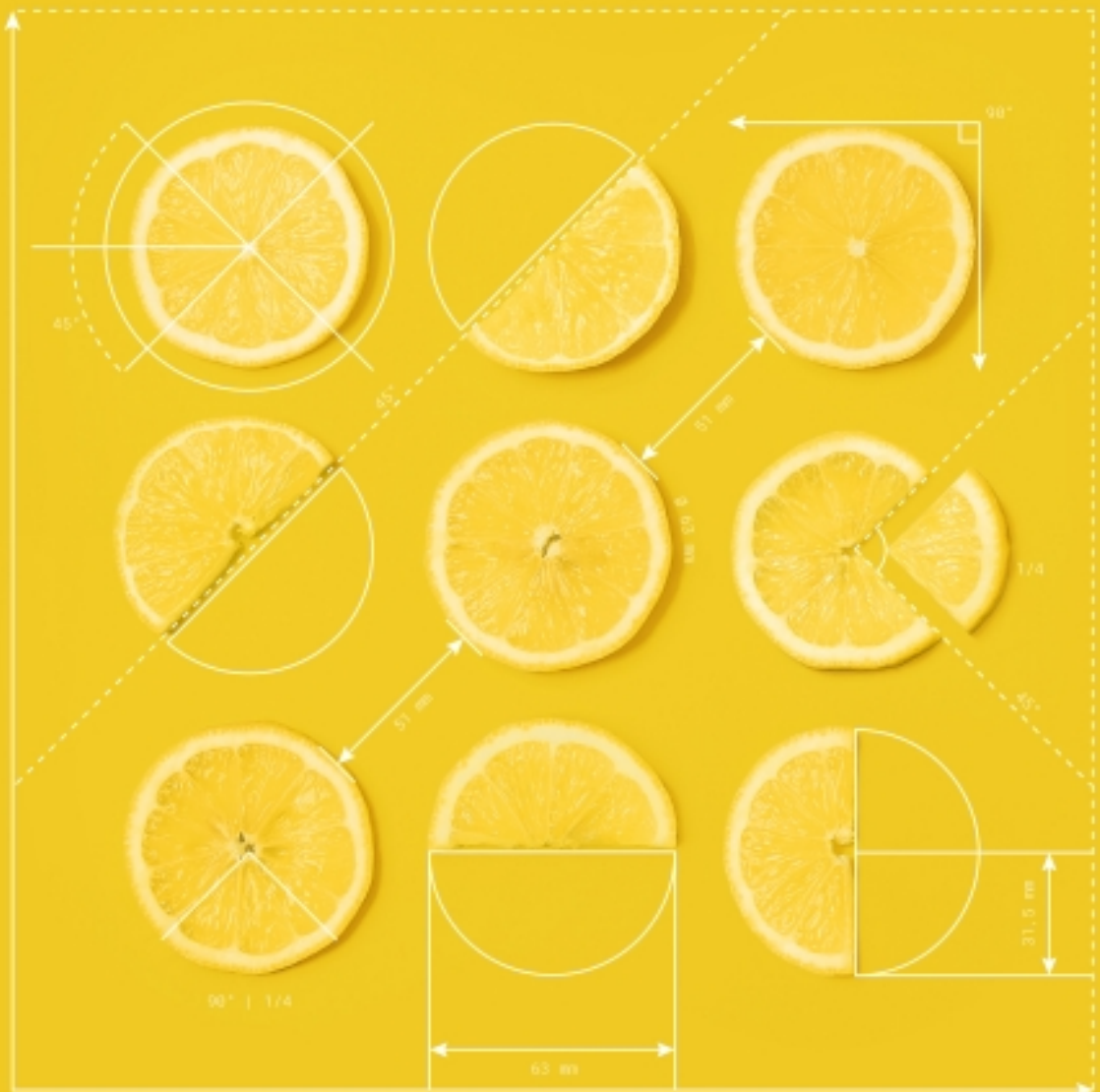


# Everything can be measured

## Measuring Tools for Professionals



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217 mm

120 mm

# Precision made **easy**

“Words like approximate or difficult does not exist in our vocabulary. We go for accuracy and simplicity, straight down to the last decimal. Call us nerds if you want to – we just think it should be easy to get things right.

Or **precise**, to be exact.”







**Limit** has more than 90 years of experience when it comes to supplying measuring instruments to Swedish industry. Right from the outset we have been dedicated to developing high-quality measuring instruments for demanding professionals working in industry and construction.

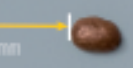


For Limit, high quality means more than just precise measurements: it means our measuring instruments have to be intuitive, ergonomic, durable and easy to use.

New technology and efficient production methods allow Limit to offer high-quality products at attractive prices – another factor we know our customers value highly.



Limit products are currently distributed and sold in over 25 markets all over the world. We also have one of the widest ranges on the market, covering our six measuring segments.



So if you prefer to work with easy-to-use measuring instruments offering superb precision, why not choose Limit?

**Because everything can be measured and Limit makes precision easy.**



# 1

## WORKSHOP MEASUREMENT

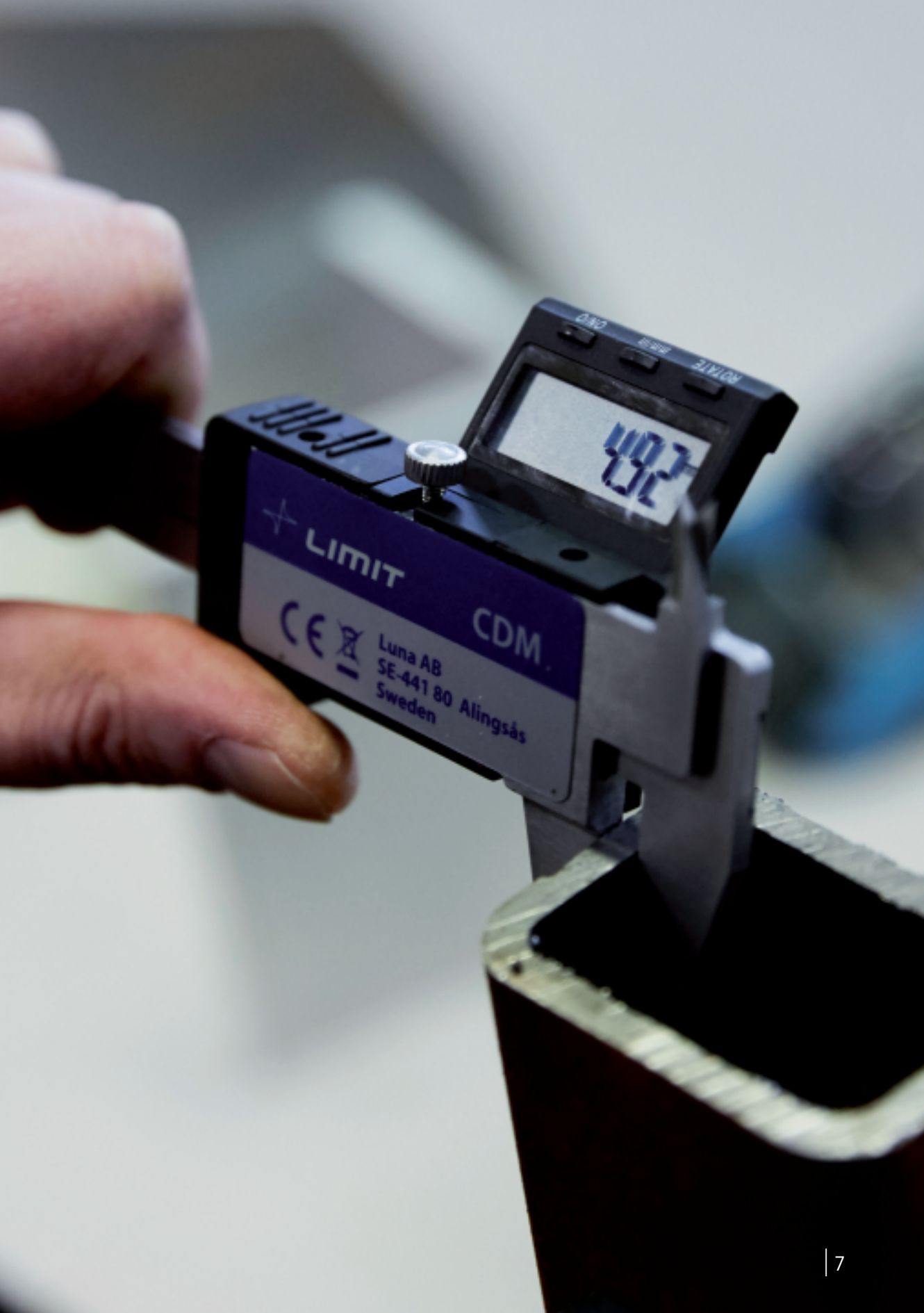
In industry and engineering, measuring instruments have to be of the highest quality and measure with 100% precision. Our wide range of measuring instruments for engineering applications includes easy-to-use products that meet your demands. We want the products you use to be robust and durable, and capable of withstanding harsh conditions. This is why our engineering range is designed for the most demanding applications.

12,004 mm



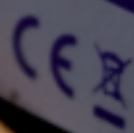
5,3 mm

90°



LIMIT

CDM



Luna AB  
SE-441 80 Alingsås  
Sweden

## USEFUL FACTS ABOUT CALLIPERS

A calliper is a multi-purpose measuring instrument offering relatively high accuracy. These instruments are recommended for measurements requiring 0.1 mm accuracy.

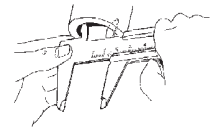
With callipers, tenths of a millimetre are read from an additional scale known as the Vernier scale. The full millimetre values are indicated by the 0 mark on the Vernier scale.

High-quality callipers have a parallax-free scale, which makes them more reliable and easier to read. The parallax is eliminated by placing the scale in one plane so as to prevent a reading error when the viewing direction is not perpendicular to one of the principle faces. Obviously, electronic callipers equipped with a digital display are even easier to read.

Callipers with a dial gauge are also easy to read, especially in the case of comparative inspection measurements, because the pointer clearly indicates how great a difference there is between measurements. Callipers are commonly used because they are so versatile. They allow users to measure external or internal dimensions or depth. Four-function callipers also allow protrusions to be measured, which is useful during laying out and marking works.

### DIN 862 TABLE OF TOLERANCES FOR CALLIPERS

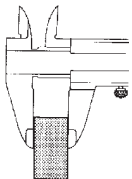
Reference temperature 20°C



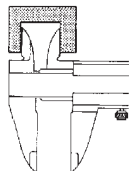
Length range. . . mm	0-200	200-300	300-400	400-500	500-600	600-700	700-800
Max. deviation . . mm	±0.04	±0.05	±0.07	±0.08	±0.09	±0.10	±0.11
Length range. . . mm	800-900	900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500
Max. deviation . . mm	±0.12	±0.13	±0.14	±0.16	±0.17	±0.18	±0.19
Length range. . . mm	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-	
Max. deviation . . mm	±0.20	±0.21	±0.22	±0.23	±0.24	±0.25	

### FOUR MEASURING FUNCTIONS

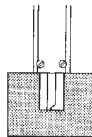
Four-function callipers can be used for measuring and marking out:



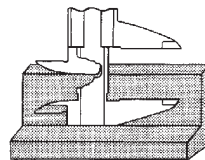
External measurement



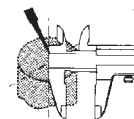
Internal measurement



Depth measurement



Height measurement



Marking out



## ANALOGUE VERNIER CALLIPERS

### ANALOGUE VERNIER CALLIPERS CVU 150 / 200 / 300 MM

Premium quality mechanical Vernier callipers where great care has been taken with detail and finish. Very soft and smooth jaw movements as the component parts have been ground in several stages. Stainless steel, hardened and precision ground measurement jaws with a matt chromium-plated scale. Jaw thickness 3.5 to 4 mm provides great stability. Metric and imperial graduations. Vernier scale 1/50 mm (0.02 mm) 1/128 inch (0.0078") with 48 mm scale length. 4-function. Equipped with rectangular depth measurement gauge and tips for internal measurements. Manufactured according to DIN 862. Supplied in a case with inspection certificate.

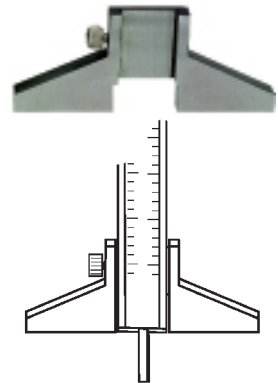


Code no.	26401-0109	26401-0208	26401-0307
Depth measurement gauge	Rectangular	Rectangular	Rectangular
Design	Analogue	Analogue	Analogue
Graduation measurement	0.02 mm	0.02 mm	0.02 mm
Graduation measurement	1/128	1/128	1/128
Leg thickness	3,5 mm	3,5 mm	4 mm
Length of legs, external	40 mm	50 mm	60 mm
Length of legs, internal	21 mm	24 mm	28 mm
Locking	Locking screw	Locking screw	Locking screw
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

### DEPTH GAUGE STOP

Suitable for most vernier callipers.

Code no.	7312-0107
Slot width	4 mm
Stock length	75 mm
Track height	17 mm
Content unit	PCS
Qty/pack	1





**POCKET VERNIER CALLIPERS**

4-function. Stainless steel. Fully hardened. Matt chromium-plated scale. Graduated in mm and inches, and with Nonie scale for 1/128" and 1/20 mm of 39 mm length. Provided with depth gauge and points for internal measuring. DIN 862.

Code no.	2670-0302	2670-0401	2670-0351
Article description		Ditto calibrated	
Calibrated		Yes	
Design	Analogue	Analogue	Analogue
Length of legs, external	38 mm	38 mm	38 mm
Locking	Key lock	Key lock	Key lock
Measurement length	150 mm	150 mm	200 mm
Measurement units	mm,inch	mm,inch	mm,inch
Style			
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2670-0500	2670-0609	2670-0708
Article description			
Calibrated			
Design	Analogue	Analogue	Analogue
Length of legs, external	38 mm	38 mm	60 mm
Locking	Locking screw	Locking screw	Locking screw
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Style		1	
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	Accessories	Article description	Packaging
2670-0302	2670-2001	SCREWS,BRASS ETC FOR CALIPER	1 PCS
2670-0401	2670-2001	SCREWS,BRASS ETC FOR CALIPER	1 PCS
2670-0351	2670-2001	SCREWS,BRASS ETC FOR CALIPER	1 PCS
2670-0500	2670-2001	SCREWS,BRASS ETC FOR CALIPER	1 PCS
2670-0609	2670-2001	SCREWS,BRASS ETC FOR CALIPER	1 PCS
2670-0708	2670-2001	SCREWS,BRASS ETC FOR CALIPER	1 PCS



**BRASS POCKET VERNIER CALLIPERS**

Miniature vernier callipers. Made of brass. Graduated in mm and inches.

Code no.	2654-0203
Design	Analogue
Length of legs, external	19 mm
Measurement length	100 mm
Measurement units	mm,inch
Content unit	PCS
Qty/pack	1

### POCKET VERNIER CALLIPERS

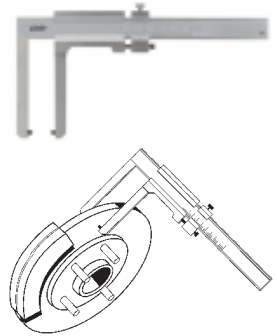
Made of hardened tool steel. Graduated in millimetres and imperial measures. Vernier scale for 1/128" and 1/20 mm. Equipped with depth gauge and needle points for inside measurements. Quick locking. DIN 862.



<b>Code no.</b>	<b>11909-0108</b>
Design	Analogue
Length of legs, external	40 mm
Measurement length	150 mm
Measurement units	mm,inch
Content unit	PCS
Qty/pack	1

### VERNIER CALLIPERS FOR BRAKE DISCS

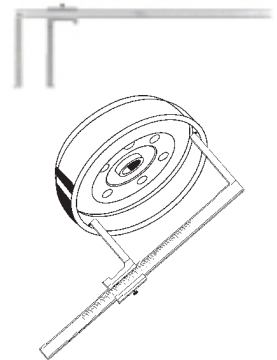
Made of stainless hardened steel. Matt chromium-plated scale and vernier. Measurement value can be locked when the legs are open.



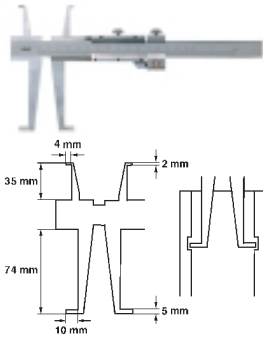
<b>Code no.</b>	<b>10910-0107</b>
Design	Analogue
Length of legs, external	85 mm
Measurement length	0-60 mm
Content unit	PCS
Qty/pack	1

### VERNIER CALLIPERS FOR BRAKE DRUMS

Made of stainless steel. Matt chromium-plated scale and vernier. With fine adjustment.



<b>Code no.</b>	<b>10909-0050</b>	<b>10909-0100</b>	<b>10909-0209</b>
Design	Analogue	Analogue	Analogue
Length of legs, external	105 mm	150 mm	200 mm
Measurement length	40-340 mm	50-500 mm	50-600 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### VERNIER CALLIPERS FOR INSIDE MEASUREMENT

Made of hardened tool steel and with fine adjustment. For inside measurement of inner slot diameter. 12817-0107 has double measurement jaws.

Code no.	12817-0107	12817-0206
Description		30-300MM
Design	Analogue	Analogue
Dimension A	74 mm	110 mm
Dimension B	10 mm	10 mm
Dimension C	5 mm	5 mm
Dimension D	35 mm	
Dimension E	4 mm	
Dimension F	2 mm	
Measurement length	9-150 mm	30-300 mm
Content unit	PCS	PCS
Qty/pack	1	1



### VERNIER CALLIPERS FOR LEFT-HANDED PERSONS

4 functions. Stainless steel. Matt chromium-plated scale. Graduated in mm and inches. With depth gauge and points for internal measuring. DIN 862. Supplied in case.

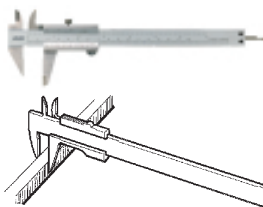
Code no.	10236-0104
Design	Analogue
Length of legs, external	40 mm
Measurement length	150 mm
Measurement units	mm,inch
Content unit	PCS
Qty/pack	1



### VERNIER CALLIPERS WITH DIAL INDICATOR

4-function. Made of stainless steel. The measuring faces are precision ground and polished. Matt chromium-plated scale. Graduated in mm. DIN 862. Scaling section of dial 0.02 mm.1 turn of the pointer indicates 2 mm.

Code no.	5270-0309
Length of legs, external	40 mm
Measurement length	150 mm
Measurement units	mm
Content unit	PCS
Qty/pack	1



### VERNIER CALLIPERS WITH SCRIBER

Made of stainless steel. The measuring surfaces are matt chromium-plated for non-glare reading. Graduated in mm and inches, and with vernier for 1/128" and 1/20 mm of 39 mm length. Also provided with depth gauge and points for internal measuring. DIN 862.

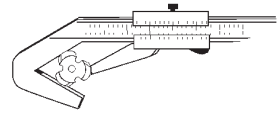
Code no.	3513-0103
Design	Analogue
Length of legs, external	40 mm
Measurement length	150 mm
Measurement units	mm,inch
Content unit	PCS
Qty/pack	1



### THREE-POINT VERNIER CALLIPERS

For measuring external diameter of 3, 6 and 12 bladed tools. Cylindrical objects can also be measured. Of stainless steel. Matt chromium-plated scale. Graduation: mm and inches.

<b>Code no.</b>	<b>2394-0109</b>
Design	Analogue
Measurement length	4-45 mm
Measurement units	mm,inch
Content unit	PCS
Qty/pack	1



2394-0109

### WORKSHOP CALLIPERS

Made of stainless steel. Hardened legs. Matt chromium-plated scale. Upper leg ground for access in grooves. Recess on lower legs for internal measurements. Tolerance according to DIN 862. Vernier scale 0.05 mm.

<b>Code no.</b>	<b>15238-0101</b>
Design	Analogue
Leg length, lower	125 mm
Leg length, upper	56 mm
Measurement length	300 mm
Measurement units	mm
Content unit	PCS
Qty/pack	1



### WORKSHOP VERNIER CALLIPERS WITH FINE ADJUSTMENT

Made of structural aluminium. The jaws are made of hardened stainless steel. Easy to use because of their low weight. Non-glare scale. Graduated in mm. Vernier for 1/20 mm. Tolerance according to DIN 862. Supplied without storage case.

<b>Code no.</b>	<b>0575-0104</b>	<b>0575-0203</b>	<b>0575-0401</b>	<b>0575-0500</b>
Design	Analogue	Analogue	Analogue	Analogue
Length of legs, external	150 mm	250 mm	400 mm	150 mm
Measurement length	500 mm	500 mm	800 mm	1000 mm
Measurement units	mm	mm	mm	mm
Weight	1.1 kg	1.1 kg	1.6 kg	1.8 kg
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

<b>Code no.</b>	<b>0575-0559</b>	<b>0575-0609</b>	<b>0575-0708</b>	<b>0575-0807</b>
Design	Analogue	Analogue	Analogue	Analogue
Length of legs, external	500 mm	150 mm	150 mm	150 mm
Measurement length	1000 mm	1500 mm	2000 mm	3000 mm
Measurement units	mm	mm	mm	mm
Weight	1.9 kg	2.1 kg	2.6 kg	3.4 kg
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1





### WORKSHOP VERNIER CALLIPERS WITH FINE ADJUSTMENT

Made of tool steel. Hardened. Matt chromium-plated scale. Steps on jaws for internal measuring. With fine adjustment. Tolerance according to DIN 862. PARA Vernier scale 0.05 mm.

<b>Code no.</b>	<b>2304-0108</b>	<b>2304-0207</b>	<b>2304-0306</b>
Design	Analogue	Analogue	Analogue
Leg length			
Length of legs, external	100 mm	125 mm	125 mm
Measurement length	500 mm	800 mm	1000 mm
Measurement units	mm	mm	mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1
<b>Code no.</b>	<b>2304-0405</b>	<b>2304-0504</b>	
Design	Analogue	Analogue	
Leg length		200 mm	
Length of legs, external	150 mm	200 mm	
Measurement length	1500 mm	2000 mm	
Measurement units	mm	mm	
Content unit	PCS	PCS	
Qty/pack	1	1	



### WORKSHOP VERNIER CALLIPERS WITH FINE ADJUSTMENT, STAINLESS STEEL

Made of stainless steel. Hardened. Matt chromium-plated scale. Steps on jaws for internal measuring. Tolerance according to DIN 862. Vernier scale 0.05 mm.

<b>Code no.</b>	<b>2305-0057</b>	<b>2305-0107</b>	<b>2305-0206</b>
Design	Analogue	Analogue	Analogue
Length of legs, external	90 mm	200 mm	150 mm
Measurement length	300 mm	400 mm	500 mm
Measurement units	mm	mm	mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1
<b>Code no.</b>	<b>2305-0404</b>	<b>2305-0503</b>	
Design	Analogue	Analogue	
Length of legs, external	150 mm	150 mm	
Measurement length	800 mm	1000 mm	
Measurement units	mm	mm	
Content unit	PCS	PCS	
Qty/pack	1	1	

## POCKET VERNIER CALLIPERS

Miniature vernier callipers. Of steel. Matt chromium-plated scale. Graduated in millimetre and with vernier for 1/20 mm. With depth gauge and points for internal measuring. DIN 862.



<b>Code no.</b>	<b>6006-0100</b>
Design	Analogue
Length of legs, external	27 mm
Measurement length	100 mm
Measurement units	mm
Content unit	PCS
Qty/pack	1

## DIGITAL VERNIER CALLIPERS

### DIGITAL VERNIER CALLIPERS CDJ 150 / 200 / 300 MM

Digital Vernier callipers with metal electronic unit. Premium quality where great care has been taken with detail and finish. Very soft and smooth jaw movements as the component parts have been ground in several stages. Stainless steel, hardened and precision ground measurement jaws. Jaw thickness 3.5 to 4 mm provides great stability. LCD display with clear 9 mm high digits. 4-function. Automatic shut-off. Processor with fast update speed (3 m/sec). Switch between metric and imperial. Equipped with rectangular depth measurement gauge and tips for internal measurements. Manufactured according to DIN 862. Supplied in a case with inspection certificate. Battery type CR2032, included.



<b>Code no.</b>	<b>23474-0101</b>	<b>23474-0200</b>	<b>23474-0309</b>
Depth measurement gauge	Rectangular	Rectangular	Rectangular
Design	Digital	Digital	Digital
Digit height	9 mm	9 mm	9 mm
Leg thickness	3,5 mm	3,5 mm	4 mm
Length of legs, external	40 mm	50 mm	60 mm
Length of legs, internal	21 mm	24 mm	28 mm
Locking	Locking screw	Locking screw	Locking screw
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Repeatability	± 0.01 mm	± 0.01 mm	± 0.01 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Resolution	0,0005 inch	0,0005 inch	0,0005 inch
Updating rate	3 m/s	3 m/s	3 m/s
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

<b>Code no.</b>	<b>Accessories</b>	<b>Article description</b>	<b>Packaging</b>
23474-0101	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
23474-0200	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
23474-0309	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS



**DIGITAL VERNIER CALLIPERS CDK-ABS 150 / 200 / 300 MM**

Digital Vernier callipers where great care has been taken with detail and finish. Very soft and smooth jaw movements as the component parts have been ground in several stages. Stainless steel, hardened and precision ground measurement jaws. Jaw thickness 3.5 to 4 mm provides great stability. LCD display with clear 11 mm high digits. 4-function. Automatic shut-off. Processor with fast update speed (3 m/sec). Switch between metric and imperial. Equipped with rectangular depth measurement gauge and tips for internal measurements. Manufactured according to DIN 862. Supplied in a case with inspection certificate. Battery type SR44, included.

Code no.	26396-0106	26396-0205	26396-0304
Depth measurement gauge	Rectangular	Rectangular	Rectangular
Design	Digital	Digital	Digital
Digit height	11 mm	11 mm	11 mm
Leg thickness	3,5 mm	3,5 mm	4 mm
Length of legs, external	40 mm	50 mm	62 mm
Length of legs, internal	21 mm	24 mm	28 mm
Locking	Locking screw	Locking screw	Locking screw
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Repeatability	± 0.01 mm	± 0.01 mm	± 0.01 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Resolution	0,0005 inch	0,0005 inch	0,0005 inch
Updating rate	3 m/s	3 m/s	3 m/s
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1





**DIGITAL VERNIER CALLIPERS CDL-IP67 150 / 200 / 300 MM**

Digital Vernier callipers IP67 with metal electronic unit. IP67 rating which means it is dustproof and waterproof for maximum resistance to water, oils and cutting fluids. With Absolut system and temporary zero point adjustment. Premium quality where great care has been taken with detail and finish. Very soft and smooth jaw movements as the component parts have been ground in several stages. Stainless steel, hardened and precision ground measurement jaws. Jaw thickness 3.5 to 4 mm provides great stability. LCD display with clear 9 mm high digits. 4-function. Processor with fast update speed (3 m/sec). Switch between metric and imperial. Equipped with rectangular depth measurement gauge and tips for internal measurements. Manufactured according to DIN 862. Supplied in a case with inspection certificate. Battery type CR2016, included.



Code no.	26397-0105	26397-0204	26397-0303
ABS function	Yes	Yes	Yes
Depth measurement gauge	Rectangular	Rectangular	Rectangular
Design	Digital	Digital	Digital
Digit height	9 mm	9 mm	9 mm
Enclosure class	IP 67	IP 67	IP 67
Leg thickness	3,5 mm	3,5 mm	4 mm
Length of legs, external	40 mm	50 mm	62 mm
Length of legs, internal	21 mm	24 mm	28 mm
Locking	Locking screw	Locking screw	Locking screw
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Repeatability	± 0.01 mm	± 0.01 mm	± 0.01 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Resolution	0,0005 inch	0,0005 inch	0,0005 inch
Updating rate	3 m/s	3 m/s	3 m/s
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



26399-0103

### DIGITAL VERNIER CALLIPERS CDM-FLEX LCD 150 / 200 / 300 MM

Digital Vernier callipers with unique flexible display. Digital Vernier callipers with unique, patented flexible display solution. Thanks to the foldable rotating display, it can be used either right or left-handed, and for measurements from above and below. This means that you can read off the measurement on the display even in the tightest spaces, such as the inside of a machining centre or CNC lathe. With Absolut system and temporary zero point adjustment. Stainless steel, hardened and precision ground measurement jaws. Jaw thickness 3.5 to 4 mm provides great stability. LCD display with clear 7.5 mm high digits. 4-function. Processor with update speed (1.5 m/sec). Switch between metric and imperial. Equipped with rectangular depth measurement gauge and tips for internal measurements. Manufactured according to DIN 862. Supplied in a case with inspection certificate. Battery type CR2032, included.

Code no.	26399-0103	26399-0202	26399-0301
ABS function	Yes	Yes	Yes
Depth measurement gauge	Rectangular	Rectangular	Rectangular
Design	Digital	Digital	Digital
Digit height	7,5 mm	7,5 mm	7,5 mm
Leg thickness	3,6 mm	3,6 mm	3,8 mm
Length of legs, external	40 mm	50 mm	60 mm
Length of legs, internal	21 mm	24 mm	26 mm
Locking	Locking screw	Locking screw	Locking screw
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Repeatability	± 0.01 mm	± 0.01 mm	± 0.01 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Resolution	0,0005 inch	0,0005 inch	0,0005 inch
Updating rate	1,5 m/s	1,5 m/s	1,5 m/s
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### DIGITAL SLIDING CALLIPERS

Digital sliding callipers Absolute function, which means that the value can shift between the absolute value and a second 0-value. Memory for the original 0-value even after shutdown. Manufactured of stainless steel. Automatic switching off. 4-function. DIN 862. Battery 3 V, type CR1632.

Code no.	17423-0102
Design	Digital
Digit height	8 mm
Length of legs, external	40 mm
Measurement length	150 mm
Measurement units	mm
Resolution	0,01 mm
Content unit	PCS
Qty/pack	1

Code no.	Packaging
64470-5626	10

## DIGITAL VERNIER CALLIPERS

Digital Vernier callipers with large easy to read display. Automatic shut-off. Switch between metric and imperial. 3 volt battery, type CR2025. Tolerance according to DIN 862. Battery type CR2025, included.



Code no.	23381-0100	23381-0209	23381-0308
Design	Digital	Digital	Digital
Digit height	14 mm	14 mm	14 mm
Length of legs, external	40 mm	50 mm	60 mm
Measurement length	150 mm	200 mm	300 mm
Measurement units	mm,inch	mm,inch	mm,inch
Resolution	0,01 mm	0,01 mm	0,01 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	Accessories	Article description	Packaging
23381-0100	64470-5352	BATTERY BUTTON CELL LIT CR2025	10 PCS
23381-0209	64470-5352	BATTERY BUTTON CELL LIT CR2025	10 PCS
23381-0308	64470-5352	BATTERY BUTTON CELL LIT CR2025	10 PCS

## DIGITAL CALLIPER

Digital calliper. Made of stainless steel. Can be switched between mm and inches. With reset button. Automatic off. DIN 862. Battery 3 V type CR2032.



Code no.	19014-0103	19014-1002	19014-0202	19014-0301
Article description		Ditto calibrated		
Calibrated		Yes		
Design	Digital	Digital	Digital	Digital
Digit height	8 mm	8 mm	8 mm	8 mm
Length of legs, external	40 mm	40 mm	48 mm	60 mm
Measurement length	150 mm	150 mm	200 mm	300 mm
Measurement units	mm	mm	mm	mm
Resolution	0,01 mm	0,01 mm	0,01 mm	0,01 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	Accessories	Article description	Packaging
19014-0103	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
19014-1002	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
19014-0202	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
19014-0301	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS



### ELECTRONIC VERNIER CALLIPERS

Digital Vernier callipers. Triple reading: in mm / inch in decimals / inch in fractions. Made of stainless steel. Automatic shut-off. 4-function. DIN 862. Battery type SR44, included.

Code no.	14455-0100	14455-0209
Design	Digital	Digital
Digit height	11 mm	11 mm
Length of legs, external	40 mm	48 mm
Measurement length	150 mm	200 mm
Measurement units	mm,inch,inch/fraction	mm,inch,inch/fraction
Resolution	0,01 mm	0,01 mm
Resolution	0,0005 inch	0,0005 inch
Resolution, fraction	1/128 inch	1/128 inch
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
14455-0100	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS
14455-0209	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS



2289-0107

### VERNIER CALLIPERS ELECTRONIC

Digital Vernier callipers. Made of stainless steel. Max./min. value function. Hold function. Switch between metric and imperial. Adjustable absolute value. Fine adjustment screw. DIN 862. Battery type CR2032, included.

Code no.	2289-0107	2289-0156	2289-0172
Design	Digital	Digital	Digital
Digit height	8 mm	8 mm	8 mm
Length of legs, external	100 mm	300 mm	200 mm
Measurement length	500 mm	600 mm	800 mm
Measurement units	mm,inch	mm,inch	mm,inch
Resolution	0,01 mm	0,01 mm	0,01 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2289-0206
Design	Digital
Digit height	8 mm
Length of legs, external	150 mm
Measurement length	1000 mm
Measurement units	mm,inch
Resolution	0,01 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
2289-0107	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
2289-0156	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
2289-0172	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS
2289-0206	64470-5659	BATTERY BUTTON CELL LIT CR2032	10 PCS



### VERNIER CALLIPERS FOR BRAKE DISCS, DIGITAL

Digital Vernier callipers for measuring brake discs. Made of stainless steel. Hold function so the measurement value can be frozen if the Vernier callipers are opened after measuring. Zeroing button. Switch between metric and imperial. Battery type SR44, included.



<b>Code no.</b>	<b>13949-0106</b>
Digit height	11 mm
Length of legs, external	92 mm
Measurement length	75 mm
Measurement units	mm,inch
Resolution	0,01 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
64470-5055	BATTERY BUTTON CELL V13GS SR44	10

### VERNIER CALLIPERS – ACCESSORIES

#### CASE FOR VERNIER CALLIPERS

Imitation leather case for pocket sliding callipers 150 mm. Provided with push-button lock.



<b>Code no.</b>	<b>1310-0102</b>
Length	150 mm
Content unit	PCS
Qty/pack	1



## ■ USEFUL FACTS ABOUT MICROMETERS

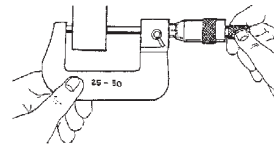
Measurements requiring 0.01 mm accuracy are most often taken with micrometers; that is to say, instruments employing the micrometer screw principle. Such screws usually come with a 0.5 mm pitch.

The sleeve covering the screw is graduated with the main scale, with marks spaced every 0.5 mm. The perimeter of the measuring drum is graduated at 50 intervals, giving a ratio of 1/100 (0.01 mm).

Some micrometers come with a Vernier scale indicating thousandths (0.001 mm). The micrometers have a friction clutch which prevents too much tension being applied. This is important for measurements with 1/100 and 1/1000 accuracy.

A wide range of micrometers is available, designed for various purposes: external measurements, measuring hole widths, depths etc. Micrometers may also come with different measuring tips for special applications.

**DIN 863 TABLE OF TOLERANCES FOR MICROMETERS**



Measuring range mm	Acceptable total error µm	Measuring surface parallelism tolerance under a pressure of 10 N µm
0 – 25	4	2
25 – 50	4	2
50 – 75	5	3
75 – 100	5	3
100 – 125	6	3
125 – 150	6	3
150 – 175	7	4
175 – 200	7	4
200 – 225	8	4
225 – 250	8	4
250 – 275	9	5
275 – 300	9	5

## MICROMETERS

### ELECTRONIC PIPE MICROMETER

Digital pipe micrometer. Water-resistant IP54. Forged frame with matt chromium-plated scale. Hardened spindle with double spherical measuring faces. Friction sleeve and lock nut. Adjustable between metric and imperial. Automatic shut-off. DIN 863. Battery type SR44, included.



<b>Code no.</b>	<b>13268-0109</b>
Design	Digital
Measurement range, max	25 mm
Measurement range, min	0 mm
Resolution	0,001 mm
Type	Tube micrometer
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
13268-0109	10238-0102	MICROMETER STAND LIMIT	1 PCS
13268-0109	6007-0208	MICROMETER HOLDER	1 PCS
13268-0109	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS

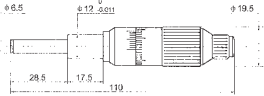
### THREAD MICROMETER

Forged frame with matt chromium-plated scale. Reading 0.01 mm. For outside measuring of thread diameter. Interchangeable V-shaped and cone-shaped anvils (Not included). Friction thimble and locking device. Tolerance according to DIN 863.



Code no.	13272-0103	13272-0400	13272-0509	13272-0608
Measurement range, max	25 mm	50 mm	75 mm	100 mm
Measurement range, min	0 mm	25 mm	50 mm	75 mm
Resolution	0,01 mm	0,01 mm	0,01 mm	0,01 mm
Type	Thread micrometer	Thread micrometer	Thread micrometer	Thread micrometer
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	Accessories	Article description	Packaging
13272-0103	13272-0202	Set of 6 pairs of measuring tips 60°	1
13272-0103	13272-0301	Set of 10 pairs of measuring tips 55°	1
13272-0103	10238-0102	MICROMETER STAND LIMIT	1 PCS
13272-0103	6007-0208	MICROMETER HOLDER	1 PCS
13272-0400	13272-0202	Set of 6 pairs of measuring tips 60°	1
13272-0400	13272-0301	Set of 10 pairs of measuring tips 55°	1
13272-0400	10238-0102	MICROMETER STAND LIMIT	1 PCS
13272-0400	6007-0208	MICROMETER HOLDER	1 PCS
13272-0509	13272-0202	Set of 6 pairs of measuring tips 60°	1
13272-0509	13272-0301	Set of 10 pairs of measuring tips 55°	1
13272-0509	10238-0102	MICROMETER STAND LIMIT	1 PCS
13272-0509	6007-0208	MICROMETER HOLDER	1 PCS
13272-0608	13272-0202	Set of 6 pairs of measuring tips 60°	1
13272-0608	13272-0301	Set of 10 pairs of measuring tips 55°	1
13272-0608	10238-0102	MICROMETER STAND LIMIT	1 PCS
13272-0608	6007-0208	MICROMETER HOLDER	1 PCS

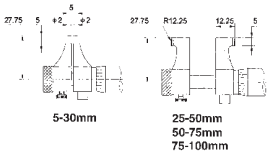


7324-0103

### MICROMETER HEAD

Vernier for readings 0.01 mm. Measuring surface made of tungsten carbide. With friction thimble. DIN 863. Attachment diameter x length 12 x 17 mm.

<b>Code no.</b>	<b>7324-0103</b>
Measurement range, max	25 mm
Measurement range, min	0 mm
Type	Micrometer head
Content unit	PCS
Qty/pack	1



9615-0305



### INTERNAL MICROMETER

Matt chromium-plated scale. Hardened and fine-polished measuring faces. Friction screw and lock screw. DIN 863. Supplied with adjusting ring.

<b>Code no.</b>	<b>9615-0107</b>	<b>9615-0206</b>	<b>9615-0305</b>
Measurement range, max	30 mm	50 mm	75 mm
Measurement range, min	5 mm	25 mm	50 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

<b>Code no.</b>	<b>9615-0404</b>
Measurement range, max	100 mm
Measurement range, min	75 mm
Resolution	0,01 mm
Content unit	PCS
Qty/pack	1



9676-0103

### MICROMETERS – ELECTRONIC, WITH INSERT RODS

Forged frame. Hardened spindle and interchangeable insert rods 8 mm with fine-polished tungsten carbide measuring faces. Absolute/incremental measuring. Adjustable absolute value. Friction sleeve and lock nut. DIN 863. Battery type SR44, included.

<b>Code no.</b>	<b>9676-0103</b>
Measurement range, max	150 mm
Measurement range, min	0 mm
Resolution	0,001 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
64470-5055	BATTERY BUTTON CELL V13GS SR44	10

## MICROMETER

Splash protection IP54. Forged frame. Hardened spindle 6.5 mm with fine-polished tungsten carbide measuring faces. Shut-off button. Friction sleeve and lock nut. DIN 863. Battery type SR44, included.



Code no.	9664-0107	9664-0206	9664-0305
Measurement range, max	25 mm	50 mm	75 mm
Measurement range, min	0 mm	25 mm	50 mm
Resolution	0,001 mm	0,001 mm	0,001 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	9664-0404
Measurement range, max	100 mm
Measurement range, min	75 mm
Resolution	0,001 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
9664-0107	10238-0102	MICROMETER STAND LIMIT	1 PCS
9664-0107	6007-0208	MICROMETER HOLDER	1 PCS
9664-0107	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS
9664-0206	10238-0102	MICROMETER STAND LIMIT	1 PCS
9664-0206	6007-0208	MICROMETER HOLDER	1 PCS
9664-0206	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS
9664-0305	10238-0102	MICROMETER STAND LIMIT	1 PCS
9664-0305	6007-0208	MICROMETER HOLDER	1 PCS
9664-0305	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS
9664-0404	10238-0102	MICROMETER STAND LIMIT	1 PCS
9664-0404	6007-0208	MICROMETER HOLDER	1 PCS
9664-0404	64470-5055	BATTERY BUTTON CELL V13GS SR44	10 PCS

## MICROMETER

Measurement value is shown on the counter. Fine-polished measuring faces of hard metal. Friction drum and lock nut. DIN 863.



Code no.	11910-0105	11910-0204
Description	LIMIT LOGO	MM LIMIT LOGO
Measurement range, max	25 mm	50 mm
Measurement range, min	0 mm	25 mm
Resolution	0,01 mm	0,01 mm
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
11910-0105	10238-0102	MICROMETER STAND LIMIT	1 PCS
11910-0105	6007-0208	MICROMETER HOLDER	1 PCS
11910-0204	10238-0102	MICROMETER STAND LIMIT	1 PCS
11910-0204	6007-0208	MICROMETER HOLDER	1 PCS



### MICROMETER

Forged frame and matt chromium-plated scale. Hardened 6.5 mm with fine-polished measuring faces of hard metal. Friction sleeve and lock nut. DIN 863.

Code no.	9538-0101	9538-0150	9538-0200
Article description		Ditto calibrated	
Measurement range, max	25 mm	25 mm	50 mm
Measurement range, min	0 mm	0 mm	25 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Type	Frame micrometer	Frame micrometer	Frame micrometer
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	9538-0309	9538-0408
Article description		
Measurement range, max	75 mm	100 mm
Measurement range, min	50 mm	75 mm
Resolution	0,01 mm	0,01 mm
Type	Frame micrometer	Frame micrometer
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
9538-0101	10238-0102	MICROMETER STAND LIMIT	1 PCS
9538-0101	6007-0208	MICROMETER HOLDER	1 PCS
9538-0200	10238-0102	MICROMETER STAND LIMIT	1 PCS
9538-0200	6007-0208	MICROMETER HOLDER	1 PCS
9538-0309	10238-0102	MICROMETER STAND LIMIT	1 PCS
9538-0309	6007-0208	MICROMETER HOLDER	1 PCS
9538-0408	10238-0102	MICROMETER STAND LIMIT	1 PCS
9538-0408	6007-0208	MICROMETER HOLDER	1 PCS



### MICROMETER

Enamelled steel frame and matt chromium-plate scale. Hardened spindle 6.5 mm with fine-polished measuring faces of hard metal. Friction screw and lock nut. DIN 863.

Code no.	9542-0105	9542-0204	9542-0303	9542-0402
Measurement range, max	125 mm	150 mm	175 mm	200 mm
Measurement range, min	100 mm	125 mm	150 mm	175 mm
Resolution	0,01 mm	0,01 mm	0,01 mm	0,01 mm
Type	Frame micrometer	Frame micrometer	Frame micrometer	Frame micrometer
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

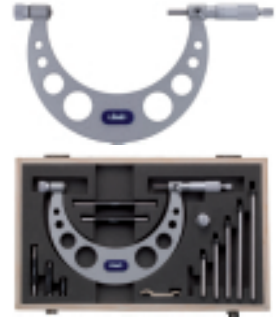
Code no.	Accessories	Article description	Packaging
9542-0105	6007-0208	MICROMETER HOLDER	1 PCS
9542-0204	6007-0208	MICROMETER HOLDER	1 PCS
9542-0303	6007-0208	MICROMETER HOLDER	1 PCS
9542-0402	6007-0208	MICROMETER HOLDER	1 PCS

### MICROMETER WITH INSERT RODS

Enamelled steel frame and matt chromium-plated scale. With interchangeable insert rods. Hardened spindle and insert rods 8.0 mm with fine-polished measuring faces of hard metal. DIN 863.

<b>Code no.</b>	<b>9544-0103</b>	<b>9544-0202</b>
Measurement range, max	150 mm	300 mm
Measurement range, min	0 mm	150 mm
Resolution	0,01 mm	0,01 mm
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
9544-0103	6007-0208	MICROMETER HOLDER	1 PCS
9544-0202	6007-0208	MICROMETER HOLDER	1 PCS



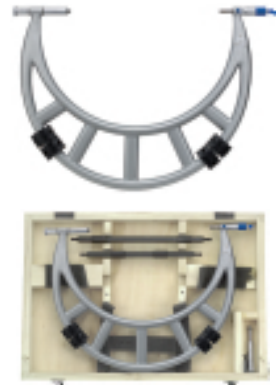
9544-0103

### MICROMETER WITH INSERT RODS

Enamelled low weight frame of steel. Matt chromium-plated scale. Adjustable measuring rod with fixed spacing sleeves. Hardened spindle 8.0 mm with fine-polished measuring faces of hard metal. DIN 863.

<b>Code no.</b>	<b>9545-0102</b>	<b>9545-0201</b>	<b>9545-0409</b>
Measurement range, max	400 mm	500 mm	700 mm
Measurement range, min	300 mm	400 mm	600 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

<b>Code no.</b>	<b>9545-0508</b>
Measurement range, max	800 mm
Measurement range, min	700 mm
Resolution	0,01 mm
Content unit	PCS
Qty/pack	1



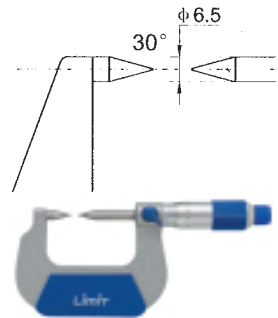
9545-0102

### MICROMETER WITH TAPERED MEASURING FACES

Forged frame with matt scale. Hardened spindle 6.5 mm with hardened measuring tips of hard metal. Friction screw and lock nut. DIN 863.

<b>Code no.</b>	<b>9564-0108</b>
Measurement range, max	25 mm
Measurement range, min	0 mm
Resolution	0,01 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
9564-0108	10238-0102	MICROMETER STAND LIMIT	1 PCS
9564-0108	6007-0208	MICROMETER HOLDER	1 PCS



9564-0108





### MICROMETER DEPTH GAUGE

Reading 0.01 mm, with interchangeable insert rods in steps of 25 mm. Matt chromium-plated micrometer head. DIN 863.

<b>Code no.</b>	<b>7325-0102</b>
Insert rod diameter	4.5 mm
Measurement range, max	100 mm
Measurement range, min	0 mm
Number of insert rods	4 qty
Stock length	63 mm
Content unit	PCS
Qty/pack	1



### MICROMETER SET

Set containing 4 micrometers including control measurements and hook spanner. Supplied in a practical plastic case. DIN 863. Inaccuracy 0-50 ±0.004. Inaccuracy 50-100 ±0.005.

<b>Code no.</b>	<b>9538-2008</b>
Measurement range, max	100 mm
Measurement range, min	0 mm
Resolution	0,01 mm
Qty/pack	1



### INSIDE MICROMETERS

Matt chromium-plated scale. Consist of measuring head and requisite extension sleeves. Supplied with adjusting frame. DIN 863.

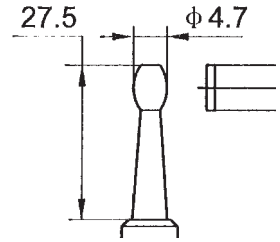
<b>Code no.</b>	<b>9623-0107</b>	<b>9623-0206</b>	<b>9623-0305</b>
Measurement range, max	200 mm	600 mm	1400 mm
Measurement range, min	50 mm	50 mm	150 mm
No. of parts	5 qty	7 qty	9 qty
Resolution	0,01 mm	0,01 mm	0,01 mm
Resolution	0,01 mm	0,01 mm	0,01 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

### TUBE MICROMETER

Forged frame and matt chromium-plated scale. Hardened spindle 6.5 mm with fine-polished measuring face of hard metal. Anvil 4.8 mm. Friction sleeve and lock screw. DIN 863.

<b>Code no.</b>	<b>9548-0109</b>
Measurement range, max	25 mm
Measurement range, min	0 mm
Resolution	0,01 mm
Type	Tube micrometer
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
9548-0109	10238-0102	MICROMETER STAND LIMIT	1 PCS
9548-0109	6007-0208	MICROMETER HOLDER	1 PCS



9548-0109

### THREE/POINT MICROMETER

Set of several micrometers incl. setting rings and extension bar. The micrometers have measuring faces of hard metal. Measurement tips reach to 0.5 mm from the bottom of a blind hole.

Code no.	12782-0108	12782-0207
Extension bar	Yes	Yes
Measurement range, max	50 mm	100 mm
Measurement range, min	20 mm	50 mm
Measuring depth	240-247 mm	264 mm
No. of setting rings	2 qty	2 qty
Number of micrometers	4 qty	4 qty
Type	Three point micrometer	Three point micrometer
Qty/pack	1	1





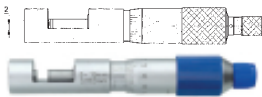
### THREE/POINT MICROMETER

For measuring holes. With friction device that gives a constant measurement force and self-centering measurement device. Measuring faces of hard metal. Measurement tips reach to 0.5 mm from the bottom of a blind hole. Setting ring included.

Code no.	12781-0109	12781-0208	12781-0307	12781-0406
Extension bar	Yes	Yes	Yes	Yes
Measurement range, max	16 mm	20 mm	25 mm	30 mm
Measurement range, min	12 mm	16 mm	20 mm	25 mm
Measuring depth	80 mm	80 mm	90 mm	90 mm
Resolution	0,005 mm	0,005 mm	0,005 mm	0,005 mm
Type	Three point micrometer	Three point micrometer	Three point micrometer	Three point micrometer
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	12781-0505	12781-0604	12781-0703	12781-0802
Extension bar	Yes	Yes	Yes	Yes
Measurement range, max	40 mm	50 mm	63 mm	75 mm
Measurement range, min	30 mm	40 mm	50 mm	62 mm
Measuring depth	97 mm	97 mm	114 mm	114 mm
Resolution	0,005 mm	0,005 mm	0,005 mm	0,005 mm
Type	Three point micrometer	Three point micrometer	Three point micrometer	Three point micrometer
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	12781-0901	12781-1008
Extension bar	Yes	Yes
Measurement range, max	88 mm	100 mm
Measurement range, min	75 mm	87 mm
Measuring depth	114 mm	114 mm
Resolution	0,005 mm	0,005 mm
Type	Three point micrometer	Three point micrometer
Content unit	PCS	PCS
Qty/pack	1	1



9614-0108

### WIRE MICROMETER

Matt chromium-plated scale. Hardened spindle 6.5 mm with fine-polished measuring faces of hard metal. Friction sleeve and lock nut. DIN 863.

Code no.	9614-0108
Measurement range, max	13 mm
Measurement range, min	0 mm
Measuring height	5 mm
Resolution	0,002 mm
Type	Wire micrometer
Content unit	PCS
Qty/pack	1

## MICROMETER LIMIT IMPERIAL

Forged frame and matt chromium-plated scale. Hardened spindle 6.5 mm with fine-polished measuring faces of cemented carbide. Friction sleeve and lock nut. DIN 863.



Code no.	9538-1000	9538-1109
Measurement range, max	1 inch	2 inch
Measurement range, min	0 inch	1 inch
Resolution	0,0001 inch	0,0001 inch
Content unit	PCS	PCS
Qty/pack	1	1

## MICROMETERS – ACCESSORIES

### SETTING RING

Intended for inspection and setting of internal micrometers and hole indicators. Cylindricity: 1.0 μm.



Code no.	12783-0107	12783-0206	12783-0305
Diameter	10 mm	16 mm	25 mm
Tolerance	±1.5 μm	±1.5 μm	±1.5 μm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	12783-0404	12783-0503	12783-0602
Diameter	30 mm	40 mm	62 mm
Tolerance	±1.5 μm	±1.5 μm	±1.5 μm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	12783-0701
Diameter	87 mm
Tolerance	±1.5 μm
Content unit	PCS
Qty/pack	1

### MICROMETER HOLDER

Rotating holder.

Code no.	10238-0102
Length	120 mm
Measurement range, max	16 mm
Measurement range, min	7 mm
Width	80 mm
Content unit	PCS
Qty/pack	1

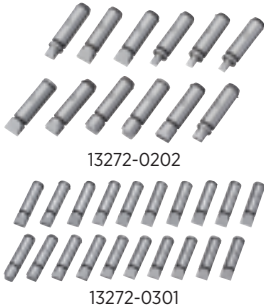




### MICROMETER HOLDER

Swivel holder. Painted grey. Diameter 105 mm.

<b>Code no.</b>	<b>6007-0208</b>
Height	100 mm
Measurement range, max	14 mm
Measurement range, min	0 mm
Type	Tube micrometer
Content unit	PCS
Qty/pack	1



### MEASURING TIP FOR THREAD MICROMETER

Accessories for thread micrometer Limit.

<b>Code no.</b>	<b>13272-0202</b>	<b>13272-0301</b>
Article description	Set of 6 pairs of measuring tips 60°	Set of 10 pairs of measuring tips 55°
Contents	64-48, 44-28, 24-14, 13-9, 8-5, 4.5-3-5 pcs, Pitch of 0.4-0.5, 0.6-0.9, 1-1.75, 2-3, 3.5-5, 5.5-7 mm	64-48 48-40 40-32 32-24 24-18 18-14 14-10 10-7 7-4. 4.5-3.5,
Description	Set of 6 pairs of measuring tips 60°	Set of 10 pairs of measuring tips 55°
Type	Thread micrometer	Thread micrometer
Qty/pack	1	1



### CONTROL GAUGE

Intended for controlling external micrometers. The measuring values correspond to the lower and upper limit for respective measuring range. Size 50 mm and larger are provided with insulation to counteract heat from hand.

<b>Code no.</b>	<b>2624-3006</b>	<b>2624-3105</b>	<b>2624-3204</b>	<b>2624-3303</b>
Length	25 mm	50 mm	75 mm	100 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

<b>Code no.</b>	<b>2624-3402</b>	<b>2624-3501</b>	<b>2624-3600</b>	<b>2624-3709</b>
Length	125 mm	150 mm	175 mm	200 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

## TELESCOPIC INSIDE MICROMETERS

### TELESCOPIC GAUGES

Spare gauges of set 5291.

<b>Code no.</b>	<b>5291-0205</b>	<b>5291-0304</b>	<b>5291-0403</b>
Measurement range	8-12.7 mm	12.7-19 mm	19-32 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1
<b>Code no.</b>	<b>5291-0502</b>	<b>5291-0601</b>	<b>5291-0700</b>
Measurement range	32-54 mm	54-90 mm	90-150 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### TELESCOPIC GAUGES

Adjustable gauge. Set of 6. Consists of two spring-loaded measuring cylinders. Of hardened steel. Locking with screw in top part of the handle. Can be read with a micrometer.

<b>Code no.</b>	<b>5291-0106</b>
Measurement range	8-150 mm
Content unit	PCS
Qty/pack	1



### FEELER STRIP HOLDER

For feeling strips 2599.

<b>Code no.</b>	<b>2600-0109</b>
Length	135 mm
Width	13 mm
Content unit	PCS
Qty/pack	1



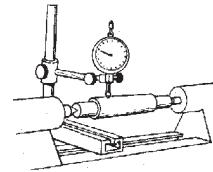
## ■ USEFUL FACTS ABOUT DIAL GAUGES

Axial and tilting (lever) dial gauges are used for comparative measurements, which means that the indicated value is not an absolute value, but a differential (incremental) value. The deviation is read against the reference standard, or a combination of gauge blocks. Digital dial gauges make it possible to define an initial setting to permit indication of the absolute value, which simplifies the measurement. Dial gauges can be configured for internal measurements, or with a measuring stand.

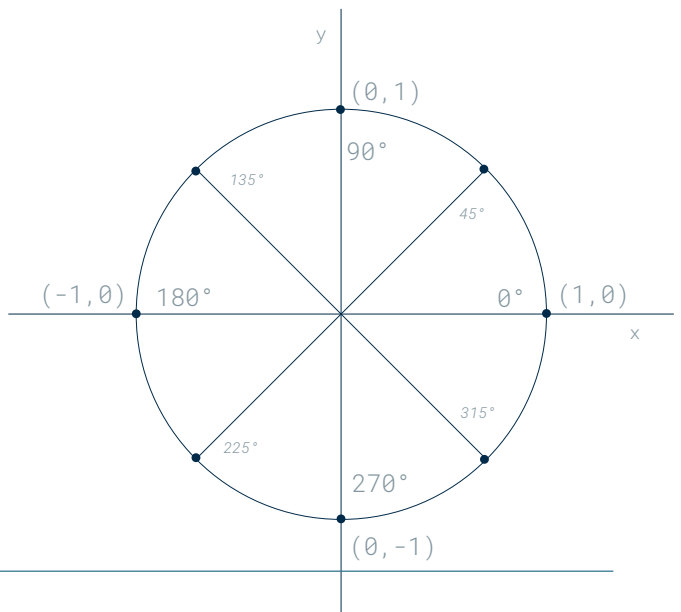
Gauges are used where access is difficult; for measuring holes, for example. It is possible to inspect irregularities or faults in a surface by running the feeler pin of the gauge along the circle arc, unlike the axial gauge where the movement is rectilinear. It is therefore necessary to keep the tiltable gauge measuring tip perpendicular to the surface being measured.

### DIN 878 TABLE OF TOLERANCES FOR DIAL GAUGES

(Tolerances according to DIN 7168/1).  
Permissible deviations for various measuring ranges.  
(Reference temperature + 20 °C).



Measuring range	mm	0,4	0,8	3	5	10
Maximum deviation, with a determination error	µm	9	9	12	14	17





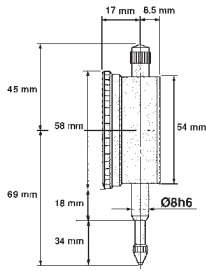




## DIAL GAUGES

### DIAL INDICATOR

With turnable scale and two adjustable tolerance indexes. Extra pointer, graduated in 0.2 mm up to whole mm. Body made of aluminium. Replaceable measuring tip. Without mounting lug. Tolerance according to DIN 878.



11912-0103

<b>Code no.</b>	<b>11912-0103</b>
Description	LOGO/BOX
Design	Analogue
Diameter, dial	58 mm
Dimension A	45 mm
Dimension B	69 mm
Dimension C	58 mm
Dimension D	17 mm
Dimension F	18 mm
Dimension G	34 mm
Dimension H	54 mm
Dimension J	8,5 mm
Measurement range, total	1 mm
Measurement units	mm
One pointer turn =	0.2 mm
Scale graduation	0,001 mm
Scale graduation	0-100, 100-0
Securing pin diameter	8 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
11912-0103	5318-1004	Spare measuring tip half round	1 PCS
11912-0103	5318-1103	Spare measuring tip tapered	1 PCS
11912-0103	5318-1202	Spare measuring tip flat	1 PCS
11912-0103	5318-1301	Spare measuring tip flat	1 PCS
11912-0103	2651-0131	Extension bar 10 mm	1 PCS
11912-0103	2651-0206	Extension bar 30 mm	1 PCS
11912-0103	2651-0305	Extension bar 60 mm	1 PCS
11912-0103	2651-0404	Extension bar 90 mm	1 PCS
11912-0103	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS
11912-0103	15129-0103	Holders for dial gauge	1 PCS

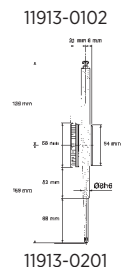
## DIAL INDICATOR

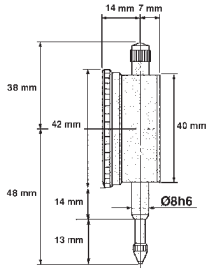
In impact resistant design. With turnable scale and two adjustable tolerance indexes. Extra pointer that indicates whole millimetres. Body made of aluminium. Replaceable measuring tip. Without mounting lug. Tolerance according to DIN 878.

Code no.	11913-0102	11913-0201
Description	LOGO/BOX	LOGO/BOX
Design	Analogue	Analogue
Diameter, dial	58 mm	58 mm
Dimension A	108 mm	139 mm
Dimension B	127 mm	169 mm
Dimension D	20 mm	20 mm
Dimension F	40 mm	52 mm
Dimension G	58 mm	88 mm
Dimension H	54 mm	54 mm
Dimension J	8 mm	8 mm
Measurement range, total	50 mm	80 mm
Measurement units	mm	mm
One pointer turn =	1 mm	1 mm
Scale	0-100	0-100
Scale graduation	0,01 mm	0,01 mm
Scale graduation	0-100	0-100
Securing pin diameter	8 mm	8 mm
Content unit	PCS	PCS
Qty/pack	1	1



Code no.	Accessories	Article description	Packaging
11913-0102	5318-1004	Spare measuring tip half round	1 PCS
11913-0102	5318-1103	Spare measuring tip tapered	1 PCS
11913-0102	5318-1202	Spare measuring tip flat	1 PCS
11913-0102	5318-1301	Spare measuring tip flat	1 PCS
11913-0102	2651-0131	Extension bar 10 mm	1 PCS
11913-0102	2651-0206	Extension bar 30 mm	1 PCS
11913-0102	2651-0305	Extension bar 60 mm	1 PCS
11913-0102	2651-0404	Extension bar 90 mm	1 PCS
11913-0102	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS
11913-0102	15129-0103	Holders for dial gauge	1 PCS
11913-0201	5318-1004	Spare measuring tip half round	1 PCS
11913-0201	5318-1103	Spare measuring tip tapered	1 PCS
11913-0201	5318-1202	Spare measuring tip flat	1 PCS
11913-0201	5318-1301	Spare measuring tip flat	1 PCS
11913-0201	2651-0131	Extension bar 10 mm	1 PCS
11913-0201	2651-0206	Extension bar 30 mm	1 PCS
11913-0201	2651-0305	Extension bar 60 mm	1 PCS
11913-0201	2651-0404	Extension bar 90 mm	1 PCS
11913-0201	15129-0103	Holders for dial gauge	1 PCS





10390-0106

### DIAL INDICATOR

Mini dial gauge. With turnable scale. Extra pointer that shows whole mm. Replaceable measuring tip. Without mounting lug. Tolerance according to DIN 878.

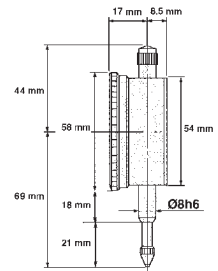
<b>Code no.</b>	<b>10390-0106</b>
Design	Analogue
Diameter, dial	40 mm
Dimension A	38 mm
Dimension B	48 mm
Dimension C	42 mm
Dimension D	14 mm
Dimension F	14 mm
Dimension G	13 mm
Dimension H	40 mm
Dimension J	7 mm
Measurement range, total	5 mm
Measurement units	mm
One pointer turn =	0.5 mm
Scale	0-50 50-0
Scale graduation	0,01 mm
Scale graduation	0-50, 50-0
Securing pin diameter	8 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
10390-0106	5318-1004	Spare measuring tip half round	1 PCS
10390-0106	5318-1103	Spare measuring tip tapered	1 PCS
10390-0106	5318-1202	Spare measuring tip flat	1 PCS
10390-0106	5318-1301	Spare measuring tip flat	1 PCS
10390-0106	2651-0131	Extension bar 10 mm	1 PCS
10390-0106	2651-0206	Extension bar 30 mm	1 PCS
10390-0106	2651-0305	Extension bar 60 mm	1 PCS
10390-0106	2651-0404	Extension bar 90 mm	1 PCS
10390-0106	17424-0101	Back with fixing lug (3 mounting holes)	1 PCS
10390-0106	15129-0103	Holders for dial gauge	1 PCS

## DIAL INDICATOR

In impact resistant design. With turnable scale and two adjustable tolerance indexes. Extra pointer that shows whole mm. Casing of heavy duty plastic. Replaceable measuring tip. Without mounting lug (cannot be fitted with mounting lug). Tolerance according to DIN 878.

<b>Code no.</b>	<b>4397-0201</b>
Design	Analogue
Diameter, dial	58 mm
Dimension A	44 mm
Dimension B	69 mm
Dimension C	58 mm
Dimension D	17 mm
Dimension F	18 mm
Dimension G	21 mm
Dimension H	54 mm
Dimension J	8,5 mm
Measurement range, total	10 mm
Measurement units	mm
One pointer turn =	1 mm
Scale	0-100 100-0
Scale graduation	0,01 mm
Securing pin diameter	8 mm
Content unit	PCS
Qty/pack	1

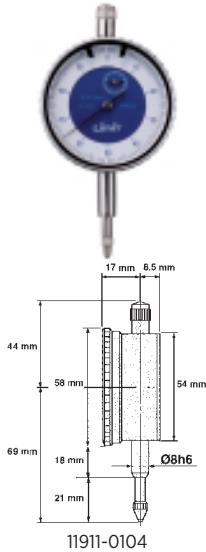


4397-0201

Code no.	Accessories	Article description	Packaging
4397-0201	5318-1004	Spare measuring tip half round	1 PCS
4397-0201	5318-1103	Spare measuring tip tapered	1 PCS
4397-0201	5318-1202	Spare measuring tip flat	1 PCS
4397-0201	5318-1301	Spare measuring tip flat	1 PCS
4397-0201	2651-0131	Extension bar 10 mm	1 PCS
4397-0201	2651-0206	Extension bar 30 mm	1 PCS
4397-0201	2651-0305	Extension bar 60 mm	1 PCS
4397-0201	2651-0404	Extension bar 90 mm	1 PCS
4397-0201	17424-0101	Back with fixing lug (3 mounting holes)	1 PCS
4397-0201	15129-0103	Holders for dial gauge	1 PCS

**DIAL INDICATOR**

With turnable scale and two adjustable tolerance indexes. Extra pointer that indicates whole millimetres. Body made of aluminium. Replaceable measuring tip. Without mounting lug. Tolerance according to DIN 878.



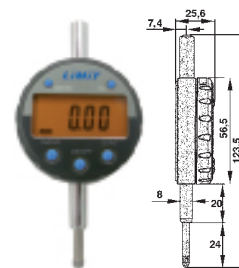
<b>Code no.</b>	<b>11911-0104</b>	<b>11911-0203</b>
Description	LOGO /BOX	LOGO/BOX
Design	Analogue	Analogue
Diameter, dial	58 mm	58 mm
Dimension A	44 mm	38 mm
Dimension B	69 mm	81 mm
Dimension D	17 mm	17 mm
Dimension F	18 mm	18 mm
Dimension G	21 mm	34 mm
Dimension H	54 mm	54 mm
Dimension J	8,5 mm	8,5 mm
Measurement range, total	10 mm	25 mm
Measurement units	mm	mm
One pointer turn =	1 mm	1 mm
Scale	0-100 100-0	0-100 100-0
Scale graduation	0,01 mm	0,01 mm
Securing pin diameter	8 mm	8 mm
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
11911-0104	5318-1004	Spare measuring tip half round	1 PCS
11911-0104	5318-1103	Spare measuring tip tapered	1 PCS
11911-0104	5318-1202	Spare measuring tip flat	1 PCS
11911-0104	5318-1301	Spare measuring tip flat	1 PCS
11911-0104	2651-0131	Extension bar 10 mm	1 PCS
11911-0104	2651-0206	Extension bar 30 mm	1 PCS
11911-0104	2651-0305	Extension bar 60 mm	1 PCS
11911-0104	2651-0404	Extension bar 90 mm	1 PCS
11911-0104	17424-0101	Back with fixing lug (3 mounting holes)	1 PCS
11911-0104	15129-0103	Holders for dial gauge	1 PCS
11911-0203	5318-1004	Spare measuring tip half round	1 PCS
11911-0203	5318-1103	Spare measuring tip tapered	1 PCS
11911-0203	5318-1202	Spare measuring tip flat	1 PCS
11911-0203	5318-1301	Spare measuring tip flat	1 PCS
11911-0203	2651-0131	Extension bar 10 mm	1 PCS
11911-0203	2651-0206	Extension bar 30 mm	1 PCS
11911-0203	2651-0305	Extension bar 60 mm	1 PCS
11911-0203	2651-0404	Extension bar 90 mm	1 PCS
11911-0203	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS
11911-0203	15129-0103	Holders for dial gauge	1 PCS
Obsolote	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS

## DIGITAL DIAL GAUGE

Digital dial gauge. Tolerance function. Switch between absolute and incremental measurements. Zeroing. Switch between metric and imperial. DIN 878. Battery type CR2025, included.

Code no.	15130-0100	15130-0209	15130-0308
Design	Digital	Digital	Digital
Diameter, dial	57 mm	57 mm	57 mm
Digit height	12 mm	12 mm	12 mm
Dimension A	123,5 mm	151 mm	123,5 mm
Dimension B	20 mm	20 mm	20 mm
Dimension D	8 mm	8 mm	8 mm
Gauge thickness	26 mm	26 mm	26 mm
Measurement range, total	12,5 mm	25 mm	12,5 mm
Measurement units	mm,inch	mm,inch	mm,inch
Resolution	0,01 mm	0,01 mm	0,001 mm
Securing pin diameter	8 mm	8 mm	8 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



15130-0100

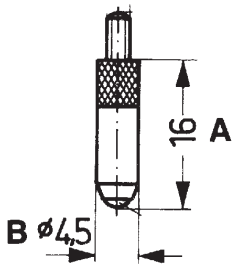


15130-0209



15130-0308

Code no.	Accessories	Article description	Packaging
15130-0100	5318-1004	Spare measuring tip half round	1 PCS
15130-0100	5318-1103	Spare measuring tip tapered	1 PCS
15130-0100	5318-1202	Spare measuring tip flat	1 PCS
15130-0100	5318-1301	Spare measuring tip flat	1 PCS
15130-0100	2651-0131	Extension bar 10 mm	1 PCS
15130-0100	2651-0206	Extension bar 30 mm	1 PCS
15130-0100	2651-0305	Extension bar 60 mm	1 PCS
15130-0100	2651-0404	Extension bar 90 mm	1 PCS
15130-0100	15129-0103	Holders for dial gauge	1 PCS
15130-0100	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS
15130-0100	64470-5352	Battery button cell LIT CR2025	10 PCS
15130-0209	5318-1004	Spare measuring tip half round	1 PCS
15130-0209	5318-1103	Spare measuring tip tapered	1 PCS
15130-0209	5318-1202	Spare measuring tip flat	1 PCS
15130-0209	5318-1301	Spare measuring tip flat	1 PCS
15130-0209	2651-0131	Extension bar 10 mm	1 PCS
15130-0209	2651-0206	Extension bar 30 mm	1 PCS
15130-0209	2651-0305	Extension bar 60 mm	1 PCS
15130-0209	2651-0404	Extension bar 90 mm	1 PCS
15130-0209	15129-0103	Holders for dial gauge	1 PCS
15130-0209	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS
15130-0209	64470-5352	Battery button cell LIT CR2025	10 PCS
15130-0308	5318-1004	Spare measuring tip half round	1 PCS
15130-0308	5318-1103	Spare measuring tip tapered	1 PCS
15130-0308	5318-1202	Spare measuring tip flat	1 PCS
15130-0308	5318-1301	Spare measuring tip flat	1 PCS
15130-0308	2651-0131	Extension bar 10 mm	1 PCS
15130-0308	2651-0206	Extension bar 30 mm	1 PCS
15130-0308	2651-0305	Extension bar 60 mm	1 PCS
15130-0308	2651-0404	Extension bar 90 mm	1 PCS
15130-0308	15129-0103	Holders for dial gauge	1 PCS
15130-0308	17424-0200	Back with fixing lug (4 mounting holes)	1 PCS
15130-0308	64470-5352	Battery button cell LIT CR2025	10 PCS



5318-1004



5318-1103



5318-1202



5318-1301

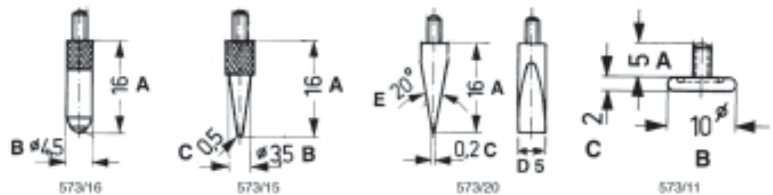
### MEASURING TIP FOR DIAL GAUGES

Spare measuring tips for dial indicators.

Code no.	5318-1004	5318-1103
Article description	Spare measuring tip half round	Spare measuring tip tapered
Manufacturer's description	573/16	573/15
Technical Info	Tip: Half round, Dimension A: 16 mm, Dimension B, diameter: 4.5 mm	Tip: Tapered, Dimension A: 16 mm, Dimension B, diameter: 3.5 mm, Dimension C: 0.5 mm
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	5318-1202	5318-1301
Article description	Spare measuring tip flat	Spare measuring tip flat
Manufacturer's description	573/20	573/11
Technical Info	Tip: Flat, Dimension A: 16 mm, Dimension C: 0.2 mm, Dimension D: 5 mm, Dimension E: 20°	Tip: Flat, Dimension A: 5 mm, Dimension B, diameter: 10 mm, Dimension C: 2 mm
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
5318-1004	2651-0131	Extension bar 10 mm	1 PCS
5318-1004	2651-0206	Extension bar 30 mm	1 PCS
5318-1004	2651-0305	Extension bar 60 mm	1 PCS
5318-1004	2651-0404	Extension bar 90 mm	1 PCS
5318-1103	2651-0131	Extension bar 10 mm	1 PCS
5318-1103	2651-0206	Extension bar 30 mm	1 PCS
5318-1103	2651-0305	Extension bar 60 mm	1 PCS
5318-1103	2651-0404	Extension bar 90 mm	1 PCS
5318-1202	2651-0131	Extension bar 10 mm	1 PCS
5318-1202	2651-0206	Extension bar 30 mm	1 PCS
5318-1202	2651-0305	Extension bar 60 mm	1 PCS
5318-1202	2651-0404	Extension bar 90 mm	1 PCS
5318-1301	2651-0131	Extension bar 10 mm	1 PCS
5318-1301	2651-0206	Extension bar 30 mm	1 PCS
5318-1301	2651-0305	Extension bar 60 mm	1 PCS
5318-1301	2651-0404	Extension bar 90 mm	1 PCS



### FASTENING LUG ON REAR

Back with lug. For Limit analogue digital gauges, diameter 58 mm. Manufactured of aluminium.

Code no.	17424-0101	17424-0200
Article description	Back with fixing lug (3 mounting holes)	Back with fixing lug (4 mounting holes)
Diameter	53 mm	53 mm
Number of holes	3 qty	4 qty
Securing hole diameter	6.5 mm	6.5 mm
Content unit	PCS	PCS
Qty/pack	1	1



### MEASURING TIP FOR CYLINDER INDICATOR

Accessories for cylinder indicator Limit.

Code no.	6193-2000	6193-2109
Article description	Extra measuring tips – set	Extra measuring tips – set
Description	Extra measuring tips – set for 6193-1002	Extra measuring tips – set for 6193-1101
Qty/pack	1	1

Code no.	6193-2208	6193-2307
Article description	Extra measuring tips – set	Extra measuring tips – set
Description	Extra measuring tips – set for 6193-1200	Extra measuring tips – set for 6193-1309
Qty/pack	1	1

Code no.	6193-2406
Article description	Extra measuring tips – set
Description	Extra measuring tips – set for 6193-1408
Qty/pack	1



6193-2109



6193-2208



6193-2406



6193-2000





### CYLINDER GAUGE

For precision measurements in holes and grooves. Equipped with interchangeable measuring tips and spacers for different dimensions. The indicator is centred automatically with a spring-loaded support and has a tungsten carbide coated measurement tip. Complete with dial gauge. Accuracy is  $\pm 15 \mu\text{m}$  plus the gauge accuracy according to DIN 878. The bottom hole can be measured from the bottom.

6193-1002: 10, 11, 12, 13, 14, 15, 16, 17, 18mm

6193-1101: 18-20.5, 20.5-23, 23-25.5, 25.5-28, 28-30.5, 30.5-33, 33-35.5mm

6193-1200: 35, 40, 45, 50mm

6193-1309: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105mm

6193-1408: 160, 170, 180, 190, 200mm



6193-1002



6193-1101



6193-1200

Code no.	6193-1002	6193-1101	6193-1200
Bottom hole	7 mm	7 mm	7,5 mm
Measurement range	10-18 mm	18-35 mm	35-50 mm
Measuring depth	100 mm	125 mm	150 mm
Number of measuring tips	9 qty	7 qty	4 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	6193-1309	6193-1408
Bottom hole	10 mm	15 mm
Measurement range	50-160 mm	160-250 mm
Measuring depth	150 mm	400 mm
Number of measuring tips	12 qty	5 qty
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
6193-1002	6193-2000	Extra measuring tips – set	1
6193-1101	6193-2109	Extra measuring tips – set	1
6193-1200	6193-2208	Extra measuring tips – set	1
6193-1309	6193-2307	Extra measuring tips – set	1
6193-1408	6193-2406	Extra measuring tips – set	1



15129-0103



15129-0202

### HOLDER FOR INDICATOR DIAL AND LEVEL TYPE DIAL INDICATOR

15129-0103. Holder for indicator dial. With 8 and 6 mm holes and dovetail slot for level type dial indicator. 15129-0202. Holder with ball joint for level type dial indicator. Dovetail slot.

Code no.	15129-0103	15129-0202
Article description	Holders for dial gauge	Holder for lever type dial indicator
Dimensions	6x12 mm	Ø 8 mm
Hole diameter	8 och 6 mm	8 mm
Length	100 mm	65 mm
Content unit	PCS	PCS
Qty/pack	1	1

### DIAL GAUGE (CENTRICATOR)

The centricator is used to quickly and easily find the centre of the workpiece or fixtures set up on column drills, milling machines and the like. The dial gauge stands still when the spindle rotates, which leaves the operator with both hands free to position the machine bed. Both internal and external centring are possible. Supplied with three straight, three curved and one centring arm.



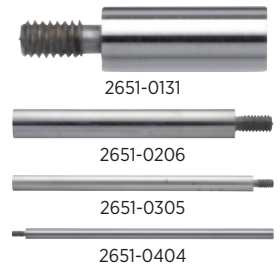
<b>Code no.</b>	<b>24215-0100</b>
External measurement range	Ø 0-300 mm
Internal measurement range	Ø 3-400 mm
Length with handle	180 mm
Measurement range, total	3 mm
Content unit	PCS
Qty/pack	1

### INDICATOR STANDS

#### EXTENSION BAR FOR DIAL GAUGE

Measuring rods for Limit dial gauges.

<b>Code no.</b>	<b>2651-0131</b>	<b>2651-0206</b>	<b>2651-0305</b>
Article description	Extension bar 10 mm	Extension bar 30 mm	Extension bar 60 mm
Description	Extension bar 10 mm	Extension bar 30 mm	Extension bar 60 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



<b>Code no.</b>	<b>2651-0404</b>
Article description	Extension bar 90 mm
Description	Extension bar 90 mm
Content unit	PCS
Qty/pack	1

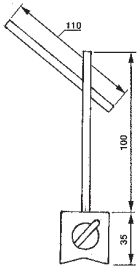
#### HOLDER AND MAGNETIC FOOT FOR MEASURING STAND

Accessories for measuring stand Limit.

<b>Code no.</b>	<b>6019-0402</b>	<b>6019-0600</b>
Article description	Top and bottom bracket	Separate magnetic base, magnetic force 100 kg
Description	Top and bottom bracket	Separate magnetic base, magnetic force 100 kg
Content unit	PCS	PCS
Qty/pack	1	1



6019-0402



15128-0104

### INDICATOR STANDS

Mini stand with magnetic base. V-slot in magnetic bases bottom. Magnetism switched on and off with a lever.

<b>Code no.</b>	<b>15128-0104</b>
Height max	230 mm
Magnetic base height	36 mm
Magnetic base length	35 mm
Magnetic base width	30 mm
Magnetic pulling force	40 kg
Net weight	2 kg
Securing hole diameter	6,8 mm
Content unit	PCS
Qty/pack	1



### MEASURING STAND

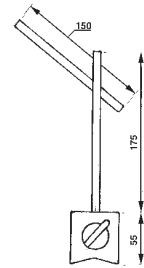
Flexible arm - lockable with lever in every required position. Magnetic base - on the V-shaped bottom and one side. The magnetism is switched on and off with a knob. Supplied without dial indicator.

<b>Code no.</b>	<b>6020-0201</b>
Arm length, total	330 mm
Magnetic base height	58 mm
Magnetic base length	55 mm
Magnetic base width	50 mm
Magnetic pulling force	80 kg
Net weight	1.6 kg
Securing hole diameter	6,8 mm
Content unit	PCS
Qty/pack	1

### MEASURING STAND

With fine adjustment. With magnetic base. The bottom and back are magnetic. The magnetism is switched on and off with the button. Vertically and horizontally adjustable. Supplied with top and bottom holder, but without dial indicator.

<b>Code no.</b>	<b>6019-1004</b>
Height max	250 mm
Magnetic base height	58 mm
Magnetic base length	55 mm
Magnetic base width	50 mm
Magnetic pulling force	75 kg
Net weight	1.5 kg
Securing hole diameter	8 mm
Content unit	PCS
Qty/pack	1



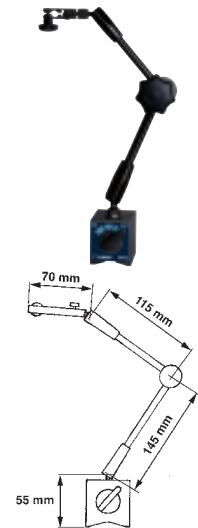
6019-1004

Code no.	Description	Packaging
6019-0402	UPPER AND LOWER HOLDER	1
6019-0600	MAGNETIC BASE 100KG	1

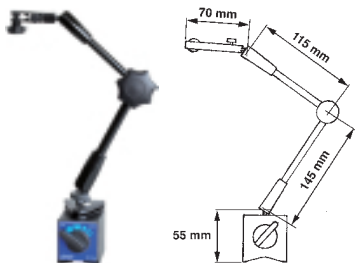
### MEASURING STAND

With fine adjustment in the top holder. Holder with holes for indicator dial and dovetail slot for rocker indicator. Central locking with one knob for the bottom, middle and top joints. Magnetic base with V-slot in the bottom. Supplied without indicator dial. 11908-0257. With fine adjustment at the magnetic base.

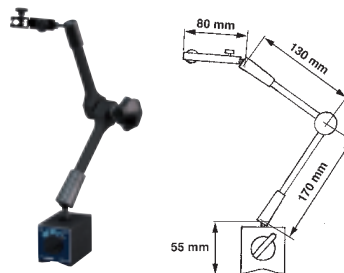
Code no.	11908-0208	11908-0257	11908-0307
Dimension A	70 mm	70 mm	80 mm
Dimension B	115 mm	115 mm	130 mm
Dimension D	55 mm	55 mm	55 mm
Height max	330 mm	330 mm	385 mm
Magnetic base length	55 mm	55 mm	75 mm
Magnetic base width	50 mm	50 mm	50 mm
Magnetic pulling force	80 kg	80 kg	100 kg
Net weight	1.9 kg	1.9 kg	2.2 kg
Securing hole diameter	8 mm	8 mm	8 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



11908-0208



11908-0257



11908-0307



11908-1008

### MEASURING STAND WITH INDICATOR DIAL

Magnetic stand 11908-0208 with indicator dial 11911-0104.

<b>Code no.</b>	<b>11908-1008</b>
Dial diameter	58 mm
Height max	330 mm
Indicator dial: Measurement range	10 mm
Magnetic base height	58 mm
Magnetic base length	55 mm
Magnetic base width	50 mm
Magnetic force	80 kg
Magnetic pulling force	80 kg
One pointer turn =	1 mm
Scale graduation	0,01 mm
Scale graduation	0-100, 100-0
Securing hole diameter	8 mm
Weight	1.9 kg
Content unit	PCS
Qty/pack	1

### LEVER TYPE DIAL INDICATORS

#### MEASURING TIP AND FIXING DEVICE FOR ANALOGUE LEVER TYPE DIAL INDICATOR

Accessories for analogue lever type dial indicators Limit.



2259-0301

<b>Code no.</b>	<b>2259-0202</b>	<b>2259-0301</b>
Article description	Extra measuring tip	Extra connection pin 8 mm
Content unit	PCS	PCS
Qty/pack	1	1



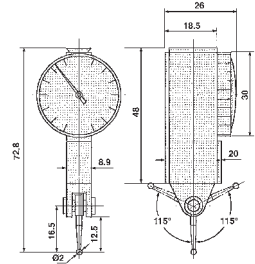
2259-0202

## LEVEL TYPE DIAL INDICATOR

The movement of the pointer is reversible. Turnable scale for zeroing. Supplied with two fixing pins, diameter 8 mm and 6 mm.

<b>Code no.</b>	<b>2259-0103</b>
Diameter, dial	30 mm
Lever movement	Vertical
Measurement range, total	0,8 mm
Scale graduation	0,01 mm
Scale graduation	0-40-0
Tip length	15 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
2259-0103	2259-0202	Extra measuring tip	1 PCS
2259-0103	2259-0301	Extra connection pin 8 mm	1 PCS
2259-0103	15129-0103	Holders for dial gauge	1 PCS
2259-0103	15129-0202	Holder for lever type dial indicator	1 PCS



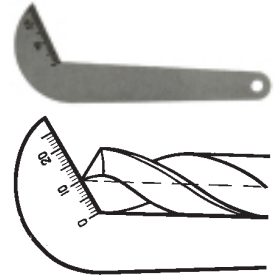
2259-0103

## GRINDING TEMPLATES

### GRINDING GAUGE

Used for grinding twist drills. Graduated up to 25 mm.

<b>Code no.</b>	<b>2565-0102</b>
For drill bits, max	50 mm
Nose angle	118 °
Content unit	PCS
Qty/pack	1



## PROTRACTORS

### ANGLE GAUGE DIGITAL

Digital angle gauge. Made of stainless steel. Readout either 0-360°, 0-180° or 0-90°. Can be reset to 0 in all positions. 2 pcs rulers 150, 300 mm Adjustment angle 90°.

<b>Code no.</b>	<b>15127-0105</b>
Graduation measurement	0-360,0-180,0-90 °
Leg length	150,300 mm
Resolution	0,1 °
Content unit	PCS
Qty/pack	1



Code no.	Description	Packaging
64470-5659	BATTERY BUTTON CELL LIT CR2032	10



### PROTRACTOR – PRECISION ANGLE

Precision design. Dial with a rotating scale for approximate readings and a pointer for accurate readings gives simple and reliable results. Sliding rule and angle stop included. Can be used through 360 degrees.

<b>Code no.</b>	<b>11919-0106</b>
Angle stop length	65 mm
Graduation measurement	10-20-30-40-50 etc. °
Leg length	300 mm
One pointer turn =	10 °
Pitch	5 min
Content unit	PCS
Qty/pack	1



### PROTRACTOR – PRECISION ANGLE

Of stainless steel. Protractor has the entire circumference graduated 0-90° in both directions and can be set at the required angle against the stop. Provided with magnifying glass for simple reading. With vernier for reading 1/12° = 5 minutes. The sliding blades can be locked with locking nuts. Supplied with two replaceable blades.

<b>Code no.</b>	<b>12258-0103</b>
Blade length	150,300 mm
Graduation measurement	0-90 °
Content unit	PCS
Qty/pack	1



### PROTRACTOR

Of steel. Disc graduated from 0-180°. Matt chromium-plated. With locking screw.

<b>Code no.</b>	<b>2548-0104</b>	<b>2548-0203</b>	<b>2548-0302</b>
Disc diameter	80 mm	120 mm	150 mm
Graduation measurement	0-180 °	0-180 °	0-180 °
Leg length	120 mm	150 mm	200 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

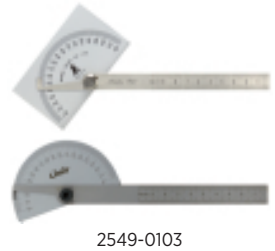
<b>Code no.</b>	<b>2548-0401</b>
Disc diameter	200 mm
Graduation measurement	0-180 °
Leg length	300 mm
Content unit	PCS
Qty/pack	1



## PROTRACTOR

Of sheet metal. The disc is graduated from 0-180° in both directions. Supplied with circular or rectangular disc. With locking nut.

<b>Code no.</b>	<b>2549-0103</b>
Disc diameter	85 mm
Disc shape	Circular
Graduation measurement	0-180 °
Leg length	150 mm
Content unit	PCS
Qty/pack	1



## PROTRACTOR

Precision design. Of steel. Graduated from 10-170°. The leg slides and can be locked in the required position along the full blade.

<b>Code no.</b>	<b>2550-0109</b>	<b>2550-0208</b>	<b>2550-0406</b>
Disc diameter	150 mm	200 mm	300 mm
Graduation measurement	10-170 °	10-170 °	10-170 °
Leg length	300 mm	400 mm	600 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



## FACE PLATES

### FACEPLATE

Manufactured of aged special cast iron. Stable ribbed design. Finely processed to tolerance DIN 876/1.

<b>Code no.</b>	<b>19017-1009</b>	<b>19017-1108</b>	<b>19017-1207</b>
Dimensions	200x200 mm	300x300 mm	400x400 mm
Weight	7 kg	19 kg	27 kg
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



## WELD GAUGES

### WELDING SEAM GAUGE

With 12 blades for measuring the height of plane welding joints. Bright.

<b>Code no.</b>	<b>7403-1006</b>
Measurement range	3-12 mm
Content unit	PCS
Qty/pack	1



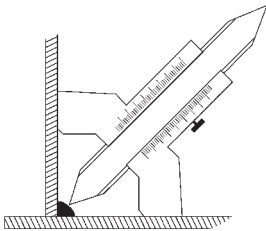


### DIGITAL WELD GAUGE

Digital weld gauge for the measurement of throat measurements in corners or heights above flat weld joints. Automatic shut-off. Switch between metric and imperial. 1.5 volt battery, type SR 44. Battery type SR44, included.

<b>Code no.</b>	<b>23382-0109</b>
Digit height	8 mm
Level/Height	10 mm
Resolution	0,01 mm
Welding gauge	20 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
64470-5055	BATTERY BUTTON CELL V13GS SR44	10



### WELDING GAUGES

For measuring the height of plane weld joints, and the height in corners. Of steel. Graduated in mm and with 1/10 mm vernier. Apexes 60°-70°-80°-90°.

<b>Code no.</b>	<b>2569-0108</b>
Graduated length	20 mm
Content unit	PCS
Qty/pack	1



2569-0108



### WELDING GAUGE

For measuring of welding joints in corner. Heights of welding joints. Height gauge. Material thickness. Angle measuring. Distance between plates. Hole diameter. Supplied in plastic wallet.

<b>Code no.</b>	<b>9754-1007</b>
Angled	70-90-150 °
Hole diameter	1-5 mm
Length	45 mm
Level/Height	0-10 mm
Manufacturer´s description	Combi
Welding gauge	0-10 mm
Content unit	PCS
Qty/pack	1

## THREAD TEMPLATES

### THREAD TEMPLATE

Universal. For V-threads (thread angle), square threads (threads per inch) and 30° buttress threads (pitch).

<b>Code no.</b>	<b>2577-1007</b>
Pitch	2 3 4 5 6 7 8 9 10 12 mm
Thread gauge	55 - 60 °
Content unit	PCS
Qty/pack	1



### THREAD TEMPLATE

Hardened. For Whitworth or metric thread system, and for checking of turning centres.

<b>Code no.</b>	<b>2575-1108</b>	<b>2575-1009</b>
Thread gauge	60 °	55 °
Thread system	M/UN	W
Content unit	PCS	PCS
Qty/pack	1	1



## PROFILE TEMPLATES

### PROFILE PATTERNS

For impression of required profile, where curved and irregular lines are to be formed. For carpet and floor laying, manufacturing of shelves and benches, and turning etc. Round gauges of stainless steel.

<b>Code no.</b>	<b>9739-0108</b>	<b>9739-0207</b>
Length	150 mm	300 mm
Profile depth, max	48 mm	105 mm
Content unit	PCS	PCS
Qty/pack	1	1

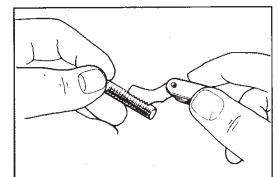


## THREAD GAUGES

### SCREW PITCH GAUGE

Hardened. With folding blades. For internal and external measurements.

<b>Code no.</b>	<b>2580-1002</b>	<b>2580-1101</b>	<b>2580-1200</b>	<b>2580-1309</b>	<b>2580-1408</b>
No. of blades	28 qty	24 qty	54 qty	30 qty	6 qty
Pitch		0.25-6 mm	0.25-6 mm		
Thread gauge	55 °	60 °	60 °	60 °	55 °
Thread system	W	M	M/UNC	UNC-UNF	G pipe (R)
Content unit	PCS	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1	1



## HOLE GAUGES



### HOLE SIZE GAUGE

Taper of measuring needle 1:10. Direct reading 0.1 mm and vernier reading 0.01 mm. The needle is precision hardened and ground. With protective sleeve. Nickel-plated.

<b>Code no.</b>	<b>2641-0209</b>
For diameter	0-5 mm
Manufacturer's description	2
Content unit	PCS
Qty/pack	1



### HOLE SIZE GAUGE

For measuring and inspection of hole diameters or slot widths. Stainless steel with matt chromium-plated scale.

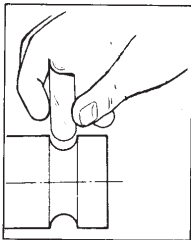
<b>Code no.</b>	<b>1441-1003</b>
Graduated length	0,1 mm
Measurement range	1-15 mm
Scale length	120 mm
Content unit	PCS
Qty/pack	1

## RADIUS GAUGES



### RADIUS GAUGES

With folding blades for measuring radii on concave and convex surfaces.



<b>Code no.</b>	<b>2584-1008</b>	<b>2584-1107</b>	<b>2584-1206</b>
Interval	(1-3)=0.25 (3-17)=0.5 mm	0.5 mm	(15.5-20)=0.5 (20-25)=1 mm
No. of blades	17+17 qty	16+16 qty	15+15 qty
Radius' measurement range	1-7 mm	7.5-15 mm	15.5-25 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

## FEELER GAUGES



### FEELER GAUGE

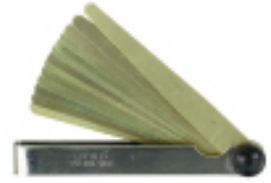
With blades in mm dimensions. Held in key ring. Cylindrical blades.

<b>Code no.</b>	<b>2597-1003</b>
Blade length	300 mm
Contents	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm
No. of parts	13 qty
Content unit	PCS
Qty/pack	1

## FEELER GAUGE

With blades of brass in mm dimensions. Nickel-plated, lockable holder and tapered blades.

Code no.	6792-1007	6792-1106	6792-1205
Blade length	100 mm	100 mm	100 mm
Contents	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50 mm	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 mm
No. of parts	8 qty	13 qty	20 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



## FEELER GAUGE

With blades in mm dimensions. For measuring slots and bearing play, etc. With nickel-plated, lockable holder, tapered blades.

Code no.	2595-3001	2595-3100	2595-3209
Article desc.	Blade length 100 mm	Blade length 100 mm	Blade length 100 mm
Blade length	100 mm	100 mm	100 mm
Contents	Feeler gauge: 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10 mm	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50 mm	Feeler gauge: 0.10, 0.12, 0.14, 0.16, 0.18, 0.20, 0.22, 0.24, 0.26, 0.28, 0.30, 0.32, 0.34, 0.36, 0.38, 0.40, 0.42, 0.44, 0.46, 0.48, 0.50 mm
No. of parts	8 qty	8 qty	21 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



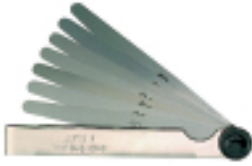
2595-3001

Code no.	2595-3308	2595-3407	2595-0601
Article desc.	Blade length 100 mm	Blade length 100 mm	Blade length 100 mm
Blade length	100 mm	100 mm	100 mm
Contents	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 mm	Feeler gauge: 0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10, 1.20, 1.30, 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 mm
No. of parts	13 qty	20 qty	20 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



2595-3506

Code no.	2595-3506	2595-3605	2595-1104
Article desc.	Blade length 200 mm	Blade length 200 mm	Blade length 200 mm
Blade length	200 mm	200 mm	200 mm
Contents	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	Feeler gauge: 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 mm	Feeler gauge: 0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10, 1.20, 1.30, 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 mm
No. of parts	13 qty	20 qty	20 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### FEELER GAUGE. CALIBRATED

Calibrated. Tolerance according to DIN 2275. Protocol included. Calibrated at two measuring points per gauge. Gauges in millimetre sizes. For measuring slots, gaps in bearings, etc. With nickel-plated, lockable holder.

Code no.	2595-2003	2595-2102	2595-2201
Blade length	100 mm	100 mm	100 mm
Contents	Feeler gauge 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1 mm,	Feeler gauge 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	Feeler gauge 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 mm
No. of parts	8 qty	13 qty	20 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

### FEELER STRIPS



#### FEELER STRIPS

Cold-rolled, hardened and polished bright. With rounded edges. Etched dimensions every 150 mm. Supplied in plastic boxes (thicknesses over 0.60 mm in metal boxes). Length per box, 3 m. Width 13 mm. (Other widths on request.)

Code no.	2599-0052	2599-0102	2599-0201	2599-0300	2599-0409
Blade thickness	0,01 mm	0,02 mm	0,03 mm	0,04 mm	0,05 mm
Tolerance	±0.004 mm	±0.004 mm	±0.004 mm	±0.004 mm	±0.004 mm
Content unit	M	M	M	M	M
Qty/pack	3	3	3	3	3

Code no.	2599-0508	2599-0607	2599-0706	2599-0805	2599-0904
Blade thickness	0,06 mm	0,07 mm	0,08 mm	0,09 mm	0,1 mm
Tolerance	±0.004 mm	±0.004 mm	±0.004 mm	±0.004 mm	±0.005 mm
Content unit	M	M	M	M	M
Qty/pack	3	3	3	3	3

Code no.	2599-1308	2599-1506	2599-1605	2599-1704	2599-1902
Blade thickness	0,15 mm	0,2 mm	0,25 mm	0,3 mm	0,35 mm
Tolerance	±0.005 mm	±0.007 mm	±0.008 mm	±0.009 mm	±0.009 mm
Content unit	M	M	M	M	M
Qty/pack	3	3	3	3	3

Code no.	2599-2009	2599-2108	2599-2207	2599-2405	2599-2504
Blade thickness	0,4 mm	0,45 mm	0,5 mm	0,6 mm	0,7 mm
Tolerance	±0.011 mm	±0.011 mm	±0.013 mm	±0.015 mm	±0.015 mm
Content unit	M	M	M	M	M
Qty/pack	3	3	3	3	3

Code no.	2599-2702	2599-2801	2599-2900
Blade thickness	0,8 mm	0,9 mm	1 mm
Tolerance	±0.017 mm	±0.017 mm	±0.017 mm
Content unit	M	M	M
Qty/pack	3	3	3

## GAUGE BLOCK SETS

### GAUGE BLOCK SET

Made of hardened special steel. Ground and hand lapped. Supplied in wooden case. DIN 861/2. Suitable for checking and adjusting dial gauges, workshop gauges, etc. DIN 861/1. Suitable for checking gauges, measuring instruments and inspection work in measurement rooms. Only sold in complete sets.



Code no.	5272-0109	5272-0307
Article description	DIN 861/2	DIN 861/1
Dimensions	1.005 (1), 1.01-1.20 (20), 1.30-1.90 (7), 1.00-9.00 (9), 10.00-100.00 (10) mm	1.005 (1), 1.01-1.20 (20), 1.30-1.90 (7), 1.00-9.00 (9), 10.00-100.00 (10) mm
No. of parts	47 qty	47 qty
Tolerance class	DIN 961/2	DIN 861/1
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	5272-0208	5272-0406
Article description	DIN 861/2	DIN 861/1
Dimensions	1.001-1.009 (9), 1.01-1.49 (49), 0.50-9.50 (19), 10.00-100.00 (10) mm	1.001-1.009 (9), 1.01-1.49 (49), 0.50-9.50 (19), 10.00-100.00 (10) mm
No. of parts	87 qty	87 qty
Tolerance class	DIN 861/2	DIN 861/1
Content unit	PCS	PCS
Qty/pack	1	1

## V-BLOCKS

### V-BLOCK

Precision design. For clamping during drilling, milling, grinding or measuring. Made in pairs from hardened and precision ground steel. Supplied in a set of 2 blocks and 2 clamps.

Code no.	5252-0202	5252-0301	5252-0400
Clamping diameter, max	25 mm	37 mm	40 mm
Height	32 mm	37 mm	55 mm
Length	40 mm	50 mm	75 mm
Width	32 mm	37 mm	55 mm
Qty/pack	1	1	1



### V-BLOCK

Of stress-free cast iron. Precision machined in pairs. Parallelism of base and V-groove, max 0.03 mm. V-groove angle 90°.

Code no.	2502-0108	2502-0207	2502-0405	2502-0603
Height	60 mm	65 mm	90 mm	140 mm
Thickness	32 mm	41 mm	63 mm	100 mm
V-groove depth	23 mm	28 mm	39 mm	56 mm
V-groove width	44 mm	50 mm	82 mm	100 mm
Width	75 mm	100 mm	150 mm	205 mm
Content unit	PAI	PAI	PAI	PAI
Qty/pack	1	1	1	1



# USEFUL FACTS ABOUT RULES AND SQUARES

## Measurement with a protractor

Disc or adjustable protractors with a scale graduated in full degrees are used to measure angles with 1° accuracy. Combined or universal protractors are used for less accurate measurements. Sine bars with a measuring range of 0° to 60° are used for very accurate angle measurements.

## Checking flatness and squareness

Steel rulers are used to check surface flatness and rectilinearity, while workshop angle bars are used to check right angles (90°). Both steel rulers and angle bars are made to various accuracy classes. Most accurate are blade rulers and angle bars with a black measuring edge, which provides better contrast. When measuring, there is a gap between the inspected surface and the measuring edge of the instrument. The feeler gauge can be used to inspect the deviation from a straight line or a right angle.

## Gauge blocks

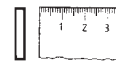
Gauge blocks are used to calibrate or reset measuring instruments, calibrators, templates, etc. They are also used for setting up tools and machines. Gauge blocks are blocks machined with high dimensional accuracy, flatness and parallelism. The blocks adhere to each other tightly when wrung together due to the flatness and smoothness of their surfaces. This makes it possible to produce a proper combination of blocks and achieve the required dimension.

### DIN 866 TABLE OF TOLERANCES

for graduated workshop rules



Form A. Mark thickness 0.07–0.10 mm



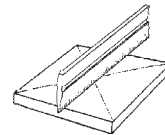
Form B. Mark thickness 0.10–0.15 mm

Tolerances	length	500	1000	1500	2000	3000	4000
Form A,	mm	0,04	0,04	0,06	0,06	0,08	0,10
Form B,	mm	0,10	0,10	0,15	0,15	0,20	0,25

### DIN 874 TABLE OF TOLERANCES

The tolerance is the value of the deviation between the lowest and the highest point (at a temperature of +20 °C).

Tolerance of straightness (flatness) in µm in various accuracy classes.



Length, mm ±2	Workshop straight edges				Straight edges	
	00	0	1	2	Length, mm ±2	00
500	4	7	12	21	75	2
750	6	9,5	17	27	100	2
1000	8	12	21	33	150	3
1500	-	17	29	46	300	3
2000	-	22	37	57		
2500	-	27	46	71		
3000	-	32	54	83		
4000	-	42	71	108		
5000	-	-	87	133		



**DIN 876 TABLE OF TOLERANCES FOR SURFACE PLATES**

The tolerance is the value of the deviation between the lowest and the highest point (at a temperature of +20 °C).



Plate surface length, mm	Tolerance of straightness (flatness) in $\mu\text{m}$ in different degrees of precision:				
	00	0	1	2	3
100	2	4	11	22	44
160	2	5	12	23	46
250	3	5	13	25	50
400	3	6	14	28	56
630	3	7	16	33	65
1000	4	8	20	40	80
1600	5	10	26	52	104
2000	6	12	30	60	120
2500	7	14	35	70	-

Long arm length, mm	Tolerance of perpendicularity in $\mu\text{m}$ in the accuracy class:				Tolerance of linearity in $\mu\text{m}$ in the accuracy class:			
	00	0	1	2	00	0	1	2
50	3	-	-	-	2	3	5	10
75	3	7	14	28	2	3	5	11
100	3	7	15	30	2	3	6	12
150	4	8	18	35	3	4	7	14
200	4	9	20	40	3	4	8	16
250	5	10	23	45	3	5	9	18
300	5	11	25	50	3	5	10	20
500	7	15	35	70	4	7	14	28
750	10	20	43	85	5	10	19	38
1000	12	25	60	120	6	12	24	48
1500	17	35	85	170	8	17	34	68

\*) The flat side linearity tolerance is six times a specific value in the reference plane.

**DIN 861 TABLE OF TOLERANCES FOR GAUGE BLOCKS**

(according to ISO 3650 and SS 3348)

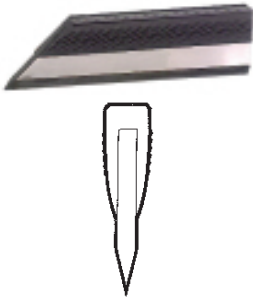
\*) Permissible difference of the rated length ( $\pm$ ) in any location.

\*\*) Permissible actual deviation of rectilinearity and parallelism.



Rated length, mm	Accuracy class 00		Accuracy class 0		Accuracy class 1		Accuracy class 2	
	Tolerance h*) $\mu\text{m}$	Max. dimension difference **) $\mu\text{m}$	Tolerance *) $\mu\text{m}$	Max. dimension difference **) $\mu\text{m}$	Tolerance *) $\mu\text{m}$	Max. dimension difference **) $\mu\text{m}$	Tolerance *) $\mu\text{m}$	Max. dimension difference **) $\mu\text{m}$
- 10	$\pm 0,06$	0,05	$\pm 0,12$	0,10	$\pm 0,20$	0,16	$\pm 0,45$	0,30
(10) - 25	$\pm 0,07$	0,05	$\pm 0,14$	0,10	$\pm 0,30$	0,16	$\pm 0,60$	0,30
(25) - 50	$\pm 0,10$	0,06	$\pm 0,20$	0,10	$\pm 0,40$	0,18	$\pm 0,80$	0,30
(50) - 75	$\pm 0,06$	0,06	$\pm 0,25$	0,12	$\pm 0,50$	0,18	$\pm 1,00$	0,35
(75) - 100	$\pm 0,07$	0,07	$\pm 0,30$	0,12	$\pm 0,60$	0,20	$\pm 1,20$	0,35
(100) - 150	$\pm 0,08$	0,08	$\pm 0,40$	0,14	$\pm 0,80$	0,20	$\pm 1,60$	0,40
(150) - 200	$\pm 0,09$	0,09	$\pm 0,50$	0,16	$\pm 1,00$	0,25	$\pm 2,00$	0,40
(200) - 250	$\pm 0,10$	0,10	$\pm 0,60$	0,16	$\pm 1,20$	0,25	$\pm 2,40$	0,45
(250) - 300	$\pm 0,10$	0,10	$\pm 0,70$	0,18	$\pm 1,40$	0,25	$\pm 2,80$	0,50
(300) - 400	$\pm 0,12$	0,12	$\pm 0,90$	0,20	$\pm 1,80$	0,30	$\pm 3,60$	0,50
(400) - 500	$\pm 0,14$	0,14	$\pm 1,10$	0,25	$\pm 2,20$	0,35	$\pm 4,40$	0,60
(500) - 600	$\pm 0,16$	0,16	$\pm 1,30$	0,25	$\pm 2,60$	0,40	$\pm 5,00$	0,70
(600) - 700								
(700) - 800	$\pm 0,18$	0,18	$\pm 1,50$	0,30	$\pm 3,00$	0,45	$\pm 6,00$	0,70
(800) - 900	$\pm 0,20$	0,20	$\pm 1,70$	0,30	$\pm 3,40$	0,50	$\pm 6,50$	0,80
(900) - 1000	$\pm 0,20$	0,20	$\pm 1,90$	0,35	$\pm 3,80$	0,50	$\pm 7,50$	0,90
	$\pm 0,20$	0,25	$\pm 2,00$	0,40	$\pm 4,20$	0,60	$\pm 8,00$	1,00

**RULERS**



**SHARP-EDGED RULE**

Suitable for checking flatness. Tempered special steel. Smooth ground faces and polished edge. Insulation to counteract heat from hand. The measurement edge has a 30° angle and is black for better contrast. Tolerance according to DIN 874/00. Supplied in a wooden box.

Code no.	5209-0107	5209-0206	5209-0305	5209-0404
Length	75 mm	100 mm	200 mm	300 mm
Tolerance class	00	00	00	00
Weight	40 g	60 g	120 g	410 g
Width	22 mm	22 mm	22 mm	30 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1



**STEEL RULE WITHOUT GRADUATION**

All faces bright. Flat faces ground - edges precision gauged. Tolerance according to DIN 874. DIN 874/2. Rectangular section. DIN 874/1. 500-2000 mm with rectangular section. 2500-4000 mm with I-section and hand grips. Calibration certificate included.

Code no.	2507-0103	2507-1507	2507-0202	2507-1606	2507-0301
Calibrated	Yes	Yes	Yes	Yes	Yes
Length	500 mm	500 mm	1000 mm	1000 mm	1500 mm
Tolerance as per	DIN 874/2	DIN 874/1	DIN 874/2	DIN 874/1	DIN 874/2
Weight	1,3 kg	1,3 kg	2,5 kg	4 kg	5,8 kg
Width	30 mm	40 mm	40 mm	50 mm	50 mm
Content unit	PCS	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1	1

Code no.	2507-1705	2507-0400	2507-1804	2507-0509	2507-1903
Calibrated	Yes	Yes	Yes	Yes	Yes
Length	1500 mm	2000 mm	2000 mm	2500 mm	2500 mm
Tolerance as per	DIN 874/1	DIN 874/2	DIN 874/1	DIN 874/2	DIN 874/1
Weight	8,4 kg	11,4 kg	12 kg	14,3 kg	17 kg
Width	60 mm	60 mm	70 mm	70 mm	80 mm
Content unit	PCS	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1	1

Code no.	2507-0608	2507-2000	2507-0707	2507-2109
Calibrated	Yes	Yes	Yes	Yes
Length	3000 mm	3000 mm	4000 mm	4000 mm
Tolerance as per	DIN 874/2	DIN 874/1	DIN 874/2	DIN 874/1
Weight	17,1 kg	28 kg	22,8 kg	35 kg
Width	80 mm	100 mm	100 mm	120 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

**SCALES**

**DIGITAL LENGTH SCALE**

For setting and positioning on lathes and millers. 15139-0101. 3-axe display unit for millers. The display unit features functions for radius milling, angle milling, pocket milling, linear and circular hole patterns, tool compensation etc. Memory for 200 coordinate settings. Complete incl. arm and assembly accessories. 15139-0200. 2-axe display unit for lathes. The display unit features functions for radius/diameter setting, tool exchange, measuring tapers. Memory for 200 coordinate settings. Complete incl. arm and assembly accessories Equipment meets CE low voltage directives 73/23/EEC and 89/336/EEC. Linear scales (not included) with photoelectric reading technology. Complete incl. cable, protective plate and assembly accessories. See article no. 15139-0309 etc.

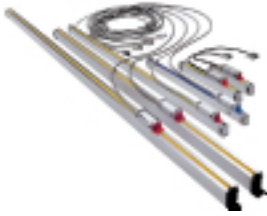
Code no.	15139-0101	15139-0200
Article description	Digital display box	Digital display box
Enclosure class	IP 53	IP 53
Humidity, max	90 %	90 %
Manufacturer´s description	DRO-3M	DRO-2L
Max. working temperature	45 °C	45 °C
Resolution	0,005 mm	0,005 mm
Storage temperature, max	-70 °C	-70 °C
Storage temperature, min	-30 °C	-30 °C
Work temperature, min	0 °C	0 °C
Content unit	PCS	PCS
Qty/pack	1	1



15139-0101



15139-0200



**DIGITAL LENGTH SCALE LIMIT 150-2000**

For setting and positioning on lathes and millers. Linear scales with photoelectric reading technique. Complete incl. cable, protective plate and assembly accessories.

Code no.	15139-0309	15139-0408	15139-0606
Article description	Linear scales	Linear scale 200 mm	Linear scales
Height	53 mm	53 mm	53 mm
Measurement length	150 mm	200 mm	300 mm
Securing holes centre-to-centre	274 mm	324 mm	424 mm
Total length	290 mm	340 mm	440 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	15139-0705	15139-0804	15139-0903
Article description	Linear scale 400 mm	Linear scale 500 mm	Linear scales
Height	53 mm	53 mm	53 mm
Measurement length	400 mm	500 mm	600 mm
Securing holes centre-to-centre	524 mm	624 mm	724 mm
Total length	540 mm	640 mm	740 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	15139-1109	15139-1307	15139-1406
Article description	Linear scale 800 mm	Linear scale 1000 mm	Linear scales
Height	53 mm	53 mm	28 mm
Measurement length	800 mm	1000 mm	1200 mm
Securing holes centre-to-centre	924 mm	1124 mm	1330 mm
Total length	940 mm	1140 mm	1350 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	15139-1505	15139-1604	15139-1802
Article description	Linear scale 1400 mm	Linear scales	Linear scales
Height	28 mm	28 mm	28 mm
Measurement length	1400 mm	1600 mm	2000 mm
Securing holes centre-to-centre	1530 mm	1730 mm	2130 mm
Total length	1550 mm	1750 mm	2150 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

### STEEL RULE

Hardened stainless steel. With matt, chromium-plated surface for non-glare reading. Graduated in mm on top edge and half mm on bottom edge. Blank back.

Code no.	8427-0107	8427-0206	8427-0305
Length	150 mm	300 mm	600 mm
Precision	±0.12 mm	±0.13 mm	±0.16 mm
Width	15 mm	25 mm	30 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	8427-0404	8427-0503	8427-0602
Length	1000 mm	2000 mm	3000 mm
Precision	±0.20 mm	±0.30 mm	±0.40 mm
Width	35 mm	40 mm	40 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### STEEL RULE

Hardened stainless steel. Matt chromium-plated, non-glare scale. Graduated on one side - top in mm/mm, bottom in inches.

Code no.	2703-0055	2703-0105	2703-0204
Graduation	mm/inch	mm/inch	mm/inch
Length	150 mm	300 mm	500 mm
Width	15 mm	25 mm	30 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2703-0303
Graduation	mm/inch
Length	1000 mm
Width	35 mm
Content unit	PCS
Qty/pack	1



### STEEL RULE

Of matt chromium-plated, stainless steel. Extra thin and bendable. Graduated in mm/mm on top and bottom edge.

Code no.	2702-0106	2702-0205	2702-0304
Graduation	mm	mm	mm
Length	100 mm	150 mm	200 mm
Width	13 mm	13 mm	13 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2702-0403	2702-0502	2702-0601
Graduation	mm	mm	mm
Length	300 mm	500 mm	1000 mm
Width	13 mm	18 mm	18 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### ENGINEER'S RULES LIMIT UPPER EDGE

Made of steel with ground surfaces. Tolerance according to DIN 866/B. Graduated in mm on upper edge.

Code no.	2770-0105	2770-0204	2770-0303
Length	500 mm	1000 mm	1500 mm
Thickness	5 mm	6 mm	6 mm
Width	25 mm	30 mm	30 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2770-0402	2770-0501
Length	2000 mm	3000 mm
Thickness	8 mm	8 mm
Width	40 mm	40 mm
Content unit	PCS	PCS
Qty/pack	1	1



### SURFACE GAUGE

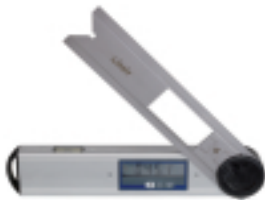
For comparative determination of surface smoothness or scraping with finger tip. For machine operators, inspectors and designers etc. 6 different methods and 6 Ra values each. Manufactured of stainless steel alloy. Scratch resistant.

Code no.	5370-0100
Contents	Lapping, reaming, surface grinding 1.6, 0.8, 0.4, 0.2, 0.1, 0.005 Ra, Horizontal milling, end surface milling, length turning 12.5, 6.3, 3.2, 1.6, 0.8, 0.4 Ra
Content unit	PCS
Qty/pack	1

## ANGLES

### DIGITAL ANGLE GAUGE

Digital angle gauge. Spirit level vial on top. Display with large digits, 13 mm. The display can be reset in all positions and switched to absolute value. Hold button to freeze the measurement value. The arm is lockable using the lock handle which can be moved to different positions. Supplied with 1 x 3V battery, type 2032.



Code no.	16658-0100
Leg length	250 mm
Reading	0-360 °
Scale graduation	0,1 °
Content unit	PCS
Qty/pack	1

## SHARP-EDGED SQUARE

Of hardened steel. Smooth ground faces and polished edge. Equally thick legs.  
Tolerance according to DIN 875/00.

Code no.	5217-1006	5217-1105	5217-1204
Long leg length	50 mm	75 mm	100 mm
Short leg length	40 mm	50 mm	70 mm
Width	13.5 mm	15 mm	20 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	5217-1303	5217-1402
Long leg length	150 mm	200 mm
Short leg length	100 mm	130 mm
Width	25 mm	30 mm
Content unit	PCS	PCS
Qty/pack	1	1



## FLAT SQUARE

Zinc plated steel With uniformly thick legs. All faces machined. 3rd quality.

Code no.	12047-0109	12047-0208	12047-0307
Long leg length	150 mm	200 mm	300 mm
Rectangularity	$\pm 55 \mu\text{m}$	$\pm 60 \mu\text{m}$	$\pm 70 \mu\text{m}$
Short leg length	100 mm	130 mm	175 mm
Width	25 mm	25 mm	25 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	12047-0406	12047-0505	12047-0604
Long leg length	400 mm	500 mm	600 mm
Rectangularity	$\pm 80 \mu\text{m}$	$\pm 90 \mu\text{m}$	$\pm 100 \mu\text{m}$
Short leg length	230 mm	250 mm	300 mm
Width	25 mm	25 mm	25 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



## FLATSQUARE

Zink plated steel.

Code no.	19015-1001	19015-1100	19015-1209
Long leg length	750 mm	1000 mm	1500 mm
Short leg length	375 mm	500 mm	750 mm
Width	30 mm	30 mm	30 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	19015-1308
Long leg length	2000 mm
Short leg length	1000 mm
Width	40 mm
Content unit	PCS
Qty/pack	1





### FLAT SQUARE

With equally thick legs. Of steel. All faces ground and polished.

Code no.	2533-1505	2533-1604	2533-1703
Long leg length	75 mm	100 mm	150 mm
Short leg length	50 mm	70 mm	100 mm
Width	15 mm	20 mm	25 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2533-1802	2533-1901	2533-2008
Long leg length	200 mm	300 mm	400 mm
Short leg length	130 mm	200 mm	265 mm
Width	30 mm	40 mm	45 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### BASE SQUARE

Zinc plated steel legs with a uniform thickness and horizontal underside. The base is attached by soldering in the milled slot. All faces machined. 3-quality.

Code no.	12048-0108	12048-0207	12048-0306
Base width	22 mm	22 mm	22 mm
Long leg length	150 mm	200 mm	300 mm
Rectangularity	± 55 μm	± 60 μm	± 70 μm
Short leg length	100 mm	130 mm	175 mm
Width	25 mm	25 mm	25 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	12048-0405	12048-0504	12048-0603
Base width	22 mm	22 mm	22 mm
Long leg length	400 mm	500 mm	600 mm
Rectangularity	± 80 μm	± 90 μm	± 100 μm
Short leg length	230 mm	250 mm	300 mm
Width	25 mm	25 mm	25 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



### BASE SQUARE

Made of tool steel. With ground edges. The base is screwed in position.

Code no.	19016-1000	19016-1109	19016-1208
Leg dimensions	30x5 mm	30x5 mm	30x5 mm
Long leg length	750 mm	1000 mm	1500 mm
Short leg length	375 mm	500 mm	750 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	19016-1307
Leg dimensions	40x5 mm
Long leg length	2000 mm
Short leg length	1000 mm
Content unit	PCS
Qty/pack	1



### BASE SQUARE LIMIT 2534

Made of steel. Precision design. All faces machined. Manufactured according to tolerance DIN 875/2.

Code no.	2534-2007	2534-2106	2534-2205
Base width	20 mm	30 mm	40 mm
Long leg length	100 mm	200 mm	300 mm
Short leg length	70 mm	130 mm	200 mm
Thickness	5 mm		
Width	20 mm	30 mm	40 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2534-2304
Base width	40 mm
Long leg length	400 mm
Short leg length	265 mm
Thickness	9 mm
Width	40 mm
Content unit	PCS
Qty/pack	1



### BASE SQUARE LIMIT 2534 CALIBRATED

Calibrated. Made of steel. Precision design. All faces machined. Manufactured according to tolerance DIN 875/2.

Code no.	2534-1553	2534-1652
Base width	30 mm	40 mm
Long leg length	200 mm	300 mm
Short leg length	130 mm	200 mm
Width	30 mm	40 mm
Content unit	PCS	PCS
Qty/pack	1	1



### SLIDING BEVEL

Of steel. Ground and polished. The blade folds into the leg. With wing nut.

Code no.	2544-1007	2544-1106	2544-1205
Long leg length	200 mm	300 mm	400 mm
Short leg length	200 mm	300 mm	400 mm
Width	25 mm	25 mm	30 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2544-1304
Long leg length	500 mm
Short leg length	500 mm
Width	30 mm
Content unit	PCS
Qty/pack	1





### TRY SQUARE 17280

Painted cast stop. Blade of hardened steel. Equipped with a pin in the stop that holds the angle when the stop is held outside of the edge of board.

Code no.	17280-0104	17280-0203
Length	600 mm	1000 mm
Material	Steel	Steel
Content unit	PCS	PCS
Qty/pack	1	1

## ENGINEERS SQUARES



### ENGINEER'S SQUARE

Made of tool steel. All sides precision machined. DIN 875/2.

Code no.	16246-0109	16246-0208	16246-0307	16246-0406
Long leg length	75 mm	100 mm	150 mm	200 mm
Long leg thickness	1,5 mm	1,5 mm	1,5 mm	1,5 mm
Long leg width	20 mm	20 mm	25 mm	25 mm
Short leg length	50 mm	70 mm	100 mm	130 mm
Short leg thickness	9 mm	9 mm	11 mm	12,5 mm
Short leg width	20 mm	20 mm	25 mm	25 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	16246-0505	16246-0604	16246-0703	16246-0802
Long leg length	260 mm	300 mm	400 mm	500 mm
Long leg thickness	2 mm	2 mm	2 mm	2 mm
Long leg width	30 mm	30 mm	38 mm	50 mm
Short leg length	160 mm	175 mm	250 mm	265 mm
Short leg thickness	17,5 mm	19 mm	19 mm	21 mm
Short leg width	30 mm	30 mm	38 mm	50 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	Accessories	Article description	Packaging
16246-0109	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0208	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0307	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0406	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0505	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0604	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0703	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS
16246-0802	16246-0901	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm	1 PCS

### ANGLE SET FOR ENGINEER'S SQUARE

Accessories for engineer's square Limit.

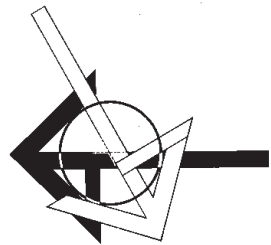
<b>Code no.</b>	<b>16246-0901</b>
Description	75, 100, 150, 200
Article description	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm
Contents	4 squares, 75x50, 100x70, 150x100, 200x130 mm
Description	Set of 4 squares, 75x50, 100x70, 150x100, 200x130 mm
Content unit	PCS
Qty/pack	1



### CENTRE SQUARE

Of steel. Intended for round workpieces, but can also be used as stock or T-squares.

<b>Code no.</b>	<b>2542-0209</b>
Blade length	200 mm
Stock length	150 mm
Content unit	PCS
Qty/pack	1



### ADJUSTABLE SQUARE

Removable stop along graduated steel guide. Stop length 70 mm. Tolerance according to DIN 875/2.

<b>Code no.</b>	<b>15125-0107</b>	<b>15125-0206</b>
Length	100 mm	150 mm
Content unit	PCS	PCS
Qty/pack	1	1



### ANGLE GAUGE

With folding blades of steel. The blade ends are bevelled at various angles.

<b>Code no.</b>	<b>2586-1006</b>
Contents	For angles 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 14, 16, 18, 20, 25, 30, 40, 45°
No. of blades	18 qty
Content unit	PCS
Qty/pack	1



## SET SQUARES



### FLANGE ANGLE

To adjust and control flange on pipes. Chromed pattern steel.

Code no.	2541-1000	2541-1109	2541-1208
Length	300 mm	400 mm	500 mm
Material	Steel	Steel	Steel
Width	300 mm	400 mm	500 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

## MACHINE LEVELS



### DIGITAL SPIRIT LEVEL AND ANGLE GAUGE

Digital spirit level and angle gauge. Magnet and V-slot on underside. Can be reset to 0 in all positions. Absolute function means the value can switch between the actual 0 value and another 0 value. Measurement value can be frozen in the desired position. Automatic shut-off. Battery type CR2032, not included.

Code no.	17426-0109
Battery size	CR2032 (3 V)
Battery type	Alkaline
Enclosure class	IP 54
Height	60 mm
Length	150 mm
No. of batteries	1 qty
Reading	0-180 °
Resolution	0,1 °
Width	31 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
64470-5659	BATTERY BUTTON CELL LIT CR2032	10

### DIGITAL SPIRIT LEVEL AND ANGLE GAUGE

Digital spirit level and angle gauge. Magnet on the base. Can be set to 0 in all positions. Automatic shut-off. Battery type AAA, not included.



Code no.	17425-0050
Battery size	AAA (1.5 V)
Battery type	Alkaline
Enclosure class	IP 54
Height	56 mm
Length	60 mm
Measurement range	4 x 0-90 °
No. of batteries	1 qty
Reading	0.1 °
Width	28 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
02360-0042	BATTERY POWER INDUSTRY LR03	10

### PRECISION LEVEL

Precision level of cast iron. Adjustable, graduated longitudinal and transverse vials. Precision in accordance with DIN 877. V-groove in contact surface.



Code no.	0749-0055	0749-0154	0749-0204	0749-0402
Height	30 mm	40 mm	46 mm	46 mm
Length	100 mm	150 mm	200 mm	200 mm
Scale graduation	0,05 mm	0,05 mm	0,1 mm	0,02 mm
Width	35 mm	44 mm	46 mm	46 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

### FRAME LEVEL WITH GROOVE

Precision level of cast iron. Adjustable, graduated longitudinal and transverse vials. Precision in accordance with DIN 877. V-groove in contact surface.



Code no.	0757-0039	0757-0054	0757-0104
Height	100 mm	150 mm	200 mm
Length	100 mm	150 mm	200 mm
Scale graduation	0,05 mm/m	0,05 mm/m	0,1 mm/m
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	0757-0203
Height	200 mm
Length	200 mm
Scale graduation	0,02 mm/m
Content unit	PCS
Qty/pack	1

### DIGITAL SPIRIT LEVEL AND ANGLE GAUGE

Digital spirit level and angle gauge. Display shows two angle values. An absolute value and a relative value. Display can be pivoted to make it easy to read from above. Magnet on the base. Can be set to 0 in all positions. Measurement value can be frozen in the desired position. Automatic shut-off. Battery type AAA, not included.



Code no.	17425-0209
Battery size	AAA (1.5 V)
Battery type	Alkaline
Enclosure class	IP 54
Height	50 mm
Length	60 mm
Measurement range	0-180 °
No. of batteries	2 qty
Reading	0.1 °
Width	32 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
02360-0042	BATTERY POWER INDUSTRY LR03	10

## COMBINATION SQUARES



26685-0106

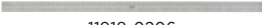
### COMBINED ANGLE

Made of carbon steel with a stainless steel rule. With protractor, angle stop and centre head. All the parts can slide on the graduated rule. Vial on protractor and angle stop. The rule shows both metric and imperial graduations.

<b>Code no.</b>	<b>26685-0106</b>
Angle stop length	110 mm
Centre head length	63 mm
Graduation	mm/inch
Graduation measurement	0-180 °
Rule length	300 mm
Content unit	PCS
Qty/pack	1



11918-0156



11918-0206



11918-0305

### RULER AND SPARE PARTS SET FOR COMBINATION SQUARE

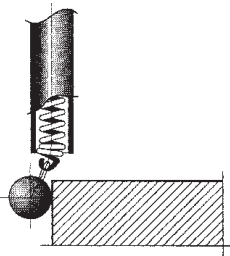
Accessories for combination square Limit.

<b>Code no.</b>	<b>11918-0156</b>	<b>11918-0206</b>	<b>11918-0305</b>
Article description	Extra guide rail 300 mm	Extra guide rail 600 mm	Spare part set (screw/spring/nut)
Description	Ruler 300 mm	Ruler 600 mm	Spare part set (screw/spring/nut)
Content unit	PCS	PCS	
Qty/pack	1	1	1

## EDGE SENSORS

### ELECTRONIC EDGE DETECTOR

Electronic edge sensor. Simplifies the setup process and positioning of the tool spindle in relation to the workpiece or machine bench on milling machines and drilling machines. LED indicates contact between the spindle and workpiece. Precision made spindle with steel ball which springs sideways. Supplied with battery 8LR23.



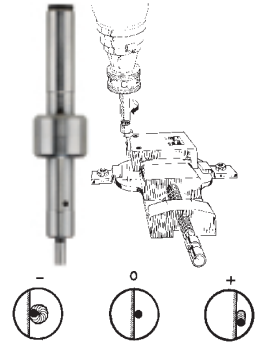
16711-0105

<b>Code no.</b>	<b>16711-0105</b>
Ball diameter	10 mm
Battery size	23 A (12 V)
Battery type	Alkaline
No. of batteries	1 qty
Shank diameter	20 mm
Total length	157 mm
Content unit	PCS
Qty/pack	1

## EDGE SENSORS

Mechanical edge sensor. Simplifies the set-up process and positioning of the tool spindle in relation to the work piece or machine table on the milling machines and drilling machines. The sensor is mounted in the tool spindle's chuck. During rotation the moving contact tip is guided towards the edge of the work piece and the distance between the edge detector and the work piece can be determined.

<b>Code no.</b>	<b>17250-0100</b>
Contact tip diameter	10.0 / 4.0 mm
Shank diameter	10 mm
Total length	90 mm
Content unit	PCS
Qty/pack	1

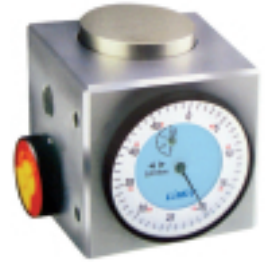


## ADJUSTMENT CUBES

### ADJUSTMENT CUBE

Adjustment cube for positioning tools against workpieces or machine tables on milling and drilling machines. Indicator dial shows the spring plate pressure. At "0" the distance is 50 mm. Magnetic base for easy application both vertically and horizontally. Adjustment cube has an integrated calibration mechanism.

<b>Code no.</b>	<b>15320-0100</b>
Height	50 mm
Indicator dial graduation	0,01 mm
Length	50 mm
Plate travel	3 mm
Width	50 mm
Content unit	PCS
Qty/pack	1



## SCRIBING TOOLS

### WING DIVIDER

Made of steel. Rectangular shanks. With hardened points. Side-mounted arc. Length 400–500 mm. With round shanks.

<b>Code no.</b>	<b>2429-0207</b>	<b>2429-0405</b>	<b>2429-0702</b>
Length	150 mm	200 mm	300 mm
Size, max	170 mm	235 mm	390 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

<b>Code no.</b>	<b>2429-0801</b>	<b>2429-1007</b>
Length	400 mm	500 mm
Size, max	545 mm	670 mm
Content unit	PCS	PCS
Qty/pack	1	1





**SPRING CALIPERS**

Outside calipers. With flat shanks and hardened points. Fitted with adjusting nut.

Code no.	2443-0407	2443-0506	2443-0704
Length	150 mm	200 mm	300 mm
Size, max	125 mm	170 mm	250 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



**INSIDE CALIPER**

Inside calipers. With flat shanks and hardened points. Fitted with adjusting nut.

Code no.	2445-0405	2445-0504	2445-0702
Length	150 mm	200 mm	300 mm
Size, max	150 mm	180 mm	260 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



**INSIDE CALIPERS**

With flat shanks and adjusting nut.

Code no.	2440-0509	2440-0707	2440-1002
Length	200 mm	300 mm	500 mm
Size, max	370 mm	570 mm	950 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



**OUTSIDE CALIPERS**

With flat shanks and adjusting nut.

Code no.	2439-0502	2439-0700	2439-1005
Length	200 mm	300 mm	500 mm
Size, max	300 mm	500 mm	850 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	2439-1104
Length	900 mm
Size, max	1500 mm
Content unit	PCS
Qty/pack	1



## CALIPERS

Wing divider. Of steel. Rectangular shanks. With side-mounted arc and holder for pencil. Supplied without pencil.

Code no.	2428-0109	2428-0208
Length	175 mm	300 mm
Size, max	190 mm	350 mm
Content unit	PCS	PCS
Qty/pack	1	1



## SURFACE GAUGE

Round base. Holder for lifting and lowering scriber. With one straight and one bent steel point.

Code no.	5238-0102
Height	300 mm
Content unit	PCS
Qty/pack	1



## SURFACE GAUGE

Heavy duty base with V-groove in bottom. The base has two through guide pins. The spindle is mounted in a rocker arm, with screw for fine adjusting. With one straight and one bent steel point.

Code no.	5243-0105
Height	300 mm
Content unit	PCS
Qty/pack	1



## SCRIBER

With a straight and a curved scriber tip. Hardened. Round, knurled shaft. Packaged individually in a plastic pouch. 5253-0102 with steel tip. 5253-0201 with tungsten carbide tip.

Code no.	5253-0102	5253-0201
Length	240 mm	240 mm
Tip diameter	4 mm	4 mm
Tip format	Round	Round
Content unit	PCS	PCS
Qty/pack	1	1





### SCRIBER WITH AUTOMATIC CENTRE PUNCH

For both scribing and centre punching. Pressing the tip in the pen releases the main-spring for the centre punch. Tip of chrome vanadium steel. Rubber grip.

<b>Code no.</b>	<b>10230-0100</b>
Article description	Scriber
Length	140 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
10230-0209	EXTRA TIP FOR AUTOM.CENT.PUNCH	1

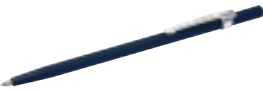


### SCRIBER

Propelling pen with automatic locking. Point of hard metal. With clip.

<b>Code no.</b>	<b>2482-1001</b>
Article description	Scriber
Length	150 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
2482-0201	SPARE POINT 2,0X20MM	10



### SCRIBER

With hard metal point. Hexagonal, smooth handle. With clip.

Code no.	2474-1001	2474-0201
Diameter	6 mm	6 mm
Length	150 mm	150 mm
Content unit	PCS	PCS
Qty/pack	1	1



### SCRIBER

With hard metal point. Round, knurled handle. With clip.

<b>Code no.</b>	<b>2475-0101</b>
Diameter	7 mm
Length	130 mm
Content unit	PCS
Qty/pack	1

### SCRIBER WITH HOLDER

With hard metal tip. The blade is reversible and can be pushed into the holder. With plastic holder.



<b>Code no.</b>	<b>2485-0109</b>
Article description	Scriber
Diameter	7 mm
Length	90 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
2485-0208	EXTRA BLADE 2485	1

### DIVIDER

Dividers. With flat shanks and hardened points. Fitted with adjusting nut.



Code no.	2444-0406	2444-0505	2444-0703
Length	150 mm	200 mm	300 mm
Size, max	150 mm	190 mm	275 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

### DIVIDER

Made of steel. Rectangular shanks. With hardened points.



Code no.	2432-0400	2432-0707
Length	200 mm	300 mm
Size, max	380 mm	580 mm
Content unit	PCS	PCS
Qty/pack	1	1

### SCRIBING GAUGE FOR METAL

Chromium-plated scale round rod. Cast round stop of cast iron. Replaceable scriber. With fine adjustment. Nonie reading 0.1 mm.



<b>Code no.</b>	<b>2413-1005</b>
Length	300 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
2413-1104	EXTRA POINT	1



### SCRIBING GAUGE

Of stainless steel. Measuring rod and slide as sliding caliper. Roller housed in ball bearings as stock when scribing to edge of workpiece. Graduated in mm with vernier scale 1/10 mm of 39 mm length. Replaceable hardened scriber. Supplied in plastic case.

<b>Code no.</b>	<b>9717-0104</b>
Graduated length	200 mm
Tip diameter	2 mm
Tip length	32 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
9717-0203	SCRIBING PIN	1



### SCRIBING GAUGE

For scribing with scriber to edge. Graduated scale. Hardened scribing edge.

<b>Code no.</b>	<b>2379-0108</b>	<b>2379-0207</b>
Length	0-200 mm	0-300 mm
Width	40 mm	40 mm
Content unit	PCS	PCS
Qty/pack	1	1



### SCRIBING GAUGE

Made of steel. Scale graduated in millimetres. Enamelled. Supplied complete with lead-pencil.

<b>Code no.</b>	<b>2396-0107</b>
Graduated length	200 mm
Content unit	PCS
Qty/pack	1



### TRAMMEL

Flat beam and with fine adjustment. Interchangeable hardened scriber. Reading 0,1 mm.

<b>Code no.</b>	<b>2420-2004</b>	<b>2420-2103</b>	<b>2420-2202</b>	<b>2420-2301</b>
Diameter	1000 mm	2000 mm	3000 mm	4000 mm
Length	500 mm	1000 mm	1500 mm	2000 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	Accessories	Article description	Packaging
2420-2004	2420-2400	Extra scriber tips (1 pair)	1 PCS
2420-2103	2420-2400	Extra scriber tips (1 pair)	1 PCS
2420-2202	2420-2400	Extra scriber tips (1 pair)	1 PCS
2420-2301	2420-2400	Extra scriber tips (1 pair)	1 PCS

### SCRIBING TEMPLATE 24144

Scribing template for marking and scribing on plate 5-100 mm. Made of 1.3 mm stainless steel sheet.

<b>Code no.</b>	<b>24144-0106</b>
Length	95 mm
Width	135 mm
Content unit	PCS
Qty/pack	1



### SCRIBING TOOLS - ACCESSORIES

#### BLADE FOR SCRIBER

<b>Code no.</b>	<b>2485-0208</b>
Article description	Extra hard metal blade, art. no.
Content unit	PCS
Qty/pack	1

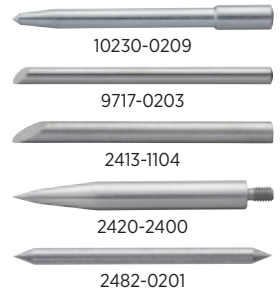


#### SCRIBER TIP FOR CENTRE PUNCHES, SCRIBING GAUGES AND TRAMMEL GAUGES

<b>Code no.</b>	<b>10230-0209</b>	<b>9717-0203</b>	<b>2413-1104</b>
Article description	Extra tip	Extra scriber	Extra scriber tips Ø 5x55 mm
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

<b>Code no.</b>	<b>2420-2400</b>	<b>2482-0201</b>
Article description	Extra scriber tips (1 pair)	Extra tungsten carbide pin
Content unit	PCS	PCS
Qty/pack	1	1



## STAMPS



### LETTER STAMP LIMIT 1735

Stamps for steel and metal. 27 letter stamps, A-Z and & character. For stamping in materials with a tensile strength up to 120 kp/mm<sup>2</sup>. Made of hardened steel and packed in a plastic box. Symbols according to DIN 1451 Hardened on the engraving side according to 58–61 HRC Bevelled edges towards the stamping surface for improved accuracy. Each stamp marked with: Symbol, symbol size, Made in Germany and international eye protection symbol. Supplied in a strong impact-resistant plastic box Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.

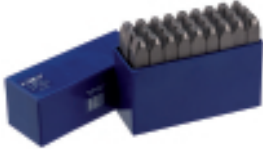
<b>Code no.</b>	<b>1735-0109</b>	<b>1735-0208</b>	<b>1735-0307</b>
Description	LETTER PUNCH SET LIMIT 1735-2MM A-Z	LETTER PUNCH SET LIMIT 1735-3MM A-Z	LETTER PUNCH SET LIMIT 1735-4MM A-Z
Handle square	6 mm	6 mm	7 mm
Numeral and letter height	2 mm	3 mm	4 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>1735-0406</b>	<b>1735-0505</b>	<b>1735-0604</b>
Description	LETTER PUNCH SET LIMIT 1735-5MM A-Z	LETTER PUNCH SET LIMIT 1735-6MM A-Z	LETTER PUNCH SET LIMIT 1735-8MM A-Z
Handle square	8 mm	9 mm	11 mm
Numeral and letter height	5 mm	6 mm	8 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>1735-0703</b>	<b>1735-0802</b>	<b>1735-0901</b>
Description	LETTER PUNCH SET LIMIT 1735-2MM A-Z	LETTER PUNCH SET LIMIT 1735-12MM A-Z	LETTER PUNCH SET LIMIT 1735-15MM A-Z
Handle square	12 mm	14 mm	16 mm
Numeral and letter height	10 mm	12 mm	15 mm
Qty/pack	1	1	1

## LETTER STAMP LIMIT 24434

Stamps for steel and metal. 27 letter stamps, A-Z and & character. For stamping in materials with a tensile strength up to 150 kp/mm<sup>2</sup>. Suitable for stamping in stainless steel. Nickel plated to protect against contamination caused by the transfer of metal particles. Packed in a plastic box. For stamping of stainless steel. Symbols according to DIN 1451. Hardened on the engraving side according to 58–61 HRC. Bevelled edges towards the stamping surface for improved accuracy. Each stamp marked with: Symbol, symbol size and international eye protection symbol. Supplied in a strong impact-resistant plastic box. Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.



<b>Code no.</b>	<b>24434-0105</b>	<b>24434-0204</b>	<b>24434-0303</b>
Description	LETTER PUNCH SET LIMIT 24434-2MM A-Z	LETTER PUNCH SET LIMIT 24434-3MM A-Z	LETTER PUNCH SET LIMIT 24434-4MM A-Z
Numeral and letter height	2 mm	3 mm	4 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>24434-0402</b>	<b>24434-0501</b>	<b>24434-0600</b>
Description	LETTER PUNCH SET LIMIT 24434-5MM A-Z	LETTER PUNCH SET LIMIT 24434-6MM A-Z	LETTER PUNCH SET LIMIT 24434-7MM A-Z
Numeral and letter height	5 mm	6 mm	7 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>24434-0709</b>	<b>24434-0808</b>	<b>24434-0907</b>
Description	LETTER PUNCH SET LIMIT 24434-8MM A-Z	LETTER PUNCH SET LIMIT 24434-10MM A-Z	LETTER PUNCH SET LIMIT 24434-12MM A-Z
Numeral and letter height	8 mm	10 mm	12 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>24434-1004</b>		
Description	LETTER PUNCH SET LIMIT24434-15MM A-Z		
Numeral and letter height	15 mm		
Qty/pack	1		



### LETTER STAMP LIMIT 24436

Stamps for steel and metal. 27 letter stamps, A-Z and & character. For stamping in materials with a tensile strength up to 150 kp/mm<sup>2</sup>. Designed to create as little stress in the material as possible and is therefore suitable for pressure tanks etc. Made of hardened tool steel and packed in a plastic box. Low stress effect on the material due to point stamping. Risk of fracture eliminated according to ASME standard. Symbols according to DIN 1451 (medium). Hardened on the engraving side according to 58–61 HRC. Each stamp marked with: Symbol, symbol size and international eye protection symbol. Supplied in a strong impact-resistant plastic box. Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.

Code no.	24436-0103	24436-0202	24436-0301
Description	Letter punch set 24436-2mm a-z	Letter punch set 24436-3mm a-z	Letter punch set 24436-4mm a-z
Numeral and letter height	2 mm	3 mm	4 mm
Qty/pack	1	1	1
Code no.	24436-0400	24436-0509	24436-0608
Description	Letter punch set 24436-5mm a-z	Letter punch set 24436-6mm a-z	Letter punch set 24436-8mm a-z
Numeral and letter height	5 mm	6 mm	8 mm
Qty/pack	1	1	1
Code no.	24436-0707		
Description	Letter punch set 24436-10mm a-z		
Numeral and letter height	10 mm		
Qty/pack	1		



### LETTER STAMP LIMIT 24438

Large stamps for steel and metal. 27 letter stamps, A-Z and & character. For stamping in materials with a tensile strength up to 150 kp/mm<sup>2</sup>. Made of hardened tool steel and packed in a plastic box. CNC produced for highest precision. Symbols according to DIN 1451 (narrow) Hardened on the engraving side according to 58–61 HRC Supplied in a strong impact-resistant plastic box Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.

Code no.	24438-0101	24438-0200	24438-0309
Description	Letter punch set 24438-18mm a-z	Letter punch set 24438-20mm a-z	Letter punch set 24438-25mm a-z
Numeral and letter height	18 mm	20 mm	25 mm
Qty/pack	1	1	1



### LETTER STAMP LIMIT 5176

Limit stamps for hard steel. 27 letter stamps, A-Z and & character. For stamping in materials with a tensile strength up to 200 kp/mm<sup>2</sup>. Made of hardened steel with a tempered punch head. Packed in a plastic box. Manufactured according to DIN 7353. Symbols according to DIN 1451 (narrow). Hardened on the engraving side according to 58–61 HRC. Bevelled edges towards the stamping surface for improved accuracy. Each stamp marked with: Symbol, symbol size and international eye protection symbol. Supplied in a strong impact-resistant plastic box. Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.



Code no.	5176-0106	5176-0205	5176-0304	5176-0403
Description	Letter punch set 5176-2mm a-z	Letter punch set 5176-3mm a-z	Letter punch set 5176-4mm a-z	Letter punch set 5176-5mm a-z
Handle square	7 mm	8 mm	9 mm	10 mm
Numeral and letter height	2 mm	3 mm	4 mm	5 mm
Qty/pack	1	1	1	1

Code no.	5176-0502	5176-0601	5176-0700
Description	Letter punch set 5176-6mm a-z	Letter punch set 5176-8mm a-z	Letter punch set 5176-10mm a-z
Handle square	12 mm	14 mm	16 mm
Numeral and letter height	6 mm	8 mm	10 mm
Qty/pack	1	1	1

### NUMBER STAMP LIMIT 1733

Limit. Stamps for steel and metal. 9 stamps, numbers 0–9. For stamping in materials with a tensile strength up to 120 kp/mm<sup>2</sup>. Made of hardened steel and packed in a plastic box. Symbols according to DIN 1451 Hardened on the engraving side according to 58–61 HRC Bevelled edges towards the stamping surface for improved accuracy. Each stamp marked with: Symbol, symbol size, Made in Germany and international eye protection symbol. Supplied in a strong impact-resistant plastic box Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.



Code no.	1733-0101	1733-0200	1733-0309	1733-0408	1733-0507
Description	Number punch set 1733-2mm 0-9	Number punch set 1733-3mm 0-9	Number punch set 1733-4mm 0-9	Number punch set 1733-5mm 0-9	Number punch set 1733-6mm 0-9
Handle square	6 mm	6 mm	7 mm	8 mm	9 mm
Numeral and letter height	2 mm	3 mm	4 mm	5 mm	6 mm
Content unit					SET
Qty/pack	1	1	1	1	1

Code no.	1733-0606	1733-0705	1733-0804	1733-0903
Description	Number punch set 1733-8mm 0-9	Number punch set 1733-10mm 0-9	Number punch set 1733-12mm 0-9	Number punch set 1733-15mm 0-9
Handle square	11 mm	12 mm	14 mm	16 mm
Numeral and letter height	8 mm	10 mm	12 mm	15 mm
Content unit				
Qty/pack	1	1	1	1



### NUMBER STAMP LIMIT 24433

Stamps for steel and metal. 9 stamps, numbers 0–9. For stamping in materials with a tensile strength up to 150 kp/mm<sup>2</sup>. Suitable for stamping in stainless steel. Nickel plated to protect against contamination caused by the transfer of metal particles. Packed in a plastic box. For stamping of stainless steel. Symbols according to DIN 1451. Hardened on the engraving side according to 58–61 HRC. Bevelled edges towards the stamping surface for improved accuracy. Each stamp marked with: Symbol, symbol size and international eye protection symbol. Supplied in a strong impact-resistant plastic box. Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.

<b>Code no.</b>	<b>24433-0106</b>	<b>24433-0205</b>	<b>24433-0304</b>
Description	Number punch set 24433-2mm 0-9	Number punch set 24433-3mm 0-9	Number punch set 24433-4mm 0-9
Numeral and letter height	2 mm	3 mm	4 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>24433-0403</b>	<b>24433-0502</b>	<b>24433-0601</b>
Description	Number punch set 24433-5mm 0-9	Number punch set 24433-6mm 0-9	Number punch set 24433-7mm 0-9
Numeral and letter height	5 mm	6 mm	7 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>24433-0700</b>	<b>24433-0809</b>	<b>24433-0908</b>
Description	Number punch set 24433-8mm 0-9	Number punch set 24433-10mm 0-9	Number punch set 24433-12mm 0-9
Numeral and letter height	8 mm	10 mm	12 mm
Qty/pack	1	1	1
<b>Code no.</b>	<b>24433-1005</b>		
Description	Number punch set 24433-15mm 0-9		
Numeral and letter height	15 mm		
Qty/pack	1		



### NUMBER STAMP LIMIT 24435

Stamps for steel and metal. 9 stamps, numbers 0–9. For stamping in materials with a tensile strength up to 150 kp/mm<sup>2</sup>. Designed to create as little stress in the material as possible and is therefore suitable for pressure tanks etc. Made of hardened tool steel and packed in a plastic box. Low stress effect on the material due to point stamping. Risk of fracture eliminated according to ASME standard. Symbols according to DIN 1451 (medium). Hardened on the engraving side according to 58–61 HRC. Each stamp marked with: Symbol, symbol size and international eye protection symbol. Supplied in a strong impact-resistant plastic box. Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.

<b>Code no.</b>	<b>24435-0104</b>	<b>24435-0203</b>	<b>24435-0302</b>	<b>24435-0401</b>
Description	Number punch set 24435-2mm 0-9	Number punch set 24435-3mm 0-9	Number punch set 24435-4mm 0-9	Number punch set 24435-5mm 0-9
Numeral and letter height	2 mm	3 mm	4 mm	5 mm
Qty/pack	1	1	1	1
<b>Code no.</b>	<b>24435-0500</b>	<b>24435-0609</b>	<b>24435-0708</b>	
Description	Number punch set 24435-6mm 0-9	Number punch set 24435-8mm 0-9	Number punch set 24435-10mm 0-9	
Numeral and letter height	6 mm	8 mm	10 mm	
Qty/pack	1	1	1	

## NUMBER STAMP LIMIT 24437

Stora stämpelar för stål och metall. 9 sifferstämpelar 0-9. För stämpling i material med draghållfastighet upp till 150 kp/mm<sup>2</sup>. Tillverkad i härdat verktygsstål och packade i plastlåda. CNC-tillverkad för högsta precision. Symboler enligt DIN 1451 (smal) Härdade i gravrysiden enligt 58-61 HRC Levereras i en stark slagttålig plastlåda Lösa stämpelar går att köpa mixat, dock minst 5st / order.



Code no.	24437-0102	24437-0201	24437-0300
Description	Number punch set 24437-18mm 0-9	Number punch set 24437-20mm 0-9	Number punch set 24437-25mm 0-9
Numeral and letter height	18 mm	20 mm	25 mm
Qty/pack	1	1	1

## NUMBER STAMP LIMIT 5175

Limit stamps for hard steel. 9 stamps, numbers 0-9. For stamping in materials with a tensile strength up to 200 kp/mm<sup>2</sup>. Made of hardened steel with a tempered punch head. Packed in a plastic box. Manufactured according to DIN 7353. Symbols according to DIN 1451 (narrow). Hardened on the engraving side according to 58-61 HRC. Bevelled edges towards the stamping surface for improved accuracy. Each stamp marked with: Symbol, symbol size and international eye protection symbol. Supplied in a strong impact-resistant plastic box. Assorted stamps can be purchased loose, but there is a minimum of 5 pcs per order.



Code no.	5175-0107	5175-0206	5175-0305	5175-0404
Description	No. punch set 5175- 2mm 0-9	No. punch set 5175-3mm 0-9	No. punch set 5175-4mm 0-9	No. punch set 5175-5mm 0-9
Handle square	7 mm	8 mm	9 mm	10 mm
Numeral and letter height	2 mm	3 mm	4 mm	5 mm
Content unit	SET			
Qty/pack	1	1	1	1

Code no.	5175-0503	5175-0602	5175-0701
Description	No. punch set 5175-6mm 0-9	No. punch set 5175-8mm 0-9	No. punch set 5175-10mm 0-9
Handle square	12 mm	14 mm	16 mm
Numeral and letter height	6 mm	8 mm	10 mm
Content unit			
Qty/pack	1	1	1

## STAMP SET LIMIT

Complete sets made of steel with holders and replaceable types. The types are hardened for stamping in hard material. Stamp hardness HRC 37. The width of the holders allows insertion of 6-10 types at the same time. Supplied complete with 100 types – 58 letters, 35 letters plus special characters – together with a number of blind types for filling spaces. Also includes key and tweezers. In a wooden case. Spare letters and numbers. Minimum 5 pcs, assorted.



Code no.	5889-0104	5889-0203	5889-0302
Description	Punch set 5889-3mm letters numbers and figures	Punch set 5889-4mm letters numbers and figures	Punch set 5889-4mm letters numbers and figures
No. of types held in holder	13 qty	10 qty	8 qty
Text length	40 mm	40 mm	40 mm
Total number of types	100 qty	100 qty	100 qty
Type height	3 mm	4 mm	5 mm
Qty/pack	1	1	1



**STAMPING TOOL LIMIT 24440**

Compact stamping tool with 6 stamp wheels for steel and metal. For stamping in materials with a tensile strength up to 120 kp/mm<sup>2</sup>. Made of tool steel with special properties for high efficiency. Packed in a plastic box. Compact design. Replaceable impact handle. All components are standard and interchangeable. Symbols according to DIN 1451 Hardened on the engraving side according to 58-61 HRC Nickel plated for corrosion protection.

Code no.	24440-0107	24440-0206	24440-0305	24440-0404	24440-0503
Description	Numbering head 24440-2mm	Numbering head 24440-3mm	Numbering head 24440-4mm	Numbering head 24440-5mm	Numbering head 24440-6mm
Digit height	2 mm	3 mm	4 mm	5 mm	6 mm
Content unit	PCS	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1	1



**STAMPING TOOL LIMIT 24441**

Stamping tool with 8 stamp wheels for steel and metal. For stamping in materials with a tensile strength up to 150 kp/mm<sup>2</sup>. Made of tool steel with special properties for high efficiency. Packed in a plastic box. Strong robust design Replaceable top on the impact handle All components are standard and interchangeable Symbols according to DIN 1451 Hardened on the engraving side according to 58-61 HRC Nickel plated for corrosion protection.

Code no.	24441-0106	24441-0205	24441-0304	24441-0403	24441-0502
Description	Numbering head 24441-2mm	Numbering head 24441-3mm	Numbering head 24441-4mm	Numbering head 24441-5mm	Numbering head 24441-6mm
Digit height	2 mm	3 mm	4 mm	5 mm	6 mm
Content unit	PCS	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1	1

**MEASURING TAPES**



**DIAMETER MEASURING TAPES**

For precision measuring of circumferences and diameters. Manufactured of stainless steel. The tape has double scales for simultaneous reading of circumference and diameter, plus vernier scale for 0.1 mm resolution.

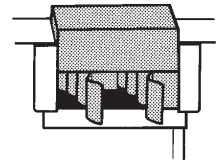
Code no.	2371-0106	2371-0205	2371-0304	2371-0403
Graduation	mm	mm	mm	mm
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Measure circumference	60-950 mm	940-2200 mm	2190-3460 mm	3450-4720 mm
Measure diameter	20-300 mm	300-700 mm	700-1100 mm	1100-1500 mm
Width	19 mm	19 mm	19 mm	19 mm
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

## PARALLEL STOPS

### PARALLEL BLOCKS

Of hardened and ground spring steel. Wave shaped parallel blocks (thickness 0.3 mm) which by virtue of their spring-action (width 0.35-4.5 mm) can replace a complete set of conventional parallel blocks. Very thin workpieces can also be clamped. Height tolerance and parallelism  $\pm 0.005$  mm. Supplied in case.

Code no.	0923-0103	0923-0202
Contents	Parallel block height (2 mm difference) 9–23 mm	Parallel block height (2 mm difference) 25–39 mm
Length	110 mm	110 mm
No. of parts	8 qty	8 qty
Qty/pack	1	1



0923-0103

### PARALLEL BLOCKS LIMIT

Set of 8 pairs. Ground in pairs. Hardened steel HRC 55-62. Parallelism tolerance.  $\pm 0.005$  mm.

Code no.	15153-1001	15153-1100	15153-1209
Contents	Parallel blocks Height, 12 mm, Parallel blocks Height, 17 mm, Parallel blocks Height, 22 mm, Parallel blocks Height, 25 mm, Parallel blocks Height, 28 mm, Parallel blocks Height, 32 mm, Parallel blocks Height, 36 mm, Parallel blocks Height, 38 mm	Parallel blocks Height, 12 mm, Parallel blocks Height, 17 mm, Parallel blocks Height, 22 mm, Parallel blocks Height, 25 mm, Parallel blocks Height, 28 mm, Parallel blocks Height, 32 mm, Parallel blocks Height, 36 mm, Parallel blocks Height, 38 mm	Parallel blocks Height, 12 mm, Parallel blocks Height, 22 mm, Parallel blocks Height, 25 mm, Parallel blocks Height, 28 mm, Parallel blocks Height, 32 mm, Parallel blocks Height, 36 mm, Parallel blocks Height, 38 mm, Parallel blocks Height, 43 mm
Length	120 mm	160 mm	200 mm
No. of parts	16 qty	16 qty	16 qty
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



15153-1100

## MEASURING SETS

### MEASURING SET 6 PIECES LIMIT

Measuring set in 6 pieces. Intended for service technicians, repairmen, etc. in both industrial, construction and property maintenance. Includes digital vernier calipers 150 mm, multimeter Limit 300 digital protractor/spirit level, feeler gauges with 13 blades from 0.05 to 1.00 mm, thread gauge for both metric and UNC threads and scribe. Supplied in practical plastic case.

Code no.	23059-0101
No. of parts	6 qty
Qty/pack	1



23059-0101

# 2

## ELECTRICAL TESTING INSTRUMENTS

Working with electricity and various kinds of inspection and testing requires accurate products that are made for more demanding environments. Our range includes a variety of easy-to-use electrical testing products that meet the standards demanded by our customers.







**ACHTUNG WARNING ATTENTION**

Kundenventilator kann jederzeit anlaufen.  
RADIATOR FAN MAY START AT ANY TIME.  
Le ventilateur de radiateur peut se déclencher à tout moment.

Hochspannung, vor Berühren der Zündanlage Motor abstellen.  
HIGH VOLTAGE, SWITCH OFF ENGINE BEFORE TOUCHING IGNITION  
MA.

Attention, arrêter le moteur avant de toucher à l'allumage.

Attention, arrêter le moteur avant de toucher à l'allumage.  
Attention, arrêter le moteur avant de toucher à l'allumage.

# ■ ABOUT ELECTRICAL SAFETY

As distribution systems and load become increasingly complex, so the risk of transient overvoltages increases. Motors, capacitors and current conversion equipment, such as variable-speed motor controllers, may cause electric arcs. Lightning strikes involving outdoor power lines can cause extremely dangerous high-energy transients. When performing measurements on electrical systems, these transients present an “invisible” and largely unavoidable hazard. They occur regularly in low-voltage circuits and can reach peak values of thousands of volts. Safety has to be built into test equipment so that you can protect yourself from transients.

We have provided the safety classes for each instrument in texts and tables so that you can choose the right level for your work.

**OVERVOLTAGE CATEGORY IV**

Three-phase at primary level, all conductors for outdoor use

- ▶ Refers to “origin of the installation”, i.e. where the low-voltage equipment is connected to a power socket.
- ▶ Electricity meters, primary spark arrestors
- ▶ Outdoors and at service level, service lines from terminal to building, passing between meter and panel.
- ▶ Overhead connection with freestanding building, ground connection with well pump.

**ÖVERSPÄNNINGSKATEGORI II**

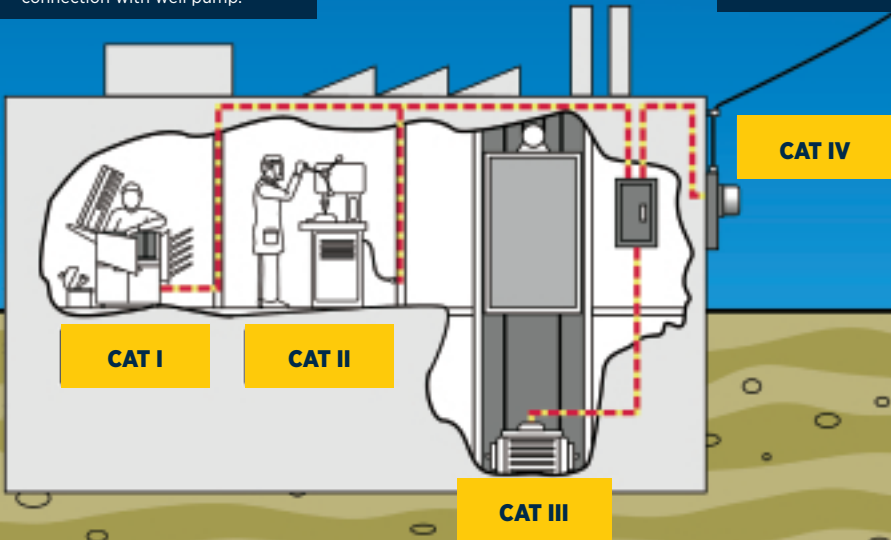
Single-phase, plug-connected loads

- ▶ Equipment, portable tools and household and other loads.
- ▶ Sockets and long mains voltage circuits.
- ▶ Sockets more than 10 metres from the CAT III source.
- ▶ Sockets more than 20 metres from the CAT IV source.

**OVERVOLTAGE CATEGORY III**

Three-phase distribution, including single-phase commercial lighting

- ▶ Equipment in permanent installations, e.g. inspection equipment and multiphase motors.
- ▶ Buses and feeds at industrial plants.
- ▶ Feeder cables and short mains voltage circuits, distribution panel units.
- ▶ Lighting systems in larger buildings.
- ▶ Appliance connectors with short connections to the service level.





## ■ ABOUT RMS

It is fairly difficult to measure currents accurately on today's industrial and office premises, where personal computers, motor controllers and equipment that draws current in brief pulses instead of using evenly sinusoidal current is the norm. This type of equipment means that standard instruments detecting rectified average values display errors to varying degrees. If you have ever hunted for the cause of a tripped fuse but without success, your multimeter may be the source of the problem.

### Rectified average value detection

When referring to alternating current measurements, we normally mean the effective value, i.e. the thermal output, referred to in the data sheets as RMS (Root Mean Square). This value is equivalent to a direct current that gives the same thermal output in a resistor as the measured alternating current. The most common way of measuring this thermal output with a multimeter is to rectify the alternating current, find out the average value of the rectified signal and multiply the result by a factor of 1.11. This factor represents a relationship between the average value and the effective value on a perfect sine curve. However, this relationship no longer applies unless the curve is perfectly sinusoidal. This is why instruments that detect the rectified average value mostly report incorrect values when measuring current in modern electrical systems.

### Linear and non-linear loads

Linear loads mainly consist of resistors, coils and capacitors, which always draw a sinusoidal current. This is why there are no problems with these loads (see Figure 1). Non-linear loads, such as frequency converters and the switched power units in office electronics, draw a distorted current (see Figure 2). Measuring the effective value with instruments that detect the rectified average value may result in measurements that are up to 50% too low. As a result, you may end up wondering why a 14A fuse is constantly tripping, even though your multimeter is displaying a value of 10A.

### True effective value

To measure such distorted waveform shapes, you can check the waveform shape with a graphic instrument first and only use an instrument that detects the rectified average value if the curve is perfectly sinusoidal. If you do not want to take any chances, you should always use an instrument that measures the true effective value directly.

A modern multimeter that measures the effective value uses electronic measuring technology to always show the correct effective value of an alternating current, regardless of whether the waveform shape is sinusoidal or distorted.

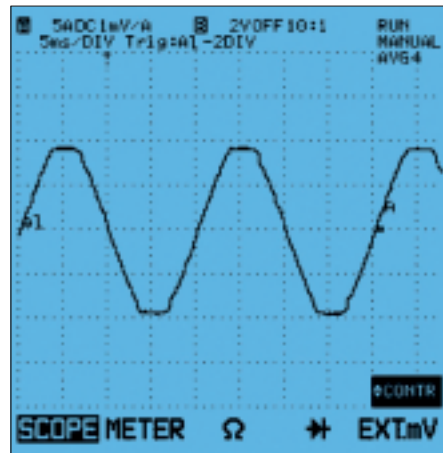


Fig. 1. Current curve of a linear load.

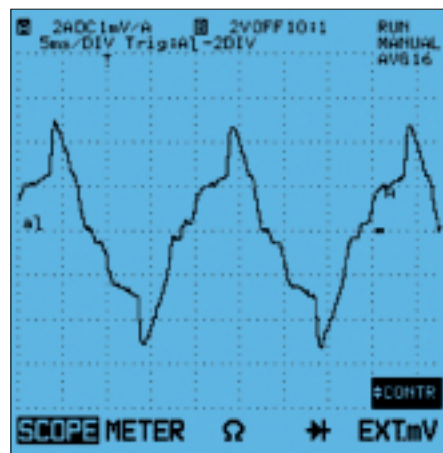


Fig. 2. Current curve of a non-linear load.

## AMMETERS



### CLIP-ON AMMETER LIMIT 20

Digital clamp multimeter with autorange Measures DC/AC voltage, AC current, resistance. Also testing diode, continuity with buzzer, datahold, low battery capacity warning. Supplied completely with test leads, carrying case, battery and English manual. Max. display 1999. Safety insulation CAT II 600 V/CAT 300 V, IEC 61010.

<b>Code no.</b>	<b>12856-0109</b>
Automatic shutoff	15 min
Battery size	LR06
Battery type	Alkaline
Current inaccuracy (AC)	±4% (+ 5 digits)
Current inaccuracy (DC)	±1.2% (+5 digits)
Current measurement range (AC), max	±0.8 (+1 digit) %
Current measurement range (DC), max	400 A
Current measurement range (DC), min	2 A
Current resolution (AC)	1 mA
Current resolution (DC)	0.1 mV
Length	208 mm
Manufacturer's description	20
No. of batteries	2 qty
Resistance Inaccuracy	± 1% + 2
Resistance measurement range, max	20 MΩ
Resistance measurement range, min	200 Ω
Resistance resolution	0.1 Ω
Safety classification	CAT II 600 V,CAT III 300 V
Voltage measurement range (AC) max	400 A
Voltage measurement range (AC) min	2 A
Voltage measurement range (DC) max	600 V
Voltage measurement range (DC) min	2 V
Weight	260 g
Width	76 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
12856-0109	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
12856-0109	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
12856-0109	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
12856-0109	20058-0306	Cables for crocodile clips 1.2 m	1 PCS

## CLIP-ON AMMETER LIMIT 21

Digital clip-on ammeter/multimeter with auto range. For measuring direct/alternating voltage, AC/DC, resistance, frequency. Also diode test, continuity test with buzzer, data hold, battery capacity warning. Supplied complete with test cables, storage case, batteries and Swedish user guide. Scale length 3999. Insulation CAT II 600 V / CAT III 300 V according to IEC 61010.



<b>Code no.</b>	<b>14487-0102</b>
Battery size	6F22 (9 V)
Battery type	Alkaline
Current inaccuracy (AC)	±2.5% (+5 digits)
Current inaccuracy (DC)	±2% (+3 digits)
Current measurement range (AC), max	400 A
Current measurement range (AC), min	40 A
Current measurement range (DC), max	400 A
Current measurement range (DC), min	40 A
Current resolution (AC)	0.01 A
Current resolution (DC)	0.01 A
Frequency inaccuracy	±0.1 (+3 digits)
Frequency measurement range, max	1 MHz
Frequency measurement range, min	10 Hz
Frequency resolution	0.001 Hz
Length	210 mm
Manufacturer's description	21
No. of batteries	1 qty
Pulse ratio	0.1%–99.9%
Resistance Inaccuracy	±1% +2 digits
Resistance measurement range, max	40 MΩ
Resistance measurement range, min	400 Ω
Resistance resolution	0.1 Ω
Safety classification	CAT II 600 V, CAT III 300 V
Voltage inaccuracy (AC)	±1% (+5 digits)
Voltage inaccuracy (DC)	±0.8% (+1 digit)
Voltage measurement range (AC) max	600 V
Voltage measurement range (AC) min	4 V
Voltage measurement range (DC) max	600 V
Voltage measurement range (DC) min	4 mV
Voltage resolution (AC)	1 mV
Voltage resolution (DC)	0.1 mV
Weight	200 g
Width	76 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
14487-0102	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
14487-0102	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
14487-0102	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
14487-0102	20058-0306	Cables for crocodile clips 1.2 m	1 PCS



### CLIP-ON AMMETER LIMIT 23

Digital clip-on ammeter/multimeter with auto range. For measuring direct/alternating voltage, AC/DC, resistance, frequency. Also start current measurement, max/min function, true RMS for AC voltage, diode test, continuity test with buzzer, data hold, battery capacity warning. Supplied complete with test cables, storage case, batteries and Swedish user guide. Scale length 6666. Insulation CAT II 600 V / CAT III 300 V according to IEC 61010.

<b>Code no.</b>	<b>14486-0103</b>
Battery size	6F22 (9 V)
Battery type	Alkaline
Current inaccuracy (AC)	±2% (+8 digits)
Current inaccuracy (DC)	±1.5% (+8 digits)
Current measurement range (AC), max	1000 A
Current measurement range (AC), min	66 A
Current measurement range (DC), max	1000 A
Current measurement range (DC), min	66 A
Current resolution (AC)	0.01 A
Current resolution (DC)	0.01 A
Frequency inaccuracy	±0.1% (+3 digit)
Frequency measurement range, max	66 MHz
Frequency measurement range, min	660 Hz
Frequency resolution	0.1 Hz
Length	285 mm
Manufacturer's description	23
No. of batteries	1 qty
Pulse ratio	0.1%–99.9%
Resistance Inaccuracy	±1.2% +2 digits
Resistance measurement range, max	66 MΩ
Resistance measurement range, min	600 Ω
Resistance resolution	0.1 Ω
Safety classification	CAT II 600 V, CAT III 300 V
Voltage inaccuracy (AC)	±1.2% (+5 digits)
Voltage inaccuracy (DC)	±0.8% (+1 digit)
Voltage measurement range (AC) max	600 V
Voltage measurement range (AC) min	6.6 V
Voltage measurement range (DC) max	600 V
Voltage measurement range (DC) min	6.6 V
Voltage resolution (AC)	1 mV
Voltage resolution (DC)	0.1 mV
Weight	533 g
Width	105 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
14486-0103	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
14486-0103	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
14486-0103	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
14486-0103	20058-0306	Cables for crocodile clips 1.2 m	1 PCS

## TEST CABLES FOR CLIP-ON AMMETER

20058-0108. Test cables. Probes with spring sockets  $\varnothing$  4 mm, suitable for wall outlets, etc. Cable length 1.3 m. CAT III, 1000 V, 10 A. 20058-0207. 2 insulated crocodile clips. Opening 33 mm. CAT III, 1000V, 10A. 20058-0306. Cables for crocodile clips. Length 1.2 m. CAT III, 1000V, 10A. 19866-0102. Soft storage case. The above accessories are suitable for part no. 12860-0103, 12859-0106, 19018-0109, 12858-0107, 15322-0108, 12856-0109, 14487-0102, 14486-0103.

<b>Code no.</b>	<b>20058-0108</b>
Article description	Test cables 1.3 m. CAT III, 1000V, 10A
Content unit	PCS
Qty/pack	1



20058-0108

## MULTIMETERS

### DIGITAL MULTIMETER LIMIT 210

Digital multimeter in pocket size with autorange. Measuring DC/AC voltage, resistance, frequency and capacitance. Also diodtest, continuity with buzzer, datahold, relative mode, low battery capacity warning and auto off after 15 minutes. Supplied with battery, testleads, cover and manual. Max display 3999. Safety isolation CAT II 600V, EN 61010-1 och EN 61326-1.

<b>Code no.</b>	<b>19865-0103</b>
Battery size	CR2032 (3 V)
Battery type	Lithium-ion
Capacitance inaccuracy	$\pm(4\% +3)$
Capacitance measurement range, max	100 $\mu$ F
Capacitance measurement range, min	4 $\mu$ F
Capacitance resolution	0,0001 nF
Frequency inaccuracy	$\pm(0.5\% +3)$
Frequency measurement range, max	10 MHz
Frequency measurement range, min	10 Hz
Length	110 mm
Manufacturer's description	210
No. of batteries	1 qty
Resistance inaccuracy	$\pm(1\% +2)$
Resistance measurement range, max	40 M $\Omega$
Resistance measurement range, min	400 $\Omega$
Resistance resolution	0.1 $\Omega$
Safety classification	CAT II 600 V
Voltage inaccuracy (AC)	$\pm(1.2\% +3)$
Voltage inaccuracy (DC)	$\pm(0.8\% +3)$
Voltage measurement range (AC) max	600 V
Voltage measurement range (AC) min	4 V
Voltage measurement range (DC) max	600 V
Voltage measurement range (DC) min	400 mV
Voltage resolution (AC)	1 mV
Voltage resolution (DC)	0.1 mV
Weight	76 g
Width	58 mm
Content unit	PCS
Qty/pack	1



19865-0103



12860-0103

## MULTIMETER LIMIT 300

Small and ergonomically designed digital multimeter. For measuring direct/alternating voltage, DC, resistance, temperature. Also diode test, continuity test with buzzer, data hold, display lighting, battery capacity warning. Supplied complete with test cables, temperature sensor for max. 260 °C, batteries and Swedish and Norwegian user guide. Rubber cover and fold-out bench support. Scale length 1999. Insulation CAT I 1600 V/CAT II 300 V according to IEC 61010. Fuse protected to max. 200 mA.

<b>Code no.</b>	<b>12860-0103</b>
Background lit Display	Yes
Battery size	6F22 (9 V)
Battery type	Alkaline
Current measurement range (AC), max	10 A
Current measurement range (AC), min	2000 mA
Current measurement range (DC), max	10 A
Current measurement range (DC), min	2000 mA
Length	120 mm
Manufacturer's description	300
No. of batteries	1 qty
Resistance inaccuracy	±(0.8% +2)
Resistance measurement range, max	20 MΩ
Resistance measurement range, min	200 Ω
Resistance resolution	0.1 Ω
Safety classification	CAT II 600 V, CAT I 1000 V
Temperature measurement range, max	1000 °C
Temperature measurement range, min	-40 °C
Temperature resolution	1 °C
Voltage inaccuracy (AC)	±(1.2% +10)
Voltage inaccuracy (DC)	±(1.2% +2)
Voltage measurement range (AC) max	500 V
Voltage measurement range (AC) min	200 V
Voltage measurement range (DC) max	500 V
Voltage measurement range (DC) min	200 V
Voltage resolution (AC)	100 mV
Voltage resolution (DC)	100 mV
Weight	156 g
Width	74 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
12860-0103	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
12860-0103	12860-0301	Extra temperature sensor for max. 260°C	1 PCS
12860-0103	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
12860-0103	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
12860-0103	20058-0306	Cables for crocodile clips 1.2 m	1 PCS
12860-0103	19866-0102	Soft case	1 PCS

## MULTIMETER LIMIT 310

Easy-to-use and ergonomically designed digital multimeter with large clear display. For measuring direct/alternating voltage, DC, resistance and temperature. Plus diode test, continuity test with buzzer, data hold, backlighting and battery capacity warning. Fitted with a rubber cover and fold-out bench support.

Supplied complete with test cables, temperature sensor for max. 260 °C and 2 pcs 1.5V AAA batteries.

Scale length 1999. Safety classification CAT II 250V according to IEC 61010. Fuse protected to max. 250V for 10 seconds and 200mA.



12860-0111

<b>Code no.</b>	<b>12860-0111</b>
Background lit Display	Yes
Battery size	AAA (1.5 V)
Battery type	Alkaline
Current inaccuracy (DC)	$\pm (1.0\% +2) - \pm (1.0\% +5)$
Current measurement range (DC), max	10 A
Current measurement range (DC), min	2000 $\mu$ A
Length	134 mm
Manufacturer's description	300
Max. working temperature	40 °C
No. of batteries	2 qty
Resistance inaccuracy	$\pm (1.0\% +2) - \pm (1.0\% +3)$
Resistance measurement range, max	20 M $\Omega$
Resistance measurement range, min	200 $\Omega$
Safety classification	CAT II: 250V
Temperature measurement range, max	1000 °C
Temperature measurement range, min	-40 °C
Temperature resolution	1 °C
Thickness	47 mm
Voltage inaccuracy (AC)	$\pm (1.2\% +3)$
Voltage inaccuracy (DC)	$\pm (0.7\% +3)$
Voltage measurement range (AC) max	250 V
Voltage measurement range (AC) min	200 V
Voltage measurement range (DC) max	250 V
Voltage measurement range (DC) min	200 mV
Voltage resolution (AC)	0.1-1 V
Weight	206 g
Width	77 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1



## MULTIMETER LIMIT 400

Digital multimeter with manual measurement range selection. Measures DC/AC voltage, DC/AC current, resistance, capacitance, frequency and temperature. Also diode test, transistor test, continuity test with buzzer, hold function, and low battery capacity warning. Supplied complete with test cables, batteries and Swedish user guide. Scale length 1999. Insulation CAT II 600 V / CAT III 1000 V according to IEC 61010. Fuse protected to 20 A.

<b>Code no.</b>	<b>19018-0109</b>
Background lit Display	Yes
Battery size / type	6F22 (9 V) / Alkaline
Capacitance inaccuracy	±(4% +3)
Capacitance measurement range, max	20 $\mu$ F
Capacitance measurement range, min	2 $\mu$ F
Capacitance resolution	0,01 nF
Current inaccuracy (AC)	±(1% +3)
Current inaccuracy (DC)	±(0.8% +1)
Current measurement range (AC), max	20 A
Current measurement range (AC), min	2 mA
Current measurement range (DC), max	20 A
Current measurement range (DC), min	2 mA
Current resolution (AC)	1 $\mu$ A
Current resolution (DC)	0.01 $\mu$ A
Dimensions	172x83x38 mm
Frequency inaccuracy	±(1.5% +5)
Frequency measurement range, max	20 kHz
Frequency measurement range, min	2 Hz
Frequency resolution	1 Hz
Length	172 mm
Manufacturer's description	400
Max. working temperature	40 °C
Resistance inaccuracy	±(0.8% +1)
Resistance measurement range, max	20 M $\Omega$
Resistance measurement range, min	200 $\Omega$
Resistance resolution	0.1 $\Omega$
Safety classification	CAT II 600 V,CAT I 1000 V
Temperature measurement range, max	1000 °C
Temperature measurement range, min	-40 °C
Temperature resolution	1 °C
Voltage inaccuracy (AC)	±(0.8% +3)
Voltage inaccuracy (DC)	±(0.5% +1)
Voltage measurement range (AC) max	750 V
Voltage measurement range (AC) min	2 V
Voltage measurement range (DC) max	1000 V
Voltage measurement range (DC) min	200 mV
Voltage resolution (AC)	1 mV
Voltage resolution (DC)	100 $\mu$ V
Weight	310 g
Width	83 mm
Work temperature, min	0 °C

Code no.	Accessories	Article description	Packaging
19018-0109	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
19018-0109	12860-0301	Extra temperature sensor for max. 260°C	1 PCS
19018-0109	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
19018-0109	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
19018-0109	20058-0306	Cables for crocodile clips 1.2 m	1 PCS



## MULTIMETER LIMIT 500

Digital multimeter with large display that indicates the correct cable connection and selected measuring range. For measuring direct/alternating voltage, AC/DC, resistance, capacitance, frequency, temperature. Also diode test, transistor test, continuity test with buzzer, data hold, battery capacity warning. Automatic shutoff. Supplied complete with test cables, multi contact, temperature sensor type K for max. 260 °C, batteries and Swedish and Norwegian user guide. Rubber cover and fold-out bench support. Scale length 1999. Insulation CAT II 1000 V / CAT III 600 V according to IEC 61010. Fuse protected to max. 200mA.



<b>Code no.</b>	<b>12859-0106</b>
Background lit Display	Yes
Battery size / type	6F22 (9 V) / Alkaline
Capacitance inaccuracy	±(4% +3)
Capacitance measurement range, max	100 µF
Capacitance measurement range, min	2 µF
Capacitance resolution	1 nF
Current inaccuracy (AC)	±(1% +3)
Current inaccuracy (DC)	±(0.8% +1)
Current measurement range (AC), max	10 A
Current measurement range (AC), min	2 A
Current measurement range (DC), max	10 A
Current measurement range (DC), min	2 A
Current resolution (AC)	1 µA
Current resolution (DC)	0.01 µA
Frequency inaccuracy	±(1.5% +5)
Frequency measurement range, max	20 kHz
Frequency measurement range, min	2 Hz
Frequency resolution	1 Hz
Length	179 mm
Manufacturer's description	500
Resistance inaccuracy	±(0.8% +1)
Resistance measurement range, max	20 MΩ
Resistance measurement range, min	200 Ω
Resistance resolution	0.1 Ω
Safety classification	CAT II 1000 V, CAT III 600 V
Temperature measurement range, max	1000 °C
Temperature measurement range, min	-40 °C
Temperature resolution	1 °C
Voltage inaccuracy (AC)	±(0.8% +3)
Voltage inaccuracy (DC)	±(0.5% +1)
Voltage measurement range (AC) max	1000 V
Voltage measurement range (AC) min	2 V
Voltage measurement range (DC) max	1000 V
Voltage measurement range (DC) min	200 mV
Voltage resolution (AC)	1 mV
Voltage resolution (DC)	0.1 mV
Weight	380 g
Width	88 mm

Code no.	Accessories	Article description	Packaging
12859-0106	12859-0205	Extra universal plugs	1 PCS
12859-0106	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
12859-0106	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
12859-0106	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
12859-0106	20058-0306	Cables for crocodile clips 1.2 m	1 PCS



## MULTIMETER LIMIT 500 AUTO

Digital automotive multimeter. Suitable for cars, boats, motor mechanics. Large display that even assigns the right cable socket and selected measurement range. For measuring direct/alternating voltage, DC, resistance, cam angle and speed. Also diode test, continuity test with buzzer, data hold, battery capacity warning. Supplied complete with test cables, batteries and Swedish and Norwegian user guide. Rubber cover and fold-out bench support. Scale length 1999. Insulation CAT II 1000 V / CAT III 600 V according to IEC 61010. Fuse protected to 10 A.

<b>Code no.</b>	<b>12858-0107</b>
Background lit Display	Yes
Battery size	6F22 (9 V)
Battery type	Alkaline
Cam angle inaccuracy	±(3% +5)
Cam angle resolution	0,1 °
Current inaccuracy (DC)	±(0.8% +5)
Current measurement range (DC), max	10 A
Current measurement range (DC), min	200 mA
Current resolution (DC)	0.01 mA
Length	179 mm
Manufacturer's description	500 Auto
No. of batteries	1 qty
Resistance inaccuracy	±(0.8% +5)
Resistance measurement range, max	20 MΩ
Resistance measurement range, min	200 Ω
Resistance resolution	0.1 Ω
Safety classification	CAT II 1000 V,CAT III 600 V
Speed inaccuracy	±(3% +5)
Speed resolution	10 r/min
Voltage inaccuracy (AC)	±(0.8% +5)
Voltage inaccuracy (DC)	±(0.5% +5)
Voltage measurement range (AC) max	750 V
Voltage measurement range (AC) min	2 V
Voltage measurement range (DC) max	1000 V
Voltage measurement range (DC) min	200 mV
Voltage resolution (AC)	1 mV
Voltage resolution (DC)	0.1 mV
Weight	380 g
Width	88 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
12858-0107	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
12858-0107	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
12858-0107	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
12858-0107	20058-0306	Cables for crocodile clips 1.2 m	1 PCS

## MULTIMETER LIMIT 610

Digital multimeter with both automatic and manual measuring range adjustment. Analogue bar graph for quick or unstable signals. True RMS for both voltage and current when measuring non-linear signals. Records maximum and minimum value. Measures direct/alternating voltage, AC/DC, resistance, capacitance, frequency. Also diode test, continuity test with buzzer, hold function, display lighting, low battery capacity warning. Can be connected to PC. Supplied complete with test cables, PC cable with software, batteries and Swedish user guide. Scale length 6000. Insulation CAT III 1000 V/ CAT IV 600 V according to IEC 61010. Fuse protected to 10 A.



<b>Code no.</b>	<b>15322-0108</b>
Background lit Display	Yes
Battery size /type	6F22 (9 V) / Alkaline
Capacitance inaccuracy	±(3% +5)
Capacitance measurement range, max	4000 $\mu$ F
Capacitance measurement range, min	40 nF
Capacitance resolution	0,01 nF
Current inaccuracy (AC)	±(1.2% +5)
Current inaccuracy (DC)	±(1% +3)
Current measurement range (AC), max	10 A
Current measurement range (AC), min	600 mA
Current measurement range (DC), max	10 A
Current measurement range (DC), min	600 mA
Current resolution (AC)	0.1 $\mu$ A
Current resolution (DC)	0.1 $\mu$ A
Frequency inaccuracy	±(0.1% +4)
Frequency measurement range, max	10 MHz
Frequency measurement range, min	10 Hz
Frequency resolution	0.001 Hz
Length	177 mm
Manufacturer's description	610
Max. working temperature	40 °C
Resistance inaccuracy	±(1.2% +2)
Resistance measurement range, max	60 M $\Omega$
Resistance measurement range, min	600 $\Omega$
Resistance resolution	0.1 $\Omega$
Safety classification	CAT III 1000 V,CAT IV 600 V
Voltage inaccuracy (AC)	±(1.2% +5)
Voltage inaccuracy (DC)	±(1% +3)
Voltage measurement range (AC) max	750 V
Voltage measurement range (AC) min	60 V
Voltage measurement range (DC) max	1000 V
Voltage measurement range (DC) min	60 V
Voltage resolution (AC)	0.01 mV
Voltage resolution (DC)	0.10 mV
Weight	300 g
Width	85 mm
Work temperature, min	0 °C

Code no.	Accessories	Article description	Packaging
15322-0108	12860-0202	Test cables 1.0 m CAT II, 600V	1 PCS
15322-0108	20058-0108	Test cables 1.3 m. CAT III, 1000V, 10A	1 PCS
15322-0108	20058-0207	Insulated crocodile clips CAT III, 1000V, 10A	1 PCS
15322-0108	20058-0306	Cables for crocodile clips 1.2 m	1 PCS



### TEST CABLE FOR MULTIMETER, CLIP-ON AMMETER

Accessories for multimeter, clip-on ammeter Limit.

<b>Code no.</b>	<b>12860-0202</b>
Article description	Test cables 1.0 m CAT II, 600V
Description	Test cables 1.0 m CAT II, 600V
Content unit	PCS
Qty/pack	1

## MULTIMETERS – ACCESSORIES

### EXTRA UNIVERSAL PLUG FOR MULTIMETER LIMIT 500

Accessories for multimeter, clip-on ammeter Limit.



<b>Code no.</b>	<b>12859-0205</b>
Article description	Extra universal plugs
Description	Extra universal plugs
Content unit	PCS
Qty/pack	1

### CABLES FOR CROCODILE CLIPS FOR MULTIMETER

20058-0108. Test cables. Probes with spring sockets  $\varnothing$  4 mm, suitable for wall outlets, etc. Cable length 1.3 m. CAT III, 1000 V, 10 A. 20058-0207. 2 insulated crocodile clips. Opening 33 mm. CAT III, 1000V, 10A. 20058-0306. Cables for crocodile clips. Length 1.2 m. CAT III, 1000V, 10A. 19866-0102. Soft storage case. The above accessories are suitable for part no. 12860-0103, 12859-0106, 19018-0109, 12858-0107, 15322-0108, 12856-0109, 14487-0102, 14486-0103.



20058-0306

<b>Code no.</b>	<b>20058-0306</b>
Article description	Cables for crocodile clips 1.2 m
Content unit	PCS
Qty/pack	1

## CROCODILE CLIPS FOR CLIP-ON AMMETERS AND MULTIMETERS

20058-0108. Test cables. Probes with spring sockets  $\varnothing$  4 mm, suitable for wall outlets, etc. Cable length 1.3 m. CAT III, 1000 V, 10 A. 20058-0207. 2 insulated crocodile clips. Opening 33 mm. CAT III, 1000 V, 10 A. 20058-0306. Cables for crocodile clips. Length 1.2 m. CAT III, 1000 V, 10 A. 19866-0102. Soft storage case. The above accessories are suitable for part no. 12860-0103, 12859-0106, 19018-0109, 12858-0107, 15322-0108, 12856-0109, 14487-0102, 14486-0103.

<b>Code no.</b>	<b>20058-0207</b>
Article description	Insulated crocodile clips CAT III, 1000V, 10A
Content unit	PCS
Qty/pack	1



## TEMPERATURE SENSOR FOR MULTIMETER

Accessories for multimeter, clip-on ammeter Limit.

<b>Code no.</b>	<b>12860-0301</b>
Article description	Extra temperature sensor for max. 260°C
Content unit	PCS
Qty/pack	1



## CASE FOR MULTIMETER

20058-0108. Test cables. Probes with spring sockets  $\varnothing$  4 mm, suitable for wall outlets, etc. Cable length 1.3 m. CAT III, 1000 V, 10 A. 20058-0207. 2 insulated crocodile clips. Opening 33 mm. CAT III, 1000V, 10A. 20058-0306. Cables for crocodile clips. Length 1.2 m. CAT III, 1000V, 10A. 19866-0102. Soft storage case. The above accessories are suitable for part no. 12860-0103, 12859-0106, 19018-0109, 12858-0107, 15322-0108, 12856-0109, 14487-0102, 14486-0103.

<b>Code no.</b>	<b>19866-0102</b>
Article description	Soft case
Content unit	PCS
Qty/pack	1



## VOLTAGE DETECTORS



### VOLTAGE DETECTOR LIMIT 100

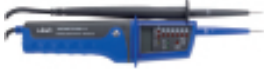
Control of electrical voltage or not in conductors, wallsocket etc. Distinguish between phase and zero. Non-contact, just place the tip near an AC voltage conductor. Led flash and buzzer when conductor is live. Buzzer can be turned off. Both automatic and manual off. The instrument is continual checking function and battery status by regular ledflash. Supplied with battery and manual. Safety isolation CAT IV 1000V.

<b>Code no.</b>	<b>14501-0104</b>
Battery size	AAA
Length	150 mm
Manufacturer's description	100
No. of batteries	2 qty
Voltage measurement range (AC) max	1000 V
Voltage measurement range (AC) min	90 V
Width	18 mm
Content unit	PCS
Qty/pack	1

## VOLTAGE TESTERS



14489-0100



14489-0209

### VOLTAGE TESTER LIMIT 110 / 112

Voltage tester and continuity tester with buzzer. Can also distinguish the phase from zero in single phase systems. Phase sequence test to check direction of rotation of 3-phase motors. Function check for RCD. Shows polarity + or - when measuring DC voltage. Built-in flash light. One-handed operation from the wall outlet controls. Switches on and off automatically. Supplied with tip cap, batteries and Swedish user guide. Insulation CAT IV 600 V according to IEC 61010. Water-resistant according to IP 65. 110. LEDs show voltage in 7 steps. 12-24-50-120-230-400-690 V. 112. Actual voltage value appears on the display plus LEDs.

<b>Code no.</b>	<b>14489-0100</b>	<b>14489-0209</b>
Battery size	AAA (1.5 V)	AAA (1.5 V)
Display	No	Yes
Length	260 mm	260 mm
Manufacturer's description	110	112
No. of batteries	2 qty	2 qty
Optic continuity test	Yes	Yes
Voltage measurement range (AC) max	690 V	690 V
Voltage measurement range (AC) min	12 V	12 V
Voltage measurement range (DC) max	690 V	690 V
Voltage measurement range (DC) min	12 V	12 V
Width	56 mm	56 mm
Content unit	PCS	PCS
Qty/pack	1	1



# 3

## LASER INSTRUMENTS

For precision work both indoors and outdoors.

The term “laser” covers distance meters, point lasers and line lasers, as well as rotating lasers. Products supplied by Limit are easy to use and meet stringent requirements.





Keep it simple –  
be **exact**





## ■ POINT LASERS AND LINE LASERS

Often smaller, hand-held laser models for carpenters, painters, tilers, electricians, ventilation fitters, etc. Used when laying out walls and fittings, for example. These devices use points or lines, vertically and horizontally, to give the user references to work from. This makes work easier.



## ■ DISTANCE METERS

Distance meters are most commonly used to measure the distance from the instrument to a specific point which is targeted using the instrument's laser pointer. However, today's distance meters include so many more useful, time-saving features such as square measurement, cubic measurement, angle measurement, height and width measurement of objects at a distance, communication with apps, camera function, and much more.



## ■ ROTATING LASERS

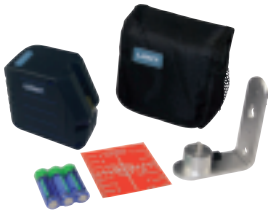
These operate along the same lines as line lasers. They are used to measure level differences for various kinds of groundworks and when constructing larger structures, for example. A rotating laser is an important instrument when working with foundations, pipelaying and casting concrete, for instance.



**CROSS LINE LASERS**

**CROSS LINE LASER LIMIT 1001-R**

Limit Cross line laser with very bright red laser light that provides sharp laser lines. Compact flexible cross laser with a horizontal and a vertical line. The vertical line runs 110 degrees up to the ceiling. Self-levelling with magnetic damping compensator. The lines can be lit individually or together. Alternatively, self-levelling can be disconnected to show a sloping line. Mechanical locking of the pendulum acts both as a main switch and transport lock. 2 laser diodes class 2M, <1mw 635 nm. Can be used outdoors or in bright rooms with a separate laser detector (17862-0209 not included). Supplied with mount for tripod/wall mounting, reflective target plate, soft case and 3 pcs AA batteries. Adapter 181120205 may be needed for accessories 181120106, 200570109, 178650800, 178680104 & 178690103.



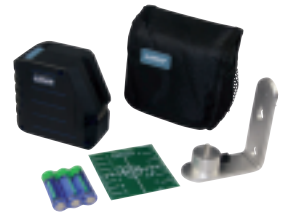
<b>Code no.</b>	<b>17862-0110</b>
Battery size	AA (1.5 V)
Battery type	Alkaline
Depth	96 mm
Enclosure class	IP 54
Height	101 mm
Inaccuracy, line	± 3 mm/10 m
Laser class	2M <1 mW
Laser diode	635 nm
Laser type	Cross line laser
Levelling range	± 3 °
Manufacturer's description	1001-R
Max. working temperature	50 °C
No. of batteries	3 qty
Operating time	10, h
Threaded mount	1/4 inch
Visibility (depending on lighting conditions)	15 m
Weight	400 g
Width	54 mm
Work range with receiver	40 m
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
17862-0110	17863-0208	Wall bracket for line laser	1 PCS
17862-0110	17863-0604	Wall bracket magnetic for line laser	1 PCS
17862-0110	17862-0209	Laser receiver for cross line laser with red laser light	1 PCS
17862-0110	17862-1009	Holder Limit for laser receivers	1 PCS
17862-0110	17867-0105	Telescopic leveling staff 5m	1 PCS
17862-0110	17863-0307	Target	1 PCS
17862-0110	17863-0406	Laser glasses red	1 PCS
17862-0110	24465-1303	Tripod Limit for laser 1080	1 PCS
17862-0110	18112-0205	Adapter 5/8 For 1/4 M inch	1 PCS
17862-0110	18112-0106	Tripod Limit for laser 1080	1 PCS
17862-0110	20057-0109	Laser rod	1 PCS
17862-0110	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
17862-0110	17868-0104	Tripod Limit	1 PCS
17862-0110	17869-0103	Stand with crank	1 PCS



### CROSS LINE LASER LIMIT 1001-G

Cross line laser with very bright green laser light that is four times brighter than the red light. Compact pocket model. One horizontal line and one vertical line. The vertical line runs 90 degrees up to the ceiling. Self-levelling with magnetic damping compensator. The lines can be lit individually or together. Alternatively, self-levelling can be disconnected to show a sloping line. Mechanical locking of the pendulum mechanism acts both as a main switch and transport lock. 2 laser diodes class 2M, 15 mw 515-520 nm. Can be used outdoors or in bright rooms with a separate laser receiver (17862-0308 not included). Supplied with mount for tripod/wall mounting, reflective target plate, soft case and 3 pcs AA batteries. Adapter 181120205 may be needed for accessories 181120106, 200570109, 178650800, 178680104 & 178690103.



17862-0126

<b>Code no.</b>	<b>17862-0126</b>
Battery size	AA (1.5 V)
Battery type	Alkaline
Depth	96 mm
Enclosure class	IP 54
Height	101 mm
Inaccuracy, line	± 3 mm/10 m
Laser class	2M <1 mW
Laser diode	515 nm
Laser type	Cross line laser
Levelling range	± 3 °
Manufacturer's description	1001-G
Max. working temperature	50 °C
No. of batteries	3 qty
Operating time	6, h
Threaded mount	1/4 inch
Visibility (depending on lighting conditions)	15 m
Weight	400 g
Width	54 mm
Work range with receiver	40 m
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
17862-0126	17863-0208	Wall bracket for line laser	1 PCS
17862-0126	17863-0604	Wall bracket magnetic for line laser	1 PCS
17862-0126	17862-0308	Laser receiver for cross line laser with green laser light	1 PCS
17862-0126	17862-1009	Holder Limit for laser receivers	1 PCS
17862-0126	17867-0105	Telescopic leveling staff 5m	1 PCS
17862-0126	17863-0505	Laser glasses green	1 PCS
17862-0126	24465-1303	Tripod Limit for laser 1080	1 PCS
17862-0126	18112-0205	Adapter 5/8 For 1/4 M inch	1 PCS
17862-0126	18112-0106	Tripod Limit for laser 1080	1 PCS
17862-0126	20057-0109	Laser rod	1 PCS
17862-0126	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
17862-0126	17868-0104	Tripod Limit	1 PCS
17862-0126	17869-0103	Stand with crank	1 PCS

**CROSS LINE LASER LIMIT 360V2**

Line laser with a horizontal line 360° around and two vertical lines that are lit 90 degrees perpendicular to each other. Self-levelling with magnetic damping compensator. The lines can be lit individually or together. Mechanical locking of the pendulum mechanism acts both as a main switch and transport lock. A buzzer sounds and lines flash when the incline exceeds the self-levelling range. Self-levelling can be disconnected when you wish to show an inclined plane. Supplied with reflective target, soft case and batteries. Limit 360V2 also features a pulsating light for use outdoors or in bright rooms together with a separate laser receiver (not included). Adapter 181120205 may be needed for accessories 181120106, 200570109, 178650800, 178680104 & 178690103.



24216-0109

<b>Code no.</b>	<b>24216-0109</b>
Battery	1.5 (3 x AA) V
Battery size	AA
Battery type	Alkaline
Depth	52 mm
Dimensions	88x52x112 mm
Enclosure class	IP 54
Height	88 mm
Laser type	Cross line laser
Levelling range	±3 °
Levelling range	±3 °
Manufacturer's description	360V2
Max. working temperature	45 °C
No. of batteries	3 qty
Operating time	8 h
Threaded mount	1/4 inch
Threaded mount	1/4"
Weight	420 g
Width	112 mm
Work temperature, min	-5 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
24216-0109	17863-0208	Wall bracket for line laser	1 PCS
24216-0109	17863-0604	Wall bracket magnetic for line laser	1 PCS
24216-0109	17862-0209	Laser receiver for cross line laser with red laser light	1 PCS
24216-0109	17862-1009	Holder Limit for laser receivers	1 PCS
24216-0109	17867-0105	Telescopic leveling staff 5m	1 PCS
24216-0109	17863-0307	Target	1 PCS
24216-0109	17863-0406	Laser glasses red	1 PCS
24216-0109	24465-1303	Tripod Limit for laser 1080	1 PCS
24216-0109	18112-0205	Adapter 5/8 For 1/4 M inch	1 PCS
24216-0109	18112-0106	Tripod Limit for laser 1080	1 PCS
24216-0109	20057-0109	Laser rod	1 PCS
24216-0109	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
24216-0109	17868-0104	Tripod Limit	1 PCS
24216-0109	17869-0103	Stand with crank	1 PCS

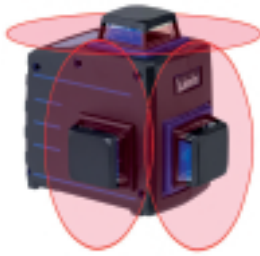
## CROSS DOT LASER LIMIT 1002 HVP

Combined cross laser and dot laser. Very bright and sharp laser lines. One horizontal line and one vertical line and 5 dots. The vertical line runs 115 degrees up to the ceiling. Self-levelling with magnetic damping compensator. Warns with flashing laser and audio when the laser does not manage to level. The lines and dots can be lit individually or together. The main power switch provides mechanical locking of the pendulum thus act as transit protection. Can be used outdoors or in bright rooms with a separate laser detector (not included). 2 laser diodes class 15 mw, 635 nm for lines and 1 x 10 mw 635 nm for dots. Supplied together with mount for tripod/wall mounting, reflective target plate, soft case and batteries.



<b>Code no.</b>	<b>17863-1008</b>
Battery	AA 1.5 (3 x AA) V
Battery type	Alkaline
Depth	110 mm
Dimensions	120x110x65 mm
Dot accuracy	±4 mm/10 m mm
Enclosure class	IP 54
Height	120 mm
Inaccuracy, horizontal, points	±4 mm/10 m
Inaccuracy, line	±3 mm/10 m
Inaccuracy, vertical, points	±4 mm/10 m
Laser type	Cross line laser
Levelling range	±3 °
Levelling range	± 3 °
Line accuracy	±3 mm/10 m mm
Manufacturer's description	1002 HVP
Max. working temperature	45 °C
No. of batteries	3 qty
Operating time	7 h
Threaded mount	1/4,5/8 inch
Threaded mount	1/4" - 5/8"
Weight	500 g
Width	65 mm
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
17863-1008	17863-0208	Wall bracket for line laser	1 PCS
17863-1008	17863-0604	Wall bracket magnetic for line laser	1 PCS
17863-1008	17862-0209	Laser receiver for cross line laser with red laser light	1 PCS
17863-1008	17862-1009	Holder Limit for laser receivers	1 PCS
17863-1008	17867-0105	Telescopic leveling staff 5m	1 PCS
17863-1008	17863-0307	Target	1 PCS
17863-1008	17863-0406	Laser glasses red	1 PCS
17863-1008	24465-1303	Tripod Limit for laser 1080	1 PCS
17863-1008	18112-0205	Adapter 5/8 For 1/4 M inch	1 PCS
17863-1008	18112-0106	Tripod Limit for laser 1080	1 PCS
17863-1008	20057-0109	Laser rod	1 PCS
17863-1008	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
17863-1008	17868-0104	Tripod Limit	1 PCS
17863-1008	17869-0103	Stand with crank	1 PCS



24465-0107

### MULTI CROSS LINE LASER LIMIT 1080-R

Multi cross line laser with red laser light that shows 3 very bright 360° lines. One horizontal 360° line and two vertical 360° lines that are lit at 90° to each other. The lines can be lit individually or together. Self-levelling with magnetic damping compensator. A buzzer sounds and lines flash when the incline exceeds the self-levelling range. Self-levelling can be switched off when you want to show an inclined plane by mechanically locking the pendulum mechanism, which functions as both a main circuit breaker and a transport lock. Limit 1080 also features a pulsating light for use outdoors and in bright rooms together with a separate laser receiver 17862-0209 (not included). Powered by AA batteries or charger (sold separately). Supplied with adjustable 3-leg tripod (237–500 mm), magnetic attachment, reflective target and AA batteries in a protective case. Rechargeable battery and charger available as extras. Adapter 181120205 may be needed for accessories 181120106, 200570109, 178650800, 178680104 & 178690103.

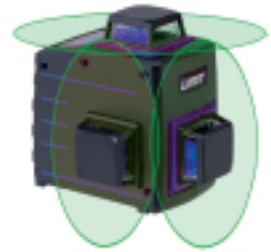
<b>Code no.</b>	<b>24465-0107</b>
Battery size / Battery type	AA (1.5 V) / Alkaline
Depth	125 mm
Enclosure class	IP 54
Height	122 mm
Inaccuracy, line	±2mm/10m
Laser class	2m, < 1 mW
Laser diode	635 nm
Laser type	Cross line laser
Levelling range	±3 °
Manufacturer's description	1080
Max. working temperature	40 °C
No. of batteries	4 qty
Operating time	6-10 h
Threaded mount	1/4, 5/8 inch
Visibility (depending on lighting conditions)	Opp til 30 m
Weight	560 g
Width	82 mm
Work range with receiver	50 m
Work temperature, min	-5 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
24465-0107	17863-0208	Wall bracket for line laser	1 PCS
24465-0107	17863-0604	Wall bracket magnetic for line laser	1 PCS
24465-0107	17862-0209	Laser receiver for cross line laser with red laser light	1 PCS
24465-0107	17862-1009	Holder Limit for laser receivers	1 PCS
24465-0107	17867-0105	Telescopic leveling staff 5m	1 PCS
24465-0107	17863-0307	Target	1 PCS
24465-0107	17863-0406	Laser glasses red	1 PCS
24465-0107	24465-1105	Rechargeable battery	1 PCS
24465-0107	24465-1204	Battery eliminator / charger	1 PCS
24465-0107	24465-1006	Battery and charger set	1 PCS
24465-0107	24465-1303	Tripod Limit for laser 1080	1 PCS
24465-0107	18112-0205	Adapter 5/8 For 1/4 M inch	1 PCS
24465-0107	18112-0106	Tripod Limit for laser 1080	1 PCS
24465-0107	20057-0109	Laser rod	1 PCS
24465-0107	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
24465-0107	17868-0104	Tripod Limit	1 PCS
24465-0107	17869-0103	Stand with crank	1 PCS



## MULTI CROSS LINE LASER LIMIT 1080-G

Multi cross line laser with green laser light that shows 3 very bright 360° lines. One horizontal 360° line and two vertical 360° lines that are lit at 90° to each other. The lines can be lit individually or together. Laser with green light offers 4 times more visibility compared with red laser light, making it ideal for use in bright environments and/or over long distances. Self-levelling with magnetic damping compensator. A buzzer sounds and lines flash when the incline exceeds the self-levelling range. Self-levelling can be switched off when you want to show an inclined plane by mechanically locking the pendulum mechanism, which functions as both a main circuit breaker and a transport lock. Limit 1080 also features a pulsating light for use outdoors and in bright rooms together with a separate laser receiver 17862-0308 (not included). Powered by AA batteries or a rechargeable battery and charger (sold separately). Supplied with adjustable 3-leg tripod (237-500 mm), magnetic attachment, reflective target and AA batteries in a protective case. Rechargeable battery and charger available as extras (244651006). Adapter 181120205 may be needed for accessories 181120106, 200570109, 178650800, 178680104 & 178690103.



24465-0206

<b>Code no.</b>	<b>24465-0206</b>
Battery	Li-ion 2 Ah
Battery size / Battery type	AA (1.5 V) / Alkaline, Li-ion
Depth	125 mm
Enclosure class	IP 54
Height	122 mm
Inaccuracy, line	±2mm/10m
Laser class	2m, < 1 mW
Laser diode	515 nm
Laser type	Cross line laser
Levelling range	±3 °
Manufacturer's description	1080-G
Max. working temperature	40 °C
No. of batteries	4 qty
Operating time	3-6 h
Support	Yes
Threaded mount	1/4, 5/8 inch
Visibility (depending on lighting conditions)	upp till 30m
Weight	560 g
Width	82 mm
Work range with receiver	50 m
Work temperature, min	-5 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
24465-0206	17863-0208	Wall bracket for line laser	1 PCS
24465-0206	17863-0604	Wall bracket magnetic for line laser	1 PCS
24465-0206	17862-0308	Laser receiver for cross line laser with green laser light	1 PCS
24465-0206	17862-1009	Holder Limit for laser receivers	1 PCS
24465-0206	17867-0105	Telescopic leveling staff 5m	1 PCS
24465-0206	17863-0505	Laser glasses green	1 PCS
24465-0206	24465-1105	Rechargeable battery	1 PCS
24465-0206	24465-1204	Battery eliminator / charger	1 PCS
24465-0206	24465-1006	Battery and charger set	1 PCS
24465-0206	24465-1303	Tripod Limit for laser 1080	1 PCS
24465-0206	18112-0205	Adapter 5/8 For 1/4 M inch	1 PCS
24465-0206	18112-0106	Tripod Limit for laser 1080	1 PCS
24465-0206	20057-0109	Laser rod	1 PCS
24465-0206	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
24465-0206	17868-0104	Tripod Limit	1 PCS
24465-0206	17869-0103	Stand with crank	1 PCS

**CROSS LINE LASERS – ACCESSORIES**



**ADAPTER FOR LASER**

Laser adapter with male 1/4" and female 5/8". The adapter makes it possible to use a tripod with 5/8" connection to a laser with 1/4" thread.

<b>Code no.</b>	<b>18112-0205</b>
Article description	Adapter 5/8 For 1/4 M inch,
Content unit	PCS
Qty/pack	1

**BATTERY AND CHARGER FOR MULTI CROSS LINE LASER LIMIT 1080**

Accessories for multi cross line laser Limit 1080.



24465-1006



24465-1105



24465-1204

<b>Code no.</b>	<b>24465-1006</b>	<b>24465-1105</b>	<b>24465-1204</b>
Article description	Battery and charger set	Rechargeable battery	Battery eliminator / charger
Description	Battery and charger set	Rechargeable battery	Battery eliminator / charger
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



**RECEIVER FOR CROSS LINE LASER RED**

Laser receiver for cross line laser with red laser light, incl. holder for level rod, range 35 m.

<b>Code no.</b>	<b>17862-0209</b>
Article description	Laser receiver for cross line laser with red laser light
Description	Laser receiver with holder for level rod
Content unit	PCS
Qty/pack	1

## WALL BRACKET AND ADAPTER FOR LINE LASER / CROSS LINE LASER

Accessories for line laser / cross line laser Limit.

<b>Code no.</b>	<b>23086-0207</b>
Article description	Battery adapter 230 V
Description	Battery adapter 230 V
Content unit	PCS
Qty/pack	1



23086-0207

## LASER SHELF AND FOOT FOR LASER ROD

Accessories for laser rod Limit.

<b>Code no.</b>	<b>20057-0208</b>	<b>20057-0307</b>
Article description	Extra laser shelf	Extra base
Content unit	1 PCS	1 PCS
Qty/pack	1 PCS	1 PCS



20057-0208



20057-0307

## LASER ROD LIMIT

Laser rod that can stand freely on the floor with leg supports, or clamped between floor and ceiling without leg supports to take up less space in tight spaces. Suitable for indoor use both cross laser or rotary laser e.g. Limit 1210. The shelf can be locked at the desired height along the entire length of the rod. The bar consists of 5 sections that are screwed together to the desired length. Spring feet. Easy to transport and assemble. Manufactured of aluminium. Supplied in case.

<b>Code no.</b>	<b>20057-0109</b>
Article description	Laser rod
Height max	360 cm
Threaded mount	5/8 inch
Weight	2,4 kg
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
20057-0109	20057-0208	Extra laser shelf	1 PCS
20057-0109	20057-0307	Extra base	1 PCS



20057-0109



**RECEIVER FOR CROSS LINE LASER GREEN**

Laser receiver for cross line laser with green laser light, incl. holder for level rod, range 35 m.

<b>Code no.</b>	<b>17862-0308</b>
Article description	Laser receiver for cross line laser with green laser light
Description	Laser receiver for cross line laser
Content unit	PCS
Qty/pack	1



24465-1303

**TRIPOD LIMIT FOR LASER 1080**

Compact mini tripod to fit all cross line lasers with a 5/8" thread mount.

<b>Code no.</b>	<b>24465-1303</b>
Article description	Tripod Limit for laser 1080
Height max	400 mm
Height, min.	255 mm
Threaded mount	5/8 inch
Weight	380 g
Content unit	PCS
Qty/pack	1



17863-0604

**WALL BRACKET MAGNETIC AND TILTABLE**

Tiltable adapter bracket with magnet for stand/wall mounting, fits cross line lasers with a 1/4" mount.

<b>Code no.</b>	<b>17863-0604</b>
Article description	Wall bracket magnetic for line laser
Content unit	PCS
Qty/pack	1

**LASERS – ACCESSORIES**

**ALUMINIUM STAND FOR SURVEYING INSTRUMENTS**

Aluminium tripod. Suitable for all types of surveying instrument and laser instrument with 5/8" threaded mount. With carrying strap.



17868-0104

<b>Code no.</b>	<b>17868-0104</b>
Article description	Tripod Limit
Height max	1650 mm
Threaded mount	5/8 inch
Weight	3,6 kg
Content unit	PCS
Qty/pack	1

## STURDY ALUMINIUM STAND FOR SURVEYING INSTRUMENTS

Sturdy aluminium tripod. Gear rack post with crank for precise height adjustment. For levelling lasers and surveying instruments. Suitable for all brands with 5/8" threaded mount.

<b>Code no.</b>	<b>17869-0103</b>
Article description	Stand with crank
Height adjustment with crank	Yes
Height max	2300 mm
Threaded mount	5/8 inch
Weight	7,5 kg
Content unit	PCS
Qty/pack	1



17869-0103

## ALUMINIUM STAND FOR SURVEYING INSTRUMENTS

Aluminium tripod for line lasers. Mounting screw thread 5/8". Fine height adjustment via rack pillar and crank.

<b>Code no.</b>	<b>18112-0106</b>
Article description	Tripod Limit for laser 1080
Height adjustment with crank	Yes
Height max	1700 mm
Length, retracted	600 mm
Threaded mount	5/8 inch
Weight	1,2 kg
Content unit	PCS
Qty/pack	1



18112-0106

## MEASURING WHEEL

Used for measuring longer distances, for example, at roadworks and the like. The measuring wheel is weight balanced for comfortable use. Wheel brake in the handle and standing frame. Folds in two parts for easy transport. Supplied with transport bag.

<b>Code no.</b>	<b>17428-0107</b>
Measurement range	10000 m
Resolution	10 cm
Weight	2,5 kg
Wheel diameter	320 mm
Content unit	PCS
Qty/pack	1





17862-1009

## HOLDER LIMIT FOR LASER RECEIVERS

Holder for laser receivers.

<b>Code no.</b>	<b>17862-1009</b>
Article description	Holder Limit for laser receivers
Content unit	PCS
Qty/pack	1



17863-0505

## LASER GLASSES GREEN

Green laser glasses that increase visibility of the laser beam when working outdoors or in bright environments.

<b>Code no.</b>	<b>17863-0505</b>
Article description	Laser glasses green
Content unit	PCS
Qty/pack	1

## MEASURING WHEELS

### MEASURING WHEEL

Used for measuring longer distances, for example, at roadworks and the like. The measuring wheel is weight balanced for comfortable use. Wheel brake in the handle and standing frame. Folds in two parts for easy transport. Supplied with transport bag.



<b>Code no.</b>	<b>17428-0107</b>
Measurement range	10000 m
Resolution	10 cm
Weight	2,5 kg
Wheel diameter	320 mm
Content unit	PCS
Qty/pack	1

## MEASURING RODS

### LEVEL ROD

Telescopic level rod made of aluminium. E-scale on one side and mm-scale on the other. Each section locks automatically when fully extended. Supplied with circular vial and protective case. Length 5 m.



<b>Code no.</b>	<b>17867-0105</b>
Article description	TELESCOPIC LEVELING STAFF 5M
Measurement length, max	5 m
Weight	1,2 kg
Content unit	PCS
Qty/pack	1

## ROTATING LASERS

### ROTARY LASER LIMIT 1210 HV

Rotary laser with visible light. Most suitable for indoor use. Enclosure class IP54. Motorised automatic self-levelling both horizontally and vertically with manual slope setting on one plane. Scanning mode with adjustable scanning angle. Tilt function where the instrument must be manually restarted after the instrument has been moved from its initial level. The remote control can adjust the tilt, rotation speed, scanning angle and the rotating scanning area in both directions. Laser detector with dual indication window, display lighting, adjustable tone, fine or coarse accuracy. The instrument can be calibrated according to instructions in the manual. Supplied in a hard plastic case with remote control, laser receiver with holder, wall mount/floor plate, reflective target plate, rechargeable battery pack with charger and User Guide. Laser diode class 2M, 1mw 635 nm.



<b>Code no.</b>	<b>19864-0104</b>
Battery size	Battery pack
Control with remote control	Yes
Depth	175 mm
Enclosure class	IP 54
Height	130 mm
Inaccuracy, horizontal	±1.0 mm/10 m
Inaccuracy, vertical	±1.5 mm/10 m
Levelling	Horizontal, Vertical
Levelling range	±5 °
Manufacturer's description	1210HV
Max. working temperature	40 °C
Operating time	24 h
Remote control/distance	30 m
Rotation speed	0,300,600 r/min
Weight	2 kg
Width	210 mm
Work temperature, min	-10 °C
Working range diameter	200 m
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
19864-0104	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
19864-0104	17865-0503	Extra laser receiver	1 PCS
19864-0104	17865-0602	Extra clamp for laser receiver	1 PCS
19864-0104	17867-0105	Telescopic leveling staff 5m	1 PCS
19864-0104	17863-0307	Target	1 PCS
19864-0104	17863-0406	Laser glasses red	1 PCS
19864-0104	19864-0302	Extra charger	1 PCS
19864-0104	19864-0203	Extra battery pack	1 PCS
19864-0104	19864-0401	Extra remote control	1 PCS
19864-0104	17868-0104	Tripod Limit	1 PCS
19864-0104	17869-0103	Stand with crank	1 PCS



17866-0155

### LASER LEVEL 1300 LIMIT ROTARY

Rotary laser level, heavy-duty design for horizontal measurement. Designed primarily for outdoor use, rinse-proof to IP 66. Visible light. Motorised automatic self-levelling with option for manual slope setting on one plane. Electronic sensors. Shake function with alarm where the instrument must be manually restarted e.g. after being shaken or moved from its initial level. Laser detector with dual indication window, display lighting, adjustable tone, fine or coarse accuracy. The instrument can be calibrated according to instructions in the manual. Supplied in a hard plastic case with laser receiver and holder, mains adapter and battery holder for alkaline batteries. Laser diode class 2M, 1mw 635 nm.

<b>Code no.</b>	<b>17866-0155</b>
Depth	222 mm
Enclosure class	IP 66
Height	166 mm
Inaccuracy, horizontal	±0.7mm/10 m
Inaccuracy, vertical	±0.7mm/10 m
Levelling	Horizontal
Levelling range	±5 °
Max. working temperature	50 °C
Operating time	18, h
Rotation speed	600 r/min
Weight	2,5 kg
Width	166 mm
Work temperature, min	-10 °C
Working range diameter	200 m

Code no.	Accessories	Article description	Packaging
17866-0155	02360-0018	Battery power industry LR20	10 PAC
17866-0155	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
17866-0155	17865-0503	Extra laser receiver	1 PCS
17866-0155	17865-0602	Extra clamp for laser receiver	1 PCS
17866-0155	17867-0105	Telescopic leveling staff 5m	1 PCS
17866-0155	17863-0307	Target	1 PCS
17866-0155	17863-0406	Laser glasses red	1 PCS
17866-0155	17868-0104	Tripod Limit	1 PCS
17866-0155	17869-0103	Stand with crank	1 PCS



### LASER PACKAGE LIMIT 1210 HV

Complete package containing Rotary laser 1210, 19864-0104, laser receiver with holder, remote control, rechargeable battery pack with charger, wall bracket/floor plate, reflector target, red glasses, tripod 17868-0104 and level rod 17867-0105.

<b>Code no.</b>	<b>19864-2001</b>
Manufacturer's description	1210 HV
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
19864-2001	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
19864-2001	17865-0503	Extra laser receiver	1 PCS
19864-2001	17865-0602	Extra clamp for laser receiver	1 PCS
19864-2001	17867-0105	Telescopic leveling staff 5m	1 PCS
19864-2001	17863-0307	Target	1 PCS
19864-2001	17863-0406	Laser glasses red	1 PCS
19864-2001	19864-0203	Extra battery pack	1 PCS
19864-2001	19864-0302	Extra charger	1 PCS
19864-2001	19864-0401	Extra remote control	1 PCS
19864-2001	17868-0104	Tripod Limit	1 PCS
19864-2001	17869-0103	Stand with crank	1 PCS



### LIMIT LASER PACKAGE 1300H

Laser package containing Rotary laser 1300, 17866-0155, laser receiver with holder, stand 17869-0103 and level rod 17867-0105.

<b>Code no.</b>	<b>17866-2102</b>
Qty/pack	1

Code no.	Accessories	Article description	Packaging
17866-2102	02360-0018	Battery power industry LR20	10 PAC
17866-2102	17865-0800	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.	1 PCS
17866-2102	17865-0503	Extra laser receiver	1 PCS
17866-2102	17865-0602	Extra clamp for laser receiver	1 PCS
17866-2102	17867-0105	Telescopic leveling staff 5m	1 PCS
17866-2102	17863-0307	Target	1 PCS
17866-2102	17863-0406	Laser glasses red	1 PCS
17866-2102	17868-0104	Tripod Limit	1 PCS
17866-2102	17869-0103	Stand with crank	1 PCS



**ROTATING LASERS – ACCESSORIES**

**BATTERY AND CHARGER FOR ROTATING LASER**

Accessories for rotary laser 1210HV and 1300H Limit.



19864-0203



19864-0302

Code no.	19864-0203	19864-0302
Article description	Extra battery pack	Extra charger
Description	Extra battery pack for 1210	Extra charger for 1210
Content unit	PCS	PCS
Qty/pack	1	1



**LASER GLASSES FOR ROTATING LASER**

Red laser glasses. Increases the visibility of the laser beam.

Code no.	17863-0406
Article description	Laser glasses red
Description	Red laser glasses
Content unit	PCS
Qty/pack	1



17865-0503



17865-0602



19864-0401

**WALL BRACKET AND REMOTE CONTROL FOR ROTARY LASER LIMIT**

Receiver, clip and remote control for rotary lasers 1210HV and 1300H Limit.

Code no.	17865-0503	17865-0602	19864-0401
Article description	Extra laser receiver	Extra clamp for laser receiver	Extra remote control
Description	Extra laser receiver	Extra clamp for laser receiver	Extra remote control for 1210
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

### TARGET FOR ROTATING LASER

Wall bracket. With thread 5/8". Fine height adjustment 110 mm and graduated scale.

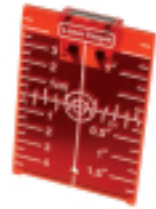
<b>Code no.</b>	<b>17865-0800</b>
Article description	Wall bracket. With 5/8" fastening screw. Adjustment 110 mm in height.
Description	Wall bracket. With 5/8" fastening screw.
Content unit	PCS
Qty/pack	1



### TARGET FOR ROTATING LASER

Target. Increases the visibility of the laser beam. With the magnetic mount, suspension hole and leg support.

<b>Code no.</b>	<b>17863-0307</b>
Article description	Target
Description	Target
Length	105 mm
Width	75 mm
Content unit	PCS
Qty/pack	1

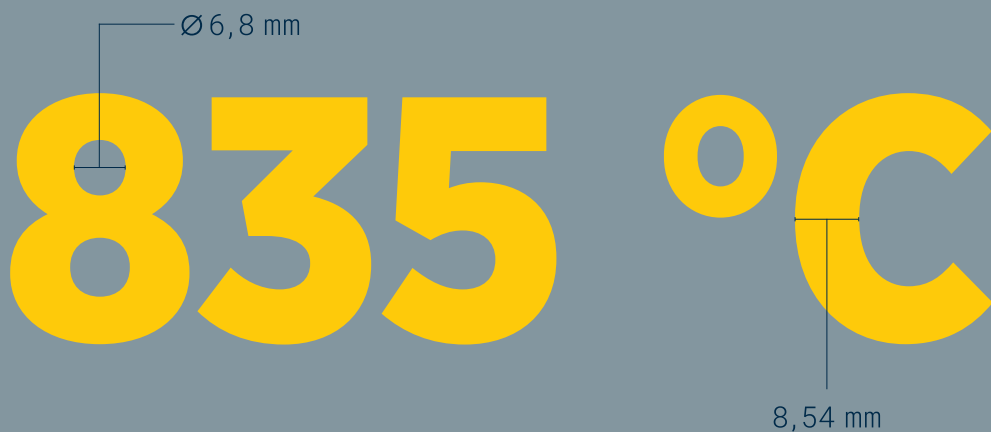


# 4

## CLIMATE AND ENVIRONMENTAL INSTRUMENTS

Demands on the work environment are becoming increasingly stringent in order to protect people and production.

Limit offers a wide range of moisture and temperature instruments. Our products meet strict quality requirements to help you achieve the best results.





# ABOUT TEMPERATURE SENSORS

How to find the right sensor for your temperature gauge:

## AIR SENSORS, IMMERSION SENSORS AND INSERTION SENSORS



Three-phase at primary level, all conductors for outdoor use

- ▶ Immersion sensors (Type K, Pt100, NTC) for measurements in fluid, but also for measurements in gas and air.

## TYPE K SENSOR DESIGN



We recommend the patented measuring probe with spring-loaded thermocouple bands for fast measurement, even on uneven surfaces. The thermocouple bands measure the actual temperature of the object being measured within a few seconds:

- ▶ Easy to use (without silicone-based thermal conduction paste).
- ▶ Fast measuring results.

### Further information

- The specified response time  $t_{99}$  is measured in fluid in motion (water) at 60 °C.
- In general, the thinner the sensor, the faster the response, which

means less time in the object being measured.

- The sensor has to be inserted in the object being measured to an extent at least 10 times the diameter of the sensor (15 x the diameter is better) in order to measure the actual temperature.
- However, the thinner a sensor is, the more careful you have to be with it.

## SURFACE TEMPERATURE SENSORS DESIGN



Sensor designs: Type K, CuCuNi, Pt100, NTC. With measuring tips for measurements on flat surfaces. We recommend a silicone-based thermal conduction paste ( $T_{max}$  260 °C) for optimum function.

### ▶ Advantages of NTC:

- Robust design.
- Higher sensor accuracy.

### ▶ Disadvantages of NTC:

- Long response time.
- Careful handling is required.
- Only suitable for smooth surfaces with high thermal capacity, e.g. large metal objects.

**RULE OF THUMB:** Sensors with thermocouples are fast and have a broad measuring range. Resistance sensors and NTC sensors are slower but more accurate. The broader the measuring range, the more general applications are available.

# ABOUT IR TEMPERATURE MEASUREMENT

## Principles

It is a well-known fact that all bodies give off electromagnetic waves, or radiation, depending on their temperature. When this radiation is distributed, energy is also transported. This means that radiation can be used to measure temperature without touching the object being measured.

## When does IR temperature measurement work?

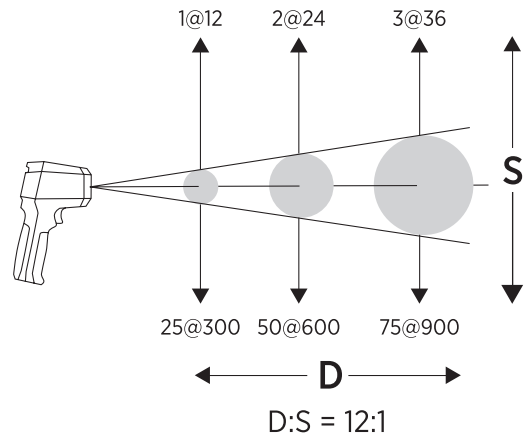
It is generally possible to perform good measurements on all non-metallic materials and painted metal surfaces. IR measurement is not recommended for highly polished metal surfaces: the surface has to be painted or taped.

## What is emissivity factor?

Different materials emit, radiate and reflect to different extents, so correction is necessary in order to guarantee the accuracy of the IR measurement. This correction is known as the emissivity factor.

## Sources of problems during IR measurement

- Emissivity factor set incorrectly. Check that the correct factor has been set, if it is possible to adjust this.
- Polished metal surface. The reflection affects the measurement more than the emissivity.
- Measurement marks are larger than the object being measured.
- Dirt or mist on the lens.
- Large temperature difference between the instrument and the ambient air.



### Find heat and cold point

Aim the thermometer at target area and start to measure, then move up and down slowly to sweep the whole area until the heat point and/or cold point are found.

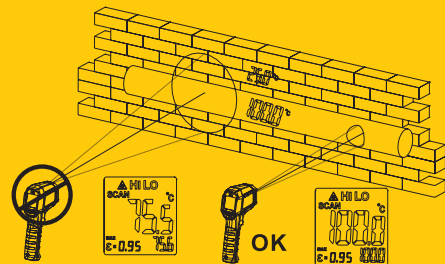


D:S (Distance Coefficient)

Limit 97 have D:S of 12:1 which means that if an object is measured from a distance of 12 m the instrument will show the average value off 1m in diameter (shown below).

### Visual field

Ensure that the target is larger than the diameter of the two laser spots. The smaller the target is, the closer is the measurement distance. Suggested measurement distance should be so the diameter of the two laser spots cover less than 75% of the testing area (shown below).



### Emissivity

Emissivity characterization reflects the of material's radiated energy. Emissivity for most organic materials, paints or oxidized surfaces are about 0,95. Total emissivity of selected metals and non-metals are listed in the following table.



## ■ ABOUT MOISTURE

### Relative humidity (RH)

The air's ability to absorb water varies with the temperature. The higher the temperature, the more water the air can absorb. To express the amount of moisture in the air, we specify the relative humidity in the unit % RH.

### Dew point

The dew point is expressed in °C and specifies the temperature at which humidity reaches 100% RH and water vapour (condensation) is formed.

### Moisture in materials

Moisture content (% FC) is the difference in percent between the weight of the water in moist material and the weight of the dried material. The moisture content can be determined by weighing-drying-weighing. In wood, the moisture content can also be measured using an electronic moisture content meter, as the electrical properties vary with the moisture content. In concrete, moisture content can be measured by drilling a hole, vacuuming it clean, sealing it and allowing it to stand for several days until there is equilibrium (see moisture balance). You can then measure the relative humidity

in the drill hole, which in turn will provide the moisture content in the concrete when you know the absorption curve for that particular concrete. It is important to vacuum thoroughly, seal tightly around the moisture sensor and allow it to stand in the drill hole until there is equilibrium. The drill hole should rest for approx. 48 hours before taking the measurement in order to obtain a correctly balanced moisture content. Wait at least half an hour after inserting the probe in the hole before reading the measurement.

### Choosing a moisture meter

You should ask yourself the following questions before choosing a moisture meter.

- Which material should I take a measurement from?
- How far into the material do I need to measure?
- Which structure should I measure from?
- What accuracy and what moisture level will I need to measure?
- Find out the paint manufacturer's recommendations for maximum moisture content prior to surface treatment.





## Pin meters

What is known as a pin meter measures the moisture indirectly by measuring the resistance (conductance) with an electric current that passes from one pin to the other. A pin meter measures the moisture as far as the pin is inserted. Use longer measuring pins to check the moisture farther into the wood. To measure what are known as moisture gradients, you will need Teflon-insulated measuring pins.

### Advantages of pin meters

- Tried and tested method that has been used in the timber and construction industry for a long time.
- Fast. The measurement results are displayed immediately.
- Possible to detect moisture gradients.
- Good on uneven material surfaces.

### Disadvantages of pin meters

- Destructive measurement method. The pins must penetrate into the material to be able to take a measurement.
- At high moisture content levels in wood, the water may be ionised together with the resin. This means that the moisture content will appear to vary.
- Dependent on temperature, requiring temperature compensation for optimal accuracy.
- The measurement results can be affected by impregnating agents.

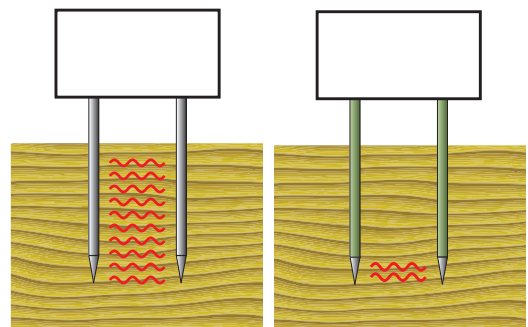
### Some things to consider

- A sledge hammer makes things easier when taking measurements with Teflon-insulated measuring pins.
- Insert the pins at 90 degrees to the wood grain.
- Do not measure in end grain surfaces, the cell structure of the wood means the moisture content in the ends can vary significantly when compared with the moisture content farther into the wood.

- For repeated measurements, e.g. inspections of moisture damage, insert the pins into new holes; old pin holes will oxidise and show lower values.

## Capacitive/non-destructive moisture meters

A capacitive/non-destructive moisture meter measures changes in the material capacitance which varies depending on the moisture content. The instrument emits a high-frequency signal. The frequency of the electrical signal will vary due to the capacitance of the material.



Stålstift.

Tefloniserstift.

### Advantages of capacitive moisture meters

- Non-destructive measurement method, no damage to the object.
- Fast. Immediate measurement results, measuring at as many locations as required.
- Independent of temperature, requires no temperature compensation.

### Disadvantages of capacitive moisture meters

- Dependent on density, material needs adjusting for optimal accuracy.
- Detects rebar and other metals as increased moisture content if these are within the measurement depth and sensing range.
- Requires good placement of the sensors against the material.

## MOISTURE METERS



23384-0206

### MOISTURE METER LIMIT 6101

Easy-to-use, handheld moisture meter for measuring the moisture content in timber/ wood by pressing two measuring tips into the material. The measurement result is displayed directly on the LCD screen. The protective cover also has a calibration section to ensure accurate readings. The unit has 5 material groups that are easy to select depending on the type of wood to be measured. The display features 12 mm high digits and backlighting which switches off automatically after 30 seconds. Suitable for carpenters, house inspectors, woodworkers and homeowners. Battery included.

<b>Code no.</b>	<b>23384-0206</b>
Accuracy	±2% <28%, ±5% >28%
Air humidity resolution	1 % FK
Battery size	9 V (6F22)
Battery type	Alkaline
Length	160 mm
Moisture content (wood), max	42 % FK
Moisture content (wood), min	5 % FK
No. of batteries	1 qty
Operating conditions	0–40 °C, <75% RH,
Storage conditions	-20 to +50 °C, <85% RH
Thickness	30 mm
Weight	136 g
Width	63 mm
Content unit	PCS
Qty/pack	1



### MOISTURE METER SCANNER LIMIT 6200

Non-destructive moisture meter in a compact design. The instrument is used to detect moisture and water damage in wood and other construction materials to a depth of approx. 30–40 mm. It is also possible to detect the moisture behind tiles or under/ behind different floor or wall surface layers. Capacitive measuring method with a high frequency dielectric field. Provides a quick indication of the moisture content of the material. Move the detector over the surface and read the moisture values in the display. The backlit display also shows the air temperature. Temperature compensated for greater measuring accuracy. Supplied complete with 9 V battery. Manual included.

<b>Code no.</b>	<b>26715-0100</b>
Air humidity resolution	0,1 %
Battery size	9 V (6F22)
Battery type	Alkaline
Length	104 mm
Manufacturer's description	6200
Max. working temperature	50 °C
Measurement depth wood and building materials approx.	30-40 mm
Moisture content (wood), max	50 %
Moisture content (wood), min	0 %
No. of batteries	1 qty
Weight	110 g
Width	64 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1



## IR THERMOMETERS

### IR THERMOMETER LIMIT 94



27284-0109

Professional, non-contact infrared thermometer in an ergonomic design. Measures outdoor temperature up to 380°C with high accuracy and quick reading. Reliable measurement thanks to the two laser points that mark the outer edges of the measuring range diameter. D:S factor 12:1. Adjustable emission factor. Records max and min temperatures. Inverted LCD display with 8 mm main digits. Switch between °C and °F. Suitable for the food industry, property, safety and fire inspections, plastic moulding, asphaltting, industrial maintenance, etc. 9V battery included.

<b>Code no.</b>	<b>27284-0109</b>
Background lit Display	Yes
Battery size	9 V (6F22)
Emission factor, max	0,95
Emission factor, min	0,95
Height	131 mm
High/low alarm	No
Length	96 mm
Manufacturer´s description	94
Max. working temperature	50 °C
Measurement units	°C,°F
No. of batteries	1 qty
Number of laser markers	2
Ratio distance/measurement area	12:1
Shatter test	1 m
Spectral range	8-14 μm
Temperature measurement range (IR), max	380 °C
Temperature measurement range (IR), min	-50 °C
Temperature resolution	0.1 °C
Weight	130 g
Width	35 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
27284-0109	02360-0059	BATTERY POWER INDUSTRY 6LR61	10 PAC
27284-0109	64470-0825	BATTERY LONGLIFE POWER 6LR61 9	10 PAC

### IR THERMOMETER LIMIT 95

Professional, non-contact infrared thermometer in an ergonomic design. Measures outdoor temperature up to 550°C with high accuracy and quick reading. Reliable measurement thanks to the two laser points that mark the outer edges of the measuring range diameter. D:S factor 12:1. Adjustable emission factor. Records max temperature. Alarm function when a preset value is reached. A special function allows continuous measurement without pressing the trigger. LCD display with 10mm main digits and backlighting. Switch between °C and °F. Suitable for the food industry, property, safety and fire inspections, plastic moulding, asphaltting, industrial maintenance, etc. 9V battery included.



27284-0208

<b>Code no.</b>	<b>27284-0208</b>
Background lit Display	Yes
Battery size	9 V (6F22)
Emission factor, max	1
Emission factor, min	0,1
Height	146 mm
High/low alarm	Yes
Length	104 mm
Manufacturer´s description	95
Max. working temperature	50 °C
Measurement units	°C,°F
No. of batteries	1 qty
Number of laser markers	2
Ratio distance/measurement area	12:1
Shatter test	1 m
Spectral range	8-14 µm
Temperature measurement range (IR), max	550 °C
Temperature measurement range (IR), min	-50 °C
Temperature resolution	0.1 °C
Weight	177 g
Width	43 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
27284-0208	02360-0059	BATTERY POWER INDUSTRY 6LR61	10 PAC
27284-0208	64470-0825	BATTERY LONGLIFE POWER 6LR61 9	10 PAC



27284-0307

### IR THERMOMETER LIMIT 96

Professional, non-contact infrared thermometer in an ergonomic design. Measures outdoor temperature up to 800°C with high accuracy and quick reading. Reliable measurement thanks to the two laser points that mark the outer edges of the measuring range diameter. D:S factor 10:1. Adjustable emission factor. Records max and min temperatures. Alarm function when a preset values are reached. A special function allows continuous measurement without pressing the trigger. LCD display with 12 mm main digits and backlighting. Switch between °C and °F. Suitable for the food industry, property, safety and fire inspections, plastic moulding, asphaltting, industrial maintenance, etc. 9V battery included.

<b>Code no.</b>	<b>27284-0307</b>
Background lit Display	Yes
Battery size	9 V (6F22)
Emission factor, max	1
Emission factor, min	0,1
Height	160 mm
High/low alarm	Yes
Length	82 mm
Manufacturer's description	96
Max. working temperature	50 °C
Measurement units	°C, °F
No. of batteries	1 qty
Number of laser markers	2
Ratio distance/measurement area	10:1
Shatter test	1 m
Spectral range	8-14 μm
Temperature measurement range (IR), max	800 °C
Temperature measurement range (IR), min	-35 °C
Temperature resolution	0.1 °C
Weight	292 g
Width	41.5 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
27284-0307	02360-0059	BATTERY POWER INDUSTRY 6LR61	10 PAC
27284-0307	64470-0825	BATTERY LONGLIFE POWER 6LR61 9	10 PAC

## IR THERMOMETER LIMIT 97 IP 65

Our new infrared thermometer Limit 97 is a solid and durable product. It uses infrared measurement with twin points that measure the temperature quickly and precisely. With an IP 65 classification, it can handle the toughest environments. You can set it to measure either °C or °F, as well as different materials and surfaces, memorize max and min temperatures and use it in dark spaces thanks to the LCD display and backlight. Battery 9V included.



26688-0103

<b>Code no.</b>	<b>26688-0103</b>
Background lit Display	Yes
Battery size	9 V (6F22)
Emission factor, max	1
Emission factor, min	0,1
Enclosure class	IP 65
Height	65 mm
High/low alarm	Yes
Length	189 mm
Manufacturer's description	97
Max. working temperature	50 °C
Measurement units	°C, °F
No. of batteries	1 qty
Ratio distance/measurement area	12:1
Shatter test	3 m
Temperature measurement range (IR), max	650 °C
Temperature measurement range (IR), min	-35 °C
Temperature resolution	0.1 °C
Weight	292 g
Width	118 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
26688-0103	64470-0825	BATTERY LONGLIFE POWER 6LR61 9	10 PAC



27284-0406

### IR THERMOMETER LIMIT 98

Professional, non-contact infrared thermometer in an ergonomic design. Measures outdoor temperature up to 2200 °C with high accuracy and quick reading. Reliable measurement thanks to the two laser points that mark the outer edges of the measuring range diameter. D:S factor 50:1. Adjustable emission factor. Records max-min difference average values. Alarm function when a preset values are reached. A special function allows continuous measurement without pressing the trigger, IR measurement and KP measurement. LCD display with 12 mm main digits and backlighting. Switch between °C and °F. Can transfer the results to your computer via USB cable. Suitable for the food industry, property, safety and fire inspections, plastic moulding, asphaltting, industrial maintenance, etc. Supplied with a practical case, table tripod, 9V battery, USB cable, KP sensor.

<b>Code no.</b>	<b>27284-0406</b>
Background lit Display	Yes
Battery size	9 V (6F22)
Emission factor, max	1
Emission factor, min	0,1
Height	204 mm
High/low alarm	Yes
Length	155 mm
Manufacturer's description	98
Max. working temperature	50 °C
Measurement units	°C, °F
No. of batteries	1 qty
Number of laser markers	2
Ratio distance/measurement area	50:1
Shatter test	1 m
Spectral range	8-14 μm
Temperature measurement range (IR), max	2200 °C
Temperature measurement range (IR), min	-50 °C
Temperature measurement range (K-sensor), max	1370 °C
Temperature measurement range (K-sensor), min	-50 °C
Weight	320 g
Width	52 mm
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
27284-0406	64470-0825	BATTERY LONGLIFE POWER 6LR61 9	10 PAC
27284-0406	02360-0059	BATTERY POWER INDUSTRY 6LR61	10 PAC



## SOUND LEVEL METERS

### DECIBEL METER LIMIT 7000

Digital sound level meter. Two different filter curves A or C and Fast or Slow sound recording. The A-filter corresponds to the human ear's sensitivity to frequencies and is suitable for environmental sound measurements. The C-filter is linear and is ideal for inspecting machines. Fast sound recording is used when you want to see rapid sound peaks. The Slow mode gives a stable measurement result of sound that varies or pulses. The sound can be measured instantaneously or by giving a mean value over a selected time period, from 10 seconds to 24 hours. Integrated memory for 30 measurements, or the instrument can be connected to a PC to register the measurement values. Registration of max. value. Alarm function indicates via an LED when the sound level is above a set value. The number of measurement values that exceed the alarm value during the measurement period can be shown. Adjustable automatic or manual shut-off. Integrated calibration function 94 dB. Swedish user guide. Battery not included. Conforms to standard IEC 651 Type 2, ANSI 1.4 Type 2.



<b>Code no.</b>	<b>15152-0103</b>
Battery size	LR03 AAA (1.5 V)
Frequency range, max	12500 Hz
Frequency range, min	20 Hz
Length	236 mm
Manufacturer's description	7000
Measurement periods	10,1,5,15,30,8,24 s
Memory slots	30 qty
No. of batteries	4 qty
Noise level measurement range, max	130 dB
Noise level measurement range, min	30 dB
Noise level resolution	0,1 dB
Precision	±1 dB
Update rate "fast"	125 ms
Update rate "slow"	1 s
Weight	170 g
Width	63 mm
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
15152-0103	15152-0202	Computer cable with software for connection to PC. Connection RS-232.	1 PCS
15152-0103	15152-0301	Sound calibrator 94 and 114 dB	1 PCS
15152-0103	15152-0400	Battery adapter	1 PCS

## SOUND LEVEL METERS – ACCESSORIES

### BATTERY ADAPTER FOR DECIBEL METER LIMIT 7000

Accessories for decibel meter Limit 7000.

<b>Code no.</b>	<b>15152-0400</b>
Article description	Battery adapter
Description	Battery adaptor
Content unit	PCS
Qty/pack	1





### DATA CABLE FOR DECIBEL METER LIMIT 7000

Accessories for decibel meter Limit 7000.

<b>Code no.</b>	<b>15152-0202</b>
Article description	Computer cable with software for connection to PC. Connection RS-232.
Description	Data cable with software for connection to PC. Connection RS-232
Content unit	PCS
Qty/pack	1

### SOUND CALIBRATOR FOR DECIBEL METER LIMIT 7000

Accessories for decibel meter Limit 7000.



15152-0301

<b>Code no.</b>	<b>15152-0301</b>
Article description	Sound calibrator 94 and 114 dB
Description	Sound calibrator 94 and 114 dB
Content unit	PCS
Qty/pack	1

## REFRACTOMETERS



### REFRACTOMETER LIMIT 1800

Refractometer to quickly and accurately measure the concentration of an aqueous solution, cutting fluid and other industrial solutions. Helps machine operators to maintain the optimum balance between the water and coolant to minimise wear on tools and increase the feed and cutting speeds. Easy to focus and calibrate using a precision screwdriver, which is included. Sturdy, lightweight robust aluminium design ensures a long life

<b>Code no.</b>	<b>23383-0207</b>
Manufacturer's description	1800
Measurement range	0-18% Brix
Minimum scale graduation	0.10% Brix
Content unit	PCS
Qty/pack	1



### REFRACTOMETER LIMIT 6400

Handheld refractometer to simply check the freezing point of radiator and washer fluids as well as battery acid to determine the condition of the battery. Measures both ethylene and propylene glycol. The refractometer is an optical instrument that measures the concentration of a liquid by means of its refractive index. Open the hatch and place 2-3 drops of liquid on the prism. Aim the front part of the refractometer towards a light source, and adjust the focus with the eyepiece and read the value. Easy to calibrate and adjust.

<b>Code no.</b>	<b>23383-0108</b>
Dimensions	160x40 mm
Manufacturer's description	6400
Measurement range battery acid	1.100 (discharged)-1.400 (fully charged) kg/l
Measurement range ethylene glycol	-50...0 °C
Measurement range propylene glycol	-50...0 °C
Measurement range: washer fluid	-40...0 °C
Resolution	5 °C
Content unit	PCS
Qty/pack	1

## THERMOMETERS

### INDUSTRIAL THERMOMETER LIMIT 60

Digital sensor thermometer. Two channels for simultaneous measurement with two different sensors. Up to 99 measurements can be stored over time, either with pre-set time intervals or manual registration. Stored measurements can be transferred to PC. Register max/min value, difference between measurement points. Hold function. The instrument is easy to adjust if the sensor gives an incorrect reading. Display lighting. Switch between °C and °F. Low battery power warning. Sensor types K, J and E can be used. Includes wire sensor max. 260 °C, USB cable, software, battery and Swedish user manual. 15321-0208 Plug-in sensor air/liquid type K -50 to +600 °C. Sensor length 180 mm. Cable length 1000 mm. 15321-0307 Surface sensor type K -50 to +500 °C. Sensor length 125 mm. Cable length 1000 mm. 12860-0301 Wire sensor -50 to +260 °C. Wire length 900 mm.



15321-0109

<b>Code no.</b>	<b>15321-0109</b>
Battery	9 (1 x 6F22) V
Battery size	6F22 (9 V)
Length	175 mm
Manufacturer's description	60
Max. working temperature	50 °C
Measurement range Type K	-200 to +1370 °C
Precision	0.8 ±0.5% °C
Resolution	0,1 °C
Storage temperature	-40 till +60 °C
Weight	270 g
Width	30 mm
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
15321-0109	15321-0208	Plug-in transducer air/liquid type K -50 to +600 °C	1 PCS
15321-0109	15321-0307	Surface transducer type K -50 to +500 °C.	1 PCS
15321-0109	19866-0102	Soft case	1 PCS

### PLUG-IN SENSOR AND SURFACE SENSOR FOR INDUSTRIAL THERMOMETER LIMIT 60

Accessories for industrial thermometer Limit 60.

Code no.	15321-0208	15321-0307
Article description	Plug-in transducer air/liquid type K -50 to +600 °C	Surface transducer type K -50 to +500 °C.
Description	Plug-in sensor air/liquid type K -50 to +600 °C	Surface sensor type K -50 to +500 °C.
Content unit	PCS	PCS
Qty/pack	1	1



15321-0208



15321-0307

# 5

## INSPECTION INSTRUMENTS

Frequent inspection of daily work is recommended so as to prevent future problems.

For maximum efficiency, our products meet all industry standards and are easy to use. Our range includes inspection cameras, hardness testers, vibrometers and much more.

48,7 mm



# HB 245



90°



## HARDNESS TESTERS



### HARDNESS TESTER FOR RUBBER. LIMIT 4000

Measures the hardness of soft materials such as rubber, soft plastic materials, leather etc. A spring-loaded measuring tip is held against the material and the hardness is given in Shore A. The measuring surface should be relatively smooth and at least 12 mm in diameter. The measurement should be taken at least 12 mm from the outer edge. Calibration can be performed against the attached test block. The instrument has a mean value function for 2 to 9 measurements. Switches off automatically after 1 minute. Instrument complies with standards according to DIN 53505, ISO 868, ASTM D 2240.

<b>Code no.</b>	<b>14485-0104</b>
Battery size	LR03 AAA (1.5 V)
Battery type	Alkaline
Manufacturer's description	4000
Material thickness min.	6 mm
Max. working temperature	50 °C
Measurement range	0-100 °Sh (A)
Moisture content, max	80 % RH
Moisture content, min	0 % RH
No. of batteries	4 qty
Weight	170 g
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1



### HARDNESS TESTER FOR STEEL. LIMIT 4300

Portable hardness tester for most common metals, steel, stainless steel, cast iron, aluminium, brass, bronze and copper. Adjustable for measuring in Rockwell B and C, Vickers and Brinell. Separate measurement probe facilitates measurements on large objects and hard to reach areas. Easy to use. Select striking direction, material code, scale. Hold the measurement probe firmly against the measurement object, release the spring mechanism and read the measurement value, measurement probe diameter 20 mm.

<b>Code no.</b>	<b>23045-0108</b>
Battery size	AAA (1.5 V)
Battery type	Alkaline
Dimensions	120x60x28 mm
Manufacturer's description	4300
Measurement range	Brinell HB 80-647, Rockwell HRB 38-100, Rockwell HRC 20-68, Vickers HV 80-940
No. of batteries	4 qty
Content unit	PCS
Qty/pack	1

## INSPECTION CAMERAS

### INSPECTION CAMERA

Portable inspection camera with 2.4" colour monitor. Suitable for inspection and location of problems in wall cavities, drains, electrical cabinets, motors, etc. Also in dark and hard to reach places. Integrated LED light in camera head. The image can be rotated on the monitor. The camera and the flexible arm are self-supporting and waterproof to IP67. 2 metre extension arm: can be extended in 2 m lengths to the desired number. Please note however that picture quality deteriorates gradually from about 7 metres upwards. Fits 5.8 mm camera head. Accessories such as the mirror, hook and magnet make it easy to pick up dropped items. Supplied in robust plastic box with mirror, hook and magnet plus Swedish user guide. Battery type AA, not included.



19012-0105

<b>Code no.</b>	<b>19012-0105</b>
Battery	Yes
Battery size	AA
Battery type	Alkaline
Diameter arm	8 mm
Diameter camera head	9 mm
Display size	2,4 inch
Enclosure class	IP 67
Length, arm+camera head	900 mm
Max. working temperature	+50 °C
No. of batteries	4 qty
Resolution display	640x480 pixels
View angle	50 °
Weight	375 g
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
19012-0105	17427-0207	Extension arm 2 m	1 PCS
19012-0105	17427-0306	Camera head 9 mm	1 PCS
19012-0105	17427-0405	Camera head 5.8 mm. Extra small camera head incl. arm length 0.9 m.	1 PCS
19012-0105	17427-1106		1 PCS
19012-0105	17427-1205		1 PCS
19012-0105	02360-0034	BATTERY POWER INDUSTRY LR06	20 PAC



19011-0106

## RECORDABLE INSPECTION CAMERA

Recordable inspection camera with 3.5" colour monitor. Removable monitor with wireless connection to the camera unit up to 10 m. Both still and moving images can be saved on the SD card and played back on the monitor or transferred to a PC or TV screen. The removable monitor simplifies inspection especially in tight and uncomfortable spaces and when you need to carry out an inspection over a longer period of time. Suitable for inspection and location of problems in wall cavities, drains, electrical cabinets, motors etc. Also in dark and hard to reach places. Integrated LED light in the camera head with adjustable brightness. Camera and flexible arm are self-supporting and waterproof to IP67. The included accessories such as the mirror, hook and magnet make it easy to pick up dropped items. Supplied in a sturdy plastic case with 2 GB memory card, USB cable and TV connection cable, colour monitor, hook, magnet, mirror and Swedish user guide. Battery type AA, not included. 2 metre extension arm: can be extended in 2 m lengths to the desired number. Please note however that picture quality deteriorates gradually from about 7 metres upwards. Fits 5.8 mm camera head.

<b>Code no.</b>	<b>19011-0106</b>
Battery size	AA
Battery type	Alkaline
Diameter arm	8 mm
Diameter camera head	9 mm
Display size	3,5 inch
Enclosure class	IP 67
Length, arm+camera head	900 mm
Max. working temperature	+50 °C
No. of batteries	4 qty
Resolution display	640x680 pixels
View angle	50 °
Weight	650 g
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
19011-0106	17427-0207	Extension arm 2 m	1 PCS
19011-0106	17427-0306	Camera head 9 mm	1 PCS
19011-0106	17427-0405	Camera head 5.8 mm. Extra small camera head incl. arm length 0.9 m.	1 PCS
19011-0106	17427-1106		1 PCS
19011-0106	17427-1205		1 PCS
19011-0106	02360-0034	BATTERY POWER INDUSTRY LR06	20 PAC

## INSPECTIONS AND CAMERAS – ACCESSORIES

### EXTENSION ARM FOR INSPECTION CAMERA

Accessories for inspection camera Limit.



<b>Code no.</b>	<b>17427-0207</b>
Article description	Extension arm 2 m
Description	Extension arm 2 m
Content unit	PCS
Qty/pack	1



## HOLDER WITH CLIP FOR INSPECTION CAMERA

Accessories for inspection camera Limit.

<b>Code no.</b>	<b>19013-0203</b>
Article description	Holder with clip
Description	Holder with clip



19013-0203

## CAMERA HEAD FOR INSPECTION CAMERA

Accessories for inspection camera Limit.

<b>Code no.</b>	<b>17427-0306</b>	<b>17427-0405</b>
Article description	Camera head 9 mm	Camera head 5.8 mm, Extra small camera head incl. arm length 0.9 m.
Description	Camera head 9 mm	Camera head 5.8 mm
Content unit	PCS	PCS
Qty/pack	1	1



17427-0306



17427-0405

## CAMERA HEAD, FIXED TWO-WAY 90°

Fixed camera head with 2 cameras, one at the front and one on the side (90°). You can then switch between these cameras. Camera head and cable both have a IP 67 waterproof design (but not the connection and switch). 9 mm camera head. Fits the following inspection cameras from Limit: 17427-0108, 19011-0106 and 19012-0105.

<b>Code no.</b>	<b>17427-1106</b>
Cable length	1 m
Diameter camera head	9 mm
Enclosure class	IP 67
Max. working temperature	+50 °C
Resolution display	640×480 pixels
View angle	45 ± 5 °
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1



17427-1106



17427-1205

### CAMERA HEAD MOVING LENS 180° LIMIT

<b>Code no.</b>	<b>17427-1205</b>
Cable length	1 m
Diameter camera head	5.8 mm
Enclosure class	IP 67
Max. working temperature	+50 °C
Resolution display	640x480 pixels
Work temperature, min	-10 °C
Content unit	PCS
Qty/pack	1

### LOUPES

#### WORKSHOP POCKET LENS LIMIT

Measuring loupe with measuring scale and LED light. Focusing ring for sharpness.  
 16780-0101 With length scale. 16780-0200 With length, angle and radius scale.  
 Batteries included, 4 x 1.5 V AG9.

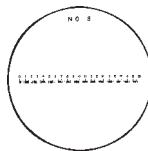
<b>Code no.</b>	<b>16780-0101</b>	<b>16780-0200</b>
Magnification	10 X times	10 X times
Scale graduation	0,1 mm	0,1 mm
Scale length	20 mm	14 mm
View size diameter	25 mm	25 mm
Content unit	PCS	PCS
Qty/pack	1	1



16780-0101



16780-0200



### WORKSHOP POCKET LENS

With length scale. Ring for focussing of both object and length scale. Transparent acrylic tube underneath ensures good lighting.

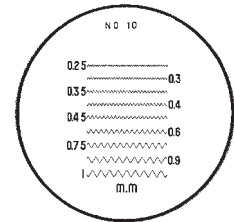
<b>Code no.</b>	<b>1710-0108</b>
Magnification	10 times
Scale	20 mm
Scale graduation	0,1 mm
View size diameter	28 mm
Content unit	PCS
Qty/pack	1



### WORKSHOP POCKET LENS

With measuring scales. 5 interchangeable scales. Length, hole, thickness and thread scales. Precision 0.1 mm (precision thickness 0.01 mm). Ring for focussing. Transparent acrylic tube underneath ensures good lighting. Supplied in plastic case.

<b>Code no.</b>	<b>5338-0101</b>
Magnification	10 times
Scale length	20 mm
View size diameter	25 mm
Content unit	PCS
Qty/pack	1



### WORKSHOP POCKET LENS

With built-in lighting operated by two 1.5 V batteries. Transparent acrylic tube underneath. Supplied without batteries. Suitable batteries, 2 x 1.5V R14 (LR14).

<b>Code no.</b>	<b>5337-0102</b>
Magnification	10 times
View size diameter	29 mm
Content unit	PCS
Qty/pack	1



### WORKSHOP POCKET LENS

Transparent acrylic tube underneath ensures good lighting.

<b>Code no.</b>	<b>5336-0103</b>	<b>5336-0202</b>
Magnification	5 times	10 times
View size diameter	29 mm	29 mm
Content unit	PCS	PCS
Qty/pack	1	1



## MICROSCOPES



### MINI MICROSCOPE LIMIT

Mini microscope with length scale and LED light. Focusing ring for sharpness. wTurnable length scale through 360°. Battery type AAA, not included.

<b>Code no.</b>	<b>16781-0100</b>	
Battery size	AAA (1.5 V)	
Magnification	20 X times	
No. of batteries	2 qty	
Scale graduation	0,1 mm	
Scale length	5,6 mm	
View size diameter	5,6 mm	
Content unit	PCS	
<b>Code no.</b>	<b>Description</b>	<b>Packaging</b>
02360-0042	BATTERY POWER INDUSTRY LR03	10

## TALLY COUNTERS

### TALLY COUNTER

Automatically returning button. With resetting. Nickel-plated.



5995-0105



5995-0204

<b>Code no.</b>	<b>5995-0105</b>	<b>5995-0204</b>
Design	Manual	Bench
Diameter	45 mm	45 mm
Digit height	4,5 mm	4,5 mm
Number of digits	4 qty	4 qty
Content unit	PCS	PCS
Qty/pack	1	1

## THICKNESS GAUGES

### THICKNESS GAUGES LIMIT 5600

Digital instrument which measures the thickness of most homogeneous materials using ultrasound technology. Measuring material thickness using ultrasound technology is particularly useful when access is only available from one side. For example pipes, tanks, cisterns, glass constructions etc. Ultrasound technology is suitable for measuring the thickness of metals, glass and plastics. The only conditions are that the material is homogeneous, both sides are parallel and the surfaces are not too uneven. Switches off automatically after 2 minutes. Measurement probe diameter 8 mm. AA batteries not included.



<b>Code no.</b>	<b>14484-0303</b>
Battery size	AA (1.5 V)
Battery type	Alkaline
Humidity, max	80 % RH
Humidity, min	0 % RH
Inaccuracy	± 0.5% +0.05 mm
Manufacturer's description	5600
Max. working temperature	40 °C
Measurement range, max	15,7 inch
Measurement range, max	400 mm
Measurement range, min	0,75 mm
Measurement range, min	0,03 inch
No. of batteries	2 qty
Resolution 1	<10 mm = 0.01 mm
Resolution 1	<10 tum = 0.001 inch
Resolution 2	≥10 mm = 0.1 mm
Resolution 2	≥10 tum = 0.01 inch
Weight	340 g
Work temperature, min	0 °C
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
14484-0204	PROBE 8 MM	1

### DIGITAL THICKNESS GAUGE

Digital readout. Switch between metric and imperial. Automatic shut-off. Zeroing button. Battery type SR44, included.

<b>Code no.</b>	<b>2294-0100</b>
Design	Digital
Measurement range	15 mm
Measurement units	mm,inch
Measuring surface diameter	8.9 mm
Resolution	0,01 mm
Yoke depth	13 mm
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
64470-5055	BATTERY BUTTON CELL V13GS SR44	10





### THICKNESS GAUGE

Suitable for both soft and hard materials.

<b>Code no.</b>	<b>11917-0108</b>
Design	Analogue
Measurement range	10 mm
Measurement units	mm
Measuring surface diameter	10 mm
Resolution	0,01 mm
Yoke depth	120 mm
Content unit	PCS
Qty/pack	1



### THICKNESS GAUGE

Suitable for both soft and hard materials.

<b>Code no.</b>	<b>11916-0109</b>
Design	Analogue
Measurement range	10 mm
Measurement units	mm
Measuring surface diameter	10 mm
Resolution	0,01 mm
Yoke depth	30 mm
Content unit	PCS
Qty/pack	1



### THICKNESS GAUGE

Suitable for both soft and hard materials.

<b>Code no.</b>	<b>11915-0100</b>
Design	Analogue
Measurement range	10 mm
Measurement units	mm
Measuring surface diameter	8 mm
Resolution	0,01 mm
Yoke depth	12 mm
Content unit	PCS
Qty/pack	1

## SPEED METERS

### SPEED METER LIMIT R2000

Speed meter with digital readout. Combined optical non-contact measuring and mechanical sensing with measuring wheel. Optical measuring: Point the light beam against a reflective tape or other contrasting part on the rotating object. Reading distance 50–150 mm. Mechanical sensing with measuring wheel: Measures rpm or speed. Gently press the measuring tip toward the centre of the rotating object to measure the rpm. Alternatively, press the measuring wheel toward the object to measure the speed. (e.g. conveyor belt, drive belt or bandsaw blade.) The memory saves the last measurement as well as the max. and min. values. Requires 4 x 1.5 V LR06 batteries, not included.



<b>Code no.</b>	<b>13237-0107</b>
Battery size	LR06
Battery type	Alkaline
Manufacturer's description	R 2000
Measurement range	2.5-20 000 r/min
Measurement range optical	2.5-100 000 r/min
Measurement range, mechanical	0.05-2000 m/min
Measurement range, mechanical	0.02-6560 ft/min
No. of batteries	4 qty
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
13237-0107	13237-0206	Spare reflecting tape 5x350 mm	1 PCS
13237-0107	13237-0305	Extra measuring tips 3 pcs	1 PCS

### TACHOMETER LIMIT 2200

Digital tachometer / counter number with optical non-contact reading. Aim the laser spot on a reflective tape or other contrast-action target of the rotating object and read the speed. Alternatively, the number of items counted during a measurement period. The measured value can be locked and record min-max and average value. Supplied with reflective tape, battery and manual.



<b>Code no.</b>	<b>19862-0106</b>
Battery size	AA (1.5 V)
Battery type	Alkaline
Dimensions	184x56x34 mm
Manufacturer's description	2200
Measurement distance	50-200 mm
Measurement range	10-99999 r/min
No. of batteries	4 qty
Content unit	PCS
Qty/pack	1



## REFLECTIVE TAPE AND MEASURING TIPS FOR TACHOMETER LIMIT R2000

Accessories for speedometer Limit.

Code no.	13237-0206	13237-0305
Article description	Spare reflecting tape 5x350 mm	Extra measuring tips 3 pcs
Content unit	PCS	PCS
Qty/pack	1	1

## VIBROMETERS



### VIBROMETER LIMIT 4800

Vibrometer for monitoring machines, electrical and pneumatic hand tools etc. Measuring vibrations is an important way of preventing ergonomic injuries as well as future maintenance on machines. Supplied with sensor (diameter 25 mm) with magnetic foot and user guide.

Code no.	19037-0106
Battery size	9 V (6F22)
Battery type	Alkaline
Dimensions	160x68x30 mm
Manufacturer's description	4800
No. of batteries	1 qty
Offset	2000 $\mu\text{m}$
Resolution	0,1 mm/s
Speed	0-199 m/s <sup>2</sup>
Speed	0-200 mm/s
Content unit	PCS
Qty/pack	1

## SURFACE ANALYSERS



### SURFACE ANALYSER LIMIT 4700

Portable surface analyser for easy and flexible measurement of different surface parameters. Diamond tips with differential inductive sensor. Motorised arm movement with adjustable measurement lengths. Memory stores the last 7 measurements. Adjustable height support (0.23 mm) on the rear of the sensor. Switches off automatically after 5 minutes. Parameters: Ra-Rq-Rz-Rt. Cut lengths of 0.25 - 0.8 - 2.5 mm. Profile digital filter: Gaussian, RC, PC-RC. Supplied complete with surface gauge, 4x1.5 V AAA batteries and Swedish user guide. Extra accessory: Robust and stable stand. Surface analyser is mounted on the stand. Handle for easy and exact height adjustment. Max. height 200 mm. PC cable with software. RS 232 interface.

Code no.	16757-0159
Manufacturer's description	4700
Measurement arm movement, max	17,5 mm
Measurement pressure	4 mm
Measurement range Rz Rt	0.02-160 $\mu\text{m}$
Measurement tip radius	5 $\mu\text{m}$
Measuring range Ra Rq	0.005-16 $\mu\text{m}$
Content unit	PCS
Qty/pack	1

Code no.	Description	Packaging
16757-0209	COATING THICKNESS TESTER 5100	1



## STAND FOR SURFACE ANALYSERS

Strong and stable stand for surface analysers.

<b>Code no.</b>	<b>16757-0209</b>
Article description	Support
Content unit	PCS
Qty/pack	1



16757-0209

## SURFACE LAYER GAUGES

### CONTROL FILMS FOR SURFACE LAYER GAUGE

Accessories for surface layer gauge Limit

<b>Code no.</b>	<b>14483-0205</b>
Article description	Control films 4
Content unit	PCS
Qty/pack	1



### SURFACE LAYER GAUGE LIMIT 5100

Measures layer thickness of lacquer, plastic, zinc, etc. on different metals. Can measure both on underlying magnetic metals and non-magnetic metals such as copper, aluminium, stainless steel, etc. Easy to calibrate with supplied control coatings. Instructions included. Automatic switching off after 2 minutes.

<b>Code no.</b>	<b>14483-0106</b>
Battery size	LR03 AAA (1.5 V)
Battery type	Alkaline
Dimensions	161×69×32 mm
Manufacturer's description	5100
Measurement range	0-1000 $\mu\text{m}$
No. of batteries	4 qty
Resolution 0-100	0,1 $\mu\text{m}$
Resolution 100-1000	1 $\mu\text{m}$
Content unit	PCS
Qty/pack	1



Code no.	Description	Packaging
14483-0205	COATING CALIBRATION FOIL 4 PC	1

## RADIUS GAUGES

### DIGITAL RADIUS GAUGE LIMIT 5700

Digital radius gauge for large radii. Suitable to measure radii on plastic components, moulds, plates, bodywork, furniture surfaces, pipes, etc. Measures both convex and concave surfaces. Easy to use. Fit the dial gauge on the arm fixture. Reset the dial gauge on a level surface. Hold the arm fixture against the surface and the radius is read directly on the dial gauge. Battery type CR2032, included.

<b>Code no.</b>	<b>23047-0106</b>
Radius' measurement range	6-700 mm
Content unit	PCS
Qty/pack	1



23047-0106

Code no.	Description	Packaging
64470-5659	BATTERY BUTTON CELL LIT CR2032	10

# 6

## SCALES

Quality scales offering high accuracy are needed to achieve good results.

Limit offers a range of scales; from mechanical spring scales and electronic parcel scales to crane scales and mobile scales.

30.29 KG



# ■ IMPORTANT INFORMATION ON WEIGHING

## There may be a difference between display resolution and accuracy

The display resolution is the smallest unit shown in the display for the scales. Accuracy is usually expressed in +/- scale divisions, to be compared with the total number of scale divisions for the scales. It must not be assumed that the display resolution is equivalent to the accuracy, particularly if there is a high display resolution in a low-price device.

**Example 1:** Industrial scales from Limit with a capacity of 30 kg x 10 grams always has a maximum inaccuracy of +/- 10 grams. The display resolution is equivalent to the accuracy for all our industrial scales.

**Example 2:** Cheap scales with a high display resolution are claimed to have a capacity of 30 kg x 1 gram (1 gram is the display resolution). The inaccuracy is claimed to be +/- 1%, which seems fine initially. Inaccuracy +/-1% on 30 kg = +/- 300 grams. This means that the display may be showing 15.237 kg, for example, while the actual weight may be anything from 14.937 kg to 15.537 kg.

## Type approval

Type approval means that the model of scales in question has undergone thorough testing and received approval by an EU-accredited institute/company, which permits initial verification. Scales that are to be used in legal trade and for diagnosis/treatment must be type-approved and verified. (OIML stands for International Organization of Legal Metrology. The OIML produces international standards and models to ensure correct legal measurement.)

## Verification

Verification is an inspection carried out to ensure that individual scales meet the requirements defined in the type approval. These are required where the weight provides a basis for charging or is used for diagnosis/treatment. The verification is time-limited, and only accredited companies/bodies are allowed to perform verification. A verification certificate is printed when verification is complete and the scales are sealed.

## Re-verification

Scales that have been verified and are used are inspected by means of re-verification (periodic inspection). Shop scales, for example, are required by law to be re-verified every two years. Only accredited companies/bodies are allowed to perform re-verification.

## Calibration and adjustment

Any inaccuracy in the values displayed by the scales are checked and documented during calibration. The measuring instrument is compared with a correct measure, i.e. a trackable and certified weight. Any deviations can usually be corrected by means of adjustment. Most companies working in the weighing scales industry perform calibration and adjustment.

## Quality scales for most purposes

Our range of quality scales include everything from mechanical table scales and spring scales to electronic letter scales, parcel scales, floor scales and counting scales. All our scales focus on providing maximum quality and measurement accuracy.

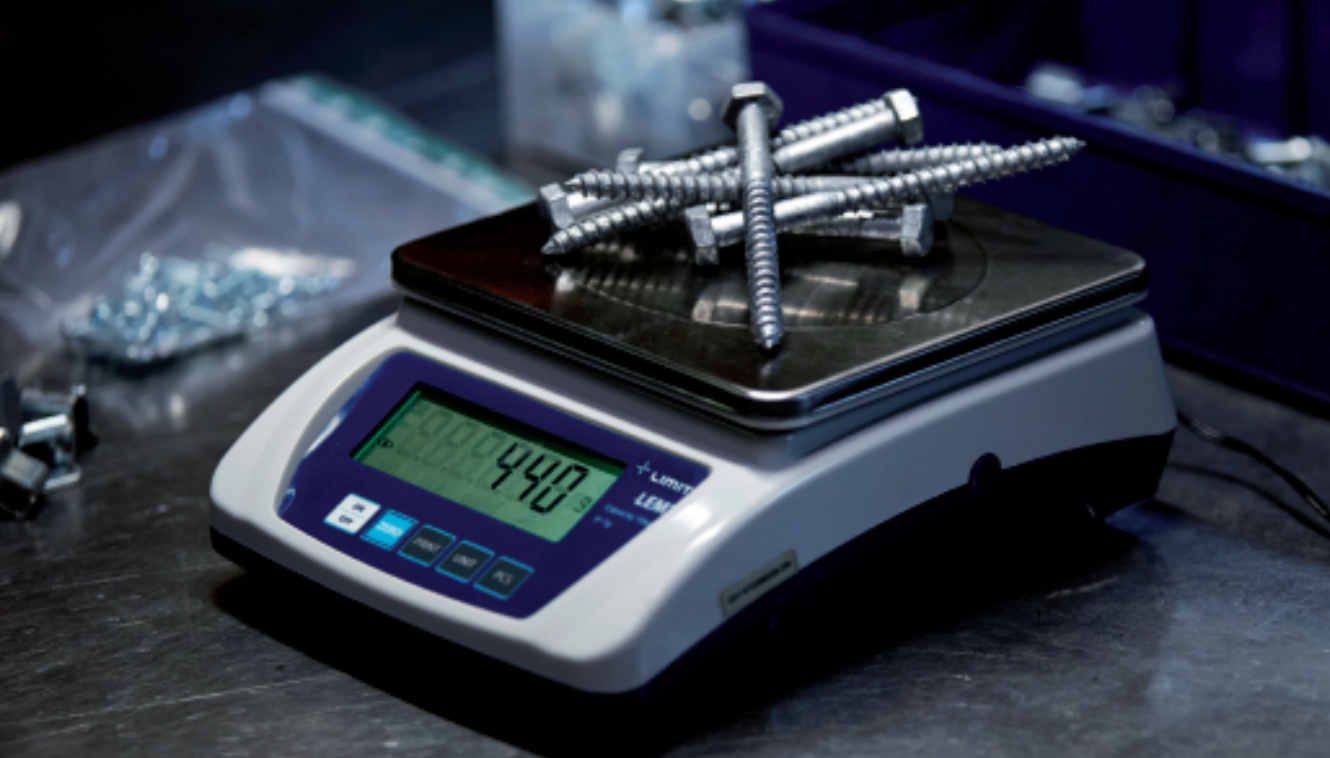
## Things to consider when choosing scales

**Environment:** A dry or wet environment will determine which type of enclosure or material is required for your scales. Scales are available in versions for everything from dry, normal industrial environments to scales with high enclosure ratings (IP ratings), made entirely of stainless, acidproof steel for the fish and meat industry, for example.

**What you will be weighing:** The size of the objects being weighed may be crucial when selecting scales. For best results, the objects being weighed should fit onto the weighing surface of the scales. Uneven weight distribution of more than one-third of the maximum capacity of the scales must not be applied to a weighing surface.

**Accuracy:** The accuracy required from the results generally has a direct impact on the cost. You should also have one decimal place more





than the accuracy you want to guarantee. Our range of industrial scales has an inaccuracy of  $\pm 1$  scale division, i.e. scales with a capacity of 3 kg x 1 gram have a maximum inaccuracy of  $\pm 1$  gram. Accuracy definitions as provided by the OIML are applicable for type-approved/verified scales.

**Functions:** Weighing, counting, check weighing and price calculation are examples of common functions. These make different demands of the scales in respect of the number of displays, accuracy, software, verifiability, etc.

**Accessories and communication:** Printers, scanners, PC connections and relay outputs are available as optional extras for certain scales.

### Table scales and parcel scales

We offer a broad selection of table scales and parcel scales. Table scales are normally compact and have a load area above the display. This may make the display difficult to read if the parcel is larger than the load area. Parcel scales normally have the display separate from the load area, which makes it possible to weigh objects that are larger or have a slightly odd format.

### Counting scales

One thing counting scales all have in common is the fact that they should always have three displays (weight, weight per unit and quantity) and generally a high display resolution and a very high internal resolution. The accuracy of the scales in combination with the internal resolution is crucial to how light the items that can be counted by the counting scales are. So when choosing counting scales, you need to check the weight of the lightest item to be counted, as well as the capacity. As a rule of thumb, the lightest item weight should not be less than the display resolution.

### Mechanical scales

These scales usually have slightly lower resolution than electronic scales, but they are less susceptible to moisture, static discharge or overloading. Usually available in tubular, hanging, table and floor models.

### Floor scales

These scales are designed to be placed directly on the floor. They are frequently designed for weighing large objects and heavy weights. They are normally also designed with four sensors instead of one, which makes them much more capable of handling uneven loads.

## SPRING SCALES

### SPRING BALANCE

Tube of aluminium. Easy to read scale and screw for zero adjustment. Suitable for recreational use and weighing items.



Code no.	9750-0102	9750-0201
Capacity	5 kg	20 kg
Graduation measurement	50 g	200 g
Scale length	100 mm	130 mm
Total length	290 mm	390 mm
Content unit	PCS	PCS
Qty/pack	1	1

## HANGING SCALES

### PROTECTIVE GLASS FOR HANGING SCALES

Accessories for hanging scales Limit.



2797-1001

Code no.	2797-1001
Article description	Spare protective glass
Content unit	PCS
Qty/pack	1

### SUSPENDED WEIGHER

Suspended weigher suitable for diverse hanging and pulling weighing needs. Accuracy is better than one graduation/division. KC series. Analogue Features protective glass of acrylic, screw for zero adjustment (taring). CLH4 series. Electronic with 14 mm high digits and quick tarring key. Hooks and eyes steel. Battery powered 2 x 1.5V type AA included.



2797-0300



2797-0300



2797-0706

Code no.	2797-0102	2797-0300	2797-0409	2797-0607
Capacity	25 kg	50 kg	100 kg	250 kg
Face diameter	150 mm	150 mm	150 mm	195 mm
Graduation measurement	100 g	200 g	500 g	1000 g
Manufacturer's description	KC-08	KC-08	KC-08	KC-11
Overall height	365 mm	390 mm	390 mm	475 mm
Weight	1,2 kg	1,3 kg	1,3 kg	3,3 kg
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	2797-0615	2797-0623	2797-0706	2797-0805
Capacity	30 kg	60 kg	150 kg	300 kg
Face diameter				
Graduation measurement	20 g	50 g	100 g	200 g
Manufacturer's description	CLH4-30	CLH4-60	CLH4-150	CLH4-300
Overall height	342 mm	342 mm	342 mm	342 mm
Weight	0,5 kg	0,5 kg	0,5 kg	0,5 kg
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1

Code no.	Accessories	Article description	Packaging
2797-0102	2797-1001	Spare protective glass	1 PCS
2797-0300	2797-1001	Spare protective glass	1 PCS
2797-0409	2797-1001	Spare protective glass	1 PCS

## CRANE SCALES

### CRANE SCALE DIGITAL JLG

Digital crane scale. Sturdy design for industrial and professional use. High precision corresponding to  $\pm 1$  unit of the display resolution. Large, easy to read LCD display, 40 mm high digits and background lighting. Keys for on/off, zeroing, switch and hold function (value is read on the display). Wireless remote control of all weighing functions. Shackle on top edge and lifting hook with safety catch on the bottom. Integrated rechargeable battery, 150 hours running time in continuous use. Larger capacity models are available on request. The design is CE marked, which means that it is tensile tested for 4 times overload in accordance with the lifting directive.



Code no.	24474-0106	24474-0304
Capacity	600 kg	3000 kg
Depth	194 mm	194 mm
Digit height	40 mm	40 mm
Graduation/resolution, not verified	0.2/0.1 kg	1/0.5 kg
Hook opening	30 mm	35 mm
Internal diameter of hook	40 mm	45 mm
Internal diameter of shackle	87 mm	87 mm
Manufacturer's description	JLG GS-0.6	JLG GS-3
Overall height	575 mm	575 mm
Weight	15 kg	15 kg
Width	260 mm	260 mm
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	24474-0403	24474-0502
Capacity	5000 kg	10000 kg
Depth	194 mm	204 mm
Digit height	40 mm	40 mm
Graduation/resolution, not verified	2/1 kg	5/2 kg
Hook opening	40 mm	50 mm
Internal diameter of hook	60 mm	70 mm
Internal diameter of shackle	89 mm	100 mm
Manufacturer's description	JLG GS-5	JLG GS-10
Overall height	615 mm	740 mm
Weight	19 g	33 g
Width	260 mm	260 mm
Content unit	PCS	PCS
Qty/pack	1	1



24475-0105

## MOBILE SCALES

### MOBILE SCALES LW

Mobile scales which save time by allowing you to weigh the product in situ rather than moving it to a stationary scale. Stable construction based on 4 powerful load cells, which provide the correct weight if the load is placed correctly, even when loaded off centre. High precision corresponding to  $\pm 1$  unit of the display resolution. The instrument is protected in a sturdy metal case. Clear LED display. LW-MKP/ELW = verifiable design. Automatic zeroing, tarring function. Supplied with 6V/4Ah rechargeable battery and battery charger.

<b>Code no.</b>	<b>24475-0105</b>
Adapter	8 V
Battery size	6 V
Capacity	2000 kg
Digit height	27 mm
Fork length	1150 mm
Fork wheel PU, bogie	74x70 mm
Fork width	160 mm
Graduation/resolution, not verified	1 kg
Lift height, max.	87 mm
Lift height, min.	80 mm
Manufacturer´s description	LW-MSP/B
Operating time	>80 h
Steering wheel PU	180x150 mm
Total width	550 mm
Weight	90 kg
Content unit	PCS
Qty/pack	1

## PARCEL SCALES

### PARCEL SCALES – BENCH SCALES – FLOOR SCALES LPW

Electronic floor scale with post display. Large clear 30 mm LED with wide angled display. Heavy duty design with overload protection. The display can be mounted on a post or be used free-standing. Function keys for zeroing, weight unit, tarring, net/gross. Stainless load plate. Mains or battery powered. Supplied with mains adapter and rechargeable battery Battery operation up to 80 hours.



<b>Code no.</b>	<b>18420-0103</b>	<b>18420-0202</b>	<b>18420-0301</b>	<b>18420-0400</b>
Capacity	60 kg	150 kg	300 kg	600 kg
Graduation/resolution, not verified	10 g	20 g	50 g	100 g
Manufacturer´s description	LPW-2	LPW-4	LPW-6	LPW-8
Weighing plate length	400 mm	500 mm	600 mm	800 mm
Weighing plate width	300 mm	400 mm	500 mm	600 mm
Weight	10 kg	13 kg	24 kg	38 kg
Content unit	PCS	PCS	PCS	PCS
Qty/pack	1	1	1	1



## PARCEL SCALES - BENCH SCALES

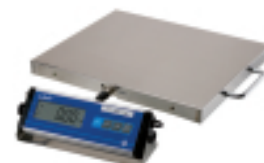
Dial and analogue display. For storerooms, warehouses, offices and factories etc. The precision is better than scale graduation. Stainless weighing plate and casing. Large and easy to read scale with protective glass for hand and face. Zero point tarring range about 5% of the capacity.



Code no.	2800-0107	2800-0305	2800-0404
Capacity	8 kg	30 kg	50 kg
Face diameter	196 mm	255 mm	270 mm
Graduation measurement	20 g	100 g	200 g
Manufacturer's description	KC-3	KC-4	KC-4
Overall height	280 mm	310 mm	350 mm
Weighing plate length	220 mm	320 mm	320 mm
Weighing plate width	220 mm	315 mm	315 mm
Weight	3 kg	6,5 kg	11 kg
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

## PARCEL SCALES LIMIT LE2/LE3

Electronic parcel scales with digital display. Platform and display unit separate. Display unit can be freestanding or fixed on a wall/stand. Large clear angled display with 25 mm high digits and background lighting. Function keys for zeroing, weight unit, tarring, net/gross. Stainless load plate. Mains or battery powered. Supplied with mains adapter and rechargeable battery. Battery operation up to 80 hours.



10929-0098



10929-0197

Code no.	10929-0031	10929-0056	10929-0072
Capacity	30 kg	60 kg	150 kg
Graduation/resolution, not verified	10 g	20 g	50 g
Manufacturer's description	LE2-30	LE2-60	LE2-150
Weighing plate length	325 mm	325 mm	325 mm
Weighing plate width	315 mm	315 mm	315 mm
Weight	3,8 kg	3,8 kg	3,8 kg
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1

Code no.	10929-0098	10929-0197
Capacity	150 kg	300 kg
Graduation/resolution, not verified	50 g	100 g
Manufacturer's description	LE3-150	LE4-300
Weighing plate length	450 mm	600 mm
Weighing plate width	350 mm	600 mm
Weight	6,8 kg	12,4 kg
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
24838-0107	24838-1006	Scale pan	1 PCS



16890-0108



**PARCEL SCALES LIMIT LEM7**

Electronic table scales with digital display, compact design. LEM7-0.5 Pocket scales: Touch display with large easy to read digits and background lighting. Function frames for on/off, quick tare, counter function and different weighing units. Battery operation, protective cover for the whole top section incl. the stainless load platform. Battery powered 2 x 1.5V type AAA included. LEM7 1.2-10 = Precision scales: Display with large easy to read digits. Function keys for on/off, zero reset/tare, counter function and different weighing units. Stainless platform. Mains connection 230 V, or battery operation. Supplied with mains adapter. (6 x AA batteries not included).

Code no.	16890-0108	16890-0116	16890-0124
Capacity	0,5 kg	1,2 kg	2,5 kg
Digit height	10 mm	20 mm	20 mm
Graduation/resolution, not verified	0.1 g	0.1 g	0.2 g
Manufacturer´s description	LEM7-0,5	LEM7-1,2	LEM7-2,5
Weighing plate length	60 mm	180 mm	180 mm
Weighing plate width	60 mm	170 mm	170 mm
Weight	0,12 kg	1,5 kg	1,5 kg
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1



16890-0207

Code no.	16890-0132	16890-0207
Capacity	5 kg	10 kg
Digit height	20 mm	20 mm
Graduation/resolution, not verified	0.5 g	1 g
Manufacturer´s description	LEM7-5	LEM7-10
Weighing plate length	180 mm	180 mm
Weighing plate width	170 mm	170 mm
Weight	1,5 kg	1,5 kg
Content unit	PCS	PCS
Qty/pack	1	1

**TABLE SCALES DIGITAL FERAX FAW-6**

Simple letter scales for dry environments. Function keys for on/off, zeroing and tare. LCD display with backlight. Includes scale pan in translucent plastic. Powered by 6 AA batteries (not included).



24838-0107



Code no.	24838-0107
Capacity	6 kg
Digit height	15 mm
Graduation/resolution, not verified	1 g
Manufacturer´s description	FAW-6
Weighing plate length	145 mm
Weighing plate width	145 mm
Weight	3,65 kg
Content unit	PCS
Qty/pack	1

Code no.	Accessories	Article description	Packaging
24838-0107	24838-1006	Scale pan	1 PCS

## ELECTRONIC PARCEL SCALES FERAX

Electronic parcel scales with digital display, separate platform and tiltable display. The display unit can be free-standing or mounted on a wall/stand. Large clear 28 mm high digits and background lighting. Function keys for resetting, tarring, unit and hold. Stainless steel load plate, RS 232 data cable included. Mains and battery powered (6 x AA batteries not included).

Code no.	23386-0105	23386-0204
Capacity	60 kg	150 kg
Digit height	28 mm	28 mm
Graduation/resolution, not verified	50 g	100 g
Manufacturer's description	FCW-60	FCW-150
Weighing plate length	405 mm	405 mm
Weighing plate width	305 mm	305 mm
Weight	3,2 kg	3,2 kg
Content unit	PCS	PCS
Qty/pack	1	1



23386-0204

## PALLET SCALES

### PALLET SCALES LUW-2001 LIMIT

LUW-2001. U scales / pallet scales based on 4 load cells with a capacity of 2000 × 0.5 kg. Supplied with a display unit that can be free-standing or mounted on a wall using the included wall bracket. LED display with 30 mm large digits. Function selection for zeroing, tarring, check weighing, counting, accumulation and peak hold. Integrated castors for easy movement. Rechargeable battery and mains adapter/charger included.

Code no.	24783-0110
Capacity	2000 kg
Digit height	30 mm
Graduation/resolution, not verified	0.5 kg
Manufacturer's description	LUW-2001
U-beam height	74 mm
U-beam length, external	1200 mm
U-beam length, internal	1055 mm
U-beam width, external	840 mm
U-beam width, internal	600 mm
Weight	38 kg
Content unit	PCS
Qty/pack	1



24783-0110

**PERSONAL SCALES**

**PERSONAL SCALES LIMIT**

Personal scales with digital weight display. Display with large easy to read digits. LEP-182 with body analysis function. In addition to weight, the scales also calculate percentage body fat, water content and muscle mass as well as calorie needs. Function keys for setting gender, length, age, on/off. Automatic weight display senses foot pressure. Battery operation, load plate made of toughened glass. Load plate diameter 350 mm. Battery type CR2032, included. LEP-300. Display with large easy to read digits, background lighting. Main switch, function keys for setting the height (BMI), switch kg/lbs, resetting/tare on/off. Stainless steel load plate, 130 × 205 mm. Mains connection 230 V, or battery operation. Supplied with mains adapter and rechargeable batteries. Battery operation up to 10 hours. With BMI function.



15587-0105



15587-0204

Code no.	15587-0105	15587-0204
Capacity	180 kg	300 kg
Digit height	16 mm	25 mm
Graduation/resolution, not verified	100 g	100 g
Manufacturer's description	LEP-182	LEP-300
Overall height	40 mm	1030 mm
Weight	2,22 kg	5,4 kg
Content unit	PCS	PCS
Qty/pack	1	1

Code no.	Accessories	Article description	Packaging
15587-0105	64470-5659	Battery button cell LIT CR2032	10 PCS

## COUNTING SCALES

### ELECTRONIC COUNTING SCALES LAC-LBC

LAC. Electronic counting scales with 3 separate digital displays and background lighting to determine the number and weight. Shows item weight, total weight and calculated number. 10-keys for the input of quantity in a sample and known unit weight. Optional shutoff or continuous drift. Automatic optimization function for the best counter accuracy. Tarring and 0-position functions. Stainless load plate. Mains connection 230 V, or battery operation. Supplied with mains adapter and rechargeable batteries. LBC. Features as above plus 10 direct memories for item weights. Better counting accuracy as well as larger plate.



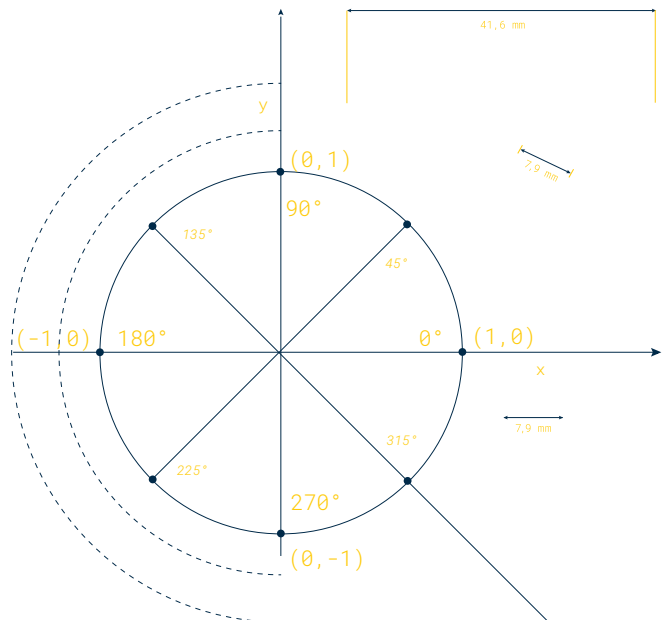
<b>Code no.</b>	<b>23387-0104</b>	<b>23387-0203</b>	<b>23387-0302</b>
Capacity	15 kg	30 kg	7.5 kg
Digit height	14 mm	14 mm	16 mm
Graduation/resolution, not verified	1 g	2 g	0.2 g
Internal graduation	1/300000	1/300000	1/1200000
Item weight memory			10 qty
Manufacturer's description	LAC-15	LAC-30	LBC-7.5
Weighing plate length	280 mm	280 mm	335 mm
Weighing plate width	220 mm	220 mm	230 mm
Weight	3,2 kg	3,2 kg	3,75 kg
Content unit	PCS	PCS	PCS
Qty/pack	1	1	1
<b>Code no.</b>	<b>23387-0401</b>	<b>23387-0500</b>	
Capacity	15 kg	30 kg	
Digit height	16 mm	16 mm	
Graduation/resolution, not verified	0.5 g	1 g	
Internal graduation	1/1200000	1/1200000	
Item weight memory	10 qty	10 qty	
Manufacturer's description	LBC-15	LBC-30	
Weighing plate length	335 mm	335 mm	
Weighing plate width	230 mm	230 mm	
Weight	3,75 kg	3,75 kg	
Content unit	PCS	PCS	
Qty/pack	1	1	

# ■ WARRANTY TERMS AND CONDITIONS

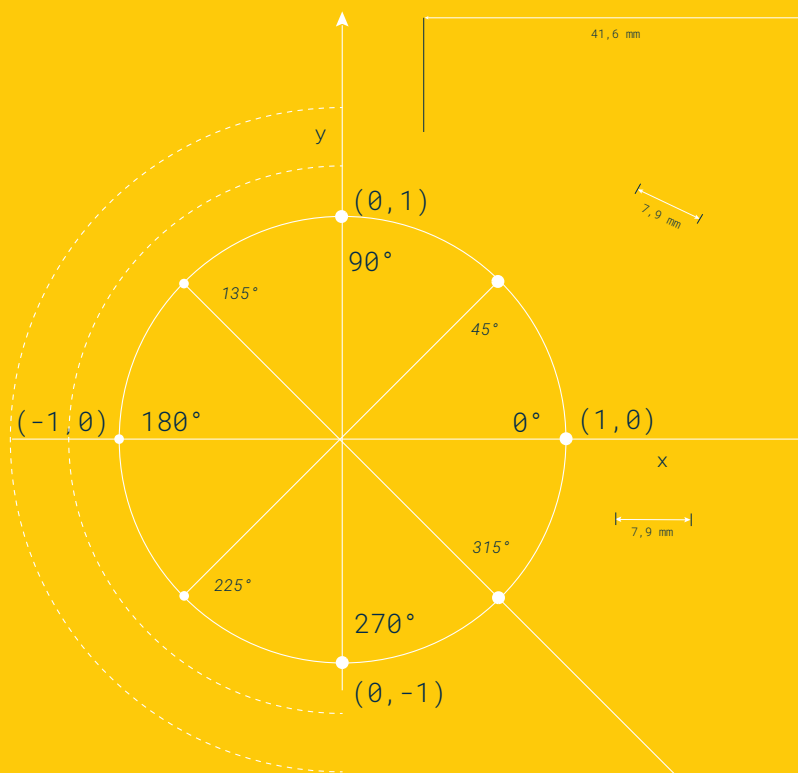
- ▶ Purchases must be verified with a receipt. Please consult your reseller.
- ▶ Limit operates in compliance with warranty law for professional products in the country in question. The warranty is applicable to general fabrication and material.
- ▶ The warranty is not applicable to damage caused directly or indirectly by incorrect use or damage caused by normal wear and tear. Examples of incorrect use may include: damage due to falling or dropping, moisture damage caused by use in an incorrect environment or surface damage due to aggressive environments.
- ▶ In the case of approved warranty issues, Limit will meet the cost of replacement parts and labour, while the distributor will meet other costs.
- ▶ The reseller will be billed for any unauthorised warranty repair.

# ■ SERVICE, REPAIRS AND CONTACT

- ▶ If you would like help with servicing your Limit product or repairing a damaged product, please contact your reseller in the first instance.
- ▶ You can also contact the distributor of Limit products in your country for the help you need. See [www.limit-tools.com](http://www.limit-tools.com) for your nearest distributor.







**LIMIT**

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