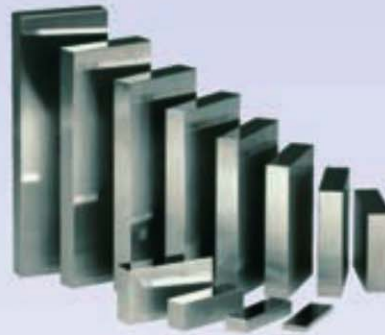


**Gauge blocks / Measuring balls / Step gauges  
Optical flats and parallel optical flats / Feeler gauges**



## Gauge blocks general

Which gauge block is the most suitable for you?

### MATERIALS

#### Steel

Steel is the oldest material and remains the most commonly accepted for gauge blocks. If well taken care of, steel gauges guarantee many years of useful life. They must be cleaned carefully before and after use and stored in a protective case in a dry environment.

#### Tungsten carbide

When a higher degree of hardness is needed, tungsten carbide is the material to choose. It is less sensitive to wear and damage compared to hardened steel. Especially when used frequently, tungsten carbide has an increased life span compared to steel gauge blocks.

#### Ceramics

Ceramics is relatively wear resistant and has a high degree of strength and stability. It will not rust and is unaffected by chemicals.

### ACCURACY CLASSES

Gauge blocks are classified in upgrading order of accuracy according EN ISO 3650: 1998 in the classes: 2–1–0–K. The ISO 3650 is an international standard, which is adopted by national standards such as RvA, DAKkS, UKAS, BKO, SCS and COFRAC.

#### Class 2

Class 2 gauge blocks are intended for general workshop use by skilled workers to set up, for example, measuring instruments.

#### Class 1

Class 1 gauge blocks are used as working standards in inspection rooms within the production to set and calibrate measuring instruments and equipment as well as to inspect tools, fixtures and machines.

#### Class 0

Class 0 gauge blocks, with their high accuracy, are intended for use by measuring technicians in environmentally controlled inspection rooms, for example to calibrate measuring equipments.

#### Class K

Class K gauge blocks have the highest class of accuracy. They are *the* length standards in a calibration laboratory and other calibration values are derived from these gauges. Only with a UKAS certificate – or with another certificate, accepted by UKAS as equivalent (e.g. DAKkS, RvA and COFRAC) – will these gauge blocks be at their best. The most accurate gauges can meet a tolerance of  $\pm 0.05 \mu\text{m}$ .



### Accuracy according ISO 3650

Nominal size mm	Class K		Class 0		Class 1		Class 2	
	Tolerance on nominal size $\mu\text{m}$	Deviation* $\mu\text{m}$	Tolerance on nominal size $\mu\text{m}$	Deviation* $\mu\text{m}$	Tolerance on nominal size $\mu\text{m}$	Deviation* $\mu\text{m}$	Tolerance on nominal size $\mu\text{m}$	Deviation* $\mu\text{m}$
0.5 - 10	$\pm 0.20$	0.05	$\pm 0.12$	0.10	$\pm 0.20$	0.16	$\pm 0.45$	0.30
10 - 25	$\pm 0.30$	0.05	$\pm 0.14$	0.10	$\pm 0.30$	0.16	$\pm 0.60$	0.30
25 - 50	$\pm 0.40$	0.06	$\pm 0.20$	0.10	$\pm 0.40$	0.18	$\pm 0.80$	0.30
50 - 75	$\pm 0.50$	0.06	$\pm 0.25$	0.12	$\pm 0.50$	0.18	$\pm 1.00$	0.35
75 - 100	$\pm 0.60$	0.07	$\pm 0.30$	0.12	$\pm 0.60$	0.20	$\pm 1.20$	0.35

\* Deviation of the measuring face.

## Steel gauge blocks

Steel gauge blocks delivered with an inspection report.

- Hardness measuring surfaces: 63 - 65 HRC.
- Expansion coefficient:  $(12 \pm 1) \cdot 10^{-6} / ^\circ\text{C}$ .
- ISO 3650.



### Steel gauge blocks in sets

Item No.	Class	Price EUR	Size mm	Increment mm	Pieces
<b>M32:</b>			1.005	–	1
906.622	2	77.00	1.01 - 1.09	0.01	9
906.621	1	142.00	1.1 - 1.9	0.1	9
906.620	0	264.00	1 - 9	1	9
			10 - 30	10	3
			50	–	1
<b>M47:</b>			1.005	–	1
906.625	2	111.00	1.01 - 1.09	0.01	9
906.624	1	223.00	1.1 - 1.9	0.1	9
906.623	0	329.00	1 - 24	1	24
			25 - 100	25	4
<b>M87:</b>			1.001 - 1.009	0.001	9
906.613	2	188.00	1.01 - 1.49	0.01	49
906.612	1	391.00	0.5 - 9.5	0.5	19
906.611	0	742.00	10 - 100	10	10
<b>M88:</b>			1.0005	–	1
906.628	2	182.00	1.001 - 1.009	0.001	9
906.627	1	370.00	1.01 - 1.49	0.01	49
906.626	0	581.00	0.5 - 9.5	0.5	19
			10 - 100	10	10
<b>M112:</b>			1.0005	–	1
906.631	2	279.00	1.001 - 1.009	0.001	9
906.630	1	560.00	1.01 - 1.49	0.01	49
906.629	0	868.00	0.5 - 24.5	0.5	49
			25 - 100	25	4

### Steel gauge blocks, per piece

Size mm	Increment mm	ISO 3650/1 Price EUR	ISO 3650/0 Price EUR
0.5	–	18.90	22.30
1	–	9.60	14.20
1.0005	–	13.40	19.80
1.001 - 1.009	0.001	9.60	14.20
1.01 - 1.50	0.01	9.60	14.20
1.6 - 2.0	0.1	9.60	14.20
2.5 - 7.5	0.5	9.60	14.20
8.0 - 10.0	0.5	11.60	15.30
10.5 - 25.0	0.5	12.20	15.30
30	–	15.40	19.60
40	–	15.40	19.60
50	–	15.40	19.60
60	–	18.30	24.70
70	–	18.30	24.70
75	–	23.60	30.20
80	–	24.60	30.20
90	–	26.10	43.00
100	–	33.70	50.00

## Tungsten carbide gauge blocks

Tungsten carbide gauge blocks with a low expansion coefficient. High resistance against corrosion. Delivered with an inspection report.

- Hardness measuring surfaces: 70-72 HRC.
- Expansion coefficient:  $(8.5 \pm 1) \cdot 10^{-6} / ^\circ\text{C}$ .
- ISO 3650.



### Tungsten carbide gauge blocks, per piece

Size mm	Increment mm	ISO 3650/1 Price EUR	ISO 3650/0 Price EUR
0.5	–	31.20	40.00
1	–	31.20	40.00
1.0005	–	48.00	53.00
1.001 - 1.009	0.001	31.20	40.00
1.01 - 1.50	0.01	31.20	40.00
1.6 - 1.9	0.1	31.20	40.00
2.0 - 10.0	0.5	32.10	43.00
10.5 - 15.0	0.5	36.40	45.00
15.5 - 25.0	0.5	47.00	55.00
30	–	53.00	66.00
40	–	73.00	87.00
50	–	87.00	90.00
60	–	101.00	108.00
70	–	116.00	120.00
75	–	125.00	123.00
80	–	126.00	135.00
90	–	146.00	149.00
100	–	148.00	156.00

### Tungsten carbide gauge blocks in sets

Item No.	Class	Price EUR	Size mm	Increment mm	Pieces
<b>M32:</b>			1.005	–	1
906.634	2	387.00	1.01 - 1.09	0.01	9
906.633	1	429.00	1.1 - 1.9	0.1	9
906.632	0	477.00	1 - 9	1	9
			10 - 30	10	3
			50	–	1
<b>M47:</b>			1.005	–	1
906.637	2	632.00	1.01 - 1.09	0.01	9
906.636	1	727.00	1.1 - 1.9	0.1	9
906.635	0	807.00	1 - 24	1	24
			25 - 100	25	4
<b>M87:</b>			1.001 - 1.009	0.001	9
906.662	2	848.00	1.01 - 1.49	0.01	49
906.661	1	1,084.00	0.5 - 9.5	0.5	19
906.660	0	1,215.00	10 - 100	10	10
<b>M112:</b>			1.0005	–	1
906.643	2	970.00	1.001 - 1.009	0.001	9
906.642	1	1,205.00	1.01 - 1.49	0.01	49
906.641	0	1,550.00	0.5 - 24.5	0.5	49
			25 - 100	25	4

## Ceramic gauge blocks

These ceramic gauge blocks are made of high-tech material: Zirconia ceramics. Because of this, these gauge blocks are highly durable, corrosion proof and completely stable for long-term use. Delivered with an inspection report.

- Highly wear-resistant. Can be used 5 to 10 times longer than steel gauge blocks.
- Rustproof.
- Hardness: 88-90 HRC.
- Expansion coefficient:  $(10 \pm 1) \cdot 10^{-6} / ^\circ\text{C}$  (same as steel gauge blocks, therefore they can be used at the same time).
- ISO 3650.



### Ceramic gauge blocks, per piece

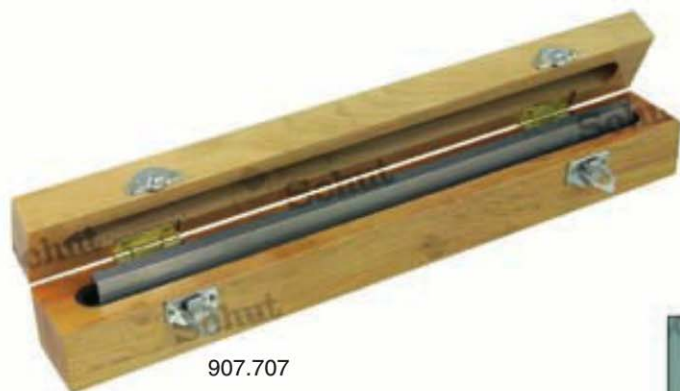
Size mm	Increment mm	ISO 3650/1 Price EUR	ISO 3650/0 Price EUR
1.0005	–	37.60	39.40
0.5	–	39.90	42.00
1	–	37.60	40.00
1.01 - 1.49	0.01	20.20	21.40
1.5 - 1.9	0.1	20.20	23.30
2.0 - 5.5	0.5	22.00	23.50
6.0 - 9.5	0.5	33.00	37.40
10.0 - 20.0	0.5	41.00	44.00
20.5 - 25.0	0.5	43.00	44.00
30	–	50.00	56.00
40	–	55.00	55.00
50	–	59.00	63.00
60	–	63.00	66.00
70	–	68.00	73.00
75	–	71.00	75.00
80	–	73.00	79.00
90	–	80.00	85.00
100	–	82.00	91.00

### Ceramic gauge blocks in sets

Item No.	Class	Price EUR	Size mm	Increment mm	Pieces
<b>M32:</b>					
906.646	1	797.00	1.005	–	1
906.645	0	997.00	1.01 - 1.09	0.01	9
			1.1 - 1.9	0.1	9
			1 - 9	1	9
			10 - 30	10	3
			50	–	1
<b>M47:</b>					
906.649	1	1,319.00	1.005	–	1
906.648	0	1,445.00	1.01 - 1.09	0.01	9
			1.1 - 1.9	0.1	9
			1 - 24	1	24
			25 - 100	25	4
<b>M87:</b>					
906.652	1	2,660.00	1.001 - 1.009	0.001	9
906.651	0	3,120.00	1.01 - 1.49	0.01	49
			0.5 - 9.5	0.5	19
			10 - 100	10	10
<b>M103:</b>					
906.655	1	2,670.00	1.005	–	1
906.654	0	3,060.00	1.01 - 1.49	0.01	49
			0.5 - 24.5	0.5	49
			25 - 100	25	4
<b>M112:</b>					
906.658	1	2,730.00	1.0005	–	1
906.657	0	3,300.00	1.001 - 1.009	0.001	9
			1.01 - 1.49	0.01	49
			0.5 - 24.5	0.5	49
			25 - 100	25	4

## Long gauge blocks from 125 mm

These steel gauge blocks are available in the accuracy classes 0, 1 and 2 of ISO 3650. All gauge blocks have two coupling holes on both ends so that they can be coupled by means of a toggle clamp. Delivered with an inspection report.



907.707



907.741

PRICE

Size/mm	Item No.	Price EUR	Item No.	Price EUR	Item No.	Price EUR
	<b>ISO 3650/2:</b>		<b>ISO 3650/1:</b>		<b>ISO 3650/0:</b>	
125	907.728	48.00	907.715	57.00	907.702	97.00
150	907.729	78.00	907.716	85.00	907.703	146.00
175	907.730	80.00	907.717	94.00	907.704	156.00
200	907.731	86.00	907.718	107.00	907.705	160.00
250	907.732	96.00	907.719	128.00	907.706	200.00
300	907.733	137.00	907.720	183.00	907.707	307.00
400	907.734	156.00	907.721	240.00	907.708	320.00
500	907.735	173.00	907.722	336.00	907.709	413.00
600	907.736	444.00	907.723	660.00	907.710	856.00
700	907.737	470.00	907.724	702.00	907.711	1,053.00
800	907.738	562.00	907.725	810.00	907.712	1,342.00
900	907.739	728.00	907.726	997.00	907.713	1,493.00
1000	907.740	810.00	907.727	1,221.00	907.714	1,750.00
<b>Gauge block set consisting of 125, 150, 175, 200, 250, 300, 400 and 500 mm:</b>						
	907.743	506.00	907.742	634.00	907.741	1,212.00
<b>Gauge block set consisting of 600, 700, 800, 900 and 1000 mm:</b>						
	907.746	2,280.00	907.745	3,460.00	907.744	5,350.00

## Gauge block accessories

Various accessories to extract the resulting size of one or more gauge blocks outside or to convert it into an inside gauge. This also enables the creation of setting gauges and marking tools. These accessories considerably increase the applicability of standard gauge blocks.



907.202



907.204



907.210



907.209



907.207



907.213



907.211

907.212



Item No. Description	Price EUR	Set		
		M8	M10	M12
<b>Holder for gauge blocks:</b>				
907.203 Up to 50 mm	25.00	•	•	•
907.204 Up to 100 mm	28.90	•	•	•
907.205 Up to 200 mm	44.00	•	•	•
<b>Pair of measuring jaws, with measuring faces:</b>				
907.206 Cylindrical $\varnothing$ 2 mm and flat ( $l=40$ mm)	61.00	•	•	•
907.207 Cylindrical $\varnothing$ 5 mm and flat ( $l=45$ mm)	59.00	•	•	•
907.208 Cylindrical $\varnothing$ 10 mm and flat ( $l=70$ mm)	50.00		•	•
907.209 Flat ( $l=100$ mm, $h=19$ mm)	67.00		•	•
907.213 V-shaped ( $l=60$ mm, max. $\varnothing$ 60 mm)	30.90		•	•
907.210 Straight edge ( $l=100$ mm)	10.30			•
907.211 Scriber ( $l=45$ mm)	27.50	•	•	•
907.212 Center point ( $l=45$ mm)	55.00	•	•	•
907.214 Base for holder ( $h=25$ mm)	128.00	•		•
<b>Accessory sets, delivered in a case:</b>				
907.200 M8	474.00	↑	↑	↑
907.201 M10	638.00		↑	↑
907.202 M12	653.00			↑



## Caliper inspection set

For checking the accuracy of DIN 862 calipers. The set consists of three special steel gauge blocks (30 mm, 41.3 mm and 131.4 mm, ISO 3650 class 1), two steel setting rings ( $\varnothing 4$  mm and  $\varnothing 25$  mm) and a pair of gloves.



Item No.	Description	Price EUR
909.347	Caliper inspection set	237.00

## Gloves

Comfortable, smooth, lint-free gloves with universal, perfect fit. Ideal for handling gauge blocks and other measuring instruments.

- Perfect thermal isolation.
- Washing machine safe.



Item No.	Description	Price EUR
191.069	Pair of gloves	7.20

## Micrometer inspection sets

For the inspection of micrometers according DIN 863. Suitable for micrometers with a measuring range up to 25 mm.

- Nominal sizes (mm):  
2.5 - 5.1 - 7.7 - 10.3 - 12.9 - 15.0 - 17.6 - 20.2 - 22.8 - 25.0.
- Including plan parallel optical flat  
 $\varnothing 30 \times 12$  mm.



909.340



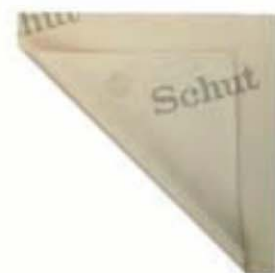
Item No.	Material	Grade	Price EUR
909.346	steel	1	201.00
909.345	steel	0	267.00
909.162	ceramic	1	432.00
909.340	ceramic	0	499.00

## Select microfibre cleaning cloth

Microfibre cleaning cloth for gauge blocks. Ideal for measuring rooms.

- Dimensions: 22.5 x 22.5 cm.

Item No.	Description	Price EUR
831.739	Microfibre cleaning cloth	5.70





## Feeler gauges

Feeler gauge sets in a holder, for individual use or in combination to measure slits and gaps and also for checking the amount of clearance in sliding guides, bearings, pistons etc.

- Measuring range: 0.03 - 2.00 mm.
- Blade length: 100 mm.
- Nickel plated handle with locking screw.
- Blade width: 10 mm (except stainless steel models: 12 mm), tapered.
- Also available in brass model (anti-magnetic).



Item No.	Number of blades	Increment(s)				Material	Price EUR
		0.01 mm	0.02 mm	0.05 mm	0.10 mm		
909.904	8			0.05 → 0.30	0.40 → 0.50	hardened steel	1.60
909.905	8			0.05 → 0.30	0.40 → 0.50	stainless steel	4.20
909.906	8			0.05 → 0.30	0.40 → 0.50	brass	5.50
909.907	13			0.05 → 0.30	0.40 → 1.00	hardened steel	1.80
909.908	13			0.05 → 0.30	0.40 → 1.00	stainless steel	4.60
909.909	13			0.05 → 0.30	0.40 → 1.00	brass	8.40
910.019	20			0.05 → 1.00		hardened steel	2.90
910.020	20			0.05 → 1.00		stainless steel	6.90
910.021	20			0.05 → 1.00		brass	13.00
910.022	8	0.03 → 0.10				hardened steel	1.60
910.023	10	0.03 → 0.05		0.10 → 0.30	0.40 → 0.50	hardened steel	1.80
910.024	10				0.10 → 1.00	hardened steel	1.80
910.026	14	0.03 → 0.10		0.15 → 0.30	0.40 → 0.50	hardened steel	1.80
910.027	18	0.05 → 0.10		0.15 → 0.40	0.50 → 1.00	hardened steel	2.60
910.028	19	0.03 → 0.10		0.15 → 0.30	0.40 → 1.00	hardened steel	2.90
910.029	20	0.04 → 0.10		0.15 → 0.50	0.60 → 1.00	hardened steel	2.90
908.978	22	0.03 → 0.05		0.10 → 1.00		hardened steel	3.20
908.979	28	0.03 → 0.10	0.12 → 0.50			hardened steel	4.70
910.034	20				0.10 → 2.00	hardened steel	5.30

## Feeler gauges

- Measuring range: 0.05 - 1.00 mm;  
20 blades: 0.05 / 0.10 → 1.00.
- Material: hardened steel.
- Blade width: 12.8 mm.



Item No.	Blade length/mm	Price EUR
910.030	200	9.80
910.031	300	13.90
910.032	400	20.80
910.033	500	22.40



910.031

## HELIOS-PREISSER feeler stock coils

Feeler stock coils made of steel.

- Measuring range: 0.005 - 1.00 mm.
- Length: 5 m.
- Width: 13 mm.
- Other widths or material (stainless steel or brass) available on request.



856.045



856.030



856.032

### Options

Item No.	Description	Price EUR
856.030	Set 0.01 - 0.25 mm	140.00
856.031	Set 0.3 - 1.00 mm	185.00
856.032	Holder for feeler stock coils	2.50

Item No.	Thickness/mm	Price EUR
856.036	0.005	73.00
856.037	0.01	28.90
856.038	0.02	24.00
856.039	0.03	8.30
856.040	0.04	8.30
856.041	0.05	6.30
856.042	0.06	6.50
856.043	0.07	6.50
856.044	0.08	6.50
856.045	0.09	6.50
856.046	0.10	5.60
856.047	0.12	5.60
856.048	0.15	5.60
856.049	0.18	7.30
856.050	0.20	5.60
856.051	0.25	5.60
856.052	0.30	5.60
856.053	0.35	5.60
856.054	0.40	6.50
856.055	0.45	6.50
856.056	0.50	6.50
856.057	0.55	8.30
856.058	0.60	8.30
856.059	0.65	8.30
856.060	0.70	8.30
856.061	0.75	8.30
856.062	0.80	8.30
856.063	0.85	8.50
856.064	0.90	8.90
856.065	0.95	8.90
856.066	1.00	8.90