



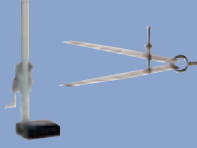


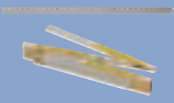




# MEASURING AND MARKING-OUT



# 9

## MEASURING AND MARKING-OUT

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# MEASURING AND MARKING-OUT

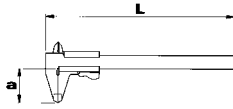


## 960

UNI-ISO 3599 DIN 862

### Workshop caliper to $\frac{1}{20}$ mm

- Beam and vernier of hardened stainless steel
- Matt chrome beam and vernier, anti-reflection treated
- Protruding sliding guides
- Monobloc slider with lever lock
- Supplied in a plastic sheath



capacity mm/inch	vernier mm/inch	a mm	L mm	gr
150/6"	0,05/ 1/128"	40	235	150

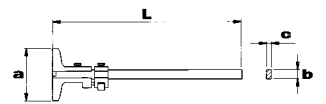


## 963

DIN 862

### Depth slide gauges to $\frac{1}{50}$ mm

- Beam and vernier of hardened stainless steel
- Matt chrome beam and vernier, anti-reflection treated
- Protruding sliding guides
- Micrometric adjustment with screw lock
- Supplied in a wooden case



capacity mm	vernier mm	a mm	bxc mm	L mm	gr
200	0,02	80	14x4	290	280
300	0,02	80	14x4	390	325

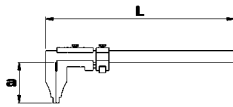


## 960 C

UNI-ISO 6906 DIN 862

### Workshop calipers to $\frac{1}{50}$ mm

- Beam and vernier of hardened stainless steel
- Matt chrome beam and vernier, anti-reflection treated
- Sliding guides
- Monobloc slider with lever lock
- Tapered nose for inside readings (over 10 mm)
- Micrometric adjustment, screw lock
- Supplied in a wooden case



capacity mm	vernier mm	a mm	L mm	gr
200	0,02	65	330	360
300	0,02	90	460	740

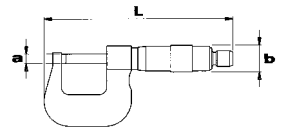


## 967

UNI 5708 ISO 3611 DIN 863

### Micrometers to $\frac{1}{100}$ mm for outside readings

- Anvil made of hardened steel, contact surfaces with hard metal inserts
- Matt chrome bow frame and thimble, anti-reflection treated
- Friction-operated thimble
- Lever lock
- Supplied in a wooden case with setting gauge and calibration key



capacity mm	resolution mm	a ø mm	b ø mm	L mm	gr
0 ÷ 25	0,01	6,5	18	126	330
25 ÷ 50	0,01	6,5	18	153	420
50 ÷ 75	0,01	6,5	18	180	550
75 ÷ 100	0,01	6,5	18	206	770



## 967 K

### Stand for micrometers

- Body and jaws made of steel
- Adjustable holding device

max opening max mm	base mm	Kg
22	110x80x20	1,8



## 968 M

### Magnetic base for dial indicators

- Magnetic adherence force: 60 kg
- Central post height: 200 mm
- Intermediate beam height: 150 mm
- Dial indicator clamp  $\varnothing$ : 6-8 mm
- Joints with quick-sliding jaws
- Lever switch

max opening max mm	base mm	Kg
365	70x65x50	1,5

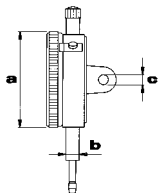


## 968

UNI-ISO 7463 DIN 878

### Dial indicator to $\frac{1}{100}$ mm

- Rack-type feeler of hardened stainless steel, threaded tip (M 2.5) for interchangeable styluses
- Matt chrome steel case, anti-reflection treated
- White rotating dial with adjustable tolerance markers and transparent shatterproof protection glass
- Shockproof device to protect clockwork
- Micrometric screw for manual zero setting
- Back fitted with lug
- Supplied in a wooden case



capacity mm	resolution mm	a $\varnothing$ mm	b $\varnothing$ mm	c mm	gr
10	0,01	58	8	6	200

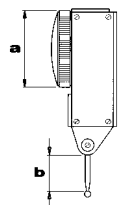


## 969

### Dial indicator $\frac{1}{100}$ mm with adjustable stylus

- Matt chrome monobloc steel body, anti-reflection treated, with dovetail guide
- Hard metal stylus,  $\varnothing$  2.5 mm
- High-precision clockwork with ruby bearing
- Feeler tiltable by  $220^\circ$ , perpendicular to the dial
- Automatic inversion of measuring direction
- Zero setting by dial rotation
- Supplied in a wooden case with feeler shafts  $\varnothing$  4 and 8 mm

DIN 2270



capacity mm	resolution mm	scale	a $\varnothing$ mm	b mm	gr
0,8	0,01	0-40-0	31	12,5	160

# MEASURING AND MARKING-OUT



## 965

### Screw pitch gauges

– Blades for 60° metric ISO threads and 55° Whitworth threads

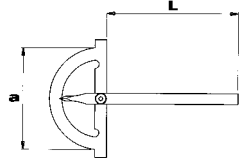
thread form	pitch details	blades n°	gr
Metric ISO	0,25-0,30-0,35-0,40-0,45-0,50-0,60	24	80
	0,70-0,75-0,80-0,90-1,00-1,25-1,50		
	1,75-2,00-2,50-3,00-3,50-4,00-4,50		
Whitworth	5,00-5,50-6,00	28	
	4-4,5-5-6-7-8-9-10-11-12-13-14-16 18-19-20-22-24-25-26-28-30-32-36 40-48-60-62		



## 970 A

### Standard protractors

- Stainless steel dial and rule
- Matt chrome scale, anti-reflection treated
- Screw lock



a mm	scale	resolution	L mm	gr
120	0°÷180°	1°	150	230
150	0°÷180°	1°	200	305
200	0°÷180°	1°	300	410



## 966

### Thickness gauges

– Conic-shaped blades with rounded tips

blades n°	blade thickness mm	L mm	gr
8	0,05÷0,50	100	40
13	0,05÷1,00	100	65
20	0,05÷1,00	100	90



## 971 C

### Precision surface gauges to 1/50 mm

- Rule and slider of hardened stainless steel
- Matt chrome scale and vernier, anti-reflection treated
- Scriber with hard metal tip insert
- Protruding sliding guides
- Fine adjustment with screw lock
- Ground steel base

capacity mm	vernier mm	height mm	base mm	Kg
300	0,02	445	105x87x37	3,5
500	0,02	645	105x87x37	3,9



## 970 C

### Universal protractor

- Body and sliding rule of hardened stainless steel
- Matt chrome scale and vernier, anti-reflection treated, with magnifying glass
- End of sliding rule cut to angles of 45° and 60°
- Supplied in a wooden case and an additional 200 mm sliding rule and body-rule 70 mm

scale	vernier	rule mm	gr
4x90°	1/12°-5'	300	800

## 971 CR

### Spare scriber





## 971 S

### Standard surface gauge

- Adjustable scriber made of special hardened steel
- Adjustable-slant rule with fine adjustment screw
- Prismatic cast-iron base with 90° V



capacity mm	height mm	base mm	Kg
300	310	85x67x30	1,3

## 971 SR

### Spare scriber



## 972

### Precision dividers

- Fast opening type with fine adjustment screw
- Straight legs with special tips of hardened steel
- Ground and polished

capacity mm	L mm	gr
150	195	115
200	245	140
250	295	190



## 974

### Scriber

- Monobloc scriber of special hardened steel
- Plastic grip
- Straight tips or bent at an angle of 110°
- Chrome plated finish

L mm	gr
220	25



## 974 A

### Carbide scriber

- Monobloc scriber of special hardened steel, pen-type with pocket clip
- Tungstene-carbide tip
- Galvanized finish

L mm	gr
150	35



## 974 B

### Retractable carbide scriber

- Pen-type plastic body with pocket clip
- Double-dressed retractable tip of tungstene-carbide

L mm	ø tip ø mm	gr
150	2	17

## 974 BR

### Spare tip



## 974 M

### Carpenter pencil

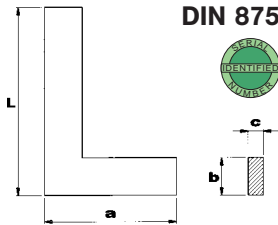
L mm	gr
175	10

# MEASURING AND MARKING-OUT



## 976 Standard squares

- Precision class DIN 875/2
- Made of normalized steel with ground faces and edges

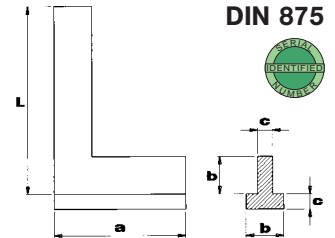


DIN 875



## 976 C Back squares

- Precision class DIN 875/2
- Made of normalized steel with ground faces and edges



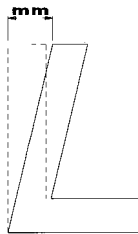
DIN 875



L mm	a mm	bxc mm	gr
100	70	20x8	160
150	100	25x8	300
200	130	30x8	500
250	165	35x8	700
300	200	35x8	900

L mm	a mm	bxc mm	gr
100	70	20x8	240
150	100	25x8	450
200	130	30x8	700
250	165	35x8	1100
300	200	35x8	1300

TOLERANCES  
DIN 875



L = mm	50	75	100	150	200	250	300	500
CLASS 00	0,003	0,003	0,003	0,004	0,004	0,005	0,005	0,007
CLASS 0	–	0,007	0,007	0,008	0,009	0,010	0,011	0,015
CLASS 1	–	0,014	0,015	0,018	0,020	0,023	0,025	0,035
CLASS 2	–	0,028	0,030	0,035	0,040	0,045	0,050	0,070



## 978 A Flexible graduated rules

- Precision class II
- Matt chrome stainless steel, anti-reflection treatment
- Double graduation photoengraved on one side

L mm	scale	size mm	gr
150	mm/1/2 mm	13x0,5	8
200	mm/1/2 mm	13x0,5	10
250	mm/1/2 mm	13x0,5	14
300	mm/1/2 mm	13x0,5	16
500	mm/1/2 mm	20x0,5	38
1000	mm/1/2 mm	25x0,5	105



## 978 B Semi-rigid graduated rules

- Precision class II
- Matt chrome stainless steel, anti-reflection treatment
- Double graduation photoengraved on both sides (on one side only for 1 m rule)

L mm	scale	size mm	gr
300	mm/1/2 mm	30x0,8	70
500	mm/1/2 mm	30x0,8	100
1000	mm/1/2 mm	30x0,8	200



## 980 A

### Wooden folding rule

- Precision class III
- Beech-wood sections
- Springs with hidden rivets of hardened steel, galvanized and chrome plated
- Double graduation on both sides, black on alternatively white and yellow background, red decimals

L m	scale	n° sections	size mm	gr
2	mm	10	16x3,3	130



## 980 B

### Fiberglass folding rules

- Precision class III
- Double graduation, black on white background, engraved on both sides

L m	scale	n° sections	section mm	gr
1	mm	10	13x2,5	70
2	mm	10	16x3,5	145



## 981 BN

### Tape rules

- Precision class II
- Chrome plated case of shatterproof ABS with pocket clip
- High-rigidity tape of hardened steel, corrosion-proof and wear-proof
- Stop button with automatic tape rewind
- Double graduation, black on yellow varnished background, decimals in red

L m	scale	tape mm	gr
2	mm	16	80
3	mm	16	110
5	mm	19	200



## 981 C

### Tape rules

- Precision class II
- Case of shatterproof ABS with pocket clip and strap
- High-rigidity tape of hardened steel, corrosion-proof and wear-proof
- Stop button with automatic tape rewind
- Double graduation, black on yellow varnished background, decimals in red

L m	scale	tape mm	gr
2	mm	13	75
3	mm	13	95
5	mm	13	190



## 982 Steel tape rules

- Precision class II
- Closed case of shatterproof ABS
- Hardened steel tape, corrosion-proof and wear-proof
- Rewinding system with winding handle
- Double graduation, black on varnished white background, meter indication in red

capacity m	scale	tape width mm	gr
10	mm - cm	13	350
20	mm - cm	13	550



## 982 L Steel tape rule with handle

- Precision class II
- Aluminium body, handle of shatterproof plastic material
- Hardened steel tape, corrosion-proof and wear-proof
- Rewinding system with winding handle
- Graduation marked in black on yellow varnished background, meter indication in red

capacity m	scale	tape width mm	Kg
50	cm	13	1,2



## 982 F Fiberglass tape rules

- Precision class III
- Case of shatterproof ABS
- Fiberglass tape, PVC-coated
- Rewinding system with winding handle
- Black graduation on varnished white background, meter indication in red

capacity m	scale	tape width mm	gr
10	cm	15	160
20	cm	15	285



## 982 FL Fiberglass tape rule with handle

- Precision class III
- Case of shatterproof ABS with handle
- Fiberglass tape, PVC-coated
- Rewinding system with winding handle
- Black graduation on both sides on white varnished background, meter indication in red

capacity m	scale	tape width mm	gr
50	cm	15	650



## 984

### Aluminium levels

- Precision  $0.057^\circ = 1 \text{ mm/m}$
- Body of aluminium section, painted red
- Shatterproof vials, guaranteed 5 years
- Fluorescent fluid, unaffected by temperatures from  $-50^\circ$  to  $+50^\circ\text{C}$
- Non-disperse bubble
- Adjustable horizontal vial

L mm	base width mm	gr
400	22	270
500	22	335
600	22	380
800	22	490
1000	22	650

## 984 RH

### Spare horizontal vial



## 984 RV

### Spare vertical vial



## 984 E

### Aluminium levels

- Precision  $0.057^\circ = 1 \text{ mm/m}$
- Die-cast aluminium body, painted red, with ground base
- Shatterproof vials, guaranteed 5 years
- Fluorescent fluid, unaffected by temperatures from  $-50^\circ$  to  $+50^\circ\text{C}$
- Non-disperse bubble
- Adjustable horizontal vial

L mm	base width mm	gr
400	20	440
500	20	510
600	20	650

## 984 EMH

### Spare horizontal vial

- For 984 E and 984 M



## 984 EMV

### Spare vertical vial

- For 984 E and 984 M



## 984 M

### Aluminium levels with magnetic base

- Precision  $0.057^\circ = 1 \text{ mm/m}$
- Die-cast aluminium body, painted grey with ground base
- Shatterproof vials, guaranteed 5 years
- Fluorescent fluid, unaffected by temperatures from  $-50^\circ$  to  $+50^\circ\text{C}$
- Non-disperse bubble
- Adjustable horizontal vial

L mm	base width mm	gr
300	20	370
400	20	515
500	20	620



## 984 L

### Straight precision level

- For checking and positioning machine tools
- Precision  $0.05 \text{ mm/m}$
- Cast-iron body with ground prismatic base
- Adjustable horizontal vial
- Supplied in a wooden case

DIN 877



L mm	base width mm	Kg
200	40	1,5

## 984 Q

### Square frame precision levels

- For checking and positioning machine tools
- Precision  $0.05 \text{ mm/m}$
- Cast-iron body with ground prismatic and plane bases
- Adjustable horizontal vial
- Supplied in a wooden case

DIN 877



L mm	base width mm	Kg
150	40	2,5
200	45	4,7

CEE TOLERANCES (± mm)	L = m													
	0,5	1	1,5	2	3	5	10	15	20	25	30	50	100	
PRECISION CLASS	I	0,15	0,20	0,25	0,30	0,40	0,60	1,10	1,60	2,10	2,60	3,10	5,10	10,10
	II	0,40	0,50	0,60	0,70	0,90	1,30	2,30	3,30	4,30	5,30	6,30	10,30	20,30
	III	0,80	1,00	1,20	1,40	1,80	2,60	4,60	6,60	8,60	10,60	12,60	20,60	40,60