



Welcome to Limit

Experience from more than 90 years of supplying measuring tools to the Swedish industry has created the trademark Limit. During that time we have learnt what our customers require and appreciate.



This is achieved by developing a relevant and attractive offer across the measurement technology sector, with a focus on user needs. This initiative means that Limit is the only brand on the market that supplies products within all segments of measurement technology.



- Workshop measurement
- Electrical/electronic testing
- Climate and environment
- Laser
- Scales
- Inspection



About us

Limit supply European market with a broad and qualified assortment for measuring products. The demands from this target group which is probably the most demanding one there is, are well known by us. The demands concern function quality, price and delivery.

The products have been constantly developed according to new production methods and new technology. Today, Limit is represented in more than 25 countries.

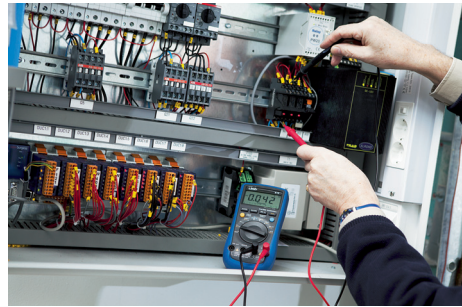


This is because we are convinced that a cultural change is underway, in favour of the operator who will accept even greater responsibility for everything he or she does. New technology enables measurement that is faster, simpler and more frequent, which in turn increases the need for easily operated measurement instruments.



The operator replaces the inspector

An absolutely crucial part of the investment in measuring trends is that focus has shifted from the inspector to the operator.



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**Steel rules, squares, protractors, V-blocks,
surface planes, gauge blocks, machine
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**Gauges, machine setting tools,
digital instruments, scribes,
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**Multimeters, voltage testers,
soundmeters, thermometers,
pocket lenses microscope,
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Lasers, distance meters

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**Parcel scales, precision scales,
counting scales, suspended weighers,
personal scales, floor scales**

73-76



0
0 10 20 30

mm/in
37.59^{mm}
OFF/ON
ZERO
ABS
ORIGIN

Calipers

Calipers

Calipers are an all round instrument with a relatively high measuring accuracy. Calipers are recommended for measuring where 0.1 measuring is required.

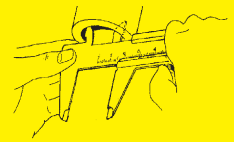
Measuring with vernier calipers means that values less than 1 mm are read by a vernier scale. The zero mark of the vernier scale indicates the measured value in integer mm on the base scale.

Some calipers have a parallax free scale which makes the vernier reading easier and more reliable. Parallax free means that the scales are positioned at the same level and this prevents incorrect reading as the eye's line of sight towards the scale is not perpendicular. Even easier to read are of course the electronic measuring products with digital displays.

Dial calipers are very easy to read and especially when comparing check measurements. The indicator gives a clear visual picture of how big the difference is between the measured values. Calipers are frequently used as they are such universal tools/instruments. You can measure both outer, inner and depth dimensions. Calipers with 4-functions also have the possibility to measure steps, etc. and they are useful when scribing and marking out.

Table of tolerances for vernier calipers according to DIN 862.

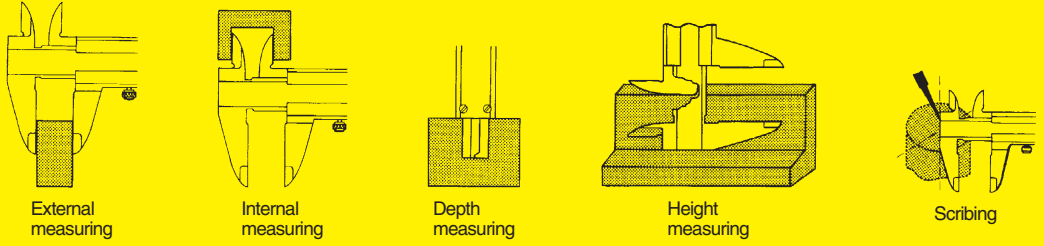
Ref. temperature +20°C.



Linear measure . . . 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
Linear measure . . . 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
Linear measure . . . 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	

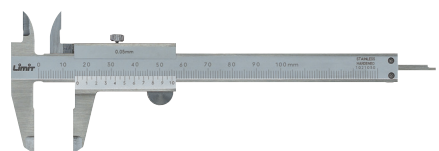
4 functions

Vernier calipers with 4 functions can be used for the following measurements and scribing:



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

Art. no.	2654	-0203
Measuring length	mm 100	
Jaw length.....	mm 19	



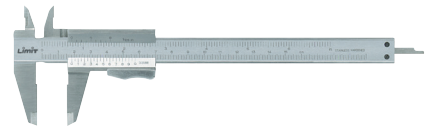
Limit. Miniature vernier callipers. Made of stainless steel. Matt chromium-plated scale. Graduated in mm, plus vernier for 1/20 mm. With depth gauge and points for internal measuring. DIN 862.

Art. no.	6006	-0100
Measuring length	mm 100	
Jaw length.....	mm 27	

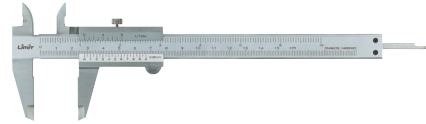
Calipers

Limit. 4 functions. Stainless steel. Fully hardened. Matt chromium-plated scale. Graduated in mm and inches, and with Nonie scale for $\frac{1}{128}$ " and $\frac{1}{20}$ mm of 39 mm length. Equipped with depth gauge and needle points for inside measurements. Quick locking. DIN 862.
4-function see information page 2.

Art. no.	2670	-0302	-0351	-0500
Measurement length	mm 150		200	150
Type	with button lock	button lock	button lock	locking screw
Jaw length	mm 38		48	38
Ditto calibrated	2670	-0401	-	-
Spare part set	2670	-2001	-2001	-2001
Art. no.	2670	-0609	-0708	
Measurement length	mm 200		300	
Type	locking screw	locking screw	locking screw	
Jaw length	mm 48		60	
Ditto calibrated	2670	-	-	
Spare part set	2670	-2001	-2001	



2670/button lock

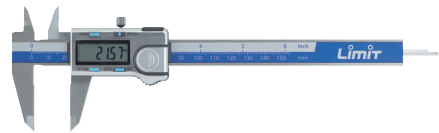


2670/locking screw

Digital Calipers

Limit. Digital sliding calipers 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.

Art. no.	17423	-0102	
Measurement length	mm 150		
Jaw length	mm 40		
Digit height	mm 8		
Resolution	mm 0.01		



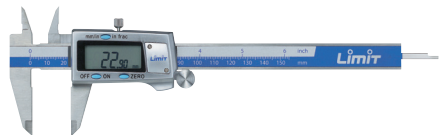
Limit. Digital caliper. Made of stainless steel. Can be switched between mm and inches. With reset button. Automatic off. DIN 862.
Battery 3 V type CR2032.

Art. no.	19014	-0103	-0202	-0301
Measuring length	mm 150	200	300	
Jaw length	mm 40	48	60	
Height of figures	mm 8	8	8	
Resolution	mm 0.01	0.01	0.01	
Ditto calibrated	19014	-1002	-	-



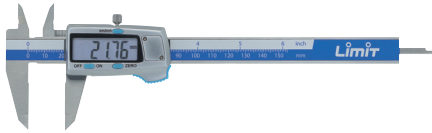
Limit. Digital caliper. Tripple reading: metric / inch / inch fraction Made of stainless steel. Automatic switch off. Zero set in any position 4-function. DIN 862.
Battery type SR44.

Art. no.	14455	-0100	-0209
Measuring length	mm 150	200	
Jaw length	mm 40	48	
Digit height	mm 11	11	
Resolution	mm 0.01	0.01	
Resolution	inch 0.0005	0.0005	
Resolution (fraction)	inch 1/128	1/128	
Accessories			
Extra battery	2928	-1003	-1003



Calipers

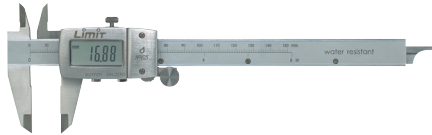
Digital Calipers



Limit. Digital caliper with reading 0.01 mm. Made of stainless steel. Zero set in any position. Automatic switch off. Adjustable between mm and inch. 4 function. DIN 862.
Battery type SR44.

Art. no.	13233	-0101
Measuring length	mm	150
Jaw length	mm	40
Height of figures	mm	11
Resolution	mm	0.01
Accessories		
Spare battery	2928	-1003

Waterproof digital caliper



Limit. IP 67. Stainless steel. 4-function. Resistant to water, oil, coolant, etc. according to IP 67. Switchable between metric and imperial measurements. Automatic shutoff. DIN 862.
Extra battery SR44, art. no. 2928-1003.

Art. no.	12256	-0105	-0204	-0303
Measurement length	mm	150	200	300
Leg length, ext.	mm	40	50	60
Leg length, int.	mm	15	20	20
Digit height	mm	9	9	9
Resolution	mm	0.01	0.01	0.01
Accuracy	mm	0.03	0.03	0.03

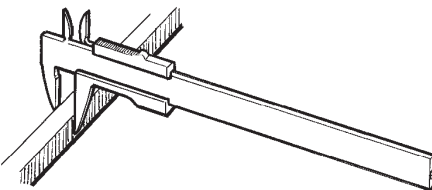
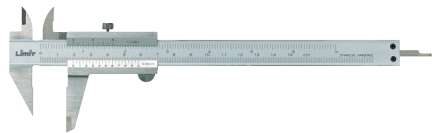
With dial indicator



Limit. 4 functions. Stainless steel. The measuring faces are precision ground and polished. Matt chromium-plated scale. Graduated in mm. DIN 862.
4 functions, see page 2.

Art. no.	5270	-0309
Measuring length	mm	150
Scale division on dial	mm	0.02
1 turn of the pointer =	mm	2
Jaw length	mm	40

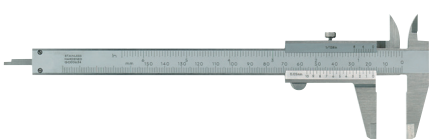
With scriber



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

Art. no.	3513	-0103
Measurement length	mm	150
Jaw length	mm	40

For left hand use



Limit. 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.
4 functions, see page 2.

Art. no.	10236	-0104
Measurement length	mm	150
Jaw length	mm	40

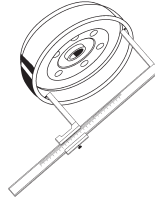
Calipers

For brake drums

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

Art. no.	10909	-0050	-0100
Measurement range ...	mm	40-340	50-500
Jaw length	mm	105	150

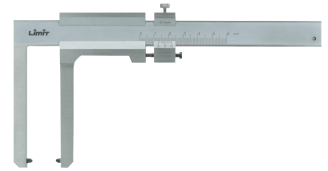
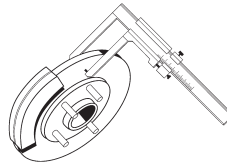
Art. no.	10909	-0209
Measurement range ...	mm	50-600
Jaw length	mm	200



For brake discs

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

Art. no.	10910	-0107
Measurement range ...	mm	0-60
Jaw length	mm	85



Limit. Digital caliper for brake discs. Hardened stainless steel. Holdfunction for hold measured value when caliper remove after measuring. Zero on any position. Adjustable between mm and inch. Extra battery type SR 44.

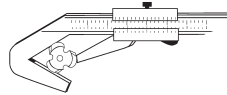
Art. no.	13949	-0106
Measuring range	mm	75
Jength of jaws	mm	92
Digit height	mm	11
Reading	mm	0.01



Three point vernier caliper

Limit. 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.

Art. no.	2394	-0109
Measuring range diameter	mm	4-45
Vernier	mm	0.02

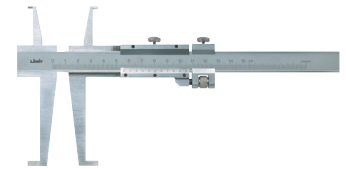
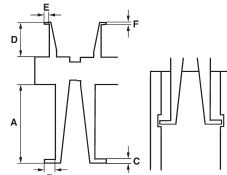


Internal vernier caliper

Limit. Made of hardened tool steel and with fine adjustment. For inside measurement of inner slot diameter.

12817-0107 has double measurement jaws.

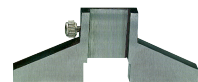
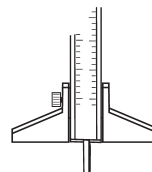
Art. no.	12817	-0107	-0206
Measurement length. ...	mm	9-150	30-300
A	mm	74	110
B	mm	10	10
C	mm	5	5
D	mm	35	-
E	mm	4	-
F	mm	2	-

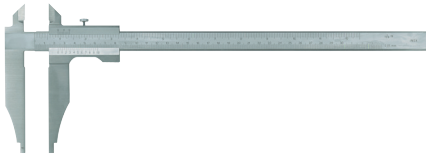


Depth gauge stop

Limit. Suitable for most vernier callipers.

Art. no.	7312	-0107
Stock length	mm	75
Track width	mm	4
Track height	mm	16.5





Workshop vernier calipers

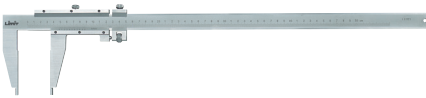
Limit. Made of stainless steel. Hardened legs. Matt chromium-plated scale. Upper leg ground for access in grooves. Recess on lower legs for internal measurements. Tolerance according to DIN 862. Vernier scale 0.05 mm.

Art. no.		15238	-0101
Measurement length	mm	300	300
Lower leg length	mm	125	125
Upper leg length	mm	56	56



Limit. 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.

Art. no.	2305	-0057	-0107	-0206	-0404	-0503
Measuring length ...	mm	300	400	500	800	1000
Jaw length	mm	90	200	150	150	150



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

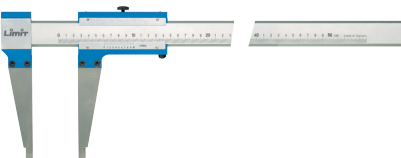
Art. no.	2304	-0108	-0207	-0306	-0405	-0504
Measurement length ..	mm	500	800	1000	1500	2000
Jaw length	mm	100	125	125	150	200



Digital workshop vernier calipers

Limit. Digital vernier callipers. Stainless steel. Max/min value function. Hold-function. Can be reset to mm or inches. Adjustable absolute value. Fine adjusting screw. DIN 862. Extra battery 3.0V CS 2032 art.no.10960-0304.

Art. no.	2289	-0107	-0156	-0172	-0206
Measuring length	mm	500	600	800	1000
Jaw length	mm	100	300	200	150
Digit height	mm	8	8	8	8
Resolution	mm	0.01	0.01	0.01	0.01



Aluminium calipers

Limit. 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.

Art. no.	0575	-0104	-0203	-0401	(-0500)
Measurement length ...	mm	500	500	800	1000
Jaw length	mm	150	250	400	150
Weight	kg	1.1	1.1	1.6	1.8
Art. no.	0575	-0559	(-0609)	(-0708)	(-0807)
Measurement length ...	mm	1000	1500	2000	3000
Jaw length	mm	500	150	150	150
Weight	kg	1.9	2.1	2.6	3.4

Depth gauges

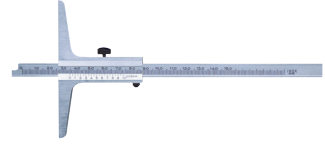
Limit. Made of stainless steel. Matt chromium-plated scale. With replaceable, hardened steel pin. The scale is graduated in mm and has $\frac{1}{20}$ mm vernier. Lockable. Tolerance according to DIN 862.

Art. no.	2645	-0106	-0205
Measuring depth	mm	80	200
Base length	mm	50	100



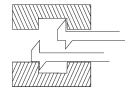
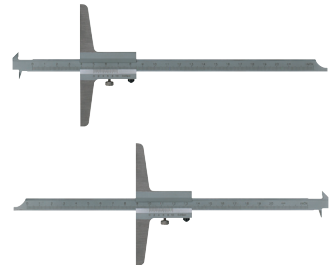
Limit. Made of stainless steel. Matt chromium-plated scale. The ends of the rod and base are hardened. The scale is graduated in mm and has $\frac{1}{20}$ mm vernier. Lockable. Tolerance according to DIN 862.

Art. no.	2643	-0108	-0207	-0405	-0504
Measuring depth	mm	150	200	300	500
Base length	mm	100	100	100	150



Limit. Made of stainless steel. Matt chromium-plated scale. Reversible scale for measuring with hook or point. Graduated in mm. Vernier scale 0.05 mm. Tolerance according to DIN 862.

Art. no.	12257	-0104
Measuring depth	mm	200
Stock length	mm	100
Hook length	mm	6



Limit. Made of stainless steel. Matt chromium-plated scale. Reversible scale for measuring with hook or tip. Graduated in mm. Vernier scale 0.05 mm. Tolerance according to DIN 862.

Art. no.	2255	-0107
Measuring depth	mm	300
Base length	mm	150
Hook dimension	mm	16x10



Digital depth gauges

Limit. Adjustable absolute value. Can be switched from mm to inches. With reset and off button. Fine adjusting screw. DIN 862. Extra batteries V 13 GS/V 357 (SR44), art.no. 2928-1003.

Art. no.	2146	-0605
Measuring depth	mm	200
Resolution	mm	0.01
Precision	± mm	0.03
Base length	mm	100
Indicator rod dimension	mm	14,5 x 4



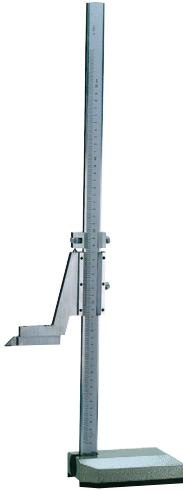
Limit. Digital depth gauge for measuring tread depth of tires and suchlike. Extra battery V13GS/V357 (SR44).

Art. no.	13236	-0108
Tread depth	mm	0-25
Measuring tip dimension	mm	5 x 4
Stop dimension	mm	55 x 6



Accessories		
Extra battery	2928	-1003

Height gauges



Limit. Precision design. Matt chromium-plated scale. Graduated in mm. With fine-adjusting screw and vernier reading 0.05 mm. DIN 862.

Art. no.	2249	-0056	-0106	-0205
Scribing height	mm	300	500	1000
Base plate size	mm	110×60	150×90	220×150
Weight	kg	2.6	4.7	10
Accessories				
Extra scriber point	2249	-0304	-0403	-0403



Limit. The measurement value is read-off in whole mm on the counter and in 0.01 mm on the dial indicator. 1 pointer turn = 1 mm. Dual counter, one adding and one subtracting, that can be reset individually in optional position. Flexible height setting with knob on the back. Measuring tip of hard metal. DIN 862.

Art. no.	10235	-0105
Scribing height	mm	500
Base size	mm	150×100
Accessories		
Extra scriber	10235	-0204

Digital height gauge



Limit. Of stainless steel. High contrast LCD display. Adjustable measurement direction and between mm and imperial measurements. Reset button. Hold function. DIN 862.

Extra batteries 3 V-CR 2032, art. no 10960-0304.

Height marking gauges	2146	-1108	-1306
Scribing height	mm	300	500
Resolution	mm	0.01	0.01
Precision	±mm	0.03	0.03
Horizontal range of measuring tip, max	mm	110	145
Base size	mm	110×65	120×170
Overall height	mm	455	640
Accessories			
Extra scriber	2146	-1207	-1405



Limit

Micrometers

Micrometers

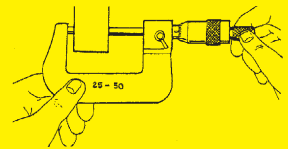
When accuracy of 0.01 mm is required the micrometer is the most common instrument. The external measuring screw usually has an increment of 0.5 mm/revolution.

The base scale is on the sleeve and is graduated in intervals of 0.5 mm. On the thimble there are 50 graduation marks which indicate 1/100 value (0.01 mm).

Micrometers also have a friction facility which allows a constant measuring power which is important when measuring 1/100 and 1/1000 mm measurements.

There are many different micrometers for different appliances e.g. outer, depth, bore/hole measurements. Further more there are micrometers which different designs for the feeler pin for special purposes.

Table of tolerances for micrometers according to DIN 863



Measuring range mm	Permitted total error μm	Parallelism tolerance for measuring surfaces with measuring pressure 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



Limit. 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.

Art. no.	9538	-0101	-0200	-0309	-0408
Measuring range	mm	0-25	25-50	50-75	75-100
Reading	mm	0.01	0.01	0.01	0.01
Precision	±mm	0.004	0.004	0.005	0.005

Ditto calibrated

Art. no.	9538	-1000	-1109	-1208	-1307
Measurement range ...	inch	0-1	1-2	2-3	3-4
Reading	inch	0.0001	0.0001	0.0001	0.0001
Precision	±mm	0.004	0.004	0.005	0.005



Limit. Set of 4 micrometers including standard gauge and hook spanner. Supplied in practical plastic case. DIN 863.

Art. no.	9538	-2008
Measurement range	mm	0-100
Resolution	mm	0.01
Precision 0-50	±mm	0.004
Precision 50-100	±mm	0.005

Micrometers

Limit. Splashproof – IP54. Forged frame. Hardened spindle 6.5 mm with fine-polished measuring faces of hard metal. Off button. Friction sleeve and lock nut. DIN 863. Battery type SR 44, art no 2928-1003.

Art. no.	9664	-0107	-0206	-0305	-0404
Measurement range	mm	0-25	25-50	50-75	75-100
Resolution	mm	0.001	0.001	0.001	0.001
Precision	±mm	0.004	0.004	0.005	0.005



Limit. 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.

Art. no.	9542	-0105	-0204	-0303	-0402
Measuring range	mm	100-125	125-150	150-175	175-200
Reading	mm	0.01	0.01	0.01	0.01
Precision	±mm	0.006	0.006	0.007	0.007



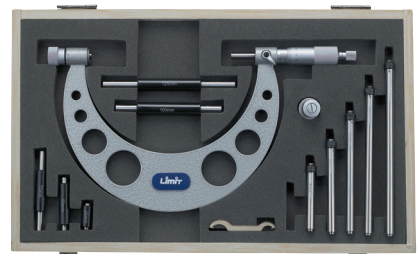
Limit. Measurement value is shown on the counter. Fine-polished measuring faces of hard metal. Friction drum and lock nut. DIN 863.

Art. no.	11910	-0105	-0204
Measurement range	mm	0-25	25-50
Reading	mm	0.01	0.01
Precision	mm	±0.004	±0.004



Limit. 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.

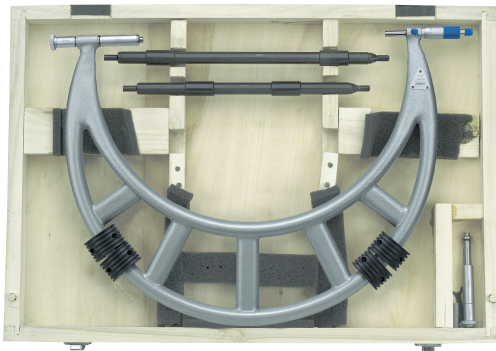
Art. no.	9544	-0103	-0202
Measuring range	mm	0-150	150-300
Reading	mm	0.01	0.01
Precision	±mm	0.006	0.009



Limit. Forged frame. Hardened spindle and interchangeable insert rods 8 mm with fine-polished measuring faces of hard metal. Absolute/incremental measuring. Adjustable absolute value. Friction sleeve and lock nut. DIN 863. Battery type SR 44, art.no. 2928-1003.

Art. no.	9676	-0103
Measuring range	mm	0-150
Resolution	mm	0.001
Precision	±mm	0.006

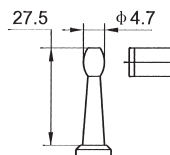




Micrometers

Limit. 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.

Art. no.	9545	-0102	-0201	-0300
Measuring range ..	mm	300-400	400-500	500-600
Reading	mm	0.01	0.01	0.01
Precision	±mm	0.011	0.013	0.015
Art. no.	9545	-0409	-0508	-0607
Measuring range ..	mm	600-700	700-800	800-900
Reading	mm	0.01	0.01	0.01
Precision	±mm	0.016	0.018	0.020
Art. no.	9545	-0706		
Measuring range ..	mm	900-1000		
Reading	mm	0.01		
Precision	±mm	0.020		



Tube micrometer

Limit. 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.

Art. no.	9548	-0109
Measuring range	mm	0-25
Reading	mm	0.01
Precision	±mm	0.006

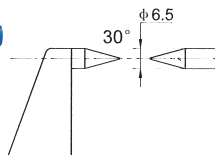


Digital tube micrometer

Limit. Digital tube micrometer. Waterproof IP 54. Forged frame with matt chromium-plated scale. Hardened spindle with twin spherical measuring faces. Friction sleeve and lock nut. Can be switched between mm and English inches. Automatic switching off. DIN 863.

Supplied in case. Battery type SR44, art no. 2928-1003.

Art. no.	13268	-0109
Measurement range	mm	0-25
Resolution	mm	0.001
Precision	mm	±0.004



With conical measuring tips

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

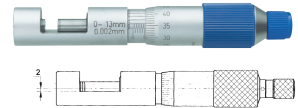
Art. no.	9564	-0108
Measuring range	mm	0-25
Reading	mm	0.01
Precision	±mm	0.004

Micrometers

Wire micrometer

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

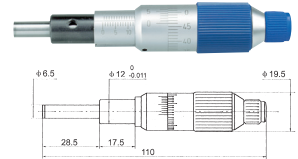
Art. no.	9614	-0108
Measuring range	mm	0-13
Reading	mm	0.002
Precision	±mm	0.004
Measuring height	mm	5



Micrometer head

Limit. Vernier for reading 0.01 mm. Measuring face of hard metal. With friction thimble. DIN 863.

Art. no.	7324	-0103
Measuring range	mm	0-25
Fitting diameter x length	mm	12x17



Thread micrometers

Limit. 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.

Art. no.	13272	-0103	-0400	-0509	-0608
Measuring range	mm	0-25	25-50	50-75	75-100
Accuracy	mm	0.01	0.01	0.01	0.01
Precision	mm	±0.004	±0.004	±0.004	±0.005



Accessories

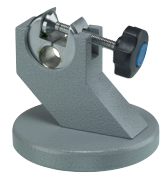
Set with 6 pairs of V-shaped and cone-shaped anvils 60°	13272	-0202			
Pitch	mm	0.4-0.5	0.6-0.9	1-1.75	2-3 3.5-5 5.5-7
Threads per inch		64-48	44-28	24-14	13-9 8-5 4.5-3-5

Set with 10 pairs of V-shaped and cone-shaped anvils 55°	13272	-0301			
Threads per inch		60-48	48-40	40-32	32-24 24-18
		18-14	14-10	10-7	7-4.5 4.5-3.5

Micrometer holders

Limit. Rotating holder. Grey enamelled.

Art. no.	6007	-0208
Tension area	mm	0-14
Height	mm	100
Diameter	mm	105
Weight	kg	1.7



Limit. Rotating holder.

Art. no.	10238	-0102
Clamping range	mm	7-16
Base (length x width)	mm	120x80

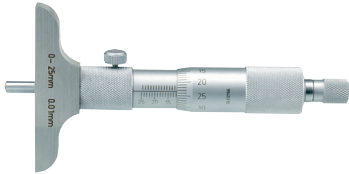




Control gauges

Limit. 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.

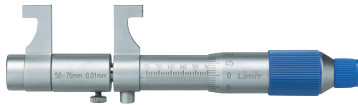
Art. no.	2624	-3006	-3105	-3204	-3303
Length	mm 25	50	75	100	100
Precision	± μm 0.5	1.0	1.0	1.5	1.5
Art. no.	2624	-3402	-3501	-3600	-3709
Length	mm 125	150	175	200	200
Precision	± μm 1.5	2.0	2.0	2.5	2.5



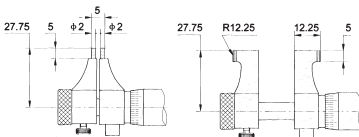
Depth micrometer

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

Art. no.	7325	-0102
Measuring depth	mm 0-100	0-100
Base length	mm 63	63
Number of insert rods	unit 4	4
Insert rod diameter	mm 4.5	4.5

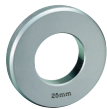


Internal micrometers



5-30mm

25-50mm
50-75mm
75-100mm



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

Art. no.	9615	-0107	-0206	-0305	-0404
Measuring range	mm 5-30	25-50	50-75	75-100	75-100
Reading	mm 0.01	0.01	0.01	0.01	0.01
Precision	±mm 0.007	0.007	0.008	0.008	0.008



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

Art. no.	9623	-0107	-0206	-0305
Measuring range	mm 50-200	50-600	150-1400	150-1400
Reading	mm 0.01	0.01	0.01	0.01
Number of parts	unit 5	7	9	9

Three-point internal micrometers

Limit. 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.

Art. no.	12781	-0109	-0208	-0307	-0406	-0505
Measurement range	mm 12-16	16-20	20-25	25-30	30-40	30-40
Reading	mm 0.005	0.005	0.005	0.005	0.005	0.005
Precision	mm 0.004	0.004	0.004	0.004	0.004	0.004
Measuring depth	mm 80	80	90	90	97	97
Förlängningsstång	mm 150	150	150	150	150	150
Art. no.	12781	-0604	-0703	-0802	-0901	-1008
Measurement range	mm 40-50	50-63	62-75	75-88	87-100	87-100
Reading	mm 0.005	0.005	0.005	0.005	0.005	0.005
Precision	mm 0.005	0.005	0.005	0.005	0.005	0.005
Measuring depth	mm 97	114	114	114	114	114
Förlängningsstång	mm 150	150	150	150	150	150



Limit. 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.

Art. no.	12782	-0108	-0207
Measurement range, diameter	mm 20-50	50-100	50-100
Extension bar	mm 150	150	150
Number of micrometers	ea 4	4	4
No. of setting rings	ea 2	2	2
Measuring depth	mm 240-247	264	264



Setting rings

Limit. Intended for inspection and setting internal micrometers and hole indicators.

Art. no.	12783	-0107	-0206	-0305	-0404
Diameter	mm 10	16	25	30	30
Tolerance	μm ±1.5	±1.5	±1.5	±1.5	±1.5
Cylindricity	μm 1.0	1.0	1.0	1.0	1.0
Art. no.	12783	-0503	-0602	-0701	
Diameter	mm 40	62	87	87	
Tolerance	μm ±1.5	±1.5	±1.5	±1.5	
Cylindricity	μm 1.0	1.0	1.0	1.0	





Telescopic gauges

Limit. 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.

Art. no.	5291	-0205	-0304	-0403
Measuring range.....	mm	8-12.7	12.7-19	19-32



Limit. Spare gauges of set 5291.

Art. no.	5291	-0205	-0304	-0403
Measuring range.....	mm	8-12.7	12.7-19	19-32
Art. no.	5291	-0502	-0601	-0700
Measuring range.....	mm	32-54	54-90	90-150

Cylinder gauges

Limit. For precision measuring in holes and grooves. Provided with interchangeable measuring tips and spacers for different dimensions. The gauge is centered automatically with a spring-loaded support and has a hard metal coated measuring tip. Complete with dial indicator. Accuracy is $\pm 15 \mu\text{m}$ plus the gauge's accuracy, which is accordance with DIN 878.



6193-1101



6193-1002

Art. no.	6193	-1002	-1101	-1200
Type.....	D	E	F	F
Measurement range.....	mm	10-18	18-35	35-50
Precision.....	mm	0.01	0.01	0.01
Measuring depth.....	mm	100	125	150
Bottom holes can be measured from the bottom.....	mm	7	7	7.5
Number of measuring tips.....		9	9	4
Accessories				
Extra measurement tips - set ...	6193	-2000	-2109	-2208
Art. no.	6193	-1309	-1408	
Type.....	H	J		
Measurement range.....	mm	50-160	160-250	
Precision.....	mm	0.01	0.01	
Measuring depth.....	mm	150	400	
Bottom holes can be measured from the bottom.....	mm	10	15	
Number of measuring tips.....		12	12	
Accessories				
Extra measurement tips - set ...	6193	-2307	-2406	



ON OFF
Limit 80 Kg

Dial gauges

Dial gauges

Dial indicators and dial test indicators are used for comparison measurements i.e. when the read value does not indicate the absolute measured value but a relative (incremental) measured value. The deviation from a master or a gauge block combination is read. With a digital indicator however the absolute measured value can be preset which simplifies the reading. The dial indicator can also be used together with a bore gauge for bore/hole measuring, or using a measuring fixing device.

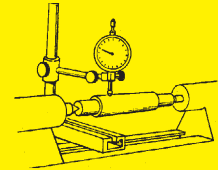
Dial test indicators are used in places where access is difficult, such as inside a bore/hole. By moving the feeler pin of the dial test indicator along a surface roughnesses and eccentricities can be read. The feeler pin of the dial test indicator makes a circular movement unlike the movement of the dial indicator which is linear. Therefore it is important to hold the feeler pin perpendicular to the measured surface.

Table of tolerances for dial indicators according to DIN 878.

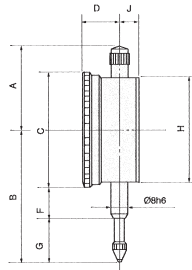
(Tolerance according to DIN 7168/1).

Max permitted measuring deviation for all measuring ranges.

(Reference temperature +20°C.)



Measuring range	mm	0.4	0.8	3	5	10
Max deviation incl. backlash	µm	9	9	12	14	17



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

Art. no.	10390	-0106
Measurement range	mm	5
Scale division	mm	0.01
Scale graduation		0-50, 50-0
One pointer turn =	mm	0.5
Dial diameter	mm	40
Fixing pin diameter	mm	8
Dimension A	mm	38
Dimension B	mm	48
Dimension C	mm	42
Dimension D	mm	14
Dimension F	mm	14
Dimension G	mm	13
Dimension H	mm	40
Dimension J	mm	7

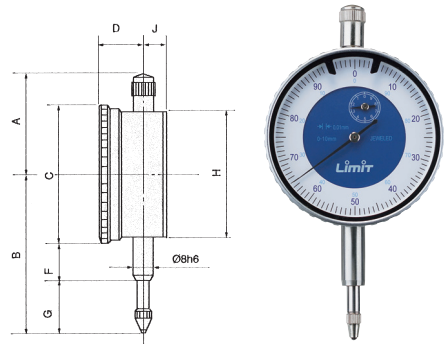
Dial gauges

Limit. 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.

Accessories, see 5318 page 21.

Art. no.	11911	-0104	-0203
Measurement range	mm	10	25
Scale division	mm	0.01	0.01
Scale graduation		0-100, 100-0	0-100, 100-0
One pointer turn =	mm	1	1
Dial diameter	mm	58	58
Fixing pin diameter	mm	8	8
Dimension A	mm	44	38
Dimension B	mm	69	81
Dimension C	mm	58	58
Dimension D	mm	17	17
Dimension F	mm	18	18
Dimension G	mm	21	34
Dimension H	mm	54	54
Dimension J	mm	8.5	8.5

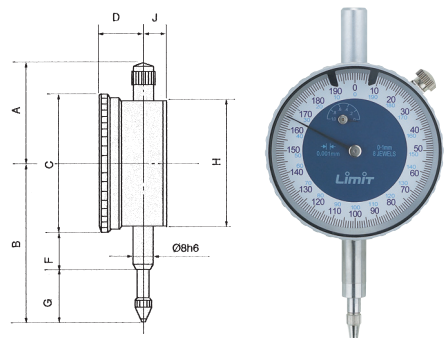
Art. no.	11911	-1003
Measurement range	inch	0.5
Scale division	inch	0.0005
Scale graduation		0-50, 50-0
One pointer turn =	inch	0.05
Dial diameter	mm	58
Fixing pin diameter	inch	3/8
Dimension A	inch	1.48
Dimension B	inch	2.74
Dimension C	inch	2.28
Dimension D	inch	0.64
Dimension F	inch	0.69
Dimension G	inch	0.91
Dimension H	inch	2.11
Dimension J	inch	0.32

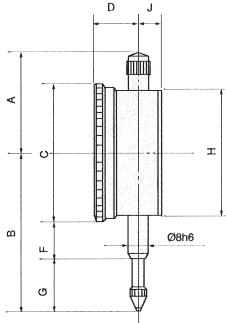


Limit. With turnable scale and two adjustable tolerance indexes. Extra pointer, graduated in 0.2 mm up to whole mm. Body made of aluminium. Replaceable measuring tip. Without mounting lug. Tolerance according to DIN 878.

Accessories, see 5318 page 21.

Art. no.	11912	-0103
Measurement range	mm	1
Scale division	mm	0.001
Scale graduation		0-100, 100-0
One pointer turn =	mm	0.2
Dial diameter	mm	58
Fixing pin diameter	mm	8
Dimension A	mm	45
Dimension B	mm	69
Dimension C	mm	58
Dimension D	mm	17
Dimension F	mm	18
Dimension G	mm	34
Dimension H	mm	54
Dimension J	mm	8.5





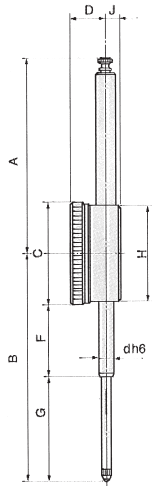
Dial gauges

Shock proof

Limit. 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.

Accessories, see 5318 page 21.

Art. no.	4397	-0201
Measurement range	mm 10	10
Scale division	mm 0.01	0.01
Scale graduation		0-100, 100-0
One pointer turn =	mm 1	1
Dial diameter	mm 58	58
Fixing pin diameter	mm 8	8
Dimension A	mm 44	44
Dimension B	mm 69	69
Dimension C	mm 58	58
Dimension D	mm 17	17
Dimension F	mm 18	18
Dimension G	mm 21	21
Dimension H	mm 54	54
Dimension J	mm 8.5	8.5



Limit. 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.

Accessories, see 5318 page 21.

Art. no.	11913	-0102	-0201
Measurement range	mm 50	80	80
Scale division	mm 0.01	0.01	0.01
Scale graduation		0-100	0-100
One pointer turn =	mm 1	1	1
Dial diameter	mm 58	58	58
Fixing pin diameter	mm 8	8	8
Dimension A	mm 108	139	139
Dimension B	mm 127	169	169
Dimension C	mm 58	58	58
Dimension D	mm 20	20	20
Dimension D	mm 8	8	8
Dimension F	mm 40	52	52
Dimension G	mm 58	88	88
Dimension H	mm 54	54	54
Dimension J	mm 8	8	8

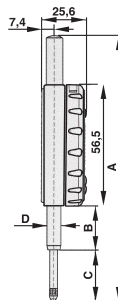
Electronic dial gauge

Limit. Digital gauge. tolerance function. Adjustable between absolute and incremental measurement values. Resetting. Adjustable between metric and imperial. DIN 878.

Extra battery 3 V type CR 2025.



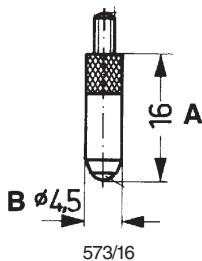
15130-0100



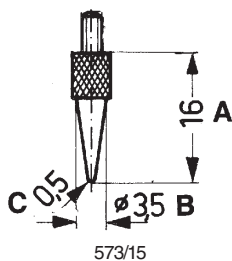
Art. no.	15130	-0100	-0209	-0308
Measurement range	mm 12.5	25	12.5	12.5
Reading	mm 0.01	0.01	0.001	0.001
Precision	mm 0.02	0.02	0.013	0.013
Digit height	mm 12	12	12	12
Dial diameter	mm 57	57	57	57
Gauge thickness	mm 26	26	26	26
Fixing pin diameter	mm 8	8	8	8
Measure A	mm 123.5	151.0	123.5	123.5
Measure B	mm 20	20	20	20
Measure C	mm 24	34	24	24
Measure D	mm 8	8	8	8

Dial gauges

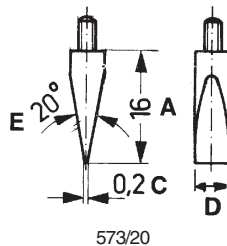
Accessories



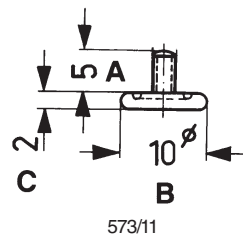
573/16



573/15



573/20



573/11

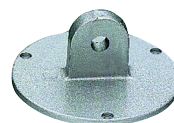
Spare measuring tips for dial indicators.

Art. no.	5318	-1004	-1103	-1202	-1301
Orig. no.	573/16	573/16	573/15	573/20	573/11
Tip.	Half round	Half round	Tapered	Flat	Flat
Dimension A.	mm 16	16	16	16	5
Dimension B ϕ	mm 4.5	4.5	3.5	-	10
Dimension C.	mm -	-	0.5	0.2	2
Dimension D.	mm -	-	-	5	-
Dimension E.	-	-	-	20°	-

Extension rods mm	Art. no. 2651
Length 10 mm	-0131
Length 30 mm	-0206
Length 60 mm	-0305
Length 90 mm	-0404

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

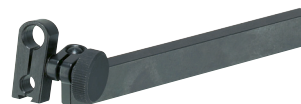
Art. no.	17424	-0101	-0200
Securing hole diameter.	mm 6.5	6.5	6.5
Back diameter.	mm 53	53	53
No. of screw holes.	ea 3	3	4



Limit. 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.

Art. no.	15129	-0103	-0202
Hole diameter for indicator dial/level type dial indicator.	mm 8 and 6	8	8
Holder arm dimension.	mm 6x12	ϕ 8	ϕ 8
Length.	mm 100	100	65

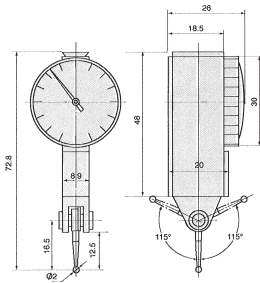


15129-0103



15129-0202

Flip flop indicators



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

Art. no.	2259	-0103
Measuring range	mm	0.8
Scale division	mm	0.01
Scale graduation		0-40-0
Dial diameter	mm	30
Tip length	mm	15
Lever movement		vertical

Accessories

Extra measurement tips	2259	-0202
Extra fixed pin 8 mm	2259	-0301



Limit. Digital dial with angled tip. The measurement tip registers in both directions. Tolerance function. Resetting. Switching between metric (mm) and imperial (inch). Pivoted display for easy reading. Supplied with adhesive tape 8 mm.

Art. no.	16756	-0101
Measurement range	mm	0.5
Reading	mm	0.001
Precision	mm	±0.009
Battery		1 x 1.5V SR44

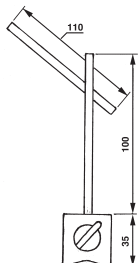
Magnetic stand with dial indicator



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

Art. no.	11908	-1008
Indicator stand:		
Max height adjustment	mm	330
Base dimension	mm	50x55x58
Securing hole diameter	mm	8
Magnetic force	kg	80
Weight	kg	1.9
Indicator dial:		
Measurement range	mm	10
Scale division	mm	0.01
Scale graduation		0-100, 100-0
One pointer turn =	mm	1
Dial diameter	mm	58

Magnetic stands



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

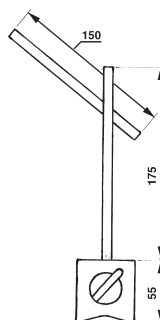
Art. no.	15128	-0104
Max height adjustment	mm	230
Dimension of magnetic foot	mm	30x35x36
Mounting hole diameter	mm	8 and 6
Magnetic fastening force	kg	40
Net weight	kg	2

Magnetic stands

Limit. 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.

Art. no.	6019	-1004
Max height adjustment	mm	250
Base dimensions	mm	50x55x58
Mounting hole diameter	mm	8
Magnetic force	kg	75
Net weight	kg	1.5

Accessories		
Top and bottom holder	6019	-0402
Separate magnetic base. Threaded hole M8	6019	-0600

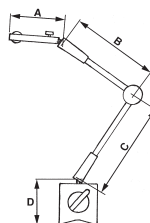


11908-0257

Limit. 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.

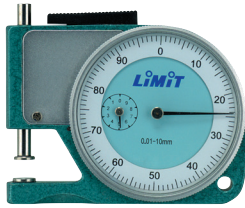
Art. no.	11908	-0208	-0257	-0307
Max height adjustment	mm	330	330	385
Base dimension	mm	50x55	50x55	50x75
Mounting hole diameter	mm	8	8	8
Magnetic force	kg	80	80	100
Net weight	kg	1.9	1.9	2.2
Mått A	mm	70	70	80
Mått B	mm	115	115	130
Mått C	mm	145	145	170
Mått D	mm	55	55	55



Limit. 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.

Art. no.	6020	-0201
Arm length	mm	330
Base dimensions	mm	50x55x58
Mounting hole diameters	mm	6 & 8
Magnetic force	kg	80
Net weight	kg	1.6





Thicknes gauges

Limit. Suitable for both soft and hard materials.

Art. no.	11915	-0100
Measurement range.....	mm	10
Reading	mm	0.01
Measuring surface diameter.....	mm	8
Yoke depth	mm	12



Limit. Suitable for both soft and hard materials.

Art. no.	11916	-0109
Measurement range.....	mm	10
Reading	mm	0.01
Measuring surface diameter.....	mm	10
Yoke depth	mm	30



Limit. Suitable for both soft and hard materials.

Art. no.	11917	-0108
Measurement range.....	mm	10
Reading	mm	0.01
Measuring surface diameter.....	mm	10
Yoke depth	mm	120



Electronic

Limit. Digital display. Can be switched between mm or inches. Automatic switching off. Reset button. Extra battery V13GS/V 357 (SR44), art.no. 2928-1003.

Art. no.	2294	-0100
Measuring range.....	mm	0-15
Resolution	mm	0.01
Tolerance	mm	±0.02
Measuring surface diameter	mm	8,9
Yoke depth.....	mm	13



gehärtet DIN 874

Rules and squares

Protractor measuring

For protractor measuring with 1° accuracy protractors with graduations in integer grades are used. For more accurate measuring than integer grades a bevel vernier protractor is used.

Planetary and squariness control

When controlling planetary and squariness rules or squares are used. There are both rules and squares with different tolerances. The most accurate types are knife edge rules and knife edge squares which have a knife edge formed black coloured edge for better contrast effect.

When using you see a light gap between the work piece and the measuring tool. By using a thickness gauge you can feel how rough a surface is or how high the angular error is.

Gauge blocks

To calibrate or reset measuring equipment, measuring fixing devices or gauge, gauge blocks are used. Also when adjusting tools and machines gauge blocks are used. Gauge blocks are blocks manufactured with a high dimensional accuracy, planetary and parallelism. By surface roughness the gauge blocks can obtain a very high adhesive strength when the blocks are turned and pressed together. That is how gauge block combinations are put together so that the total measurement value of all blocks is equal to the total length.

Table of tolerances according to DIN 866

For engineer's folding rules



Type A
Width 0.07-0.10 mm

Type B
Width 0.10-0.15 mm

Measuring precision	length mm	500	1000	1500	2000	3000	4000
Type A	mm	0.04	0.04	0.06	0.06	0.08	0.10
Type B	mm	0.10	0.10	0.15	0.15	0.20	0.25

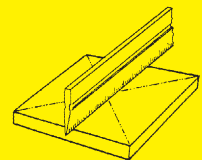
Length of long leg mm	Rectangularity tolerance in µm for degree of precision:				Surface smoothness tolerance in µm for degree of precision:*)			
	00	0	1	2	00	0	1	2
50	3	—	—	—	2	3	5	10
75	3	7	14	28	2	3	5	11
100	3	7	15	30	2	3	6	12
150	4	8	18	35	3	4	7	14
200	4	9	20	40	3	4	8	16
250	5	10	23	45	3	5	9	18
300	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 surface smoothness tolerance for flat sides is 6 times the given value for contact surfaces.

Table of tolerances according to DIN 874.

Levelness tolerance (flatness) in µm for different degrees of precision.

The levelness tolerance indicates the max deviation between the lowest and highest point. (Reference temperature +20°C.)



Engineer's rules				Straight-edges	
Length in mm	00	0	1	2	00
±2					±2
500	4	7	12	21	75
750	6	9,5	17	27	100
1000	8	12	21	33	150
1500	—	17	29	46	300
2000	—	22	37	58	
2500	—	27	46	71	
3000	—	32	54	83	
4000	—	42	71	108	
5000	—	—	87	133	

Table of tolerances for surface plates according to DIN 876



The levelness tolerance indicates the max deviation between the highest and lowest point on the surface.
(Ref. temperature +20°C.)

Measuring surface length	Levelness tolerance (flatness) in μm for different degrees of precision:				
	00	0	1	2	3
mm					
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	-

Table of tolerances for gauge blocks according to DIN 861

(correspond with ISO 3650 and SS 3348)



Nominal length mm	Degree of precision 00		Degree of precision 0		Degree of precision 1		Degree of precision 2	
	Length tolerance *) μm	Max length variation width **) μm	Length tolerance *) μm	Max length variation width **) μm	Length tolerance *) μm	Max length variation width **) μm	Length tolerance *) μm	Max length variation width **) μm
- 10	± 0.06	0.05	± 0.12	0.10	± 0.20	0.16	± 0.45	0.30
(10) - 25	± 0.07	0.05	± 0.14	0.10	± 0.30	0.16	± 0.60	0.30
(25) - 50	± 0.10	0.06	± 0.20	0.10	± 0.40	0.18	± 0.80	0.30
(50) - 75	± 0.12	0.06	± 0.25	0.12	± 0.50	0.18	± 1.00	0.35
(75) - 100	± 0.14	0.07	± 0.30	0.12	± 0.60	0.20	± 1.20	0.35
(100) - 150	± 0.20	0.08	± 0.40	0.14	± 0.80	0.20	± 1.60	0.40
(150) - 200	± 0.25	0.09	± 0.50	0.16	± 1.00	0.25	± 2.00	0.40
(200) - 250	± 0.30	0.10	± 0.60	0.16	± 1.20	0.25	± 2.40	0.45
(250) - 300	± 0.35	0.10	± 0.70	0.18	± 1.40	0.25	± 2.80	0.50
(300) - 400	± 0.45	0.12	± 0.90	0.20	± 1.80	0.30	± 3.60	0.50
(400) - 500	± 0.50	0.14	± 1.10	0.25	± 2.20	0.35	± 4.40	0.60
(500) - 600	± 0.60	0.16	± 1.30	0.25	± 2.60	0.40	± 5.00	0.70
(600) - 700	± 0.70	0.18	± 1.50	0.30	± 3.00	0.45	± 6.00	0.70
(700) - 800	± 0.80	0.20	± 1.70	0.30	± 3.40	0.50	± 6.50	0.80
(800) - 900	± 0.90	0.20	± 1.90	0.35	± 3.80	0.50	± 7.50	0.90
(900) - 1000	± 1.00	0.25	± 2.00	0.40	± 4.20	0.60	± 8.00	1.00

*) = Permitted \pm deviation at arbitrary point in relation to nominal dimension.

**) = Permitted length variation (depending on flatness and parallelism error).

Rules and squares



Art. no.	2702	-0106
Length	mm 100	13x0.5
Width x thickness	mm	

Steel rules

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

-0205	-0304	-0403	-0502	-0601
150	200	300	500	1000
13x0.5	13x0.5	13x0.5	18x0.5	18x0.5



Art. no.	2703	-0055
Length	mm 300	25x1.0
Width x thickness	mm	

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

-0204	-0303
500	1000
30x1.2	35x1.5



Art. no.	8427	-0107
Length	mm 150	25x1
Width x thickness	mm 15x0.5	±0.12
Precision	mm	

Limit. 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.

-0206	-0305	-0404	-0503	-0602
300	600	1000	2000	3000
25x1	30x1.2	35x1.5	40x2	40x3
±0.13	±0.16	±0.20	±0.30	±0.40



Grad. top edge

Graduated top edge

Art. no.	2706	-0102
Length	mm 500	25x5
Width x thickness	mm 30x6	5
Pack	qty 1	

Dito calibrated	2706	-0250

Engineers rules

Limit. Of steel. Ground faces. Tolerance according to DIN 866/II. Graduated in mm.

-0201	-0300	-0409	-0508
1000	1500	2000	3000
30x6	30x6	40x8	40x8
1	1	1	1

Steel rules

Limit. 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.

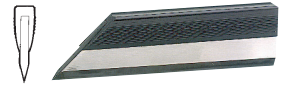
Art. no. DIN 874/2	2507	-0103	-0202	-0301	-0400	(-0509)	(-0608)	(-0707)
Length	mm 500	1000	1500	2000	2500*	3000*	4000*	4000*
Width x thickness	mm 30x6	40x8	50x10	60x12	70x15	80x15	100x16	100x16
Weight	kg 1.3	2.5	5.8	11.4	14.3	17.1	22.8	22.8
Ditto DIN 874/1	2507	(-1507)	-1606	(-1705)	(-1804)	(-1903)	(-2000)	(-2109)
Width x thickness	mm 40x8	50x10	60x12	70x15	80x15	100x16	120x20	120x20
Weight	kg 1.3	4.0	8.4	12.0	17.0	28.0	35.0	35.0

*Length 2500-4000 according to DIN 874/1 has I-section.

Steel rules

Sharp edge rules

Limit. 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.

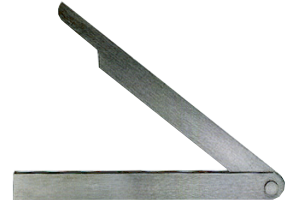


Art. no.	5209	-0107	-0206	-0305	-0404
Length	mm	75	100	200	300
Width x thickness	mm	22x6	22x6	22x6	30x7
Weight	g	40	60	120	750

Workshop squares

Sliding bevels

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



Art. no.	2544	-1007	-1106	-1205	-1304
Leg length	mm	200	300	400	500
Leg cross-section	mm	25x5	25x5	30x5	30x5

Flat squares

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

Long leg mm	Short leg mm	Width x thickness mm	Right-angled µm	Art. no.
				12047
150	100	25x5	± 55	-0109
200	130	25x5	± 60	-0208
300	175	25x5	± 70	-0307
400	230	25x5	± 80	-0406
500	250	25x5	± 90	-0505
600	300	25x5	100	-0604



Limit. Zinc plated steel.

Long leg mm	Short leg mm	Dimension mm	Art. no.
			19015
750	375	30x5	-1001
1000	500	30x5	-1100
1500	750	30x5	-1209
2000	1000	40x5	-1308



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

Long leg mm	Short leg mm	Width x thickness mm	DIN 875/2 Art. no.
			2533
75	50	15x4	-1505
100	70	20x5	-1604
150	100	25x6	-1703
200	130	30x7	-1802
300	200	40x8	-1901
400	265	45x10	-2008



Base squares

Limit. 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.

Long leg mm	Short leg mm	Width X thickness mm	Base width mm	Right-angled µm	Art. no.
					12048
150	100	25x5	22	± 55	-0108
200	130	25x5	22	± 60	-0207
300	175	25x5	22	± 70	-0306
400	230	25x5	22	± 80	-0405
500	250	25x5	22	± 90	-0504
600	300	25x5	22	± 100	-0603



Workshop squares

Base squares

Limit. Of steel. Precision design. All faces ground. Manufactured according to tolerance DIN 875/2.



Long leg. mm	Short leg. mm	Width x thickness mm	Base width mm	DIN 875/2 Art. no. 2534	Calibrated Art. no. 2534
100	70	20x5	20	-2007	-
200	130	30x7	30	-2106	-1553
300	200	40x8	40	-2205	-1652
400	265	40x10	45	-	-



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

Long leg mm	Short leg mm	Dimension mm	Art. no.
			19016
750	375	30x5	-1000
1000	500	30x5	-1109
1500	750	30x5	-1208
2000	1000	40x5	-1307



Flange squares

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

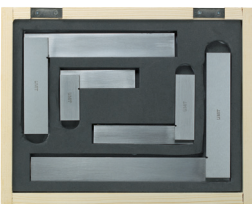
Art. no.	2541	-1000	-1109	-1208
Dimension	mm	300x300	400x400	500x500
Max. flangeheight x width	mm	100x60	124x65	124x65



Engineer's squares

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

Long leg mm	Short leg mm	Dimension long leg mm	Dimension short leg mm	DIN 875/2 Art. no. 16246
75	50	20x1.5	20x9	-0109
100	70	20x1.5	20x9	-0208
150	100	25x1.5	25x11	-0307
200	130	25x1.5	25x12.5	-0406
260	160	30x2	30x17.5	-0505
300	175	30x2	30x19	-0604
400	250	38x2	38x19	-0703
500	265	50x2	50x21	-0802



Set

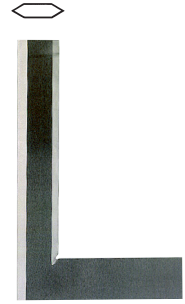
Accessories			
Set of 4 squares.....	16246		-0901
Sizes	mm	75x50, 100x70, 150x100, 200x130	

Workshop squares

Sharp edge squares

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

Long leg mm	Short leg mm	Width x thickness mm	DIN 875/00 Art. no. 5217
50	40	13.5x4	-1006
75	50	15x4	-1105
100	70	20x5	-1204
150	100	25x6	-1303
200	130	30x7	-1402



Adjustable squares

Limit. Adjustable stop along a graduated steel rule Tolerance according to DIN 875/2.

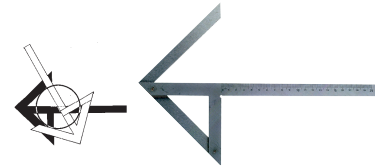
Art. no.	15125	-0107	-0206
Steel rule, length	mm	100	150
Adjustable stop, length	mm	70	100



Centre square

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

Art. no.	2542	-0209
Blade length	mm	200
Stock length	mm	150



Protractors

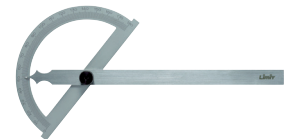
Limit. Of sheet metal. The disc is graduated from 0-180° in both directions. Supplied with circular or rectangular disc. With locking nut.

Art. no.	2549	-0103
Disc shape		Circular
Disc diameter	mm	85
Leg length	mm	150



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

Art. no.	2548	-0104	-0203	-0302	-0401
Disc diameter	mm	80	120	150	200
Leg length	mm	120	150	200	300



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

Art. no.	2550	-0109	-0208	-0406
Disc diameter	mm	150	200	300
Leg length	mm	300	400	600



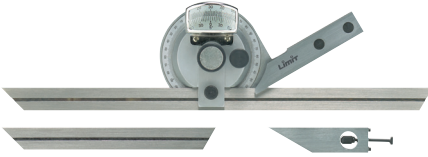
Universal protractors

Limit. Digital angle gauge. Spirit level vial on top. Display with large digits. The display can be reset in all positions and switches to absolute value. Hold button for freezing of the measurement value. The arm is lockable using the lock knob which can be moved in different positions. Supplied with 1 battery 3 volt, type 2032.



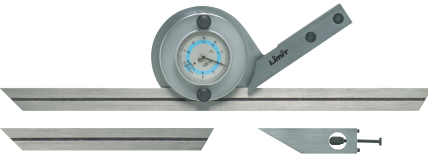
Art. no.	16658	-0100
Reading		0-360°
Graduation		0.1°
Precision		±0.25°
Jaw length	mm	250
Digit height	mm	13

Limit. 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.



Art. no.	12258	-0103
Blade length	mm	150 and 300
Accuracy		± 1/12°

Limit. 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.



Art. no.	11919	-0106
Rotating scale	degrees	10-20-30-40-50 etc.
One pointer turn =	degrees	10
Pitch	min.	5
Accuracy		± 1/12°
Rule length	mm	300
Angle stop	mm	65

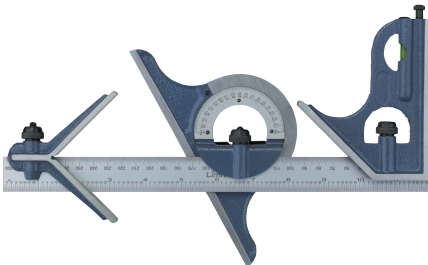
Limit. Digital angle gauge. Manufactured of stainless steel. Reading alternatives 0-360°, 0-180° or 0-90°. Can be reset in all positions. 2 rulers 150 and 300 mm. Setting angle 90°.



Art. no.	15127	-0105
Reading		0-360°, 0-180° or 0-90°
Resolution		0,1°
Precision		±0,2°
Length of rules	mm	150 and 300

Combined square

Limit. With protractor, angle stop and centre head. All parts slide on the graduated rule. Vial on the protractor and angle stop. The rule is graduated in millimetre and imperial measures.



Art. no.	11918	-0107
Protractor	degrees	0-180
Rule length	mm	300
Angle stop length	mm	110
Centre head length	mm	63

Accessories		
Extra rule 300 mm	11918	-0156
Extra rule 600 mm	11918	-0206
Spare part set (screw/spring/nut)	11918	-0305

V blocks

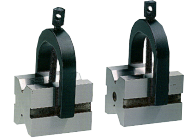
Limit. Of stress-free cast iron. Precision machined in pairs. Parallelism of base and V-groove, max 0.03 mm. V-groove angle 90°.

Art. no.	2502	-0108	-0207	-0405	-0603
Width	mm 75	75	100	150	205
Height	mm 60	60	65	90	140
Thickness	mm 32	32	41	63	100
V-groove width	mm 44	44	50	82	100
V-groove depth	mm 23	23	28	39	56



Limit. Precision design. For clamping when drilling, milling, grinding or measuring. Manufactured in pairs of hardened and smooth ground steel. Supplied in sets, with 2 blocks and 2 clamps..

Art. no.	5252	-0202	-0301	-0400
Max. clamping diameter	mm 25	25	37	40
Length×width×height	mm 40×32×32	40×32×32	50×37×37	75×55×55



Faceplates

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

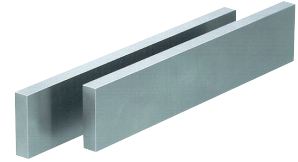
Art. no.	19017	-1009	-1108	-1207	-1306
Dimensions	mm 200x200	200x200	300x300	400x400	600x500
Weight	kg 7	7	19	27	59



Parallel blocks

Limit. Set of 8 pairs. Ground in pairs. Hardened steel HRC 55-62. Parallelism tolerance. ±0.005 mm.

Art. no.	15153	-1001	-1100	-1209
Length	mm 120	120	160	200
Thickness	mm 8	8	8	8
Height	mm 12, 17, 22, 25, 28, 32, 36, 38	12, 17, 22, 25, 28, 32, 36, 38	12, 17, 22, 25, 28, 32, 36, 38	12, 22, 25, 28, 32, 36, 38, 43



Gauge blocks

Limit. Manufactured of hardened, special steel. Ground and hand polished. Supplied in wooden case.

DIN 861/2. Suitable for checking and setting dial indicators and workshop gauges etc.

DIN 861/1. Suitable for checking gauges and measuring instruments, and inspection work in instrument departments.

Only sold in complete sets.

Total number of blocks	ea.	47	87
Measuring range	mm	1.005	1.001-1.009
Number of blocks (range)	unit	1 (0.005 mm)	9 (0.001 mm)
Measuring range	mm	1.01-1.20	1.01-1.49
Number of blocks (range)	unit	20 (0.01 mm)	49 (0.01 mm)
Measuring range	mm	1.30-1.90	0.50-9.50
Number of blocks (range)	unit	7 (0.10 mm)	19 (0.50 mm)
Measuring range	mm	1.00-9.00	-
Number of blocks (range)	unit	9 (1.00 mm)	-
Measuring range	mm	10.00-100.00	10.00-100.00
Number of blocks (range)	unit	10 (10.00 mm)	10 (10.00 mm)
DIN 861/2	5272	-0109	-0208
DIN 861/1	5272	-0307	(-0406)



Angle block set

Limit. Set of 12 angle blocks for measurement, inspection and setting of machines, tools or angle gauges. The block is precision ground and manufactured of hardened special steel. Semi-magnetic for easy application in combination with each other or against the workpiece. Angle accuracy ±0.01 mm per 100 mm. Supplied in case.

Art. no.	15323	-0107
Squares	mm 1/4°, 1/2°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°	
Block length	mm 76	



Machine levels

Digital precision levels

Limit. Digital level and protractor. Magnet on the base for fitting on saw blades, steel frames etc. Zero setting in any position. Automatic off after 3 minutes. Supplies with battery.



Art. no.	17425	-0050
Dimension	mm	60x56x28
Range		4 x 0-90°
Readout		0.1°
Accuracy		±0.3°
Dust/Watterproof		IP54
Battery		1 pc 1.5 V type AAA

Limit. Mini digital level and protractor. The display shows two values. One absolute value and one relative value. Flip up display for easy reading from above. Zero setting in any position. Hold function to freeze the value. Magnet on base for fitting on saw blades, steel frames etc. Automatic off after 3 minutes.



Art. no.	17425	-0209
Dimension	mm	60x50x32
Range		0-180°
Min reading		0.1°
Accuracy		±0.3°
Dust/water proof		IP 54
Battery		2 pc 1.5V type AAA

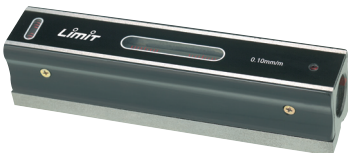
Limit. Digital level and protractor. Magnetic with V-groove on the base. Can be reset in all positions. Absolute function, which means that the value can shift between the actual 0-value and a second 0-value. The measurement can be frozen in the desired position. Automatic switching off.



Art. no.	17426	-0109
Dimensions	mm	150x60x31
Reading	degrees	0-180
Resolution		0.1
Precision		±0.3
Enclosure protection class		IP 54
Battery		3V type CR 2032

Even levels

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



Art. no.	0749	-0055	-0154	-0204	-0402
Length	mm	100	150	200	200
Scale	mm	0.05	0.05	0.10	0.02
Width×height	mm	35×30	44×40	46×46	46×46
Accuracy	±mm/m	0.025	0.025	0.025	0.005

Frame levels

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



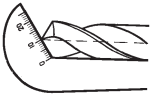
Art. no.	0757	-0039	-0054	-0104	-0203
Length	mm	100	150	200	200
Height	mm	100	150	200	200
Scale	mm/m	0.05	0.05	0.10	0.02
Accuracy	±mm/m	0.025	0.025	0.025	0.005





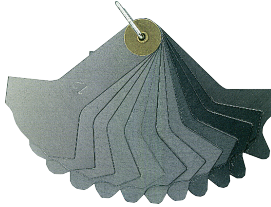
Grinding gauge

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



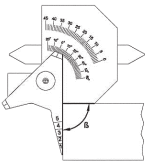
Art. no.	2565	-0102
For drills up to	mm	50
Nose angle		118°

Welding gauges

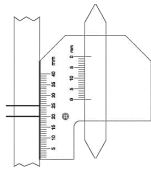


Limit. With 12 blades for measuring the height of plane welding joints. Bright.

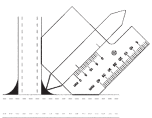
Art. no.	7403	-1006
Measuring range	mm	3-12



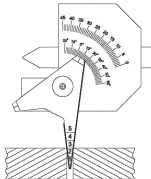
Angle measuring
70°-90°-150°



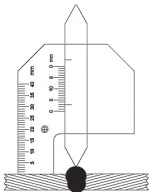
Steel rule 0-40 mm



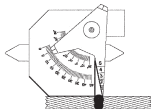
Welding joint
measuring 0-10 mm



Diameter of
hole 1-5 mm



Height 0-10 mm

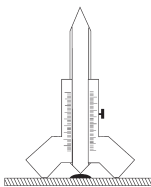
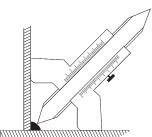
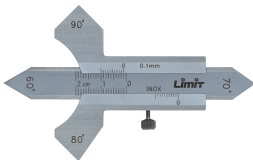


Width 0-45 mm

Limit. 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.

Art. no.	9754	-1007
Limit		Combi
Welding joint	mm	0-10
Height measurement	mm	0-10
Length	mm	45
Angle		70°-90°-150°
Hole diameter	mm	1-5



Limit. 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°.

Art. no.	2569	-0108
Length of graduation	mm	20

Thread gauges

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

Art. no.	2575	-1009	-1108
Thread gauge		55°	60°
Thread system		W	M+UN



Limit. Universal. For V-threads, square and acme threads.

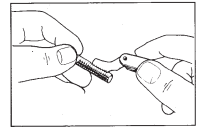
Art. no.	2577	-1007
Thread gauges (V-threads)		55° and 60°
For number of threads (square threads) .. per inch	2 2.5 3 3.5 4 4.5 5 6 7 8	
For pitches (acme thread 30°)	mm	2 3 4 5 6 7 8 9 10 12



Screw pitch gauges

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

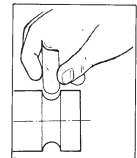
Art. no.	2580	-1002	-1101	-1200	-1309	-1408
Thread system		W	M	M/UNC	UNC-UNF	T-pipe (R)
Thread gauge		55°	60°	60°	60°	55°
No. of blades	ea.	28	24	55	30	6
For no. of threads .. per inch		4-62	-	4-42	4-42	8-28
For pitches	mm	-	0.25-6	0.25-6	-	-



Radius gauges

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

Art. no.	2584	-1008	-1107	-1206
For radii	mm	1-7	7.5-15	15.5-25
No. of blades	ea.	17+17	16+16	15+15
Intervals	mm	(1-3)=0.25 (3-17)=0.5	0.5	(15.5-20)=0.5 (20-25)=1



Angle gauges

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

Art. no.	2586	-1006
No. of blades	ea.	18
For angles, degrees		1 2 3 4 5 7 8 9 10 12 14 16 18 20 25 30 40 45





Hole size gauges

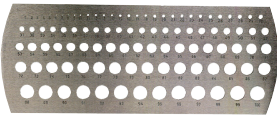
Limit. For measuring and inspection of hole diameters or slot widths. Stainless steel with matt chromium-plated scale.

Art. no.	1441	-1003
Measuring range	mm	1-15
Graduation	mm	0.1
Scale length	mm	120
Thickness	mm	1.2
Pack.	qty	20



Limit. 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.

Art. no.	2641	-0209
Orig. no.		2
For diameter	mm	0-5



Drill and wire gauge

Limit. For drill and wire diameters with mm dimensions.

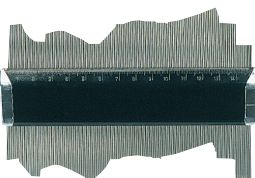
Art. no.	2590	-0309
Hole diameter	mm	0.1-10
Intervals	mm	0.1
No. of holes	ea.	100
Thickness	mm	2



Surface gauge

Limit. 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.

Art. no.	5370	-0100
Polishing		
Broaching		
Surface grinding	Ra	1.6 0.8 0.4 0.2 0.1 0.005
Horizontal milling		
End face milling		
Straight-turning	Ra	12.5 6.3 3.2 1.6 0.8 0.4



Profile patterns

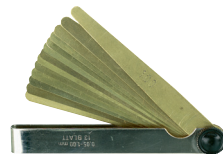
Limit. For impression of required profile, where curved and irregular lines are to be formed. For carpet and floor laying, manufacturing of shelves and benches, and turning etc. Round gauges of stainless steel.

Art. no.	9739	-0108	-0207
Length	mm	150	300
Max profile depth	mm	48	105
Pack.	qty	6	4

Feeler gauges

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

Art. no.	6792	-1007	-1106	-1205
No. of blades	unit	8	13	20
Measuring range	mm	0.05-0.50	0.05-1.00	0.05-1.00
Blade length	mm	100	100	100

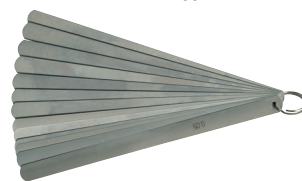


Limit. With blades in mm dimensions. For measuring slots and bearing play, etc. With nickel-plated, lockable holder, tapered blades.

Blade length 100 mm	2595	-3001	-3100	-3209
Range of measuring	mm	0.03-0.10	0.05-0.50	0.10-0.50
No. of blades		8	8	21
Pack	qty	1	1	1
Blade length 200 mm	2595	-	-	-
Range of measuring	mm	-	-	-
No. of blades		-	-	-
Pack	qty	-	-	-
Blade length 100 mm	2595	-3308	-3407	-0601
Range of measuring	mm	0.05-1.00	0.05-1.00	0.10-2.00
No. of blades		13	20	20
Pack	qty	1	1	5
Blade length 200 mm	2595	-3506	-3605	-1104
Range of measuring	mm	0.05-1.00	0.05-1.00	0.10-2.00
No. of blades		13	20	20
Pack	qty	1	1	5



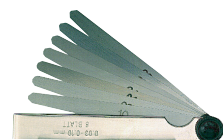
100 mm



200 mm

Limit. Calibrated. Tolerance according to DIN 2275. Certificate included. Calibrated at two measuring points per blade. Blades in mm dimensions. For measuring slots and bearing play, etc. With nickel-plated, lockable holder.

Art. no.	2595	-2003	-2102	-2201
No. of blades	unit	8	13	20
Measuring range	mm	0.03-0.10	0.05-1.00	0.05-1.00
Blade length	mm	100	100	100

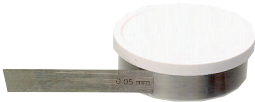


Calibrated

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

Art. no.	2597	-1003
Orig. no.		133
No. of blades	ea.	13
Measuring range	mm	0.05-1.00
Blade width	mm	12.7
Blade length	mm	300





Feeler strips

Limit. 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.)

Art. no.	2599	-0052	-0102	-0201	-0300	-0409
Blade thickness	mm	0.01	0.02	0.03	0.04	0.05
Tolerance	mm	±0.004	±0.004	±0.004	±0.004	±0.004
Art. no.	2599	-0508	-0607	-0706	-0805	-0904
Blade thickness	mm	0.06	0.07	0.08	0.09	0.10
Tolerance	mm	±0.004	±0.004	±0.004	±0.004	±0.005
Art. no.	2599	-1308	-1506	-1605	-1704	-1902
Blade thickness	mm	0.15	0.20	0.25	0.30	0.35
Tolerance	mm	±0.005	±0.007	±0.008	±0.009	±0.009
Art. no.	2599	-2009	-2108	-2207	-2405	-2504
Blade thickness	mm	0.40	0.45	0.50	0.60	0.70
Tolerance	mm	±0.010	±0.010	±0.013	±0.015	±0.015
Art. no.	2599	-2702	-2801	-2900		
Blade thickness	mm	0.80	0.90	1.00		
Tolerance	mm	±0.017	±0.017	±0.017		



Feeler strip holder

Limit. For feeling strips 2599.

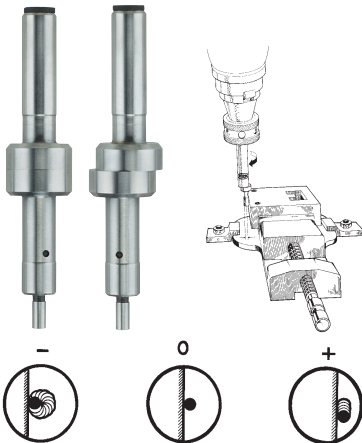
Art. no.	2600	-0109
Length	mm	135
Width	mm	13



Adjustment cube

Limit. 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.

Art. no.	15320	-0100
Height	mm	50.00
Plate travel	mm	3
Indicator dial graduation	mm	0.01
Width x length	mm	50 x 50



Electronic edge finders

Limit. 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.

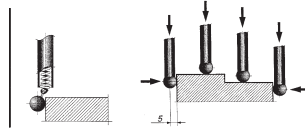
The sensor is mounted in the tool spindle's chuck. During rotation the moving contact tip is guided towards the edge of the work piece and the distance between the edge detector and the work piece can be determined.

Art. no.	17250	-0100
Contact tip diameter	mm	10.0 / 4.0
Shank diameter	mm	10.0
Total length	mm	90
Precision	mm	±0.001

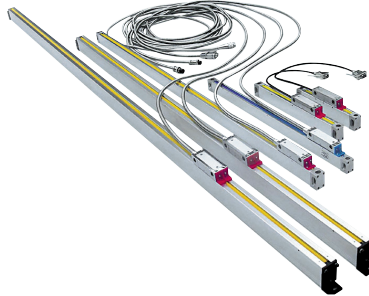
Electronic edge finders

Limit. Electronic edge detector. 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. LED and audio signal indicate contact between the spindle and work piece. Precision manufactured measurement spindle with steel ball that springs laterally.

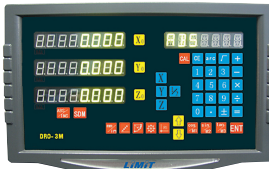
Art. no.	16711	-0105
Ball diameter	mm	10.00
Shank diameter	mm	20
Total length	mm	157
Precision	mm	±0.005
Battery		2 x 1.5V LR01



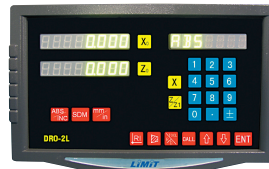
Digital Linear Scales and Readout



Linear scales



15139-0101



15139-0200

Limit. For setting and positioning on lathes and millers.

15139-0101. 3-axis 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 including arm and assembly accessories.

15139-0200. 2-axis display unit for lathes. The display unit features functions for radius/diameter setting, tool exchange, measures tapers. Memory for 200 coordinate settings. Complete including arm and assembly accessories.

The equipment conforms to the CE low voltage directive 73/23/EEC and 89/336/EEC.

Linear scales with photoelectric reading technique. Complete incl. cable, protective plate and assembly accessories.

Display unit	15139	-0101	-0200
Limit	No	DRO-3M	DRO-2L
Intended for		millers	lathe
Resolution	mm	0,005	0,005
Precision	mm	± 0,005	± 0,005
Power supply	V	240	240
Working temperature	°C	0-45	0-45
Storage temperature	°C	-30 - 70	-30 - 70
Max. relative humidity		90%	90%
Enclosure class		IP53	IP53

Linear scales	15139	-0309	-0408	-0606	-0705	-0804	-0903
Measurement length	mm	150	200	300	400	500	600
Total length	mm	290	340	440	540	640	740
Height x thickness including saddle	mm	53x22	53x22	53x22	53x22	53x22	53x22
Securing holes centre-centre	mm	274	324	424	524	624	724

Linear scales	15139	-1109	-1307	-1406	-1505	-1604	-1802
Measurement length	mm	800	1000	1200	1400	1600	2000
Total length	mm	940	1140	1350	1550	1750	2150
Height x thickness including saddle	mm	53x22	53x22	28x66	28x66	28x66	28x66
Securing holes centre-centre	mm	924	1124	1330	1530	1730	2130

Surface roughness tester



Limit. 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 for the last 7 measurements. Adjustable height support on the instrument's rear. Automatic switching off after 5 minutes.

Supplied complete with surface gauge, rechargeable battery with charger 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.

Art. no.	16757	-0100
Limit	No	4600
Parameters		Ra-Rq-Rz-Rt
Measurement range Ra Rq	µm	0.025-16
Rz Rt	µm	0.02-160
Precision	±%	10
Profile digital filter		Gaussian, RC, PC-RC
Measurement tip radius	µm	5
Measurement pressure	mm	4
Greatest measurement arm movement	mm	17.5
Cut off lengths	mm	0.25 - 0.8 - 2.5
Height support	mm	0.23
Dimensions L x W x H	mm	150x55x50
Weight	g	420

Tachometer



Limit. Digital reading. Combined photo measuring alternative mechanical contact measuring.

Photo measuring. Point the instrument against a reflecting tape or contrast part on the rotating object. Measuring distance 50-150 mm.

Contact measuring. Measuring rev/min or surface speed. Press measuring ring/point against center of the rotation object for rpm reading. Alternative press measuring wheel against surface of the object for speed reading.

Memory for last measured value and max and min value.

Supplied with english manual. Batteries ar not included.

Battery 4 pcs 1.5V LR06.

Art. no.	13237	-0107
Limit	No	R 2000
Range: Photo	rpm	2.5-100 000
Contact	rpm	2.5-20 000
Contact	m/min	0.05-2000
Contact	ft/min	0.02-6560

Accessories

Spare reflecting tape 5x350 mm	13237	-0206
Spare measuring points 3 pcs.	13237	-0305

Optical scanning



Limit. 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.

Art. no.	19862	-0106
Limit	No	2200
Measurement range	r/min	10-99999
Measuring distance	mm	50-200
Accuracy		0,05% + 2 digits
Batteries		4 pc 1,5 V type AA
Dimension	mm	184x56x34
Weight	g	100

Accessories		
Extra reflective tape 5x350 mm	13237	-0206
Softbag	19866	-0102

Torque tester

Limit Torque Check. Digital measurement instrument designed to check torque wrenches. Robust and easy. Accuracy is $\pm 1\%$ of the measurement value. The instrument is available in two variants: 10-350 Nm or 100-1000 Nm. As standard supplied with factory calibration certificate clockwise.

Art. no.	13528	-0105	-0204
Limit	No	TC 350	TC 1000
Torque range	Nm	35-350	100-1000
Torque range	lbf.ft	7.5-265	75-750
Drive	inch	$\frac{1}{2}$	$\frac{3}{4}$ ext.



Rubber hardness tester

Limit. Measures soft materials, hardness e.g. rubber, soft plastic materials, leather etc. A spring loaded measurement tip is held against the material and the hardness is stated in Shore A. The measurement surface should be relatively flat and the measurement surface size at least 12 mm in diameter and the measurement is made at least 12 mm from the outer edge. Calibration can be done with the enclosed test block. The instrument has a mean value function for 2 to 9 measurements. Automatic shutoff after 1 minute. The instrument follows the standards according to DIN 53505, ISO 868, ASTM D 2240.

Art. no.	14485	-0104
Limit	No	4000
Measurement range	Shore A	0-100
Min. material thickness	mm	6
Precision	%	± 1
Working temperature	$^{\circ}$ C	0-50
Relative humidity	% RH	0-80
Batteries	V	1.5 (4 x LR 03 AAA)
Weight	g	170



Hardness tester steel

Limit. Portable Leeb Hardness meter for hardness testing in the most common metals, steel, stainless steel, Cast iron, aluminum, brass, bronze and copper. Measuring the Rockwell B and C, Vickers and Brinell. Separate probe makes the instrument suitable to measure even on big subjects and in tight spaces. Easy to use. Select stroke direction, material code and scale. Hold the probe firmly against the target object, releasing the spring mechanism and read the value.

Art. no.	23045	-0108
Limit	No	4300
Measuring Brinell	HB	80-647
Rockwell	HRB	38-100
Rockwell	HRC	20-68
Vickers	HV	80-940
Batteries		4 pcs 1.5 V type AAA
Dimension	mm	120x60x28
Probe diameter	mm	20



Vibrometer

For measuring speed and acceleration and movement

Limit. Vibration meter for control of machines, electric and pneumatic hand tools, etc. To measure the vibration is an important way to prevent ergonomic human injuries, and to prevent future maintenance on the machines. Easy to use, attach the magnetic sensor on the machine, press the button and read the measured value. Supplied complete with sensor and manual.

Art. no.	19037	-0106
Limit	No	4800
Acceleration	m/s ²	0-199
Min reading		0,1
Velocity	mm/s	0-200
Min reading		0,1
Displacement	μ m	2000
Min reading		1
Battery		1 pc 9V type 6F22
Sensor diameter	mm	25
Dimension	mm	160x68x30
Weight	g	200



Scribing and marking



Coating thickness gauge

Limit. 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.

Art. no.	14483	-0106
Limit	No	5100
Measurement range	µm	0-1000
Resolution 0-100	µm	0,1
Resolution 100-1000	µm	1
Precision		±2.5 µm or 1-3%
Batteries 1.5 V		4 x LR03 AAA
Dimensions	mm	161x69x32
Weight	g	200
Accessories		
Control films 4	14483	-0205



Ultrasound thickness gauge

Limit. Digital instrument that measures material thickness using ultrasound technology on most homogeneous materials. To measure material thickness using ultrasound technology is very suitable when access is only possible from one side. E.g. pipes, tanks, cisterns, glass structures, etc. Suitable materials to measure material thickness with ultrasound technology are metals, glass and plastics. The condition is that the material is homogeneous, that both sides are parallel and that the surfaces are not too uneven. Automatic switching off after 2 minutes. Instructions included.

Art. no.	14484	-0105
Limit	No	5500
Measurement range	mm	1.2-200
Resolution	mm	0,1
Measurement sensor Ø	mm	10
Accuracy 1-10 mm	mm	±0.4
Accuracy 10-100 mm	mm	±0.4 + 1%
Accuracy 100-250 mm	mm	±3%
Working temperature	°C	0-50
Relative humidity	% RH	0-80
Batteries		4 x 1.5V LR03 AAA
Weight	g	165
Accessories		
Extra probe 10 mm	14484	-0204



Digital radius meter

Limit. Digital radius meter for large radius. Suitable to measure the radius of spherical objects as plastic parts, molds, plates, vehicle bodies, furniture surfaces, pipes, etc. Measures both convex and concave surfaces. Easy to use. Install the dial indicator on a fixture. Zero the dial gauge against a flat surface. Put the fixture on the surface and read the radius value on the dial indicator.

Art. no.	23047	-0106
Limit	No	5700
Measuring range	mm	6-700
Accuracy		±2%

Scribes

Double ended

Limit. With one straight and one bent point. Hardened. Round, knurled holder. Separately packed in plastic case.

Art. no.	5253	-0102	-0201
Type		Steel point	Hard metal point
Length	mm	240	240
Diameter	mm	4	4
Pack	qty	10	10



With clip

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

Art. no.	2474	-1001
Length	mm	150
Diameter	mm	6
Ditto 10-pack	2474	-0201
Pack	qty	10*

*) Only unopened pack.



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

Art. no.	2475	-0101
Length	mm	130
Diameter	mm	7
Pack	qty	10



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

Scriber	2482	-1001
Length	mm	150
Accessories		
Extra hard point for 2482-0102	2482	-0201
Length x diameter	mm	20x2



With automatic punch marker

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

Scriber	10230	-0100
Length	mm	140
Accessories		
Extra tips	10230	-0209
Length x diameter	mm	40x3



With handle

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

Scriber	2485	-0109
Blade length, overall	mm	90
Diameter	mm	7
Pack	qty	5
Accessories		
Extra hard metal blade, art. no.	2485	-0208

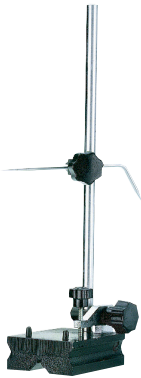


Surface gauges



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

Art. no.	5238	-0102
Spindle height	mm 300	300



With fine adjustment

Limit. 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.

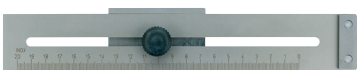
Art. no.	5243	-0105
Spindle height	mm 300	300

Marking gauges



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

Art. no.	2396	-0107
Length of graduation	mm 90	90



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

Art. no.	2379	-0108	-0207
Adjustable length	mm 0-200	0-200	0-300
Width	mm 40	40	40

Marking gauges

For metal

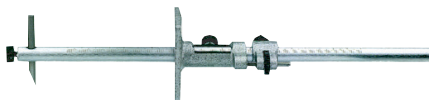
Limit. Of stainless steel. Measuring rod and slide as sliding calliper. Roller housed in ball bearings as stock when scribing to edge of workpiece. Graduated in mm with vernier scale $\frac{1}{10}$ mm of 39 mm length. Replaceable hardened scriber. Supplied in plastic case.



Art. no.	9717	-0104	
Measurement length	mm	200	
Scriber diameter	mm	2.0	
Scriber length	mm	32	
Accessories			
Extra scriber	9717	-0203	
Size	mm	∅ 2.0x30	

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

Art. no.	2413	-1005	
Bar length	mm	300	
Accessories			
Extra scriber ∅ 5x55 mm	2413	-1104	



Combined dividers and sliding calipers

Limit. Of steel. Precision design. With hardened and ground points. Graduated in mm with $\frac{1}{10}$ mm vernier.

Art. no.	2436	-0208	
Length	mm	200	
Length of points	mm	45	



Bar calipers

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

Art. no.	2420	-2004	-2103	-2202	-2301
Length	mm	500	1000	1500	2000
Max. diameter	mm	1000	2000	3000	4000
Accessories					
Extra marking tips (1 pair) ...	2420	-2400	-2400	-2400	-2400



Compasses

For pencils

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



Art. no.	2428	-0109	-0208
Length	mm 175	300	350
Max grip width	mm 190	350	

Dividers

Limit. Of steel. Rectangular shanks. With hardened points.



Art. no.	2432	-0400	-0707
Length	mm 200	380	580
Max grip width	mm 380		

Wing dividers

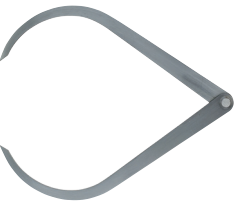
Limit. Of steel. Rectangular shanks. With hardened points. Side-mounted arc. Length 400-500 mm. With round shanks.



Art. no.	2429	-0207	-0405	-0702	-0801	-1007
Length	mm 150	200	300	400	500	500
Max grip width	mm 170	235	390	545	670	

Outside calipers

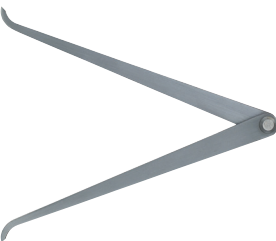
Limit. With flat shanks and adjusting nut.



Art. no.	2439	-0502	-0700	-1005	-1104
Length	mm 200	300	500	800	1250
Max. size	mm 300	500	850		

Inside calipers

Limit. With flat shanks and adjusting nut.



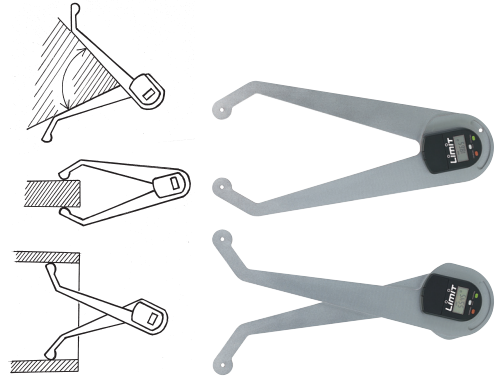
Art. no.	2440	-0509	-0707	-1002
Length	mm 200	300	500	950
Max. size	mm 370	570		

Compasses

Inside and outside reading digital caliper

Limit. Trikometer. Caliper with digital reading of inside and outside thickness/diameter measuring. Can also measure angles. Suitable for measuring larger pipes, buildings materials etc. Hold funktion to freeze the measure value.

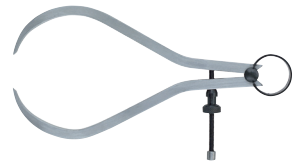
Art. no.	19020	-0105
Arm length	mm	400
Outside measuring range	mm	0-570
Inside measuring range	mm	35-600
Reading	mm	0.1
Accuracy	mm	±1
Angles	degrees	0-180°
Reading	degrees	0.05
Avccuracy	degrees	±1°



Spring dividers and calipers

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

Art. no.	2443	-0407	-0506	-0704
Length	mm	150	200	300
Max. size	mm	125	170	250



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

Art. no.	2444	-0406	-0505	-0703
Length	mm	150	200	300
Max. size	mm	150	190	275



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

Art. no.	2445	-0405	-0504	-0702
Length	mm	150	200	300
Max. size	mm	150	180	260





5

Number punches

Limit. No 1733. For iron and metal. Nine stamps. For stamping in materials with a tensile strength of up to 150 kp/mm². Hardened on the engraving side in accordance with HRC 60-63. In plastic boxes.

No 5175. For hard steel. Nine stamps. Fully ground. For stamping in materials with a tensile strength of up to 200 kp/mm². Hardened on the engraving side in accordance with HRC 60-61. In plastic boxes.

Spare numbers.

Minimum sorted number 5.

Number height mm	No 1733		No 5175	
	Art. no.	Shank square mm	Art. no.	Shank square mm
	1733		5175	
2	-0101	6	-0107	7
3	-0200	6	-0206	8
4	-0309	7	-0305	9
5	-0408	8	-0404	10
6	-0507	9	-0503	12
8	-0606	11	-0602	14
10	-0705	12	-0701	16
12	-0804	14	-	-
15	-0903	16	-	-

Letter punches

Alphabetical punches

Limit. No 1735. For iron and metal. Letters A-Z. For stamping in materials with a tensile strength of up to 150 kp/mm². Hardened on the engraving side in accordance with HRC 60-63. In plastic boxes.

No 5176. For hard steel. A-Z and & characters. Fully ground. For stamping in materials with a tensile strength of up to 200 kp/mm². Hardened on the engraving side in accordance with HRC 60-61. In plastic boxes.

Spare letters.

Minimum sorted number 5.



F

Letter height mm	No 1735		No 5176	
	Art. no.	Shank square mm	Art. no.	Shank square mm
	1735		5176	
2	-0109	6	-0106	7
3	-0208	6	-0205	8
4	-0307	7	-0304	9
5	-0406	8	-0403	10
6	-0505	9	-0502	12
8	-0604	11	-0601	14
10	-0703	12	-0700	16
12	-0802	14	-	-
15	-0901	16	-	-

Stamp sets

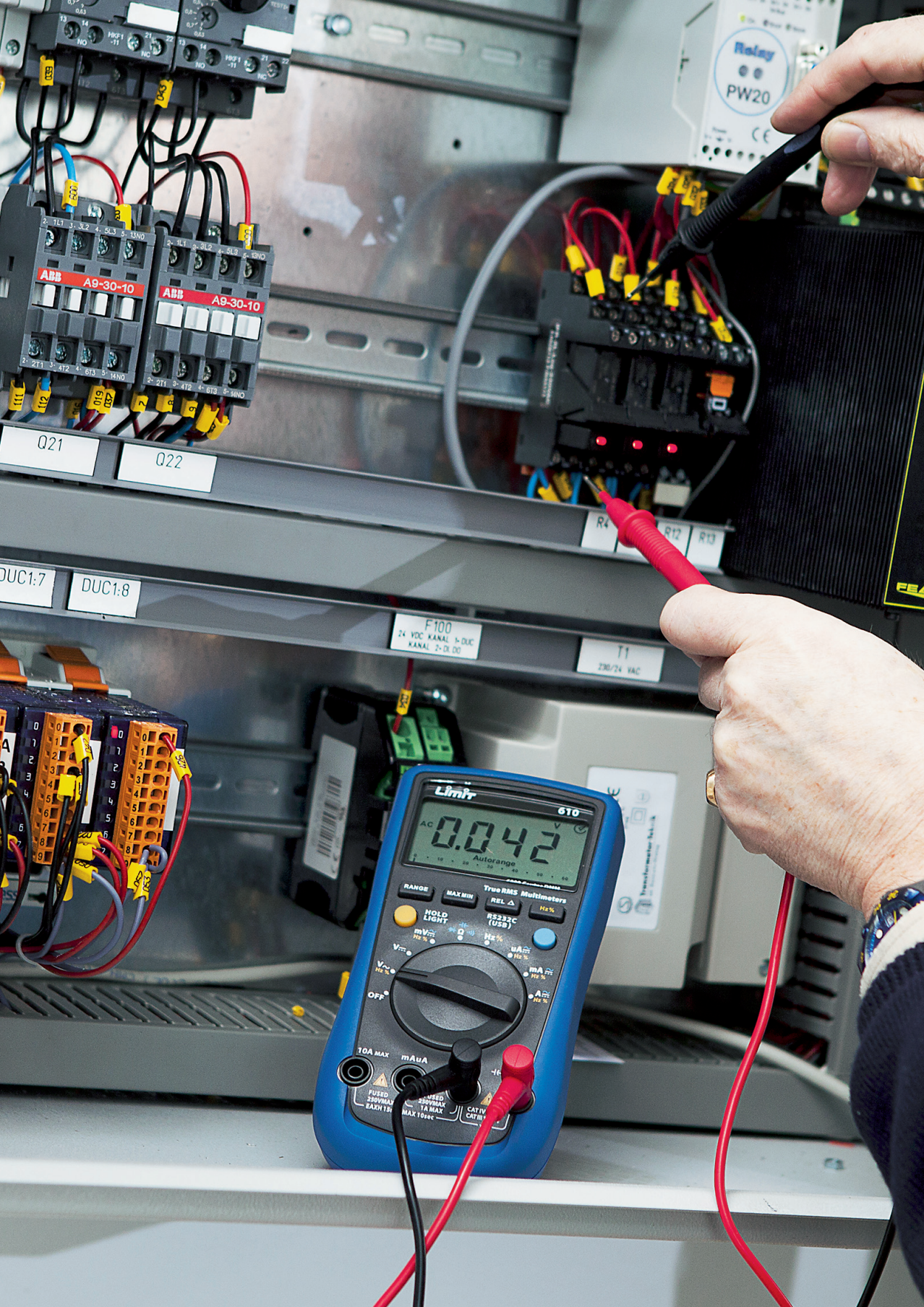


Limit. Complete sets in steel with holder and interchangeable types. The types are hardened for stamping in hard materials. Types hardened to HRC 37. The width of the holders permits insertion of 6-10 types at the same time. Supplied complete with 100 type-58 letters, 35 digits and special characters, plus a number of blank types for spacing. Key and pincers also included. In wooden case.

Spare letters and digits.

Minimum sorted number 5.

Art. no.	5889	-0104	-0203	-0302
Type height.	mm	3	4	5
Total number of types.		100	100	100
Number of types held in holder.		10	8	6
Text length.	mm	40	40	40



Multimeters



Limit. 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.

Art. no.	19865	-0103
Limit	No	210
DC Voltage		400 mV-4-40-600 V
Resolution		0.1 mV
Accuracy		±0.8% + 3 digits
AC Voltage		4-40-400-600 V
Resolution		1 mV
Accuracy		±1.2% + 3 digits
Resistance		400 Ω-4-40-400 KΩ-4-40 MΩ
Resolution		0.1 Ω
Accuracy		±1% + 2 digits
Capacitance		4-40-400 nF-4-40-100 μF
Resolution		0.001 nF
Accuracy		4% + 3 digits
Frequency		10 Hz-10 MHz
Accuracy		±0.5% + 3 digits
Duty cycle		0.1 - 99.9%
Battery		1 pc 3V type CR2032
Dimension	mm	110x58x11
Weight	g	76



Digital multimeter palmsize and display backlight. Measuring DC/AC voltage, DC current, resistance, temperature. Also diodetest, continuity test with buzzer, datahold, low battery capacity warning.

Suplied completely with test leads, temperature probe for max. 260°C, battery and English manual. Rubber cover and bench stand. Max. display 1999. Safety insulation CAT I 600 V / CAT II 300 V, IEC 61010. Fused to max. 200 mA.

Art. no.	12860	-0103
Limit	No	300
DC voltage	DCV	200-2000 mV- 20-200-500 V
resolution	μV	100
accuracy		± 1.2% + 2
AC voltage	ACV	200-500 V
resolution	μV	100
accuracy		± 1.2% + 10
DC current	DCA	2000 μA-20-200mA-10A
resolution	μV	0.1
accuracy	μV	± 1% + 2
Resistance		200 Ω -2-20-200 KΩ-20 MΩ
resolution	Ω	0.1
accuracy		± 0.8% + 2
Temperature	°C	-40 +-1000
resolution	°C	1
accuracy	°C	± 1% + 3
Battery		1 pcs 9 V (6F22)
Dimension	mm	130x74x35
Weight	g	156

Accessories

Test leads 1.0 m CAT II, 600V	12860	-0202
Test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated aligator clips CAT III, 1000V, 10A ..	20058	-0207
Cables for aligator clips 1.2 m	20058	-0306
Extra temp. probe for max. 260°C	12860	-0301

Multimeters

Limit. Digital multimeter with large display that assigns the right cable socket and selected measurement range. For measurement of DC/AC voltage, DC/AC current, resistance, capacitance, frequency, temperature. In addition, diode test, transistor test, continuity test with buzzer, data hold, battery capacity warning. Automatic switching off.

Supplied complete with test cables, multi connector, 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. 200 mA.



Art. no.	12859	-0106
Limit	No	500
DC Voltage	DCV	200 mV-2-200-200-1000 V
max. resolution	mV	0.1
inaccuracy		± 0.5% + 1 digit
AC Voltage	ACV	2-20-200-1000 V
max. resolution	mV	1
inaccuracy		± 0.8% + 3 digits
DC Current	DCA	2-200 mA-10 A
max. resolution	µA	0.01
inaccuracy		± 0.8% + 1 digit
AC Current	ACA	2-200 mA-10 A
max. resolution	µA	1
inaccuracy		± 1% + 3 digits
Resistance	Ω	200 Ω -2-20 KΩ-2-20 MΩ
max. resolution	Ω	0.1
inaccuracy		± 0.8% + 1 digit
Capacitance	F	2-200 nF-100µF
max. resolution		1 pF
inaccuracy		± 4% + 3 digits
Frequency	KHz	2-20
max. resolution	Hz	1
inaccuracy		± 1.5% + 5 digits
Temperature	°C	-40 - +1000
max. resolution	°C	1
inaccuracy		± 1% + 3 digits
Automatic switching off after	min	15
Batteries		1 x 9 V (6F22)
Dimensions	mm	179x88x39
Weight	g	380
Accessories		
Test leads 1.0 m CAT II, 600V	12860	-0202
test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated alligator clips CAT III, 1000V, 10A ...	20058	-0207
Cables for alligator clips 1.2 m	20058	-0306
Extra temperature sensor max. 260°C	12860	-0301
Extra universal connector	12859	-0205
Soft bag	19866	-0102



Multimeters

Limit. 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.

Art. no.	19018	-0109
Limit	No	400
DC Voltage		200 mV-2-20-200-1000 V
Min. resolution		100 μ V
Inaccuracy		$\pm 0.5\% + 1$ digit
AC Voltage		2-20-200-750 V
Min. resolution		1 mV
Inaccuracy		$\pm 0.8\% + 3$ digits
DC Current		2 mA-200 mA-20 A
Min. resolution		0.01 μ A
Inaccuracy		$\pm 0.8\% + 1$ digit
AC Current		2 mA-200 mA-20 A
Min. resolution		1 μ A
Inaccuracy		$\pm 1\% + 3$ digits
Resistance		200 Ω - 2-20 K Ω - 2-20 M Ω
Min. resolution		0.1 Ω
Inaccuracy		$\pm 0.8\% + 1$ digit
Capacitance		2 - 200 nF - 20 μ F
Min. resolution		0.01 nF
Inaccuracy		$\pm 4\% + 3$ digits
Frequency		2 - 20 KHz
Minimum resolution		1 Hz
Inaccuracy		$\pm 1.5\% + 5$ digits
Temperature		-40 - 1000 $^{\circ}$ C
Min resolution		1 $^{\circ}$ C
Inaccuracy		$\pm 4\% + 4$ digits
Working temperature		0-40 $^{\circ}$ C
Storage temperature		- 10 - 50 $^{\circ}$ C
Battery		1 x 9 V 6F22
Dimensions		172x83x38 mm
Weight		310 g
Accessories		
Test leads 1.0 m CAT II, 600V	12860	-0202
Test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated alligator clips CAT III, 1000V, 10A ...	20058	-0207
Cables for alligator clips 1.2 m	20058	-0306
Soft bag	19866	-0102

Multimeters

Limit. Digital multimeter suitable for cars, boats, motor mechanics. Large display that even assigns the right cable socket and selected measurement range. For measuring DC/AC 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.



Art. no.	12858	-0107
Limit	No	500 Auto
DC Voltage	DCV	200 mV-2-20-200-1000 V
max. resolution	mV	0.1
inaccuracy		± 0.5% + 5 digits
AC Voltage	V	2-20-200-750 V
max. resolution	mV	1
inaccuracy		± 0.8% + 5 digits
DC Current	DCA	200 mA -10 A
max. resolution	mA	0.01
inaccuracy		± 0.8% + 5 digits
Resistance	Ω	200 Ω-2-20 KΩ-2-20 MΩ
max. resolution	Ω	0.1
inaccuracy		± 0.8% + 5 digits
Cam angle: max. resolution		0.1°
inaccuracy		± 3% + 5 digits
Speed max. resolution	rpm	10
inaccuracy		± 3% + 5 digits
Batteries		1 x 9 V (6F22)
Dimensions	mm	179x88x39
Weight	g	380
Accessories		
Test leads 1.0 m, CAT II, 600V	12860	-0202
Test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated alligator clips CAT III, 1000V, 10A	20058	-0207
Cables for alligator clips 1.2 m	20058	-0306
Soft bag	19866	-0102



Multimeters

Limit. Digital multimeter with both automatic and manual measurement range setting. Analogue bar diagram for quick or instable signals. True RMS for both voltage and amperage when measuring non linear signals. Registering of max. and min. value. Measures DC/AC voltage, DC/AC current, resistance, capacitance, frequency. In addition, diode test, continuity test with buzzer, hold function, display lighting and low battery capacity warning. Can be connected to a 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.

Art. no.	15322	-0108
Limit	No	610
DC Voltage		60-600 mV-6-60-600-1000 V
Max resolution		0.10 mV
Inaccuracy		±1% +3 digits
AC Voltage		60-600 mV-6-60-600-750 V
Max resolution		0.01 mV
Inaccuracy		±1.2% 5 digits
DC Current		600-6000 µA-60-600 mA-6-10A
Max resolution		0.1 µA
Inaccuracy		±1 % + 3 digits
AC Current		600-6000 µA-60-600 mA-6-10A
Max resolution		0.1 µA
Inaccuracy		±1.2% +5 digits
Resistance		600 Ω-6-60-600 KΩ-6-60 MΩ
Max resolution		0.1 Ω
Inaccuracy		± 1.2% + 2 digits
Capacitance		40-400 nF-4-40-400-4000 µF
Max resolution		0.01 nF
Inaccuracy		±3% + 5 digits
Frequency		10 Hz -10 MHz
Max resolution		0.001 Hz
Inaccuracy		± 0.1% + 4 digits
Working temperature		0-40 °C
Storage temperature		-10 - 50 °C
Battery		1 x 9 V6F22
Dimensions	mm	177x85x40
Weight	g	300
Accessories		
<i>Test leads 1.0 m, CAT II, 600V</i>	12860	-0202
<i>Test leads 1.3 m CAT III, 1000V, 10A</i>	20058	-0108
<i>Insulated alligator clips CAT III, 1000V, 10A</i>	20058	-0207
<i>Cables for alligator clips 1.2 m</i>	20058	-0306
<i>Soft bag</i>	19866	-0102

Multimeters

Clamp multimeters

Limit. 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.



Art. no.	12856	-0109
Limit	No	20
DC voltage	DCV	200 mV-2-20-200-600 V
resolution	mV	0.1
accuracy		± 0.8% + 1
AC voltage	ACV	2-20-200-600 V
resolution	mV	1
accuracy		± 1.2% + 5
AC current	ACA	2-20-200-400 A
resolution	mA	1
accuracy		± 4% + 5
Resistans		200 Ω-2-20-200 KΩ-2-20 MΩ
resolution	Ω	0.1
accuracy		± 1% + 2
Automatic off after	min	15
Battery		2 pcs 1.5 V (LR06)
Dimension	mm	208x76x30
Weight	g	260
Accessories		
Test leads 1.0 m, CAT II, 600V	12860	-0202
Test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated alligator clips CAT III, 1000V, 10A ..	20058	-0207
Cables for alligatoor clips 1.2 m	20058	-0306

Limit. Digital clip-on ammeter/multimeter with auto range. For measurement of DC/AC voltage, DC/AC current, resistance, frequency, measurements. 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.



Art. no.	14487	-0102
Limit	No	21
DC Voltage		400 mV-4-40-400-600 V
Max. resolution		0.1 mV
Inaccuracy		± 0.8% + 1 digit
AC Voltage		4-40-400-600 V
Max resolution		1 mV
Inaccuracy		±1% + 5 digits
DC Current		40-400 A
Max. resolution		0.01 A
Inaccuracy		±2% + 3 digits
AC Current		40-400 A
Max resolution		0.01 A
Inaccuracy		± 2.5% + 5 digits
Resistance		400 Ω-4-40-400 KΩ-4-40 MΩ
Max resolution		0.1 Ω
Inaccuracy		±1% + 2 digits
Frequency		10 Hz - 1 MHz
Max. resolution		0.001 Hz
Inaccuracy		± 0.1% + 3 digits
Pulse ratio		0.1%-99.9%
Battery		9 V (6F22)
Dimensions	mm	210x76x30
Weight	g	200
Test leads 1.0 m, CAT II, 600V	12860	-0202
Test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated alligator clips CAT III, 1000V, 10A ..	20058	-0207
Cables for alligator clips 1.2 m	20058	-0306

Multimeters

Clamp multimeters



Limit. Digital clip-on ammeter/multimeter with auto range. For measurement of DC/AC voltage, DC/AC current, resistance, frequency, measurements. Also start current measurement, Max/Min function, true RMS for alternating 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.

Art. no.	14486	-0103
Limit	No	23
DC Voltage		6.6-66-600 V
Max. resolution		0.1 mV
Inaccuracy		± 0.8% + 1 digit
AC Voltage	mm	6.6-66-600 V
Max resolution		1 mV
Inaccuracy		± 1.2% + 5 digits
DC Current		66-1000 A
Max. resolution		0.01 A
Inaccuracy		± 1.5% + 8 digits
AC Current		66-1000 A
Max resolution		0.01 A
Inaccuracy		± 2% + 8 digits
Resistance		600 Ω-46.6-66-600 KΩ-6.6-66 MΩ
Max resolution		0.1 Ω
Inaccuracy		± 1.2% + 2 digits
Frequency		660 Hz-6.6-66-660 Khz-6.6-66 MHz
Max. resolution		0.1 Hz
Inaccuracy		± 0.1% + 3 digits
Pulse ratio		0.1%-99.9%
Battery		9 V (6F22)
Dimensions	mm	285x105x45
Weight	g	533
Accessories		
Test leads 1.0 m, CAT II, 600V	12860	-0202
Test leads 1.3 m CAT III, 1000V, 10A	20058	-0108
Insulated alligator clips CAT III, 1000V, 10A	20058	-0207
Kablar för krokodilklämmor 1.2 m	20058	-0306

Voltage tester



14489-0100



14489-0209

Limit. Voltage and continuity tester with 3 phase rotation detection. Distinguish between phase and zero. Checking function of earth leakage circuit breaker. Single hand test on 19 mm wallsockets. Buzzer indicate continuity. Shows DCV polarity + or -. Flashlight in handle. Automatic on and off. Supplied with battery, probe tips protection and manual.

Safety isolation CAT IV 600 V, IEC 61010. Water and dust protection IP 65.

Limit 110. Ledlights shows voltage in 7 levels. 12-24-50-120-230-400-690 V.

Limit 112. Display shows real voltage value and also ledlights in 7 levels.

Art. no.	14489	-0100	-0209
Limit	No	110	112
Display		No	Yes
Ledlights		Yes	Yes
Voltage	ACV	12-690	12-690
Voltage	DCV	12-690	12-690
Continuity		Summer	Summer
Battery		2 pcs 1.5V AA	2 pcs 1.5V AA
Dimension	mm	260x56x20	260x56x20

Voltage detectors



Limit. Controll 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.

Art. no.	14501	-0104
Limit	No	100
AC Voltage	V	90-1000
Dimension	mm	18x150
Battery		2 pcs 1.5V AAA

IR Thermometers

Limit. Non-contact infrared thermometer that measures the surface temperature with high accuracy and quick reading. The laser beam shows the center of the measurement range. Adjustable emissivity for different material surfaces. Records the maximum or minimum value. Alarm function when the temperature exceeds the selected upper or lower limit. Automatic off after 8 seconds. Display lighting. Switchable between °C and °F. Supplied with battery and manual.

Art. no.	23046	-0107
Limit	No	90
Measuring range	°C	-20 to +400
Reading	°C	0.1
Accuracy	°C	2 or 2%
Measurement surface/Distance		1:12
Emission factor		0.1-1.0 %
Operating temperature	°C	0-50
Storage temperature	°C	-20 - 65
Dimensions	mm	155x90x40
Weight	g	185
Battery		1 pc 9 V 6F22



Limit. Non contact, infra-red thermometer that measures surface temperature with high accuracy and quick reading. The laser spot indicates the centre of the measurement area. Registers max. and min. values. Automatic shutoff after 8 seconds. Display lighting. Adjustable between °C and °F. Warning for low battery voltage. Battery and Swedish instructions included.

Art. no.	15318	-0104
Limit	No	91
Measurement range	°C	-18 to +380
Resolution	°C	0.1
Accuracy	°C	2 or 2%
Measuring surface/Distance		1:10
Emission factor		Fixed 0.95
Working temperature	°C	0-50
Storage temperature	°C	-20 - 65
Size	mm	169x138x53
Weight	g	270
Battery		1 x 9 V 6F22



Limit. Non contact, infra-red thermometer that measures surface temperature with high accuracy and quick reading. The laser spot indicates the centre of the measurement area. Adjustable emission factor. Registers max-min-difference-average value. Scanning function for continuous measurement. Tripod thread 1/4" for mounting on a stand. Automatic shutoff after 8 seconds. Display lighting. Adjustable between °C and °F. Warning for low battery voltage. Protective holster, battery and Swedish instructions included.

Art. no.	15319	-0103	-0202
Limit	No	92	93
Measurement range	°C	-18 to +550	-32 to +1050
Resolution	°C	0.1	0.1
Precision	°C	1.8 or 1.8%	1.8 or 1.8%
Measuring surface/Distance		1:12	1:30
Emission factor		0.10-1.00	0.10-1.00
Working temperature	°C	0 - 50	0 - 50
Storage temperature	°C	-20 - 65	-20 - 65
Size	mm	169x138x53	169x138x53
Weight	g	270	270
Battery		1 x 9 V 6F22	1 x 9 V 6F22





Thermometer

Limit. Digital transducer thermometer. Two channels for simultaneous measuring with two different transducers. Up to 99 measurements can be stored over time, either at preset time intervals or through manual registration. Stored measurements can be transferred to a PC. Registers max.-min.-value difference between the measurement points. Hold function. The instrument is easy to adjust for possible measurement faults from the transducer. Display lighting. Adjustable between °C and °F. Warning for low battery voltage. Transducer type K, J and E can be used. Wire transducer type K max. 260 °C included and USB cable and software, battery and Swedish instructions.

15321-0208 Plug-in transducer air/liquid type K -50 to +600 °C. Sensor length 180 mm. Cable length 1000 mm.

15321-0307 Surface transducer type K -50 to +500 °C. Transducer length 125 mm. Cable length 1000 mm.

12860-0301 Wire transducer type K -50 to +260 °C. Wire length 900 mm.

Art. no.	15321	-0109
Limit.	No	60
Measurement range Type K	°C	-200 to +1370
Resolution	°C	0.1
Precision	°C	0.8 ±0.5%
Working temperature	°C	-10 to +50
Storage temperature	°C	-40 to +60
Size	mm	175x8x30
Weight	g	270
Battery		1 x 9 V 6F22
Accessories		
Plug-in transducer air/liquid type K -50 to +600 °C	15321	-0208
Surface transducer type K -50 to +500 °C	15321	-0307
Wire transducer type K -50 to +260 °C	12860	-0301
Soft bag	19866	-0102

Sound level meter

Soundmeter

Limit. Digital sound level meter. Two different filter curves A or C and quick or slow sound recording. The A-filter corresponds to the human ear's frequency sensitivity and is suitable for environmental sound measurements. The C-filter is linear and is ideal for inspecting machines. Quick (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 read instantaneously or gives a mean value under a selected time period, from 10 sec to 24 hours. Integrated memory for 30 measurements or the instrument can be connected to a PC for registration of measurement values. Registration of max. value. Alarm function which indicates with a 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 shutoff. Integrated calibration function 94 dB. Instructions included.

Conforms to standard IEC 651 Type 2, ANSI 1.4 Type 2.

Art. no.	15152	-0103
Limit	No	7000
Measurement range	dB	30-130
Resolution	dB	0,1
Precision	dB	±1
Speed Fixed	ms	125
Speed Slow	s	1
Measurement periods		10 sec, 1 min, 5 min, 10 min, 15 min, 30 min, 1 hour, 8 hours, 24 hours
Memory capacity		30
Frequency range	Hz	20-12500
Batteries		4 x 1.5V LR03 AAA
Size	mm	236x63x26
Weight	g	170
Accessories		
Computer cable with software for connection to PC. Connection RS-232.	15152	-0202
Sound calibrator 94 and 114 dB	15152	-0301
Battery adapter	15152	-0400



Pocket lenses

Workshop pocket lenses

Limit. Lens with transparent acrylic tube, which gives good light conditions.

Art. no.	16779	-0104
Magnification		10 X
Viewing diameter	mm	25



Limit. Measurement lens with measurement scale and LED lighting. Ring for focusing.

16780-0101 With length scale.

16780-0200 With length, angle and radius scales.

Art. no.	16780	-0101	-0200
Magnification		10 X	10 X
Scale length	mm	25	25
Graduation	mm	0.1	0.1
View size diameter	mm	30	30
Battery		1 pc 6V 4LR44	1 pc 6V 4LR44





Pocket lenses

With length scale

Limit. Mini microscope with length scale and LED lighting. Ring for focusing. Rotatable length scale through 360°.

Art. no.	16781	-0100
Magnification		20 X
Scale length	mm	6
Graduation	mm	0.05
Viewing diam.	mm	6
Battery		3 x 1.5V SR44



Microscope

Inspection equipment

Limit. Stereo microscope for laboratories and measurement rooms. Variable zoom optics 20 X - 40 x. Image turned the right way. Profile lighting from below and incidental lighting with adjustable luminosity. Double dials on the right and left-hand sides for focusing and magnification. Adjustable eye distance.

Supplied with transparent disc, black and white disc, pincers with holder, protective hood, halogen lamps. Mains connection 230 V.

Art. no.	16782	-0109
Magnification		10 X - 40 X
Ocular		WF 10X
Max. working distance	mm	0-50
Eye distance	mm	50-75
Dimension L x W x H	mm	230 x 150 x 420
Weight	kg	5

Inspection cameras



Limit. Handheld inspection camera for connection to a PC. For inspection and localisation of problems in e.g. cavities in walls, drains, electrical cabinets, motors, etc. Easy to inspect in dark and confined areas. Camera function also permits documentation. Integrated LED lighting in the camera head. The flexible arm is self-supporting. Functions such as adjustment of brightness and photography are performed from the handle.

Accessories such as hook and magnet make it easy to pick up dropped objects. Waterproof camera head and flexible arm (IP 67).

Supplied with hook and magnet, PC cable, software and Swedish User Guide. Power supply taken from the PC.

Art. no.	16777	-0106
Tube and camera head, length	m	0.9
Camera head, diameter	mm	14
Arm, diameter	mm	8.5
Focusing distance	mm	60 - ∞
Viewing angle		54°
USB cable	m	2
Pixels		640x480

Inspection cameras



19013-0203

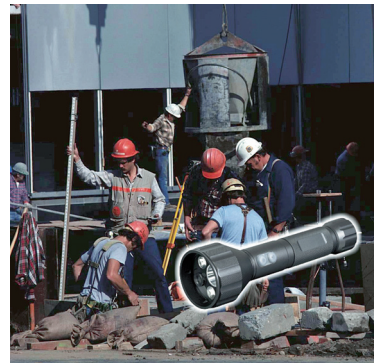
Limit. Compact video recorder with integrated lighting. Designed for film and audio documenting from inspections etc. outdoors or in dark spaces. Easy operation in both recording and playback. Press the record button and recording begins. Press again to stop. Playback is made directly to PC with USB cable without installing software. Lighting that can be selected in three stages. Heavy metal body.

Supplied with 4 GB memory card, rechargeable lithium battery 3,7 V/2000 mAh, charger, USB cable and carrying strap.

Accessories:

19013-0203. Holder with clip. To mount the camera in the belt or to attach the camera when recording.

19013-0302. Extra battery.



Art. no.	19013	-0104
Recording time	hours	3.5-5
Charge time	hours	4
Memory capacity		4 GB
Dust/Waterproof		IP 65
Viewing angle		56°
Pixels		640x480
Operating temperature	°C	0...50
Length	mm	190
Weight	g	300
Accessories		
Holder with clip	19013	-0203
Extra battery	19013	-0302

Limit. Portable inspection camera with 2.4" colour monitor. Suitable for inspection and localisation of problems in e.g. cavities in walls, drains, electrical cabinets, motors, etc. even in dark and confined areas. Integrated LED lighting in the camera head. The image can be rotated on the monitor. The camera and the flexible arm are self-supporting and waterproof IP 67. Extension arm 2 metres: can be extended in 2 metre lengths up to the required number, note however that the image quality deteriorates gradually from about 7 metres and upwards. Fits 5, 8, 9 and 17 mm camera heads.

Accessories such as mirror, hook and magnet make it easy to pick up dropped objects. Supplied with mirror, hook and magnet and Swedish Instructions. Battery powered (batteries not included).



Art. no.	19012	-0105
Monitor		LCD 2.4"
Arm and camera head, length	mm	900
Camera head, diameter	mm	9
Arm, diameter	mm	8
Protection class, camera and arm		IP 67
View angle		50°
Pixel total		640x480
Working temperature	°C	-10... +50
Batteries		4 x 1.5V type AA
Accessories		
Extension arm 2 m	17427	-0207
Camera head 9 mm	17427	-0306
Camera head with arm length	m	0.9
Camera head 5.8 mm	17427	-0405
Extra small camera head with arm length	m	0.9



Inspection cameras

Limit. Portable inspection camera with 2.4" colour monitor. Detachable monitor with wireless camera unit connection up to 10 metres. The detachable monitor simplifies inspection, especially in confined and awkward areas and when you wish to make an inspection for a long period of time. Suitable for inspection and localisation of problems in e.g. cavities in walls, drains, electrical cabinets, motors, etc. even in dark and confined areas. Integrated LED lighting in the camera head with adjustable brightness. The image can be turned 180° on the monitor. The camera and the flexible arm are self-supporting and waterproof IP 67.

Component parts such as mirror, hook and magnet make it easy to pick up dropped objects. Supplied complete with colour monitor, mirror, hook and magnet and Swedish Instructions. Battery powered (batteries not included).

Extension arm 2 metres: Can be extended in 2 metre lengths up to the required number, note however that the image quality deteriorates gradually from about 7 metres and upwards. Fits 5, 8, 9 and 17 mm camera heads.

Camera head 9 mm. Extra small camera head with arm length 0.9 metres.

Art. no.	17427	-0108
Monitor		LCD 2.4"
Arm camera head, length	mm	900
Camera head, diameter	mm	17
Arm, diameter	mm	8
Protection class, camera and arm		IP 67
Viewing angle		50°
Pixel total		640x480
Working temperature	°C	-10...+50
Batteries		4 x 1.5V type AA
Accessories		
Extension arm 2 metres	17427	-0207
Camera head 9 mm	17427	-0306
Kamerahuvud med armlängd	m	0.9
Camera head 5.8 mm	17427	-0405
Extra small camera head with arm length	m	0.9



Limit. Recordable inspection camera with 3.5" colour monitor. Detachable monitor with wireless camera unit connection up to 10m. With SD card both still and moving images can be stored and later played back on the monitor or transferred to a PC or TV screen. The detachable monitor simplifies inspection, especially in confined and awkward areas and when you wish to make an inspection for a long period of time. Suitable for inspection and localisation of problems in e.g. cavities in walls, drains, electrical cabinets, motors, etc. even in dark and confined areas. Integrated LED lighting in the camera head with adjustable brightness. The camera and the flexible arm are self-supporting and waterproof IP 67.

Accessories such as mirror, hook and magnet make it easy to pick up dropped objects. Supplied with 2G memory card, USB cable and TV connection cable, colour monitor, hook and magnet, and Swedish user guide. Battery powered (batteries not included).

Extension arm 2 metres.: can be extended in 2 metre lengths up to the required number, note however that the image quality deteriorates gradually from about 7 metres and upwards. Fits 5, 8, 9 and 17 mm camera heads.

Art. no.	19011	-0106
Monitor		LCD 3.5"
Camera, diameter	mm	9
Arm and camera head, length	mm	900
Arm, diameter	mm	8
Protection class, camera and arm		IP 67
View angle		50°
Pixel total		640x480
Working temperature	°C	-10...+50
Batteries		4 x 1.5V type AA
Accessories		
Extension arm 2 m	17427	-0207
Camera head 9 mm	17427	-0306
Camera head with arm length	m	0.9
Camera head 5.8 mm	17427	-0405
Extra small camera head with arm length	m	0.9





Distance meter

Limit. Range finder with laser technology. High accuracy ± 2 mm even over long distances. A red laser dot identifies the measuring target. Suitable for all professionals who need quick and reliable measurements over longer distances. The smart display shows the steps in multi-step measurements as well as the last 2 measurements. The laser beam's reflection strength against the measuring point is shown by an indicator symbol on the display. Can calculate area and volume. Height calculation using Pythagorean theorem function. Continuous measurement. Minimum and maximum values. Memory for the 10 most recent measurements. Adjustable reference from the front edge, rear edge or corner stand. Switchable between metric and imperial measurement. Display lighting. Automatic switching off. Supplied with storage case, batteries and Swedish manual. Made according to Standard EN61326-1 EMC, EN60825-1.

Art. no.	17861	-0051
Limit	No	1045
Measurement range	m	0.2-45
Precision	mm	± 2
Enclosure protection class ..		IP 54
Memory capacity		10
Batteries		2 x AA type
Battery capacity	no. of measurements.	3000
Working temperature	$^{\circ}\text{C}$	0...+40
Storage temperature	$^{\circ}\text{C}$	-10...+60
Dimensions	mm	110 x 48 x 25
Weight	g	80



Limit. Robust and shock-proof design, made for outdoor use and falls from 1 m. Suitable for all kind of professionals who need to quickly and reliably measure longer distances. The display shows the steps in multi-step measurements, the selected function and the last 4 measurements. Can calculate surface area, total wall area and volume. Height Calculation using Pythagorean theorem where the horizontal measurement is automatically recorded. Addition and subtraction. Continuous measurement. Minimum and maximum function. Preset length measurement with signal. Memory function. Adjustable reference from the front edge or corner stand. Switchable between meters, feet and inches. Display lighting. Automatic shutdown. Supplied with soft carrying case, batteries and manual. Made according to Standard EN61326-1 EMC, EN60825-1.

Art. no.	17861	-0200
Limit	No	1070
Range	m	0.2-70
Accuracy	mm	± 2
Memory		20
Dust/Waterproof		IP54
Batteries		2 pc type AAA
Battery capacity		5000
Operation temperature	$^{\circ}\text{C}$	-10...+40
Storage temperature	$^{\circ}\text{C}$	-20...+60
Dimension	mm	126x54x29
Weight	g	175



Limit. Range finder 1060 and cross laser 1001 HV in handy protective case, easy to carry.

Art. no.	17861	-2008
Limit	No	1060 + 1001 HV

Cross lasers

Limit. Cross line laser with very bright and sharp laser lines. Compact model in pocket format. One horizontal and one vertical line. The vertical line runs 115 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. A mechanical lock of the pendulum mechanism acts both as a main switch and transport lock. Can be used outdoors or in bright rooms with a separate laser detector (not included).

2 laser diodes class 2M, 15 mw 635 nm.

Supplied together with mount for tripod/wall mounting, reflective target plate, soft case, batteries and Swedish manual.

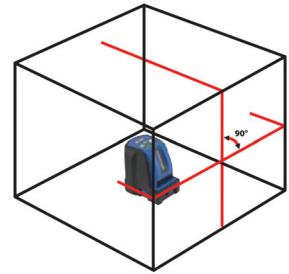
Art. no.	17862	-0100
Limit	No	1001 HV
Levelling range		± 3°
Precision	mm	±3 mm/10 m
Enclosure protection class		IP 54
Batteries		3 x AA type
Operating time	hours	10
Working temperature	°C	-10...+50
Threaded mount		1/4"
Dimensions	mm	90 x 90 x 65
Weight	g	365

Accessories

Laser detector with holder for level rod	17862	-0209
Reach	m	35

Wall bracket/adapter	17863	-0208
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Can be wall mounted and also has a magnet for metal studs. Screw 1/4" for mounting on a line laser and nut thread 5/8" for mounting on a tripod.



Limit. 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. The lines and dots can be lit individually or together. A mechanical lock acts as a transport lock. 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, batteries and Swedish manual.

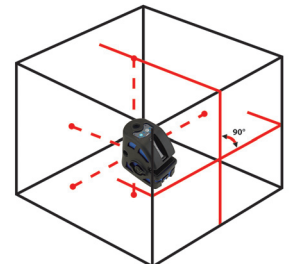
Art. no.	17863	-0109
Limit	No	1002 HVP
Levelling range		± 4°
Line accuracy	mm	±3 mm/10 m
Dot accuracy	mm	±4 mm/10 m
Enclosure protection class		IP 54
Batteries		3 x AA type
Operating time	hours	7
Working temperature	°C	-10...+50
Threaded mount		1/4"
Dimensions	mm	113 x 115 x 70
Weight	g	500

Accessories

Laser detector with holder for level rod	17862	-0209
Reach	m	35

Wall bracket/adapter	17863	-0208
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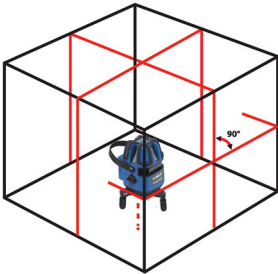
Can be wall mounted and also has a magnet for metal studs. Screw 1/4" for mounting on a line laser and nut thread 5/8" for mounting on a tripod.



Cross lasers



17862-0209



Limit. Multi cross line laser with 4 vertical lines and 1 horizontal line and one plumb to the floor. Very bright and sharp laser lines. The vertical lines intersect on the ceiling. Self-levelling with magnetic damping compensator. The lines can be lit individually or together. A mechanical lock of the pendulum mechanism acts both as a main switch and transport lock.

Integrated tripod that can be rotated 360°. Fine adjustment screws for turning movement and height adjustment of the legs. Circle vial for coarse adjustment. Can be used outdoors or in bright rooms with a separate laser detector (not included).

5 laser diodes class 2M, 15 mw 635 nm for lines and 1 laser diode class 2M, 5 mw 650 nm for dots.

Supplied with reflective target plate, soft case, batteries and Swedish manual.

Art. no.	17864	-0108
Limit	No	1004 HV
Levelling range		± 3°
Precision	mm	±2 mm/10 m
Enclosure protection class		IP 54
Batteries		4 x AA type
Operating time	hours	7
Working temperature	°C	-10....+50
Dimensions	mm	110 x 130 x 190
Weight	g	980
Accessories		
Laser detector with holder for level rod	17862	-0209
Reach	m	35



Limit. Package containing Multi-cross laser 1004, 17864-0108, laser receiver with holder, 17862-0209, tripod 18112-0106 and batteries.

Art. no.	17864	-2005
Limit	No	1004 HV

Rotating lasers

Limit. Automatic self leveling horizontal and vertical rotary laser. Scanning mode with adjustable scanning angel. Visible laser beam. Ability to manual slope. TILT function, whereby the instrument must be manual restarted if it has been tilted. Laser detector with dual indicator window, display lighting, adjustable tone and adjustable coarse accuracy. Remote control adjust slope range, rotating speed, scanning angel and scanning position. The instrument can be calibrated according to instruction in the manual.

Supplied in a hard plastic case included laser detector with clamp holder, remote control, wall mount bracket, target plate, rechargeable battery pack with charger, and manual. Laser diode class 2M, 1mw 635 nm.



Art. no.	19864	-0104
Limit	No	1210HV
Operation range radius	m	200
Accuracy Horizontal	mm	±1,0 mm/10 m
Accuracy Vertical	mm	±1,5 mm/10 m
Self leveling range		±5°
Rotating speed	rpm	0-300-600
Remote operation range	m	30
Dust/Watterproof		IP54
Operation time	h	24
Operation temperature	°C	-10...+40
Dimension	mm	130x210x175
Weight total	kg	2.0
Accessories		
Extra battery pack	19864	-0203
Extra charger	19864	-0302
Extra remote control	19864	-0401
Extra laser detektor	17865	-0503
Extra clamp for detector	17865	-0602

Limit. Includes instrument 1210 HV 19864-0104 , tripod 17868-0104 and level rod 17867-0105.

Art. no.	19864	-2001
Limit.....	No	1210 HV



Rotating lasers



Limit. Rotary laser in sturdy design for horizontal measurements. Designed primarily for outdoor use, splash-proof protection class IP 66. Visible light beam. Motorised automatic self-levelling with the ability to manually slope. Electronic sensors. Shake function with alarm after which the instrument must be manually restarted after e.g. shaking or when moved from its initial level. Laser detector with dual indication window, display lighting, adjustable tone, fine alternative coarse accuracy.

The instrument can be calibrated according to instructions in the manual. Supplied in a hard plastic case included laser detector with holder, rechargeable battery pack with charger, extra battery holder for alkaline batteries and Swedish manual. Laser diode class 2M, 1mw 635 nm.

Art. no.	17866	-0106
Limit	No	1300 H
Active measuring radius	m	200
Precision	mm	±0.7 mm/10 m
Self-levelling range		± 5°
Rotation speed	rpm	600
Protection class		IP 66
Operating time	hours	18
Working temperature	°C	-10....+50
Dimensions	mm	166 x 166 x 222
Weight	kg	2.5

Accessories

Extra battery pack	17866	-0205
Extra battery charger	17865	-0404
Extra laser receiver	17865	-0503
Extra clip for laser receiver	17865	-0602



Limit. Complete package containing Rotary laser 1300, 17866-0106, laser receiver with holder, battery pack with charger, tripod 17869-0103 and level rod 17867-0105.

Art. no.	17866	-2003
Limit	No	1300 H

Rotating lasers

Limit. Accessories for rotating laser.

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

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

Wall bracket. With thread $\frac{5}{8}$ ". Fine height adjustment 110 mm and graduated scale.



17863-0307



17863-0406



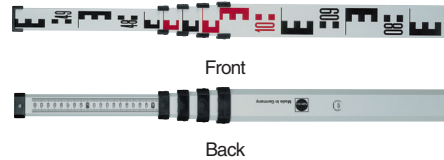
17865-0800

Art. no.	17863-0307	17863-0406	17865-0800
Product.....	Target 105x75 mm	Red laser glasses	Wall mount

Measuring rod

Limit. 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.

Art. no.	17867	-0105
Length.....	m	5



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.

Art. no.	20057	-0109
Length max.	m	35
Thread.....		$\frac{5}{8}$ "
Weight.....	kg	2.4



Tripods



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

Art. no.	18112	-0106
Max. height	mm	1500
Height adjustment with crank	mm	300
Length, folded	mm	600
Weight	kg	1.2
Accessories		
Adapter	18112	-0205



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

Art. no.	17868	-0104
Max. height	m	1.65
Weight	kg	3.6



Limit. 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.

Art. no.	17869	-0103
Max. height	m	2.3
Height adjustment with crank	m	0.3
Weight	kg	7.5

Measuring wheel



Limit. 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.

Art. no.	17428	-0107
Wheel circumference	m	1
Measurement range	m	10 000
Minimum reading	dm	1
Precision	mm/m	± 0.5
Weight incl. bag	kg	2.5



Limit
LEM7

Capacity: 10kg
d=1g

0.0000g

ON
OFF

ZERO

PRINT

UNIT

PCS

ON
OFF

ZERO

PRINT

UNIT

PCS

0.0000g

Limit
LEM7

Parcel scales



2800-0107

Limit. 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.

Art. no.	2800	-0107	-0305	-0404
Designation		KC-3	KC-4	KC-4
Capacity	kg	8	30	50
Load plate	mm	220 x 220	320 x 315	320 x 315
Graduation	g	20	100	200
Face diameter	mm	196	255	270
Overall height	mm	280	310	350
Weight	kg	3	6.5	11

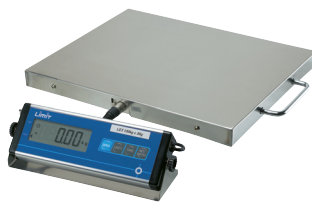


Limit. Letter/kitchen scales in compact design. Display with large easy to read digits. Function keys for on, quick tare and off. Load plate of toughened glass. Battery operation with 1 x 3 V type CR2032 included.

Art. no.	15886	-0205
Designation		LEM8
Capacity	g	5000
Graduation/Resolution	g	1
Precision	g	± 1
Load plate	mm	∅ 160
Digit height	mm	14
Weight of scales	kg	0.52



LE2



LE3



LE4

Limit. Electronic parcel scales with digital display. Platform and display unit separate. Display unit can be freestanding or fixed on a wall/stand. Large clear 25 mm high digits and angled display with 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.

Art. no.	10929	-0031	-0056	-0072	-0098	-0197
Designation		LE2-30	LE2-60	LE2-150	LE3-150	LE4-300
Capacity	kg	30	60	150	150	300
Graduation/Resolution	g	10	20	50	50	100
Precision	g	± 10	± 20	± 50	± 50	± 100.0
Weighing plate dimension	mm	315 x 325	315 x 325	315 x 325	450 x 350	600 x 600
Weight of scales including display	kg	38	38	38	68	124

Parcel scales

Limit. 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.

Art. no.	18420	-0103	-0202	(-0301)	-0400
Designation		LPW-2	LPW-4	LPW-6	LPW-8
Capacity	kg	60	150	300	600
Graduation/Resolution	g	10	20	50	100
Precision	g	± 10	± 20	± 50	± 100
Weighing plate dim.	mm	400 x 300	500 x 400	600 x 500	800 x 600
Weight of scales incl. display	kg	10	13	24	38



Precision scales

Limit. Electronic table scales with digital display, compact design.

LEM7-0.5 = Pocket scales: Touch display with large easy to read digits with background lighting. Function frames for on/off, quick tare, counter function and different weight 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 units. Stainless platform. Mains connection 230 V, or battery operation. Supplied with mains adapter.



LEM7-0.5



LEM7-10

Art. no.	16890	-0108	-0116	-0124	-0132	-0207
Designation		LEM7-0.5	LEM7-1,2	LEM7-2,5	LEM7-5	LEM7-10
Capacity	kg	0.5	1.2	2.5	5	10
Graduation/Resolution	g	0.1	0.1	0.5	1	1
Precision	g	± 0.1	± 0.1	± 0.2	± 0.5	± 1
Load plate	mm	60 x 60	180 x 170	180 x 170	180 x 170	180 x 170
Digit height	mm	10	20	20	20	20
Weight of scales	kg	012	1.5	1.5	1.5	1.5

Counting scales

Limit. Electronic counting scales with 3 separate digital displays to determine the number and weight. Shows item weight, total weight and calculated number. 10-keys for the input of quantity in a sample or known unit weight. Optional automatic 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 for 120 hours of continuous use.

Art. no.	10932-0044	16891-0107	
Designation	LEC-7.5	LEC6-20	
Capacity	kg	7.5	20
Graduation/Resolution	g	1	5
Precision	g	±1	±5
Weighing plate dimension	mm	260 x 210	260 x 210
Weight	kg	3.6	3.6





KC-08



KC-11



CLH4

Suspended weighers

Limit. 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.

Art. no.	2797	-0102	-0300	-0409	-0557	-0607	-0615	-0623	-0706	-0805
Designation	KC-08	KC-08	KC-08	KC-08	KC-230	KC-11	CLH4-30	CLH4-60	CLH4-150	CLH4-300
Capacity	kg	25	50	100	200	250	30	60	150	300
Graduation	g	100	200	500	500	1000	20	50	100	200
Face diameter	mm	150	150	150	254	195	-	-	-	-
Overall height	mm	365	390	390	660	475	342	342	342	342
Weight	kg	1.2	1.3	1.3	3.8	3.3	0.5	0.5	0.5	0.5
Accessories										
Spare protective glass..	2797	-1001	-1001	-1001	-	-	-	-	-	-



LEP-180



LEP-300

Personal scales

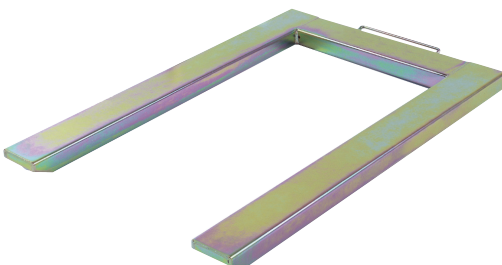
Limit. Personal scales with digital display for the weight and BMI-values. Display with large easy to read digits.

LEP-180. Function keys for setting gender, length, age, on/off. Automatic weight display after foot pressure. Battery operation, load plate of toughened glass. Battery operation with 2 x 3 V batteries, 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 load plate. Mains connection 230 V, or battery operation.

Supplied with mains adapter and rechargeable batteries. Battery operation up to 80 hours.

Art. no.	15587	-0105	-0204
Designation	No	LEP-180	LEP-300
Capacity	kg	180	300
Graduation/Resolution ...	g	100	100
Precision	g	± 300	± 100
Load plate	mm	∅ 350	130 x 205
Overall height	mm	40	1030
Digit height	mm	16	25
Weight of scales	kg	2.22	5.4



Floor scales

Limit. Electronic floor scale with post display. Large clear 30 mm LED display with angled display. Heavy duty design equipped with overload protection.

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.

Art. no.	4828	-0051
Designation		LE9-USE
Capacity	kg	1500
Graduation/Resolution	kg	0.5
Precision	kg	± 0.5
U beam, external	mm	1200 x 840
U beam, internal	mm	1055 x 600
Height	mm	85
Digit height on display	mm	25
Weight	kg	38

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The logo for 'Limit' features the word in a bold, italicized, white sans-serif font. Above the letters 'i' and 'm', there are two white circles, each with a blue crosshair. A horizontal blue line passes through the top of these circles.

Limit

www.limit.se

The logo for 'Luna' features the word in a white, italicized, sans-serif font. The letter 'L' is stylized with a white curved shape on its left side.

Luna

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