



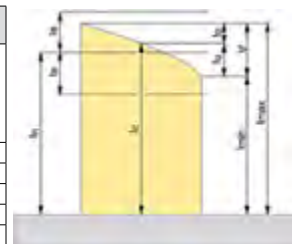
Gauge blocks

The parallel gauge blocks according to DIN EN ISO 3650 will be produced in various tolerance classes that can roughly be assigned to the following application groups:

Calibration class K	Reference normal gauge blocks are predominantly used for gauge block tests with gauge block testers in the calibration laboratory, together with a DKD calibration certificate.
Tolerance class 0	Workshop and normal gauge in calibration laboratory or in air conditioned measuring room for setting or calibration of gauges as well as measuring instruments.
Tolerance class 1	Most often used working standard for checking gauges and adjusting measuring instruments. Used in measuring rooms and on production test stations.
Tolerance class 2	Gauge blocks of this class are mostly used as a normal gauge on test stations in production areas, for setting and calibrating measuring devices as well as for setting and testing tools, appliances and machines.



		Tolerance class 0		Tolerance class 1		Tolerance class 2	
Nominal measuring range		Limit allowances for length from the nominal dimensions at any point	Tolerance for the deviation span	Limit allowances for length from the nominal dimensions at any point	Tolerance for the deviation span	Limit allowances for length from the nominal dimensions at any point	Tolerance for the deviation span
in mm		$\pm te$	tv	$\pm te$	tv	$\pm te$	tv
		μm	μm	μm	μm	μm	μm
Above	Until						
-	10	0.12	0.10	0.20	0.16	0.45	0.30
10	25	0.14	0.10	0.30	0.16	0.60	0.30
25	50	0.20	0.10	0.40	0.18	0.80	0.30
50	75	0.25	0.12	0.50	0.18	1.00	0.35
75	100	0.30	0.12	0.60	0.20	1.20	0.35
100	150	0.40	0.14	0.80	0.20	1.60	0.40
150	200	0.50	0.16	1.00	0.25	2.00	0.40
200	250	0.60	0.16	1.20	0.25	2.40	0.45
250	300	0.70	0.18	1.40	0.25	2.80	0.50
300	400	0.90	0.20	1.80	0.30	3.60	0.50
400	500	1.10	0.25	2.20	0.35	4.40	0.60
500	600	1.30	0.25	2.60	0.40	5.00	0.70
600	700	1.50	0.30	3.00	0.45	6.00	0.70
700	800	1.70	0.30	3.40	0.50	6.50	0.80
800	900	1.90	0.35	3.80	0.50	7.50	0.90
900	1000	2.00	0.40	4.20	0.60	8.00	1.00



Property	Ceramic	Cemented carbide	steel
Length extension coefficient approx.	$9.5 \times 10^{-6}/^{\circ}C$	$4.23 \times 10^{-6}/^{\circ}C$	$11.5 \times 10^{-6}/^{\circ}C$
Thermal conductivity	Very low	Low	High
Wear resistance	Excellent	Good	Less good
Thrust properties	Acceptable	Excellent	Excellent
Geometric accuracy	Excellent	Excellent	Acceptable if treated correctly
Corrosion resistance	Excellent	Good	Less good
Mechanical strength	Good	Good	Very good

ATORN® steel gauge block sets (ISO 3650)

Application:

For testing and calibrating measuring instruments and test equipment.

■ Hand-lapped

■ Gauge blocks are marked with an identification number

Execution:

- Made from high-quality, aged special steel
- Hardened

Delivery:

in high-quality wooden case, with traceable factory calibration certificate from an approved test laboratory (DAkkS on request)



No. 32082

Tolerance class					0	1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material	Ident. No. Set price, €		
32082...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Gauge steel		006 ●	010 ●
32086...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Gauge steel		006 ○	010 ○

Tolerance class					0	1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material			
32087...	103	1.005 mm, 1.01-1.49 mm, increasing by 0.01 mm, 0.5-24.5 mm, increasing by 0.5 mm, 25-100 mm, increasing by 25 mm	Gauge steel	Ident. No. Set price, €	006	011
					○	○

Prod. Gr. 3DD



ATORN® gauge block sets made of ceramic and cemented carbide (ISO 3650)**Application:**

For testing and calibrating measuring instruments and test equipment.

- Corrosion-resistant
- Non-magnetic
- Very low maintenance

Execution:

- Gauge blocks are marked with an identification number

No. 32103–32104:

- Up to 20x longer service life than steel
- Very low thermal expansion

Delivery:

in high-quality wooden case, with traceable factory calibration certificate from an approved test laboratory (DAkkS on request)



No. 32072

Tolerance class					0	1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material	Ident. No. Set price, €		
32072...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Ceramic		006 ○	010 ○
32073...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Ceramic		006 ●	010 ○
32103...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Tungsten Carbide		006 ○	010 ●
32104...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Tungsten Carbide		006 ○	010 ○

Prod. Gr. 3DD

ORION® Steel gauge block sets (ISO 3650)**Application:**

For testing and calibrating measuring instruments and test equipment.

- Hardened
- Hand-lapped
- Gauge blocks are marked with an identification number

Execution:

- Made from high-quality, aged special steel

Delivery:

In wooden case



No. 32052–32053

Number of pieces in assortment/set (PCS)		32	47	87	103
Nominal dimension in assortment		1.005 mm, 1.01-1.09 mm, increasing by 0.01 mm, 1.1-1.9 mm, increasing by 0.1 mm, 1-9 mm, increasing by 1 mm, 10-30 mm, increasing by 10 mm, 50 mm	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	1.005 mm, 1.01-1.49 mm, increasing by 0.01 mm, 0.5-24.5 mm, increasing by 0.5 mm, 25-100 mm, increasing by 25 mm
Material		Gauge steel	Gauge steel	Gauge steel	Gauge steel
Tolerance class		32050... Ident. No.	32051... Ident. No.	32052... Ident. No.	32053... Ident. No.
0		006	006	006	006
1		010	010	010	010
2		020	020	020	020
		Set price, €			

Prod. Gr. 321

ORION® Steel gauge block sets (ISO 3650)

Long version

Application:

For testing and calibrating measuring instruments and test equipment.

Execution:

- Made from high-quality, aged special steel
- Hardened

- Hand-lapped

- Gauge blocks are marked with an identification number

Delivery:

in high-quality wooden case, with factory calibration certificate (DAkkS on request)



Tolerance class					1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material	Ident. No. Set price, €	
32112...	8	125 mm, 150 mm, 175 mm, 200 mm, 250 mm, 300 mm, 400 mm, 500 mm	Gauge steel		010 ○

Prod. Gr. 321

ORION® Steel gauge block sets (ISO 3650)

For calibrating and testing vernier callipers and scribers

Application:

For the specific testing and calibration of vernier callipers and scribers.

Execution:

- Made from high-quality, aged special steel
- Hardened
- Hand-lapped
- Gauge blocks are marked with an identification number
- **No. 32122:** For vernier callipers up to 150 mm

- **No. 32123:** For vernier callipers up to 250 mm

- **No. 32124:** For vernier callipers up to 300 mm

- **No. 32125:** For vernier callipers up to 500 mm

- **No. 32126:** For vernier callipers up to 800 mm

Advantage:

- Ideal for testing gauges and measuring instruments in test rooms

Delivery:

in high-quality wooden case, with factory calibration certificate (DAkkS on request)



Tolerance class					1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material	Ident. No. Set price, €	
32122...	3	30 mm, 41.3 mm, 131.4 mm	Gauge steel		010 ●
32123...	4	30 mm, 41.3 mm, 131.4 mm, 243.5 mm	Gauge steel		010 ○
32124...	5	30 mm, 41.3 mm, 131.4 mm, 243.5 mm, 281.2 mm	Gauge steel		010 ○
32125...	6	30 mm, 41.3 mm, 131.4 mm, 243.5 mm, 281.2 mm, 481.1 mm	Gauge steel		010 ○
32126...	8	30 mm, 41.3 mm, 131.4 mm, 243.5 mm, 281.2 mm, 481.1 mm, 550 mm, 700 mm	Gauge steel		010 ○

Prod. Gr. 321

ATORN® steel gauge block sets (ISO 3650)
For calibrating and testing micrometers

Application:
For specific testing and calibration of micrometers.

- Execution:**
- Made from high-quality, aged special steel
 - Hardened
 - Hand-lapped
 - Gauge blocks are marked with an identification number
 - **No. 32077:** For reliable testing of micrometers
 - **No. 32079:** To meet the minimum micrometer requirements

Advantage:

- Ideal for testing gauges and measuring instruments in test rooms

Delivery:
in high-quality wooden case, with traceable factory calibration certificate from an approved test laboratory (DAkkS on request)

Technical data:

- Tolerance class: 1



	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material		
32077...	10	2.5 mm, 5.1 mm, 7.7 mm, 10.3 mm, 12.9 mm, 15 mm, 17.6 mm, 20.2 mm, 22.8 mm, 25 mm	Gauge steel	Ident. No. Set price, €	010 ●
32079...	5	5.1 mm, 10.3 mm, 15 mm, 20.2 mm, 25 mm	Gauge steel	Ident. No. Set price, €	010 ●

Prod. Gr. 3DD

ORION® Individual steel gauge blocks (ISO 3650)**Application:**

For testing and calibrating measuring instruments and test equipment.

Execution:

- Gauge blocks are marked with an identification number



Tolerance class	0	1
Material	Gauge steel	Gauge steel
Nominal dimension (mm)	32169... Ident. No.	32170... Ident. No.
0.5	005	005
0.6	006	006
0.7	007	007
0.8	008	008
0.9	009	009
1	010	010
1.0005	510	510
1.001	501	501
1.002	502	502
1.003	503	503
1.004	504	504
1.005	505	505
1.006	506	506
1.007	507	507
1.008	508	508
1.009	509	509
1.01	401	401
1.02	402	402
1.03	403	403
1.04	404	404
1.05	405	405
1.06	406	406
1.07	407	407
1.08	408	408
1.09	409	409
1.1	410	410
1.11	411	411
1.12	412	412
1.13	413	413
1.14	414	414
1.15	415	415
1.16	416	416
1.17	417	417
1.18	418	418
1.19	419	419
1.2	420	420
1.21	421	421
1.22	422	422
1.23	423	423
1.24	424	424
1.25	425	425
1.26	426	426
1.27	427	427
1.28	428	428
1.29	429	429
1.3	430	430
1.31	431	431
1.32	432	432
1.33	433	433
1.34	434	434
1.35	435	435
1.36	436	436
1.37	437	437
1.38	438	438
1.39	439	439
1.4	440	440
1.41	441	441
1.42	442	442
1.43	443	443
1.44	444	444
1.45	445	445
1.46	446	446
1.47	447	447
1.48	448	448

Tolerance class	0	1
Material	Gauge steel	Gauge steel
Nominal dimension (mm)	32169... Ident. No.	32170... Ident. No.
1.49	449	449
1.5	450	450
1.6	016	016
1.7	017	017
1.8	018	018
1.9	019	019
2	020	020
2.5	025	025
3	030	030
3.5	035	035
4	040	040
4.5	045	045
5	050	050
5.5	055	055
6	060	060
6.5	065	065
7	070	070
7.5	075	075
8	080	080
8.5	085	085
9	090	090
9.5	095	095
10	100	100
10.5	105	105
11	110	110
11.5	115	115
12	120	120
12.5	125	125
13	130	130
13.5	135	135
14	140	140
14.5	145	145
15	150	150
15.5	155	155
16	160	160
16.5	165	165
17	170	170
17.5	175	175
18	180	180
18.5	185	185
19	190	190
19.5	195	195
20	200	200
20.5	205	205
21	210	210
21.5	215	215
22	220	220
22.5	225	225
23	230	230
23.5	235	235
24	240	240
24.5	245	245
25	250	250
30	300	300
40	400	400
50	500	500
60	600	600
70	700	700
75	750	750
80	800	800
90	900	900
100	910	910

Price/unit, €

Prod. Gr. 321

ORION® Steel gauge blocks (ISO 3650)

Long version

Application:

For testing and calibrating measuring instruments and test equipment.

Execution:

- Gauge blocks are marked with an identification number

Delivery:

Comes in a wooden case, with a calibration certificate from an accredited laboratory



Tolerance class	1	0
Material	Gauge steel	Gauge steel
Nominal dimension (mm)	32109... Ident. No.	32110... Ident. No.
125	805 ●	805 ○
150	815 ●	815 ○
175	818 ●	818 ○
200	820 ●	820 ○
250	825 ●	825 ○
300	830 ●	830 ○
400	840 ●	840 ○

Tolerance class	1	0
Material	Gauge steel	Gauge steel
Nominal dimension (mm)	32109... Ident. No.	32110... Ident. No.
500	850 ●	850 ○
600	860 ○	860 ○
700	870 ○	870 ○
800	880 ○	880 ○
900	890 ○	890 ○
1000	895 ○	895 ○
Price/unit, €		

Prod. Gr. 321

ORION® Gauge block accessories set

12 pieces

Application:

For the use of gauge blocks for measuring devices, marking instruments, etc.

Execution:

- Adjustable gauge block holder for measuring range 50/100/200 mm
- Scriber point
- Centring tip
- Straight edge
- Base for gauge block holders
- plane measuring arms for outside measurements

- Blade tips for slot diameter

- Half round measuring arm with cylindrical attachment 4/10/20 mm

Advantage:

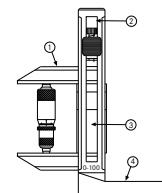
- Using this set cares for and preserves gauge blocks in

Delivery:

In a case

Technical data:

- Number of pieces in assortment/set: 17 PCS



- ① Measuring arm
- ② Gauge block holder
- ③ Gauge blocks
- ④ Base

32281...

Ident. No.
Set price, €

020

Prod. Gr. 321

ATORN® End gauge care set

Application:

For maintaining and cleaning gauge blocks

Execution:

- Set comprises:
 - Linen cloth
 - Suede cloth
 - 1 can of corrosion protection oil
 - Honing stone

- Hair brush
- Grease brush
- Instructions

Delivery:

In wooden case

Technical data:

- Number of pieces in assortment/set: 7



32080...

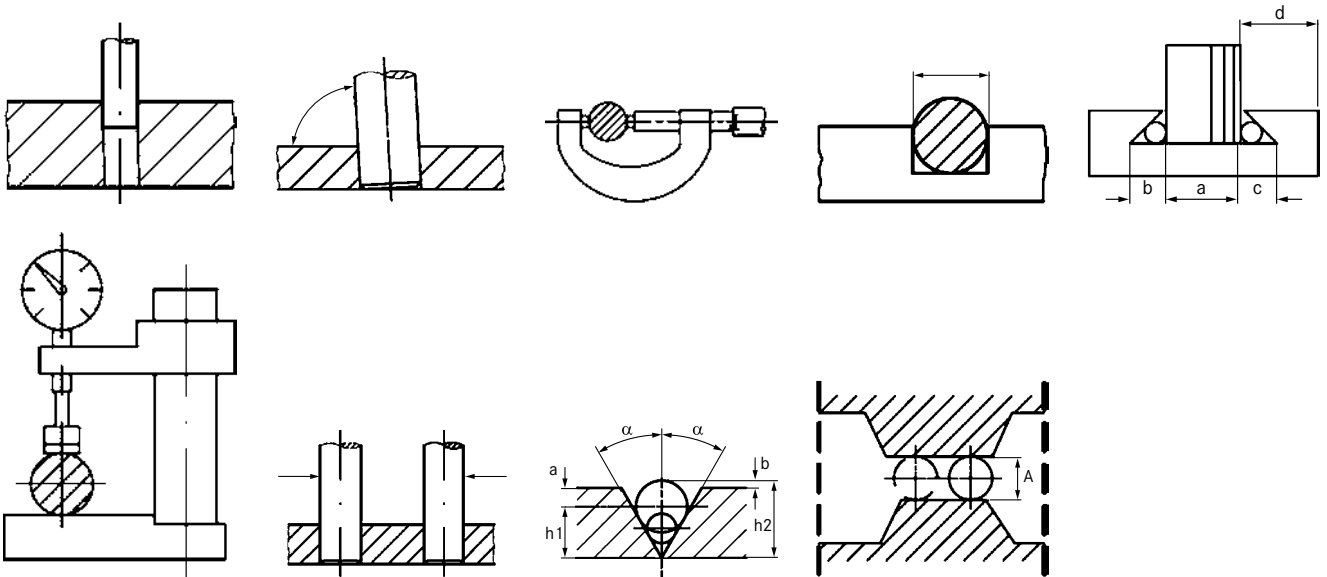
Ident. No.
Price/unit, €

010

Prod. Gr. 3DD



Application examples for test pins

Test pins made of hardened steel
Tolerance class 1 (± 0.001 mm)

Application: To determine bore intervals, bore diameters, bore angularity etc.

Design:

- ground and lapped
- hardened 60-64 HRC
- sharp-edged at one end, milled to $30^\circ \times 0.3$ D at the other end
- dimension descriptions over $\varnothing 3$ mm

Tips for ordering:

5-digit art. no. (32481) + test pin $\varnothing$ = order no.

Example: test pin $\varnothing 6.87$ mm = order no. 32481 687

Example: Test pin $\varnothing 10.31$ mm = order no. 32481 001



$\varnothing$	mm	0.30-0.49	0.50-0.99	1.00-2.99	3.00-5.99	6.00-9.99	10.00-11.99	12.00-13.99	14.00-15.99	16.00-18.99	19.00-20.00
Pitch/length	mm	0.01/40	0.01/40	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70
32481	ref. no.						001	002	004	006	009
Unit price	EUR	28,80	14,80	12,80	16,20	20,60	(26.20)	(32.00)	(43.60)	(55.00)	(65.00)

➔ Upon request: **Wooden cases** for test pins, **larger diameters** and **intermediate dimensions** in μm gradations, **cemented carbide and ceramic test pins** on request

Test pin holder

Application:

For holding 2 test pins (e.g. no. 32481) within a tolerance field (e.g. can be used as a limit plug gauge).



Min./max. nominal $\varnothing$	1-1.99 mm	2-4.5 mm	4.51-6.99 mm	7-9.5 mm	9.51-12 mm
Length (mm)	60	68	76	84	92
Ident. No.	010	020	030	040	050
Price/unit, €	•	•	•	•	•

Prod. Gr. 3DA

ATORN® Test pin sets in wooden case (DIN 2269)



Application:

For measuring bore hole clearances, bore diameters, angularity of bores etc.

Execution:

- Ground and lapped

- Hardened 60-64 HRC

- Sharp-edged at one end, milled to $30^\circ \times 0.3$ D at the other end

Delivery:

In wooden case



Gauges and dimensional standards \ Test pins

Tolerance class						1	2
	Number of pieces in assortment/set (PCS)	Number of bins	Nominal dimension of measuring pins	Material			
32486...	41	1	1.00-5.00 mm, increasing by 0.1 mm	Gauge steel	Ident. No. Set price, €	001 ○	002 ●
32486...	50	1	5.10-10.00 mm, increasing by 0.1 mm	Gauge steel	Ident. No. Set price, €	101 ○	102 ○
32486...	91	1	1.00-10.00 mm, increasing by 0.1 mm	Gauge steel	Ident. No. Set price, €	201 ●	202 ●
32487...	81	1	1.00-5.00 mm, increasing by 0.05 mm	Gauge steel	Ident. No. Set price, €	001 ○	002 ●
32487...	100	2	5.05-10.00 mm, increasing by 0.05 mm	Gauge steel	Ident. No. Set price, €	101 ○	102 ●
32488...	100	1	1.00-2.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	001 ○	002 ●
32488...	100	1	2.01-3.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	101 ○	102 ●
32488...	100	1	3.01-4.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	201 ○	202 ●
32488...	100	1	4.01-5.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	301 ○	302 ○
32488...	100	1	5.01-6.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	401 ○	402 ●
32488...	100	1	6.01-7.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	501 ○	502 ○
32488...	100	2	7.01-8.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	601 ○	602 ○
32488...	100	2	8.01-9.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	701 ○	702 ○
32488...	100	2	9.01-10.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	801 ○	802 ○
32488...	901	12	1.00-10.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	901 ○	902 ○

Prod. Gr. 3DD



Tool navigator 'Gauges' online

The gauge navigator's simple and clear menu can be used to define your requests more easily and clearly in just four steps. Firstly, determine what type of gauge is right for the required application: The selection ranges from bore gauges, snap gauges, flat gauges and ring gauges to thread gauges. Subsequently, sizes are determined in nominal dimension specifications, ISO tolerance fields or figures and details, such as coating or material. The shopping cart will then be automatically generated and sent directly to us. This allows quotes or enquiries, particularly for special gauges, to be dealt with very quickly. We promptly check price and delivery options from different vendors and compile the best deal for you.

The gauge navigator can be found at www.werkzeug-navigator.de.

Its impressive advantages at a glance:

- Fast access and simple operation around the clock
- Automatic shopping cart generation and enquiries sent via the Internet to Hahn+Kolb
- Quick submission of quotations, even for special gauges
- Menu-guided selection for clear specification and definition of gauges
- Enquiry with clear and unambiguous definitions to avoid follow-up questions and wrong deliveries



ORION® Flat glass

flatness tolerance 0.125 µm

Application:

For testing the flatness of faces of measuring surfaces on metal and glass objects such as gauge blocks.

Execution:

- Made from special glass

41520...

Prod. Gr. 454

Delivery:

Incl. wooden case

Technical data:

- Diameter: 45 mm
- Flatness tolerance: 0.125 µm

Ident. No.	010
Price/unit, €	●



ORION® Angle standards made of hardened gauge steel

Application:

For precise setting and checking of angles.

Execution:

- Smallest graduation 15' (¼°)
- manufacturer tolerance ± 30"

32155...

Prod. Gr. 3BF

Delivery:

Set: 15°, 30°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°, supplied in case.

Technical data:

- Number of pieces in assortment/set: 12 PCS
- Length: 76.4 mm
- Width: 6.35 mm

Ident. No.	020
Set price, €	●



ORION® Test balls made of hardened gauge steel

Application:

For testing bore holes or internal cones.

Delivery:

Each 2 x diameter 1–25 mm, in a case.

32155...

Prod. Gr. 3BD

Technical data:

- Number of pieces in assortment/set: 50 PCS
- Pitch: 1 mm

Ident. No.	030
Set price, €	●



ORION® Limit plug gauges made of gauge steel (DIN 2245)

tolerance H7

**Application:**

For checking maximum and minimum dimensions of boreholes.

Execution:

- Go side manufactured with wear allowance in line with DIN 7164

Notes:

No. 32491: Surcharge applicable to quality class 5 and above.

Please indicate the fit for the workpiece when ordering (e.g. G9)



Illustration may be different

Tolerance class	H7	A-ZC/6-13
Go side material	Gauge steel	Gauge steel
Discharge side material	Gauge steel	Gauge steel
Nominal Ø (mm)	32490... Ident. No.	32491... Ident. No.
1	005	005
1.5	015	015
2	025	025
2.5	035	035
3	045	045
3.5	050	050
4	055	055
4.5	060	060
5	065	065
6	070	070
7	075	075
8	080	080
9	085	085
10	090	090
11	095	095
12	100	100
13	105	105
14	110	110
15	115	115
16	120	120
17	125	125
18	130	130
19	135	135
20	140	140
21	145	145
22	150	150
23	155	155
24	160	160
25	165	165
26	170	170
27	175	175
28	180	180
30	185	185
32	190	190
33	195	195

Tolerance class	H7	A-ZC/6-13
Go side material	Gauge steel	Gauge steel
Discharge side material	Gauge steel	Gauge steel
Nominal Ø (mm)	32490... Ident. No.	32491... Ident. No.
34	200	200
35	205	205
36	210	210
37	215	215
38	220	220
40	225	225
42	230	230
44	235	235
45	240	240
46	245	245
47	250	250
48	255	255
50	260	260
52	265	265
55	270	270
58	275	275
60	280	280
62	285	285
65	290	290
68	295	295
70	300	300
72	305	305
75	310	310
78	315	315
80	320	320
82	325	325
85	330	330
88	335	335
90	340	340
92	345	345
95	350	350
98	355	355
100	360	360
Price/unit, €		

Prod. Gr. 3DB

ORION® Limit plug gauge with intermediate size and numerical tolerance (DIN 2245)

**Application:**

For checking maximum and minimum dimensions of boreholes.

Execution:

- Go side manufactured with wear allowance in line with DIN 7164

Notes:

Please indicate the tolerance (e.g. G9) or numerical tolerance (+/-).

Surcharge applicable to quality class 5 and above.



Illustration may be different

Go side material	Gauge steel
Discharge side material	Gauge steel
Min./max. nominal Ø	32492... Ident. No.
2.001-2.999 mm	010
3.001-9.999 mm	020
10.001-13.999 mm	030
14.001-17.999 mm	040
18.001-23.999 mm	050
24.001-29.999 mm	060
30.001-39.999 mm	070

Go side material	Gauge steel
Discharge side material	Gauge steel
Min./max. nominal Ø	32492... Ident. No.
40.001-49.999 mm	080
50.001-59.999 mm	090
60.001-69.999 mm	100
70.001-79.999 mm	110
80.001-89.999 mm	120
90.001-99.999 mm	130
Price/unit, €	

Prod. Gr. 3DB

ORION® Limit plug gauge set (DIN 2245)

Workpiece fit H7



Application:

For checking maximum and minimum dimensions of boreholes.

Execution:

- Go side manufactured with wear allowance in line with DIN 7164

Advantage:

- Ident. No. 020: Cemented carbide has a service life approximately 20 times longer than gauge steel

Delivery:

In a case

Technical data:

- Nominal dimension in assortment: 3 mm | 4 mm | 5 mm | 6 mm | 8 mm | 10 mm | 12 mm
- Tolerance class: H7
- Discharge side material: Gauge steel
- Design: One-piece



Go side material	Ident. No.	Gauge steel	Carbide
32493...	Set price, €	010	020

Prod. Gr. 3DB

ORION® Limited groove width gauge (DIN 7150)

Application:

For checking flat fits, e.g. of grooves.

For numerical tolerances (e.g. +/- 0.005), a surcharge is applicable.

Notes:

No. 32516: When ordering, please remember to specify the workpiece fit or tolerance.

Technical data:

- Material: Gauge steel



Nominal dimension (mm)	Tolerance class	P9	A-ZC/7-13
		Ident. No.	Ident. No.
3		003	003
4		004	004
5		005	005
6		006	006
8		008	008
10		010	010
12		012	012

Prod. Gr. 3DB

Nominal dimension (mm)	Tolerance class	P9	A-ZC/7-13
		Ident. No.	Ident. No.
14		014	014
16		016	016
18		018	018
20		020	020
22		022	022
25		025	025

Price/unit, €

ORION® Adjusting ring (DIN 2250)

Made of hardened gauge steel



Application:

For adjusting and testing measuring instruments.

- Marked with dimensions

Execution:

- Hardened

Technical data:

- Material: Gauge steel



Nominal Ø (mm)	32605...
	Ident. No.
2	030
2.5	040
3	050
4	060
5	070
6	075
7	080
8	085
9	090
10	095
11	100
12	105
13	110
14	115
15	120
16	125
17	130
18	135
19	140
20	145
21	150
22	155
23	160
24	165

Nominal Ø (mm)	32605...
	Ident. No.
25	170
26	175
27	180
28	185
30	190
32	195
33	200
34	205
35	210
36	215
37	220
38	225
40	230
42	235
44	240
45	245
46	250
47	255
48	260
50	265
52	270
55	275
58	280
60	285

Nominal Ø (mm)	32605... Ident. No.		Nominal Ø (mm)	32605... Ident. No.	
62	290	●	115	380	●
65	295	●	120	385	●
68	300	●	125	390	●
70	305	●	130	395	●
72	310	●	135	400	○
75	315	●	140	405	●
78	320	○	145	410	○
80	325	●	150	415	●
82	330	●	155	420	○
85	335	●	160	425	●
88	340	●	165	430	○
90	345	●	170	435	●
92	350	○	175	440	●
95	355	●	180	445	●
98	360	○	190	455	●
100	365	●	200	465	●
105	370	●			
110	375	●			Price/unit, €

Prod. Gr. 3DB

ORION® Setting rings with intermediate size (DIN 2250)



Application:

For adjusting and testing measuring instruments.

- Marked with dimensions

Notes:

When ordering, please specify the required diameter.

Execution:

- Hardened



Min./max. nominal Ø	32606... Ident. No.		Min./max. nominal Ø	32606... Ident. No.	
3.001-14.999 mm	010	○	50.001-59.999 mm	070	○
15.001-19.999 mm	020	○	60.001-69.999 mm	080	○
20.001-24.999 mm	030	○	70.001-79.999 mm	090	○
25.001-31.999 mm	040	○	80.001-89.999 mm	100	○
32.001-39.999 mm	050	○	90.001-99.999 mm	110	○
40.001-49.999 mm	060	○			Price/unit, €

Prod. Gr. 3DB

ORION® Morse taper gauges

Application:

No. 32635: For checking internal cones of tools and workpieces.

No. 32636: For testing external tapers on tools and workpieces.

Execution:

- Measuring surfaces are ground and finely lapped

Technical data:

- Tolerance class: AT4
- Material: Gauge steel



No. 32635



No. 32636

Taper type	Design	Morse taper without tangs		Morse taper without tangs	
		32635... Ident. No.		32636... Ident. No.	
MK1		010	○	010	○
MK2		020	●	020	●
MK3		030	●	030	●
MK4		040	●	040	●
MK5		050	●	050	○
					Price/unit, €

Prod. Gr. 3DB

ORION® Taper gauges for steep tapers (SK)

Application:

No. 32650: For testing spindle heads in line with DIN 2079 and quick-release taper shafts in line with DIN 2080

No. 32651: For testing spindle heads in line with DIN 2079 and quick-release taper shafts in line with DIN 2081.

Execution:

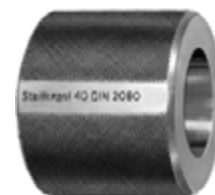
- Measuring surfaces are ground and finely lapped

Technical data:

- Tolerance class: AT4
- Material: Gauge steel



No. 32650



No. 32651

Taper type	Design	Steep-angled taper		Steep-angled taper	
		32650... Ident. No.		32651... Ident. No.	
SK30		030	●	030	●
SK40		040	●	040	●
SK50		050	●	050	●
Price/unit, €					

Prod. Gr. 3DB

ORION® Thread gauges made of gauge steel for standard metric ISO thread



Application:

No. 32670: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

No. 32675–32676: For testing the flank and core diameter of male threads.

Notes:

No. 32670: Up to M 1.4 = tolerance class 5H

No. 32675–32676: Up to M 1.4 = tolerance class 6h

Technical data:

- Material: Gauge steel



No. 32670
Illustration may be different!



No. 32675



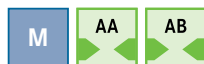
No. 32676

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H		Go ring gauge, 6g		No-go ring gauge, 6g	
	32670... Ident. No.		32675... Ident. No.		32676... Ident. No.	
M1 x 0.25	010	○	010	○	010	○
M1.2 x 0.25	012	●	012	○	012	○
M1.4 x 0.3	014	●	014	○	014	○
M1.6 x 0.35	016	●	016	○	016	○
M1.7 x 0.35	017	●	017	○	017	○
M1.8 x 0.35	018	○	018	○	018	○
M2 x 0.4	020	●	020	●	020	●
M2.3 x 0.4	023	○	023	○	023	○
M2.5 x 0.45	025	●	025	●	025	○
M2.6 x 0.45	026	●	026	○	026	○
M3 x 0.5	030	●	030	●	030	●
M3.5 x 0.6	035	●	035	●	035	○
M4 x 0.7	040	●	040	●	040	●
M5 x 0.8	050	●	050	●	050	●
M6 x 1	060	●	060	●	060	●
M7 x 1	070	●	070	●	070	●

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H		Go ring gauge, 6g		No-go ring gauge, 6g	
	32670... Ident. No.		32675... Ident. No.		32676... Ident. No.	
M8 x 1.25	080	●	080	●	080	●
M9 x 1.25	090	●	090	○	090	○
M10 x 1.5	100	●	100	●	100	●
M11 x 1.5	110	○	110	○	110	○
M12 x 1.75	120	●	120	●	120	●
M14 x 2	140	●	140	●	140	●
M16 x 2	160	●	160	●	160	●
M18 x 2.5	180	●	180	●	180	○
M20 x 2.5	200	●	200	●	200	●
M22 x 2.5	220	●	220	○	220	○
M24 x 3	240	●	240	●	240	●
M27 x 3	270	●	270	○	270	○
M30 x 3.5	300	●	300	●	300	○
M33 x 3.5	330	○	330	○	330	○
M36 x 4	360	●	360	●	360	○
Price/unit, €						

Prod. Gr. 3DB

ATORN® thread gauges TiN-coated for standard metric ISO thread

**Application:**

No. 32696: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

No. 32697: For testing the flank and core diameter of male threads.

Execution:

- Surface hardness approx. 2500 Vickers

Advantage:

- Improved corrosion resistance
- Wear resistance approx. 10 times greater than conventional gauge steel
- Extended calibration intervals
- Cost reduction

Technical data:

- Material: TiN



No. 32696
Illustration may be different!



No. 32697

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H Ident. No.	Go ring gauge, 6g Ident. No.
M3 x 0.5	030	030
M4 x 0.7	040	040
M5 x 0.8	050	050
M6 x 1.0	060	060
M8 x 1.25	080	080
M10 x 1.5	100	100

Prod. Gr. 325

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H Ident. No.	Go ring gauge, 6g Ident. No.
M12 x 1.75	120	120
M14 x 2.0	140	140
M16 x 2.0	160	160
M18 x 2.5	180	180
M20 x 2.5	200	200

Price/unit, €

ATORN® ORION® thread gauge sets M3–M12 for standard metric ISO thread in line with DIN 13

**Execution:**

- No. 32696:** Go side with TiN coating
- No. 32696–32697:** Surface hardness approx. 2500 Vickers

Advantage:

- No. 32696–32697:**

- Improved corrosion resistance

- Wear resistance approx. 10 times greater than conventional gauge steel
- Extended calibration intervals
- Cost reduction

Delivery:

In wooden case



No. 32690



No. 32691–32692



No. 32696



No. 32697

	ATORN®	ATORN®	ORION®	ORION®	ORION®
	Thread limit plug gauges	Go ring gauge	Thread limit plug gauges	Go ring gauge	No-go ring gauges
Nominal dimension in assortment	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm
Tolerance class	6H	6g	6H	6g	6g
Material	TiN	TiN	Gauge steel	Gauge steel	Gauge steel
	32696... Ident. No.	32697... Ident. No.	32690... Ident. No.	32691... Ident. No.	32692... Ident. No.
	400	400	010	010	010

Set price, €

ORION = Prod. Gr. 3DB
ATORN® = Prod. Gr. 325

ORION® thread gauges made of gauge steel

for metric ISO fine threads



Application:

No. 32700: For testing the flank diameter of female threads and compliance with minimum dimensions

of the external diameter.

No. 32705–32706: For testing the flank and core diameter of male threads.

Technical data:

■ Material: Gauge steel



No. 32700
Illustration may be different!



No. 32705



No. 32706

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	Go ring gauge, 6g	No-go ring gauge, 6g
	32700... Ident. No.	32705... Ident. No.	32706... Ident. No.
MF4 x 0.5	002	002	002
MF5 x 0.5	004	004	004
MF5 x 0.75	005	005	005
MF6 x 0.5	006	006	006
MF6 x 0.75	007	007	007
MF7 x 0.75	009	009	009
MF8 x 0.5	010	010	010
MF8 x 0.75	011	011	011
MF8 x 1	012	012	012
MF9 x 0.5	013	013	013
MF9 x 0.75	014	014	014
MF9 x 1	015	015	015
MF10 x 0.5	016	016	016
MF10 x 0.75	017	017	017
MF10 x 1	018	018	018
MF10 x 1.25	019	019	019
MF11 x 0.75	020	020	020
MF11 x 1	021	021	021
MF12 x 0.5	022	022	022
MF12 x 0.75	023	023	023
MF12 x 1	024	024	024
MF12 x 1.5	025	025	025
MF12 x 1.25	026	026	026
MF13 x 0.75	027	027	027
MF13 x 1	028	028	028
MF14 x 0.75	031	031	031
MF14 x 1	032	032	032
MF14 x 1.5	033	033	033
MF14 x 1.25	034	034	034
MF15 x 0.75	035	035	035
MF15 x 1	036	036	036
MF15 x 1.5	037	037	037
MF16 x 0.75	039	039	039
MF16 x 1	040	040	040
MF16 x 1.5	041	041	041
MF18 x 0.75	048	048	048
MF18 x 1	049	049	049
MF18 x 1.5	050	050	050
MF18 x 2	051	051	051
MF20 x 0.75	058	058	058
MF20 x 1	059	059	059
MF20 x 1.5	060	060	060
MF20 x 2	061	061	061
MF22 x 1	069	069	069
MF22 x 1.5	070	070	070
MF22 x 2	071	071	071
MF24 x 1	079	079	079
MF24 x 1.5	080	080	080
MF24 x 2	081	081	081
MF25 x 1	084	084	084
MF25 x 1.5	085	085	085

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	Go ring gauge, 6g	No-go ring gauge, 6g
	32700... Ident. No.	32705... Ident. No.	32706... Ident. No.
MF26 x 1	089	089	089
MF26 x 1.5	090	090	090
MF27 x 1	094	094	094
MF27 x 1.5	095	095	095
MF27 x 2	096	096	096
MF28 x 1	099	099	099
MF28 x 1.5	100	100	100
MF28 x 2	101	101	101
MF30 x 1	109	109	109
MF30 x 1.5	110	110	110
MF30 x 2	111	111	111
MF30 x 3	112	112	112
MF32 x 1.5	120	120	120
MF33 x 1.5	126	126	126
MF33 x 2	127	127	127
MF35 x 1.5	138	138	138
MF36 x 1.5	144	144	144
MF36 x 2	145	145	145
MF36 x 3	146	146	146
MF38 x 1.5	154	154	154
MF39 x 1.5	160	160	160
MF39 x 2	161	161	161
MF40 x 1.5	166	166	166
MF40 x 2	167	167	167
MF42 x 1.5	178	178	178
MF42 x 2	179	179	179
MF42 x 3	180	180	180
MF45 x 1.5	197	197	197
MF45 x 2	198	198	198
MF45 x 3	199	199	199
MF48 x 1.5	217	217	217
MF48 x 2	218	218	218
MF48 x 3	219	219	219
MF50 x 1.5	230	230	230
MF50 x 2	231	231	231
MF52 x 1.5	242	242	242
MF52 x 2	243	243	243
MF56 x 1.5	269	269	269
MF56 x 2	270	270	270
MF60 x 1.5	294	294	294
MF60 x 2	295	295	295
MF62 x 1.5	307	307	307
MF62 x 2	308	308	308
MF64 x 1.5	320	320	320
MF64 x 2	321	321	321
MF68 x 1.5	347	347	347
MF68 x 2	348	348	348
MF70 x 1.5	360	360	360
MF70 x 2	361	361	361

Price/unit, €

Prod. Gr. 3DB

ORION® thread gauges made of gauge steel for tapered NPT American pipe thread

NPT

Application:

No. 32740: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

No. 32741: For testing the flank and core diameter of male threads.

Technical data:

- Material: Gauge steel
- ANSI: ANSI B 1.20.1
- Thread type: National pipe tapered thread



No. 32740



No. 32741

Pipe thread code	thread limit plug gauge		thread limit ring gauge	
	32740... Ident. No.		32741... Ident. No.	
1/16"-27	005	○	005	○
1/8"-27	010	●	010	●
1/4"-18	020	●	020	●
3/8"-18	030	●	030	○
1/2"-14	040	●	040	●
3/4"-14	050	●	050	●
1"-11.5	060	○	060	○
1 1/4"-11.5	070	○	070	○

Prod. Gr. 3DB

Pipe thread code	thread limit plug gauge		thread limit ring gauge	
	32740... Ident. No.		32741... Ident. No.	
1 1/2"-11.5	080	○	080	○
2"-11.5	090	○	090	○
2 1/2"-8	100	○	100	○
3"-8	110	○	110	○
3 1/2"-8	120	○	120	○
4"-8	130	○	130	○
	Price/unit, €			

ORION® thread gauges made of gauge steel (DIN 2999) for DIN 2999 R/Rp Whitworth pipe threads

RP

R

Application:

No. 32745: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

No. 32746: For testing the flank and core diameter

of male threads.

Technical data:

- Material: Gauge steel



No. 32745

Illustration may be different!



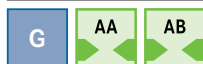
No. 32746

Pipe thread code	Thread limit plug gauge, Rp		Thread limit ring gauge R	
	32745... Ident. No.		32746... Ident. No.	
1/16"-28	005	○	005	○
1/8"-28	010	●	010	●
1/4"-19	020	●	020	○
3/8"-19	030	●	030	○
1/2"-14	040	●	040	○
3/4"-14	050	●	050	○
1"-11	060	●	060	●

Prod. Gr. 3DB

Pipe thread code	Thread limit plug gauge, Rp		Thread limit ring gauge R	
	32745... Ident. No.		32746... Ident. No.	
1 1/4"-11	070	○	070	○
1 1/2"-11	080	○	080	○
2"-11	090	○	090	○
2 1/2"-11	100	○	100	○
3"-11	110	○	110	○
4"-11	120	○	120	○
	Price/unit, €			

ORION® thread gauges made of gauge steel (ISO 228) for cylindrical pipe threads G

**Application:**

No. 32750: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

No. 32754–32755: For testing the flank and core diameter of male threads.

Technical data:

▪ Material: Gauge steel



No. 32750
Illustration may be different!



No. 32754



No. 32755

Pipe thread code	Tolerance class	Thread limit plug gauge Medium		Thread go ring gauge A		Thread no-go ring gauge A	
		32750... Ident. No.		32754... Ident. No.		32755... Ident. No.	
1/8"-28		010	●	010	●	010	○
1/4"-19		015	●	015	●	015	●
3/8"-19		020	●	020	●	020	●
1/2"-14		025	●	025	●	025	●
5/8"-14		030	●	030	○	030	○
3/4"-14		035	●	035	●	035	●
7/8"-14		040	○	040	○	040	○
1"-11		045	●	045	●	045	●
1 1/8"-11		050	○	050	○	050	○
1 1/4"-11		-	-	055	●	055	○
1 1/2"-11		-	-	065	●	065	○
1 3/4"-11		-	-	075	○	075	○
2"-11		-	-	080	○	080	○
		Price/unit, €					

Prod. Gr. 3DB