

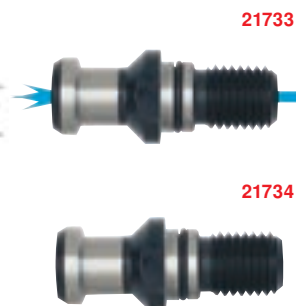
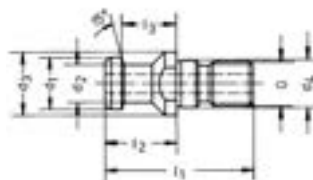
21733 - 21734

Draw-in bolts DIN 69872



21733
Type
 Shape A, with bore and O-ring.
 Gripping lip angle 15°.

21734
Type
 Shape B without borehole,
 with O-ring.
 Gripping lip angle 15°.



for ST	d ₁ mm	d ₂ mm	d ₃ mm	d ₄ mm	G	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	

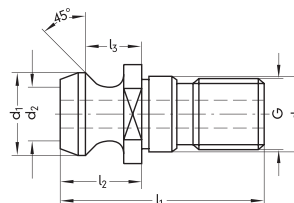
21735

Draw-in bolts ISO 7388/2 Shape B



21735 101-102
Type
 With hole and O-ring.
 Gripping lip angle 45°.

21735 201-202
Type
 Without borehole, with O-ring.



for ST	d ₁ mm	d ₂ mm	d ₄ mm	G	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	

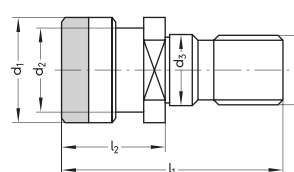
21736

Draw-in bolts



21736 301-302
Type
 With annular groove (Ott-clamping groove),
 gripping lip angle 15°.

21736 303-304
 Head made of solid stock.
 With internal thread.



for ST	d ₁ mm	d ₂ mm	d ₃ mm	G	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	

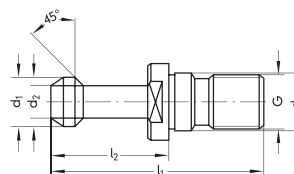
21737 - 21739

Draw-in Bolts MAS 403-BT/JIS B 6339



21737
Type
 Gripping lip angle 45°.

21739
Type
 Gripping lip angle 90°.

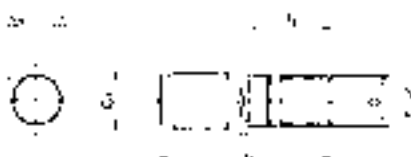


21738
Type
 Gripping lip angle 60° (also for OKUMA machining centres).

for BT	d ₁ mm	d ₂ mm	d ₄ mm	G	l ₁ mm	l ₂ mm	45°	60°	90°
40	15	10	17	M 16	60	35	402	402	402
50	23	17	25	M 24	85	45	403	403	403

21740

Draw-in bolts with buttress thread



for ST	G ₁	G	l ₁ mm	l ₂ mm	21740	...
40	S 20 x 2	M 16	56	28	101	

21431

Tapping Attachments

TAPMATIC

Type

Adjustable safety slip coupling, length compensation for compression and tension, automatic fast return line 1.75:1. With inner taper for replaceable shanks.

Scope of supply:

Incl. of stop.

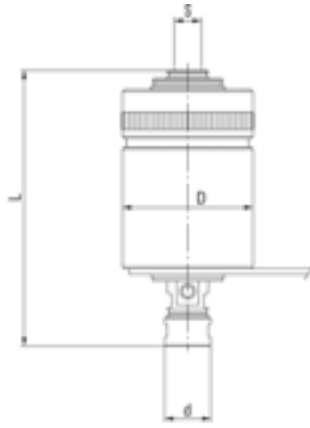
Use

For tapping with machines with clockwise operation working spindle. Can be mounted horizontally or vertically.

Note:

Plug-in journals see Cat. No. 21170.

Rubber-flex collets, see Cat. No. 21447.



21431

Type	Support S inner taper	Cutting range (steel)	Speed max. rpm	Length extension T mm	for rubber-collets	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

Tap cutting chuck

TAPMATIC

Type

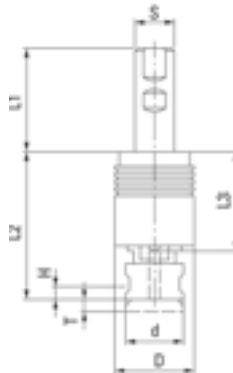
With initial cut compression booster and length compensation for tension and compression as well as initial cut suspension, applicable vertically and horizontally. Support, cyl. Shank with driver face acc. to DIN 1835 B, corresponding collet see Cat. No. 21630 - 21632.

Use

For use with NC, CNC machines, turning machines, machines with reversible direction of rotation. For clockwise and counterclockwise operation.

Note:

Rubber-Flex collets see Cat. No. 21447.



21445

Type	Cutting range (steel)	Cylindrical shaft Ø mm	Length compensation compression (H)/tension (T) mm	Rubber-collets	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 collets DIN 6345

RUBBER-FLEX

Use

For tapping heads Tapmatic see Cat. No. 21431/21445.



21447

Type	Clamping range mm	21447	...	Type	Clamping range mm	21447	...	Type	Clamping range mm	21447	...
J 115	1.0 - 2.5	101		J 421	3.5 - 6.5	105		J 441	4.5 - 10.0	109	
J 116	2.5 - 4.5	102		J 420	4.5 - 8.0	106		J 440	7.0 - 13.0	110	
J 117	4.5 - 6.5	103		J 422	6.5 - 10.0	107		J 445	9.0 - 15.0	111	
J 423	2.0 - 4.5	104		J 443	2.8 - 7.0	108					

21453

Quick-change tapping chuck for synchronous spindles

ATORN®

Type

- Minimal length compensation, with damping element
- Safe clamping in quick-change inserts for ER collets
- Clamping screws as torsion failsafe for clamped tap drill
- Cylindrical shaft similar to DIN 1835 B+E

Use

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

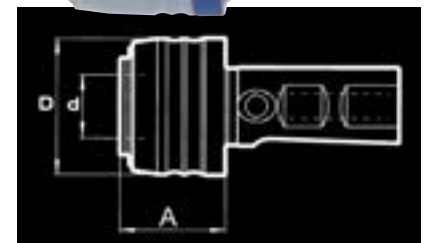
Note:

Quick-change inserts, see Cat. No. 21465.

Shank Ø mm	d mm	D mm	A mm	Length compensation compr./tension mm	for thread-drill	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	



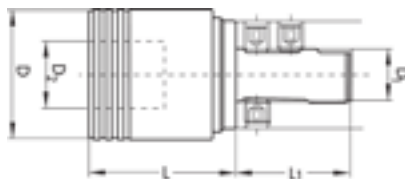
21453



21452 Quick-Change Tapping Chucks

BILZ

Type
Type WFLC/MS. Precision type with length compensation in response to compression and tension. Cylindrical shaft support with lateral clamping surface similar to DIN 1835 B/E.



21452

Note:
 Quick-change sleeves see cat.-no. 21459 - 21460.

for taps	Suitable inserts/size	Length compensation compr./tension	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 sleeves without safety friction clutch

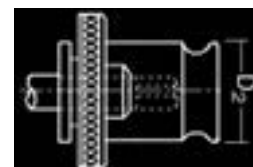
HHW

Type
Type WE. Sleeves without safety friction clutch.

Use
 For clockwise and counterclockwise operation.

21459

for chuck size	Shank Ø mm	Shank □ 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	G 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	G 1/4	31		135
2	12,0	9,0	M 16	-	M 16	G 3/8	31		137
2	14,0	11,0	M 18	-	M 18	-	31		138
2	16,0	12,0	M 20	-	M 20	G 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	G 5/8	48		146
3	20,0	16,0	M 27 + M 28	-	M 27 + M 28	G 3/4	48		148
3	22,0	18,0	M 30	-	M 30	G 7/8	48		150
3	25,0	20,0	M 33	-	M 33	G 1	48		152



21460 Quick-change sleeves with safety friction clutch

HHW

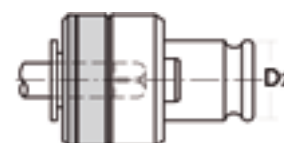
Type
Type WES/B, sleeves with safety friction clutch.

Use
 for right-hand thread.

21460

Note:
 bits for left-hand thread available on request.

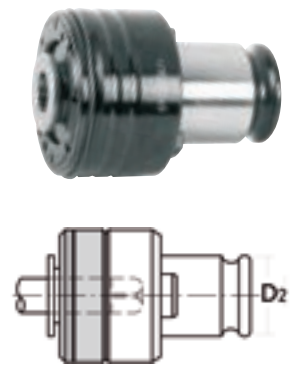
for chuck size	Shank Ø mm	Shank □ mm	DIN 352	DIN 371	DIN 374/376	DIN 5157	D ₂ mm	21460	...
1	3,5	2,7	M 3	M 3	-	-	19		315
1	4,0	3,0	M 3,5	M 3,5	-	-	19		317
1	4,5	3,4	M 4	M 4	-	-	19		318
1	4,5	3,4	-	-	M 6	-	19		319
1	6,0	4,9	M 5	M 5	-	-	19		320
1	6,0	4,9	M 6	M 6	-	-	19		321
1	6,0	4,9	M 8	-	M 8	-	19		322
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



Continuation ▶

for chuck size	Shank Ø mm	Shank □ 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	G 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



21465 101-102

Type
One-part

21465 201-202

Type
Two-part

Note:
For tapping quick-change collet
Cat. No. 21453, 21457 and 21837.

21466
Extensions for 2-part quick-change inserts,
Cat. No. 21465 201-202.

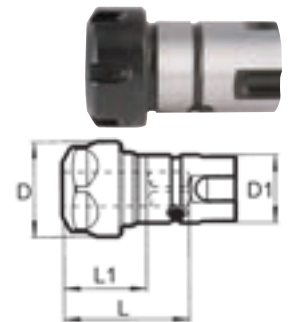


One-part							21465	...
for collets ER	L mm	L1 mm	D mm	D1 mm	for thread M			
16	37	24	28	20	3 - 12		101	
25	52	28	42	32	6 - 20		102	

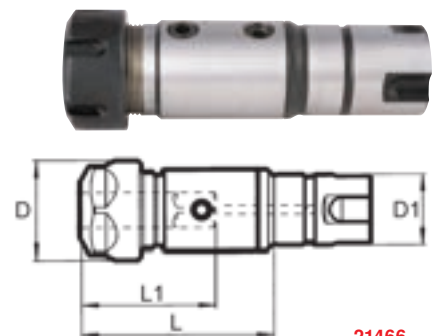
Two-part							21465	...
for collets ER	L mm	L1 mm	D mm	D1 mm	for thread M			
16	55	38	28	20	3 - 12		201	
25	86	50	42	32	6 - 20		202	

Extensions for two-part quick-change inserts							21466	...
L mm	D mm	for thread M						
25	22	3 - 12					101	
50	22	3 - 12					102	
50	34	6 - 20					103	
100	34	6 - 20					104	

21465 101-102



21465 201-202



21466



Clamping Technology

21641 clamping sleeves for taps

Use
For direct mounting of taps in milling cutter mounts (Weldon) without length compensation.

Note:
Cost-efficient alternative for synchronised spindles.

D mm	d ₁ x □ 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 □ 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	

21641



23110

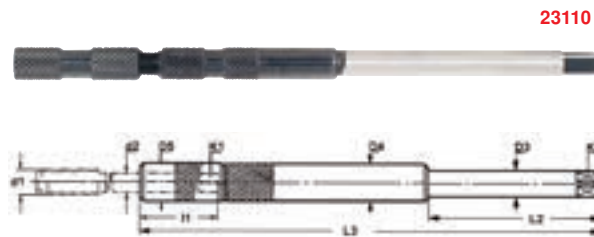
Extensions for machine tap drills

Type

Long and/or extra long type. The front end of the extension is designed to function as collet. When the knurled clamping nut is tightened, the collet clamps the tap. Torque transmission by means of the square end. The back end of the extension is in compliance with DIN, so that the tap extensions can be mounted (like a tap) in quick-change sleeves or other tapping attachments.

Use

For tapping in hard-to-reach places e.g. high ledges, deep grooves, projecting edges on fixtures, extremely deep internal threads or right next to cast iron walls.



Type	Dimensions Taps		Shank Ø d2 mm	Square-end K1 mm	Clamping length l1 mm	Dim. extension					23110	...
	Nominal thread Ø d mm DIN 371	DIN 374/376				Ø D3 mm	K2 mm	D4/D5 mm	L2 mm	L3 mm		
E1	M 2 - M 2.6	M 4	2.8	2.1	22	6	4.9	6.1	60	130		101
E1 L	M 2 - M 2.6	M 4	2.8	2.1	22	6	4.9	6.1	70	230		102
E2	M 3	M 4.5 - M 5	3.5	2.7	23	6	4.9	7.5	60	130		103
E2 L	M 3	M 4.5 - M 5	3.5	2.7	23	6	4.9	7.5	70	230		104
E3	M 4	M 6	4.5	3.4	23	6	4.9	8.4	60	130		105
E3 L	M 4	M 6	4.5	3.4	23	6	4.9	8.4	70	230		106
E4	M 4.5 - M 6	M 8	6.0	4.9	26	7	5.5	12.1	60	130		107
E4 L	M 4.5 - M 6	M 8	6.0	4.9	26	7	5.5	12.1	70	230		108
E5	M 7	M 9 - M 10	7.0	5.5	26	7	5.5	12.1	60	130		109
E5 L	M 7	M 9 - M 10	7.0	5.5	26	7	5.5	12.1	70	230		110
E6	M 8	M 11	8.0	6.2	30	8	6.2	13.0	60	130		111
E6 L	M 8	M 11	8.0	6.2	30	8	6.2	13.0	80	230		112
E7	M 9	M 12	9.0	7.0	31	9	7.0	15.0	60	130		113
E7 L	M 9	M 12	9.0	7.0	31	9	7.0	15.0	80	230		114
E8	M 10	-	10.0	8.0	33	10	8.0	15.0	60	130		115
E8 L	M 10	-	10.0	8.0	33	10	8.0	15.0	80	230		116
E9	-	M 14	11.0	9.0	36	11	9.0	18.0	90	130		117
E9 L	-	M 14	11.0	9.0	36	11	9.0	18.0	90	230		118
E10	-	M 16	12.0	9.0	36	12	9.0	18.0	90	130		119
E10 L	-	M 16	12.0	9.0	36	12	9.0	18.0	90	230		120

21698 - 21699

AMC chuck extensions and clamping sleeves

ALBRECHT

Präzisions Spannfutter

21698

AMC chuck extensions

Type

- Very slim for machining areas that are difficult to access
- Concentricity precision less than 0.008 mm
- Operation via supplied hexagon wrench.

Use

For clamping in all precision chucks.
For clamping smallest of tools.

21699

Clamping sleeves

Type

- Hardened
- Ground
- Coated

Use

For AMC chuck extensions, Cat. No. 21698.



Clamping range mm	Shank Ø mm	Length mm	Support	Chuck extensions	
				21698	...
1 - 6	14 h6	100	DIN 6535-HA cylindrical shaft		101
1 - 6	14 h6	150	DIN 6535-HA cylindrical shaft		102
1 - 6	14 h6	190	DIN 6535-HB Weldon		103
1 - 6	20 h6	100	DIN 6535-HB Weldon		104
1 - 6	20 h6	150	DIN 6535-HB Weldon		105

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



Type

- Fully hardened and ground.
- Polished, concentricity precision 0.015 mm

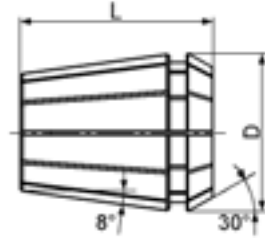
Use

For standard collet chucks.

Note:

The collapse is up to 1 mm smaller e.g. 9 - 8 mm, except for collets 1 mm and 1.5 mm (collapse only 0.5 mm).

Collect box made of plastic, see AQRADO storage system HHW catalogue volume 2 (tools + machines) Cat. No. 84134.



21520 - 21525

single Clamping Ø mm	Type ER 11/4008 E D x L 11.5 x 18 mm		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	
	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

21519

Set in plastic crate

21519 103

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



Collets

21519 - 21539

GER-B precision collets



FAHRION®
PRÄZISION

Type

- Fully hardened and ground.
- **Superfinish**, concentricity precision 0.005 mm

Use

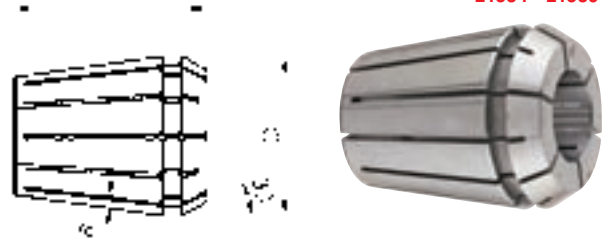
For standard collet chucks.

Note:

The collapse is up to 1 mm smaller e.g. 9 - 8 mm, except for collets 1 mm and 1.5 mm (collapse only 0.5 mm).

Collet box made of plastic, see **AQRADO** storage system **HHW** catalogue volume 2 (tools + machines) Cat. No. 84134.

21534 - 21539



single Clamping Ø mm	Type GER 11-B/4008 E D x L 11.3 x 18.0 mm		Type GER 16-B/426 E D x L 17 x 27.5 mm		Type GER 20-B/428 E D x L 21 x 31.5 mm		Type GER 25-B/430 E D x L 26 x 34 mm		Type GER 32-B/470 E D x L 33 x 40 mm		Type GER 40-B/472 E D x L 41 x 46 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		207		208
4.5		208												
5.0		209		209		209		209		209		209		209
5.5		210												
6.0		211		211		211		211		211		211		211
6.5		212												
7.0		213		213		213		213		213		213		213
8.0				214		214		214		214		214		214
9.0				215		215		215		215		215		215
10.0				216		216		216		216		216		216
11.0						217		217		217		217		217
12.0						218		218		218		218		218
13.0						219		219		219		219		219
14.0								220		220		220		220
15.0								221		221		221		221
16.0								222		222		222		222
17.0										223		223		223
18.0										224		224		224
19.0										225		225		225
20.0										226		226		226
21.0												227		227
22.0												228		228
23.0												229		229
24.0												230		230
25.0												231		231
26.0												232		232

21519

Set in wooden crate

21519 205

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



FAHRION®
 PRAZISION
Type

- Fully hardened and ground.
- **Superfinish**, concentricity precision 0.002 mm
- System and repeat precision in conjunction with CENTRO|P 0.003 mm
- Without clamp bridging

Use

For CENTRO|P collet and ATORN precision collet.

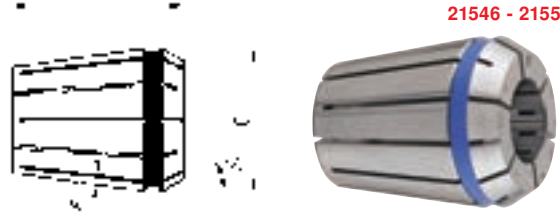
Note:

Sealing disc see cat.-no. 21513.

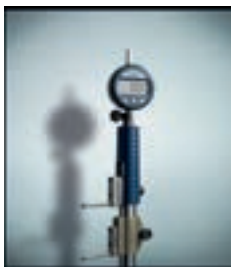
Collet box made of plastic, see AQURADO storage system HHW catalogue volume 2 (tools + machines)

Cat. No. 84134.

21546 - 21551



Clamping Ø mm	Type GER 11-HP/4008 E D x L 11.3 x 18 mm		Type GER 16-HP/426 E D x L 17 x 27.5 mm		Type GER 25-HP/430 E D x L 26 x 34 mm		Type GER 32-HP/470 E D x L 33 x 40 mm		Type GER 40-HP/472 E D x L 41 x 46 mm	
	21546	...	21547	...	21549	...	21550	...	21551	...
1.0	201		201							
1.5	202		202							
2.0	203		203		203					
2.5	204		204							
3.0	205		205		205		205		207	
3.5	206									
4.0	207		207		207		207			
4.5	208									
5.0	209		209		209		209		209	
5.5	210									
6.0	211		211		211		211		211	
6.5	212									
7.0	213		213		213		213		213	
8.0			214		214		214		214	
9.0			215		215		215		215	
10.0			216		216		216		216	
11.0					217		217		217	
12.0					218		218		218	
13.0					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	



Performance requires quality.

For example, with the UNICHECK universal measuring device from ATORN.

- For a wide variety of measuring tasks
- Flexible implementation thanks to different measurement attachments
- Robust construction
- Complete range of extension accessories

ATORN®
 Performance requires quality.

Collets | Reduction sleeves

21563 - 21566

GER-HPD sealed precision collets for CENTRO|P



FAHRION®
PRAZISION

Type

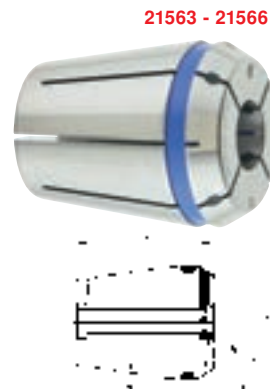
- Superfinish, fully hardened, ground and sealed
- Concentricity precision 0.002 mm
- Without clamp bridging

Use

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

Note:

Collet box made of plastic, see AQURADO storage system HHW catalogue volume 2 (tools + machines) Cat. No. 84134.



single Clamping Ø mm	Type GER16-HPD/425 E D x L 17 x 27.5 mm		Type GER20-HPD/427 E D x L 21 x 31.5 mm		Type GER25-HPD/429 E D x L 26 x 34 mm		Type GER32-HPD/469 E D x L 33 x 40 mm	
	21563	...	21564	...	21565	...	21566	...
3		101		101				
4		102		102		101		101
5		103		103		102		102
6		104		104		103		103
7		105		105		104		104
8		106		106		105		105
9		107		107		106		106
10		108		108		107		107
11				109		108		108
12				110		109		109
13						110		110
14						111		111
15						112		112
16						113		113
17								114
18								115
19								116
20								117

Set Content	Clamping Ø mm	Type GER16-HPD/425 E D x L 17 x 27.5 mm		Type GER20-HPD/427 E D x L 21 x 31.5 mm		Type GER25-HPD/429 E D x L 26 x 34 mm		Type GER32-HPD/469 E D x L 33 x 40 mm	
		21563	...	21564	...	21565	...	21566	...
6-part	3 - 4 - 5 - 6 - 8 - 10		120						
7-part	3 - 4 - 5 - 6 - 8 - 10 - 12				120				
7-part	4 - 6 - 8 - 10 - 12 - 14 - 16						120		
8-part	4 - 6 - 8 - 10 - 12 - 14 - 16 - 20								120

21567 - 21569

GER-HPDD sealed precision collets with spray nozzle for CENTRO|P



FAHRION®
PRAZISION

Type

- Superfinish, fully hardened and ground, sealed with spray nozzle
- Concentricity precision 0.002 mm
- Without clamp bridging

Use

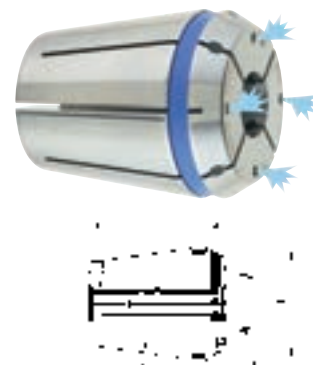
For tools without internal cooling in CENTRO|P collet and ATORN precision collet.

Note:

Collet box made of plastic, see AQURADO storage system HHW catalogue volume 2 (tools + machines) Cat. No. 84134.

21567 - 21569

Clamping Ø mm	Type GER25-HPDD/429 E D x L 26 x 34 mm		Type GER32-HPDD/469 E D x L 33 x 40 mm	
	21567	...	21569	...
4		101		101
6		102		102
8		103		103
10		104		104
12		105		105
14		106		106
16				107
18				108



21526 - 21528

ER collets for tapping



Type

With square drive for driving the tap. Without length compensation.

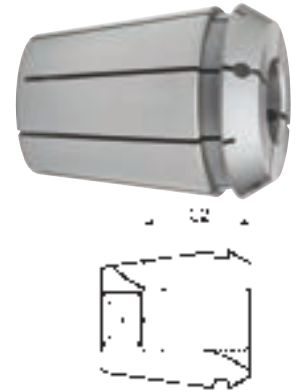
Use

For clamping taps with collet chucks.
Only for Synchro machines.

Note:

Collet box made of plastic, see AQRADO storage system HHW catalogue volume 2 (tools + machines) Cat. No. 84134. **21528**

Shank Ø mm	Square-section mm	L2 mm	ER 16/4031 E		ER 25/4282 E		ER 32/4537 E	
			21526	...	21527	...	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 NEW		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



Type

- Spring steel, fully hardened and ground.
- Through-bore to increase the clamping force

Advantages:

- Better concentricity
- Higher clamping force due to increased load-bearing area
- Higher system rigidity and tool service life

Note:

Collet box made of plastic, see AQRADO storage system HHW catalogue volume 2 (tools + machines) Cat. No. 84134.

21552 - 21554



Clamping Ø mm	Type 415 E for collet size 2 - 16 mm D x L 25.5 x 40 mm		Type 462 E for collet size 3 - 25 mm D x L 35.05 x 52 mm		Type 467 E for collet size 4 - 32 mm D x L 44 x 60 mm	
	21552	...	21553	...	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 collet size 2 - 16 mm D x L 25.5 x 40 mm		Type 462 E for collet size 3 - 25 mm D x L 35.05 x 52 mm		Type 467 E for collet size 4 - 32 mm D x L 44 x 60 mm	
	21552	...	21553	...	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

Reduction sleeves



21581

Type

Sealed for hydro expansion chuck.



21581

21582

Type

Without seal for power chucks.



21582

Suitable for D ₁ mm	Reduction for D ₂ mm	21581		21582	
	
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
20	16		106		106
32	3				110
32	4				111

Suitable for D ₁ mm	Reduction for D ₂ mm	21581		21582	
	
32	5				112
32	6				113
32	8				114
32	10				115
32	12				116
32	14				117
32	16				118
32	18				119
32	20				120
32	25				121





21509

Accessories for CENTRO|P precision collet



Note:

Only use CENTRO|P clamping nuts (Cat. No. 21509 102-106 and 21509 002-006) in conjunction with roller keys (Cat. No. 21509 200-206) and/or roller key attachments (Cat. No. 21509 301-306).

21509 101

Miniature clamping nut

21509 102-106

Standard clamping nut

21509 002-006

Clamping nuts for sealing discs

21509 200-206

Roller spanner

21509 301-306

Torque roller bearing heads

Size	for collets	Ø D mm	Standard clamping nuts		for sealing discs	
			21509	...	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		
HPC 16-DI	ER 16/426 E	30				002
HPC 16C-DI	ER 16/426 E	24				003
HPC 25-DI	ER 25/430 E	40				004
HPC 32-DI	ER 32/470 E	50				006

Size	for clamping nut	Roller spanner	
		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

Size	for clamping nut	Plug-in attachment mm	Roller bearing heads	
			21509	...
DRO 24	HPC 16C	9 x 12		301
DRO 30	HPC 16	14 x 18		302
DRO 40	HPC 25	14 x 18		304
DRO 50	HPC 32	14 x 18		306

21513

Sealing discs for CENTRO|P ER clamping nuts



Type

Vulcanised sealing discs up to 80 bar. 0.5 mm clamping Ø extension (+0.4/-0.1).

Note:

Not suitable for other sealing disc systems! Sealing discs with 0.5 mm increments available on request.

21513 101-110

for type HPC 16(C)-DI
D x L 12.6 x 2 mm

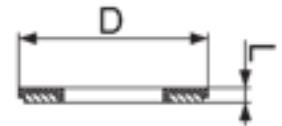
21513 202-216

For type HPC 25-DI
D x L 20.2 x 2 mm

21513 302-320

For type HPC 32-DI
D x L 26.2 x 2 mm

21513



for	HPC 16(C)-DI	HPC 25-DI	HPC 32-DI
Size = Clamping Ø mm	21513	21513	21513
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

for	HPC 16(C)-DI	HPC 25-DI	HPC 32-DI
Size = Clamping Ø mm	21513	21513	21513
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			



21518

Spare standard clamping nuts

ATORN®

21518

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



21517

Spare clamping nuts -Mini-

Type

For collet chucks type ER.

21517

Clamping range mm	Outside Ø d mm	collet 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	35	ER 25/430 E	M 30 X 1		104



21530

Spare clamping nut

Use

For collet chucks type ER.

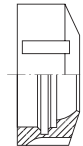
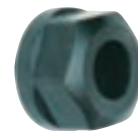
Note:

Open-end wrench for nut Cat. No. 21530 103 see
HHW catalogue volume 2 (tools + machines)
Cat. No. 50113 235.

21530 103

21530

for clamping range mm	for type ER	Nut Ø mm	21530	...
1 - 10	16	Jaw opening 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

Type

With ball-bearing mounted union nut.

Use

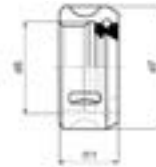
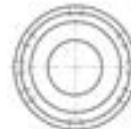
For collet chucks cat.-no. 21540 - 21545.

Note:

Clamping wrench, see HHW catalogue volume 2
(tools + machines) Cat. No. 50650 ff.

21562

for clamping range mm	d5	d7	l11	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

Wrench

Type

Special steel, burnished, high-edge ground.

Use

For collet Type ER Mini.

21516

for clamping range mm	Collets 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

Wrench

Type

Made of special steel, hardened and burnished, with attachment hole.

Use

For collet chucks type ER.

21532

for clamping range mm	for type ER	for nut Ø mm	Overall 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



Push-type collets

21568

Set of compression collets

DIN 6343 Typ 173E

Type
Type 173 E/F 48
40-part, hole diameters 3 - 42 mm,
 um 1 mm increments.

Note:
 Collet sets with 4-point or 6-point profiles
 available on request.



21568

for clamping range mm	21568	...
3 - 42		101

21570 - 21571 Push-type collets

DIN 6343

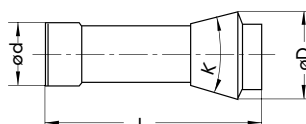
21570
Type
Type 173 E, dim.: $\varnothing d$ 48 x $\varnothing D$ 60 x L 94 mm,
 $K = 30^\circ$. **DIN 6343/F48**, triple slotted.

Note:
 Collets with 4-point or 6-point profiles
 available on request.



21570

21571
Type
Type 185 E, dim.: $\varnothing d$ 66 x $\varnothing D$ 84 x L 110 mm,
 $K = 30^\circ$. **DIN 6343/F66**, 4x slotted.



Bore mm	173 E		185 E	
	21570	...	21571	...
3		101		102
4		102		103
5		103		104
6		104		105
7		105		106
8		106		107
9		107		108
10		108		109
11		109		110
12		110		111
13		111		112
14		112		113
15		113		114
16		114		115
17		115		116
18		116		117
19		117		118
20		118		119
21		119		120
22		120		121

Bore mm	173 E		185 E	
	21570	...	21571	...
23		121		122
24		122		123
25		123		124
26		124		125
27		125		126
28		126		127
29		127		128
30		128		129
31		129		130
32		130		131
33		131		132
34		132		133
35		133		134
36		134		135
37		135		136
38		136		137
39		137		138
40		138		139
41		139		140
42		140		141

Bore mm	173 E		185 E	
	21570	...	21571	...
43		141		142
44		142		143
45		143		144
46		144		145
47		145		146
48		146		147
49		147		148
50		148		149
51		149		150
52		150		151
53		151		152
54		152		153
55		153		154
56		154		155
57		155		156
58		156		157
59		157		158
60		158		159

21572

Emergency compression collets

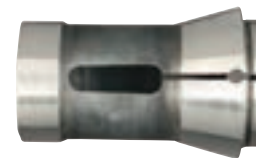
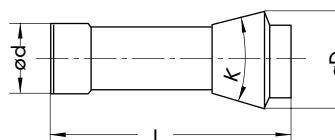
DIN 6343

Type
 - Tempered to approx. 45 HRC
 - Completely ground

Note:
 Can be machined in collet with three pins
 inserted in face end.

Use
 For self-machining to desired diameter, or a stepped
 bore.

Type	$\varnothing D$ mm	$\varnothing d$ mm	L mm	Pre-drilled to \varnothing mm	21572	...
173 E	60	48	94	3		101
185 E	84	66	110	6		102



21572

21573

Internal stops for compression collets

Use
 For compression collets acc. to DIN 6343. As limit
 stop for turned parts. Can also be used for hollow
 parts. Can be used for round, hexagonal and
 square-section collets.

for collets type	21573	...
173 E		101
185 E		102



21573



Performance requires quality.

For example, with the UNICHECK universal measuring device from ATORN.

- For a wide variety of measuring tasks
- Flexible implementation thanks to different measurement attachments
- Robust construction
- Complete range of extension accessories

ATORN[®]

Inductive shrinking machine

21590

Inductive shrinking machine

diebold

21590 101
HS 1100-P

Type

- Horizontal, parameter and/or manually controlled inductive shrink device, high power rating
- Flexible and replaceable tool supports
- Worn or broken tools can be ejected using a press-off fixture

Advantage:

- Exact positioning of tools through horizontal design
- Optional digital length measuring unit

21590 102
ISG 2400 TLK

Type

- Shrink device with integrated air cooling
- Simple menu guide for parameter and/or manually controlled shrink-fit process
- Coil and cooling manually guided

Advantage:

- No contact with hot shrink-fit collets
- No overheating of collets achieved by fixed set of preprogrammed parameters

21590 103
FKS 04

Type

- Device for contour-independent cooling of shrink-fit collets
- Automatically controlled cooling and drying cycle

Advantage:

- Cooling, drying and preserving in a single operation



21590 101

21590 102

21590 103



Technical data	21590 101	21590 102	21590 103
Type	HS 1100-P	ISG 2400 TLK	FKS 04
HM shrink range	Ø 3 - 32 mm	Ø 3 - 20 mm	Ø all
HSS shrink range	Ø 6 - 32 mm	Ø 6 - 20 mm	Ø all
Tool length max.	350 mm	350 mm	-
Cooling type	No cooling	Air cooling with adapter	Water cooling
Tank contents	-	-	14 l
Cooling length, max.	-	350 mm	400 mm
Cooling time	300 s	90 s	25 s max.
Machine interface	SK 30 - 50 HSK 40 - 100	SK 30 - 50 HSK 32 - 100	all commonly used tool supports see above
Connection	400 V / 16 A	400 V / 16 A	220 V / compressed air 4-6 bar
Power	11 kW	8 kW	-
Dimension (WxDxH)	600 x 451 x 357	780 x 535 x 950	412 x 462 x 700
Scope of supply	Device with inductive coil, 5 ferrite discs, Protective gloves	Shrink device with integrated cooling station, 3 ferrite discs Protective gloves	device with 1 litre coolant concentrate, Protective gloves
Required accessories	Tool support 21591	Cooling adapter 21592 Tool support 21593	- -
Optional accessories	Digital length setting 21591 201 Water cooler FKS 04 21590 103	Water cooler FKS 04 21590 103	Coolant additive 21589 204 -

Type	21590	...	21590	...	21590	...
HS 1100-P		101				
ISG 2400 TLK				102		
FKS 04						103

Clamping Technology

diebold21590 104
ISG 2400 WK**Type**

- Shrink device with automatic coil guide and water cooling
- Collets are cooled automatically in shrink position
- Intelligent, programmable parameter control with simple menu navigation

Advantage:

- No contact with hot shrink-fit collets
- No damage to tools from cooling adapter
- No overheating of collets caused by fixed pre-programmed parameters

21590 105
ISG 3400 WK**Type**

- Shrink device with automatic coil guide and water cooling
- Collets are cooled automatically in shrink position
- Intelligent, programmable parameter control with simple menu navigation

Advantage:

- No contact with hot shrink-fit collets
- No damage to tools caused by cooling adapter
- No overheating of collets by fixed pre-programmed parameters

NEW

Technical data	21590 104	21590 105
Type	ISG 2400 WK	ISG 3400 WK
HM shrink range	Ø 3 - 20 mm	Ø 3 - 32 mm
HSS shrink range	Ø 6 - 20 mm	Ø 6 - 32 mm
Tool length max.	400 mm	400 mm
Type of cooling	Automatic water cooling	Automatic water cooling
Tank contents	40 l	40 l
Cooling length, max.	200 mm	200 mm
Cooling time	20 s	20 s
Machine interface	SK 30 - 50 HSK 32 - 100	SK 30 - 50 HSK 32 - 100
Connection	400 V / 16 A	400 V / 16 A
Power	8 kW	11 kW
Dimensions (WxDxH)	800 x 560 x 1720	800 x 560 x 1720
Scope of supply	Shrink device with 3 ferrite discs 1 l coolant concentrate, Protective gloves	Shrink device with 4 ferrite discs, 1 l coolant concentrate, Protective gloves
Required accessories	Tool support 21594	Tool support 21594
Optional accessories	-	-

Type	21590	...	21590	...
ISG 2400 WK			104	
ISG 3400 WK				105

Continuation ►

21591 Accessories for HS 1100-P

diebold

21591 101-104

Tool holders

Type

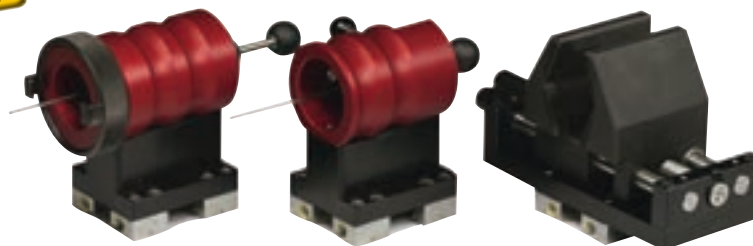
- For clamping the different taper shanks in the shrink device

Note:

Other taper sizes can be supplied on request.

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

NEW



21591 101-104

21591 201

Digital length setting

Type

- Retrofittable
- Precision 0.01 mm

Advantage:

- For shrink-fitting to precise tool lengths

Type	21591	...
Digital length setting		201



21591 201

21592 - 21593 Accessories for ISG 2400 TLK

diebold

21592

Cooling adapter

Use

In order to minimise the cooling-down time, the cooling adapters are made of aluminium, they completely enclose the hot chucking area and are equipped with cooling fins. The chuck's temperature has decreased enough after only 60 seconds that the chuck can be touched by hand.

21593

Toolholders

21592

21593



Cooling adapter

Toolholder

∅ mm	ST	HSK-A	21592		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 1L		204

NEW

21589 204

21589 301

21589 303



21589 301+303

Tool supports for FKS 04

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

Clamping Technology

diebold**Type**

- Tool supports for clamping of tool shanks in shrink-fit process

NEW

21594



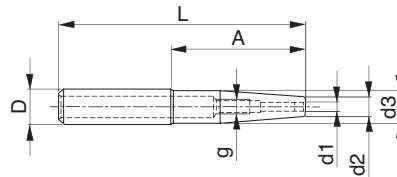
Size	Shape	21594	...
HSK 63	A / E		101
SK 40	SK / BT		102
SK 50	SK / BT		103

diebold**Use**

For lengthening and reducing to smaller shank diameters.

Note:

Further sizes available on request.



21598



D	d1	d2	d3	A	L	g	21598	...
mm	mm	mm	mm	mm	mm			
12	3	9	11.8	63	110	-		101
12	4	10	11.8	63	110	-		102
12	5	11	11.8	63	110	-		103
12	6	12	17	63	110	M 5		104
12	8	14	19	63	110	M 6		105
16	3	9	13	60	110	M 6		201
16	4	10	14	60	110	M 6		202
16	5	11	15	58	110	M 6		203
16	6	12	15.8	60	110	M 5		204
16	8	14	19	60	110	M 6		205
20	3	9	13	58	110	M 6		301
20	4	10	14	58	110	M 6		302
20	5	11	15	58	110	M 6		303

D	d1	d2	d3	A	L	g	21598	...
mm	mm	mm	mm	mm	mm			
20	6	12	16	58	110	M 5		304
20	8	14	19	58	110	M 6		305
20	10	16	19.8	58	110	M 8 x 1		306
20	12	18	19.8	58	110	M 10 x 1		307
16	3	9	16	150	200	-		405
16	4	10	16	150	200	-		406
16	5	11	16	150	200	-		407
16	6	12	16	150	200	M 5		408
20	6	12	20	198	250	M 5		501
20	8	14	20	198	250	M 6		502
20	10	16	20	198	250	M 8 x 1		503
25	12	18	25	193	250	M 10 x 1		601
25	16	22	25	193	250	M 12 x 1		602

diebold

21595 201-207

Length adjustment sleeve

Type

Length adjustment with 0.01 mm increments.

Use

Length adjustment sleeve for determining the overhang.

Note:

Adjust the push rod to the desired length, insert the cutting tool into the borehole and clamp it against the plastic stop. Insert the tool into the warmed-up chuck.

for Ø	Protruded length	21595	...
mm	mm		
3	5 - 25		201
4	5 - 25		202
5	5 - 25		203
6	10 - 35		204

for Ø	Protruded length	21595	...
mm	mm		
8	10 - 35		205
10	15 - 50		206
12	15 - 50		207



21595 201-207

21595 301-303

Release device

Type

Basic support with cap nut, hex wrench and adjustable compression pin.

Use

For removal of broken tool shanks from shrink-fit collets. Place fixture on shrink device, remove tool during the heating process using the eccentric rotary handle and the compression pin pre-set to length.

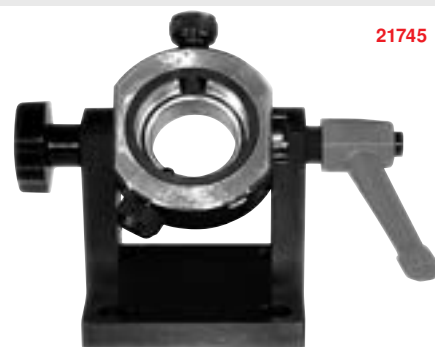
for taper	21595	...
HSK 40		301
HSK 63		302
BT/SK 40		303



21595 301-303

21745 Assembling Aids

Type
Swivelling, for assembling tools without reclamping.
Use
For assembling and disassembling of ST toolholders.



21745

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

21746 Assembling Aids

diebold

Type
Aluminium cast iron housing. Easily accessible from the back. Vertical tapered mounting hole for tool holders. Horizontal mount for draw-in bolts, coolant tubes, etc.
Use
For safe assembly and disassembly of cutting tools and tool holders.



21746

for taper	for size	for shape	21746	...
ST/MAS-BT	30	-		101
ST/MAS-BT	40	-		102
ST/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 Assembly support solid-clamp

ATORN®

21748 101
solid-clamp - basic body

Type
Aluminium basic body for exchangeable tool holders. 4 x 90° indexable holders. Low force necessary due to perfect ergonomics.
Use
For safe assembly and disassembly of cutting tools and tool holders.



21748 101

21748 103-113
solid-clamp - tool holders



21748 103-105

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



21766

Zero Point Setters

Type

For quick and easy determination of the reference point in axial direction of machine spindle (e.g. at milling cutters). The instrument is positioned onto the workpiece and the tool (e.g. milling cutter) is moved onto the spring based probe surface, until both pointers of the dial shows. Lower edge of the tool is now precisely positioned 500.01 mm above workpiece surface. Size 50 mm will be stored into machine control data system. Base unit and probe insert of device are all case-hardened HRC 60 +/- 1.

Delivery with measuring log, in wooden case.



21766

Resolution of dial indicator mm	Height of spring measuring surface mm	Probe surface Ø mm	Housing Ø mm	21766	...
0.01	49.5 - 50	47	65		101

21764

Test arbors (inspection arbors)

diebold

Type

Tapered shank more accurate than AT3, case-hardened steel hardened (56+4 HRC), ground.

Delivery in wooden crate.

Use

For the alignment and checking of tool spindles.

21764 301

Type

with lock ring.



21764

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

21767

Metric Edge Finders JC-20



Type

Battery operated edge finder made by Renishaw, is chucked by a collet chuck or milling cutter mount.

As soon as the probe insert contacts the workpiece, a red light is activated.

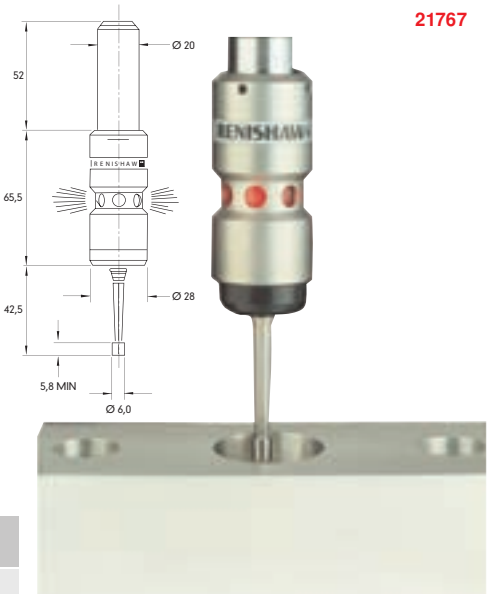
Use

Only electrically conductive materials can be contacted. The edge finder can be used for different measuring jobs and for zero point setting of workpieces on all manual and CNC-controlled machine tools.

Criteria: Inner and outer measurement, determining of bore centrepoint centrally in respect of work spindle, measure reference edges, measure heights and depths. Repeat precision 0.001 mm. Overrun X, Y 15 mm, Z 5 mm, type of protection: IP 44.

Note:

Replacement batteries, see HHW catalogue volume 2 (tools + machines) Cat. No. 39900.



21767

21767

101

21765

3D small edge probe ZERO MASTER

HAIMER

Type

- Small compact design
- Precision 0.01 mm
- Incl. short probe insert
- Suitable in confined areas, or for small HSK or SK 30 spindles

Use

For sensing of edges and bores. For setting of datum points.

Note:

Replacement probe, see Cat. No. 21768 102-103.

NEW



21765

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

IP 67





21768 Universal-3D probe



21768 101
Multi-purpose 3D Probes

Type
Proven metal mechanism, compact design, dustproof and waterproof, comfortable adjustment of concentricity, one scale for radial and axial touching.

Technical data
Clamping shank: 20 mm,
Readability precision: 0.01 mm,
Sensing ball Ø: 4 mm.

Scope of supply:
Incl. of short contact point.

Use
For determining workpiece zero points, measurements of length, boreholes, borehole centres, and reference edges.

Note:
Milling cutter mount extra short, DIN 69871 AD, Ø 20 mm, A = 35 mm, see cat.-no. 21631 206.

21768 102
Contact point insert, short, Ø 4 mm,
Length 25 mm.

21768 103
Contact point, long, Ø 8 mm,
Length 65 mm.



21768 101

21768 102

21768 103

	21768	...
3D probes		101
Contact point insert, short		102
Contact point insert, long		103

21769 Digital 3D Probes



Type
A further development of the well experienced mechanical 3-D probe. The measuring procedure can be watched accurately on the digital dial. The dial has a 0.001 mm display with large numerals, mm/inch options, protected against ingress of dust and water spray.

Note:
Milling cutter mount extra short, DIN 69871 AD, Ø 20 mm, A = 35 mm, see cat.-no. 21631 206.
Suitable contact points see cat.-no. 21768 102+103.



21769

Measuring precision mm	Clamping shank Ø mm	Housing Ø mm	21769	...
0.005	20	65		201

21770 - 21771 Edge sensors

Type
All parts hardened, chucking- and working surfaces ground, partly lapped. Tension spring inside provides elastically compensating connection to upper part of shank.

Use
For the determination of the centre line.

21770 203
Type
With single-point contact head.

21771 205
Type
With double-point contact head.

21771 500
Spare spring
Use
For cat.-no. 21770 - 21771.



21770



21771

	Measuring head Ø mm	Straight shank Ø mm	Pack = pcs.	21770	...	21771	...	21771	...
Edge finder single	10	10	-		203				
Edge finder double	10 + 4	10	-				205		
Spare spring	-	-	10						500

Clamping Technology



21772

Electrical edge finder 2D/3D



Type

With all-round illuminated indicator. The ball is elastically suspended and is pushed to the side when the reference edge is reached. Precision +/- 0.01 mm. Standard equipment: Edge probe with battery.

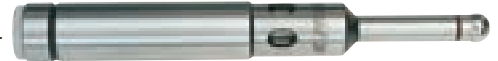
Use

For centring the spindle above the workpiece.
For outside and inside centring.

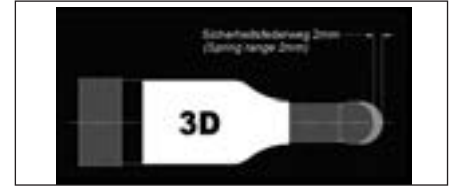
Note:

Replacement batteries see HHW catalogue volume 2 (tools & machines) Cat. No. 39900 215.

21772 101



21772 102



Type	Shank Ø mm	Spherical tip Ø mm	Battery V	21772	...
2D	20	10	1 x 12.0	101	
3D	20	10	1 x 12.0	102	

21773

Dial Indicating Centre Finders

DIACATOR

Type

With built-in upright dial indicator and rotating probe, max. centring error depending on probe 0.006 - 0.01 mm. Built-in overload clutch to protect against damage. Mounts on screw-on MT 1 morse taper shank (for larger taper holes, use adapters!) or on a straight shank (8 mm Ø).

Complete with pendulum probe for small holes, 2 angled contact point inserts 25 and 48 mm, 1 reducing sleeve MT 1, 3 screw-on adapter sleeves 10, 12 and 16 mm, 1 stop 160 mm and dial indicator, in wooden case.

Use

For aligning holes and shanks exactly concentrically with work spindle on milling machines, drill presses and boring mills.

Note:

Special probe, length 100, 125, 150 and 200 mm available on request.

21773



Measuring range for inside Ø mm	Measuring range for Outside Ø mm	21773	...
1.5 - 120	5.0 - 110	101	

21774

Centre Finders Centro

21774 101

Type

High-accuracy centre finder with steady dial indicator. Centring precision of 0.003 mm, with probe insert Cat. No. 21774 102.

Use

For aligning boreholes.

Note:

Rotational speed of spindle should not exceed 150 rpm. Concentricity errors of spindle and clamping system can be balanced out.

21774 102

Contact point insert

Type

Straight, with ball Ø 5 mm.

21774 103

Contact point insert

Type

Offset, with ball Ø 5 mm.

21774 104

Contact point insert

Type

Straight, with ball Ø 2 mm.

Use

For small boreholes.

21774 101



21774 102



21774 103



Type	Measuring range inside Ø mm	Measuring range outside Ø mm	Shank Ø mm	21774	...
Centro	3 - 125	0 - 125	16	101	
Contact point insert straight	-	-	-	102	
Contact point insert offset	-	-	-	103	
Contact point insert with ball 2 mm	-	-	-	104	

21775

Precision Centre Finders



Use

For centring, positioning, aligning, adjusting, inspecting, face probing, edge finding, accuracy: 2 µm. The very precise mechanism with rotating probe and the fixed dial indicator are the most important parts.

21775 201

Precision Centre Finders CO-S

Type

With fixed clamping shank, 16 mm Ø, dial indicator with 0.01 mm resolution. 1 contact point insert ball Ø 5 mm (for borehole), 1 bent contact point insert, ball Ø 5 mm (for shank), in case.

21775 204

Precision Centre Finders C III

Type

For different clamping shanks (see cat.-no. 21778), dial indicator with 0.01 mm graduation. 1 straight contact point insert ball - Ø 5 mm (for borehole), 1 hexagon socket wrench size 3, bottle of watch oil no. 5, in wooden box.

21775 201

21775 204



Type	Reading of dial indicator mm	Probing range inside Ø mm	Probing range outside Ø mm	Face area mm	Probing depth inside Ø mm	Probing depth outside Ø mm	21775	...
CO-S	0.01	6 - 125	0 - 125	120 - 160	55	20		201
C III	0.01	2 - 400	0 - 300	0 - 480	150	150		204

21776

Accessories

Use

For cat.-no. 21775.

21776 102

Edge finder

Use

For positioning the work spindle axis above workpiece edges or corners

21776 103

Contact point insert

Type

Straight, ball Ø 1.7 mm.

Use

For centring holes less than 6 mm.

21776 102

21776	...
	102
	103



21777

Accessory Kits

Type

Comprising:

- **Probe insert**, ball Ø 1.7 mm for centring of bores of less than 6 mm
- **Angle probe insert**, ball Ø 2.5 mm for alignment of surfaces of between 90 mm and 280 mm Ø

- **Extensions** for enlarging the working range
- **Plan probe**, ball Ø 5.0 mm

Use

For **type C III** cat.-no. 21775 204 and 205.

21777

21777	...
	101



21778

Clamping shanks

Use

For **type CO and C III** cat.-no. 21775 204-205.

21778 202-204

DIN 2080. cat.-no. 21778 202 with lock ring.

21778 501-503

Straight shank.

21778 102-103

Morse taper shank.

21778 302-304

DIN 69871 A, without gripper groove.

21778 202-204

21778 302-304

Taper MT/ draw-in thread	Taper ST/ draw-in thread	Cylinder-Ø mm	21778	...
3 / M 12	-	-		102
4 / M 16	-	-		103
-	40 / M 16	-		202
-	50 / M 24	-		204
-	40 / M 16	-		302
-	50 / M 24	-		304
-	-	16		501
-	-	20		502
-	-	25		503



21780

Articulated measurement stand

Type

Mechanical central clamping of all joints, clamping force can be variably regulated, every position within the action radii can be reached. Dial gauge receptacle with shank Ø 8 mm, length = 40 mm for direct accommodation in the machine (collet chuck!).

Use

For sensing lever measurement devices Use for: Workpiece positioning, centring bores/tappets, alignment of workpieces, difficult to access locations.

Note:

Sensing lever measurement devices, see HHW catalogue 2 (tools + machines) cat.-no. 33245 ff.



21780

21780



201

21634

Reduction Inserts for End Milling Cutters



Type

With straight shank in compliance with DIN 1835 B. Concentricity deviation of taper to internal taper ≤ 0.005 mm.

Use

Used as reduction inserts in milling cutter mounts for milling cutters with small diameters.



21634

d H ₄ mm	d ₁ mm	A mm	D mm	I mm	21634	...
6	20	30	25	50		103
8	20	30	28	50		104
10	20	30	35	50		105

d H ₄ mm	d ₁ mm	A mm	D mm	I mm	21634	...
12	20	35	42	50		106
6	32	30	25	60		107
8	32	30	28	60		108

d H ₄ mm	d ₁ mm	A mm	D mm	I mm	21634	...
10	32	30	35	60		109
12	32	35	42	60		110
16	32	38	48	60		111

21635

Spare screws for Weldon



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
M 20 x 2	32+40		608

21636

Sawblade Tool holders

Type

With straight shank for mounting in surface chucks, high true-running accuracy.

Use

For mounting saw blades with Ø of 20 - 100 mm and saw blade thicknesses of 0,2 - 6 mm (see cat.-no. 17002 - 17008 and 17030 - 17031).

Note:

Delivery without saw blades.

21636 300

Type

Set, 6-part, consists of all sizes of cat.-no. 21636 301-306, incl. case.

21636 301-308

Type

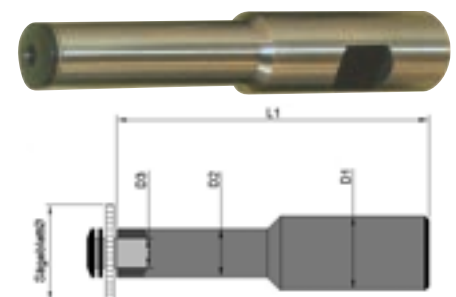
Single.



21636 300

Set content	Support Ø mm	Set 21636	...
6-part	20 / 25 / 32 / 40 / 50 / 63		300

for saw blade Ø mm	L1 mm	Ø D1 mm	Ø D2 mm	Ø D3 mm	Single 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



21636 301-308

21655

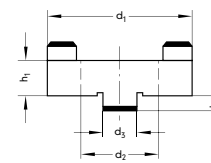
Driving rings



Use

For combination milling cutter arbors, cat.-no. 21648 - 21650.

for milling cutter 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



21655

21656

Miller draw-in screws



Type

Without borehole.

Use

For combination milling cutter arbors, milling head mounts, and milling cutters with transverse slot.

for milling cutter arbors with pilot Ø mm	Draw-in 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



21656

21657

Key for miller draw-in screws



Type

Special steel, hardened and black finished.

Use

For tightening the milling cutter draw-in screws DIN 6367.

for milling cutter arbors with pilot Ø mm	21657	...
13		102
16		103
22		104
27		105
32		106
40		107



21657

21659

Miller draw-in screws

Type

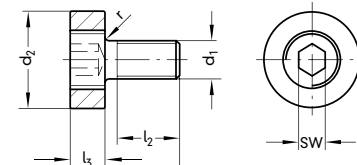
Consists of a stud bolt with hexagon socket (for turning with a hexagon socket key and a threaded collar which screws on to it).

Use

For milling cutter arbors, milling head mounts, and milling cutters with transverse slot.

Note:

Tremendous gripping power is achieved by the different pitches on the stud bolt. When screwing down, the threaded collar bears against the face of the milling cutter and does not turn with the stud bolt any more. No damage to the milling cutter, and less axial and radial eccentricity!



21659

for milling cutter arbors with pilot Ø mm	Draw-in screw thread (d ₁)	Thread length (l ₂) mm	Allen size mm	Key threaded collar 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

21665

Milling cutter arbor collar sets



Type

Punched type, in plastic pouch.

Use

For preventing the milling cutters on milling cutter arbors from laterally shifting.

21665 101-105

Type

Assortment A, 60 pcs.

21665

21665 106-110

Type

Assortment B, 35 pcs.



Contents:											
Collar width mm	0.03	0.04	0.05	0.1	0.2	0.3	0.5	0.6	1.0	1.5	number overall
Range A, quantity	10	10	10	10	5	5	4	3	2	1	60
Range B, quantity	5	5	5	6	3	3	3	2	2	1	35

Assortment A	
Bore mm	21665 ...
16	101
22	102
27	103
32	104
40	105

Assortment B	
Bore mm	21665 ...
16	106
22	107
27	108
32	109
40	110

21666

Arbor collars



Type

Made of spring-tempered strip steel, punched and deburred. Keyway in compliance with DIN 138.

Use

For preventing the milling cutters on milling cutter arbors from laterally shifting.

21666



Borehole Size mm	16 mm		22 mm		27 mm		32 mm		40 mm		50 mm	
	21666	...	21666	...	21666	...	21666	...	21666	...	21666	...
0.03	110		119		128		137		146			
0.04	111		120		129		138		147			
0.05	112		121		130		139		148		157	
0.1	113		122		131		140		149		158	
0.2	114		123		132		141		150		159	
0.3	115		124		133		142		151		160	
0.5	116		125		134		143		152		161	
0.6	117		126		135		144		153		162	
1.0	118		127		136		145		154		163	

21667

Arbor collars



Type

Turned from steel, hardened, face is ground parallel and lapped. Keyway in compliance with DIN 138.

21667



Borehole Size mm	16 mm		22 mm		27 mm		32 mm		40 mm		50 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	

22503 - 22505

Reduction sleeves DIN 2185

Use

For the adjustment to different morse taper shanks on the machines and tools.

22503

Type

Standard type, drive tang hardened, External taper ground.

22505

Type

Precision version, completely hardened, internal and external tapers ground.

22503



22505



MT external	MT internal	22503	...	22505	...
1	0				101
2	1	102		102	102
3	2	103		103	103
3	1	104		104	104
4	3	105		105	105
4	2	106		106	106

MT external	MT internal	22503	...	22505	...
4	1	107		107	107
5	4	108		108	108
5	3	109		109	109
5	2	110		110	110
5	1				111

22525

Extension Taper Sockets DIN 2187

Type

Standard type, drive tang hardened, External taper ground.

Use

For the extension of tools and adjustment to different morse taper shanks on the machines and tools.

22525



MT external	MT internal	Cylinder Ø mm	Length mm	22525	...
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	

MT external	MT internal	Cylinder Ø mm	Length mm	22525	...
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	
5	5	63	335	120	

22530

Drill and Reamer Extensions

Type

With morse taper shank and ejector lugs acc. to DIN 228 B, outer taper hardened, entirely ground.

22530



MT external	MT internal	Cylinder-Ø mm	Length mm	Extension mm	22530	...
1	1	20	200	138.0	101	
1	1	20	250	188.0	102	
1	1	20	300	238.0	103	
1	1	20	350	288.0	104	
2	2	25	200	125.0	110	
2	2	25	250	175.0	111	
2	2	25	300	225.0	112	
2	2	25	350	275.0	113	
2	2	25	400	325.0	114	
2	2	25	500	425.0	115	

MT external	MT internal	Cylinder Ø mm	Length mm	Extension mm	22530	...
3	3	32	250	156.0	121	
3	3	32	300	206.0	122	
3	3	32	350	256.0	123	
3	3	32	400	306.0	124	
3	3	32	500	406.0	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

Split Taper Sleeves DIN 6328

Type

With Morse taper shank and drive tang in compliance with **DIN 228 B**, fully hardened, ground inside and outside.

Use

For mounting taps with square-end drive. For use in e.g. quick-change chucks, multi-spindle units with spindles close together.

22711



MT / Ø mm	Shank Ø mm	Square-section mm	22711	...
1 / 2,8	2,8	2,1		103
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

MT / Ø mm	Shank Ø mm	Square-section 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
3 / 11,0	11,0	9,0		123

MT / Ø mm	Shank Ø mm	Square-section mm	22711	...
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 Drifts / Mechanical Ejector Drifts

Use

For loosening of tools with Morse taper shank and drive tangs in compliance with **DIN 228 B**.

22901

Type

DIN 317.

For use with hammering tool.

22903

AMF

Type

For use without hammering tool. One-hand operation, a simple thrust on a lever moves two wedges in opposite directions (the other hand remains free to hold the tool). Handle plastic-coated, red.

22903 201

AMF

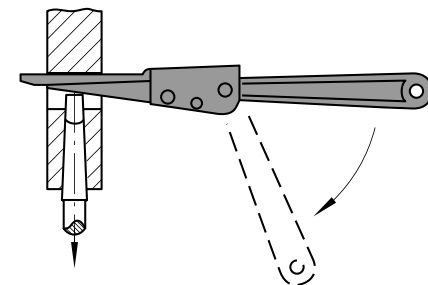
Type

With finger guard.

22901



22903



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

For MT	AMF 22903	...
1 - 3		201
4 - 6		202

LARGE SELECTION – EASY SEARCH

Don't forget! CATALOGUE VOLUME [2]
The universal catalogue for tools and machines.

Experience the comprehensive product selection of our quality tools from **ATORN**

ATORN® Performance requires quality.

