


# Gauge Blocks





The years of experience & our consistent innovative approach has helped us develop world class Gauge blocks. KCP has developed special production techniques to enhance the required characteristics of the materials.

 **0.3mm to 100mm** - standard sets

 Custom sizes **upto 100mm**

 **Carbide | Steel | Ceramic**

 **Metric (1mm / 2mm Base) & Imperial**

 Covers all grades i.e. **Grade 'K', Grade '0', Grade '1' & Grade '2'**

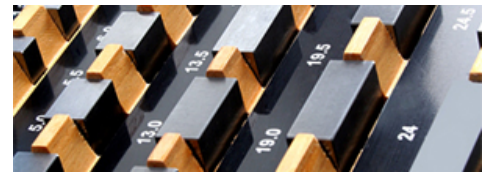
 **ISO 3650 / DIN 861**

## ▶ Standard Gauge Block Sets (Metric) as per ISO 3650 - 1mm base gauge block

Standard Set	Step 'mm'	Range/Size 'mm'	Qty (pcs.)	Total qty (pcs.)
M 122/1	-	1.0005	01	122
	0.001	1.001 - 1.009	09	
	0.01	1.01 - 1.49	49	
	0.1	1.6 - 1.9	04	
	0.5	0.5 - 24.5	49	
	10	30 - 100	08	
M 112/1	-	1.0005	01	112
	0.001	1.001 - 1.009	09	
	0.01	1.01 - 1.49	49	
	0.5	0.5 - 24.5	49	
	25	25 - 100	04	
M 103/1	-	1.0005	01	103
	0.01	1.01 - 1.49	49	
	0.5	0.5 - 24.5	49	
	25	25 - 100	04	
M 88/1	-	1.0005	01	88
	0.001	1.01 - 1.49	09	
	0.01	1.01 - 1.49	49	
	0.5	0.5 - 9.5	19	
	10	10 - 100	10	
M 47/1	-	1.0005	01	47
	0.01	1.01 - 1.09	09	
	0.1	1.1 - 1.9	09	
	1	1 - 24	24	
	25	25 - 100	04	
M 32/1	-	1.005	01	32
	0.01	1.01 - 1.09	09	
	0.1	1.1 - 1.9	09	
	1	1 - 9	09	
	10	10 - 30	03	
	-	60	01	
M 18/1	0.001	0.991 - 0.999	09	18
	0.001	1.001 - 1.009	09	
M 9/1	0.001	1.001 - 1.009	09	9
M 9	0.001	0.991 - 0.999	09	9
M 2/1	-	1.00	02	2
M 2/2 (Wear Protector)	-	2.00	02	2
M 10 (Wear Protector)	-	2.5, 5.1, 7.7, 10.3, 12.9, 15, 17.6, 20.2, 22.8, 25	10	10
M 13 (Wear Protector)	-	2.5, 5.1, 7.7, 10.3, 12.9, 15, 17.6, 20.2, 22.8, 25, 50, 75, 100	13	13

All standard sets are available with base 2mm gauge block on request.

## Unique Features



### Features of Gauge Blocks

- Highly accurate, very low deviation from flatness, surface finish & nominal length
- High resistance to wear & dimensionally stable
- Superior wringing quality
- Each gauge block is marked for size & serial number



**Certificate No. : C-0432**

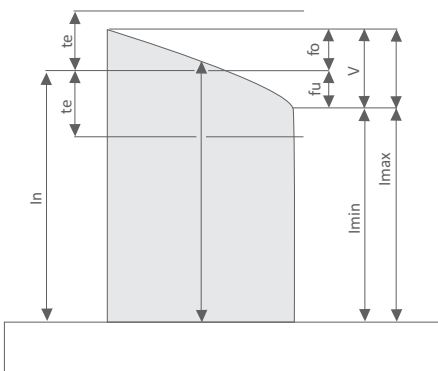
KCP Gauge Blocks are supplied with Calibration Certificate issued from its accredited calibration lab.

**A**ll our Length standard products and accessories are delivered in quality wooden casing, appended with; Calibration Certificate traceable to National Standards and Instruction Manual on the use and care.

## Standard Gauge Block Sets (Imperial) as per BS 4311

Standard Set	Step 'inch'	Range/Size 'inch'	Qty (pcs.)	Total qty (pcs.)
E 81	0.0001	0.1001-0.1009	09	81
	0.001	0.101 - 0.149	49	
	0.5	0.05 - 0.95	19	
	1	1 - 4	04	
E 49	0.0001	0.1001 - 0.1009	09	49
	0.001	0.101 - 0.109	09	
	0.01	1.01 - 1.49	09	
	0.1	0.2 - 0.9	08	
	1	1 - 4	04	
E 41	0.0001	0.1001 - 0.1009	09	41
	0.001	0.101 - 0.119	19	
	-	0.05	01	
	0.1	0.20 - 0.90	08	
	1	1 - 4	04	
E 35	-	0.10005	01	35
	0.0001	0.1001 - 0.1009	09	
	0.001	0.101 - 0.109	09	
	0.01	0.11 - 0.19	09	
	0.1	0.1 - 0.3	03	
E 9	0.0001	0.1001 - 0.1009	09	9
E 2 (Wear Protector)	-	0.1	02	2

## Limit Deviations and Tolerances

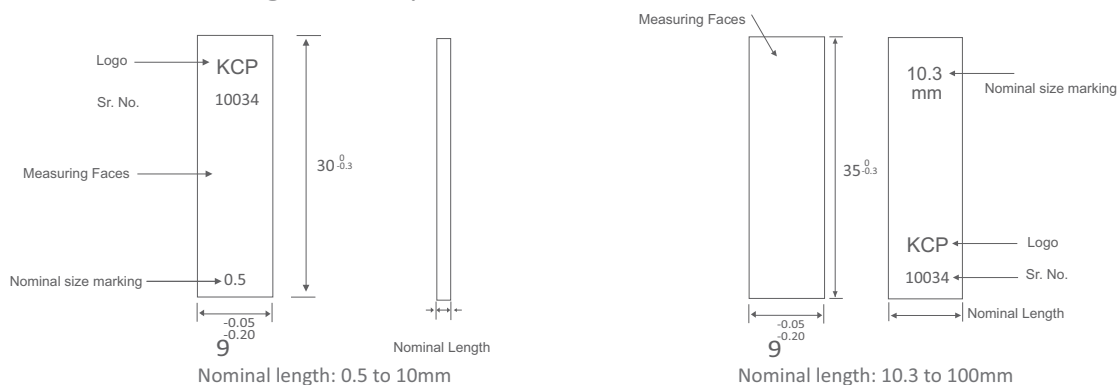


Nominal length  $l_n$ . Central length  $l_c$ .  
Variation  $v$  with  $fo$  and  $fu$ . Limit deviations  $te$  at any point, proceeding from the nominal length.

Nominal length	Calibration grade and other grades			
	K	0	1	2
	Flatness tolerance $t_f$			
mm	$\mu m$	$\mu m$	$\mu m$	$\mu m$
$0.5 < l_n \leq 150$	0.05	0.10	0.15	0.25
$150 < l_n \leq 500$	0.10	0.15	0.18	0.25
$500 < l_n \leq 1000$	0.15	0.18	0.20	0.25

Nominal length	Calibration grade and other grades							
	K		0		1		2	
	Limit deviation	Tolerance	Limit deviation	Tolerance	Limit deviation	Tolerance	Limit deviation	Tolerance
mm	$\pm te$	$t_v$	$\pm te$	$t_v$	$\pm te$	$t_v$	$\pm te$	$t_v$
	$\mu m$	$\mu m$	$\mu m$	$\mu m$	$\mu m$	$\mu m$	$\mu m$	$\mu m$
$0.5 \geq l_n \leq 10$	0.20	0.05	0.12	0.10	0.20	0.16	0.45	0.30
$10 < l_n \leq 25$	0.30	0.05	0.14	0.10	0.30	0.16	0.60	0.30
$25 < l_n \leq 50$	0.40	0.06	0.20	0.10	0.40	0.18	0.8	0.30
$50 < l_n \leq 75$	0.50	0.06	0.25	0.12	0.50	0.18	1.00	0.35
$75 < l_n \leq 100$	0.60	0.07	0.30	0.12	0.60	0.20	1.2	0.35

## Standard Dimension of Gauge Blocks up to 1000mm



Nominal length: 0.5 to 10mm

Nominal length: 10.3 to 100mm

## Selection of Material

KCP makes gauge blocks in Steel, Tungsten Carbide & Ceramic material. The selection of material of gauge blocks should be based on the area of usage.

### Steel

Steel gauge blocks are widely used since most of the manufacturing components are made from steel which nullifies the measurement difference due to same thermal coefficient of expansion. Steel is ideal for regular use when used with proper care & regular maintenance.

#### KCP Steel Gauge Block features

- Special alloy steel, properly heat treated & hardened to 800 HV giving it greater wear resistance.
- Dimensionally stable for long term use.
- Excellent surface finish with superior wringing quality.
- Coefficient of thermal expansion:  $(11.5 \pm 1) 10^{-6} \text{K}^{-1}$
- Sets housed in a quality wooden case to dry environment and be protected against avoid moisture and corrosion.

### Tungsten Carbide

They are highly resistant to wear and thus ideal where the gauge blocks are used heavily. The study confirms that the Tungsten Carbide gauge blocks are of 10 times greater wear resistant than that of steel and thus extremely economical.

#### KCP Tungsten Carbide Gauge Block features

- They are hardened to 1400 HV, producing greater wear resistance.
- Dimensionally stable for very long use.
- Excellent surface finish with superior wringing quality.
- Coefficient of thermal expansion:  $(4.7 \pm 1) 10^{-6} \text{K}^{-1}$

### Ceramic

Ceramic gauge blocks are extremely resistant to wear and scratches. As a result, any minor damage to the wringability of their measuring face is unlikely. Corrosion resistant, these gauge blocks are resistant to sweaty hands, and normal wear and tear.

#### KCP Ceramic Gauge Block feature

- They are manufactured from an exceptionally pure grade of zirconia ceramic.
- They are hardened to 1400 HV producing greater wear resistance.
- Non magnetic, non corrosive, dimensionally stable for long term use.
- Excellent surface finish with superior wringing quality.
- Highly resistant to knocks and drops
- Coefficient of thermal expansion:  $(9.5 \pm 1) 10^{-6} \text{K}^{-1}$

## Selection of Grades

KCP product gamut covers gauge blocks of all grades. Grades are selected as per the area of its use. KCP offers all grades available in standards.

- Grade 'K' : These gauge blocks are "Reference Standards" & used as masters for calibration of gauge blocks in calibration lab.
- Grade '0' : These gauge blocks are "Lab Standards" & used for calibration of gauges & measuring instruments.
- Grade '1' : These gauge blocks are "Working Standards" used in inspection room for day to day verification & calibration of gauges/measuring instruments.
- Grade '2' : These gauge blocks are "Working Standards" used in production shop for inspection/ setting purpose.

Grade 00: These gauge blocks are "Reference Standards" & used as master for calibration of gauge blocks in calibration lab. These gauge blocks are no longer recommended in ISO 3650 standard & replaces with Grade 'K' gauge block. However, Grade 00 gauge blocks are available on request.

## Maintenance of Gauge Blocks

In order to increase the life of each gauge block under use, it is recommended to follow the below procedure :

- Each gauge block should be cleaned with soft lint free fabric.
- Ensure burr/dent free surface table when the gauge block is used for setting purpose.
- Avoid usage of damaged/scratched gauge blocks, which can spoil the accuracy of other gauge blocks.
- Damaged gauge blocks need to be replaced/repared before it's use.
- Always protect gauge block immediately after it's use by applying thin layer of anti rust solution.
- Always follow correct wringing procedure to enhance the life of gauge block.