). The movements outwards and inwards are activated by pneumatic pressure or vacuum suction respectively, but by adjusting the air pressure all probes may achieve an identical tip force that is constant all over the measuring range. If the probe is mounted vertically (tip up), the inwards movement is accomplished by means of the weight of the moving parts, which eliminates the need of a vacuum.

SYSTEM ACCURACY

All accuracies stated presuppose regular checks and adjustments of the system, according to normal calibration practice.

Metem digital probes may be used in any part of the measuring range, which means that the adjustment master does not have to correspond exactly to the nominal value. The error values stated include a factor which takes into consideration the difference between the adjustment master and the actual workpiece.

Probe head	Accuracy
M946	$\pm 0.24 \mu\text{m} \pm K \times 1.0 \mu\text{m}$
M947	$\pm 0.24 \mu\text{m} \pm K \times 1.0 \mu\text{m}$
M948	$\pm 0.64 \mu\text{m} \pm K \times 2.0 \mu\text{m}$
M949	$\pm 1.20 \mu\text{m} \pm K \times 2.0 \mu\text{m}$



PROBE HEAD

Standard Probes	Type Art. no.	Spring push				Pneumatic push		
		M946 8647-01060	M947 8647-01061	M948 8647-01065	M949 8647-01069	M947P 8647-01062	M948P 8647-01066	M949P 8647-01070
Low Force Probes	Type Art. no.	—	M947L 8647-01063	M948L 8647-01067	M949L 8647-01071	M947LP 8647-01064	M948LP 8647-01068	M949LP 8647-01072
Calibrated measuring range	mm	1	2	5	10	2	5	10
Total length of stroke	mm	1.5	3	6	11	3	6	11
Graduation	$\mu\text{m}$	0.06	0.12	0.32	0.64	0.12	0.32	0.64
Temperature Coefficient (0–60°C) ppm FS/°C		100	80	100	150	80	100	150
Measuring force	N	70	70	70	70	—	—	—
Measuring force, low force probes	N	—	30	30	30	—	—	—
Measuring force at 0.4 bar	N	—	—	—	—	80	80	70
Measuring force at 0.3 bar, low force probes	N	—	—	—	—	18	18	18
Operating Temperature	°C	0–80	0–80	0–80	0–80	0–80	0–80	0–80
Calibration temperature range	°C	20	20	20	20	20	20	20
Storage Temperature	°C	-20 to +80	-20 to +80	-20 to +80	-20 to +80	-20 to +80	-20 to +80	-20 to +80
IP rating		IP65	IP65	IP65	IP65	IP65	IP65	IP65

As accessories, the low force probes are available with nylon or carbide measuring tips.

PROBE ELECTRONICS

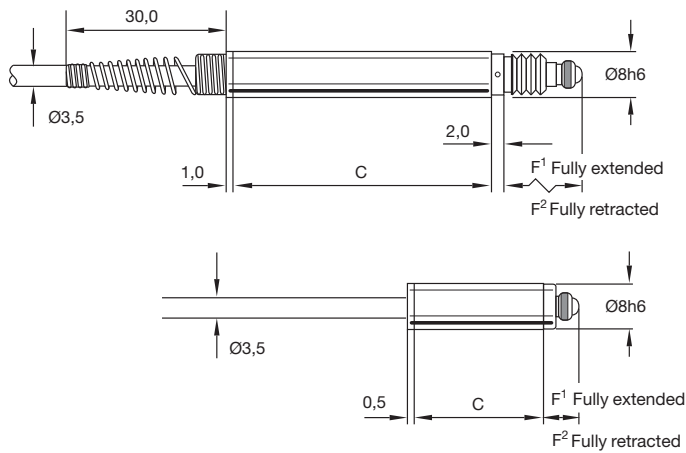
Specifications	
Accuracy	All errors, including the probe head
Reading speed, per second	240 (optional buffer for storing 3000 readings)
Input	Directly from the probe head via a two (2) meter cable
Output, serial communication	Orbit Network Protocol (187.5 kbaud or 9600 baud)
Operating Temperature	0 - 60°C
Storage Temperature	-20°C to 60°C
IP rating	IP65
Power supply	5V at 0,06A (includes power for head)



CE MARKING

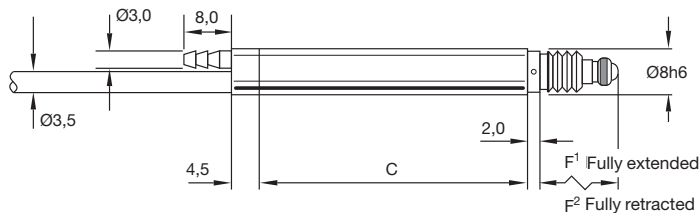
All our measuring probes are in complete compliance with relevant regulations, including EMC directives 89/336/EEG. As the recommended carrier frequency is only 5 kHz, it is unlikely that any connected interfaces or amplifiers will display any EMC problems. However, if connected to electronic digital circuits with fast transients, the probes may act as “antennas”. The probes and the cables are screened, but in such cases the shielding of the complete system installation should be reviewed.





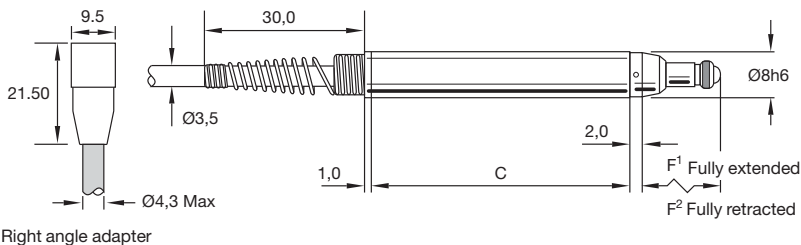
**SPRING PUSH**

Type	Art. no.	C	F <sup>1</sup>
M946	8647-01060	28.00	7.45
M947	8647-01061	46.00	13.90
M948	8647-01065	65.00	17.40
M949	8647-01069	89.00	25.40



**PNEUMATIC PUSH**

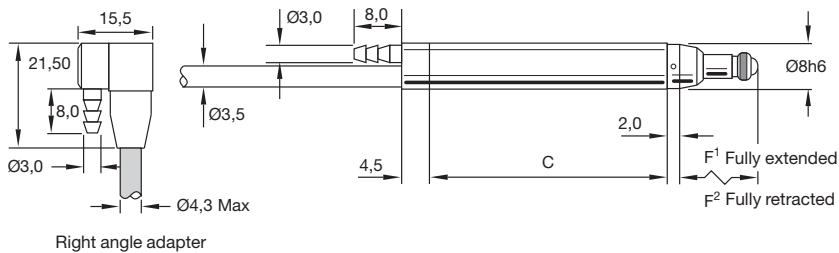
Type	Art. no.	C	F <sup>1</sup>
M947P	8647-01062	52.00	13.90
M948P	8647-01066	71.00	17.40
M949P	8647-01070	96.00	25.40



**LOW FORCE PROBES WITH MEASURING FORCE SPRING**

Type	Art. no.	C *	F <sup>1</sup>
M947L	8647-01063	46.00	13.90
M948L	8647-01067	65.00	17.40
M949L	8647-01071	89.00	25.40

\* When using an angle adapter the C measure is reduced by 3.50 mm



**LOW FORCE PROBES - PNEUMATIC PUSH**

Type	Art. no.	C *	F <sup>1</sup>
M947LP	8647-01064	52.00	13.90
M948LP	8647-01068	71.00	17.40
M949LP	8647-01072	96.00	25.40

\* When using an angle adapter the C measure is reduced by 3.50 mm

## Metem Gauging probes

Metem gauging probes are electronic length indicators being used for the inspection of diameters, thickness, conicity etc.

Metem digital probes are used in the same way as common inductive probes. While inductive probes require electronic adaption and amplification circuits, digital probes are completely integrated with their own electronics, in order to supply a digital output signal compatible with a computer interface or directly to the display unit Metem 2000.

### Gauging probes

The operating principle of a gauge probe is based on the counting of pulses when a number of scale markings pass a detector. In a Metem gauge probe these markings are deposited on a glass scale with low temperature coefficient (quartz glass) and the markings are counted with the aid of photo detectors. As the glass substrate is extremely stable, the density distribution of the gradings will not change. The result is a good inherent long time stability.

### System Configuration

The Metem gauge probes include probe head and probe electronics, which may be connected directly to a display unit or to a PC.

### Gauge Probe Head

The gauging probe head is designed to achieve a minimal weight and is of course compatible with common probes. The outwards motion of the spindle is accomplished by spring push, pneumatic push or by motor.

### Probe electronics

The probe head electronics are contained in a "smart" connector, which is connected to the probe head via a 2 m cable. Besides managing the control of the measuring probe itself, the electronics contains buffers for connecting every measuring point to the data bus. This compact, "smart" connector is connected directly to the digital display unit Metem 2000, or to a network with the help of a "T-Con" network unit.

### Highest Accuracy of Measurement

A Metem gauging probe may be used in any position, all over the measuring range. Resetting to different alternative adjustment standards can be performed by simply pushing a button. This allows different component types to be measured in the same fixture.





#### **IN A CLASS BY ITSELF ...**

Metem gauge probes have been designed for the measurement of single components in normal indoor environments, for determining the position of moving parts, like X-Y-tables, or in multigauging fixtures directly in the production process.

Metem gauge probes are available in four different measuring lengths, 12 mm, 25 mm, 50 mm and 100 mm (1/2", 1", 2" and 4"). The probes include probe head and probe electronics, connected via a cable of 2 m length. The electronics in the probe is a compact "smart" interface to be connected directly to the digital display unit, Metem 2000, or to the "Orbit"-system using a "T-CON" network unit. Pneumatic and motor driven units are available. When being used in a measuring laboratory, the probes are supplemented with a digital display unit, Metem 2000. With its unique, practical design and user friendly display, this measuring instrument is a breakthrough when it comes to providing easy to handle control and inspection possibilities in a unit with exceptionally versatile functionality.

#### **Controlling the measuring probe**

The outwards motion of the spindle is accomplished by spring force, pneumatically or by motor. A return spring is included in the pneumatic options. There is also one type with a "free" measuring piston. A distance cable holder is available for the spring variants.

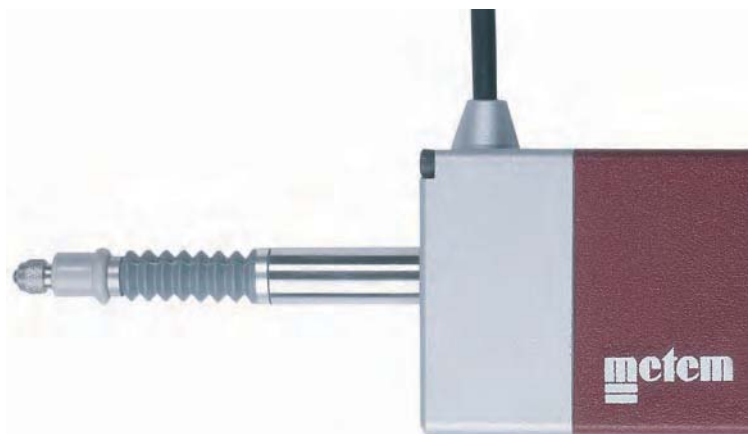


#### **Measurements with Gauge probes**

Even if the gauge probe is very accurate, we still recommend calibration against an adjustment standard. This will provide assurance against long-term drift or errors coming from expansion or contraction of the supporting fixture or machine. The performance values stated include all mechanical errors in the probe head and possible errors in the electronic supporting modules.

#### **Absolute Measurements**

Metem gauge probes are absolute measuring devices, which means that when switched on, they return to the correct initial value, regardless of any movements that have taken place while switched-off.



## PROBE HEAD

		Spring push		Pneumatic operation		Motor drive		Freely Moving Spindle *	
Probes, protection rating IP 40	Type	—	—	—	—	M944M	M945M	M944F	M945F
	Art. no.	—	—	—	—	8647-01057	8647-01059	8647-01056	8647-01058
Probes, protection rating IP 50	Type	M940	M942	—	—	—	—	—	—
	Art. no.	8647-01050	8647-01053	—	—	—	—	—	—
Probes, protection rating IP 65	Type	M941	M943	M941P	M943P	—	—	—	—
	Art. no.	8647-01052	8647-01055	8647-01051	8647-01054	—	—	—	—
Total length of stroke	mm	12.7	25.4	12.7	25.4	50.8	101.6	50.8	101.6
	inch	0.5	1.0	0.5	1.0	2.0	4.0	2.0	4.0
Graduation	µm	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	micro inch	2	2	2	2	2	2	2	2
Accuracy	µm	± 0.5	± 0.5	± 0.5	± 0.5	± 1.0	± 1.0	± 1.0	± 1.0
	micro inch	20	20	20	20	40	40	40	40
Position of ref. marking (before upper stop)	mm	5	5	5	5	5	5	5	5
	inch	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Reading speed	m/s	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	inch/s	20	20	20	20	20	20	20	20
Measuring force - downwards	N	0.6	0.6	0.6	0.6	TBA	TBA	1.25	1.25
	N	0.1	0.1	0.1	0.1	—	—	—	—
	N	0.5	0.5	0.5	0.5	—	—	—	—
Acceptable radial force	N	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Shank		Ø 8h6	Ø 8h6	Ø 8h6	Ø 8h6	Ø 20g6	Ø 20g6	Ø 20g6	Ø 20g6
Resting position of spindle		extended	extended	retracted	retracted	—	—	—	—

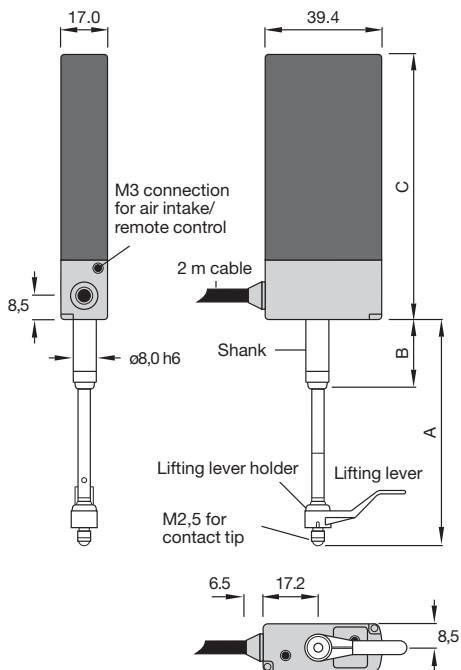
\* Freely moving spindle shall only be used in vertical position

## PROBE ELECTRONICS

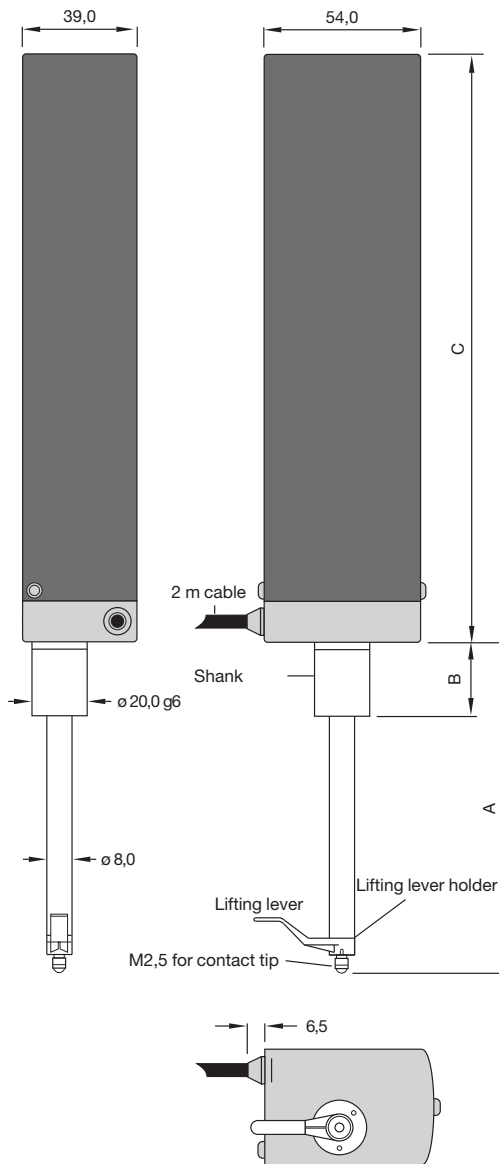
Specifications	
Accuracy	All errors, including the probe head
Reading speed, per second	1000 (optional buffer for storing 3000 readings)
Input	Directly from the probe head via a two (2) meter cable
Output, serial communication	Orbit Network Protocol (187.5 kbaud or 9600 baud)
Operating Temperature	0–60°C
Storage Temperature	-20°C to 60°C
IP rating	IP65
Power supply	5V at 0,06A (includes power for head)



**M940/941 AND M942/943**

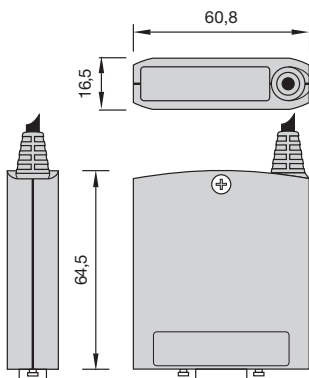


**M944 AND M945**



Type	Art. no.	A	B	C
M940	8647-01050	51.0	22.4	66.0
M941P	8647-01051	56.5	22.4	66.0
M942	8647-01053	76.5	34.9	92.0
M943P	8647-01054	69.5	34.9	92.0
M944F	8647-01056	100.4	25.0	154.0
M944M	8647-01057	100.4	25.0	175.5
M945F	8647-01058	150.4	25.0	204.5
M945M	8647-01059	150.4	25.0	226.5

**PROBE ELECTRONICS**



## Engineering

Our measuring systems are characterized by quality, reliability and precision. They shall perform whatever the customer wishes.

The process of developing and producing a measuring system is only the beginning of a long term relationship with our customers. Something which is taken into account already in the basic design is the possibility to upgrade and develop the systems in order to meet coming demands and new products, naturally in close cooperation with our customers.

We offer

- Help with design, ideas and production of measurement solution for your needs and demands;
- Everything from the most simple fixture or set-up, to more advanced systems with measuring control, PLC and statistics, etc.
- Digital and analogue contact probes and non-contact solutions;
- Probes well-known to the industry, which helps you to get an optimum plant.

We utilize the best measurement systems and probes in the market.  
Together we create exactly what you as customer needs.

PLC	SAFETY	SOFTWARE	
CONSTRUCTION	ENVIRONMENT	MEASURING CONTROL	
ROBOT	SERVICE	PRESENTATION	
CNC	FIXTURE	NETWORK	
TRANSPORT	PROBE	AVAILABILITY	
SPARE PARTS	INDUSTRIAL COMPUTER	DEVELOPMENT	

## Calibration

We perform calibrations of most of the hand gauges available on the market.

Together with cooperation partners we may help you with the great majority of measuring types.

The results are documented in a calibration certificate, which is traceable to national and international length standards.

- |                                |                    |
|--------------------------------|--------------------|
| • Cylindrical gauges and rings | • Control gauges   |
| • Gauge blocks                 | • Vernier Calipers |
| • Thread gauges                | • Micrometers      |
| • Thread rings                 | • Mikrokators      |
| • Measuring wires              | • Dial gauges      |





# Diaclean

## Diaclean Detergent

### Cleaning Diabase Surface Plates

Diaclean is a detergent, specially produced for cleaning surface plates.

**art. no.**  
8070-01001

**Content**  
1 litre



# Gauge Block Holder

## Gauge Block Holder

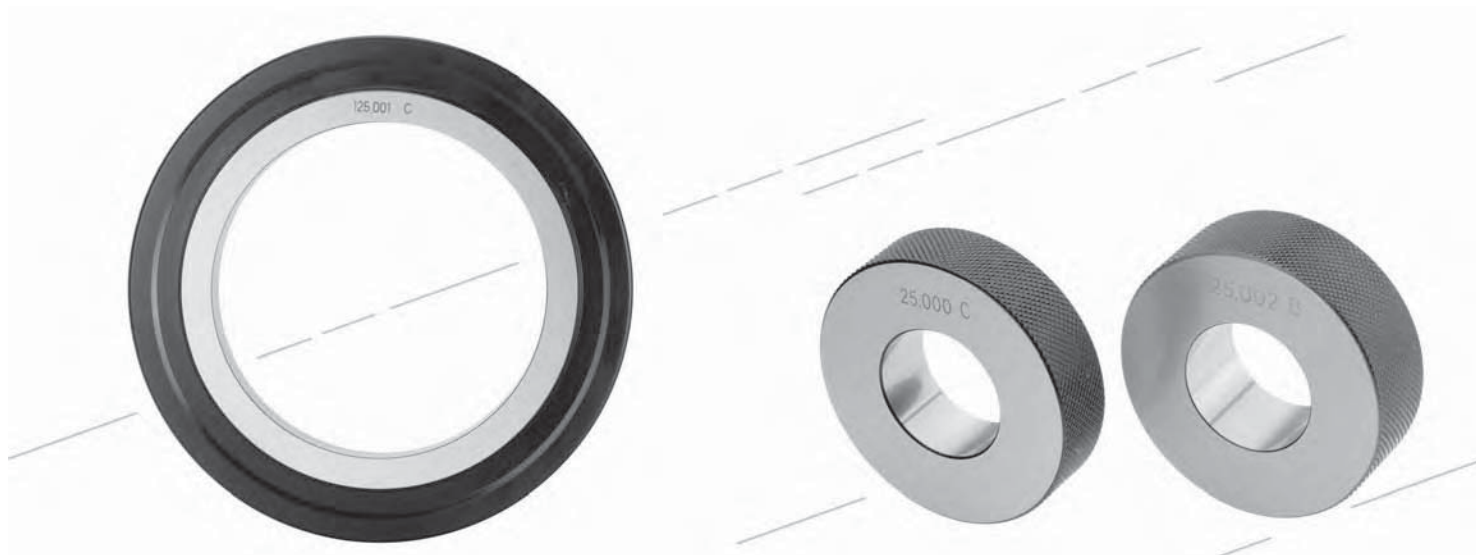


Type	Clamping Range mm	Art. no.
Gauge block holder 8039	19	8039-01001
Gauge block holder 8039	51	8039-01002
Gauge block holder 8040 with rapid adjustment	45-200	8040-01002
Gauge block holder 8040 with rapid adjustment	115-450	8040-01004
Gauge block holder 8040 with rapid adjustment	115-550	8040-01005
Gauge block holder 8040 with rapid adjustment	115-650	8040-01006
Gauge block holder 8040 with rapid adjustment	115-850	8040-01008
Gauge block holder 8040 with rapid adjustment	115-1050	8040-01010
Holder foot type 65		8040-02001
Scriber point type 52		8034-11001
Inspection point type 53		8035-11001



8040-02001

# Setting Rings for Gauges DIN 2250 Ring Gauges, Go Rings DIN 2250 Ring Gauges, NoGo Rings DIN 2254



130EM-form "C"  
Design for sizes > Ø 100 mm

130EM-form "C"  
Design for sizes < Ø 100 mm

130EM02LS-form "B"  
Design for sizes < Ø 100 mm

### Rings form "C"-For Mechanical and Electronic Gauges

130EM	Setting rings	DIN 2250-C	steel
130G	Ring Gauges-Go rings	DIN 2250-C	steel
130A	Ring Gauges-NoGo rings	DIN 2254-C	steel
130EMHC	Setting rings	DIN 2250-C	hard chrome plated
130GHC	Ring Gauges-Go rings	DIN 2250-C	hard chrome plated
130AHC	Ring Gauges-NoGo rings	DIN 2254-C	hard chrome plated

### Rings form "B"-For pneumatic gauges (larger width)

130EM02LS	Setting rings	DIN 2250-B	steel
130G02LS	Ring Gauges-Go rings	DIN 2250-B	steel
130A02LS	Ring Gauges-NoGo rings	DIN 2254-B	steel
130EM02HC	Setting rings	DIN 2250-B	hard chrome plated
130G02HC	Ring Gauges-Go rings	DIN 2250-B	hard chrome plated
130A02HC	Ring Gauges-NoGo rings	DIN 2254-B	hard chrome plated

### Technical Specifications

Material	High-tensile special steel (LS)
Meas surfaces	Hardened, tempered, ground and lapped. Type HC includes hard chrome plated measuring surfaces. Rings with carbide measuring surfaces can be made to order.
Applications	- for the control and calibration of displaying gauges like bore indicators or inside micrometers  - for gauging shafts - for setting pneumatic gauges

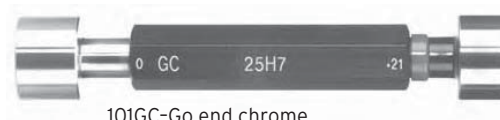
## Setting Rings and Ring Gauges type 130

Size Ø mm	130EM- 130G- 130A-	130EMHC- 130GHC- 130AHC-	130EM02LS- 130G02LS- 130A02LS-	130EM02HC- 130G02HC- 130A02HC-
1-1.2	-	-	-	-
1.5 - 1.8	-	-	-	-
2 - 2.2	-	-	-	-
2.5 - 2.8	-	-	-	-
3	-	-	-	-
3.5	-	-	-	-
4 - 4.5	-	-	-	-
5-15	-	-	-	-
16-20	-	-	-	-
21-25	-	-	-	-
26-32	-	-	-	-
33-40	-	-	-	-
41-50	-	-	-	-
51-60	-	-	-	-
61-70	-	-	-	-
71-80	-	-	-	-
81-90	-	-	-	-
91 -100	-	-	-	-
105-110	-	-	-	-
115-120	-	-	-	-
125-130	-	-	-	-
135-140	-	-	-	-
145-150	-	-	-	-
155-160	-	-	-	-
165-170	-	-	-	-
175-180	-	-	-	-
185-190	-	-	-	-
195-200	-	-	-	-
210	-	-	-	-
220	-	-	-	-
225-230	-	-	-	-
240-250	-	-	-	-
260	-	-	-	-
270	-	-	-	-
275	-	-	-	-
280	-	-	-	-
290	-	-	-	-
300	-	-	-	-
310	-	-	-	-
315	-	-	-	-

## Plug Gauges type 101-DIN 2245



101LS-Special steel



101GC-Go end chrome



101HC-hard chrome plated



101TiN-G-Go end TiN treated

### Cylindrical Plug Gauges-Overview

101LS	Cylindrical plug gauge in special steel (Go and NoGo gauge)
101GLS	Cylindrical Go gauge in special steel
101ALS	Cylindrical NoGo gauge in special steel
101GC	Cylindrical Plug Gauge: Go end in hard chrome, NoGo end in special steel
101HC	Cylindrical plug gauge in hard chrome (Go and NoGo gauge)
101GHC	Cylindrical Go gauge in hard chrome
101AHC	Cylindrical NoGo gauge in hard chrome
101TiN-G	Cylindrical Go gauge with coating of TiN, and NoGo gauge in special steel

Cylindrical Plug Gauges from Ø 0.2 to Ø 2 mm, see type 103

**When ordering flattening or marking, this should be ordered separately according to following order no.:**

Option	Order no.	
Flattening:	LSV5-30	(for gauges between Ø 5 and 30 mm)
	LSV30-50	(for gauges between Ø 30 and 50 mm)
	LSV50-70	(for gauges between Ø 50 and 70 mm)
	LSV70-100	(for gauges between Ø 70 and 100 mm)
Marking:	Marking	(marking on handle, max. 12 characters)

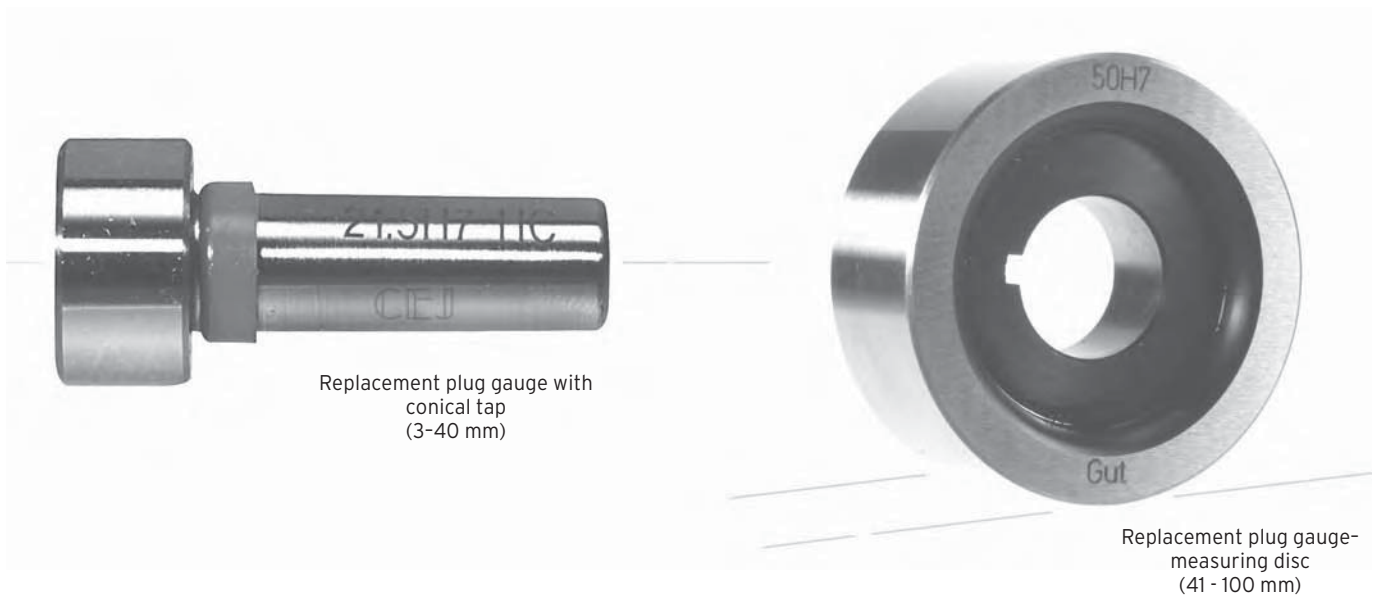
### Technical Specifications

Material	High-tensile special steel (LS)
Meas surfaces	Hardened, tempered, ground and lapped. Hard chrome plated or with a coating of TiN
Manuf. tol	Acc. to DIN 7162 and 7164
Applications	- for checking of respectively, lower and upper, tolerance limits of bores - Go and NoGo ends are replaceable, - above Ø 40 mm the gauge is designed as a measuring disc, which may be turned around when worn out on one side.



Size Ø mm	101LS-	101GC-	101HC-	101TiN-G-	101GLS- 101ALS-	101GHC- 101AHC-
2; 2.2; 2.5; 2.8	-	-	-		-	-
3; 3.5; 4	-	-	-		-	-
4.5; 5.0 - 10.0	-	-	-		-	-
11.0 - 14.0	-	-	-		-	-
15-18	-	-	-		-	-
19-24	-	-	-		-	-
25-30	-	-	-		-	-
31-40	-	-	-		-	-
41-50	-	-	-		-	-
51-60	-	-	-		-	-
61-70	-	-	-		-	-
71-80	-	-	-		-	-
81-90	-	-	-		-	-
91-100	-	-	-		-	-

## Replacement gauges for Cylindrical Plug Gauges type 101



Replacement plug gauge with conical tap (3-40 mm)

Replacement plug gauge-measuring disc (41 - 100 mm)

### Replacement Gauges-Overview

101GELS	Replacement gauge for Go gauge Ø 3-40 mm and Ø 41-100 mm, in special steel
101AELS	Replacement gauge for NoGo gauge Ø 3-40 mm and Ø 41-100 mm, in special steel
101GEHC	Replacement gauge for Go gauge Ø 3-40 mm and Ø 41-100 mm, hard chrome plated
101AEHC	Replacement gauge for NoGo gauge Ø 3-40 mm and Ø 41-100 mm, hard chrome plated

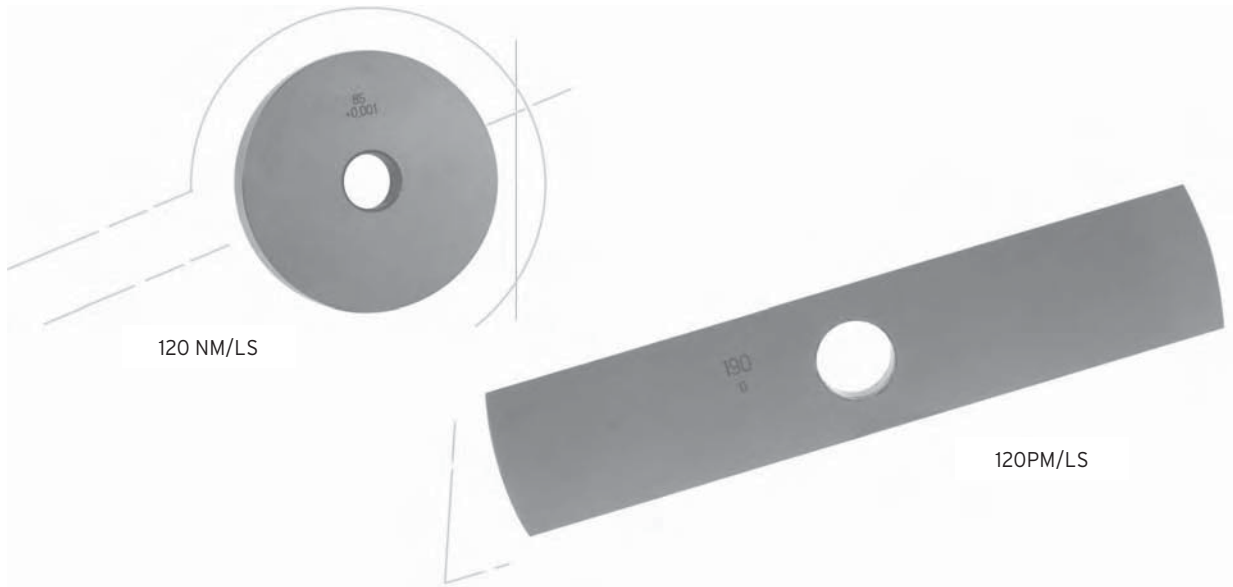
### Technical Specifications

Material	High-tensile special steel (LS)
Meas surfaces	Hardened, tempered, ground and lapped. Hard chrome plated or with a coating of TiN
Manuf. tol	according to DIN 7162 and 7164
Applications	for the replacement of damaged or worn respectively, Go or NoGo, gauges in type 101 Replacement gauges up to Ø 40 mm have a conical tap which is simply mounted in the handle. From Ø 41 mm the replacement gauge has the form of a measuring disc.

When making an enquiry please state: Article group + size + tolerances. Example: 101GELS-18H7 or 101GELS-18 +/-0,01

Size Ø mm	101GELS-	101AELS-	101GEHC-	101AEHC-
3-18	-	-	-	-
19-24	-	-	-	-
25-30	-	-	-	-
31-40	-	-	-	-
41-50	-	-	-	-
51-60	-	-	-	-
61-70	-	-	-	-
71-90	-	-	-	-
91-100	-	-	-	-

## Setting and Master Gauges 120



Setting and Master Gauges-Overview	
120NM/LS	Setting gauge in special steel
120NM/HC	Setting gauge, hard chrome plated
120PM/LS	Master gauge in special steel
120PM/HC	Master gauge, hard chrome plated

Gauges from Ø 100 mm to Ø 300 mm are available as an all cylindrical measuring disc on request.

Technical Specifications	
Material	High-tensile special steel (LS).
Meas surfaces	Hardened, tempered, ground and lapped (LS) or hard chrome plated (HC).
Manuf. tol	according to DIN 7163
Design	Up to Ø 10 mm as a ring gauge with handle Above Ø 10 mm to Ø 100 mm as a gauge disc Above Ø 100 mm to Ø 300 mm as a gauge stick
Applications	Setting and master gauges are utilized for the calibration of gauges and as a rule they have a zero measure. Master gauges are utilized to check snap gauges; please state "new Go gauge", "worn Go gauge" or "NoGo gauge" and tolerance class when ordering.



## Setting and Master Gauges 120

Size Ø mm	120NM/LS- 120PM/LS-	120NM/HC- 120PM/HC-
3	-	-
3.5	-	-
4	-	-
4.5	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
30	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
40	-	-
42	-	-
44	-	-
46	-	-
47	-	-
48	-	-
50	-	-

Size Ø mm	120NM/LS- 120PM/LS-	120NM/HC- 120PM/HC-
52	-	-
55	-	-
58	-	-
60	-	-
62	-	-
65	-	-
68	-	-
70	-	-
72	-	-
75	-	-
78	-	-
80	-	-
82	-	-
85	-	-
88	-	-
90	-	-
92	-	-
95	-	-
98	-	-
100	-	-
110	-	-
120	-	-
130	-	-
140	-	-
150	-	-
160	-	-
170	-	-
180	-	-
190	-	-
200	-	-
210	-	-
220	-	-
230	-	-
240	-	-
250	-	-
260	-	-
270	-	-
280	-	-
290	-	-
300	-	-

# Overview

## Go NoGo Screw Thread Plug Gauges

Article group **145** Go NoGo thread plug gauge  
 Features Handle with two plugs (Go and NoGo).  
 Material High-tensile special steel, hardened, tempered, ground and fine lapped.  
 Thread profile The Go side has a complete thread profile, the NoGo side has a shortened thread profile with fewer threads.  
 Applications The Go thread gauge is used to test the effective mean diameter of the go side. The NoGo thread gauge is used to test the upper limit measure of the mean diameter.



## Go and NoGo Thread Plug Gauges

Article group **160** Go Thread Gauge  
 Features Handle with one (Go) thread gauge plug. In other respects as article group 145.

Article group **165** NoGo Thread Gauge  
 Features Handle with one (NoGo) thread gauge plug. In other respects as article group 145.

Article group **160GE** Master thread gauge for Go thread ring  
 Applications Testing of new thread rings and work gauges.

Article group **165AB** Master thread gauge for worn Go thread ring  
 Applications Testing worn screw thread rings.



## Go and NoGo Screw Thread Ring Gauges

Article group **170G** Go thread ring  
 Material High-tensile special steel, hardened, tempered, ground and fine lapped.  
 Thread profile The Go side has a complete screw thread profile. Mean and inner diameter corresponds to the largest measure of the tested outside thread.  
 Applications The Go thread gauge is used to test the effective mean diameter of the go side.

Article group **170A** NoGo thread ring  
 Material High-tensile special steel, hardened, tempered, ground and fine lapped.  
 Thread profile The NoGo side has a shortened thread profile with fewer threads.  
 Applications The NoGo thread ring is used to check the lower limit measure of the mean diameter.



## Screw Thread Setting Gauges

Article group **180** Screw thread setting gauge  
 Features Handle with two plugs (Go and NoGo).  
 Material High-tensile special steel, hardened, tempered, ground and fine lapped.  
 Thread profile The Go side has a complete thread profile, the NoGo side has a shortened thread profile with fewer threads.  
 Applications Thread setting gauges are utilized as setting and testing gauges for Go/NoGo caliper thread gauges to test inner and outer diameters.



## Other Gauges

Article group **101K** Core diameter gauge for the testing of the inner diameter of a nut thread.  
 Article group **122A** Go/NoGo caliper gauge for testing the outer diameter of a screw thread.



## Made to Order











- Made to Order
- intervening sizes
  - left-handed thread
  - other tolerances than the standard tolerances mentioned in the catalogue

# Metric Fine Pitch Threads-ISO DIN 13-Pitch 4/6

Thread d=Ø	Thread lead P										
		145- (6H)	160- (6H)	165- (6H)	160GE- (6g)	160AB- (6g)	170G- (6g)	170A- (6g)	180- (6g)	101K- (6H)	122A- (6g)
M150	x4	-	-	-	-	-	-	-	-	-	-
M155	x4	-	-	-	-	-	-	-	-	-	-
M160	x4	-	-	-	-	-	-	-	-	-	-
M165	x4	-	-	-	-	-	-	-	-	-	-
M170	x4	-	-	-	-	-	-	-	-	-	-
M175	x4	-	-	-	-	-	-	-	-	-	-
M180	x4	-	-	-	-	-	-	-	-	-	-
M185	x4	-	-	-	-	-	-	-	-	-	-
M190	x4	-	-	-	-	-	-	-	-	-	-
M195	x4	-	-	-	-	-	-	-	-	-	-
M200	x4	-	-	-	-	-	-	-	-	-	-
M70	x6	-	-	-	-	-	-	-	-	-	-
M72	x6	-	-	-	-	-	-	-	-	-	-
M76	x6	-	-	-	-	-	-	-	-	-	-
M80	x6	-	-	-	-	-	-	-	-	-	-
M85	x6	-	-	-	-	-	-	-	-	-	-
M90	x6	-	-	-	-	-	-	-	-	-	-
M95	x6	-	-	-	-	-	-	-	-	-	-
M100	x6	-	-	-	-	-	-	-	-	-	-
M105	x6	-	-	-	-	-	-	-	-	-	-
M110	x6	-	-	-	-	-	-	-	-	-	-
M115	x6	-	-	-	-	-	-	-	-	-	-
M120	x6	-	-	-	-	-	-	-	-	-	-
M125	x6	-	-	-	-	-	-	-	-	-	-
M130	x6	-	-	-	-	-	-	-	-	-	-
M135	x6	-	-	-	-	-	-	-	-	-	-
M140	x6	-	-	-	-	-	-	-	-	-	-
M145	x6	-	-	-	-	-	-	-	-	-	-
M150	x6	-	-	-	-	-	-	-	-	-	-
M155	x6	-	-	-	-	-	-	-	-	-	-
M160	x6	-	-	-	-	-	-	-	-	-	-
M165	x6	-	-	-	-	-	-	-	-	-	-
M170	x6	-	-	-	-	-	-	-	-	-	-
M175	x6	-	-	-	-	-	-	-	-	-	-
M180	x6	-	-	-	-	-	-	-	-	-	-
M185	x6	-	-	-	-	-	-	-	-	-	-
M190	x6	-	-	-	-	-	-	-	-	-	-
M195	x6	-	-	-	-	-	-	-	-	-	-
M200	x6	-	-	-	-	-	-	-	-	-	-

# Whitworth pipe thread G-DIN ISO 228



	 Go NoGo Thread Gauge	 Go Thread Gauge	 NoGo Thread Gauge	 MASTER THREAD GAUGE FOR GO THREAD RING	 MASTER THREAD GAUGE FOR WORN GO THREAD RING	 Go-Thread Ring	 NoGo-Thread Ring	 Go/NoGo Thread Setting Gauge	 CORE DIAMETER PLUG GAUGE	 GoNoGo CALIPER GAUGE FOR OUTER-Ø
Thread d=Ø	145-(A)	160-(A)	165-(A)	160GE-(A)	160AB-(A)	170G-(A)	170A-(A)	180-(A)	101K-(A)	122A-(A)
G1/8	-	-	-	-	-	-	-	-	-	-
G1/4	-	-	-	-	-	-	-	-	-	-
G3/8	-	-	-	-	-	-	-	-	-	-
G1/2	-	-	-	-	-	-	-	-	-	-
G5/8	-	-	-	-	-	-	-	-	-	-
G3/4	-	-	-	-	-	-	-	-	-	-
G7/8	-	-	-	-	-	-	-	-	-	-
G1	-	-	-	-	-	-	-	-	-	-
G1-1/8	-	-	-	-	-	-	-	-	-	-
G1-1/4	-	-	-	-	-	-	-	-	-	-
G1-1/2	-	-	-	-	-	-	-	-	-	-
G1-3/4	-	-	-	-	-	-	-	-	-	-
G2	-	-	-	-	-	-	-	-	-	-
G2-1/4	-	-	-	-	-	-	-	-	-	-
G2-1/2	-	-	-	-	-	-	-	-	-	-
G2-3/4	-	-	-	-	-	-	-	-	-	-
G3	-	-	-	-	-	-	-	-	-	-
G3-1/2	-	-	-	-	-	-	-	-	-	-
G4	-	-	-	-	-	-	-	-	-	-
G4-1/2	-	-	-	-	-	-	-	-	-	-
G5	-	-	-	-	-	-	-	-	-	-
G5-1/2	-	-	-	-	-	-	-	-	-	-
G6	-	-	-	-	-	-	-	-	-	-

# Unified coarse pitch UNC-ANSI B1.1-1982











Thread d=Ø	Thread lead P										
		145-(2B)	160-(2B)	165-(2B)	160GE-(2A)	160AB-(2A)	170G-(2A)	170A-(2A)	180-(2A)	101K-(2B)	122A-(2A)
N°1	-64UNC	-	-	-	-	-	-	-	-	-	-
N°2	-56UNC	-	-	-	-	-	-	-	-	-	-
N°3	-48UNC	-	-	-	-	-	-	-	-	-	-
N°4	-40UNC	-	-	-	-	-	-	-	-	-	-
N°5	-40UNC	-	-	-	-	-	-	-	-	-	-
N°6	-32UNC	-	-	-	-	-	-	-	-	-	-
N°8	-32UNC	-	-	-	-	-	-	-	-	-	-
N°10	-24UNC	-	-	-	-	-	-	-	-	-	-
N°12	-24UNC	-	-	-	-	-	-	-	-	-	-
1/4	-20UNC	-	-	-	-	-	-	-	-	-	-
5/16	-18UNC	-	-	-	-	-	-	-	-	-	-
3/8	-16UNC	-	-	-	-	-	-	-	-	-	-
7/16	-14UNC	-	-	-	-	-	-	-	-	-	-
1/2	-13UNC	-	-	-	-	-	-	-	-	-	-
9/16	-12UNC	-	-	-	-	-	-	-	-	-	-
5/8	-11UNC	-	-	-	-	-	-	-	-	-	-
3/4	-10UNC	-	-	-	-	-	-	-	-	-	-
7/8	-9UNC	-	-	-	-	-	-	-	-	-	-
1	-8UNC	-	-	-	-	-	-	-	-	-	-
1-1/8	-7UNC	-	-	-	-	-	-	-	-	-	-
1-1/4	-7UNC	-	-	-	-	-	-	-	-	-	-
1-3/8	-6UNC	-	-	-	-	-	-	-	-	-	-
1-1/2	-6UNC	-	-	-	-	-	-	-	-	-	-
1-3/4	-5UNC	-	-	-	-	-	-	-	-	-	-
2	-4-1/2UNC	-	-	-	-	-	-	-	-	-	-
2-1/4	-4-1/2UNC	-	-	-	-	-	-	-	-	-	-
2-1/2	-4UNC	-	-	-	-	-	-	-	-	-	-
2-3/4	-4UNC	-	-	-	-	-	-	-	-	-	-
3	-4UNC	-	-	-	-	-	-	-	-	-	-
3-1/4	-4UNC	-	-	-	-	-	-	-	-	-	-
3-1/2	-4UNC	-	-	-	-	-	-	-	-	-	-
3-3/4	-4UNC	-	-	-	-	-	-	-	-	-	-
4	-4UNC	-	-	-	-	-	-	-	-	-	-

## Unified pine pitch UNF-ANSI B1.1-1982

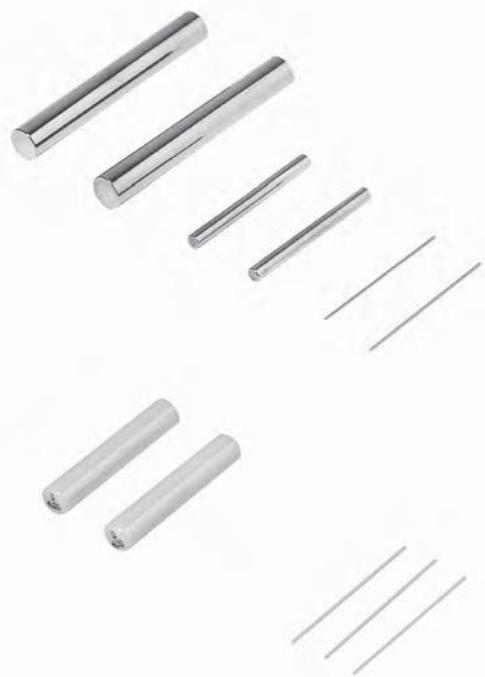
Thread d=Ø	Thread lead P	Go NoGo T THREAD GAUGE	Go THREAD GAUGE	NoGo THREAD GAUGE	MASTER THREAD GAUGE FOR GO THREAD RING	MASTER THREAD GAUGE FOR WORN GO THREAD RING	Go- THREAD RING	NoGo- THREAD RING	Go/NoGo THREAD SET- TING GAUGE	CORE DIAMETER PLUG GAUGE	GoNoGo CALIPER GAUGE FOR OUTER-Ø
		145- (2B)	160- (2B)	165- (2B)	160GE- (2A)	160AB- (2A)	170G- (2A)	170A- (2A)	180- (2A)	101K- (2B)	122A- (2A)
N°0	-80UNF	-	-	-	-	-	-	-	-	-	-
N°1	-72UNF	-	-	-	-	-	-	-	-	-	-
N°2	-64UNF	-	-	-	-	-	-	-	-	-	-
N°3	-56UNF	-	-	-	-	-	-	-	-	-	-
N°4	-48UNF	-	-	-	-	-	-	-	-	-	-
N°5	-44UNF	-	-	-	-	-	-	-	-	-	-
N°6	-40UNF	-	-	-	-	-	-	-	-	-	-
N°8	-36UNF	-	-	-	-	-	-	-	-	-	-
N°10	-32UNF	-	-	-	-	-	-	-	-	-	-
N°12	-28UNF	-	-	-	-	-	-	-	-	-	-
1/4	-28UNF	-	-	-	-	-	-	-	-	-	-
5/16	-24UNF	-	-	-	-	-	-	-	-	-	-
3/8	-24UNF	-	-	-	-	-	-	-	-	-	-
7/16	-20UNF	-	-	-	-	-	-	-	-	-	-
1/2	-20UNF	-	-	-	-	-	-	-	-	-	-
9/16	-18UNF	-	-	-	-	-	-	-	-	-	-
5/8	-18UNF	-	-	-	-	-	-	-	-	-	-
3/4	-16UNF	-	-	-	-	-	-	-	-	-	-
7/8	-14UNF	-	-	-	-	-	-	-	-	-	-
1	-12UNF	-	-	-	-	-	-	-	-	-	-
1-1/8	-12UNF	-	-	-	-	-	-	-	-	-	-
1-1/4	-12UNF	-	-	-	-	-	-	-	-	-	-
1-3/8	-12UNF	-	-	-	-	-	-	-	-	-	-
1-1/2	-12UNF	-	-	-	-	-	-	-	-	-	-



# Unified extra fine pitch UNEF-ANSI B1.1-1982

Thread d=Ø	Thread lead P										
		145-(2B)	160-(2B)	165-(2B)	160GE-(2A)	160AB-(2A)	170G-(2A)	170A-(2A)	180-(2A)	101K-(2B)	122A-(2A)
N°12	-32UNEF	-	-	-	-	-	-	-	-	-	-
1/4	-32UNEF	-	-	-	-	-	-	-	-	-	-
5/16	-32UNEF	-	-	-	-	-	-	-	-	-	-
3/8	-32UNEF	-	-	-	-	-	-	-	-	-	-
7/16	-28UNEF	-	-	-	-	-	-	-	-	-	-
1/2	-28UNEF	-	-	-	-	-	-	-	-	-	-
9/16	-24UNEF	-	-	-	-	-	-	-	-	-	-
5/8	-24UNEF	-	-	-	-	-	-	-	-	-	-
11/16	-24UNEF	-	-	-	-	-	-	-	-	-	-
3/4	-20UNEF	-	-	-	-	-	-	-	-	-	-
13/16	-20UNEF	-	-	-	-	-	-	-	-	-	-
7/8	-20UNEF	-	-	-	-	-	-	-	-	-	-
15/16	-20UNEF	-	-	-	-	-	-	-	-	-	-
1	-20UNEF	-	-	-	-	-	-	-	-	-	-
1-1/16	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-1/8	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-3/16	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-1/4	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-5/16	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-3/8	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-7/16	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-1/2	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-9/16	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-3/4	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-5/8	-18UNEF	-	-	-	-	-	-	-	-	-	-
1-11/16	-18UNEF	-	-	-	-	-	-	-	-	-	-

## Pin Gauges without handle



### 101-Steel, tolerance 0

Specification	Hardened, aged, ground and lapped. Without handle.
Diameter	0.10-10.00 mm
Manuf. tol.	± 0.0003 mm

### 102-Steel, tolerance 1

Specification	Hardened, aged, ground and lapped. Without handle.
Diameter	0.10-20.00 mm
Manuf. tol.	± 0.001 mm

### 103-Steel, tolerance 2

Specification	Hardened, aged, ground and lapped. Without handle.
Diameter	0.20-20.00 mm
Step	0.01 mm
Manuf. tol.	± 0.0015 mm

### 112-Carbide, tolerance 1

Specification	Ground and lapped. Without handle.
Diameter	0.50-9.99 mm
Manuf. tol.	± 0.001 mm (± 0.0003 mm on request)

### 131 - Ceramic, tolerance 0

Specification	Zirconium, ground and lapped. Without handle.
Diameter	0.50-10.00 mm
Manuf. tol.	± 0.0003 mm

### 132-Ceramic, tolerance 1

Specification	Zirconium, ground and lapped. Without handle.
Diameter	0.50-10.00 mm
Manuf. tol.	± 0.001 mm

When ordering, please state diameter needed (e.g. 0.52 mm). Available in steps of 0.001 mm at an extra cost.

Art. no.	Type	Diameter, mm	Length, mm
101-0,10-0,19	101	0.10-0.19	32
101-0,20-0,29	101	0.20-0.29	32
101-0,30-0,49	101	0.30-0.49	32
101-0,50-0,99	101	0.50-0.99	32
101-1,00-2,99	101	1.00-2.99	32
101-3,00-5,99	101	3.00-5.99	40
101-6,00-10,00	101	6.00-10.00	50
102-0,10-0,19	102	0.10-0.19	32
102-0,20-0,29	102	0.20-0.29	32
102-0,30-0,49	102	0.30-0.49	32
102-0,50-0,99	102	0.50-0.99	32
102-1,00-2,99	102	1.00-2.99	32
102-3,00-5,99	102	3.00-5.99	40
102-6,00-9,99	102	6.00-9.99	50
102-10,00-11,99	102	10.00-11.99	70
102-12,00-13,99	102	12.00-13.99	70
102-14,00-15,99	102	14.00-15.99	70
102-16,00-18,99	102	16.00-18.99	70
102-19,00-20,00	102	19.00-20.00	70

Art. no.	Type	Diameter, mm	Length, mm
103-0.20-0.29	103	0.20-0.29	40
103-0,30-0,49	103	0.30-0.49	40
103-0,50-0,99	103	0.50-0.99	40
103-1,00-2,99	103	1.00-2.99	40
103-3,00-5,99	103	3.00-5.99	40
103-6,00-9,99	103	6.00-9.99	60
103-10,00-11,99	103	10.00-11.99	70
103-12,00-13,99	103	12.00-13.99	70
103-14,00-15,99	103	14.00-15.99	70
103-16,00-18,99	103	16.00-18.99	70
103-19,00-20,00	103	19.00-20.00	70
112-0,50-0,99	112	0.50-0.99	32
112-1,00-2,99	112	1.00-2.99	32
112-3,00-5,99	112	3.00-5.99	32
112-6,00-9,99	112	6.00-9.99	32
131-0,50-0,99	131	0.50-0.99	32
131-1,00-2,99	131	1.00-2.99	32
131-3,00-5,99	131	3.00-5.99	32
131-6,00-10,00	131	6.00-10.00	32
132-0,50-0,99	132	0.50-0.99	32
132-1,00-2,99	132	1.00-2.99	32
132-3,00-5,99	132	3.00-5.99	32
132-6,00-9,99	132	6.00-9.99	32

## Pin Gauges with handle



### 101.G-Steel, tolerance 0

Specification	Hardened, aged, ground and lapped. With handle.
Diameter	0.10-10.00 mm
Manuf. tol	± 0.0003 mm

### 102.G-Steel, tolerance 1

Specification	Hardened, aged, ground and lapped. With handle.
Diameter	0.10-10.00 mm
Manuf. tol	± 0.001 mm

### 103.G-Steel, tolerance 2

Specification	Hardened, aged, ground and lapped. With handle.
Diameter	0.20-10.00 mm
Step	0.01 mm
Manuf. tol	± 0.0015 mm

### 112.G-Carbide, tolerance 1

Specification	Ground and lapped. With handle.
Diameter	0.50-10.00 mm
Manuf. tol	± 0.001 mm (± 0.0003 mm on request)

### 131.G-Ceramic, tolerance 0

Specification	Zirconium, ground and lapped. With handle.
Diameter	0.50-10.00 mm
Manuf. tol	± 0.0003 mm

### 132.G-Ceramic, tolerance 1

Specification	Zirconium, ground and lapped. With handle.
Diameter	0.50-10.00 mm
Manuf. tol	± 0.001 mm

When ordering, please state diameter needed (e.g. 0.52 mm). Available in steps of 0.001 mm at an extra cost.

Art. no.	Type	Diameter, mm	Length, mm
101.G-0,10-0,19	101.G	0.10-0.19	25
101.G-0,20-0,29	101.G	0.20-0.29	25
101.G-0,30-0,49	101.G	0.30-0.49	25
101.G-0,50-0,99	101.G	0.50-0.99	25
101.G-1,00-2,99	101.G	1.00-2.99	25
101.G-3,00-5,99	101.G	3.00-5.99	25
101.G-6,00-10,00	101.G	6.00-10.00	42
102.G-0,10-0,19	102.G	0.10-0.19	25
102.G-0,20-0,29	102.G	0.20-0.29	25
102.G-0,30-0,49	102.G	0.30-0.49	25
102.G-0,50-0,99	102.G	0.50-0.99	25
102.G-1,00-2,99	102.G	1.00-2.99	25
102.G-3,00-5,99	102.G	3.00-5.99	25
102.G-6,00-10,00	102.G	6.00-10.00	42

Art. no.	Type	Diameter, mm	Length, mm
103.G-0,20-0,29	103.G	0.20-0.29	25
103.G-0,30-0,49	103.G	0.30-0.49	25
103.G-0,50-0,99	103.G	0.50-0.99	25
103.G-1,00-2,99	103.G	1.00-2.99	25
103.G-3,00-5,99	103.G	3.00-5.99	43
103.G-6,00-10,00	103.G	6.00-10.00	62
112.G-0,50-0,99	112.G	0.50-0.99	25
112.G-1,00-2,99	112.G	1.00-2.99	25
112.G-3,00-5,99	112.G	3.00-5.99	25
112.G-6,00-10,00	112.G	6.00-10.00	42
131.G-0,50-0,99	131.G	0.50-0.99	25
131.G-1,00-2,99	131.G	1.00-2.99	25
131.G-3,00-5,99	131.G	3.00-5.99	25
131.G-6,00-10,00	131.G	6.00-10.00	42
132.G-0,50-0,99	132.G	0.50-0.99	25
132.G-1,00-2,99	132.G	1.00-2.99	25
132.G-3,00-5,99	132.G	3.00-5.99	25
132.G-6,00-10,00	132.G	6.00-10.00	42

## Thread Measuring Wires with handle and needle's eye



### 401-Steel, tolerance 0

Specification Hardened, aged, ground and lapped.  
 Diameter 0.10-10.00 mm  
 Manuf. tolerance  $\pm 0.0003$  mm

### 402-Steel, tolerance 1

Specification Hardened, aged, ground and lapped.  
 Diameter 0.10-10.00 mm  
 Manuf. tolerance  $\pm 0.001$  mm

Art. no.	Type	Diameter, mm	Length, mm
401-0,10-0,19	401	0.10-0.19	32
401-0,20-0,29	401	0.20-0.29	32
401-0,30-0,49	401	0.30-0.49	32
401-0,50-0,99	401	0.50-0.99	32
401-1,00-2,99	401	1.00-2.99	32
401-3,00-5,99	401	3.00 - 5.99	32
401-6,00-10,00	401	6.00-10.00	32

Art. no.	Type	Diameter, mm	Length, mm
402-0,10-0,19	402	0.10-0.19	32
402-0,20-0,29	402	0.20-0.29	32
402-0,30-0,49	402	0.30-0.49	32
402-0,50-0,99	402	0.50-0.99	32
402-1,00-2,99	402	1.00-2.99	32
402-3,00-5,99	402	3.00-5.99	32
402-6,00-10,00	402	6.00-10.00	32

## Thread Measuring Wires with Micrometer Holder



### 501-Steel: Set of three Measuring Wires in two holders

Specification Hardened, aged, ground and lapped.  
 Diameter 0.10-10.00 mm  
 Manuf. tolerance  $\pm 0.001$  mm

Micrometer holder Available for micrometers with spindle diameter: 6.35 - 6.50 - 6.80 - 7.50 and 8.00 mm  
 Special diameters must be stated when ordering or when making an enquiry.

The following diameters from the "Zeiss-series" are available for spindle diameters 6.35 - 6.50 and 8.00 mm.

0.17	0.195	0.22	0.25	0.29
0.335	0.39	0.455	0.53	0.62
0.725	0.895	1.10	1.35	1.65
2.05	2.55	3.20 mm		

Other wire diameters and spindle diameters are available on request.

The Thread Measuring Wires are also available in carbide or ceramics on request.

\* When ordering, please state diameter needed (e.g. 0.328 mm).

Available in steps of 0.001 mm.

Art. no.	Type	Diameter, mm
501-0,15-1,00 *	501	0.15-1.00
501-1,00-3,20 *	501	1.00-3.20
501-3,20-6,50 *	501	3.20-6.50
501-0,170	501	0.170
501-0,195	501	0.195
501-0,220	501	0.220
501-0,250	501	0.250
501-0,290	501	0.290
501-0,335	501	0.335
501-0,390	501	0.390
501-0,455	501	0.455
501-0,530	501	0.530
501-0,620	501	0.620
501-0,725	501	0.725
501-0,895	501	0.895
501-1,100	501	1.100
501-1,350	501	1.350
501-1,650	501	1.650
501-2,050	501	2.050
501-2,550	501	2.550
501-3,200	501	3.200
501-4,000	501	4.000
501-5,050	501	5.050
501-6,350	501	6.350

## Original Unimeter™

UNIMETER is robust, flexible and easy to handle. UNIMETER consists of a precision cylinder on which two measuring jaws are placed. The upper front jaw is movable when measuring, and its movement is free from play and friction. The deflection of this movable jaw is transferred to an indicator, normally a dial gauge or a mikrokator.

The lower measuring jaw, which is fixed when measuring, is adjustable along the cylinder and can be secured at an optional distance from the upper jaw.

UNIMETER is set by means of gauge blocks, reference rings or similar to the required gauge size. The rear jaw is secured in a suitable position. After setting the indicator to zero, the Unimeter is ready for use. UNIMETER measuring range can be increased by extension bars, and it can easily be adapted for unique applications.

### Type UNI I - for internal measurement

#### TYPE I - FOR INTERNAL MEASUREMENT

Measuring jaws with parallel, cylindrical measuring surfaces. Without indicator and case

Type	Order no.
UNI-2I	8828-01002
UNI-2LI	8828-01003
UNI-2ELI	8828-01004



#### CASES

Description	Order no.
Case for I	8828-01005
Case for LI	8828-01006
Case for ELI	8828-01007

Technical data	UNI-2I	UNI-2LI	UNI-2ELI
Range of application, mm	28-247	28-347	28-447
Measuring movement, mm *	3.0	3.0	3.0
Measuring depth, mm	32	32	32

\* Max. movement of the measuring jaw, in mm

### Type UNI O - for external measurement

#### TYPE O - FOR EXTERNAL MEASUREMENT

Measuring jaws with parallel, flat measuring surfaces. For measuring length, external diameter, tooth thickness, etc.

Without indicator and case

Type	Order no.
UNI-2O	8828-01012
UNI-2LO	8828-01013
UNI-2ELO	8828-01014



#### CASES

Description	Order no.
Case for O	8828-01005
Case for LO	8828-01006
Case for ELO	8828-01007

Technical Data	UNI-2O	UNI-2LO	UNI-2ELO
Range of application, mm	0-220	0-320	0-420
Measuring movement, mm *	3.0	3.0	3.0
Measuring depth, mm	35	35	35
For gears with min. module	1.5	1.5	1.5
Guideline max. modul	1) 25	1) 25	1) 25
Guideline max. D at module 10	620	750	750

\* Max. movement of the measuring jaw, in mm

1) At "D" max. 300 mm.

**Type UNI M - With interchangeable measuring arms (MA) for measuring anvils**

**TYPE MI - FOR INTERNAL MEASUREMENT**

Measuring arms and measuring anvils are used in pairs, but have to be ordered by the piece. Without indicator, measuring arms, measuring anvils and case.

Type	Order no.
UNI-2MI	8828-01051
UNI-2LMI	8828-01052
UNI-2ELMI	8828-01053



**TYPE MO - FOR EXTERNAL MEASUREMENT**

Measuring arms and measuring anvils are used in pairs, but have to be ordered by the piece. Without indicator, measuring arms, measuring anvils and case.

Type	Order no.
UNI-2MO	8828-01054
UNI-2LMO	8828-01055
UNI-2ELMO	8828-01056

Technical Data	UNI-2MI	UNI-2LMI	UNI-2ELMI
Range, mm <sup>1)</sup> Spherical plate	29-254	29-354	29-454
Point anvil $\varnothing$ 2 mm	38-263	38-363	38-463
Ball $\varnothing$ 3 mm	36-261	36-361	36-461
Thread anvil <sup>2)</sup>	31-256	31-356	31-456
Measuring movement, mm *	10	10	10
Measuring depth, mm	50	50	50

**CASES**

Description	Order no.
Case for MI & MO	8828-01005
Case for LMI & LMO	8828-01006
Case for ELMI & ELMO	8828-01007

Technical Data	UNI-2MO	UNI-2LMO	UNI-2ELMO
Range, mm <sup>1)</sup> Spherical plate	9-234	9-334	9-434
Point anvil $\varnothing$ 2 mm	$\leq$ 225	$\leq$ 325	$\leq$ 425
Ball $\varnothing$ 3 mm	2-227	2-327	2-427
Thread anvil <sup>2)</sup>	$\leq$ 225	$\leq$ 325	$\leq$ 425
Measuring movement, mm *	10	10	10
Measuring depth, mm	50	50	50

**MEASURING ARMS TYPE MA**

Description	Order no.
MA25 L= 25mm	8828-01151
MA50 stand. L= 50mm	8828-01152
MA75 L= 75mm	8828-01153
MA100 L= 100mm	8828-01154



- \* Max. movement of the measuring jaw, in mm
- 1) By mounting the fixed, adjustable jaw in reversed position, the measuring range is extended by 22 mm.
- 2) When measuring threads, the indicated measuring ranges are approximate and only apply to small measuring anvils. The measuring ranges vary with the size of the measuring anvils.

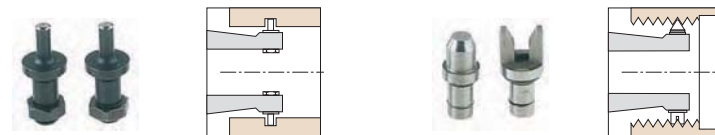


Plate with a spherical measuring surface for measuring bores

Measuring anvil with a  $\varnothing$  3 mm soldered steel ball, for measuring Vee-grooves, tooth thickness, pitch diameter of splines, gears, etc. Other sizes available on request, also carbide balls.

**MEASURING ANVILS**

Description	Order no.
Spherical measuring surface	8828-01121
Point anvil $\varnothing$ 2 mm	8828-01122
Ball $\varnothing$ 3 mm	8828-01123
Anvils for measuring the thread mean diameter. When ordering, please state: Thread system and lead	



Point anvil  $\varnothing$  2 mm with a spherical measuring surface, length 5 mm, for measuring narrow grooves, O-ring grooves and clearances. Other lengths available on request. Max. 25 mm.

Thread anvils for measuring the thread mean diameter. The measuring anvils may be pivoted and adjust themselves to the lead. Available for thread systems M, UN and BSW.



Type UNI M - With interchangeable measuring arms (MB) for measuring discs

**TYPE MI - FOR INTERNAL MEASUREMENT**

Measuring arms, measuring discs, distance sleeves and support washers are used in pairs, but have to be ordered by the piece. Without indicator, measuring arms, discs, sleeves and case.

Type	Order no.
UNI-2MI	8828-01051
UNI-2LMI	8828-01052
UNI-2ELMI	8828-01053



**TYPE MO - FOR EXTERNAL MEASUREMENT**

Measuring arms, measuring discs, distance sleeves and support washers are used in pairs, but have to be ordered by the piece. Without indicator, measuring arms, discs, sleeves and case.

Type	Order no.
UNI-2MO	8828-01054
UNI-2LMO	8828-01055
UNI-2ELMO	8828-01056

Technical Data	UNI-2MI	UNI-2LMI	UNI-2ELMI
Range of application, mm <sup>1)</sup>	46-256	46-356	46-456
Measuring movement, mm *	10	10	10
Measuring depth, mm	30	30	30

Technical Data	UNI-2MO	UNI-2LMO	UNI-2ELMO
Range of application, mm <sup>1)</sup>	16-226	16-326	16-426
Measuring movement, mm *	10	10	10
Measuring depth, mm	30	30	30

**CASES**

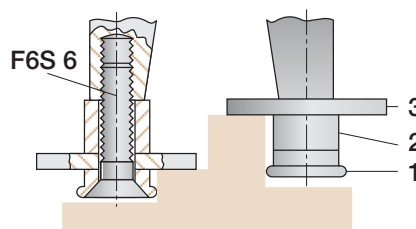
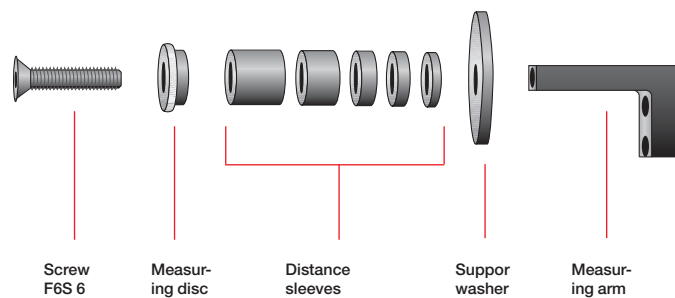
Description	Order no.
Case for MI & MO	8828-01005
Case for LMI & LMO	8828-01006
Case for ELMI & ELMO	8828-01007

**MEASURING ARMS TYPE MB**

Description	Order no.
MB30 stand. L=30mm	8828-01155
MB50 L= 50mm	8828-01156



\* Max. movement of the measuring jaw, in mm  
 1) By mounting the moving jaw in reversed position, the measuring range is extended by 26 mm.



For measuring shoulders in different levels, guiding edges etc.  
 1. Measuring disc  
 2. Distance sleeve  
 3. Support washer

**DISCS AND SLEEVES**

Description	Order no.
Support washer Ø 30 mm	8828-01111
Measuring disc Ø 15 mm	8828-01112
Distance sleeve L= 1 mm	8828-01113
Distance sleeve L= 2 mm	8828-01114
Distance sleeve L= 3 mm	8828-01115
Distance sleeve L= 6 mm	8828-01116
Distance sleeve L= 10 mm	8828-01117

**Type UNI MR - for internal and external measurement**

**TYPE MR - WITH REVERSING DEVICE FOR INTERNAL AND EXTERNAL MEASUREMENTS**

For universal measuring tasks, externally as well as internally. To be completed with measuring arms and measuring anvils or discs, distance sleeves and support washers (see page 2 and 3). These parts used in pairs, but have to be ordered by the piece. Without indicator, measuring arms, measuring anvils, discs, sleeves and case.



Type	Order no.
UNI-2MR	8828-01042
UNI-2LMR	8828-01043
UNI-2ELMR	8828-01044

**CASES**

Description	Order no.
Case for MR	8828-01005
Case for LMR	8828-01006
Case for ELMR	8828-01007

**MEASURING ARMS**

Description	Order no.
MA25 L= 25mm	8828-01151
MA50 stand. L= 50mm	8828-01152
MA75 L= 75mm	8828-01153
MA100 L= 100mm	8828-01154
MB30 stand. L=30mm	8828-01155
MB50 L= 50mm	8828-01156
MC30 L=30 mm	8828-01157
MC50 L=50 mm	8828-01158

Measuring anvils		UNI-2MR		UNI-2LMR		UNI-2ELMR	
Technical Data		Int.	Ext.	Int.	Ext.	Int.	Ext.
Range, mm	Spherical plate	29-254	9-234	29-354	9-334	29-454	9-434
	Point anvil Ø 2	38-263	≥225	38-363	≥325	38-463	≥425
	Ball Ø 3	36-261	2-227	36-361	2-327	36-461	2-427
	Thread anvil <sup>1)</sup>	31-256	≥225	31-356	≥325	31-456	≥425
Measuring movement, mm *		10		10		10	
Measuring depth, mm (MA50)		50		50		50	

Measuring Discs		UNI-2MR		UNI-2LMR		UNI-2ELMR	
Technical Data		Int.	Ext.	Int.	Ext.	Int.	Ext.
Range, mm		46-256	16-226	46-356	16-326	46-456	16-426
Measuring movement, mm *		10		10		10	
Measuring depth, mm (MB30)		30		30		30	

\* Max. movement of the measuring jaw, in mm  
 1) When measuring threads, the indicated measuring ranges are approximate and only apply to small measuring anvils. The measuring ranges vary, depending of the size of the measuring anvils.



Measuring arms type MA for exchangeable measuring anvils



Measuring arms type MB for measuring discs



Measuring arms type MC for varying measuring anvils. Bore Ø 4 H7

**Accessories**

**EXTENSION**

Description	Order no.
Extension bar 300 mm	8828-01101
Extension bar 500 mm	8828-01102
Connection piece	8828-01103
End screw	8828-01104



# ATIVA-Gauge

## A system for gauge inspection, equipment registration and recurring maintenance

ATIVA-Gauge is a Windows® based index card system for storage, maintenance and calibration. It manages the operation's gauges, instruments, etc. that require regular inspections and follow-up. In the program, protocols for a large number of different types of equipment can be defined (for example electronic gauges, fixtures, scales, thermometers, pressure sensors).

Among its functions, it keeps track of the status of every item in the records, including the results of the latest control (calibration), date for the next certification, color marking, where it is stored, measurement data, cost of calibration, etc. In this way, information can easily be retrieved each time it is time to inspect or calibrate a gauge.

### The program is easy to use and easily grasped

The persons using ATIVA-Gauge decides by themselves how much information is to be reported back to the system after each inspection. For some companies, it may be sufficient to report the results from calibration into the system; that is, whether the instrument is approved for continued use. If desired, measured values can be entered into the system and saved for traceability. Measurement data from gauges with an electrical output can automatically be sent into the program for storage. Input values are compared immediately with actual limit values and unacceptable deviations are reported.

### Built-in functions

Help system	Describes the functions of the program and provides example courses of action.
Authorisation	Create user categories and assign rights per user.
Cost budgeting	The program has the ability to budget and follow-up calibration costs.
Reports	Generate professional reports. The reports are shown directly on the screen where the user can choose to print or save to a file (pdf, xls, doc, rtf) in order to send them via e-mail or to archive them.
Adapt headings	Change the names of headings and tables.
Automatic limit value testing	- Define the limit value for every measuring point. - When calibrating, every value input is tested immediately against the pre-determined limits.

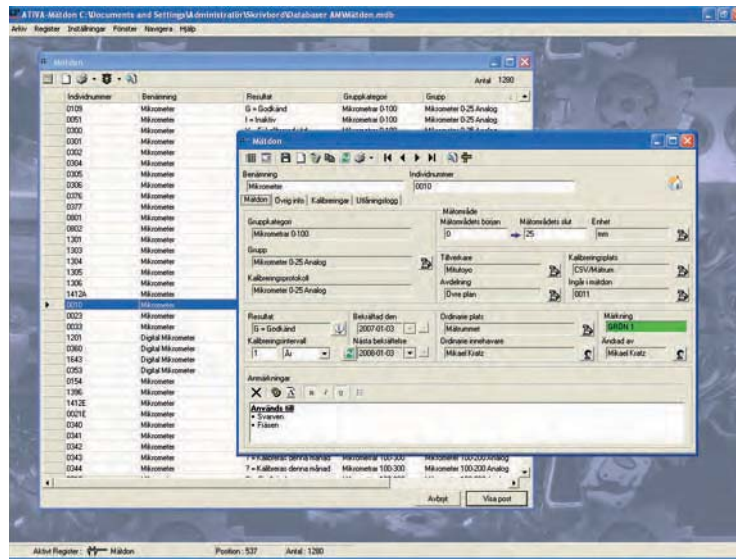
### Warranty

When purchasing a program, cost free guidance will always be provided from Ativa Development AB during the installation of the program.

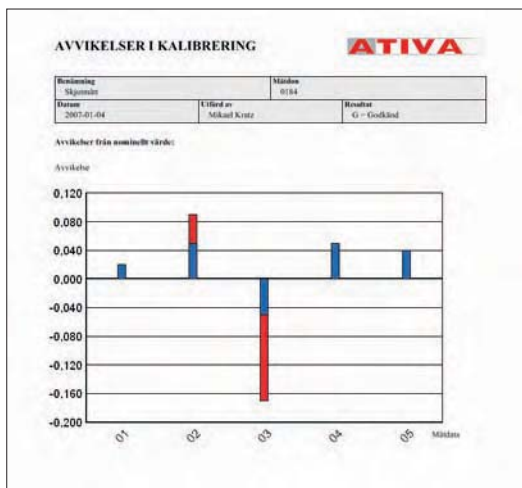
### Sign a service agreement - it pays

The warranty above can be supplemented with a service agreement. This means that you will get access to qualified help on how to use the functions in the program. A service agreement provides continuity and security at a modest cost. Our contract customers receive the best support and always work with the latest version of the program.

Art. no.	Description
AT-101	Initial basic licence
AT-102	Network licence, including 2 user licences
AT-103	Additional licences, each
AT-104	Reader, each
AT-105	5 pcs reader package



This picture shows the main window with a detailed gauge index card and the gauge list in the background.

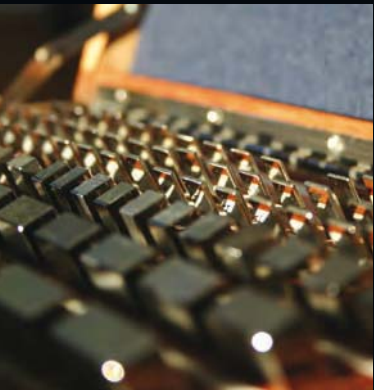


Individsnummer	Benämning	Resultat	Grupp	Gruppkategori
0001	Mikrometer	X = Ej kalibrerad i ut	Mikrometer 0-25	Mikrometer
0003	Mikrometer	F = Förkommit	Mikrometer 0-25	Mikrometer
0004	Mikrometer	X = Ej kalibrerad i ut	Mikrometer 0-25	Mikrometer
0005	Djupmikrometer	G = Godkänd	Djupmikrometer	Djupmikrometer
0006	Djupmikrometer	X = Ej kalibrerad i ut	Djupmikrometer	Djupmikrometer
0007A	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0007B	Hålnikrometer	K = Under kalibrering	3-Punkt	3-Punkt
0007C	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0007D	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0008	Mikrometerstickan	S = Skadad	Mikrometerstickan	Mikrometerstickan
0009A	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0009B	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0009C	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0009D	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0010	Mikrometer	G = Godkänd	Mikrometer 0-25	Mikrometer
0011	Mikrometer	G = Godkänd	Mikrometer 25-50	Mikrometer
0012	Mikrometer	I = Inaktiv	Mikrometer 25-50	Mikrometer
0013	Mikrometer	G = Godkänd	Mikrometer 25-50	Mikrometer
0014	Mikrometer	X = Ej kalibrerad i ut	Mikrometer 50-75	Mikrometer
0015	Mikrometer	G = Godkänd	Mikrometer 50-75	Mikrometer
0016	Mikrometer	X = Ej kalibrerad i ut	Mikrometer 75-100	Mikrometer
0018	Mikrometer	F = Förkommit	Mikrometer 75-100	Mikrometer
0019	Mikrometer	X = Ej kalibrerad i ut	Mikrometer 50-150	Mikrometer
0020	Special Mikrometer	G = Godkänd	Mikrometer 75-250	Mikrometer
0021E	Mikrometer	G = Godkänd	Mikrometer	Mikrometer
0022	Mikrometerstickan	F = Förkommit	Mikrometerstickan	Mikrometerstickan
0023	Mikrometer	F = Förkommit	Mikrometer 0-25	Mikrometer
0024	Mikrometer	G = Godkänd	Mikrometer	Mikrometer
0025	Mikrometer	G = Godkänd	Mikrometer	Mikrometer
0026	Mikrometerstickan	G = Godkänd	Mikrometerstickan	Mikrometerstickan
0027	Digital Skjemat	G = Godkänd	Skjemat 0-300	Skjemat >2000
0028	Maskinpass	G = Godkänd	Maskinpass typ	Maskinpass
0029	Digital	I = Inaktiv	Mikrometerstickan	Mikrometerstickan
0030	Digital	I = Inaktiv	Mikrometerstickan	Mikrometerstickan
0031A	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0031B	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0031C	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt
0031D	Hålnikrometer	X = Ej kalibrerad i ut	3-Punkt	3-Punkt

This picture shows samples of the reports available in the program.



CEJ



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