

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

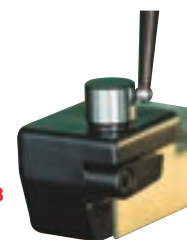
For centring holes less than 6 mm.

21776 102

21776	...
	102
	103



21776 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

...

1 201

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

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
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

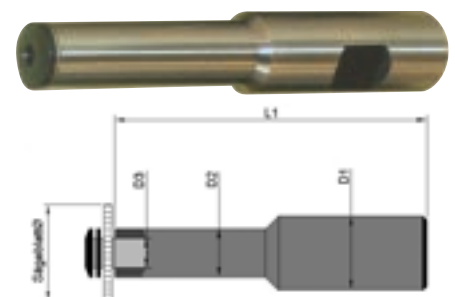
Single.



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

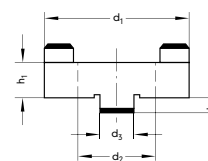
Driving rings

DIN
6366

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

DIN
6367

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

DIN
6368

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).

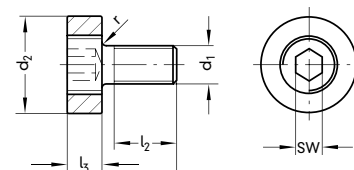
Use

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

DIN
2084

A

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

Assortment B

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

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

21666

Arbor collars

DIN
2084

A

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

21667

Arbor collars

DIN
2084

B

Type

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

21667



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

