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 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 ± 1,0) x 10-6 K-1*

Tungsten Carbide

Gauge blocks in tungsten carbide are 10 times as much resistant 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 ± 0,1) x 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 sweaty hands, among others.
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 ± 0,8) x 10^{-6} K^{-1}*

Which Grade Do You Need?

Grade 2
*These gauge blocks are commonly used as «**Working Standards**» in inspection rooms within the production 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 the production.*

Grade 0
*These gauge blocks are designated for use as «**Company Standards**» in calibration laboratories or environmentally controlled inspection room 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 measuring instruments as well.*

Grade 00
The new standard ISO 3650 does no longer take 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 Comité Français d'Accréditation (COFRAC) depending on the manufacturer.

Accreditation is the authentic 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). And this 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*

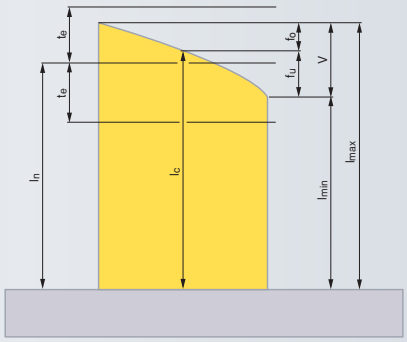
Limit Deviations and Tolerances

Limit deviations t_e

Tolerances t_v

Flatness tolerance t_f

Nominal length	Calibration grade and other grades			
	K	0	1	2
	Flatness tolerance t_f			
mm	µm	µm	µm	µm
0,5 ≤ ln ≤ 150	0,05	0,1	0,15	0,25
150 < ln ≤ 500	0,1	0,15	0,18	0,25
500 < ln ≤ 1000	0,15	0,18	0,2	0,25



Nominal length l_n. Central length l_c.
Variation v with f_o and f_u.
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	± t_e µm	t_v µm	± t_e µm	t_v µm	± t_e µm	t_v µm	± t_e µm	t_v µm
0,5 ≥ ln ≤ 10	0,2	0,05	0,12	0,1	0,2	0,16	0,45	0,3
10 < ln ≤ 25	0,3	0,05	0,14	0,1	0,3	0,16	0,6	0,3
25 < ln ≤ 50	0,4	0,06	0,2	0,1	0,4	0,18	0,8	0,3
50 < ln ≤ 75	0,5	0,06	0,25	0,12	0,5	0,18	1	0,35
75 < ln ≤ 100	0,6	0,07	0,3	0,12	0,6	0,2	1,2	0,35
100 < ln ≤ 150	0,8	0,08	0,4	0,14	0,8	0,2	1,6	0,4
150 < ln ≤ 200	1	0,09	0,5	0,16	1	0,25	2	0,4
200 < ln ≤ 250	1,2	0,1	0,6	0,16	1,2	0,25	2,4	0,45
250 < ln ≤ 300	1,4	0,1	0,7	0,18	1,4	0,25	2,8	0,5
300 < ln ≤ 400	1,8	0,12	0,9	0,2	1,8	0,3	3,6	0,5
400 < ln ≤ 500	2,2	0,14	1,1	0,25	2,2	0,35	4,4	0,6
500 < ln ≤ 600	2,6	0,16	1,3	0,25	2,6	0,4	5,0	0,7
600 < ln ≤ 700	3	0,18	1,5	0,3	3	0,45	6,0	0,7
700 < ln ≤ 800	3,4	0,2	1,7	0,3	3,4	0,5	6,5	0,8
800 < ln ≤ 900	3,8	0,2	1,9	0,35	3,8	0,5	7,5	0,9
900 < ln ≤ 1000	4,2	0,25	2,0	0,4	4,2	0,6	8	1
Limit deviations and tolerances according to BS 4311, Part 1:1993								
in	*± t_e µin*	*t_v µin*	*± t_e µin*	*t_v µin*	*± t_e µin*	*t_v µin*	*± t_e µin*	*t_v µin*
ln ≤ 0,4	*5*	*2*	*5*	*4*	*10*	*6*	*20*	*12*
0,4 < ln ≤ 1	*6*	*2*	*6*	*4*	*12*	*6*	*25*	*12*
1 < ln ≤ 2	*8*	*3*	*8*	*4*	*15*	*7*	*30*	*12*
2 < ln ≤ 3	*10*	*3*	*10*	*5*	*20*	*7*	*40*	*14*
3 < ln ≤ 4	*12*	*3*	*12*	*5*	*25*	*8*	*50*	*14*
Limit deviations and tolerances according to factory standard for gauge blocks over 4 in								
in	*± t_e µin*	*t_v µin*	*± t_e µin*	*t_v µin*	*± t_e µin*	*t_v µin*	*± t_e µin*	*t_v µin*
4< ln ≤ 6	*31*	*3*	*15*	*5*	*31*	*8*	*63*	*16*
6< ln ≤ 8	*40*	*3*	*20*	*6*	*40*	*10*	*79*	*16*
8< ln ≤ 10	*47*	*4*	*23*	*6*	*47*	*10*	*95*	*18*
10< ln ≤ 12	*55*	*4*	*28*	*7*	*55*	*10*	*110*	*20*
12< ln ≤ 16	*70*	*5*	*35*	*8*	*70*	*12*	*140*	*20*
16< ln ≤ 20	*87*	*5*	*43*	*10*	*87*	*14*	*174*	*24*

TESA Gauge Block Set, metric

Nominal lengths 1 to 100 mm

✓

ISO 3650

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

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

Limit deviations t_e on page K-4

Tolerances t_v on page K-4

See page K-4

Supplied individually or in sets

Wooden case

Identification number

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

Steel	Carbide	Ceramic		Set compositions		
				mm	Steps mm	Pieces
32-Piece Set – M32						
0651516027	**0651526027**	**0651536027**	K	1,005		1
0651515027	**0651525027**	**0651535027**	0	1,01 ÷ 1,09	0,01	9
0651511027	**0651521027**	**0651531027**	1	1,1 ÷ 1,9	0,1	9
0651512028	**0651522027**	**0651532027**	2	1,0 ÷ 9,0	1,0	9
				10, 20, 30, 60		4
47-Piece Set – M47						
0651516021	**0651526021**	**0651536021**	K	1,005		1
0651515021	**0651525021**	**0651535021**	0	1,01 ÷ 1,09	0,01	9
0651511021	**0651521021**	**0651531021**	1	1,1 ÷ 1,9	0,1	9
0651512021	**0651522021**	**0651532021**	2	1,0 ÷ 24,0	1,0	24
				25 ÷ 100	25	4
88-Piece Set – M88						
0651516014	**0651526014**	**0651536014**	K	1,0005		1
0651515014	**0651525014**	**0651535014**	0	1,001 ÷ 1,009	0,001	9
0651511014	**0651521014**	**0651531014**	1	1,01 ÷ 1,49	0,01	49
0651512014	**0651522014**	**0651532014**	2	0,5 ÷ 9,5	0,5	19
				10 ÷ 100	10	10
112-Piece Set – M112						
0651516012	**0651526012**	**0651536012**	K	1,0005		1
0651515012	**0651525012**	**0651535012**	0	1,001 ÷ 1,009	0,001	9
0651511012	**0651521012**	**0651531012**	1	1,01 ÷ 1,49	0,01	49
0651512012	**0651522012**	**0651532012**	2	0,5 ÷ 24,5	0,5	49
				25 ÷ 100	25	4
122-Piece Set – M122						
0651516011	**0651526011**	**0651536011**	K	1,0005		1
0651515011	**0651525011**	**0651535011**	0	1,001 ÷ 1,009	0,001	9
0651511011	**0651521011**	**0651531011**	1	1,01 ÷ 1,49	0,01	49
0651512011	**0651522011**	**0651532011**	2	1,6 ÷ 1,9	0,1	4
				0,5 ÷ 24,5	0,5	49
				30 ÷ 100	10	8
				25, 75		2

TESA Maintenance Kit

Full set in a wooden case

Nº	
0652500450	TESA maintenance kit for gauge blocks

Supplied with the following items:

Nº		
0652500452	1	Arkansas stone
0652500453	1	Soft tipped tweezers
0652500454	1	Pneumatic vacuum pen
0652500455	1	Nanofibre cleaning cloth
0652500456	1	Pair of cotton gloves
0652500457	1	Acid-free solvent
0652500458	1	Box with protective grease
02530050	1	Optical flat, 50 mm dia.
0652500460	1	Solvent container
0652500461	1	Dust remover
0652500462	1	Dust-brush
0652500463	1	Bottle of super-fine, acid-free oil
0652500451	1	Wooden case

TESA Optical flats

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

✓

✓

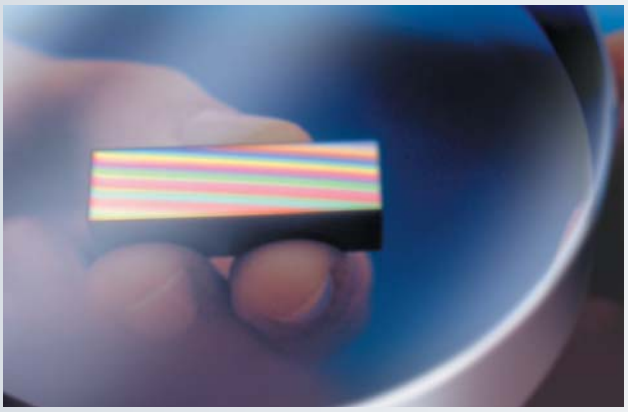
Diameter and thickness as shown in table

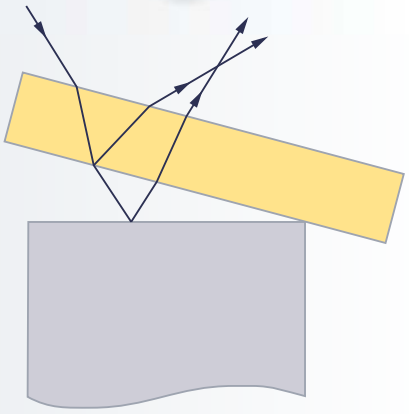
Optical flats with 2 flat measuring faces. No guaranty can be given for parallelism.

Wooden case

Declaration of conformity

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





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. .

✓

Case in lacquered wood

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

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

See table

Surface plate in hardened steel

Surface plate: 0,5 µm

Surface plate: 2,5 µm

Suited carrying case

№		
0652500422	210 ÷ 230	
Accessories		
0651570269	200 mm dia. surface plate. Lapped and polished measuring face	
0652500424	Spare lamp (sodium)	

Brown & Sharpe Angle Gauges

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

✓

Hardened steel

30”

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

Suited plastic case

		Set composition					
06769002	1 Set = 12 precision squares	15’	30’	1°	2°	3°	4°
		5°	10°	15°	20°	25°	30°

Steel Balls

Steel balls are used to measure internal tapers and the like.

TESA Steel Balls

✓

Special steel, hardened

(11,5 ± 1,0) x 10^{-6} K^{-1}

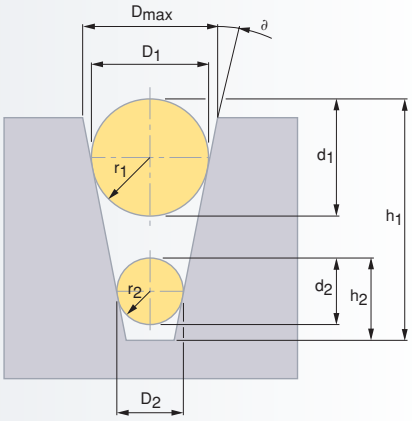
Max. perm. deviation from the nominal size: 20 µm or 0.0008 in.
Uniformity of size within a set of three balls having the same nominal size: 1 µm or 0.00004 in

± 0,5 µm or ± 0.00002 in

Full set or set including three balls of same nominal size

Wooden case

UKAS calibration certificate



№ mm		mm	Step mm	Pieces/ Nominal size	Total pieces
0651500950	Steel ball set	1 ÷ 25	1	3	75
0651500951	Steel ball set	1,5 ÷ 12,5	1	3	36

Brown & Sharpe Steel Balls

✓

Special steel, hardened

3 µm

Not available individually

Plastic case

№ mm		mm	Step mm	Pieces/ Nominal size	Total pieces
06769009	Steel ball set	1 ÷ 25	1	2	50

Plug Gauges

The best and quickest method for inspecting bores with small diameters.

✓ EN ISO 1938 Factory standard

Steel

Light alloy, coloured handle with engraved nominal diameter

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

Inspection report available on request

TESA CARY plug gauges with diameters from 0,050 up to 0,300 mm

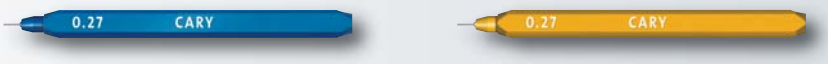
Type TDH

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

	STANDARD ±0,4 µm		ETALON ±0,15 µm	
mm	Step 2 µm	1 µm	Step 2 µm	1 µm
0,050 ÷ 0,080	**CJ1D1S2**	**CJ1D1S0**	**CJ1D1E2**	**CJ1D1E0**
0,081 ÷ 0,309	**CJ1D2S2**	**CJ1D2S0**	**CJ1D2E2**	**CJ1D2E0**

Type TLH

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



	STANDARD ± 0,4 µm		ETALON ± 0,15 µm	
mm	Step 2 µm	1 µm	Step 2 µm	1 µm
0,050 ÷ 0,080	**CJ1L1S2**	**CJ1L1S0**	**CJ1L1E2**	**CJ1L1E0**
0,081 ÷ 0,309	**CJ1L2S2**	**CJ1L2S0**	**CJ1L2E2**	**CJ1L2E0**

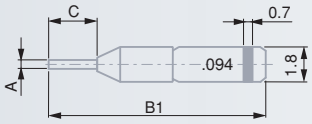
Type TLH-5 or TLH-10 with a length of 5 or 10 mm

TLH-5		STANDARD ± 0,5 µm		ETALON ± 0,2 µm	
TLH-10		STANDARD ± 0,8 µm		ETALON ± 0,3 µm	
	mm	Step 2 µm	1 µm	Step 2 µm	1 µm
TLH-5	0,101 ÷ 0,309	**CJ1L5S2**	**CJ1L5S0**	**CJ1L5E2**	**CJ1L5E0**
TLH-10	0,101 ÷ 0,309	**CJ1L10S2**	**CJ1L10S0**	**CJ1L10E2**	**CJ1L10E0**

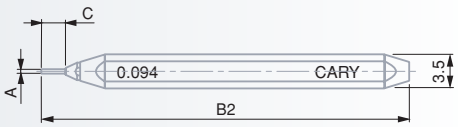
Type TTLH

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

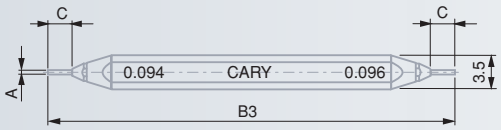
	STANDARD ± 0,4 µm		ETALON ± 0,15 µm	
mm	Step 2 µm	1 µm	Step 2 µm	1 µm
0,050 ÷ 0,080	–	**CJ1LL1S0**	–	**CJ1LL1E0**
0,081 ÷ 0,309	–	**CJ2LL2S0**	–	**CJ1LL2E0**



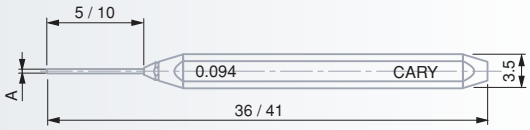
TDH



TLH



TTLH



TLH-5/TLH-10

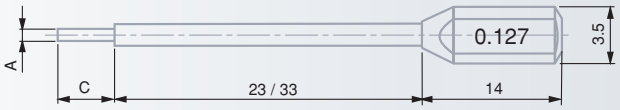
TDH/TLH/TTLH gauge sizes

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

Standard accessories

CJ1ED25N	ED25N	Wooden case for 25 TDH plug gauges
CJ1EL25N	EL25N	Wooden case for 25 TLH plug gauges
CJ1XDL	XDL	Plastic case for TDH/TLH/TXH plug gauges

Type TZH for deep bores with diameters from 0,050 up to 0,300 mm



These plug gauges are mounted on holders for checking hard-to-reach bores.

When ordering, please specify:

- plug gauge diameter (0,050 to 0,300 mm)
- desired quality (STANDARD or ETALON)
- holder length (23 or 33 mm)

TESA CARY steel plug gauges with diameters from 0,3 up to 10 mm

Type TXH

Single-ended steel plug gauges (1 item).

mm	STANDARD Step 10 µm	STANDARD 2 µm	STANDARD 1 µm	ETALON Step 10 µm	ETALON 2 µm	ETALON 1 µm
0,300 ÷ 1,509	**CJ1X1S10**	**CJ1X1S2**	**CJ1X1S0**	**CJ1X1E10**	**CJ1X1E2**	**CJ1X1E0**
1,510 ÷ 3,509	**CJ1X2S10**	**CJ1X2S2**	**CJ1X2S0**	**CJ1X2E10**	**CJ1X2E2**	**CJ1X2E0**
3,510 ÷ 10,000	**CJ1X3S10**	–	**CJ1X3S0**	**CJ1X3E10**	–	**CJ1X3E0**

Type TTXH

Steel plug gauges, type GO/NOT GO (2 items)

mm	STANDARD Step 1 µm	ETALON Step 1 µm
0,300 ÷ 1,509	**CJ1XX1S0**	**CJ1XX1E0**
1,510 ÷ 3,509	**CJ1XX2S0**	**CJ1XX2E0**
3,510 ÷ 6,509	**CJ1XX3S0**	**CJ1XX3E0**
6,510 ÷ 10,000	**CJ1XX4S0**	**CJ1XX4E0**

✓

EN ISO 1938
Factory standard

Steel

Light alloy, coloured handle with engraved nominal diameter

Accuracy: STANDARD (blue handle) ± 0,4 µm for diameters 0,3 ÷ 3 mm or ± 0,5 µm for diameters 3 ÷ 10 mm. ETALON (yellow handle) ± 0,25 µm for diameters 0,3 ÷ 3 mm or ± 0,3 µm for diameters 3 ÷ 10 mm.

Inspection report available on request

✓

EN ISO 1938

Tungsten carbide

Light alloy, coloured handle with engraved nominal value

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.

Inspection report available on request

TESA CARY tungsten carbide plug gauges with diameters from 0,3 up to 6 mm

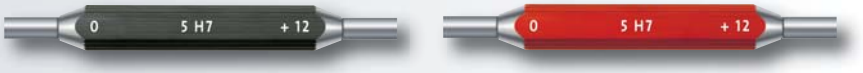
Type TCH

Single-ended tungsten carbide plug gauges (1 item)

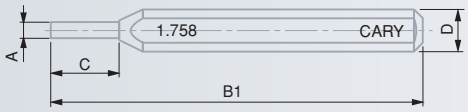
	STANDARD		ETALON	
mm	Step 10 µm	1 µm	Step 10 µm	1 µm
0,300 ÷ 1,509	**CJ1C1S10**	**CJ1C1S0**	**CJ1C1E10**	**CJ1C1E0**
1,510 ÷ 3,509	**CJ1C2S10**	**CJ1C2S0**	**CJ1C2E10**	**CJ1C2E0**
3,510 ÷ 6,000	**CJ1C3S10**	**CJ1C3S0**	**CJ1C3E10**	**CJ1C3E0**

Type TTCH

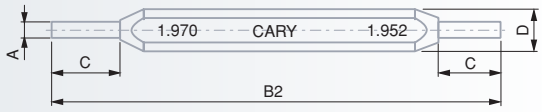
Tungsten carbide plug gauges, type GO/NO GO (2 items)



	STANDARD	ETALON
mm	Step 1 µm	Step 1 µm
0,300 ÷ 1,509	**CJ1CC1S0**	**CJ1CC1E0**
1,510 ÷ 3,509	**CJ1CC2S0**	**CJ1CC2E0**
3,510 ÷ 6,000	**CJ1CC3S0**	**CJ1CC3E0**



TXH/TCH



TTXH/TTCH

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 ÷ 10,0	62	74	12	8

Standard accessories

CJ1PTXK	PTXK	Suited case for 50 plug gauges Ø 0,300 ÷ 1,509 mm
CJ1MTXK	MTXK	Suited case for 50 plug gauges Ø 1,510 ÷ 3,509 mm
CJ1GTXK	GTXK	Suited case for 50 plug gauges Ø 3,510 ÷ 10,00 mm

LTXH-type precision steel pins with diameters from 0,30 up to 10 mm

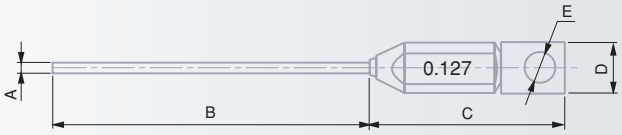
These steel pins can be made available without handle upon request.

When ordering, please specify:

- pin diameter (0,30 to 10 mm)
- desired quality (STANDARD or ETALON)

PNH-type wires with handle for checking threads. wire diameters from 0,10 up to 10 mm

mm	STANDARD Step 10 µm	ETALON Step 10 µm
0,10 ÷ 0,15	**CJ1N1S**	**CJ1N1E**
0,16 ÷ 0,50	**CJ1N2S**	**CJ1N2E**
0,51 ÷ 4,00	**CJ1N3S**	**CJ1N3E**
4,01 ÷ 10,00	**CJ1N4S**	**CJ1N4E**



PNH

✓

EN ISO 1938

Hardened steel, ground and lapped

Aluminium, coloured handle with engraved nominal diameter

Accuracy: STANDARD (blue handle) ± 0,8 µm for diameters 0,1 ÷ 10 mm. ETALON (yellow handle) ± 0,3 µm for diameters 0,1 ÷ 6 mm or ± 0,5 µm for diameters 6 ÷ 10 mm.

Inspection report available on request

Plug gauge sizes

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

Standard 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

Ring Gauges

Designed for inspecting cylindrical components such as pivots or axles – Used to determine external diameters.

TESA CARY steel ring gauges with diameters from 0,151 up to 5 mm

✓

EN ISO 1938
Factory standard

Steel

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

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

Inspection report from 2 mm available on request

Type BAH	1 Steel ring gauge	
Type BIMHa	2 BAH steel ring gauges mounted in pairs on plates for use as GO/NOT GO type gauges	
	BAH	BIMHa
mm	Step 1 µm	Step 1 µm
0,151 ÷ 1,500	**CJ1B2A**	**CJ1B2IA**
1,501 ÷ 2,500	**CJ1B3A**	**CJ1B3IA**
2,501 ÷ 4,000	**CJ1B4A**	**CJ1B4IA**
4,001 ÷ 4,999	**CJ1B5A**	**CJ1B5IA**

TESA CARY carbide ring gauges with diameters from 0,060 up to 5 mm

✓

EN ISO 1938
Factory standard

Tungsten carbide

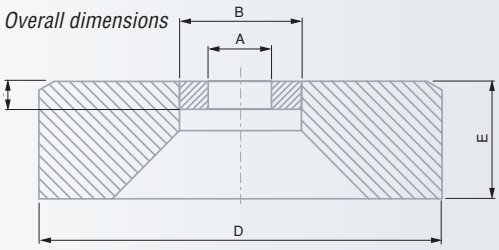
Inserted into a black coloured, light alloy ring for easier handling.
Also with engraved nominal diameter of the ring

Ø 0,060 ÷ 3 mm: ± 0,6 µm
Ø 3 ÷ 4,999 mm: ± 0,75 µm

Inspection report from 2 mm available on request

Type BCH	1 Carbide ring gauge	
Type BIMHm	2 BCH carbide ring gauges mounted in pairs on plates for use as GO/NOT GO type gauges	
	BCH	BIMHm
mm	Step 1 µm	✓ Step 1 µm
0,060 ÷ 0,150	**CJ1B1C**	**CJ1B1IM**
0,151 ÷ 1,500	**CJ1B2C**	**CJ1B2IM**
1,501 ÷ 2,500	**CJ1B3C**	**CJ1B3IM**
2,501 ÷ 4,000	**CJ1B4C**	**CJ1B4IM**
4,001 ÷ 4,999	**CJ1B5C**	**CJ1B5IM**

Overall dimensions



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

Standard accessories

		A mm
CJ1CEB3	Suited case for 3 rings	0,06 ÷ 1,50
CJ1CEB4	Suited case for 4 rings	0,06 ÷ 1,50
CJ1EB12	Suited case for 12 rings	0,06 ÷ 1,50
CJ1CB40	Suited case for 12 rings	1,50 ÷ 2,50
CJ1CB24	Suited case for 24 rings	2,50 ÷ 4,00
CJ1CB18	Suited case for 12 rings	4,00 ÷ 5,00
CJ1280,21.010A	Aluminium resting plate for 2 rings	0,06 ÷ 1,50
CJ1280,21.011A	Aluminium resting plate for 2 rings	1,51 ÷ 2,50
CJ1280,21.012A	Aluminium resting plate for 2 rings	2,51 ÷ 4,00
CJ1280,21.013A	Aluminium resting plate for 2 rings	4,01 ÷ 5,00
CJ1BAA	Bearing ring (one item for each ring gauge)	

TESA CARY steel ring gauges with diameters from 5 up to 30 mm

Type BOMa 1 Steel ring gauge

Type BBOMa 2 BOMa steel ring gauges mounted in pairs on plates for use as GO/NOT GO type gauges

mm	BOMa Step 1 µm	BBOMa Step 1 µm
5,00 ÷ 9,99	**CJ1BOA1**	**CJ1BBA1**
10,00 ÷ 11,99	**CJ1BOA2**	**CJ1BBA2**
12,00 ÷ 13,99	**CJ1BOA3**	**CJ1BBA3**
14,00 ÷ 15,99	**CJ1BOA4**	**CJ1BBA4**
16,00 ÷ 17,99	**CJ1BOA5**	**CJ1BBA5**
18,00 ÷ 19,99	**CJ1BOA6**	**CJ1BBA6**
20,00 ÷ 22,99	**CJ1BOA7**	**CJ1BBA7**
23,00 ÷ 25,99	**CJ1BOA8**	**CJ1BBA8**
26,00 ÷ 29,99	**CJ1BOA9**	**CJ1BBA9**

✓

Steel

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

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

Inspection report available on request

✓

EN ISO 1938
Factory standard

Tungsten carbide

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

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

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

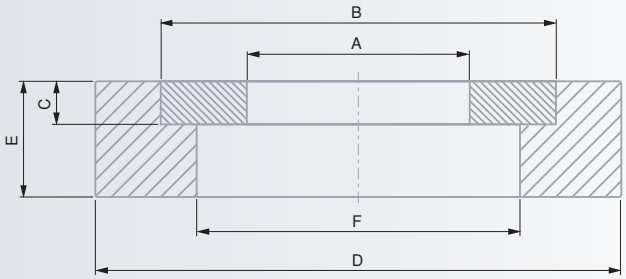
Inspection report available on request

TESA CARY tungsten carbide ring gauges with diameters from 5 up to 30 mm

Type BOMm	1 Tungsten carbide ring gauge
Type BBOMm	2 BOMm carbide ring gauges mounted in pairs on plates for use as GO/NOT GO plug gauges

Ø mm	BOMm Step 1 µm	BBOMm Step 1 µm
5,00 ÷ 9,99	**CJ1BOM1**	**CJ1BBM1**
10,00 ÷ 11,99	**CJ1BOM2**	**CJ1BBM2**
12,00 ÷ 13,99	**CJ1BOM3**	**CJ1BBM3**
14,00 ÷ 15,99	**CJ1BOM4**	**CJ1BBM4**
16,00 ÷ 17,99	**CJ1BOM5**	**CJ1BBM5**
18,00 ÷ 19,99	**CJ1BOM6**	**CJ1BBM6**
20,00 ÷ 22,99	**CJ1BOM7**	**CJ1BBM7**
23,00 ÷ 25,99	**CJ1BOM8**	**CJ1BBM8**
26,00 ÷ 29,99	**CJ1BOM9**	**CJ1BBM9**

Overall dimensions



Ø	*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

Standard Accessory

CJ1BBA	Bearing ring (one item for each ring gauge)