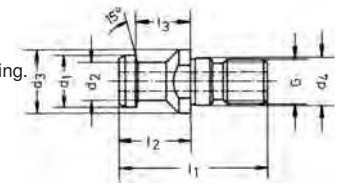
21733 - 21734 Pull stud in accordance with DIN 69872

ATORN®

21733
Design
Shape A with bore and O-ring.
Gripping collar angle **15°.**

21734
Design
Shape B without bore, with O-ring.
Gripping collar angle **15°.**



21733

21734

For SK	d_1 mm	d_2 mm	d_3 mm	d_4 mm	THD	l_1 mm	l_2 mm	l_3 mm	21733	...	21734	...
40	19	14	23	17	M 16	54	26	20		101		101
50	28	21	36	25	M 24	74	34	25		102		102

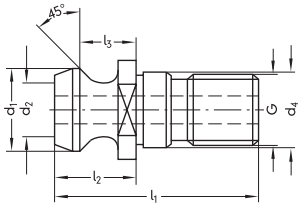
21735 Pull stud ISO 7388/2 shape B

ATORN®

Design
Gripping collar angle **45°.**

21735 101-102
Design
With bore and O-ring.

21735 201-202
Design
Without bore, with O-ring.



21735 101-102

21735 201-202

For SK	d_1 mm	d_2 mm	d_4 mm	THD	l_1 mm	l_2 mm	l_3 mm	21735	...	21735	...
40	18.95	12.95	17	M 16	44.5	16.4	11.15		101		201
50	29.10	19.6	25	M 24	65.5	25.55	17.95		102		202

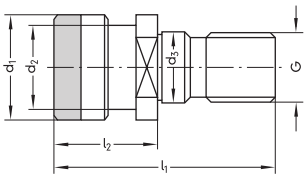
21736 Pull stud

ATORN®

Design
With **ring groove (Ott clamping groove),** gripping collar angle **15°.**

21736 301-302
Head made of solid material.

21736 303-304
With female thread.



21736 301-302

21736 303-304

For SK	d_1 mm	d_2 mm	d_3 mm	THD	l_1 mm	l_2 mm	21736	...
40	25.0	21.1	17	M 16	53	25		301
50	39.6	32.0	25	M 24	65	25		302
40	25.0	21.1	17	M 16	53	25		303
50	39.6	32.0	25	M 24	65	25		304

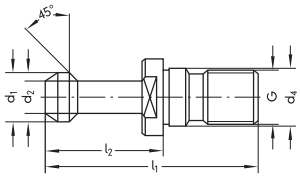
21737 - 21739 Pull stud MAS 403-BT/JIS B 6339

ATORN®

21737
Design
Gripping collar angle **45°.**

21738
Design
Gripping collar angle **60°** (also for OKUMA machining centres).

21739
Design
Gripping collar angle **90°.**



21737

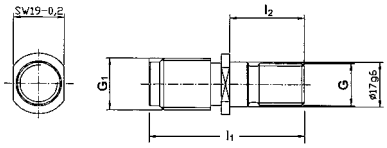
21738

21739

							45°		60°		90°	
For BT	d_1 mm	d_2 mm	d_4 mm	THD	l_1 mm	l_2 mm	21737	...	21738	...	21739	...
40	15	10	17	M 16	60	35		402		402		402
50	23	17	25	M 24	85	45		403		403		403

21740 Pull stud with buttress thread

ATORN®



21740

For SK	THD_1	THD	l_1 mm	l_2 mm	21740	...
40	S 20 x 2	M 16	56	28		101

21431 Thread-cutting devices

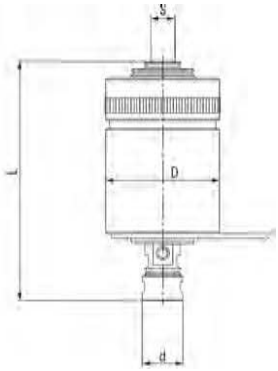
TAPMATIC

Design
Adjustable safety slip coupling, length compensation under compression and tension, automatic quick reverse 1.75:1. With inner taper for interchangeable shanks.

Scope of delivery:
Includes stop arm.

Applications
For thread cutting on machines with clockwise running working spindles. Can be used vertically and horizontally.

Note:
Plug-in pins, see art. no. 21170.
Rubber flex collet chucks, see art. no. 21447.



21431

Type	Mount S inner taper	Cutting area (steel)	Rotation speed max. rpm	Length extension T mm	For rubber collet chucks	D mm	d mm	L mm	21431	...
30 X	B 16	M 1.4–M 7	2000	3.5	J116/J117	48	19	113		**102**
50 X	B 16	M 3.0–M 12	1500	6.0	J421/J422	70	27	153		**103**

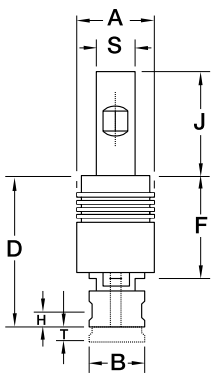
21445 Tapping chucks

TAPMATIC

Design
With initial cut pressure booster and length compensation under tension and pressure, cutting suspension, for vertical and horizontal applications. Mount for straight shanks with driver faces in accordance with DIN 1835 B, for suitable chucks,
see art. No. 21630–21632.

Applications
For use with NC, CNC machines, lathes, machines with reversible directions of rotation. For right-hand or left-hand threads.

Note:
Rubber flex collet chucks, see art. no. 21447.



21445

Type	Cutting area (steel)	Straight shank Ø diameter	Length compensation pressure (H)/tension (T) mm	Rubber collet chucks	D mm	d mm	L1 mm	L2 mm	L3 mm	21445	...
SM2 - 020	M 1.4–M 7	20	5.0/4.5	J116/J117	27	19	50	53	26		**101**
SM4 - 020	M 3.0–M 12	20	7.0/7.0	J421/J422	38	27	48	71	36		**102**

21447 Rubber collet chucks DIN 6345

RUBBER-FLEX

Applications
For Tapmatic thread-cutting devices,
see art. no. 21431/21445.

21447

Type	Clamping range mm	21447	...
J 115	1.0–2.5		**101**
J 116	2.5 - 4.5		**102**
J 117	4.5 - 6.5		**103**
J 423	2.0 - 4.5		**104**

Type	Clamping range mm	21447	...
J 421	3.5 - 6.5		**105**
J 420	4.5 - 8.0		**106**
J 422	6.5 - 10.0		**107**
J 443	2.8 - 7.0		**108**

Type	Clamping range mm	21447	...
J 441	4.5 - 10.0		**109**
J 440	7.0 - 13.0		**110**
J 445	9.0 - 15.0		**111**

21453 Quick-change tapping chuck for synchronous spindles

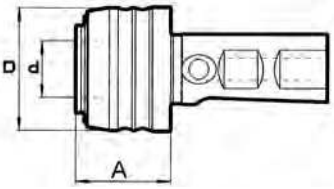
ATORN®

Design
- **Minimum length compensation** applied by damping element
- Secure clamping in quick-change inserts for ER collets
- Clamping screws to prevent rotation of the clamped screw tap
- Straight shank similar to DIN 1835 B+E

Applications
For use on drilling and machining centres with synchronous spindles.

Note:
For quick-change inserts, see art. no. 21465.

21453



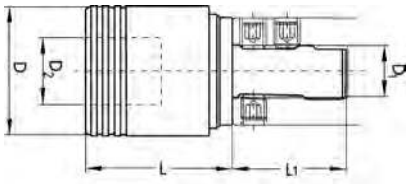
Shank Ø mm	d mm	D mm	A mm	Length compensation mm pressure/tension	For screw tap	21453	...
25	20	43	34	0.2/1.0	M 3–M 12		**101**
25	32	60	56	0.2/1.0	M 6–M 20		**102**

= The specified prices are unit prices. Only sold in the specified packing units. Always specify number of units in order information.

21452 Quick-change tapping chuck

bilz

Design
Type WFLC/MS. Precision version with length compensation under compression and tension. Straight-shank mount with side clamping surface similar to DIN 1835 B/E.
Note:
For quick-change inserts, see art no. 21459–21460.



21452

For screw tap	Suitable inserts/size	Length compensation tension/pressure	D Ø mm	D_1 Ø mm	D_2 Ø mm	L mm	L_1 mm	21452	...
M 3–M 12	1	7.5/7.5	39	25	19	45	53		101
M 6–M 20	2	10.0/10.0	60	25	31	68	53		102

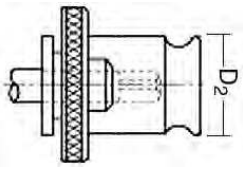
21459 Quick-change inserts without safety slip coupling

HHW

Design
Type WE. Inserts **without safety coupling.**

Applications
For right-hand or left-hand threads.

21459



For chuck size	Shank Ø mm	ShankT mm	DIN 352	DIN 371	DIN 374/376	DIN 5157	D_2 mm	21459	...
1	3.5	2.7	M 3	M 3	M 5	-	19		115
1	4.0	3.0	M 3.5	M 3.5	-	-	19		116
1	4.5	3.4	M 4	M 4	M 6	-	19		118
1	6.0	4.9	M 5–M 8	M 5 + M 6	M 8	-	19		121
1	7.0	5.5	M 10	-	M 10	THD 1/8	19		123
1	8.0	6.2	-	M 8	-	-	19		124
1	9.0	7.0	M 12	-	M 12	-	19		125
1	10.0	8.0	-	M 10	-	-	19		126
2	6.0	4.9	M 5–M 8	M 5 + M 6	M 8	-	31		129
2	7.0	5.5	M 10	-	M 10	-	31		130
2	8.0	6.2	-	M 8	-	-	31		131
2	9.0	7.0	M 12	-	M 12	-	31		132
2	10.0	8.0	-	M 10	-	-	31		133
2	11.0	9.0	M 14	-	M 14	THD 1/4	31		135
2	12.0	9.0	M 16	-	M 16	THD 3/8	31		137
2	14.0	11.0	M 18	-	M 18	-	31		138
2	16.0	12.0	M 20	-	M 20	THD 1/2	31		140
3	11.0	9.0	M 14	-	M 14	-	48		141
3	12.0	9.0	M 16	-	M 16	-	48		142
3	14.0	11.0	M 18	-	M 18	-	48		143
3	16.0	12.0	M 20	-	M 20	-	48		144
3	18.0	14.5	M 22 + M 24	-	M 22 + M 24	THD 5/8	48		146
3	20.0	16.0	M 27 + M 28	-	M 27 + M 28	THD 3/4	48		148
3	22.0	18.0	M 30	-	M 30	THD 7/8	48		150
3	25.0	20.0	M 33	-	M 33	THD 1	48		152

21460 Quick-change inserts with safety slip coupling

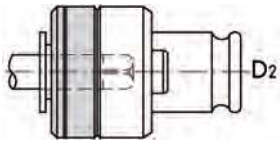
HHW

Design
Type WES/B, inserts **with safety coupling.**

Applications
For right-hand threads.

Note:
Inserts for left-hand threads deliverable on request.

21460



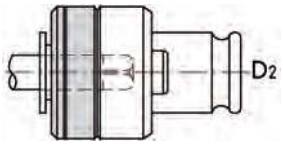
For chuck size	Shank Ø mm	ShankT mm	DIN 352	DIN 371	DIN 374/376	DIN 5157	D_2 mm	21460	...
1	3.5	2.7	M 3	M 3	-	-	19		315
1	4.0	3.0	M 3.5	M 3.5	-	-	19		317
1	4.5	3.4	M 4	M 4	-	-	19		318
1	4.5	3.4	-	-	M 6	-	19		319
1	6.0	4.9	M 5	M 5	-	-	19		320
1	6.0	4.9	M 6	M 6	-	-	19		321
1	6.0	4.9	M 8	-	M 8	-	19		322
1	7.0	5.5	M 10	-	M 10	-	19		323
1	8.0	6.2	-	M 8	-	-	19		325
1	9.0	7.0	M 12	-	M 12	-	19		326
1	10.0	8.0	-	M 10	-	-	19		327

Continued

Continued

For chuck size	Shank Ø mm	ShankT mm	DIN 352	DIN 371	DIN 374/376	DIN 5157	D2 mm	21460	...
2	6.0	4.9	M 6	M 6	-	-	31		329
2	6.0	4.9	M 8	-	M 8	-	31		330
2	7.0	5.5	M 10	-	M 10	-	31		331
2	8.0	6.2	-	M 8	-	-	31		332
2	9.0	7.0	M 12	-	M 12	-	31		333
2	10.0	8.0	-	M 10	-	-	31		334
2	11.0	9.0	M 14	-	M 14	-	31		335
2	12.0	9.0	M 16	-	M 16	-	31		337
2	14.0	11.0	M 18	-	M 18	-	31		339
2	16.0	12.0	M 20	-	M 20	-	31		340
3	11.0	9.0	M 14	-	M 14	-	48		342
3	12.0	9.0	M 16	-	M 16	-	48		343
3	14.0	11.0	M 18	-	M 18	-	48		344
3	16.0	12.0	M 20	-	M 20	-	48		345
3	18.0	14.5	M 22	-	M 22	THD 5/8	48		346
3	18.0	14.5	M 24	-	M 24	-	48		347
3	20.0	16.0	M 27 + 28	-	M 27 + 28	-	48		348
3	22.0	18.0	M 30	-	M 30	-	48		350
3	25.0	20.0	M 33	-	M 33	-	48		352

21460



21465 - 21466 Quick-change inserts for synchronous collet

ATORN®

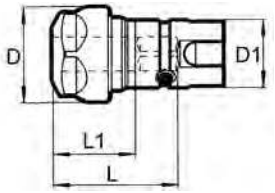
21465 101-102
Design
One piece.

21465 201-202
Design
Two pieces.

Note:
For quick-change thread-cutting chucks no. 21453, 21457 and 21837.

21466
Extensions for quick-change inserts (two pieces) no. 21465 201–202.

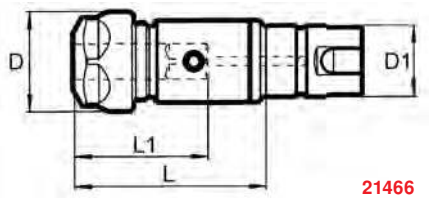
21465 101-102



One piece

For collet chucks ER	L mm	L1 mm	D mm	D1 mm	For thread M	21465	...
16	37	24	28	20	3 - 12		101
25	52	28	42	32	6 - 20		102

21465 201-202



Two pieces

For collet chucks ER	L mm	L1 mm	D mm	D1 mm	For thread M	21465	...
16	55	38	28	20	3–12		201
25	86	50	42	32	6–20		202

Extensions for two-piece quick-change inserts

L mm	D mm	For thread M	21466	...
25	22	3–12		101
50	22	3–12		102
50	34	6–20		103
100	34	6–20		104

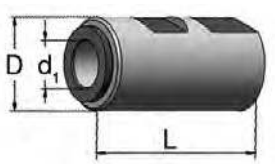
21466

21641 Clamping sleeves for screw taps

Applications
For direct mounting of screw taps in milling cutter holders (Weldon) without length compensation.

Note:
Cost-effective alternative to synchronous spindles.

21641



D mm	d_1 x T mm	L mm	21641	...
16	3.5 x 2.7	56		101
16	4.0 x 3.0	56		102
20	6.0 x 4.9	58		103
20	7.0 x 5.5	58		104
20	8.0 x 6.2	58		105
20	9.0 x 7.0	58		106

D mm	d_1 x T mm	L mm	21641	...
20	10.0 x 8.0	58		107
25	11.0 x 9.0	66		108
25	12.0 x 9.0	66		109
32	14.0 x 11.0	70		110
32	16.0 x 12.0	70		111
32	18.0 x 14.5	70		112

= The specified prices are unit prices. Only sold in the specified packing units. Always specify number of units in order information.

23110 Extensions for machine taps

Design

- Extension with DIN shank
- Clamping via chuck and collet chuck

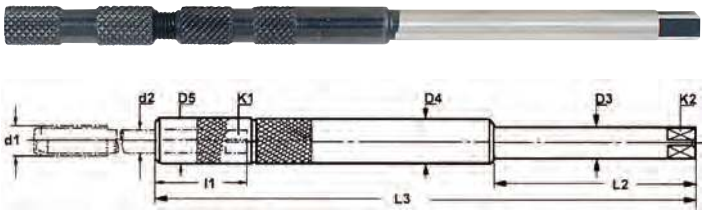
Advantages:

- No costly screw taps in special lengths
- No replacement parts required

Applications

For thread cutting in inaccessible places.
Can also be used on all CNC machines

23110



Short Type	Screw tap dimensions Thread nominal Ø d mm DIN 371	DIN 374/376	Shank Ø d2 mm	Square K1 mm	Clamping length l1 mm	Extension dimensions Ø D3 mm	K2 mm	D4/D5 mm	L3 mm	23110	...
TE1	M 2–M 2.6	M 4	2.8	2.1	22	6	4.9	6.1	130		101
TE2	M 3	M 4.5–M 5	3.5	2.7	23	6	4.9	7.5	130		103
TE3	M 4	M 6	4.5	3.4	23	6	4.9	8.4	130		105
TE4	M 4.5–M 6	M 8	6.0	4.9	26	7	5.5	12.1	130		107
TE5	M 7	M 9–M 10	7.0	5.5	26	7	5.5	12.1	130		109
TE6	M 8	M 11	8.0	6.2	30	8	6.2	13.0	130		111
TE7	M 9	M 12	9.0	7.0	31	9	7.0	15.0	130		113
TE8	M 10	-	10.0	8.0	33	10	8.0	15.0	130		115
TE9	-	M 14	11.0	9.0	36	11	9.0	18.0	130		117
TE10	-	M 16	12.0	9.0	36	12	9.0	18.0	130		119
TE11	-	M 18	14.0	11.0	42	14	11.0	22.0	200		121
TE12	-	M 20	16.0	12.0	42	16	12.0	22.0	200		123
TE13	-	M22–M 24	18.0	14.5	43	18	14.5	26.0	200		125
TE14	-	M 27	20.0	16.0	48	20	16.0	28.0	200		127
TE15	-	M 30	22.0	18.5	53	22	18.0	30.0	200		129
TE16	-	M 33	25.0	20.0	62	25	20.0	40.0	200		131
TE17	-	M 36	28.0	22.0	64	28	22.0	40.0	200		133
TE18	-	M 39–M 42	32.0	24.0	69	32	24.0	43.0	200		135

Long Type	Screw tap dimensions Thread nominal Ø d mm DIN 371	DIN 374/376	Shank Ø d2 mm	Square K1 mm	Clamping length l1 mm	Extension dimensions Ø D3 mm	K2 mm	D4/D5 mm	L3 mm	23110	...
TE1 L	M 2–M 2.6	M 4	2.8	2.1	22	6	4.9	6.1	230		102
TE2 L	M 3	M 4.5–M 5	3.5	2.7	23	6	4.9	7.5	230		104
TE3 L	M 4	M 6	4.5	3.4	23	6	4.9	8.4	230		106
TE4 L	M 4.5–M 6	M 8	6.0	4.9	26	7	5.5	12.1	230		108
TE5 L	M 7	M 9–M 10	7.0	5.5	26	7	5.5	12.1	230		110
TE6 L	M 8	M 11	8.0	6.2	30	8	6.2	13.0	230		112
TE7 L	M 9	M 12	9.0	7.0	31	9	7.0	15.0	230		114
TE8 L	M 10	-	10.0	8.0	33	10	8.0	15.0	230		116
TE9 L	-	M 14	11.0	9.0	36	11	9.0	18.0	230		118
TE10 L	-	M 16	12.0	9.0	36	12	9.0	18.0	230		120
TE11 L	-	M 18	14.0	11.0	42	14	11.0	22.0	330		122
TE12 L	-	M 20	16.0	12.0	42	16	12.0	22.0	330		124
TE13 L	-	M22–M 24	18.0	14.5	43	18	14.5	26.0	330		126
TE14 L	-	M 27	20.0	16.0	48	20	16.0	28.0	330		128
TE15 L	-	M 30	22.0	18.5	53	22	18.0	30.0	330		130
TE16 L	-	M 33	25.0	20.0	62	25	20.0	40.0	330		132
TE17 L	-	M 36	28.0	22.0	64	28	22.0	40.0	330		134
TE18 L	-	M 39–M 42	32.0	24.0	69	32	24.0	43.0	330		136

21698 - 21699 Chuck extensions AMC and clamping sleeves

ALBRECHT
Präzisions Spannfutter

21698
Clamping chuck extensions AMC
Design

- Very slim for hard-to-reach machining areas
- Concentricity accuracy below 0.008 mm
- Operated using the supplied hexagon key

Applications

Can be clamped in all precision chucks.
For clamping the smallest of tools.

21699
Clamping sleeves
Design

- Hardened
- Ground
- Coated

Applications

For clamping chuck extensions AMC, no. 21698.

21698

21699

Continued ▶

Collets

Continued

Clamping range mm	Shank Ø mm	Length mm	Mount	Chuck extensions 21698	...
1–6	14 h6	100	DIN 6535-HA straight shank		101
1–6	14 h6	150	DIN 6535-HA straight shank		102
1–6	20 h6	100	DIN 6535-HB Weldon		104
1–6	20 h6	150	DIN 6535-HB Weldon		105

Clamping sleeve Ø mm	Clamping sleeves 21699	...
1		101
2		102
3		103
4		104
5		105
6		106

21519 - 21525 ER collets

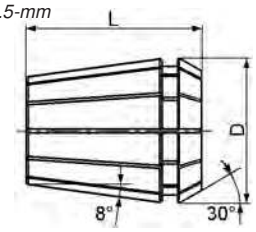
DIN 6499 | B | ≤15µm

Design
- Fully hardened and ground
- Ground, concentricity accuracy 0.015 mm

Applications
In standard collet chucks.

21519
Set in plastic case

Note:
The clamping bridge is up to 1 mm smaller, e.g. 9–8 mm, except in the case of 1-mm and 1.5-mm collet chucks (then only 0.5 mm). Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.



21520 - 21525

Individual parts	Type ER 11/4008 E D x L 11.5 x 18mm		Type ER 16/426 E D x L 17 x 27.5 mm		Type ER 20/428 E D x L 21 x 31.5 mm		Type ER 25/430 E D x L 26 x 34 mm		Type ER 32/470 E D x L 33 x 40 mm		Type ER 40/472 E D x L 41 x 46 mm	
Clamping diameter mm	21520	...	21521	...	21522	...	21523	...	21524	...	21525	...
1.0		101		101								
1.5		102		102								
2.0		103		103		103		103				
2.5		104		104								
3.0		105		105		105		105		105		
3.5		106										
4.0		107		107		107		107		107		107
4.5		108										
5.0		109		109		109		109		109		109
5.5		110										
6.0		111		111		111		111		111		111
6.5		112										
7.0		113		113		113		113		113		113
8.0				114		114		114		114		114
9.0				115		115		115		115		115
10.0				116		116		116		116		116
11.0						117		117		117		117
12.0						118		118		118		118
13.0						119		119		119		119
14.0								120		120		120
15.0								121		121		121
16.0								122		122		122
17.0										123		123
18.0										124		124
19.0										125		125
20.0										126		126
21.0												127
22.0												128
23.0												129
24.0												130
25.0												131
26.0												132

Set

Type	D x L mm	Contents	Clamping range mm	Increasing by mm	21519	...
ER 11/4008 E	11.5 x 18.0	13 pieces	1–7	0.5		100
ER 16/426 E	17.0 x 27.5	10 pieces	1–10	1.0		101
ER 20/428 E	21.0 x 31.5	12 pieces	2–13	1.0		105
ER 25/430 E	26.0 x 34.0	15 pieces	2–16	1.0		102
ER 32/470 E	33.0 x 40.0	18 pieces	3–20	1.0		103
ER 40/472 E	41.0 x 46.0	23 pieces	4–26	1.0		104

21519 103

= The specified prices are unit prices. Only sold in the specified packing units. Always specify number of units in order information.

GERC-B precision collet chucks

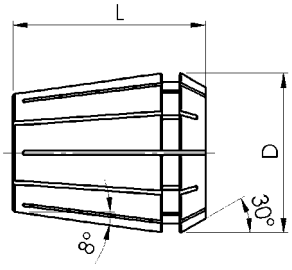
DIN 6499 | B | ≤5µm

FAHRION® PRAZISION

Design
- Fully hardened and ground
- **Protective coating for longer precision and quality,** concentric accuracy 0.005 mm

Applications
In standard collet chucks.

Note:
The clamping bridge is up to 1 mm smaller, e.g. 9–8 mm, except in the case of 1-mm and 1.5-mm collet chucks (then only 0.5 mm).
Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.



21534 - 21539

Individual parts	Type GERC 11-B/4008 E D x L 11.3 x 18.0 mm		Type GERC 16-B/426 E D x L 17 x 27.5 mm		Type GERC 20-B/428 E D x L 21 x 31.5 mm		Type GERC 25-B/430 E D x L 26 x 34 mm		Type GERC 32-B/470 E D x L 33 x 40 mm		Type GERC 40-B/472 E D x L 41 x 46 mm	
Clamping diameter mm	21534	...	21535	...	21536	...	21537	...	21538	...	21539	...
1.0		201		201								
1.5		202		202								
2.0		203		203		203		203				
2.5		204		204								
3.0		205		205		205		205		205		207
3.5		206										
4.0		207		207		207		207		207		208
4.5		208										
5.0		209		209		209		209		209		209
5.5		210										
6.0		211		211		211		211		211		211
6.5		212										
7.0		213		213		213		213		213		213
8.0				214		214		214		214		214
9.0				215		215		215		215		215
10.0				216		216		216		216		216
11.0						217		217		217		217
12.0						218		218		218		218
13.0						219		219		219		219
14.0								220		220		220
15.0								221		221		221
16.0								222		222		222
17.0										223		223
18.0										224		224
19.0										225		225
20.0										226		226
21.0												227
22.0												228
23.0												229
24.0												230
25.0												231
26.0												232

21519
Set supplied in wooden case

21519 205

Set Type	D x L mm	Contents	Clamping range mm	Increasing by mm	21519	...
GERC 11-B/4008 E	11.3 x 18.0	13 pieces	1–7	0.5		201
GERC 16-B/426 E	17.0 x 27.5	10 pieces	1–10	1.0		202
GERC 20-B/428 E	21.0 x 31.5	12 pieces	2–13	1.0		203
GERC 25-B/430 E	26.0 x 34.0	15 pieces	2–16	1.0		204
GERC 32-B/470 E	33.0 x 40.0	18 pieces	3–20	1.0		205
GERC 40-B/472 E	41.0 x 46.0	23 pieces	4–26	1.0		206

21546 - 21550 GERC-HP precision collet chucks

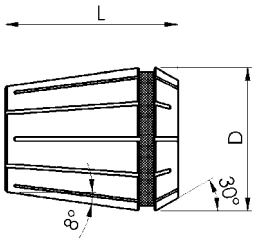
DIN 6499 | B | ≤2µm

FAHRION® PRAZISION

Design
- Fully hardened and ground
- **Protective coating for longer precision and quality,** concentric accuracy 0.002 mm
- System accuracy and repeatability in conjunction with CENTRO|P 0.003 mm
- Without clamping bridge

Applications
For CENTRO|P collet chucks and ATORN precision collet chucks.

Note:
For sealing washers, see art. no. 21513 (only available online).
Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.



21546 - 21550

	Type GERC 11-HP/4008 E D x L 11.3 x 18mm	Type GERC 16-HP/426 E D x L 17 x 27.5 mm	Type GERC 25-HP/430 E D x L 26 x 34 mm	Type GERC 32-HP/470 E D x L 33 x 40 mm
Clamping Ø mm	21546 ...	21547 ...	21549 ...	21550 ...
1.0	201	201		
1.5	202	202		
2.0	203	203	203	
2.5	204	204		
3.0	205	205	205	205
3.5	206			
4.0	207	207	207	207
4.5	208			
5.0	209	209	209	209
5.5	210			
6.0	211	211	211	211
6.5	212			
7.0	213	213	213	213
8.0		214	214	214
9.0		215	215	215
10.0		216	216	216
11.0			217	217
12.0			218	218
13.0			219	219
14.0			220	220
15.0			221	221
16.0			222	222
17.0				223
18.0				224
19.0				225
20.0				226

= The specified prices are unit prices. Only sold in the specified packing units. Always specify number of units in order information.

21561 - 21566 GERC-HPD sealed precision collet chucks for CENTRO|P

≤2µm

FAHRION® PRAZISION

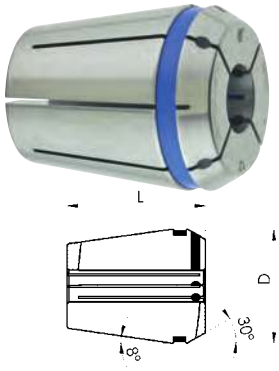
Design
- **Protective coating for longer precision and quality,** fully hardened, ground and sealed
- Concentricity 0.002 mm
- Without clamping bridge

Applications
For internally cooled tools in CENTRO|P collet chuck and ATORN precision collet chuck.

Note:
Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.

21566 120

21561 - 21566



Individual		Type GERC11-HPD/4008 E D x L 11.3 x 18.0 mm	Type GERC16-HPD/425 E D x L 17 x 27.5 mm	Type GERC25-HPD/429 E D x L 26 x 34 mm	Type GERC32-HPD/469 E D x L 33 x 40 mm
Clamping Ø mm		21561 ...	21563 ...	21565 ...	21566 ...
3		101	101		
4		102	102	101	101
5		103	103	102	102
6		104	104	103	103
7			105	104	104
8			106	105	105
9			107	106	106
10			108	107	107
11				108	108
12				109	109
13				110	110
14				111	111
15				112	112
16				113	113
17					114
18					115
19					116
20					117

Set		Type GERC16-HPD/425 E D x L 17 x 27.5 mm	Type GERC25-HPD/429 E D x L 26 x 34 mm	Type GERC32-HPD/469 E D x L 33 x 40 mm
Contents	Clamping Ø mm	21563 ...	21565 ...	21566 ...
Six pieces	3 - 4 - 5 - 6 - 8 - 10	120		
Seven pieces	4 - 6 - 8 - 10 - 12 - 14 - 16		120	
Eight pieces	4 - 6 - 8 - 10 - 12 - 14 - 16 - 20			120

21567 - 21569 GERC-HPDD sealed precision collet chucks with spray nozzle for CENTRO|P

≤2µm

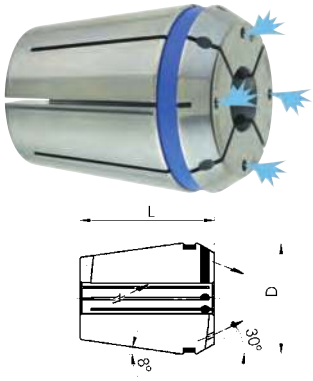
FAHRION® PRAZISION

Design
- **Protective coating for longer precision and quality,** completely hardened and ground, **sealed with spray nozzle**
- Concentricity 0.002 mm
- Without clamping bridge

Applications
For tools without internal cooling in CENTRO|P collet chuck and ATORN precision collet chuck.

Note:
Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.

21567 - 21569



	Type GERC16-HPDD/425 E D x L 17.0 x 27.5 mm	Type GERC25-HPDD/429 E D x L 26 x 34 mm	Type GERC32-HPDD/469 E D x L 33 x 40 mm
Clamping Ø mm	21567 ...	21567 ...	21569 ...
4	201	101	101
6	202	102	102
8	203	103	103
10		104	104
12		105	105
14		106	106
16			107
18			108
20			109

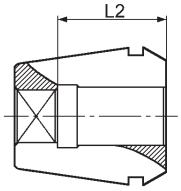
21526 - 21528 ER collet chucks for thread cutting

Design
Square drive for driving the screw tap. Without length compensation.

Applications
For clamping screw taps in collet chucks. Use only on synchronous machines.

Note:
Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.

21528



Shank diameter mm	Square mm	L2 mm	ER 16/4031 E 21526	...	ER 25/4282 E 21527	...	ER 32/4537 E 21528	...
3.5	2.7	18		201		201		
4.5	3.4	18		202		202		202
5.5	4.3	18		203		203		203
6.0	4.9	18		204		204		204
7.0	5.5	18		205		205		205
8.0	6.2	22		206		206		206
9.0	7.0	22		207		207		207
10.0	8.0	25		208		208		208
11.0	9.0	25				209		209
12.0	9.0	25				210		210
14.0	11.0	25				211		211
16.0	12.0	25				212		212

21552 - 21554 OZ collets

DIN 6388

Design
- Spring steel, completely hardened and ground
- Through hole to increase the clamping force

Advantages:
- Improved concentricity
- Higher clamping force due to increased contact ratio
- Higher system rigidity and tool life

Note:
Plastic collet chuck box, see AQURADO bearing system HHW catalogue Volume 2 (tools + machines) art. no. 84134.

21552 - 21554

Clamping Ø mm	Type 415 E For chuck size 2–16 mm D x L 25.5 x 40 mm 21552	...	Type 462 E For chuck size 3–25 mm D x L 35.05 x 52 mm 21553	...	Type 467 E For chuck size 4–32 mm D x L 44 x 60 mm 21554	...
2		101				
3		102		102		
4		103		103		103
5		104		104		104
6		105		105		105
7		106		106		106
8		107		107		107
9		108		108		108
10		109		109		109
11		110		110		110
12		111		111		111
13		112		112		112
14		113		113		113

Clamping Ø mm	Type 415 E For chuck size 2–16 mm D x L 25.5 x 40 mm 21552	...	Type 462 E For chuck size 3–25 mm D x L 35.05 x 52 mm 21553	...	Type 467 E For chuck size 4–32 mm D x L 44 x 60 mm 21554	...
15		114		114		114
16		115		115		115
17				116		116
18				117		117
19				118		118
20				119		119
22				120		120
24				121		121
25				122		122
26						123
28						124
30						125
32						126

21581 - 21582 Reducing sleeves

ATORN®

21581

21581
Design
Sealed for hydraulic expansion chucks.

21582

21582
Design
No seal for power chucks.

Suitable in D_1 mm	Reduction to D_2 mm	21581	...	21582	...
12	3		093		
12	4		094		
12	5		095		
12	6		096		
12	8		097		
20	3		098		098
20	4		099		099
20	5		100		100
20	6		101		101
20	8		102		102
20	10		103		103
20	12		104		104
20	14		105		105

Suitable in D_1 mm	Reduction to D_2 mm	21581	...	21582	...
20	16		106		106
32	3				110
32	4				111
32	5				112
32	6		113		113
32	8		114		114
32	10		115		115
32	12		116		116
32	14		117		117
32	16		118		118
32	18		119		119
32	20		120		120
32	25		121		121

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21509 Accessories for CENTRO|P precision collet chuck

FAHRION® PRAZISION

Note:
Clamping nuts CENTRO|P (art. no. 21509 102–106 and 21509 002–006) must only be used in conjunction with roller wrenches (art. no. 21509 200–206) or roller wrench adapters (no. 21509 301–306).

21509 101
Mini clamping nut

21509 102-106
Standard clamping nuts

21509 200-206
Roller wrenches

21509 301-306
Roller torque wrench adapters

21509 101

21509 102+104+106

21509 103

Clamping nuts

Size	For Collet chucks	Ø D mm	21509	...
HPC 11 M	ER 11/4008 E	16		101
HPC 16	ER 16/426 E	30		102
HPC 16C	ER 16/426 E	24		103
HPC 25	ER 25/430 E	40		104
HPC 32	ER 32/470 E	50		106

21509 200-206

Roller wrenches

Size	For clamping nut	21509	...
RO 16	HPC 11 M		200
RO 24	HPC 16C		201
RO 30	HPC 16		202
RO 40	HPC 25		204
RO 50	HPC 32		206

21509 301-306

Roller wrench adapters

Size	For clamping nut	Ø mm	Torque max. Nm	Ø mm	Torque max. Nm	Ø mm	Torque max. Nm	Ø mm	Torque max. Nm	Push-fit mount mm	21509	...
DRO 24	HPC 16C	1.0	10	1.5–3.5	15–20	4.0–10.0	25–30	-	-	9 x 12		301
DRO 30	HPC 16	1.0	10	1.5–3.5	25–30	4.0–10.0	50–55	-	-	9 x 12		302
DRO 40	HPC 25	1.0–3.0	25–30	3.5–6.5	35–40	7.0–10.0	55–60	10.5–16.0	80–90	14 x 18		304
DRO 50	HPC 32	2.0–3.0	30–35	3.5–6.5	55–60	7.0–15.5	110–120	16.0–20.0	130–140	14 x 18		306

21518 Replacement standard clamping nuts

ATORN®

21518

Clamping range mm	Collet chuck type	Ø D mm	21518	...
1–10	AER 16	30		101
1–16	AER 25	40		102
2–20	AER 32	50		103

21517 Replacement mini clamping nuts

Design
For collet chucks of **type ER.**

21517

Clamping range mm	Outer Ø d mm	Collet chuck type	Thread	21517	...
1–7	16	ER 11/4008 E	M 13 x 0.75		101
1–10	22	ER 16/426 E	M 19 x 1		102
1–13	28	ER 20/428 E	M 24 x 1		103
2–16 of	35	ER 25/430 E	M 30 x 1		104

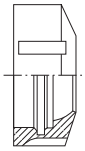
21530 Spare clamping nuts

Applications
For collet chucks of **type ER**.

Note:
Open-ended spanner for nut art. no. 21530 103 see HHW catalogue Volume 2 (tools + machines) art. no. 50113 235.

21530 103

21530



For clamping range mm	For type ER	Nuts Ø mm	21530	...
1–10	16	SW 25/28		103
1–10	16	32		104
1 - 16	25	42		105
2 - 20	32	50		106
3 - 26	40	63		107

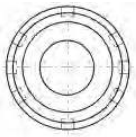
21562 OZ clamping nuts

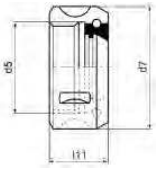
DIN 6388

Design
Ball-bearing union nut.
Applications
For collet chuck no. 21540–21545.

Note:
Spanner, see HHW catalogue Volume 2 (tools + machines) art. no. 50650 et seq.

21562





For clamping range mm	d5	d7 mm	l11 mm	21562	...
2–16	M 33 x 1.5	43	24.0		101
3–25	M 48 x 2.0	60	30.0		102
4–32	M 60 x 2.5	72	33.5		103

21516 Chuck key

Design
Special steel, bronzed, ground upright.

Applications
For collet chucks of **type ER mini.**

21516

For clamping range mm	Collet chuck type	21516	...
1–7	ER 11/4008 E		101
1–10	ER 16/426 E		102
1–13	ER 20/428 E		103
1–16	ER 25/430 E		104

21532 Chuck key

Design
Made from special steel, hardened and bronzed, with hanging hole.

Applications
For collet chucks of **type ER.**

21532

For clamping range mm	For type ER	For nuts Ø mm	Total length mm	21532	...
1–10	16	32	160		103
1 - 16	25	42	203		104
2 - 20	32	50	253		105
3 - 26	40	63	285		106

21570 - 21571 Pressure collet chucks

DIN 6343

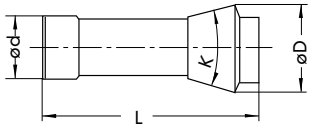
21570
Design
Type 173 E, dimensions: diameter d 48 x diameter D 60 x L 94 mm, K = 30°. **DIN 6343/F48.**

21571
Design
Type 185 E, dimensions: diameter d 66 x diameter D 84 x L110 mm, K = 30°. **DIN 6343/F66.**

Note:
Smooth bore up to 7 mm diameter, with transverse grooves from 8 mm diameter.

Collet chucks with square or hexagonal profiles deliverable on request.

21570



Bore mm	173 E 21570	...	185 E 21571	...
3		101		
4		102		
5		103		103
6		104		104
7		105		105
8		106		106
9		107		107
10		108		108
11		109		109
12		110		110
13		111		111
14		112		112
15		113		113
16		114		114
17		115		115
18		116		116
19		117		117
20		118		118
21		119		119
22		120		120

Bore mm	173 E 21570	...	185 E 21571	...
23		121		121
24		122		122
25		123		123
26		124		124
27		125		125
28		126		126
29		127		127
30		128		128
31		129		129
32		130		130
33		131		131
34		132		132
35		133		133
36		134		134
37		135		135
38		136		136
39		137		137
40		138		138
41		139		139
42		140		140

Bore mm	173 E 21570	...	185 E 21571	...
43				141
44				142
45				143
46				144
47				145
48				146
49				147
50				148
51				149
52				150
53				151
54				152
55				153
56				154
57				155
58				156
59				157
60				158

21572 Emergency pressure collet chucks

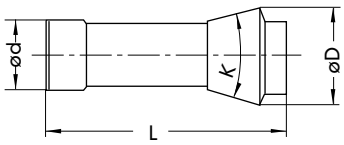
DIN 6343

Design
- Hardened to approx. 45 HRC
- Fully ground

Applications
For self-machining to the desired diameter or stepped bore.

Note:
Can be machined in the chuck using three dowel pins inserted in the face end.

21572



Type	Ø D mm	Ø d mm	L mm	Pre-bored to Ø mm	21572	...
173 E	60	48	94	3		101
185 E	84	66	110	6		102

21573 Interior stops for pressure collet chucks

Applications
For pressure collet chucks in accordance with DIN 6343. As a stop for turned parts. Can also be used for hollow parts. Suitable for round, hexagonal and square collet chucks.

21573

For collet chuck type	21573	...
173 E		101
185 E		102

21590 Inductive shrink devices

diebold

21590 101
HS 1100-P
Design
- Horizontal, high-performance, parameter-controlled or manually controlled inductive shrink-fit device
- Flexible, replaceable tool chucks
- Worn or broken tools can be ejected using a removal tool

Advantage:
- Horizontal design for exact positioning of the tools
- Optional digital length measuring fixture

21590 102
ISG 2430 TLK
Design
- Shrink-fit device with integrated air cooling
- Simple menu navigation of the parameter-controlled or manually controlled shrink process
- Manual coil and cooling control

Advantage:
- No contact with hot shrink-fit chucks
- No overheating of chucks thanks to fixed parameters

21590 104
ISG 2410 WK
Design
- Shrink-fit device with automatic coil control and water cooling
- Chucks are cooled automatically in the heat-shrink position
- Intelligent, programmable parameter control with simple menu navigation

Advantage:
- No contact with hot shrink-fit chucks
- No tool damage caused by cooling adapter
- No overheating of chucks thanks to fixed parameters

21590 101

21590 102

21590 104

Technical data	21590 101	21590 102	21590 104
Type	HS 1100-P	ISG 2430 TLK	ISG 2410 WK
Shrink area cemented carbide	Diameter 3–32 mm	Diameter 3 to 20 mm	Diameter 3 to 20 mm
Shrink area HSS	Diameter 6–32 mm	Diameter 6–20 mm	Diameter 6 to 20 mm
Tool length max.	350 mm	350 mm	400 mm
Cooling method	No cooling	Air cooling with adapter	Automatic water cooling
Tank capacity	-	-	40 l
Cooling length max.	-	350 mm	200 mm
Cooling time	300 s	90 s	20 s
Machine interface	SK 30–50 HSK 40–100	SK 30–50 HSK 32–100	SK 30–50 HSK 32–100
Connection	400V/16A	400V/16A	400V/16A
Output	11 kW	8 kW	8kW
Dimensions (WxDxH)	600 x 451 x 357	780 x 535 x 950	800 x 560 x 1720
Scope of delivery	Device with inductive coil, 5 ferrite discs, Protective gloves	Shrink-fit device with integrated cooling station, 3 ferrite discs Protective gloves	Shrink-fit device: 3 ferrite discs 1 l coolant concentrate, Protective gloves
Required accessories	Tool chuck 21591 -	Cooling adapter 21592 Tool chuck 21593	Tool chuck 21594 -
Optional accessories	Digital length setting 21591 201 Water cooler FKS 04 21590 103	Water cooler FKS 04 21590 103	- -

Type	21590 ...	21590 ...	21590 ...
HS 1100-P	101		
ISG 2430 TLK		102	
ISG 2410 WK			104

See next page for accessories

= The specified prices are unit prices. Only sold in the specified packing units. Always specify number of units in order information.

21591 Accessories for HS 1100-P

diebold

21591 101-104
Tool chuck
Design
- For clamping different taper shanks in the shrink device

Note:
Other taper sizes deliverable on request.

Size	Shape	21591 ...
HSK 63	A/E	101
SK 40	SK/BT	102
SK 50	SK/BT	103
Universal	Diameter 12–100 mm	104

21591 101-104

21591 201
Digital length setting
Design
- Can be retrofitted
- Accuracy 0.01 mm

Advantage:
- For shrinking exact tool lengths

Type	21591 ...
Digital length setting	201

21591 201

21592 - 21593 Accessories for ISG 2400 TLK

diebold

21592
Cooling adapter
Applications
To minimise the cooling time, aluminium bodies are used that enclose the hot clamping area with a precise fit and then quickly dissipate the heat to the outside via the cooling ribs. The chuck reaches a temperature at which it can be handled again after only 60 seconds.

21593
Tool chucks

21592

21593

Ø mm	SK	HSK-A	Cooling adapter 21592 ...	Tool chuck 21593 ...
3–5 slim	-	-	101	
3–5	-	-	102	
6–9	-	-	103	
9.1–12	-	-	104	
12.1–16	-	-	105	
16.1–22	-	-	106	
-	40	-		103
-	50	-		104
-	-	63		108

21589 Accessories for FKS 04

diebold

21589 204
Coolant concentrate, 1 litre

Type	21589 ...
Coolant concentrate, 1 litre	204

21589 204

21589 301

21589 303

21589 301+303
Tool chucks for FKS 04

Size	Shape	21589 ...
SK 30/40	SK/BT	301
HSK 40/50/63	-	303

21594 Accessories for ISG 2400/3400 WK

diebold

Design
- Tool chucks for clamping tool shanks during the shrink process

21594

Size	Shape	21594 ...
HSK 63	A/E	101
SK 40	SK/BT	102
SK 50	SK/BT	103

21595 Removal tools

diebold

Design
Basic mount with union nut, hexagon key, adjustable pressure pin.

Applications
For removing broken tool shanks from shrink-fit chucks. Adjust the length of the pressure pin, position the device on the shrink-fit device and remove the tool whilst heating using the eccentric turning handle and pressure pin.

21595

For taper	21595 ...
HSK 40	301
HSK 63	302
BT/SK 40	303

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21745 Assembly aids

Design
Swivels for mounting tools without reclamping.

Applications
For mounting and removing steep taper tool chucks.

21745 102

21745 103

Mount taper sizes	21745 ...
SK 40/ISO/DIN/CAT/BT/HSK 63	102
SK 50/ISO/DIN/CAT/BT	103

21746 Assembly supports

diebold

Design
Cast aluminium housing with easily accessible back. Vertical taper mount for tool-side mounting. Horizontal mount for mounting pull studs, coolant pipes etc.

Applications
Accident-proof mounting and removal of cutting tools and mounts.

21746

For taper	For size	For shape	21746 ...
SK/MAS-BT	30	-	101
SK/MAS-BT	40	-	102
SK/MAS-BT	50	-	103
VDI	20	-	104
VDI	30	-	105
VDI	40	-	106
VDI	50	-	107

For taper	For size	For shape	21746 ...
HSK	32	A/C/E/F	108
HSK	40	A/C/E/F	109
HSK	50	A/C/E/F	110
HSK	63	A/C/E/F	111
HSK	80	A/C	112
HSK	100	A/C	113

21748 Solid-clamp assembly aids

ATORN®

21748 101
Solid-clamp basic body
Design
Aluminium basic body for interchangeable tool chucks. 4 x 90° indexable mounts. Low force application thanks to optimum ergonomics.
Applications
Accident-proof mounting and removal of cutting tools and mounts.

21748 103-113
Solid-clamp tool chucks

21748 101

21748 103-105

Type	For taper	For size	21748 ...
Basic body	-	-	101
Tool chuck	SK/MAS-BT/CAT	30	103
Tool chuck	SK/MAS-BT/CAT	40	104
Tool chuck	SK/MAS-BT/CAT	50	105
Tool chuck	HSK-A	40	106
Tool chuck	HSK-A	50	107
Tool chuck	HSK-A	63	108
Tool chuck	HSK-A	80	109
Tool chuck	HSK-A	100	110
Tool chuck	VDI	30	111
Tool chuck	VDI	40	112
Tool chuck	VDI	50	113

39385 Tool presetters ATORN IC basic

Design
The ImageController basic is a professional entry model to the world of tool presetters. The table-top unit with ImageController basic is simple to operate and returns precise measurement results thanks to thorough checks and high-quality brand components. Pressing the unique EZclick rotary/push-button starts standard measuring functions such as length, diameter, concentricity and axial runout.
Delivery does not include a workbench.

Advantages and benefits for you:
- Speedy familiarisation with minimal training thanks to easy operation
- High-precision spindle SK 50 with integrated calibration balls
- Fast measurement, setting and testing of tools (length and diameter)
- EZmax software function for easy creation of tool contours
- Various measurement programs make it incredibly easy to measure variables such as concentricity and axial runout on the tool blades
- Quick and convenient printing of measurement results on labels (optional)
- One-handed control button for fast, simultaneous positioning of the Z and X axes
- Data output via RS232 interface

Note:
Cardboard packaging (no. 39385 411) is mandatory when ordering a tool presetter.
For accessories, see art. no. 39388–39389.

39385 501-503

39385 405

39385 412

Type	Measuring range Z axis mm	Measuring range X axis mm	Spindle	39385	...
ATORN IC basic 350	350	320	SK 50		501
ATORN IC basic 420	420	420	SK 50		502
ATORN IC basic 600	600	420	SK 50		503
Workbench for IC basic	-	-	-		505 NEW

Accessories	39385	...
Pneumatic spindle brake		403
Pneumatic spindle indexer		404
Software extension, tool memory		407
Software extension, measurement programs		408
Blade inspection with LED incident light		405

Accessories	39385	...
Software extension, measurement values		406
Thermal printer for IC basic		412 NEW
Roll of labels, matt white 25 x 75 mm (950 pieces)		413 NEW
Spindle cover for IC basic		410 NEW
Carton packaging for ATORN IC basic 350, 420 and 600		411

39384 Tool presetters ATORN IC 1

Design
The ImageController 1 is a professional entry-level model that functions as an excellent introduction to the world of tool presetters. This tool presetter with ImageController 1 is simple to operate, without the need for extensive training, and provides rapid and precise measurement results. It has been manufactured using high-quality brand components and subjected to stringent inspections. Standard measuring functions such as length, diameter, radius, two blade angles, concentricity and axial runout can be selected and performed quickly and easily using the 13.3-inch touchscreen monitor.
Delivery includes a workbench.

Advantages and benefits for you:
- Speedy familiarisation with minimal training thanks to easy operation
- High-precision spindle SK 50 with integrated calibration balls **including** spindle indexer and spindle brake
- Fast measurement, setting and testing of tool blades (length, diameter, radius, two angles)
- EZmax software function for easy creation of tool contours
- Various measurement programmes, e.g. to measure concentricity and axial runout on the tool blades with µm accuracy
- Fast and convenient printing of measurement results on labels
- One-handed control button for fast, simultaneous positioning of the Z and X axes

Note:
Carton packaging (art. no. 39388 207) is mandatory when ordering a tool presetter.
For accessories, see art. no. 39388–39389.

EZstart:
- Fast and user-independent measurement of multiple parameters on different tool types: Selection of 16 tool types
- Graphic menu for selecting the tool type

39384 501-504

Type	Measuring range Z axis mm	Measuring range X axis mm	Spindle	Snap gauge mm	39384	...
ATORN IC 1 350	350	320	SK 50	0		501
ATORN IC 1 420	420	420	SK 50	100		502
ATORN IC 1 600	600	420	SK 50	100		503
ATORN IC 1 600/570	600	570	SK 50	0		504

ATORN®

Design
The ImageController 2 measures, stores and documents tool blades in a matter of seconds. It is also possible to save multi-step tools. Image processing using the 13.3 or 24-inch touchscreen monitor of the Image Controller2 is intuitive and guarantees fast and simple measurement procedures.
Delivery includes a workbench.

Advantages and benefits for you:
- Speedy familiarisation with minimal training thanks to easy operation
- High-precision spindle SK 50 with integrated calibration balls including spindle indexer and spindle brake
- Fast measurement, setting and testing of tool blades
- EZmax software function for easy creation of tool contours
- Various measurement programmes, e.g. to measure concentricity and axial runout on the tool blades with µm accuracy
- Fast and convenient printing of measurement results on labels
- One-hand control button for fast, simultaneous positioning of the Z and X axes
- Optional rotation centre camera and automatic focus (art. no. 39387 403)
- Optional data output package (art. no. 39388 206)

Note:
Cardboard packaging (no. 39388 207)
is mandatory when ordering a tool presetter.
For accessories, see art. no. 39388–39389.

39386 501-504

39386 501-504
Design
With 13.3-inch touchscreen

NEW

39386 601-604

39386 601-604
Design
With 24-inch touchscreen

Type	Measuring range Z axis mm	Measuring range X axis mm	Spindle	Snap gauge mm	13.3 inch 39386 ...	24 inch 39386 ...
ATORN IC 2 350	350	320	SK 50	0	501	601 NEW
ATORN IC 2 420	420	420	SK 50	100	502	602 NEW
ATORN IC 2 600	600	420	SK 50	100	503	603 NEW
ATORN IC 2 600/570	600	570	SK 50	0	504	604 NEW

39387 403
Auto focus CNC drive for IC 2 spindle
Design
- Automatic focus on the tool blade via CNC rotation of the spindle to the highest point of the tool blade

39387 403

Accessories	39387 ...
Automatic-focus CNC drive for spindle for ATORN IC 2	403

39388 Accessories for tool presetters

ATORN®

Note:
Further accessories deliverable on request.

Accessories	39388 ...
Optional vacuum clamping device	202
Uni spindle for power-driven tool clamping	217 NEW
Rotation centre measurement camera for ATORN IC 1/IC 2	205
Data output package format generator for ATORN IC 2	206
Post-processor for ATORN IC 2	211
Barcode printer zidCode	214 NEW
Tool identification with fixed scanner	215 NEW
Tool identification with hand-held scanner	216 NEW
Conditioning unit NL1-G 1/8 inch with pressure reducer	203
Q-check device maintenance incl. certificate	213 NEW
Cover	212
Cleaning agent	210
Work surface with keyboard and mouse	218 NEW
Commissioning/training daily rate in Germany	209
Carton packaging for ATORN IC1/IC 2	207
Shipping within Germany	208

39388 202

39388 205

39388 206

39389 Adapter for SK 50 tool presetters

ATORN®

Note:
Other adapters (e.g. Capto) deliverable on request.

39389 201-202
Adapter SK 50/steep taper SK
- For mounting tool shanks with steep taper DIN 69871-1
- Integrated calibration balls

39389 203-209
Adapter SK 50/VDI straight shank with manual tool holder clamp
- For mounting tools with VDI straight shanks DIN 69880
- Integrated calibration balls

39389 210-216
Adapter SK 50/hollow shank taper HSK with manual offset clamp
- For mounting tool shanks with hollow shaft taper DIN 69893 and with and without cooling tubes
- Flat contact surface for HSK tool chuck
- Integrated calibration balls

39389 217-220
Adapter SK 50/hollow shank taper HSK without tool clamp
- For mounting tool shanks with hollow shaft taper DIN 69893
- Flat contact surface for HSK tool chuck
- Integrated calibration balls

Size	39389 ...
SK 30	201
SK 40	202
VDI 16	203
VDI 20	204
VDI 25	205
VDI 30	206
VDI 40	207
VDI 50	208
VDI 60	209
HSK A25-F32	210
HSK A32-F40	211
HSK A40-F50	212
HSK A50-F63	213
HSK A63-F80	214
HSK A80-F100	215
HSK A100-F125	216
HSK A32-F40	217 NEW
HSK A40-F50	218 NEW
HSK A50-F63	219 NEW
HSK A63-F80	220 NEW

39389 201-202

39389 203-209

39389 210-216

39389 217-220

21195 Label holders

HHW

Design
- Clear arrangement in tool cabinet
- Avoid mistakes when selecting tools
- Prevent additional measuring work
- Reduce set-up time

Applications
For SK 40/HSK 63 chucks. Affix with a label or write directly on it.

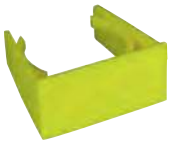
Type	Colour	21195 ...
SK 40/HSK 63	Green	101
SK 40/HSK 63	Blue	102
SK 40/HSK 63	Red	103
SK 40/HSK 63	Yellow	104
SK 40/HSK 63	Black	105
SK 40/HSK 63	White	106

21195 101

21195 102

21195 103

21195 104



21195 105

21195 106

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21766 Zero point sensor

Design
Define the reference point in the axial direction of the machine spindle (e.g. for milling) quickly and easily. Place the device on the workpiece and move the tool (e.g. cutter) on the sprung sensor surface until both dial gauge needles point to 0. The lower edge of the tool will now be exactly 50 +/- 0.01 mm above the surface of the workpiece. The dimension 50 mm is entered into the machine control unit. The basic body and the sensor insert of the instrument are case-hardened HRC 60 +/- 1. **Supplied with test log in a wooden case.**

21766

Resolution of the dial gauge mm	Height of the sprung sensor surface mm	Sensor surface Ø mm	Housing Ø mm	21766	...
0.01	49.5–50	47	65		**101**

21764 Test arbors (check mandrels)

diebold

Design
- Taper shank more accurate than AT3
- Case-hardening steel (56+4 HRC); ground
- **Delivered in wooden case**

Applications
For aligning and checking tool spindles.

21764

Taper	Shank version	Ø D mm	Effective measuring length L mm	Concentricity and Ø tolerance mm	21764	...
SK 40	DIN 69871	40	320	0.003		**301**
SK 50	DIN 69871/BT	40	320	0.003		**302**
HSK 63	DIN 69893	40	346	0.003		**303**

21767 JCP1 edge finder

RENISHAW

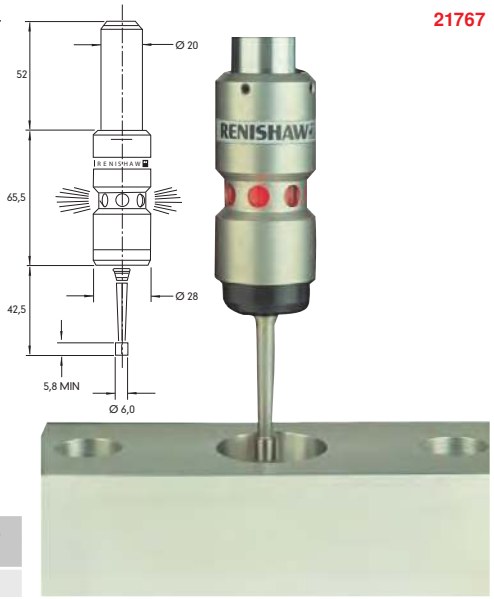
Design
The battery-powered edge finder made by Renishaw is placed in the collet chuck or milling cutter holder. As soon as the stylus touches a workpiece, the red lamp lights up.

Applications
Only conductive materials can be detected. The edge finder can be used to measure different criteria and determine zero points of workpieces on all manual and CNC-controlled machine tools.

Criteria: Measuring the inside or outside, determining bore centre points centred on the work spindle, measuring reference edges, measuring height and depth. Repeat accuracy 0.001 mm. Overrun X, Y:15 mm, Z: 5 mm. Degree of protection: IP 44.

Note:
For replacement batteries, see HHW catalogue Volume 2 (tools + machines) art.-no. 39900.

21767



	21767	...
		101

21768 Universal 3D sensors

IP 67

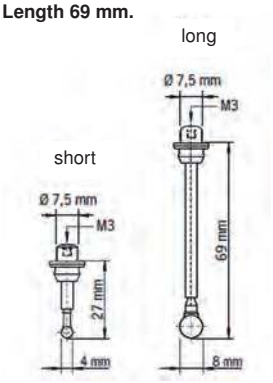
ATORN®

21768 101
Universal 3D sensors
Design
Proven mechanics in metal design, compact construction, dust-proof and watertight, convenient concentricity adjustment, scale for radial and axial sensing.
Technical data:
Clamping shank: 20 mm,
Reading accuracy: 0.01 mm,
Sensor ball diameter: 4 mm.
Scope of delivery:
Includes short probe insert.
Applications
For determining workpiece zero points, measuring lengths, bores, bore centres and reference edges.

Note:
Milling cutter holder, extra short DIN 69871 AD (ISO 7388-1), diameter 20 mm, A = 35 mm, see art. no. 21632 132.

21768 102
Probe insert, short, diameter 4 mm, Length 27 mm.

21768 103
Probe insert, long, diameter 8 mm, Length 69 mm.



21768 101

21768 102

21768 103

	21768 ...
3D sensor	101
Probe insert, short	102
Probe insert, long	103

21765 3D small edge finder ZERO MASKER

IP 67

HAIMER
Design
- Small compact design
- Accuracy 0.01 mm
- Incl. short probe insert
- Suitable for use in confined spaces or for small HSK or SK 30 spindles

Applications
Sensing edges and bores.
Setting zero points.

Note:
Replacement probe, see art. no. 21768 102–103.

21765

Total length mm	Length without clamp shaft mm	Clamping shaft Ø mm	Housing Ø mm	Reading mm	21765 ...
120.8	96	10	49	40	101

21769 Digital 3D probe

IP 67

Design
A further development of the proven mechanical 3D probe. The approach process can be accurately monitored on the digital dial. The dial has a 0.001-mm display with large digits and mm/inch changeover and is dust-proof and splash-proof.

Note:
Milling cutter holder, extra short, DIN 69871 AD, diameter 20 mm, A = 35 mm, see art. no. 21631 206. Suitable probe inserts. see art. no. 21768 102+103.

21769

Measuring accuracy mm	Clamping shaft Ø mm	Housing diameter mm	21769 ...
0.005	20	65	201

21770 - 21771 Edge finders

Design
All parts are hardened, clamping and functional surfaces are ground, partly lapped. The probe head is flexibly connected to the clamp shaft by a tension spring.

Applications
For determining zero lines.

21770 203
Design
With a **single** probe head.

21771 205
Design
With a **dual** probe head.

21771 500
Spare spring
Applications
For art no. 21770–21771.

21770

21771

	Probe head Ø mm	Straight shank Ø mm	Package = unit	21770 ...	21771 ...	21771 ...
Edge finder, single	10	10	-	203		
Edge finder, dual	10 + 4	10	-		205	
Spare spring	-	-	10			500

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21772 Electric edge finder 2D/3D

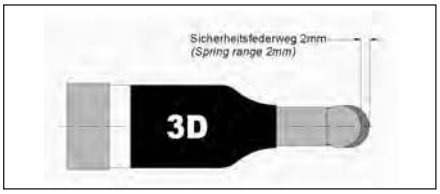
Design
- With all-round illuminated display
- The ball is spring-mounted and pushes away when passing the reference edge
- Accuracy +/- 0.01 mm
- Standard equipment: Edge finder with battery

Applications
For determining the spindle centre for a workpiece.
For internal and external centring.

Note:
Spare batteries, see HHW catalogue Volume 2 (tools and machinery) art. no. 39900 215.

21772 101

21772 102



Type	Shank Ø mm	Total length mm	Ball Ø mm	Battery V	21772	...
2D	20	160	10	1 x 12.0		101
3D	20	108	10	1 x 12.0		102

21773 Centring device DIACATOR

DIACATOR

21773

Design
- With built-in, upright dial gauge and rotating probe
- Max. centring error 0.006–0.01mm depending on the probe
- Built-in overload clutch to prevent damage
- Mounted on removable Morse taper shank MK 1 (use reducers if the inner taper is larger) or on cylindrical shank (8 mm diameter)
- Includes swivelling probe for smaller bores, two angled probe inserts (25 and 48 mm), one reducing sleeve MK 1, three screw-on spacer sleeves (10, 12 and 16 mm), one stop (160 mm) and dial, in a wooden case

Applications
For the exact central alignment of bores and shafts on the working spindle on milling machines, drilling machines and drills.

Note:
Special probes in the lengths 100, 125, 150 and 200 mm are deliverable on request.

Measuring range for inner Ø mm	Measuring range for outer Ø mm	21773	...
1.5–120	5.0–110		101

21774 Centring device CENTRO

21774 101
Design
- Highly accurate centring device with upright dial gauge
- Centring accuracy 0.003 mm
- For use with probe insert no. 21774 102.

Applications
For aligning bores.

Note:
The spindle speed should not exceed 150 rpm. Concentricity errors in the spindle and clamping will be compensated.

21774 102
Probe insert
- Straight
- With ball diameter 5 mm

21774 103
Probe insert
- Bent
- With ball diameter 5 mm

21774 104
Probe insert
- Straight
- With ball diameter 2 mm

Applications
For small bores.

21774 101

21774 102

21774 103

Type	Measuring range inner Ø mm	Measuring range outer Ø mm	Shank diameter mm	21774	...
CENTRO	3–125	0–125	16		101
Probe insert, straight, ball Ø 5 mm	-	-	-		102
Probe insert bent, ball diameter 5 mm	-	-	-		103
Probe insert, straight, ball Ø 2 mm	-	-	-		104

21775 Precision centring device Centricator

Centricator

Applications
For centring, positioning, aligning, adjusting, checking, probing flat surfaces and edge finding with a working accuracy of 2 µm. The high-precision mechanics with circumferential probe and stationary dial gauge form the heart of the device.

Note:
Deliverable with interchangeable straight shanks on request.

21775 201
Precision centring device CO-S
Design
- Fixed clamping shank, 16 mm diameter
- Dial gauge with 0.005 mm reading accuracy
- 1 probe insert ball, diameter 5 mm (for bores)
- 1 bent probe insert, ball diameter 5 mm (for shafts)
- In case

21775 204
Precision centring device C III-S
Design
- Fixed clamping shank, 16 mm diameter
- Dial gauge with 0.005 mm reading accuracy
- 1 probe insert ball, diameter 5 mm (for bores)
- 1 x hexagonal screwdriver SW 3
- Vial of watch oil no. 5
- In wooden device case

21775 201

21775 204

Type	Dial gauge reading accuracy mm	Sensing range inner diameter mm	Sensing range outer diameter mm	Flat faces mm	Probe depth inner diameter mm	Probe depth outer diameter mm	21775 ...
CO-S	0.005	6–125	0–125	120–160	55	20	201
C III-S	0.005	2–400	0–300	0 - 480	150	150	204

21776 Individual accessory

Applications
For art. no. 21775.

21776 102
Edge finder
Applications
For positioning the working spindle axis using workpiece edges or corners.

21776 103
Probe insert
Design
Straight, ball diameter 1.6 mm.
Applications
For centring bores smaller than 6 mm.

	21776 ...
Edge finder	102
Probe insert	103

21776 102

21776 103

21777 Accessory set

Design
Comprising:
- **Probe insert,** ball diameter 1.6 mm for centring bores smaller than 6 mm
- **Angle probe insert,** ball diameter 2.5 mm for aligning surfaces from 90 mm to 280 mm diameter
- **Extensions** to enlarge the working area
- **Flat face probe,** ball diameter 5.0 mm

Applications
For **Type C III-S** no. 21775 204 and 205.

	21777 ...
	101

21777

21780 Articulated measuring stand

Design
Mechanical central clamping for all joints, infinitely adjustable clamping force, any position within the action radius can be achieved. Dial gauge mount with 8-mm shank diameter, length = 40 mm for direct mounting in the machine (collet chuck!).
Applications
For lever gauge measuring instruments. Used for: workpiece positioning, centring bores/pins, aligning workpieces, hard-to-reach places.

Note:
Lever gauge probes, see HHW catalogue Volume 2 (tools + machines) art. no. 33245 et seq.

21780

Action radius approx. mm	21780 ...
150	201

21635 Replacement screws for Weldon

DIN 1835 B

21635

Thread	For diameter mm	21635 ...
M 6	6	601
M 8	8	602
M 10	10	603

Thread	For diameter mm	21635 ...
M 12	12+14	604
M 14	16+18	605
M 16	20	606

Thread	For diameter mm	21635 ...
M 18 x 2	25	607
M 20 x 2	32+40	608

21636 Saw blade mounts

Design
With straight shank for mounting on surface chucks, high degree of concentricity.
Applications
For mounting saw blades with diameters of 20–100 mm and saw blade thickness of 0.2–6 mm (see art. no. 17002–17008 and 17030–17031).

Note:
Saw blade not included in delivery.

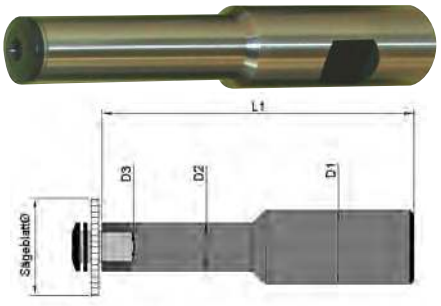
21636 300
Design
Set, six pieces, consisting of all sizes of art. no. 21636 301–306, incl. case.

21636 301-308
Design
Individual.

21636 300

Set contents	Mount Ø mm	Set 21636 ...
Six pieces	20/25/32/40/50/63	300

21636 301-308



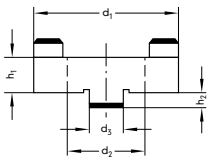
For saw blade Ø mm	L1 mm	Ø D1 mm	Ø D2 mm	Ø D3 mm	Individual 21636 ...
20	94	20	10.0	5	301
25	104	20	13.0	8	302
32	110	20	16.0	8	303
40	114	20	19.5	10	304
50	141	25	24.5	13	305
63	141	25	24.5	16	306
80	160	25	34.0	22	307
100	160	25	39.5	22	308

21655 Driving rings

DIN 6366

Applications
For combined mill arbors, art. no. 21648–21650.

21655



For mill arbor Ø d_2 mm	h_1 mm	d_3 mm	h_2 mm	d_1 mm	21655 ...
16	10	8	5.0	32	202
22	12	10	5.6	40	203
27	12	12	6.3	48	204
32	14	14	7.0	58	205
40	14	16	9.0	70	206

21656 Cutter retaining screws

DIN 6367

Design
Without bore.

Applications
For combination mill arbors, blade head supports and cutters with lateral grooves.

21656

For mill arbors with pin Ø mm	Retaining screw thread	21656 ...
10	M 5	101
13	M 6	102
16	M 8	103
22	M 10	104
27	M 12	105
32	M 16	106
40	M 20	107

21657 Key for cutter retaining screws

DIN 6368

Design
Hardened special steel with burnished finish.

Applications
For tightening cutter retaining screws DIN 6367.

21657

For mill arbors with pin Ø mm	21657 ...
13	102
16	103
22	104
27	105
32	106
40	107

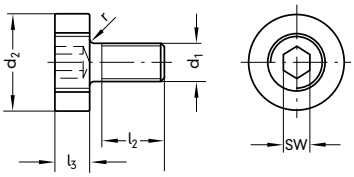
21659 Cutter retaining screws

Design
Consisting of a stud bolt with hexagon socket (operated using a hexagonal T-handle wrench and screwed-on threaded ring).

Applications
For mill arbors, blade head supports and cutters with lateral grooves.

Note:
A huge clamping force is generated due to the different pitches of the two threads on the stud bolt.

During the clamping phase, the threaded ring pushes against the face of the mill and no longer rotates with the stud bolt. Prevents damage to the mill and improves concentricity and axial runout accuracy!



21659

For mill arbors with pin Ø mm	Retaining screw thread (d_1)	Thread length (l_2) MM	Hexagon socket SW mm	Threaded ring Ø x thickness (d_2 x l_3) mm	21659 ...
16	M 8	13.0	5	20 x 7	101
22	M 10	14.4	6	28 x 8	102
27	M 12	17.5	8	35 x 9	103
32	M 16	20.5	10	42 x 10	104
40	M 20	24.0	12	52 x 11	105

21667 Mill arbor rings

DIN 2084 B

Design
Turned in steel, hardened, ground flat and lapped.
Keyway DIN 138.

21667

Bore	16 mm		22 mm		27 mm		32 mm		40 mm		50 mm	
Ring width mm	21667	...	21667	...	21667	...	21667	...	21667	...	21667	...
2		111		121		131		141		151		161
3		112		122		132		142		152		162
4		113		123		133		143		153		163
5		114		124		134		144		154		164
6		115		125		135		145		155		165
10		116		126		136		146		156		166
20		117		127		137		147		157		167
30		118		128		138		148		158		168

22505 Reducing sleeves DIN 2185

Design
- **High-accuracy design**
- Fully hardened
- Ground internal and external tapers

Applications
Compensates for different Morse tapers on machine and tool.

22505

MK external	MK internal	22505 ...
1	0	101
2	1	102
3	2	103
3	1	104
4	3	105
4	2	106

MK external	MK internal	22505 ...
4	1	107
5	4	108
5	3	109
5	2	110
5	1	111

22526 Extended reducing sleeve DIN 2187

Design
- **High-accuracy design**
- Fully hardened
- Ground internal and external tapers

Applications
Extends tools and compensates for different Morse tapers on machine and tool.

22526

MK external	MK internal	Cylinder Ø mm	Length mm	22526 ...
1	1	20	145	101
2	1	20	160	102
3	1	20	175	103
1	2	30	160	106
2	2	30	175	107
3	2	30	194	108
4	2	30	215	109
2	3	36	196	111

MK external	MK internal	Cylinder Ø mm	Length mm	22526 ...
3	3	36	215	112
4	3	36	240	113
5	3	36	268	114
3	4	48	240	115
4	4	48	265	116
5	4	48	300	117
4	5	63	300	119

22530 Drill and reamer extensions

Design
- Morse taper shank and flat tangs in accordance with **DIN 228 B**
- Fully hardened and ground

22530

MK external	MK internal	Cylinder Ø mm	Length mm	Extension mm	22530 ...
1	1	20	200	138	101
1	1	20	250	188	102
1	1	20	300	238	103
1	1	20	350	288	104
2	2	25	200	125	110
2	2	25	250	175	111
2	2	25	300	225	112
2	2	25	350	275	113
2	2	25	400	325	114
2	2	25	500	425	115

MK external	MK internal	Cylinder Ø mm	Length mm	Extension mm	22530 ...
3	3	32	250	156	121
3	3	32	300	206	122
3	3	32	350	256	123
3	3	32	400	306	124
3	3	32	500	406	125
4	4	40	300	182.5	132
4	4	40	350	232.5	133
4	4	40	400	282.5	134
4	4	40	500	382.5	135

22711 Tapered clamping sleeves DIN 6328

Design
- Morse taper shank and flat tangs in accordance with **DIN 228 B**
- Fully hardened
- Ground inside and outside

Applications
For mounting screw taps with square drivers. Used, for example, with quick-change chuck inserts, multi-spindle units with closely spaced spindles etc.

22711

MK/Ø mm	Shank Ø mm	Square mm	22711 ...
1/3.5	3.5	2.7	105
1/4.0	4.0	3.0	106
1/4.5	4.5	3.4	107
1/5.0	5.0	3.8	108
1/5.5	5.5	4.3	109
1/6.0	6.0	4.9	110
1/7.0	7.0	5.5	111
1/8.0	8.0	6.2	112
2/5.5	5.5	4.3	113

MK/Ø mm	Shank Ø mm	Square mm	22711 ...
2/6.0	6.0	4.9	114
2/7.0	7.0	5.5	115
2/8.0	8.0	6.2	116
2/9.0	9.0	7.0	117
2/10.0	10.0	8.0	118
2/11.0	11.0	9.0	119
2/12.0	12.0	9.0	120
3/9.0	9.0	7.0	121
3/10.0	10.0	8.0	122

MK/Ø mm	Shank Ø mm	Square mm	22711 ...
3/11.0	11.0	9.0	123
3/12.0	12.0	9.0	124
3/14.0	14.0	11.0	126
3/16.0	16.0	12.0	127
4/14.0	14.0	11.0	129
4/16.0	16.0	12.0	130
4/18.0	18.0	14.5	131
4/20.0	20.0	16.0	132
4/22.0	22.0	18.0	133

22901–22903 Ejector drift/semi-automatic conical ejector drift

Applications
For removing tools with Morse taper shanks and flat tangs in accordance with **DIN 228 B.**

22901
Design
- **DIN 317**
- Operated **using a** striking tool

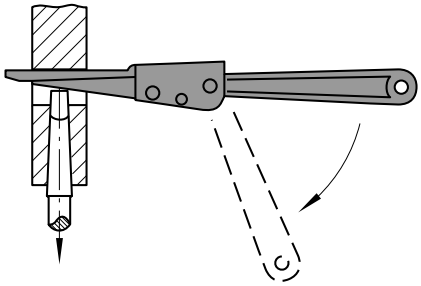
22903
AMF
Design
- Operated **without using a** striking tool
- Single-handed operation. Simply pressing the lever moves two wedges in opposite directions along a toothed rack (the other hand holds the tool)
- Plastic-coated handle, red

Quality
Hardened special steel, bronzed finish.

22903 201
AMF
Design
- Finger guard

22901

22903



For MK	22901 ...
0	101
1 + 2	102
3	103
4	104
5 + 6	105

AMF

For MK	22903 ...
1 - 3	201
4 - 6	202