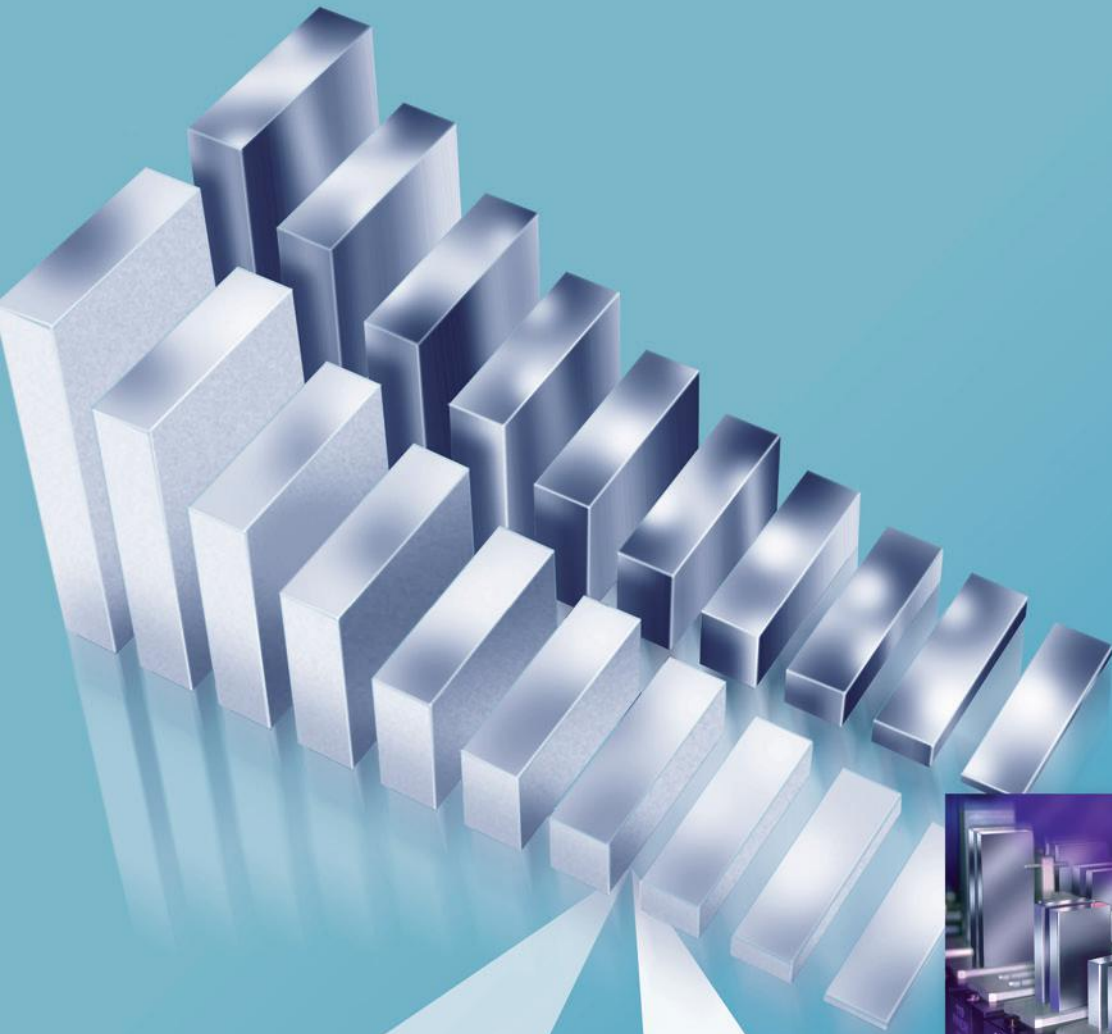


Length and Angle Standards



PURCHASING GAUGE BLOCKS CALLS FOR CONFIDENCE

The high accuracy of TESA's gauge blocks is the result of years of experience in producing and making use of these products.

- Use of high quality raw materials and appropriate heat treatment, thus guaranteeing a durable shape and dimensional stability of the gauge blocks over years.
- Very low deviations in flatness and parallelism of the measuring faces, resulting in highly accurate gauges.
- Unique flat lapping polish as well as edge rounding techniques, leading to superior wringability.
- Proper serial number marked on each gauge block.

ISO 3650

Gauge blocks with metric nominal lengths conform to ISO 3650:1998. This international standard is based on the ones published either in a region, e.g. the European standard EN ISO 3650:1998 or in a country, e.g. the Swiss standard SN EN ISO 3650, German standard DIN EN ISO 3650 or French standard NF EN ISO 3650. Gauge blocks with imperial nominal lengths comply with BS 4311 - Part 1. Compared to earlier standards, ISO 3650:1998 includes the following main changes :

- Withdrawal of the accuracy grade 00 (see "Which grade do you need").
- Introduction of requirements as regards the uncertainty of measurement in relation to the declaration of conformance of the product according to ISO 14253-1:1998.
- Review of some definitions and shortened form of terms according to normative references that are currently applicable (see drawing).

WHICH MATERIAL DO YOU NEED?

Steel

Steel gauge blocks have proven their reliability for more than a hundred years. This raw material remains the most commonly accepted for length standards.

- Steel gauge blocks provide high resistance to wear associated with a good property to adhere to other gauge blocks. However, steel must be protected against corrosion. Provided gauge blocks made from this material are properly handled, they will remain reliable for many years. TESA steel gauge blocks have the following key features:
- Highly alloyed steel
- Hardness guaranteed to 800 HV
- Artificially aged for optimum form and dimensional stability
- Coefficient of thermal expansion: $(11,5 \pm 1,0) \times 10^{-6} K^{-1}$

Tungsten Carbide

Gauge blocks in tungsten carbide are 10 times as resistant to wear as steel gauges. They are intended for frequent use, also where superior wringing quality is required. TESA tungsten carbide gauge blocks provide:

- Hardness guaranteed to 1400 HV
- Coefficient of thermal expansion: $(4,23 \pm 0,1) \times 10^{-6} K^{-1}$

Ceramic

Ceramic gauge blocks are extremely resistant to wear and scratches. Due to the properties of this material, any minor damage is unlikely to affect the wringability of their measuring faces. Being corrosion resistant, these gauge blocks are insensitive to "rusty hands", amongst other issues. Manufactured from stabilised zirconia, TESA ceramic gauge blocks have the following key features:

- Non-magnetizable
- Hardness guaranteed to 1400 HV
- Coefficient of thermal expansion: $(9,7 \pm 0,8) \times 10^{-6} K^{-1}$



WHICH GRADE DO YOU NEED?

Grade 2

These gauge blocks are commonly used as **Working Standards** in inspection rooms within a manufacturing area to set and calibrate measuring instruments and other equipment as well as to inspect tools, fixtures and machines.

Grade 1

Gauge blocks of this class are mainly used as **Working Standards** to set and calibrate plug gauges and measuring instruments in measuring rooms or inspection areas within a manufacturing area.

Tolerance Grade 0

These gauge blocks are designated for use as **Company Standards** in calibration laboratories or environmentally controlled inspection rooms to set and calibrate plug gauges as well as measuring equipment.

Calibration grade K

Gauge blocks of this tolerance class are intended for use as **Reference Standards** in metrology oriented laboratories of National Institutes, precision measuring rooms and other laboratories of National Calibration Services, whether officially accredited or not.

They should be used as masters to calibrate gauge blocks, length standards of same accuracy and also measuring instruments.

Precision Grade 00

The new standard ISO 3650 no longer takes this accuracy grade into consideration as the uncertainties of measurement achieved with the procedure applied for calibration usually lead to a disparity against specified tolerances.

The rules to the expression of uncertainty of measurement for proving the conformance or non conformance of the product with the specification, as stated in the standard ISO 14253- 1:1998, have dictated the decision to withdraw the accuracy grade 00.

A wide experience in practical use of gauge blocks has proven that gauges of the calibration class K could easily replace those of the earlier accuracy grade 00.

As a result, gauge blocks of grade 00 are no longer available.

CERTIFICATE OF CALIBRATION AND TRACEABILITY.

All set compositions from TESA are supplied with a certificate of calibration issued by the accredited calibration laboratory of a national calibration service.

This service can either be the Swiss calibration service (SCS), British calibration service (UKAS) or Deutsche Akkreditierungsstelle (DAkkS) depending on the manufacturer.

Accreditation is the authenticated assurance of the skills of the calibration laboratories as well as of the full traceability to national standards that conform with the International System of Units (SI).

This is for any reference standard or measuring equipment being used.

Owing to a multilateral agreement (MLA), any certificates of calibration issued by the members of the European Cooperation for Accreditation of Laboratories (EA) is internationally accepted.

DELIVERIES

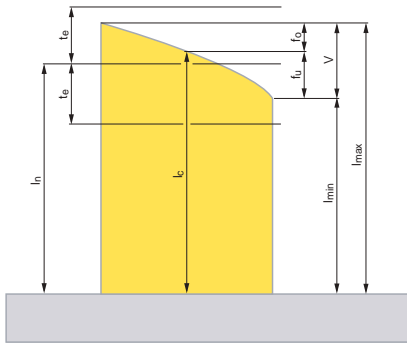
TESA gauge blocks can be delivered individually or in full sets with nominal lengths as listed in this section. Additional gauge sets and lengths can be made available upon request. Since individual gauge blocks could no be listed in their whole here, any inquiry or purchase order should specify :

- Desired nominal length
- Chosen material
- Calibration grade or any other grade



Limit Deviations and Tolerances

	Limit deviations t_e			
	Tolerances t_v			
	Flatness tolerances t_f			
Nominal length	Calibration grades and other grades			
	K	0	1	2
	Flatness tolerance t_f			
mm	μm	μm	μm	μm
$0,5 = l_n \leq 150$	0,05	0,1	0,15	0,25
$150 < l_n \leq 500$	0,1	0,15	0,18	0,25
$500 < l_n \leq 1000$	0,15	0,18	0,2	0,25



Nominal length l_n ; Central length l_c ; Variation v with f_0 and f_1 ; Limit deviations t_e at any point proceeding from the nominal length.

Nominal length	Calibration grade K		Grade 0		Grade 1		Grade 2	
	Limit deviation of length at any point from nominal length	Tolerance for the variation in length	Limit deviation of length at any point from nominal length	Tolerance for the variation in length	Limit deviation of length at any point from nominal length	Tolerance for the variation in length	Limit deviation of length at any point from nominal length	Tolerance for the variation in length
LIMIT DEVIATIONS AND TOLERANCES ACCORDING TO ISO 3650								
mm	$\pm t_e$ μm	t_v μm	$\pm t_e$ μm	t_v μm	$\pm t_e$ μm	t_v μm	$\pm t_e$ μm	t_v μm
$0,5 = l_n \leq 10$	0,2	0,05	0,12	0,1	0,2	0,16	0,45	0,3
$10 < l_n \leq 25$	0,3	0,05	0,14	0,1	0,3	0,16	0,6	0,3
$25 < l_n \leq 50$	0,4	0,06	0,2	0,1	0,4	0,18	0,8	0,3
$50 < l_n \leq 75$	0,5	0,06	0,25	0,12	0,5	0,18	1,0	0,35
$75 < l_n \leq 100$	0,6	0,07	0,3	0,12	0,6	0,2	1,2	0,35
$100 < l_n \leq 150$	0,8	0,08	0,4	0,14	0,8	0,2	1,6	0,4
$150 < l_n \leq 200$	1,0	0,09	0,5	0,16	1,0	0,25	2,0	0,4
$200 < l_n \leq 250$	1,2	0,1	0,6	0,16	1,2	0,25	2,4	0,45
$250 < l_n \leq 300$	1,4	0,1	0,7	0,18	1,4	0,25	2,8	0,5
$300 < l_n \leq 400$	1,8	0,12	0,9	0,2	1,8	0,3	3,6	0,5
$400 < l_n \leq 500$	2,2	0,14	1,1	0,25	2,2	0,35	4,4	0,6
$500 < l_n \leq 600$	2,6	0,16	1,3	0,25	2,6	0,40	5,0	0,7
$600 < l_n \leq 700$	3,0	0,18	1,5	0,3	3,0	0,45	6,0	0,7
$700 < l_n \leq 850$	3,4	0,2	1,7	0,3	3,4	0,5	6,5	0,8
$800 < l_n \leq 900$	3,8	0,2	1,9	0,35	3,8	0,5	7,5	0,9
$900 < l_n \leq 1000$	4,2	0,25	2,0	0,4	4,2	0,6	8,0	1,0
LIMIT DEVIATIONS AND TOLERANCES ACCORDING TO BS 4311, PART 1:1993								
in	$\pm t_e$ μin	t_v μin	$\pm t_e$ μin	t_v μin	$\pm t_e$ μin	t_v μin	$\pm t_e$ μin	t_v μin
$l_n \leq 0,4$	5	2	5	4	10	6	20	12
$0,4 < l_n \leq 1$	6	2	6	4	12	6	25	12
$1 < l_n \leq 1$	8	3	8	4	15	7	30	12
$2 < l_n \leq 3$	10	3	10	5	20	7	40	14
$3 < l_n \leq 4$	12	3	12	5	25	8	50	14
LIMIT DEVIATIONS AND TOLERANCES ACCORDING TO FACTORY STANDARD FOR GAUGE BLOCKS OVER 4 IN								
in	$\pm t_e$ μin	t_v μin	$\pm t_e$ μin	t_v μin	$\pm t_e$ μin	t_v μin	$\pm t_e$ μin	t_v μin
$4 < l_n \leq 6$	31	3	15	5	31	8	63	16
$6 < l_n \leq 8$	40	3	20	6	40	10	79	16
$8 < l_n \leq 10$	47	4	23	6	47	10	95	18
$10 < l_n \leq 12$	55	4	28	7	55	10	110	20
$12 < l_n \leq 16$	70	5	35	8	70	12	140	20
$16 < l_n \leq 20$	87	5	43	10	87	14	174	24



GAUGE BLOCKS

Gauge Block Set M32, M47, M88, M112 and M122.

Nominal lengths 1 ÷ 100 mm in steel, carbide or ceramic.

Grades K, 0, 1 and 2 available in all sets. Steel gauges to all grades with DAkkS certificate. Carbide or ceramic gauges to all grades with UKAS certificate.



ISO 3650

Limit deviations t_v , see Table

Tolerances t_v , see Table

see Table

Steel: highly alloyed, wear resistant.
Tungsten carbide: wear resistant and stable.
Ceramic: stabilised zirconia, extremely resistant to wear and scratches

Steel: $(11,5 \pm 1,0) \times 10^{-6} K^{-1}$
Tungsten carbide: $(4,23 \pm 0,1) \times 10^{-6} K^{-1}$
Ceramic: $(9,7 \pm 0,8) \times 10^{-6} K^{-1}$

Supplied individually or in sets

Wooden case

Identification number

Steel gauges to all grades with DAkkS certificate. Carbide or ceramic gauges to all grades with UKAS certificate

TESA Gauge Block Set M32, Metric

No		Grade
0651516027	Steel	K
0651515027	Steel	0
0651511027	Steel	1
0651512028	Steel	2

Set compositions

mm	Steps, mm	Pieces
1,005	–	1
1,01 ÷ 1,09	0,01	9
1,1 ÷ 1,9	0,1	9
1,0 ÷ 9,0	1,0	9
10, 20, 30, 60	–	4

TESA Gauge Block Set M47, Metric

No		Grade
0651516021	Steel	K
0651515021	Steel	0
0651511021	Steel	1
0651512021	Steel	2

Set compositions

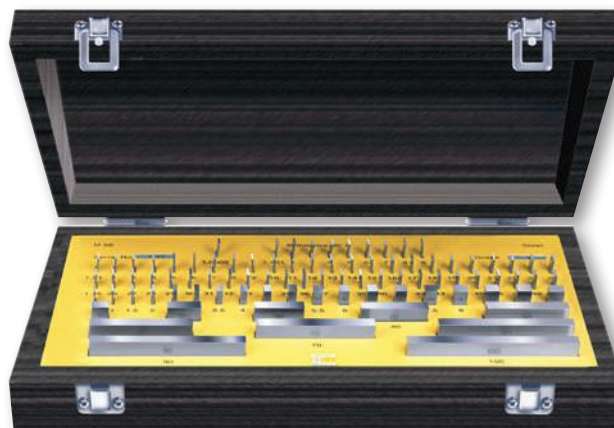
mm	Steps, mm	Pieces
1,005	–	1
1,01 ÷ 1,09	0,01	9
1,1 ÷ 1,9	0,1	9
1,0 ÷ 24,0	1,0	24
25 ÷ 100	25	4

TESA Gauge Block Set M88, Metric

No		Grade
0651516014	Steel	K
0651515014	Steel	0
0651511014	Steel	1
0651512014	Steel	2

Set compositions

mm	Steps, mm	Pieces
1,0005	–	1
1,001 ÷ 1,009	0,001	9
1,01 ÷ 1,49	0,01	49
0,5 ÷ 9,5	0,5	19
10 ÷ 100	10	10



TESA Gauge Block Set M112, Metric

No			Grade
0651516012	Steel	K	K
0651515012	Steel	0	0
0651511012	Steel	1	1
0651512012	Steel	2	2

Set compositions

mm	Steps, mm	Pieces
1,0005	–	1
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

TESA Gauge Block Set M122, Metric

No			Grade
0651516011	Steel	K	K
0651515011	Steel	0	0
0651511011	Steel	1	1
0651512011	Steel	2	2

Set compositions

mm	Steps, mm	Pieces
1,0005	–	1
1,001 ÷ 1,009	0,001	9
1,01 ÷ 1,49	0,01	49
1,6 ÷ 1,9	0,1	4
0,5 ÷ 24,5	0,5	49
30 ÷ 100	10	8
25,75	–	2



ISO 3650

Limit deviations t_s , see Table

Tolerances t_s , see Table

see Table

Steel: highly alloyed, wear resistant.
Tungsten carbide: wear resistant and stable.
Ceramic: stabilised zirconia, extremely resistant to wear and scratches

Steel: $(11,5 \pm 1,0) \times 10^{-6} K^{-1}$
Tungsten carbide: $(4,23 \pm 0,1) \times 10^{-6} K^{-1}$
Ceramic: $(9,7 \pm 0,8) \times 10^{-6} K^{-1}$

Supplied individually or in sets

Wooden case

Identification number

Steel gauges to all grades with DAkkS certificate.
Carbide or ceramic gauges to all grades with UKAS certificate



Special Versions

Available on request :

- Tungsten carbide gauge block set
- Ceramic gauge block set
- TESA maintenance kit





Diameter and thickness as shown in table



Optical flats with 2 flat measuring faces. No guaranty can be given for parallelism.



Wooden case



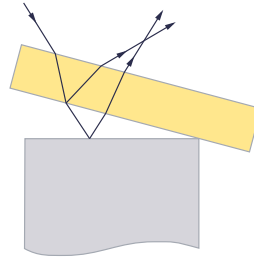
Declaration of conformity

ACCESSORIES FOR GAUGE BLOCKS

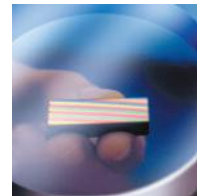
The interference lenses allow visual inspection of the surface of the gauge blocks.

TESA Optical Flats

Used for examining flatness and adhesion of gauge blocks or any other test pieces having flat faces with same high grade of accuracy.



No	mm	Thickness, mm	µm
02530050	50	15	0,125
02530075	75	20	0,125



Light source: 35 W sodium lamp, 89% monochromatic, colour yellow, wavelength 0,575 µm



Surface plate: 0,5 µm



Surface plate: 2,5 µm



406 x 406 x 355 mm (W x D x H)



Surface plate in hardened steel



Case in lacquered wood



See table



Suited carrying case

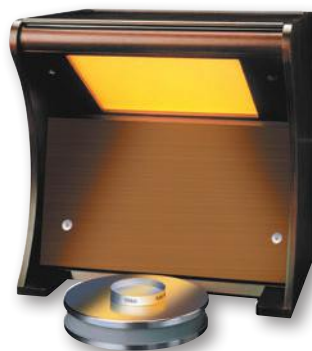
TESA Monochromatic Light Unit

For use with optical flats or optical parallels to measure both the flatness and parallelism of the measuring faces by interferometry.

Monochromatic light source providing high-contrast interference fringes.

This light unit uses a single wavelength so that bright/light fringes only are visible.

The light source at the rear of the case also permits a visual examination, e.g. with the aid of a knife-edge or bevelled straight edge.



No	=	V
0652500422	Universal monochromatic light	210 ÷ 230
STANDARD ACCESSORIES:		
0651570269	200 mm dia. surface plate, lapped and polished measuring face	
0652500424	Sodium light bulb (spare lamp)	



Brown & Sharpe Angle Gauges

For setting and calibration purposes – Smallest step to 15' (1/4°).



Width:
6,35 mm (1/4 in)
Length:
≥ 76,2 mm (3 in)



06769002 Precision angle block set

Set Composition
15' / 30' / 1° / 2° / 3° / 4° / 5° /
10° / 15° / 20° / 25° / 30°

Steel Balls – Brown & Sharpe Steel Balls

Steel balls are used to measure internal tapers and similar.



06769009 Steel ball set

1 ÷ 25

1

Pieces by Nominal Ø /total
pieces
2 / 50



PLUG AND RING GAUGES

The high-precision plug gauges (rods CARY) are specially adapted to inspect small diameters from 0,05 mm to 10 mm.

The ring gauges allow to inspect cylindrical parts such as pivots and spline shafts, diameters from 0,06 mm to 30 mm.

TESA CARY Plug Gauges, Diameters 0,050 to 0,300 mm – Type TDH

Due to their small size, these plug gauges are best handled using tweezers.

- EN ISO 1938
- Steel
- Accuracy: STANDARD (blue handle) $\pm 0,4 \mu\text{m}$. ETALON (yellow handle) $\pm 0,15 \mu\text{m}$
- Light alloy, coloured handle with engraved nominal diameter
- Inspection report available on request



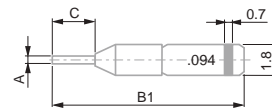
No	μm	mm	Step, μm
CJ1D1S2	$\pm 0,4 \mu\text{m}$	$0,050 \div 0,080$	2
CJ1D2S2	$\pm 0,4 \mu\text{m}$	$0,081 \div 0,309$	2
CJ1D1S0	$\pm 0,4 \mu\text{m}$	$0,050 \div 0,080$	1
CJ1D2S0	$\pm 0,4 \mu\text{m}$	$0,081 \div 0,309$	1
CJ1D1E2	$\pm 0,15 \mu\text{m}$	$0,050 \div 0,080$	2
CJ1D2E2	$\pm 0,15 \mu\text{m}$	$0,081 \div 0,309$	2
CJ1D1E0	$\pm 0,15 \mu\text{m}$	$0,050 \div 0,080$	1
CJ1D2E0	$\pm 0,15 \mu\text{m}$	$0,081 \div 0,309$	1

OPTIONAL ACCESSORIES:

- CJ1ED25N Wooden case for 25 TDH plug gauges
- CJ1XDL Plastic packaging for TDH/TLH/TXH plug gauges

TDH gauge sizes

A mm	B1 mm	B2 mm	B3 mm	C mm
$0,050 \div 0,100$	10,3	31,8	33,6	0,8
$0,100 \div 0,150$	10,5	32	34	1,0
$0,150 \div 0,200$	10,7	32,2	34,2	1,2
$0,200 \div 0,250$	10,9	32,4	34,4	1,4
$0,250 \div 0,300$	11,1	32,6	34,6	1,6



TESA CARY Plug Gauges, Diameters 0,050 to 0,300 mm – Type TLH

This type is identical to the TDH one, but with a 30 mm long handle.

- EN ISO 1938
- Steel
- Accuracy: STANDARD (blue handle) $\pm 0,4 \mu\text{m}$. ETALON (yellow handle) $\pm 0,15 \mu\text{m}$
- Light alloy, coloured handle with engraved nominal diameter
- Inspection report available on request



No	μm	mm	Step, μm
CJ1L1S2	$\pm 0,4 \mu\text{m}$	$0,050 \div 0,080$	2
CJ1L2S2	$\pm 0,4 \mu\text{m}$	$0,081 \div 0,309$	2
CJ1L1S0	$\pm 0,4 \mu\text{m}$	$0,050 \div 0,080$	1
CJ1L2S0	$\pm 0,4 \mu\text{m}$	$0,081 \div 0,309$	1
CJ1L1E2	$\pm 0,15 \mu\text{m}$	$0,050 \div 0,080$	2
CJ1L2E2	$\pm 0,15 \mu\text{m}$	$0,081 \div 0,309$	2
CJ1L1E0	$\pm 0,15 \mu\text{m}$	$0,050 \div 0,080$	1
CJ1L2E0	$\pm 0,15 \mu\text{m}$	$0,081 \div 0,309$	1

OPTIONAL ACCESSORIES:

- CJ1EL25N Wooden case for 25 TLH plug gauges
- CJ1XDL Plastic packaging for TDH/TLH/TXH plug gauges

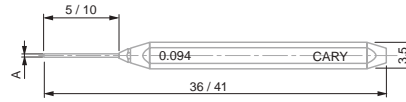
TLH gauge sizes

A mm	B1 mm	B2 mm	B3 mm	C mm
$0,050 \div 0,100$	10,3	31,8	33,6	0,8
$0,100 \div 0,150$	10,5	32	34	1,0
$0,150 \div 0,200$	10,7	32,2	34,2	1,2
$0,200 \div 0,250$	10,9	32,4	34,4	1,4
$0,250 \div 0,300$	11,1	32,6	34,6	1,6



TESA CARY Plug Gauges, Diameters 0,100 to 0,300 mm – Type TLH-5 – Type TLH-10

Length of 5 or 10 mm.



No			
	μm	mm	Step, μm
CJ1L5S2	± 0,5 μm	0,101 ÷ 0,309	2
CJ1L10S2	± 0,8 μm	0,101 ÷ 0,309	2
CJ1L5S0	± 0,5 μm	0,101 ÷ 0,309	1
CJ1L10S0	± 0,8 μm	0,101 ÷ 0,309	1
CJ1L5E2	± 0,2 μm	0,101 ÷ 0,309	2
CJ1L10E2	± 0,3 μm	0,101 ÷ 0,309	2
CJ1L5E0	± 0,2 μm	0,101 ÷ 0,309	1
CJ1L10E0	± 0,3 μm	0,101 ÷ 0,309	1



Accuracy:
STANDARD
(blue handle)
TLH-5 ± 0,5 μm,
TLH-10 ± 0,8 μm;
ETALON (yellow
handle)
TLH-5 ± 0,2 μm,
TLH-10 ± 0,3 μm



Light alloy,
coloured
handle
with engraved
nominal
diameter



Inspection
report available
on request

TESA CARY Plug Gauges, Diameters 0,050 to 0,300 mm – Type TTLH

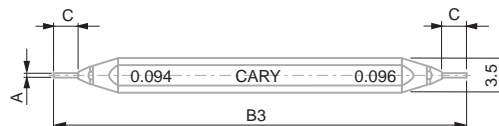
Double-ended plug gauges consisting of two TDH-type plug gauges.



No			
	μm	mm	Step, μm
CJ1LL1S0	± 0,4 μm	0,050 ÷ 0,080	1
CJ1LL2S0	± 0,4 μm	0,081 ÷ 0,309	1
CJ1LL1E0	± 0,15 μm	0,050 ÷ 0,080	1
CJ1LL2E0	± 0,15 μm	0,081 ÷ 0,309	1

TTLH gauge sizes

A mm	B1 mm	B2 mm	B3 mm	C mm		
0,050 ÷ 0,100	10,3	31,8	33,6	0,8		
0,100 ÷ 0,150	10,5	32	34	1,0		
0,150 ÷ 0,200	10,7	32,2	34,2	1,2		
0,200 ÷ 0,250	10,9	32,4	34,4	1,4		
0,250 ÷ 0,300	11,1	32,6	34,6	1,6		



Accuracy:
STANDARD
(blue handle)
± 0,4 μm.
ETALON (yellow
handle) ± 0,15 μm



Light alloy,
coloured
handle
with engraved
nominal
diameter



Inspection
report available
on request



EN ISO 1938

Steel

Accuracy: STANDARD (blue handle) $\pm 0,4 \mu\text{m}$ for diameters $0,3 \div 3 \text{ mm}$ or $\pm 0,5 \mu\text{m}$ for diameters $3 \div 10 \text{ mm}$. ETALON (yellow handle) $\pm 0,25 \mu\text{m}$ for diameters $0,3 \div 3 \text{ mm}$ or $\pm 0,3 \mu\text{m}$ for diameters $3 \div 10 \text{ mm}$.

Light alloy, coloured handle with engraved nominal diameter

Inspection report available on request

TESA CARY Steel Plug Gauges, Diameters 0,3 to 10 mm – Type TXH

Single-ended steel plug gauges (1 item).



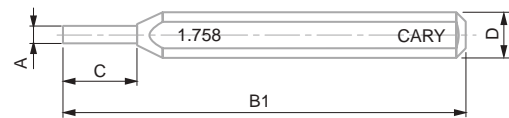
No	μm	mm	Step, μm
CJ1X1S10	$\pm 0,4$	$0,300 \div 1,509$	10
CJ1X2S10	$\pm 0,4$	$1,510 \div 3,509$	10
CJ1X3S10	$\pm 0,5$	$3,510 \div 10,000$	10
CJ1X1S2	$\pm 0,4$	$0,300 \div 1,509$	2
CJ1X2S2	$\pm 0,4$	$1,510 \div 3,509$	2
CJ1X1S0	$\pm 0,4$	$0,300 \div 1,509$	1
CJ1X2S0	$\pm 0,4$	$1,510 \div 3,509$	1
CJ1X3S0	$\pm 0,5$	$3,510 \div 10,000$	1
CJ1X1E10	$\pm 0,25$	$0,300 \div 1,509$	10
CJ1X2E10	$\pm 0,25$	$1,510 \div 3,509$	10
CJ1X3E10	$\pm 0,3$	$3,510 \div 10,000$	10
CJ1X1E2	$\pm 0,25$	$0,300 \div 1,509$	2
CJ1X2E2	$\pm 0,25$	$1,510 \div 3,509$	2
CJ1X1E0	$\pm 0,25$	$0,300 \div 1,509$	1
CJ1X2E0	$\pm 0,25$	$1,510 \div 3,509$	1
CJ1X3E0	$\pm 0,3$	$3,510 \div 10,000$	1

OPTIONAL ACCESSORIES:

CJ1PTXK	Box for 50 plug gauges from $\varnothing 0,300 \div 1,509 \text{ mm}$
CJ1MTXK	Box for 50 plug gauges from $\varnothing 0,510 \div 3,509 \text{ mm}$
CJ1GTXK	Box for 50 plug gauges from $\varnothing 3,510 \div 10,00 \text{ mm}$

Gauge sizes TXH

\varnothing	A mm	B1 mm	B2 mm	C mm	D mm
$0,30 \div 0,50$		38	41	3	3,5
$0,50 \div 1,00$		39	43	4	3,5
$1,00 \div 1,50$		40	45	5	3,5
$1,50 \div 2,00$		46	52	6	5
$2,00 \div 2,50$		47	54	7	5
$2,50 \div 3,00$		48	56	8	5
$3,00 \div 3,50$		49	58	9	5
$3,50 \div 4,00$		60	70	10	8
$4,00 \div 5,00$		61	72	11	8
$5,00 \div 10,00$		62	74	12	8



EN ISO 1938

Steel

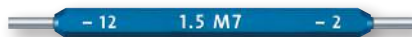
Accuracy: STANDARD (blue handle) $\pm 0,4 \mu\text{m}$ for diameters $0,3 \div 3 \text{ mm}$ or $\pm 0,5 \mu\text{m}$ for diameters $3 \div 10 \text{ mm}$. ETALON (yellow handle) $\pm 0,25 \mu\text{m}$ for diameters $0,3 \div 3 \text{ mm}$ or $\pm 0,3 \mu\text{m}$ for diameters $3 \div 10 \text{ mm}$.

Light alloy, coloured handle with engraved nominal diameter

Inspection report available on request

TESA CARY Steel Plug Gauges, Diameters 0,3 to 10 mm – Type TTXH

Steel plug gauges, type GO/NO GO (2 items).



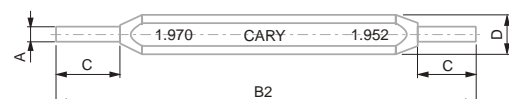
No	μm	mm	Step, μm
CJ1XX1S0	$\pm 0,4$	$0,300 \div 1,509$	1
CJ1XX2S0	$\pm 0,4$	$1,510 \div 3,509$	1
CJ1XX3S0	$\pm 0,5$	$3,510 \div 6,509$	1
CJ1XX4S0	$\pm 0,5$	$6,510 \div 10,000$	1
CJ1XX1E0	$\pm 0,25$	$0,300 \div 1,509$	1
CJ1XX2E0	$\pm 0,25$	$1,510 \div 3,509$	1
CJ1XX3E0	$\pm 0,3$	$3,510 \div 6,509$	1
CJ1XX4E0	$\pm 0,3$	$6,510 \div 10,000$	1

OPTIONAL ACCESSORIES:

CJ1PTXK	Box for 50 plug gauges from $\varnothing 0,300 \div 1,509 \text{ mm}$
CJ1MTXK	Box for 50 plug gauges from $\varnothing 0,510 \div 3,509 \text{ mm}$
CJ1GTXK	Box for 50 plug gauges from $\varnothing 3,510 \div 10,00 \text{ mm}$

TTXH gauge sizes

\varnothing	A mm	B1 mm	B2 mm	C mm	D mm
$0,30 \div 0,50$		38	41	3	3,5
$0,50 \div 1,00$		39	43	4	3,5
$1,00 \div 1,50$		40	45	5	3,5
$1,50 \div 2,00$		46	52	6	5
$2,00 \div 2,50$		47	54	7	5
$2,50 \div 3,00$		48	56	8	5
$3,00 \div 3,50$		49	58	9	5
$3,50 \div 4,00$		60	70	10	8
$4,00 \div 5,00$		61	72	11	8
$5,00 \div 10,00$		62	74	12	8



TESA CARY Tungsten Carbide Plug Gauges, Diameters 0,3 to 6 mm – Type TCH

Single-ended tungsten carbide plug gauges (1 item).



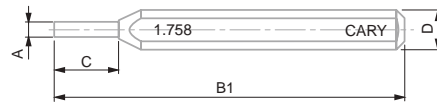
No				
	µm	mm	Step, µm	
CJ1C1S10	± 0,4	0,300 ÷ 1,509	10	
CJ1C2S10	± 0,4	1,510 ÷ 3,509	10	
CJ1C3S10	± 0,5	3,510 ÷ 6,000	10	
CJ1C1S0	± 0,4	0,300 ÷ 1,509	1	
CJ1C2S0	± 0,4	1,510 ÷ 3,509	1	
CJ1C3S0	± 0,5	3,510 ÷ 6,000	1	
CJ1C1E10	± 0,25	0,300 ÷ 1,509	10	
CJ1C2E10	± 0,25	1,510 ÷ 3,509	10	
CJ1C3E10	± 0,3	3,510 ÷ 6,000	10	
CJ1C1E0	± 0,25	0,300 ÷ 1,509	1	
CJ1C2E0	± 0,25	1,510 ÷ 3,509	1	
CJ1C3E0	± 0,3	3,510 ÷ 6,000	1	

OPTIONAL ACCESSORIES:

- CJ1PTXK Box for 50 plug gauges from Ø 0,300 ÷ 1,509 mm
- CJ1MTXK Box for 50 plug gauges from Ø 0,510 ÷ 3,509 mm
- CJ1GTXK Box for 50 plug gauges from Ø 3,510 ÷ 10,00 mm

TCH Plug gauge sizes

		A mm	B1 mm	B2 mm	C mm	D mm
0,30 ÷ 0,50			38	41	3	3,5
0,50 ÷ 1,00			39	43	4	3,5
1,00 ÷ 1,50			40	45	5	3,5
1,50 ÷ 2,00			46	52	6	5
2,00 ÷ 2,50			47	54	7	5
2,50 ÷ 3,00			48	56	8	5
3,00 ÷ 3,50			49	58	9	5
3,50 ÷ 4,00			60	70	10	8
4,00 ÷ 5,00			61	72	11	8
5,00 ÷ 10,00			62	74	12	8



TESA CARY Tungsten Carbide Plug Gauges, Diameters 0,3 to 6 mm – Type TTCH

Tungsten carbide plug gauges, type GO/NO GO (2 items).



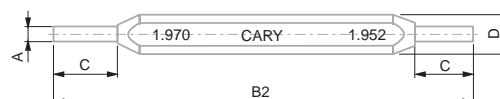
No				
	µm	mm	Step, µm	
CJ1CC1S0	± 0,4	0,300 ÷ 1,509	1	
CJ1CC2S0	± 0,4	1,510 ÷ 3,509	1	
CJ1CC3S0	± 0,5	3,510 ÷ 6,000	1	
CJ1CC1E0	± 0,25	0,300 ÷ 1,509	1	
CJ1CC2E0	± 0,25	1,510 ÷ 3,509	1	
CJ1CC3E0	± 0,3	3,510 ÷ 6,000	1	

CONSISTING OF:

- CJ1PTXK Box for 50 plug gauges from Ø 0,300 ÷ 1,509 mm
- CJ1MTXK Box for 50 plug gauges from Ø 0,510 ÷ 3,509 mm
- CJ1GTXK Box for 50 plug gauges from Ø 3,510 ÷ 10,00 mm

Plug gauge sizes TTCH

		A mm	B1 mm	B2 mm	C mm	D mm
0,30 ÷ 0,50			38	41	3	3,5
0,50 ÷ 1,00			39	43	4	3,5
1,00 ÷ 1,50			40	45	5	3,5
1,50 ÷ 2,00			46	52	6	5
2,00 ÷ 2,50			47	54	7	5
2,50 ÷ 3,00			48	56	8	5
3,00 ÷ 3,50			49	58	9	5
3,50 ÷ 4,00			60	70	10	8
4,00 ÷ 5,00			61	72	11	8
5,00 ÷ 10,00			62	74	12	8



EN ISO 1938

Tungsten carbide

Accuracy:
STANDARD (black handle) ± 0,4 µm for diameters 0,3 ÷ 3 mm or ± 0,5 µm for diameters 3 ÷ 6 mm.
ETALON (red handle) ± 0,25 µm for diameters 0,3 ÷ 3 mm or ± 0,3 µm for diameters 3 ÷ 6 mm.



Light alloy, coloured handle with engraved nominal value



Inspection report available on request



EN ISO 1938

Tungsten carbide

Accuracy:
STANDARD (black handle) ± 0,4 µm for diameters 0,3 ÷ 3 mm or ± 0,5 µm for diameters 3 ÷ 6 mm.
ETALON (red handle) ± 0,25 µm for diameters 0,3 ÷ 3 mm or ± 0,3 µm for diameters 3 ÷ 6 mm.



Light alloy, coloured handle with engraved nominal value



Inspection report available on request

TESA CARY Measuring Pins in Steel, Ø 0,10 to 10 mm, Type PNH with Handle, for Thread Measurement

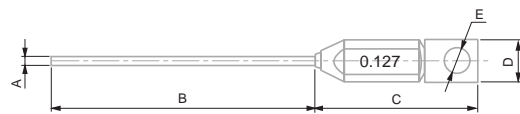


- EN ISO 1938
- Hardened steel, ground and lapped
- Accuracy: STANDARD (blue handle) $\pm 0,8 \mu\text{m}$ for diameters 0,1 ÷ 10 mm. ETALON (yellow handle) $\pm 0,3 \mu\text{m}$ for diameters 0,1 ÷ 6 mm or $\pm 0,5 \mu\text{m}$ for diameters 6 ÷ 10 mm
- Aluminium, coloured handle with engraved nominal diameter
- Inspection report available on request

No			
	μm	mm	Step, μm
CJ1N1S	$\pm 0,8$	0,10 ÷ 0,15	10
CJ1N2S	$\pm 0,8$	0,16 ÷ 0,50	10
CJ1N3S	$\pm 0,8$	0,51 ÷ 4,00	10
CJ1N4S	$\pm 0,8$	4,01 ÷ 10,00	10
CJ1N1E	$\pm 0,3$	0,10 ÷ 0,15	10
CJ1N2E	$\pm 0,3$	0,16 ÷ 0,50	10
CJ1N3E	$\pm 0,3$	0,51 ÷ 4,00	10
CJ1N4E	$\pm 0,5$	4,01 ÷ 10,00	10

Plug gauge sizes PNH

A mm	B mm	C mm	D mm	E mm	
0,10 ÷ 0,15	20	9,5	1,8	0,9	
0,16 ÷ 0,30	32	9,5	1,8	0,9	
0,31 ÷ 1,10	32	14	3,5	1,5	
1,11 ÷ 10,00	32	14	5	2	



OPTIONAL ACCESSORIES:

- CJ1N50 Suited clear box for 50 PNH thread wires
- CJ1N3 Carrying tube for 3 PNH thread wires
- CJ1NGC Box engraving for each diameter
- CJ1NLSM Thread wire alone, without handle

Accessories for Plug Gauges and Setting Rings



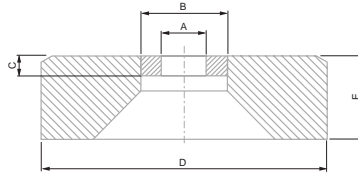
- CJ1ED25N Wooden case for 25 TDH plug gauges
- CJ1EL25N Wooden case for 25 TLH plug gauges
- CJ1XDL Plastic packaging for TDH/TLH/TXH plug gauges
- CJ1PTXK Box for 50 plug gauges from Ø 0,300 ÷ 1.509 mm
- CJ1MTXK Box for 50 plug gauges from Ø 0,510 ÷ 3.509 mm
- CJ1GTXK Box for 50 plug gauges from Ø 3,510 ÷ 10,00 mm
- CJ1N50 Suited clear box for 50 PNH thread wires
- CJ1N3 Carrying tube for 3 PNH thread wires
- CJ1NGC Box engraving for each diameter
- CJ1NLSM Thread wire alone, without handle



TESA CARY Carbide Ring Gauges, Diameters 0,060 to 5 mm, Type BCH

Type BCH 1 Carbide ring gauge Type BIMHm

2 BCH carbide ring gauges mounted in pairs on plates for use as GO/NO GO type gauges.



No	=	∅	A
		mm	Step, µm
CJ1B1C	BCH	0,060 ÷ 0,150	1
CJ1B2C	BCH	0,151 ÷ 1,500	1
CJ1B3C	BCH	1,501 ÷ 2,500	1
CJ1B4C	BCH	2,501 ÷ 4,000	1
CJ1B5C	BCH	4,001 ÷ 4,999	1
CJ1B1IM	BIMHm	0,060 ÷ 0,150	1
CJ1B2IM	BIMHm	0,151 ÷ 1,500	1
CJ1B3IM	BIMHm	1,501 ÷ 2,500	1
CJ1B4IM	BIMHm	2,501 ÷ 4,000	1
CJ1B5IM	BIMHm	4,001 ÷ 4,999	1

Ring gauges sizes BCH

∅	Ring gauges			Outer rings	
	A mm	B mm	C mm	D mm	E mm
0,060 ÷ 0,50	1,8	0,5	8	2,5	
0,50 ÷ 0,75	1,8	0,5	8	2,5	
0,75 ÷ 1,25	2,4	0,75	8	2,5	
1,25 ÷ 1,50	3	0,9	8	2,5	
1,50 ÷ 2,50	5	1,5	12	4	
2,50 ÷ 4,00	8	2,4	16	5,5	
4,00 ÷ 5,00	10	3	20	7	



EN ISO 1938
Factory standard



∅ 0,015 ÷ 3 mm:
± 0,6 µm
∅ 3 ÷ 4,999 mm:
± 0,75 µm



Tungsten carbide



Inserted into a blue coloured, light alloy ring for easier handling. Also with engraved nominal diameter of the ring



Inspection report from 2 mm available on request

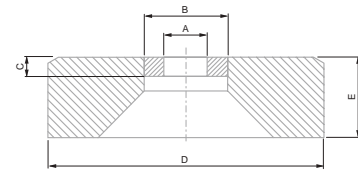
TESA CARY Steel Ring Gauges, Diameters 0,151 to 5 mm, Type BAH

Designed for inspecting cylindrical components such as pivots or axles.

Used to determine external diameters.

Type BAH 1 steel ring gauge.

Type BIMHa 2 BAH steel ring gauges mounted in pairs on plates for use as GO/NO GO type gauges



No	=	∅	A
		mm	Step, µm
CJ1B2A	BAH	0,151 ÷ 1,500	1
CJ1B3A	BAH	1,501 ÷ 2,500	1
CJ1B4A	BAH	2,501 ÷ 4,000	1
CJ1B5A	BAH	4,001 ÷ 4,999	1
CJ1B2IA	BIMHa	0,151 ÷ 1,500	1
CJ1B3IA	BIMHa	1,501 ÷ 2,500	1
CJ1B4IA	BIMHa	2,501 ÷ 4,000	1
CJ1B5IA	BIMHa	4,001 ÷ 4,999	1

Ring gauge sizes BAH

∅	Ring gauges			Outer rings	
	A mm	B mm	C mm	D mm	E mm
0,060 ÷ 0,50	1,4	0,35	8	2,5	
0,50 ÷ 0,75	1,8	0,5	8	2,5	
0,75 ÷ 1,25	2,4	0,75	8	2,5	
1,25 ÷ 1,50	3	0,9	8	2,5	
1,50 ÷ 2,50	5	1,5	12	4	
2,50 ÷ 4,00	8	2,4	16	5,5	
4,00 ÷ 5,00	10	3	20	7	



EN ISO 1938
Factory standard



∅ 0,15 ÷ 3 mm:
± 0,6 µm
∅ 3 ÷ 4,999 mm:
± 0,75 µm



Steel



Inserted into a light alloy, blue coloured ring for easier handling. Also with engraved nominal diameter.



Inspection report from 2 mm available on request



EN ISO 1938
Factory standard

5 ÷ 10 mm dia.:
± 1,25 µm
10 ÷ 18 mm dia.:
± 1,5 µm
18 ÷ 29,99 mm dia.:
± 2 µm

Steel

Inserted into a light alloy, grey coloured ring for easier handling. Also with engraved nominal diameter

Inspection report available on request

TESA CARY Steel Ring Gauges, Diameters 5 to 30 mm, Type BOMa

Type BOMa, 1 steel ring gauge.

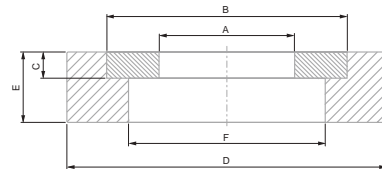
Type BBOMa, 2 BOMa steel ring gauges mounted in pairs on plates for use as GO/NO GO type gauges.

No	=	∅	A
		mm	Step, µm
CJ1BOA1	BOMa	5,00 ÷ 9,99	1
CJ1BOA2	BOMa	10,00 ÷ 11,99	1
CJ1BOA3	BOMa	12,00 ÷ 13,99	1
CJ1BOA4	BOMa	14,00 ÷ 15,99	1
CJ1BOA5	BOMa	16,00 ÷ 17,99	1
CJ1BOA6	BOMa	18,00 ÷ 19,99	1
CJ1BOA7	BOMa	20,00 ÷ 22,99	1
CJ1BOA8	BOMa	23,00 ÷ 25,99	1
CJ1BOA9	BOMa	26,00 ÷ 29,99	1
CJ1BBA1	BBOMa	5,00 ÷ 9,99	1
CJ1BBA2	BBOMa	10,00 ÷ 11,99	1
CJ1BBA3	BBOMa	12,00 ÷ 13,99	1
CJ1BBA4	BBOMa	14,00 ÷ 15,99	1
CJ1BBA5	BBOMa	16,00 ÷ 17,99	1
CJ1BBA6	BBOMa	18,00 ÷ 19,99	1
CJ1BBA7	BBOMa	20,00 ÷ 22,99	1
CJ1BBA8	BBOMa	23,00 ÷ 25,99	1
CJ1BBA9	BBOMa	26,00 ÷ 29,99	1



Ring gauges sizes BOMa

∅	Ring gauges	Outer rings			
A mm	B mm	C mm	D mm	E mm	F mm
5 ÷ 10	18	2	30	4	10,5
10 ÷ 14	24	2,5	38	5	15
14 ÷ 18	30	3	46	6	19
18 ÷ 24	38	3,5	56	8	25
24 ÷ 30	46	4	68	8	31



EN ISO 1938
Factory standard

∅ 5 ÷ 10 mm:
± 1,25 µm
∅ 10 ÷ 18 mm:
± 1,5 µm
∅ 18 ÷ 29,99 mm:
± 2 µm
Better quality upon request (Q5)
∅ 5 ÷ 10 mm: ± 1 µm
∅ 10 ÷ 18 mm: ± 1,2 µm
∅ 18 ÷ 29,99 mm: ± 1,5 µm

Tungsten carbide

Inserted into a light alloy, grey coloured ring for easier handling. Also with engraved nominal diameter.

Inspection report available on request

TESA CARY Tungsten Carbide Ring Gauges, Diameters 5 to 30 mm, Type BOMm

Type BOMm, 1 Tungsten carbide ring gauge.

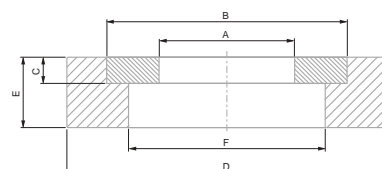
Type BBOMm, 2 BOMm carbide ring gauges mounted in pairs on plates for use as GO/NO GO plug gauges

No	=	∅	A
		mm	Step, µm
CJ1BOM1	BOMm	5,00 ÷ 9,99	1
CJ1BOM2	BOMm	10,00 ÷ 11,99	1
CJ1BOM3	BOMm	12,00 ÷ 13,99	1
CJ1BOM4	BOMm	14,00 ÷ 15,99	1
CJ1BOM5	BOMm	16,00 ÷ 17,99	1
CJ1BOM6	BOMm	18,00 ÷ 19,99	1
CJ1BOM7	BOMm	20,00 ÷ 22,99	1
CJ1BOM8	BOMm	23,00 ÷ 25,99	1
CJ1BOM9	BOMm	26,00 ÷ 29,99	1
CJ1BBM1	BBOMm	5,00 ÷ 9,99	1
CJ1BBM2	BBOMm	10,00 ÷ 11,99	1
CJ1BBM3	BBOMm	12,00 ÷ 13,99	1
CJ1BBM4	BBOMm	14,00 ÷ 15,99	1
CJ1BBM5	BBOMm	16,00 ÷ 17,99	1
CJ1BBM6	BBOMm	18,00 ÷ 19,99	1
CJ1BBM7	BBOMm	20,00 ÷ 22,99	1
CJ1BBM8	BBOMm	23,00 ÷ 25,99	1
CJ1BBM9	BBOMm	26,00 ÷ 29,99	1



Ring gauges sizes BOMm

∅	Ring gauges	Outer rings			
A mm	B mm	C mm	D mm	E mm	F mm
5 ÷ 10	18	2	30	4	10,5
10 ÷ 14	24	2,5	38	5	15
14 ÷ 18	30	3	46	6	19
18 ÷ 24	38	3,5	56	8	25
24 ÷ 30	46	4	68	8	31



Accessories for Plug Gauges



No	=
CJ1ED25N	Wooden case for 25 TDH plug gauges
CJ1EL25N	Wooden case for 25 TLH plug gauges
CJ1XDL	Plastic case for TDH/TLH/TXH plug gauges
CJ1PTXK	Box for 50 plugs 0,300 ÷ 1.509 mm
CJ1MTXK	Box for 50 plugs 0,510 ÷ 3.509 mm
CJ1GTXK	Box for 50 plugs 3,510 ÷ 10,000 mm
CJ1N50	Suited clear box for 50 PNH thread wires
CJ1N3	Carrying tube for 3 PNH thread wires
CJ1NGC	Box engraving for each diameter
CJ1NLSM	Thread wire alone, without handle
CJ1CEB3	Suited case for 3 rings from Ø 0,06 ÷ 1,50 mm
CJ1CB40	Suited case for 12 rings from Ø 1,50 ÷ 2,50 mm
CJ1CB24	Suited case for 24 rings from Ø 2,50 ÷ 4,00 mm
CJ1CB18	Suited case for 12 rings from Ø 4,00 ÷ 5,00 mm
CJ128021010A	Aluminium resting plate for 2 rings from Ø 0,06 ÷ 1,50 mm
CJ128021011A	Aluminium resting plate for 2 rings from Ø 1,51 ÷ 2,50 mm
CJ128021012A	Aluminium resting plate for 2 rings from Ø 2,51 ÷ 4,00 mm
CJ128021013A	Aluminium resting plate for 2 rings from Ø 4,01 ÷ 5,0 mm
CJ1BAA	Bearing ring (one for each ring gauge from Ø 0,06 ÷ 5,00 mm)
CJ1CEB4	Suited case for 4 rings from Ø 0,06 ÷ 1,50 mm
CJ1EB12	Suited case for 12 rings from Ø 0,06 ÷ 1,50 mm
CJ1BBA	Resting ring (one item for each ring gauge from Ø 5,00 ÷ 30,00 mm)

