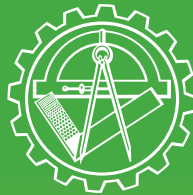


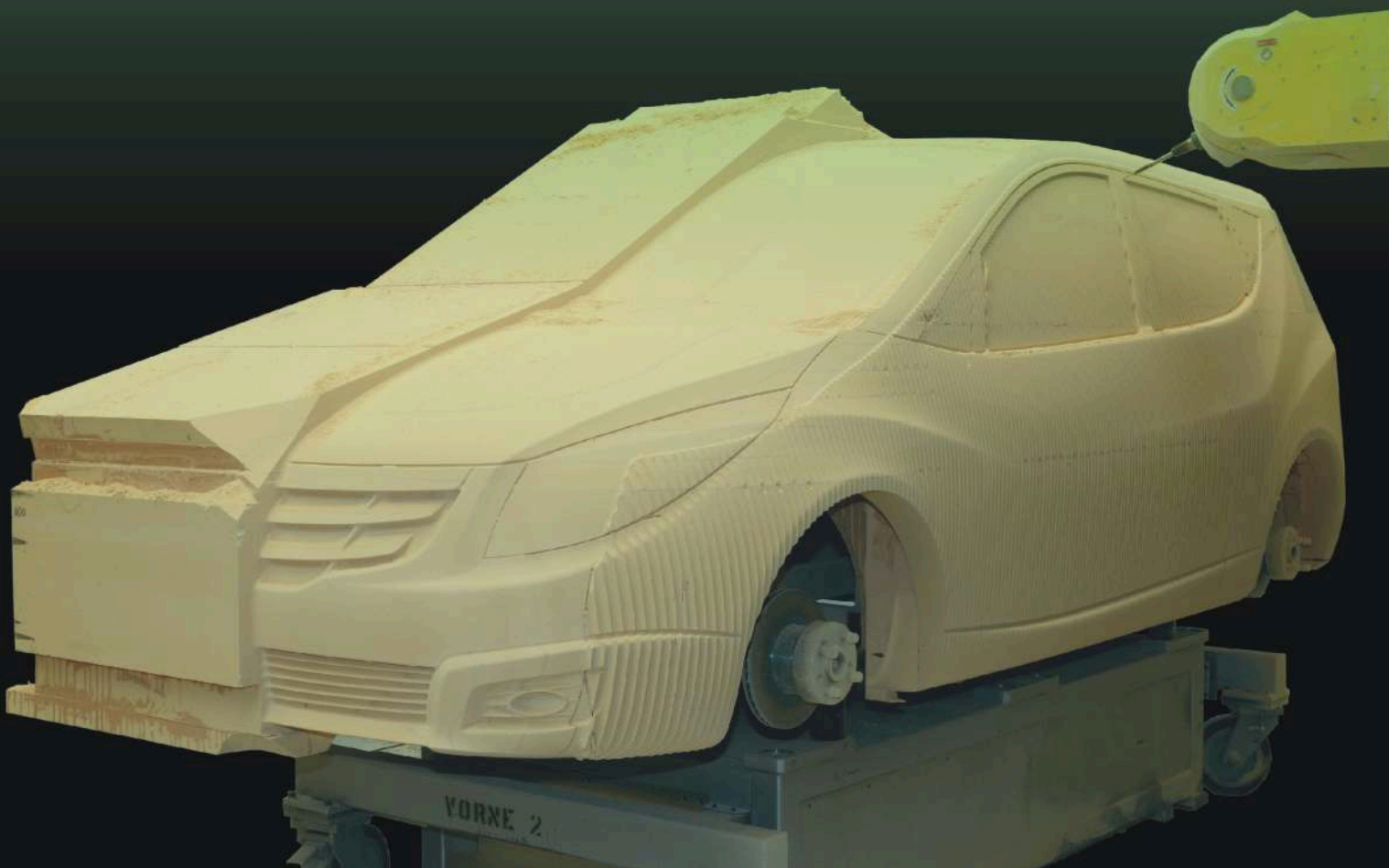
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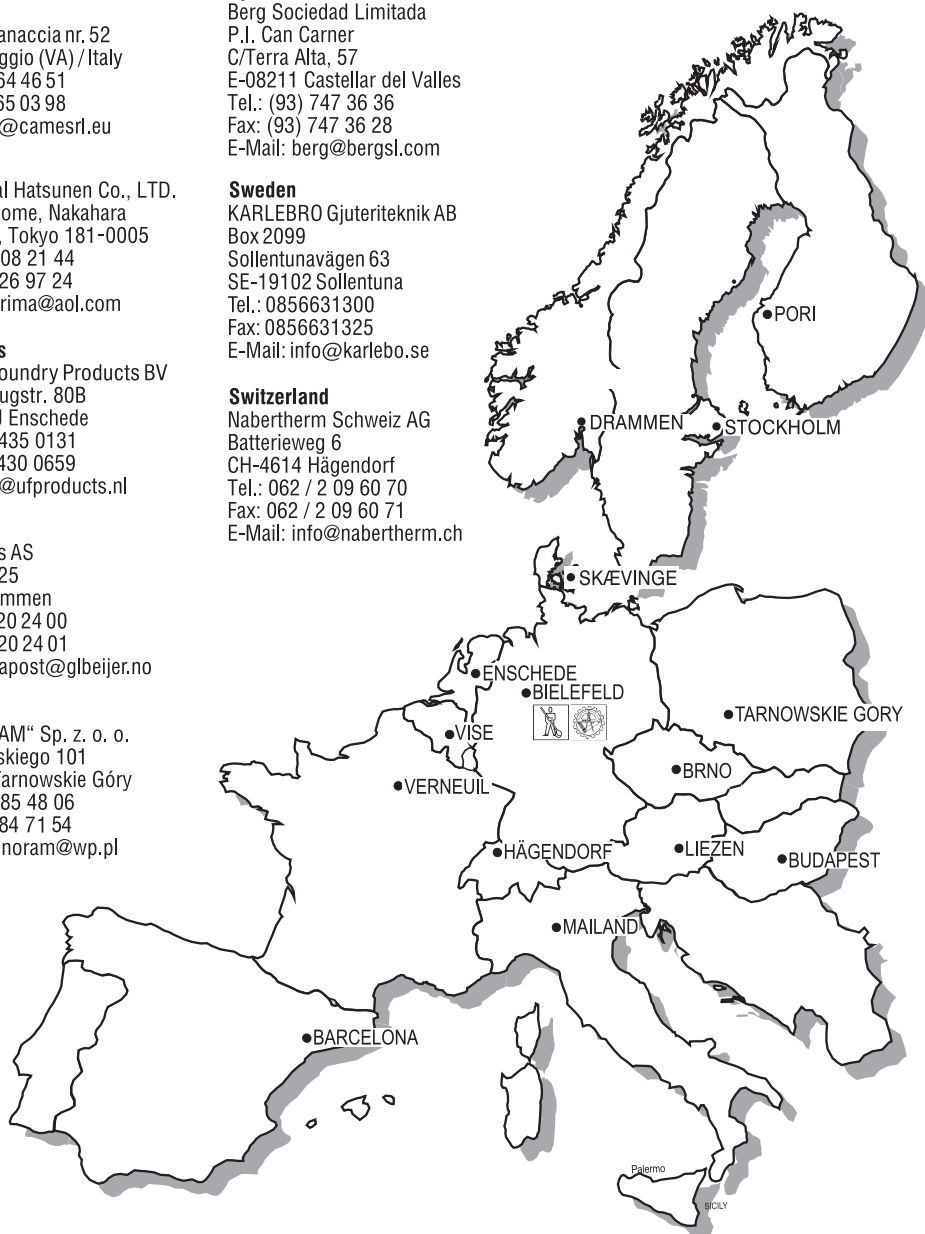
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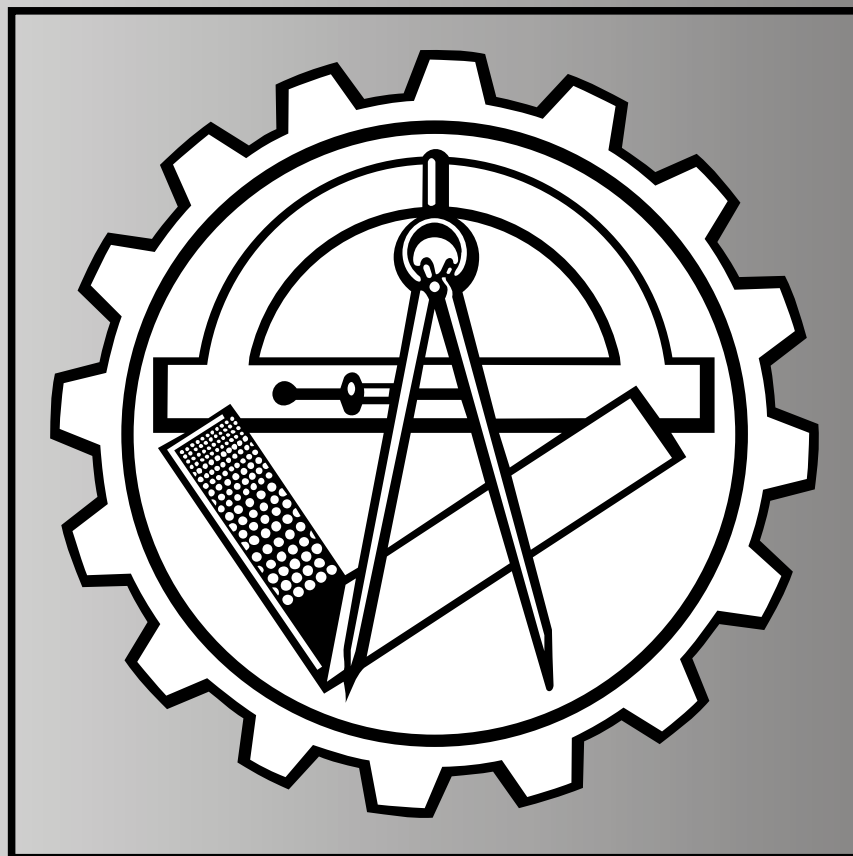
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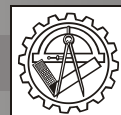




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CATALOGUE

No. 15 P

No reprint of this catalogue or parts of it
without our agreement.

**We are partners
of the foundry industry
and the pattern-makers
for many decades.**

Please regard:

Although this catalogue is already very extensive it can only show a part of our possibilities. For many items there are special and more detailed information. Please ask for it!

Illustrations and descriptions are valid at the time of going to press and not binding.

We reserve the right to alter designs and to introduce changes without notice.

Our products are designed for industrial use and postulate experience and know-how.

Please respect our minimum order value
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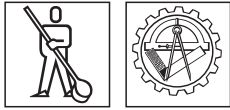


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Disc- and belt-sanding machines, bobbin sanders and conventional milling machines! **Page 143**

Precision pattern dowels, grooved

peg of steel, bush of brass (also individually available)
(Upon request the peg may be delivered of brass also!)



500

Item No.	500.100	500.110	500.120	500.130	500.140	500.150	500.155	500.160	500.165	500.170	500.175	500.180
Dowel-size	0	1	2	3	4	5	5A	6	6A	7	7A	8
Outside-diam.	3 mm	4,5 mm	6 mm	8 mm	10 mm	12 mm	14 mm	15 mm	16 mm	18 mm	20 mm	22 mm
Qty.p.package	100 St.	100 St.	100 St.	100 St.	100 St.	100 St.	100 St.	50 St.	50 St.	50 St.	50 St.	50 St.

Pattern dowel drills (with undersize) for dowel No. 500

for machine: with point, pre-cutters and cylindrical shank

For dowel size	Drill dia.	Shank dia.	Total length	Item No.	
				HSS	HM
0	2,8 mm	2,8 mm	60 mm	501.200	501.300
1	4,25 mm	4,25 mm	80 mm	501.210	501.310
2	5,75 mm	5,75 mm	100 mm	501.220	501.320
3	7,5 mm	7,5 mm	110 mm	501.230	501.330
4	9,5 mm	9,5 mm	120 mm	501.240	501.340
5	11,5 mm	11,5 mm	135 mm	501.250	501.350
5 A	13,5 mm	13,0 mm	180 mm	501.255	501.355
6	14,5 mm	13,0 mm	180 mm	501.260	501.360
6 A	15,5 mm	13,0 mm	190 mm	501.265	501.365
7	17,5 mm	16,0 mm	200 mm	501.270	501.370
7 A	19,5 mm	16,0 mm	210 mm	501.275	501.375
8	21,3 mm	16,0 mm	220 mm	501.280	501.380



501

Center point markers (for pattern dowels No. 500)

Item No.	502.010	502.030	502.055
for dowel no.	1	3	5 A
Item No.	502.060	502.065	502.075
for dowel no.	6	6 A	7 A

This item will be discontinued. Available while stocks last.



502

Cylindrical pins, fit m 6



503

1) DIN 7, of 9 S 20 K, unhardened

Length mm	Diameter / Item No.					
	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm
10	503.310	503.410	-	-	-	-
15	503.315	-	-	-	-	-
20	503.320	503.420	503.520	503.620	503.820	-
25	-	-	503.525	503.625	-	-
30	503.330	503.430	503.530	503.630	503.830	503.103
35	503.335	-	503.535	-	-	-
40	503.340	503.440	503.540	503.640	503.840	503.104
50	-	503.450	503.550	503.650	503.850	503.105
60	-	-	503.560	503.660	503.860	-

Other size upon request!

2) DIN 6325, of alloyed special steel, hardened

Length mm	Diameter / Item No.					
	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm
10	503.310G	503.410G	-	-	-	-
15	503.315G	-	-	-	-	-
20	503.320G	503.420G	503.520G	503.620G	503.820G	-
25	-	-	503.525G	503.625G	-	-
30	503.330G	503.430G	503.530G	503.630G	503.830G	503.103G
35	503.335G	-	503.535G	-	-	-
40	503.340G	503.440G	503.540G	503.640G	503.840G	503.104G
50	-	503.450G	503.550G	503.650G	503.850G	503.105G
60	-	-	503.560G	503.660G	503.860G	-

Slotted pin taper pin in accordance with DIN 1471

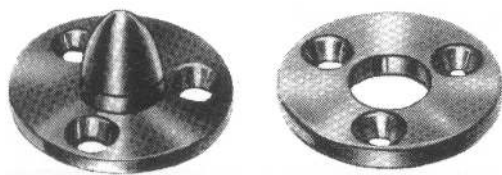


504

Diameter mm	1,5	2	2,5	3	4	5	6	8	10	12	13	14	16
Min. length mm	4	5	6	6	8	8	10	12	14	16	20	22	26
Max. length mm	20	30	30	40	60	60	80	100	120	120	120	120	120

Not stocked!

Minium quantity: 500 - 1000 pieces per size

505

Pattern disk-type dowels made of brass

with counterdisks (also individually available)

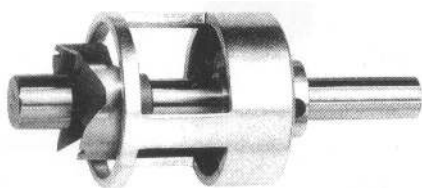
Dowel size	Outside dia.	Hole dia. counter disk	Item No.	Qty. per package
1	16 mm	5 mm	505.001	100
2	19 mm	6 mm	505.002	100
3	22 mm	7 mm	505.003	100
4	25 mm	8 mm	505.004	100
5	32 mm	12 mm	505.005	50
6	38 mm	14,5 mm	505.006	50
7	41 mm	17 mm	505.007	25
8	51 mm	19 mm	505.008	20
9	63 mm	24,5 mm	505.009	15

506

Disk-type dowel drills

for machine, with point, 2 broaching edges, 2 pre-cutters and straight shank

For dowel size	Drill dia.	Shank dia.	Design / Item No.		
			WS	HSS	(HM)
1	16 mm	13 mm	514.116	514.216	514.316
2	19 mm		514.119	514.219	514.319
3	22 mm		514.122	514.222	514.322
4	25 mm		514.125	514.225	514.325
5	32 mm	16 mm	514.132	514.232	514.332
6	38 mm		514.138	514.238	514.338
7	41 mm		514.141	514.241	514.341
8	51 mm		514.151	514.251	514.351
9	63 mm	20 mm	514.163	514.263	514.363

507

ZOBO-disk-type dowel drill bits

made of CS-steel.

Complete with depth setter and replaceable guide bush

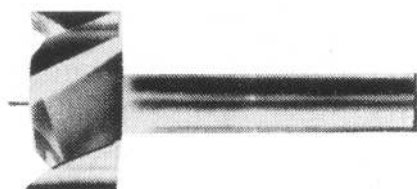
For dowel size	Drill dia.	Guide pilot dia.	Shank dia.	Item No.		
				cpl. drill	spare pilot	spare depth setter
1	16 mm	5 mm	9 mm	507.001	507.101	522.306
2	19 mm	6 mm		507.002	507.102	
3	22 mm	7 mm		507.003	507.103	
4	25 mm	8 mm		507.004	507.104	
5	32 mm	13 mm	12 mm	507.005	507.105	522.307
6	38 mm	15 mm		507.006	507.106	
7	41 mm	17 mm		507.007	507.107	
8	51 mm	19 mm		507.008	507.108	
9	63 mm	25 mm	20 mm	507.009	507.109	522.317

Important: never chuck ZOBO-drills with the hollow shaft, a reducer should always be used to avoid the risk of breaking the drill.

Other diameters of pilots for other uses upon request!
ZOBO-disk-type dowel drill bits carbide tipped upon request!

508

Design 1)



Design 2)

Guide pilot drill

suitable for the above ZOBO-drills

Design 1) wood twist drill (for size 1 & 2)

cylindrical with center point and pre-cutters (HSS-quality)

Design 2) ZOBO-drill (for size 3 - 9)

with center point and 9 mm shank, of hardened steel

Item No.	For dowel size	Drill dia. guide bush dia.
517.205	1	5 mm
517.206	2	6 mm
522.007	3	7 mm
522.008	4	8 mm
522.013	5	13 mm
522.015	6	15 mm
522.017	7	17 mm
522.019	8	19 mm
522.025	9	25 mm

509

Center point markers for disk-type dowels No. 505

Item No.	509.002	509.005	509.006
for dowel size	2	5	6
Item No.	509.007	509.008	509.009
for dowel size	7	8	9

This item will be discontinued. Available while stocks last.

Krauss-dowels for wood patterns

of brass, with wood thread.

Peg and bush are also individually available!

Item No.	Size	Outside dia. mm	Peg			Bush length mm	Length of fitted dowel mm	Drill dia. mm	Package size
			Peg dia. mm	Peg length mm	Total length mm				
510.001	1	7,0	4,0	7,0	15,0	8,0	16,0	5,0	100
510.002	2	9,5	4,5	8,5	19,0	10,5	21,0	6,6	100
510.003	3	10,5	5,5	11,0	23,0	12,0	24,0	8,0	100
510.004	4	15,5	7,5	14,0	29,0	15,0	30,0	11,5	50
510.005	5	18,5	10,0	16,0	34,0	18,0	36,0	14,2	50
510.006	6	25,0	14,0	20,0	41,0	21,0	42,0	19,0	75

Item Nos. of accessories

For dowel size	1	2	3	4	5	6
HSS-dowel twist-drill	510.101	510.102	510.103	510.104	510.105	510.106
Screw-in key	510.111	510.112	510.113	510.114	510.115	510.116

510


Drill



Screw-in key

Krauss-dowels for metal patterns (case-hardened)

of steel, bright galvanized, for metal and plastic core boxes, with centering cone and neck.

Peg and bush are also individually available!

Item No.	Size	Outside dia. mm	Peg			Bush length mm	Length of fitted dowel mm	Thread	Package size
			Peg dia. mm	Peg length mm	Total length mm				
511.100	0	11	5	12	27	15	30	M 8 x 0,75	100
511.105	0a	11	5	24	39	15	39	M 8 x 0,75	100
511.110	1	15	8	16	35	19	38	M 12 x 1,0	50
511.115	1a	15	8	32	51	19	51	M 12 x 1,0	50
511.120	2	21	12	20	43	23	46	M 18 x 1,5	75
511.125	2a	21	12	40	63	23	63	M 18 x 1,5	75
511.130	3	30	18	35	60	25	60	M 26 x 1,5	25
511.135	3a	30	18	76	100	25	100	M 26 x 1,5	10

Item Nos. of accessories

For dowel size	0 u. 0 a	1 u. 1a	2 u. 2a	3 u. 3a
Screw-in key	511.400	511.401	511.402	511.403
Reamer	511.500	511.501	511.502	511.503
Countersink	511.600	511.601	511.602	511.603
Tap drill	511.700	511.701	511.702	511.703
Compl. set	511.800	511.801	511.802	511.803

511


Screw-in key



Countersink



Reamer

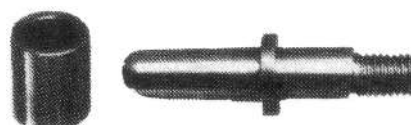


Tap drill

Core box and ingot mould dowels of steel

Peg and bush are also individually available!

Size	Length mm		dia. mm		thread	Item No.	
	Peg	Length	Peg	Bush		hardened	unhardened
1	14	46	10	14	M 8	512.010	512.110
1a	24	56	10	14	M 8	512.015	512.115
2	19	56	12	17	M 10	512.020	512.120
2a	31	68	12	17	M 10	512.025	512.125
3	26	70	15	22	M 12	512.030	512.130
3a	40	84	15	22	M 12	512.035	512.135
4	34	87	22	28	M 20	512.040	512.140
4a	49	102	22	28	M 20	512.045	512.145

512


Core box dowels 'Sonnenberg'-system

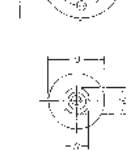
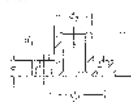
for round and oblong holes

All dimensions in mm

1) Bush size (nitrided)					with round hole		with oblong hole	
Size	D	d ₂	L	b	d ₁	Item No.	d ₁	S
1	38	17 k6	20	7	12 H9	513.111	-	-
2	45	26 k6	25	8	16 H9	513.112	20	16 H9
3	56	33 k6	30	8	23 H9	513.113	28	23 H9
4	78	41 k6	40	15	30 H9	513.114	35	30 H9

2) Dowel (case-hardened)					for round hole		for oblong hole	
Size	D	d ₂	L	b	G	I ₁	d ₁	S
1	25	17 k6	45	5	M 6	15	12 e9	513.211
2	34	26 k6	60	6	M 8	19	16 e9	513.212
3	40	33 k6	70	8	M 10	22	23 e9	513.213
4	51	41 k6	90	10	M 12	28	30 e9	513.214

Special designs available upon request!

513


514

Drilling bits

with straight shank, broaching edges, 2 pre-cutters and center point

		Total length	Design / Item No.		
Drill dia.	Shank dia.		WS	HSS	HM
10 mm	13 mm	120 mm	514.110	514.210	514.310
12 mm			514.112	514.212	514.312
14 mm			514.114	514.214	514.314
15 mm		130 mm	514.115	514.215	514.315
16 mm			514.116	514.216	514.316
18 mm			514.118	514.218	514.318
19 mm		140 mm	514.119	514.219	514.319
20 mm			514.120	514.220	514.320
22 mm			514.122	514.222	514.322
24 mm			514.124	514.224	514.324
25 mm			514.125	514.225	514.325
26 mm			514.126	514.226	514.326
28 mm			514.128	514.228	514.328
30 mm			514.130	514.230	514.330
32 mm	16 mm		514.132	514.232	514.332
35 mm			514.135	514.235	514.335

		Total	Design / Item No.		
Drill dia.	Shank dia.	length	WS	HSS	HM
38 mm	16 mm	140 mm	514.138	514.238	514.338
40 mm			514.140	514.240	514.340
41 mm			514.141	514.241	514.341
45 mm			514.145	514.245	514.345
50 mm			514.150	514.250	514.350
51 mm			514.151	514.251	514.351
55 mm		150 mm	514.155	514.255	514.355
60 mm			514.160	514.260	514.360
63 mm	514.163		514.263	514.363	
65 mm	514.165		514.265	514.365	
70 mm	514.170		514.270	514.370	
75 mm	514.175		514.275	514.375	
80 mm	514.180		514.280	514.380	
90 mm	24 mm		514.190	514.290	514.390
100 mm		514.200	514.300	514.400	

Other dimensions upon request!

515

Drill bits with exchangeable carbide tips

Three bit holder sizes fit all drill sizes (dia. 15 to 40 mm)

No resharping – thanks to exchangeable carbide tips!

Considerable savings already with the use of two different diameters in comparison to two separate drills.

Adjustable broacher enables the drilling of intermediate sizes. Higher feeding rates on automatic boring machines and easy and accurate free-hand drilling.



1) Holders

Item No.	Size	For dia. mm	Exch. carbide broacher
515.201	1	15 – 22	–
515.212	2	22,5 – 31	2
515.213	3	31,5 – 40	2

Int. sizes by means of setting gauges (see 4).

2) Shanks

fitting all holders

Item No.	Dia. mm	Total length mm
515.221	10	90
515.222	13	140

3) Carbide tips

with centering tip and broachers

Item No.	Dia. mm	For holder
515.015	15	Size 1
515.016	16	Size 1
515.018	18	Size 1
515.019	19	Size 1
515.020	20	Size 1
515.022	22	Size 1
515.023	23	Size 2
515.024	24	Size 2
515.025	25	Size 2
515.026	26	Size 2
515.028	28	Size 2
515.030	30	Size 2
515.032	32	Size 3
515.034	34	Size 3
515.035	35	Size 3
515.038	38	Size 3
515.040	40	Size 3

4) Settings gauges for int. sizes holder size 2 and 3

Item No.	Type	Dia. increase
515.261	01*	nominal dia.
515.262	02	+ 0,2 mm
515.263	05	+ 0,5 mm
515.264	08	+ 0,8 mm
515.265	10	+ 1,0 mm

* included in holder size 2 and 3

5) Spares

Item No.	Description	Size
515.232	Exch.-tip broacher	2
515.233	Exch.-tip broacher	3
515.241	Torx-screw M 2,5	1
515.242	Torx-screw M 4	2/3
515.251	Key	1
515.252	Key	2/3

6) Sets in a wooden box

Item No.	515.104	515.105
Holders	one in size 1, 2, 3	one in size 1, 2, 3
Carbide tip. dia.	15-20-25-30-35	15-16-18-20-22-23-25-26-30-34-35-40
Shanks	3 pcs. 10 x 90 mm	3 pcs. 10 x 90 mm

515A

Adjustable Universal Bit

With setting screw for quick adaption and spur for smooth and tear free holes.

Every bit is equipped with one small and one large cutter. Consequently with only two sizes of bits it's possible to drill boreholes of all diam. from 22 up to 80 mm incl. any intermediate diameter.

Recommended speed: WS: 400-600RPM, TCT: 600-800RPM

Size	Range of Ø mm	Shank mm	Total-length mm	Design / Item No.	
				WS	TCT
I	22-50	10x30	140	515.301	515.401
II	34-80	13x50	150	515.302	515.402
Spare parts					
Cutter 22-34mm for size I				515.311	515.411
Cutter 34-50mm for size I				515.312	515.412
Cutter 34-56mm for size II				515.321	515.421
Cutter 56-80mm for size II				515.322	515.422
Spare screw for size I				515.331	
Spare screw for size II				515.332	
Fine adjustment screw for size II				515.333	

Forstner-drills

with straight shank, center point, 2 broaching edges & peripheral cutter
WS-quality; HSS or carbide metal-type are not available!

Item No.	Drill dia.	Shank dia.	Total length
516.010	10 mm	13 mm	120 mm
516.012	12 mm		
516.014	14 mm		125 mm
516.015	15 mm		
516.016	16 mm		130 mm
516.018	18 mm		
516.020	20 mm		135 mm
516.022	22 mm		
516.024	24 mm	13 mm	140 mm
516.025	25 mm		
516.026	26 mm		
516.028	28 mm		

Item No.	Drill dia.	Shank dia.	Total length
516.030	30 mm	16 mm	140 mm
516.032	32 mm		
516.034	34 mm		
516.035	35 mm		
516.036	36 mm		
516.038	38 mm		
516.040	40 mm		
516.050	50 mm		155 mm
516.060	60 mm		

Other sizes upon request!



516

Wood twist drills No. 303

with straight shank, pre-cutter and center point

Drill dia.	Total length	Item No.	
		HSS	HM
3 mm	70 mm	517.203	517.303
4 mm	80 mm	517.204	517.304
5 mm	90 mm	517.205	517.305
6 mm	100 mm	517.206	517.306
7 mm	110 mm	517.207	517.307

Drill dia.	Total length	Item No.	
		HSS	HM
8 mm	115 mm	517.208	517.308
9 mm	125 mm	517.209	517.309
10 mm	130 mm	517.210	517.310
11 mm	140 mm	517.211	517.311
12 mm	140 mm	517.212	517.312
13 mm	140 mm	517.213	517.313

Other sizes upon request!



517

Wood twist drills No. 304

with stepped straight shank, pre-cutter and center point

Drill dia.	Shank dia.	Total length	Item No.	
			HSS	HM
14 mm	13 mm	180 mm	518.214	518.314
15 mm		185 mm	518.215	518.315
16 mm		190 mm	518.216	518.316
18 mm	16 mm	200 mm	518.218	518.318
20 mm		210 mm	518.220	518.320
22 mm		220 mm	518.222	518.322
24 mm		235 mm	518.224	518.324

Drill dia.	Shank dia.	Total length	Item No.	
			HSS	HM
25 mm	20 mm	240 mm	518.225	518.325
26 mm		250 mm	518.226	518.326
28 mm		260 mm	518.228	518.328
30 mm		270 mm	518.230	518.330
35 mm		290 mm	518.235	518.335
40 mm		300 mm	518.240	518.340

Other sizes upon request!



518

Wood twist drills, extra-long, HSS (deep hole drills)

high grade design with center point and two broaching edges, special design of twist for easy chip transport.

Total length 250 mm, usable length 180 mm

Drill dia.	Shank dia.	Item No.
3 mm	3 mm	519.203
4 mm	4 mm	519.204
5 mm	5 mm	519.205
6 mm	6 mm	519.206
7 mm	7 mm	519.207
8 mm	8 mm	519.208
9 mm	9 mm	519.209

Drill dia.	Shank dia.	Item No.
10 mm	10 mm	519.210
11 mm	11 mm	519.211
12 mm	12 mm	519.212
13 mm	13 mm	519.213
14 mm	13 mm	519.214
15 mm	13 mm	519.215
16 mm	13 mm	519.216



519

HSS twist drills

with cylindrical shank, for metals

Type N, right-hand drill, DIN 338, in all standardized sizes from **0,20 to 20,0 mm dia.**
Also available with Morse taper or with longer shank (DIN 340 and 1869).

Upon request!



520

Drills of solid tungsten-carbide

Dim. according to DIN 338, with straight shank, diam. 0.5 – 10.0 mm each 0.1 mm increasing. Other dimensions upon request!

We also deliver: Carbide tipped twist drills with big lengths (400/600 mm) for boring break-through- or venting holes.



520A

521


HSS-countersink attachments

1) for acute-angled countersinks, 90°, two cutting edges, M5-hollow-screw, length 16 mm.
Can be used as **drill depth setter** if turned 180°!

Item No.	521.003	521.004	521.005	521.006	521.007	521.008	521.010	521.012
Inside dia.	3 mm	4 mm	5 mm	6 mm	7 mm	8 mm	10 mm	12 mm
Outside dia.	16 mm	16 mm	16 mm	16 mm	16 mm	18 mm	20 mm	20 mm

2) for flat countersinks, with M5 hollow-screw, 2 broachers and 2 pre-cutters. Length 22 mm

Item No.	521.151	521.152	521.161	521.163	521.182	521.183	521.202	521.203	521.222	521.223
Inside dia.	5 mm		6 mm		8 mm		10 mm		12 mm	
Outside dia.	12 mm	15 mm	15 mm	20 mm	20 mm	25 mm	25 mm	30 mm	30 mm	35 mm

Other dimensions upon request!

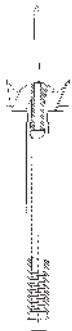
522

ZOBO-drills with replaceable center point

Types: **1) high-alloyed chrome steel (CS), hardened**
2) carbide-tipped

dia. 7 – 130 mm, 1 mm increments!

Can be resharpened down to 1/3 of thickness!



Drill dia.	Shank dia.	Total length	Internal thread	Center point	Item No.	
					CS	HM
7 mm	8 mm	80 mm	-		522.007	-
8 mm					522.008	-
9 mm					522.009	-
10 mm					522.010	522.210
11 mm	9 mm	100 mm	M 6	522.320	522.011	522.211
12 mm					522.012	522.212
13 mm					522.013	522.213
14 mm					522.014	522.214
15 mm					522.015	522.215
16 mm					522.016	522.216
17 mm					522.017	522.217
18 mm					522.018	522.218
19 mm					522.019	522.219
20 mm					522.020	522.220
21 mm					522.021	522.221
22 mm					522.022	522.222
23 mm					522.023	522.223
24 mm					522.024	522.224
25 mm					522.025	522.225
26 mm					522.026	522.226
27 mm					522.027	522.227
28 mm					522.028	522.228
29 mm					522.029	522.229
30 mm					522.030	522.230

Hollow shank (10-65 mm) with **internal thread** for fitting extensions or reducers.

Important: never chuck ZOBO-drills with the hollow shaft, a reducer should always be used to avoid the risk of breaking the drill.

Diameter 66 mm and larger: holder can be screwed off and fitted with other shanks and extensions (M 12 - up to 100 mm, else M 16).

These drills are available in **1mm-increments!**

Drill dia.	Shank dia.	Total length	Internal thread	Center point	Item No.	
					CS	HM
31 mm	12 mm	100 mm	M 8	522.320	522.031	522.231
32 mm					522.032	522.232
33 mm					522.033	522.233
34 mm					522.034	522.234
35 mm					522.035	522.235
36 mm					522.036	522.236
37 mm					522.037	522.237
38 mm					522.038	522.238
39 mm					522.039	522.239
40 mm					522.040	522.240
41 mm					522.041	522.241
42 mm					522.042	522.242
44 mm					522.044	522.244
45 mm					522.045	522.245
48 mm					522.048	522.248
50 mm					522.050	522.250
51 mm	16/12mm*	105 mm	522.322	522.051	522.251	
52 mm				522.052	522.252	
55 mm				522.055	522.255	
60 mm				522.060	522.260	
63 mm				522.063	522.263	
65 mm				522.065	522.265	
70 mm	20/13mm*	150 mm	-	522.323**	522.070	522.270
75 mm					522.075	522.275
80 mm					522.080	522.280
85 mm					522.085	522.285
90 mm					522.090	522.290
95 mm					522.095	522.295
100 mm	30/16mm*			522.100	522.200	
110 mm				522.110	-	
120 mm				522.120	-	
130 mm				522.130	-	

* Shank stepped

** Diam. 70-130 mm will be delivered without center point, but with an hole of 10 mm for center-points or -pilot (see below)

522A

ZOBO-accessories



Depth setters, with ball bearings

Item No.	Hole dia.	For drill dia.
522.306	9 mm	10 – 25 mm
522.309	9 mm	10 – 30 mm
522.307	12 mm	31 – 40 mm
522.308	12 mm	31 – 50 mm
522.316	16 mm	51 – 65 mm
522.317	20 mm	66 – 80 mm
522.318	20 mm	66 – 100 mm



Reducers, recommended for chucking the drill, length 60 mm

Item No.	Reduction	Thread
522.300	9/ 8 mm	M 6
522.301	12/10 mm	M 8



Center points

Item No.	Dia. x length mm	For drill dia.
522.320	2,5 x 3,5 mm	7 – 50 mm
522.321	2,5 x 7,5 mm	7 – 50 mm
522.322	3,5 x 4,0 mm	51 – 65 mm
522.323	10 x 9,0 mm	70 – 130 mm



Pilots

shank 10 mm, diam. 10,5 - 25,5 mm fitting for drill diam. 70-130 mm



Expeller Item No. 522.333
for expelling exchangeable center points



Extensions for manual drilling machines
(may be screwed together)

Item No.	Dia. x length	Thread
522.302	9 x 150 mm	M 6
522.303	12 x 150 mm	M 8
522.304	9 x 400 mm	M 6
522.305	12 x 400 mm	M 8
522.366	20 x 300 mm	M 12
522.367	for drills-Ø 66-100 mm	M 16
	for drills-Ø over 100 mm	

Extensions for box column drill

Item No.	Dia. x length	Thread
522.302A	9 x 150 mm	M 6
522.303A	12 x 150 mm	M 8

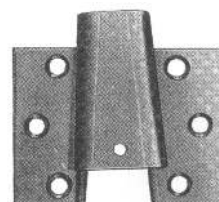


Special keys Item No. 522.334
for releasing the drills of the extensions

Core box fasteners, three pieces

of bright steel, punched, in boxes containing 20 sets

Length	Narrow wedge			Wide wedge		
	Item No.	inside width		Item No.	inside width	
		bottom	top		bottom	top
40 mm	523.140	28 mm	23,5 mm	523.240	38,5 mm	34 mm
60 mm	523.160	32 mm	25 mm	523.260	44 mm	38 mm
90 mm	523.190	38 mm	27 mm	523.290	45,5 mm	34,5 mm



523

Wedges for No. 523

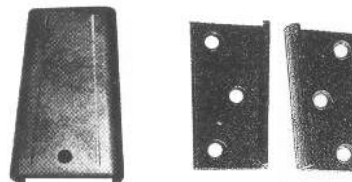
Length	Item No.	
	narrow	wide
40 mm	524.140	524.240
60 mm	524.160	524.260
90 mm	524.190	524.290

Wedge width see item 523

Side plates for No. 523

Length	Item No.		
	in pairs	right	left
40 mm	525.140	525.240	525.340
60 mm	525.160	525.260	525.360
90 mm	525.190	525.290	525.390

524



525

Chains for core box wedges Item No. 523

length 133 mm, with lug, hook and eyebolt.

Item No. 526.001



526

Core box locks, two pieces

locks with hook, primarily for **core box bottoms**, of galvanized sheet metal.

Item No.	Total length	Width	Package each
527.075	75 mm	18 mm	25 pcs.
527.077	105 mm	25 mm	25 pcs.
527.079	130 mm	30 mm	25 St.



527

Core box and ingot mould locks

galvanized, complete with screw adjustment feature and fixing holes

Item No.	Model	Adjustable length	Thread	Max. width	Design
528.000	530S-00	80 – 100 mm	M6	27 mm	punched
528.001	1042-10	100 – 125 mm	M6	34 mm	punched
528.002	420-00	200 – 225 mm	M8	65 mm	punched
528.004	102 C	100 – 115 mm	M6	50 mm	forged
528.005	103 C	120 – 140 mm	M8	70 mm	forged

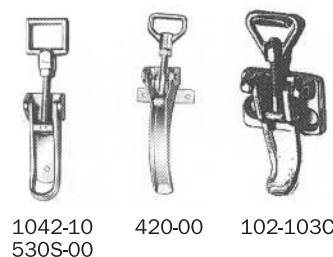
Suitable hooks (to be ordered separately)

Type C

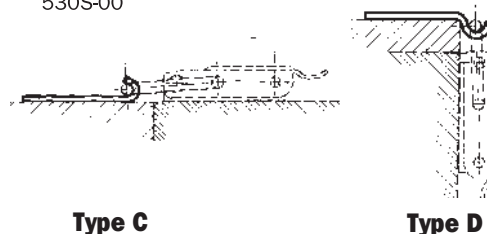
Item No.	Model	Width x length mm	Suitable for locks
528.100	C 15-01	15 x 45	530S-00
528.101	C 18-01	18 x 45	1042-10
528.103	C 28-01	28 x 40	420-00
528.107	31 C	30/18 x 20	102 C
528.109	41 C	45/22 x 30	103 C

Type D

Item No.	Model	Width x length mm	Suitable for locks
528.100A	D 15-00	15 x 50	530S-00
528.102	D 18-00	18 x 50	1042-10
528.104	D 28-01	28 x 85	420-00
528.108	10 C	30 x 55	102 C
528.110	20 C	40 x 70	103 C



528



Type C

Type D

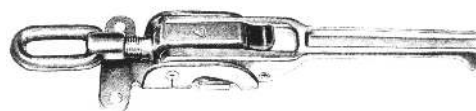
Heavy duty excentric locks

for core boxes and/or ingot moulds, with screw holes and safety key

Item No.	528.300	528.301
Adjustable length	225 – 240 mm	270 – 295 mm
Thread	M 10 x 1,5 mm	M 14 x 1,5 mm
Eye inside	26 x 14 mm	40 x 16 mm
Eye thickness	8 mm	10 mm
Max. width	65 mm	86 mm

Fitting hooks: 60 mm width x 120 mm length, with 3 screw holes of 8.5 mm hook diam. 12 mm,

Item No. 528.310 (Please order separately!)



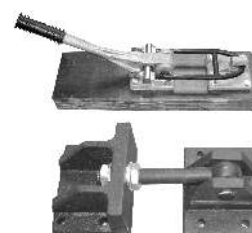
528A

Foam-mould locks

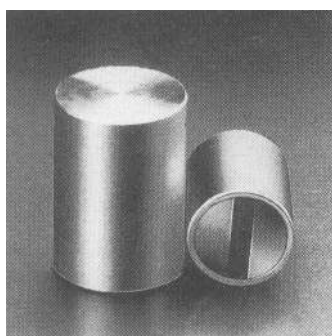
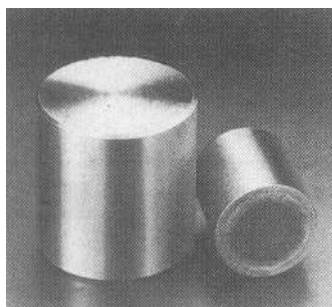
made of aluminium, to be screwed or welded to molds of aluminium. Ready to be fitted with adjustable hinge bearing made of spheroidal graphite iron.

Extremely high locking force: 3800 daN, overall length appr. 500 mm, ergonomic shape, facilitates mould opening, no interference of function by foam leakages, adjustable screw-adjustment feature.

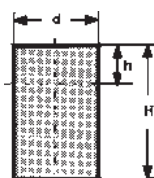
Item No.	Description
528.201	locking fixture complete with hook
528.202	hinge bearing with eye-bolt and angle
528.203	boring template for locking fixture and hinge bearing



528B



** These distances are valid for the casing and the reverse in case dim. h is cut from the bar magnet, but not for the magnetic base.



Adhesive surface

Holding magnets

May be fixed in the moulds by pressing or glueing.

I) Bar magnets, round

useable for steel or iron

1) Normal type with round AlNiCo-magnetic-core

straight, with fitting tolerances; magnetic screening. Max. operation temperature 450 °C.

Item No.	Dimensions mm			Weight gr.	Holding force N
	d	H	h*		
529.106	6	10	2	2	1,7
529.108	8	12	3	4	4
529.110	10	16	6	9	8,5
529.113	13	18	6	17	12
529.116	16	20	6	29	20
529.120	20	25	6	57	50
529.125	25	30	10	110	115
529.132	32	35	5	200	200
529.140	40	45	5	420	240
529.150	50	50	2	720	420
529.163	63	60	5	1340	600

Tolerances: for d: h6; for H: $\pm 0,2$ mm

* Dim. h gives the length which can be reduced from the opposite side of the bar magnet's adhesive surface without affecting the adhesive power.

The adhesive surface shouldn't be shortened more than 2 mm to avoid loss of the holding force.

2) of SECOLIT with a holding force which is five times stronger than the normal type.

The magnet bars are fitted with a brass casing. Max. operation temperature 200 °C.

Item No.	Dimensions mm			Weight gr.	Holding force N	Distance to iron mm**
	d	H	h*			
529.206	6	20	10	4	8	1,5
529.208	8	20	10	8	22	1,5
529.210	10	20	8	12	40	2
529.213	13	20	6	20	60	2,5
529.216	16	20	2	32	125	3
529.220	20	25	5	60	250	4
529.225	25	35	7	140	400	5
529.232	32	35	5	265	600	6

Tolerances: for d: h6; for H: $\pm 0,2$ mm

* Dim. h gives the length which can be reduced from the opposite side of the bar magnet's adhesive surface without affecting the adhesive power.

Mounting devices:

To avoid magnetic short circuits it is very important to maintain the determined distances mentioned above between the coat of the magnet and an iron surrounding.

Therefore the distance to iron acc. to the table above for bottom and casing should be respected.

II) Flat magnets, without thread liner

Galvanized steel housing, core of hard ferrite.

Max. operation temperature 200 °C.

1.) without whole

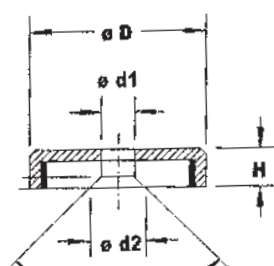
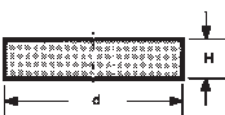
Item No.	Dimensions mm		Weight gr.	Holding force N
	d	H		
529.310	10	4,5	3	5
529.313	13	4,5	5	12
529.316	16	4,5	6	30
529.320	20	6	10	40
529.325	25	7	17	49
529.332	32	7	28	90
529.340	40	8	52	130
529.350	50	10	100	220
529.363	63	14	220	300
529.380	80	18	460	550

2.) with hole

Item No.	Dimensions mm				Weight gr.	Holding force N
	D	H	d1	d2		
529.316B	16	4,5	3,5	6,5	4	14
529.320B	20	6	4,2	8,4	9	27
529.325B	25	7	5,5	10,4	16	36
529.332B	32	7	5,5	10,4	27	72
529.340B	40	7	5,5	10,4	53	90
529.350B*	50	10,5	8,5	22	90	180
529.363B*	63	14	6,5	24	195	290
529.380B*	80	18	6,5	10,5	480	540

* \varnothing 50, 63 und 80 mm have a cyl. whole.

All other diameters are countersunk



Threaded rod, DIN 975, galvanized

for screwing core boxes together, length 1000 mm (other length upon request)

Item No.	530.005	530.006	530.008	530.010	530.012	530.016	530.020
Thread	M 5	M 6	M 8	M 10	M 12	M 16	M 20



530

Washers for No. 530, in acc. with DIN 126, galvanized

Item No.	530.105	530.106	530.108	530.110	530.112	530.116	530.120
For thread	M 5	M 6	M 8	M 10	M 12	M 16	M 20
Hole dia.	5,5 mm	6,6 mm	9,0 mm	11,0 mm	14,0 mm	18,0 mm	22,0 mm
Outside dia.	10,0 mm	12,5 mm	17,0 mm	21,0 mm	24,0 mm	28,0 mm	34,0 mm



530A

Wing nuts for No. 530, similar to DIN 315, galvanized

Item No.	530.205	530.206	530.208	530.210	530.212	530.216	530.220
For thread	M 5	M 6	M 8	M 10	M 12	M 16	M 20
Length	26 mm	33 mm	39 mm	51 mm	65 mm	73 mm	90 mm



530B

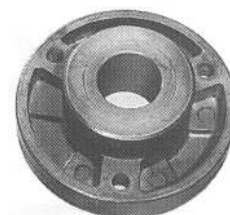
Guiding bushes for mould plates

of die cast aluminium, Fit H 7, for use in plywood plates, top dia. 65 mm, bottom dia. 38 mm, with three countersunk holes (dia. 5 mm).

Item No.	199.016	199.017	199.018	199.019	199.020	199.021
Inside dia.	16 mm	17 mm	18 mm	19 mm	20 mm	21 mm

Item No.	199.022	199.023	199.024	199.025	199.026	199.028	199.030
Inside dia.	22 mm	23 mm	24 mm	25 mm	26 mm	28 mm	30 mm

Also available as **turned** bush.



531

Cylindrical boring bits for item No. 531

38 mm dia., shank 16 x 50 mm, 140 mm long

Item No.	514.238	514.338
Design	HS (HSS)	HW (HM)



531A

Cylindrical boring bits item No. 199.101

(for item No. 531)

carbide tipped, dia. 65 mm, with MK 3, however, 115 mm long, total length 165 mm, exchangeable **pilot 38 x 21 mm**, collar 22 x 4 mm, wrench size 32 x 9 mm, thread M 16 x 1,5 x 15 mm



531B

Drilling template

- collar drilling template acc. to DIN 172
- cyl. drilling template acc. to DIN 179

Drill dia.	Outside dia.	Collar dia. DIN 172	Length	Item No.	
				DIN 172	DIN 179
4 mm	7 mm	10 mm	8 mm	532.104	532.204
5 mm	8 mm	11 mm	8 mm	532.105	532.205
6 mm	10 mm	13 mm	10 mm	532.106	532.206
8 mm	12 mm	15 mm	10 mm	532.108	532.208
10 mm	15 mm	18 mm	12 mm	532.110	532.210
12 mm	18 mm	22 mm	12 mm	532.112	532.212
14 mm	22 mm	26 mm	16 mm	532.114	532.214
15 mm	22 mm	26 mm	16 mm	532.115	532.215
16 mm	26 mm	30 mm	16 mm	532.116	532.216
18 mm	26 mm	30 mm	16 mm	532.118	532.218
20 mm	30 mm	34 mm	20 mm	532.120	532.220
22 mm	30 mm	34 mm	20 mm	532.122	532.222
24 mm	35 mm	39 mm	20 mm	532.124	532.224



1) DIN 172



2) DIN 179

Other sizes and designs upon request!

532

Pullers of flat steel

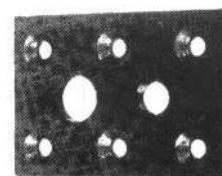
Item No.	533.100	533.120	533.150	533.200	533.250	533.300	533.400	533.500
Length	100 mm	120 mm	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm
Screw holes	4 à 6 mm				5 à 6 mm	7 à 6 mm	8 à 6 mm	12 à 6 mm
Cross section	40 x 5 mm				50 x 5 mm			
Leg	16 mm				24 mm			
Eye	round hole dia. 25 mm				long hole 50 x 25 mm			



533

Lifting plates, rectangular, of steel

Item No.	534.002	534.003	534.004	534.005
Length x width	50 x 25 mm	60 x 40 mm	75 x 50 mm	100 x 70 mm
Thickness	4 mm	5 mm	6 mm	8 mm
Thread	M 8	M 10	M 12	M 12
Detaching hole dia.	12 mm	16 mm	20 mm	20 mm
Screw holes	4 à 5 mm	6 à 6 mm	6 à 6,5 mm	6 à 7,5 mm



534

535

Lifting disks, of steel

Item No.	535.001	535.002	535.003	535.004	535.005G	535.006G	535.008G	535.009	535.010	535.011
Dia x thickness	30 x 4 mm	35 x 4 mm	40 x 5 mm	50 x 6 mm	50 x 8 mm	50 x 8 mm	60 x 8 mm	60 x 8 mm	80 x 10 mm	80 x 10 mm
Thread	M 8	M 8	M 8	M 10	M 12	M 16	M 16	M 20	M 16	M 20
Detaching hole dia.	—	—	—	1 à 8,5 mm	—	—	—	—	—	—
Screw holes	2 à 4 mm	2 à 4 mm	3 à 5,5 mm	3 à 5,5 mm	3 à 6 mm	3 à 6 mm	3 à 6 mm	3 à 6 mm	3 à 6 mm	3 à 6 mm

Other sizes, thicknesses and designs upon request!

536

Lifting disks, of malleable cast iron

with countersunk threaded screw hole and elongated threaded stud

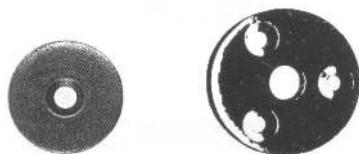
Item No.	Dia x thickness	Thread	Thread length	Screw holes
536.050	53/50 x 6 mm	M 12	15 mm	3 à 6 mm
536.075	79/75 x 9 mm	M 16	24 mm	3 à 6 mm

537

Lifting keys, of steel, 200 mm long

for lifting plates and disks No. 534 to 536

Item No.	537.008	537.010	537.012	537.016	537.020
Thread	M 8	M 10	M 12	M 16	M 20

538

Reinforcing disks, round

of steel

for moulding plates and core boxes with countersunk holes

Item No.	538.001	538.002	538.003	538.004	538.005
Dia. x thickness	30 x 5 mm	32 x 5 mm	50 x 5 mm	50 x 8 mm	60 x 6 mm
Center hole	—	—	—	20 mm	20 mm
Screw holes	1 à 6 mm	1 à 6 mm	1 à 6 mm	3 à 6 mm	3 à 6 mm

Other sizes and designs also available; please specify quantity.

538A

Boring bits

for lifting and reinforcing disks

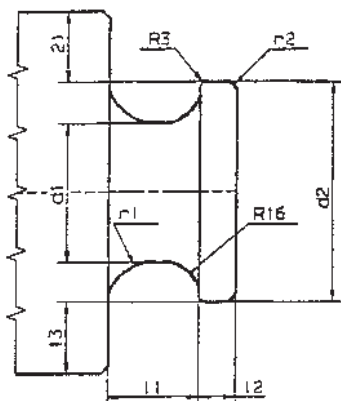
with straight shank, centering tip, 2 broachers and 2 pre-cutters

Drill dia.	Shank dia.	Item No.		
		WS	HSS	HM
30 mm	13 mm	514.130	514.230	514.330
32 mm	16 mm	514.132	514.232	514.332
35 mm		514.135	514.235	514.335
40 mm		514.140	514.240	514.340
50 mm		514.150	514.250	514.350
60 mm	20 mm	514.160	514.260	514.360
75 mm		514.175	514.275	514.375
80 mm		514.180	514.280	514.380

539

Pivot for moulding plates and core boxes

Item No.	Material	Total length	Total width	Max. depth	Pivot dia.	Max. dia.	Weight
539.001	GGG-40	180 mm	40 mm	80 mm	28 mm	45 mm	1 kg
539.050	GGG-50	200 mm	100 mm	115 mm	50 mm	80 mm	4 kg

539A

Lifting lugs of PORESTA-styrene

for cast iron and steel as well as spheroidal graphite iron castings.

The pivot are dimensioned so that with the help of a minimum of two pivots castings weighing up to 20.000 kg can be lifted (max. straddle angle at hook 90 degrees).

Item No.	d1	d2	l1	l2	l3	r1	r2	Qty. p. pack.
539.104	40	70	36	13	32	20	5	500 St.
539.105	50	80	36	13	32	20		430 St.
539.106	63	100	40	16	32	20		250 St.
539.108	80	140	50	20	40	32	10	108 St.
539.110	100	160	56	25	40	32		168 St.
539.112	125	185	63	25	63	32		117 St.
539.114	140	200	71	30	63	40		90 St.

Recco-bushes

540

of steel, specially designed for mould plates, core boxes etc., also for embedding in resin patterns, with collar and taper wood thread, bush can be flush fitted due to the hexagonal recess.

Can also be used as lifting bush.

Galvanized bushes are also available at extra charge. Matching wood drills see Item Nos. 517 - 518.

Item No.	540.040	540.041	540.042	540.043	540.044	540.051	540.052	540.053
Internal thread	M 4					M 5		
Collar dia.	6,5 mm	8 mm					10 mm	
Total length	8 mm	8 mm	10 mm	12 mm	15 mm	10 mm	12 mm	15 mm
Drill dia.	5,2 mm	6,5 mm					8,5 mm	

Item No.	540.061	540.062	540.063	540.064	540.065	540.081	540.082
Internal thread	M 6					M 8	
Collar dia.	12 mm					14 mm	
Total length	10 mm	12 mm	15 mm	18 mm	20 mm	15 mm	18 mm
Drill dia.	10,5 mm	10 mm					12 mm

Item No.	540.083	540.084	540.085	540.101	540.102	540.121	540.161	540.162
Internal thread	M 8			M 10		M 12	M 16	
Collar dia.	16 mm			18,5 mm		22 mm	25 mm	
Total length	14 mm	18 mm	23 mm	20 mm	25 mm	25 mm	25 mm	30 mm
Drill dia.	14 mm			16 mm		19,5 mm	22,5 mm	



RAMPA-bushes

541

1) Type A: external wood thread, with slot and recess for shavings
Made of steel, bright; at extra charge also galvanized

Item No.	541.412	541.520	541.630	541.830	541.140	541.235	541.653	541.930	541.940
Internal thread	M 4	M 5	M 6	M 8	M 10	M 12	M 16	M 20	M 20
Outside dia.	8 mm	10 mm	12 mm	16 mm	18,5 mm	22 mm	25 mm	30 mm	30 mm
Length	12 mm	20 mm	30 mm	30 mm	40 mm	35 mm	35 mm	30 mm	40 mm
Drill dia.	6 mm	8 mm	10 mm	14 mm	16 mm	19 mm	22 mm	27 mm	27 mm

Other sizes upon request!

2) Type ES: with metric external thread; a wide slot at the conical end enables firm cutting into hardwood, resin or metal; made of steel, bright; at extra charge also of hardened steel and galvanized

Item No.	541.306	541.408	541.508	541.510	541.608	541.610	541.612	541.614
Internal thread	M 3	M 4	M 5		M 6			M 6
External thread	M 5 x 0,5	M 6,5 x 0,75	M 8 x 1		M 9 x 1			M 10 x 1,5
Length	6 mm	8 mm	8 mm	10 mm	8 mm	10 mm	12 mm	14 mm
Drill dia.	4,7 mm	6,0 mm	7,5 mm	7,5 mm	8,4 mm	8,4 mm	8,4 mm	9,0 mm

Item No.	541.812	541.815	541.916	541.918	541.926	541.922	541.924 VZ*	541.952
Internal thread	M 8		M 10		M 10	M 12	M 14	M 16
External thread	M 12 x 1,5		M 14 x 1,5		M 16 x 1,5	M 16 x 1,5	M 18 x 1,5	M 20 x 1,5
Length	12 mm	15 mm	15 mm	18 mm	18 mm	22 mm	24 mm	22 mm
Drill dia.	11 mm	11 mm	13 mm	13 mm	15 mm	15 mm	17 mm	19 mm

Quantity at least: up to M 10 int. thread = 100 p., M 12 and larger = 50 p.
Other types of RAMPA-bushes upon request.

* hardened and galvanized



Type A



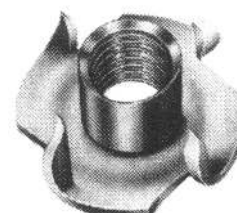
Type ES

Nuts with 4 points, galvanized

542

Item No.	542.004	542.005	542.006	542.008	542.010	542.012	542.016*	542.020*
Thread	M 4	M 5	M 6	M 8	M 10	M 12	M 16	M 20
Height	6 mm	8 mm	9 mm	11 mm	13 mm	14,5 mm	16 mm	16 mm
Max. dia.	15 mm	17 mm	19 mm	22 mm	25 mm	27 mm	60 mm	60 mm

* The outside diam. is oblate at both sides to 56mm.
With two holes for nails diam. 5,5mm with a distance of 44mm.



Important notice with regard to Pattern Signs:



- 1) Height of the pattern sign is always measured at the outer edges (see illustration), i.e. at the narrowest width.
- 2) Each package of pattern signs contains **100 pieces of each type**. Smaller quantities or text compositions can be supplied at extra charge (see price-list).
- 3) **No return of text compositions** supplied in accordance with the order or smaller quantities.

543



Pattern signs of blue plastic

signs vaporize completely, without holes, suitable for glueing to the mould.

Available in

- 1) **block type** A-Z, 0-9, a-z, &, point, comma, +, @
- 2) **mirror image block type** A-Z, 0-9 only

Character height	4 mm	5 mm	6 mm	8 mm	10 mm	13 mm	16 mm	20 mm	25 mm	32 mm	40 mm
Design	Item No.										
block type	543.104	543.105	543.106	543.108	543.110	543.113	543.116	543.120	543.125	543.132	543.140
mirror type	543.204	543.205	543.206	543.208	543.210	543.213	543.216	543.220	543.225	543.232	543.240

543A



Pattern signs of black plastic

(the low-cost alternative!)

Available in

- 1) **block type** A-Z, 0-9, a-z, &, point, comma, +, @
- 2) **mirror image block type** A-Z, 0-9 only

Character height	4 mm	5 mm	6 mm	8 mm	10 mm	13 mm	16 mm	20 mm	25 mm	32 mm	40 mm
Design	Item No.										
block type	543.304	543.305	543.306	543.308	543.310	543.313	543.316	543.320	543.325	543.332	543.340
mirror type	543.404	543.405	543.406	543.408	543.410	543.413	543.416	543.420	543.425	543.432	543.440

Remark: Because of the special calculation these signs may only be delivered in complete packages of 100 pcs. each of any letter or number.

543B



Sets of pattern signs of black plastic

Complete sets (A-Z, 0-9) in a storage box

(as to the empty box please see below item no. 564, page 17)

Individual arrangement due to 36 flexible separating strips, safe sorting due to firm closure of the cover. ab. 465 x 375 x 72 mm.

Item No.	Content
543.504	100 pcs. each off 4mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.505	100 pcs. each off 5mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.506	100 pcs. each off 6mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.508	100 pcs. each off 8mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.510	100 pcs. each off 10mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.513	100 pcs. each off 13mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.516	100 pcs. each off 16mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.
543.520	100 pcs. each off 20mm high A-Z,0-9 incl. box and 1 bottle quick setting adhesive each off type HC1 and HC2 (see below) of 25 grs.

544



Adhesives



Activating spray



Adhesive remover

HOCO-quick setting adhesive (CA adhesive)

Type	Viscosity / Application	Content	Item No.
HC 0	very low viscosity , extremely quick setting for smooth surfaces of plastic, rubber or patternplates	25 gr.	937.525
		50 gr.	937.550
HC 1	low viscosity , quick setting, for combination of plastic and/or metals with high-strength	25 gr.	937.125
HC 3	medium viscosity , for porous surfaces esp. for wood, rubber., ceramics or cork	25 gr.	937.150
		50 gr.	937.625
HC 2	viscous , a little bit more of wet life, for highly porous surfaces and parts which require a filling of fissures	25 gr.	937.650
		50 gr.	937.225
		50 gr.	937.250

Name / Application	Content	Item No.
Activating spray / Catalyst Accelerator for HOCO-quick setting adhesives	150 ml	937.300

Name / Application	Content	Item No.
Adhesive remover for HOCO-quick setting adhesives Removes deposits of adhesive from hands, plastics and many other materials	20 gr	937.800

Pattern signs of red plastics

with holes, appropriate for nailing to the patterns
block letters A-Z, 0-9, point, comma, +, &

Item No.	545.113	545.116	545.120	545.125	545.132	545.140	545.150
Height	13 mm	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm

Remark: Fastening nails see Item No. 563



545

Pattern signs of yellow plastics

flexible, as from 8 mm with holes, appropriate for nailing
block letters A-Z, 0-9, point, comma, +, &

Item No.	546.106	546.108	546.110	546.113	546.116	546.120	546.125	546.132	546.140
Height	6 mm	8 mm	10 mm	13 mm	16 mm	20 mm	25 mm	32 mm	40 mm

Remark: Fastening nails see Item No. 563



546

Pattern signs, self-adhesive

of yellow plastic, flexible, as from 8 mm with holes
block letters, A-Z, 0-9

Item No.	547.106	547.108	547.110	547.113	547.116	547.120	547.125	547.132	547.140
Height	6 mm	8 mm	10 mm	13 mm	16 mm	20 mm	25 mm	32 mm	40 mm
Pcs./Sheet	100			50		25		16	12

Remark: Due to the packing of these signs (on plastic sheets) a delivery of text compositions will not be possible!
Other self-adhesive pattern signs are available upon request!



547

Pattern signs of plastic – special letters

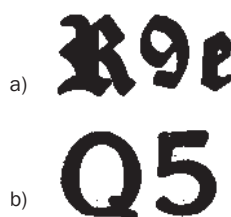
a) Gothic – old German (Cloister) of black plastic
height 25mm, A-Z, 0-9, a-z

Item No. 547.925

b) Special types of blue plastic
height 28mm A-Z, 0-9, point, comma

Item No. 547.928

Other special types made of aluminium or bronze upon request!
Also Greek letters.



547A

Pattern signs of babbit-metal

1) block letters, with holes
A-Z, 0-9, a-z, & point

2) narrow block letters, without holes
A-Z, 0-9, &

3) mirror image letters, with holes
A-Z, 0-9, &

4) acute taper block letters, as from 8 mm with holes
A-Z, 0-9, &, minuscules a-z of size 4, 5 and 6 mm

5) narrow, acute taper block letters, without holes
A-Z, 0-9, &

6) half-rounded block letters, up to size 20 mm without holes,
as from 25 mm with holes, A-Z, 0-9

Height mm	Design/Item No.					
	1)	2)	3)	4)	5)	6)
3	-	-	-	548.403	-	-
4	-	-	-	548.404	-	-
5	-	-	-	548.405	548.505	-
6	548.106	-	548.306	548.406	548.506	-
8	548.108	548.208	548.308	548.408	548.508	-
10	548.110	548.210	548.310	548.410	548.510	548.610
13	548.113	548.213	548.313	548.413	-	548.613
16	548.116	548.216	548.316	548.416	-	548.616
18	548.118	-	548.318	-	-	-
20	548.120	548.220	548.320	548.420	-	548.620
25	548.125	548.225	548.325	-	-	548.625
32	548.132	-	548.332	-	-	-
40	548.140	-	548.340	-	-	-
50	548.150	-	-	-	-	548.650
60	548.160	-	-	-	-	-
80	548.180	-	-	-	-	-
100	548.200	-	-	-	-	548.700

Remark: for suitable nails for the pattern signs above see Item No. 563



Design 1)



Design 2)



Design 3)



Design 4)



Design 5)



Design 6)

548

Pattern signs with cramps

of brass, block letters A-Z, 0-9, &

Item No.	549.104	549.106	549.108	549.110	549.113	549.116	549.120	549.125
Height	4 mm	6 mm	8 mm	10 mm	13 mm	16 mm	20 mm	25 mm



549

550

Pattern signs with base, block letters

1) of brass



Height	Capitals A-Z, 0-9, &, point		Minuscules a-z		Mirror image letters A-Z (only 16 and 18 mm), 0-9	
	without holes	with holes*	without holes	with holes*	without holes	with holes*
5	—	—	—	—	550.505	550.605
6	550.106	550.206	550.306	550.406	—	—
8	550.108	550.208	550.308	550.408	—	—
10	550.110	550.210	550.310	550.410	550.510	550.610
13	550.113	550.213	550.313	550.413	—	—
16	550.116	550.216	550.316	550.416	550.516	550.616
18	550.118	550.218	—	—	550.518	550.618
20	550.120	550.220	550.320	550.420	—	—
25	550.125	550.225	—	—	—	—

*holes: 2 holes 5 - 18 mm; 4 holes 20 - 25 mm

2) of steel, without holes, **magnetic:** A-Z, 0-9 (mirror image letters upon request)

Item No.	550.806	550.808	550.810	550.813	550.816	550.818	550.820	550.825*
Height	6 mm	8 mm	10 mm	13 mm	16 mm	18 mm	20 mm	25 mm

Other heights upon request. Please indicate the desired quantity. *only 0-9

550A



Roman numerals I - V

with base, of brass, without holes

Item No.	550.704	550.706	550.708	550.710	550.713	550.716
Height	4 mm	6 mm	8 mm	10 mm	13 mm	16 mm

551



Symbol for earthing and protection conductor

1) symbol for earthing

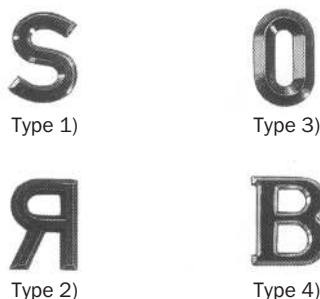
of brass sheet metal, without holes,
without an edge

2) symbol for protection conductor

of blue plastic, without holes,
with edge

Nom. size	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
Outside dia.	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm
Design	Item No.							
Brass	551.106	551.108	551.110	551.112	551.116	551.120	551.125	551.132
Plastic	551.206	551.208	551.210	551.212	—	—	—	—

552



Pattern signs of solid brass

without holes, copy milled, A-Z, 0-9

1) block letters

2) mirror image block letters

Height mm	Type / Item No.			
	1)	2)	3)	4)
4	—	—	552.304	—
5	552.105	552.205	552.305	—
6	552.106	552.206	552.306	—
8	552.108	552.208	552.308	—
9	552.109	552.209	552.309	—
10	552.110	552.210	552.310	552.410
11	552.111	552.211	552.311	—

3) acute taper block letters

4) roman type

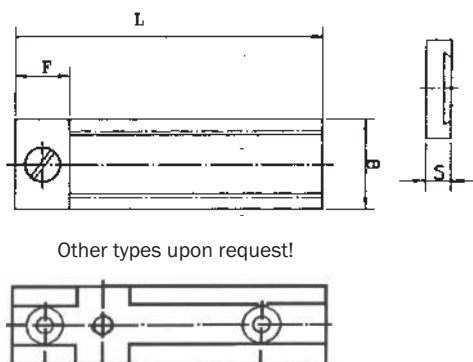
Height mm	Type / Item No.			
	1)	2)	3)	4)
13	552.113	552.213	552.313	552.413
16	552.116	552.216	552.316	552.416
18	552.118	552.218	—	—
20	552.120	552.220	—	552.420
25	552.125	552.225	—	552.425
30	552.130	552.230	—	552.430
40	552.140	552.240	—	—

553



Date plates, showing the casting date

slide-in frame of brass, with dovetail groove, platelet and screw,
5mm thickness



Other types upon request!

Letter size A mm	4	6	8	10	13	20
Frame width B mm	10	15	20	20	25	30
Suitable	Length L mm					
for 4 letters/figures	26	34	42	48	58	92
Item No.	553.041	553.061	553.081	553.101	553.131	553.191
for 5 letters/figures	30	40	50	57,7	69,5	110
Item No.	553.042	553.062	553.082	553.102	553.132	553.192
for 6 letters/figures	34	46	58	67	81	128
Item No.	553.043	553.063	553.083	553.103	553.133	553.193
for 7 letters/figures	38	52	66	76,5	92,5	146
Item No.	553.044	553.064	553.084	553.104	553.134	553.194
for 8 letters/figures	42	58	74	86	104	164
Item No.	553.045	553.065	553.085	553.105	553.135	553.195
for 10 letters/figures	50	70	90	105	127	200
Item No.	553.046	553.066	553.086	553.106	553.136	553.196
Platelet complete with screw						
Width F mm	10	10	10	10	12	20
Item No.	553.048	553.068	553.088	553.108	553.138	553.197

Sliding strips made of PVC, grey, length 2 mtrs also available! Those must be machined by the customer: cutted to the desired length; milled, drilled and threaded for the platelet; drilled for screw holes.

For fitting letters and figures to slide-in please see **item-no. 553A** on the opposite side

Letters & Figures fitting to the slide-in frames of item 553

553A

0 to 9, A to Z, point, colon, blank platelet, slash & hyphen (other letters upon request)

- 1) cast of babbitt metal, raised characters
- 2) milled of brass, sunk characters
- 3) milled of brass, raised characters

Available:
a) block type
b) mirror image type



Letters height A mm	4	6	8	10	13	20
Platelet width C mm	4	6	8	9,5	11,5	18
Platelet thickness mm	1,5	2	2	2	2	2
Raised: babbitt metal mm	1,0	1,0	1,2	1,4	1,8	2,0
brass mm	1,0	1,0	1,0	1,0	1,0	2,0
Sunk: brass mm	0,5	0,6	0,8	1,0	1,0	1,3

Letters height A mm	4	6	8	10	13	20
Design	Item No.					
1a) babbitt metal, raised	553.204	553.206	553.208	553.210	553.213	553.220
1b) babbitt metal, raised	553.224	553.226	553.228	553.230	553.233	553.240
2a) brass, sunk	553.304	553.306	553.308	553.310	553.313	553.320
2b) brass, sunk	553.324	553.326	553.328	553.330	553.333	553.340
3a) brass, raised	553.344	553.346	553.348	553.350	553.353	553.360
3b) brass, raised	553.364	553.366	553.368	553.370	553.373	553.380

Date identification systems

according to your special desires upon request!


553B

Pattern clocks of blue plastics

for showing the casting date on wood and resin patterns. Fix clock by means of a screw and set month so that the year marker points to the appropriate month.

Item No.	554.001	Clock, dia. 20 mm
Item No.	554.002	Arrow, length 8 mm

(Division 1-12)
Other divisions upon request!
(0-9 or 1-31)


554

Pattern clocks of blue plastics, 3 components

consisting of the insert for the year with screw hole and one ring each for month and day

Item No.	Description
554.101	Set of rings for month and day, diam. 28mm
554.102	Insert for the year, diam. 11mm


554A

Ingot mould clocks of steel (Division 1-12)

for showing the casting date on ingot moulds. Fix clock to ingot mould and set to the appropriate month. (To be adjusted from behind), length 15mm

Ring of month		Fitting insert for year	
Diameter	Item No.	Diameter	Item No.
20 mm	555.001	8 mm	555.002
15 mm	555.101	7 mm	555.102
12 mm	555.201	6 mm	555.202
10 mm	555.301	5 mm	555.302



Other sizes and versions upon request.

555

Identification stamps

to be adjusted in front
as date, shift or material identification system,
available in many different types.

Please ask for our detailed special catalogue.


555A

Logos

Can be supplied in any design in accordance with sample or drawing:

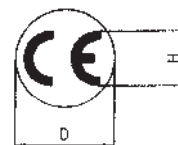
- 1) of plastic
- 2) of babbitt metal, cast
- 3) as slide-in characters
- 4) of brass sheet metal, with base or without holes
- 5) of brass sheet metal, with pins
- 6) of plywood (for individual logos)


556

CE-signs, of plastic, to be glued

- a) of blue plastic, with edge
- b) of yellow plastic, without an edge

D mm	10	12	14	16	20	25
H mm	5	6	7	8	10	13
Colour	Item No.					
blue	557.110	557.112	557.114	557.116	557.120	557.125
yellow	557.210	557.212	557.214	557.216	557.220	557.225

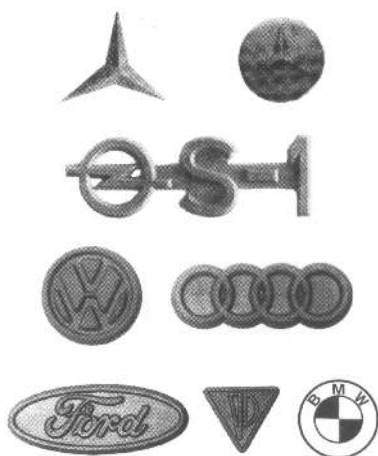

557

Symbols for recycling

of blue plastic, to be glued.
Upon request according to your specification!


557A

558



Logos of automotive companies

of blue plastic, to be glued

1) Mercedes

Type	Star without base	Star with round base
Size mm	31	Ø 4, 5, 6, 8, 10, 12, 15, 20

2) Opel

Type	Flash	Flash-K	Flash-W	Flash-S-15	Flash-S-16	Flash-S-1
Size mm	9 Ø	10, 13	13	13, 16, 25, 32, 40	13, 16, 25, 32	13

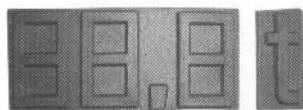
3) VW-Audi (raised or sunk, acc. to VW's data-sheet, fitting together)

Nom. size = dia. of VW-logo	mm	4	5	6	8	10	12	16
Dia. of Audi-rings (fitting)	mm	2,7	3,35	4	5,35	6,7	8	10,7

4) Ford, Porsche, BMW

Type	Ford-oval	Porsche-triangle	BMW-circle
Nom. size	13, 19, 25, 38 mm length	8, 10, 16 mm edge length	8, 30 mm dia.

559

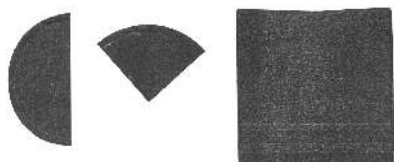


Weight types of blue plastic, 2-parts

Design in digits "88.8" to be combined with "t".
So all double-digit numbers may be produced.
Height 40mm

Item No.	559.140	559.141
Design	88,8	t

559A



Center markers of blue plastic

Item No.	559.614	559.620	559.630	559.717	559.840
Design		semicircle		quadrangle	square
Dim./height	14mm	20mm	30mm	17,5mm	40x40mm

560



Material quality plates

of blue plastic, to be glued on the mould, with rectangular base

Plate type	0.2091	0.2601	0.6015	0.6020		0.6025		0.6025C	0.6025CM
Charact. size mm	16, 25	13, 16, 25	13	13, 20, 25, 32, 40		13, 16, 20, 25, 32, 40		13, 20	20
Plate type	0.7038	0.7040	0.7042	0.7045		0.7050		0.7060	0.7070
Charact. size mm	20, 25	13	13, 20, 25, 40	13, 16, 20, 32		13,16, 20, 25, 40		13, 20, 25, 40	13, 25
Plate type	1.0416	1.0443	1.0553	1.2363	1.2379		1.2601	1.2769	1.2769P
Charact. size mm	13, 20	13, 16, 20	13, 20	10, 13, 16, 20, 25	10, 13, 16, 20, 25		6,13,16,20	10, 13, 16, 20, 25	20
Plate type	1.4825	1.4832	1.4848	1.4849	1.4852	1.4855	1.6020	1.6025C	1.7050
Charact. size mm	6,8	6,8	6,8	6,8	6,8	6,8	20	20	13
Plate type	1.7225	2.4879	3.3243	3.4848	3.4849	3.4852	3.4952	3.5101	3.5102
Charact. size mm	20	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8
Plate type	CrMo		DN		PN	CrNiMo	Rg 5	Rg 10	GBZ 10
Charact. size mm	13, 16, 20, 25		4, 5, 10, 13		4, 5, 10, 13	10	8	8	8

Other types and sizes upon request!

561



Special signs 'casting quality' of blue plastic, to be glued on the mould

Sign type	EN-GJL-150	EN-GJL-200	EN-GJL-250	EN-GJL-300	EN-GJL-350	EN-GJL-400	EN-GJL-500	EN-GJL-600
Charact. size mm	6, 8, 13	6 – 25	6 – 25	6 – 25	6 – 20	10	10	10
EN-JL-1030	EN-JL-1040	EN-JL-1050	EN-GJS-150	EN-GJS-200	EN-GJS-250	EN-GJS-300	EN-GJS-350-2	EN-GJS-350-22
6 – 20	6 – 25	10 – 20	6, 8	6, 8	6, 8	6, 8	13	10, 13, 20
EN-GJS-400	EN-GJS-400-15	EN-GJS-400-15-LT/RT		EN-GJS-400-18	EN-GJS-400-18-LT		EN-GJS-400-18-LT/RT	
10	6 – 25	13 – 25		6 – 20	6 – 20		13 – 25	
EN-GJS-500-7	EN-GJS-600-3	EN-GJS-700	EN-GJS-700-2	EN-GJS-800-2	EN-GJS-800-8	EN-GJS-1000-5	EN-GJS-1200-2	
6 – 25	6 – 25	10	6 – 25	6, 8	6, 8	6, 8	6, 8	
EN-GJS-1400-1	EN-JS-1025	EN-JS-1030	EN-JS-1040	EN-JS-1049	EN-JS-1050	EN-JS-1070	EN-JS-1070h	
6, 8	6 – 10	6, 8	13	4 – 20	6, 10	13	13	
EN-JS-1072	EN-JS-1082	EN-JS-1092	EN-JS-1102	EN-JS-1122	EN-JS-2070	EN-JS-3011	EN-JS-3031	
10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	13, 25	6, 8, 20, 25	6, 8, 20, 25	

The possibilities of signs will be completed continuously. Please ask for your special desires!
Also available: signs according to the old standard (like GGG-40).

Sign type	Meehanite cast iron	Meehanite sph. graph. iron	Vacuum casting
Charact. size mm	8, 10, 13, 15, 17, 20, 22, 26, 30, 34	10, 15, 20, 25, 30	20, 25, 30

Signs available f. ex. with base, web or rim. Other types and sizes upon request.

Pattern arrows

562

- 1) of babbitt metal, with two holes, appropriate for nailing
- 2) of blue plastic, without holes, to be glued on patterns

Length	6 mm	8 mm	10 mm	12 mm	15 mm	20 mm	25 mm	30 mm	35 mm
Design	Item No.								
Babbitt metal	562.006	562.008	562.010	562.012	562.015	562.020	562.025	562.030	562.035
Plastic	562.206	562.208	562.210	562.212	562.215	562.220	562.225	562.230	562.235

Length	40 mm	45 mm	50 mm	60 mm	70 mm	80 mm	90 mm	100 mm	130 mm
Design	Item No.								
Babbitt metal	562.040	562.045	562.050	562.060	562.070	562.080	562.090	562.100	562.130
Plastic	562.240	562.245	562.250	562.260	–	562.280	–	562.300	562.330



Nails for pattern signs, as many as 100 grammes

563

Item No.	862.021	862.022	862.031	862.041	862.051
Thickn./length	0,7/7 mm	0,8/9 mm	0,8/11 mm	0,9/13 mm	1,0/15 mm
For heights	4 – 13 mm	16 – 22 mm	25 – 40 mm	50 – 60 mm	60 – 100 mm



Pattern sign boxes

Individual arrangement due to 36 flexible separating strips, safe sorting due to firm closure of the cover.
ab. 465 x 375 x 72mm, size of compartment ab. 70 x 70 x 70mm

Item No. 564.002



564

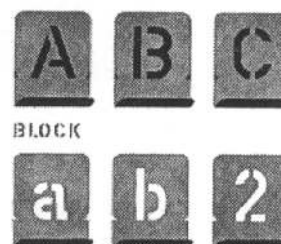
Lettering sets

565

of galvanized sheet metal, block letters 0-9, A-Z, a-z

Height	Item No.		
	0 – 9	A – Z	a – z
10 mm	565.010	565.110	565.210
20 mm	565.020	565.120	565.220
30 mm	565.030	565.130	565.230
40 mm	565.040	565.140	565.240
50 mm	565.050	565.150	565.250
60 mm	565.060	565.160	565.260
80 mm	565.080	565.180	565.280
100 mm	565.100	565.200	565.300

Other sizes or styles upon request!
Also available: fitting marking ink!



Die sets, standard quality SE

566

Letters and numbers in plastic boxes, precise lettering for material strength up to appr. 800 N/mm²

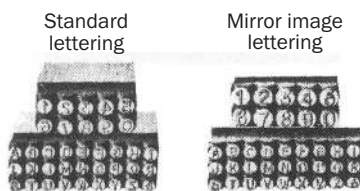
Height	2 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	15 mm
□ x Lg.	6 x 65 mm	6 x 65 mm	7 x 65 mm	8 x 65 mm	9 x 75 mm	11 x 76 mm	12 x 80 mm	14 x 80 mm	16 x 85 mm
Design	Item No.								
0 – 9	566.002	566.003	566.004	566.005	566.006	566.008	566.010	566.012	566.015
A – Z, &	566.102	566.103	566.104	566.105	566.106	566.108	566.110	566.112	566.115
a – z, +	566.202	566.203	566.204	566.205	566.206	566.208	566.210	566.212	566.215

Mirror image characters also available at extra price.
(Individual dies also available)

Other heights upon request!



Illustration shows standard lettering

567

Individual dies also available

Precision stamps Type TB, deepness-limited!

for material up to appr. 1600 N/mm²
hardness of engraving 58 - 60 HRC, in plastic boxes.

Height	1 mm	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm
□ x Lg.	7 x 75 mm	7 x 75 mm	7 x 75 mm	7 x 75 mm	7 x 75 mm	8 x 78 mm	9 x 80 mm	11 x 80 mm	12 x 85 mm	14 x 90 mm
Design	Item No.									

1) Stamps for standard lettering

0 - 9	567.010	567.015	567.020	567.025	567.030	567.040	567.050	567.060	567.080	567.100
A - Z, &	567.110	567.115	567.120	567.125	567.130	567.140	567.150	567.160	567.180	567.200

2) Stamps for mirror image lettering

0 - 9	567.310	567.315	567.320	567.325	567.330	567.340	567.350	567.360	567.380	567.400
A - Z, &	567.410	567.415	567.420	567.425	567.430	567.440	567.450	567.460	567.480	567.500

567A**Special stamps**

In a variety of versions upon request!

Important remark for all stamps: Please always specify whether you want **left engraved** (legible after stamping) or **right engraved** (mirror image after stamping)!

567B**Manual punch marking stamps, length ab. 135 mm**

Marks by means of spring tension with adjustable power (11-22kp) letters, figures or special signs. Head with plastic protection, body nickel plated.

Fitting insert-stamps may be delivered as: 0-9, A-Z, a-z, combinations of letters and figures (i.e A1, 32, 1B, Az), logos, signs for shifts, and a variety of other graphic representable signs (Please ask for a special list). Height 2-3 mm.

Item No.	Punch Marker	567.601
	Insert	567.602

568**Embossing press M 11 Item No. 568.001**

Strong heavy-duty press for embossing of aluminium or stainless steel tapes.

Height 4,8 mm

The delivery contains the press and each one off embossing tape of aluminium and steel without adhesive coat as well as each one off disk with standard and mirror image lettering.

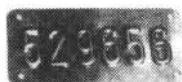
Tapes available:

Item No.	568.101	568.102	568.103
Material	Aluminium	Aluminium	Steel
Adhesive coat	with	without	without
Strip length	3,65 m	4,80 m	6,40 m

568A**ROOVER-letter embossing presses**

ideal for numbering pattern and core boxes, **high raised characters**, robust design, simple to operate

Embossing press			Aluminium embossing tapes		
Item No.	Type	Letter height	Item No.	Tape width	Thickn. appr. Length appr.
568.201	T 10 A	6,35 mm (1/4")	568.211	12,7 mm (1/2")	0,35 mm 36,5 mtr.
568.202	T 20	9,55 mm (3/8")	568.222	22,2 mm (7/8")	0,55 mm 24,5 mtr.

569**Inventory labels**

of aluminium, steel, stainless steel, brass, copper or galvanized metal, with or without holes, in all sizes and with all inscriptions; please specify quantity!

570**Pattern contour signs**

of anodised aluminium, background silver, lettering black, size 80 x 40 x 1,0 mm, acute corners, 4 holes.

Available in **4 designs**:

Design	Item No.	Design	Item No.
Stamp outside contour (see ill.)	570.001	Die outside contour	570.003
Stamp inside contour	570.002	Die inside contour	570.004

Brass slotted vents

571

with concave bottom and knurled rim

Bottom thickness: 3-10 mm diam. = 2 mm; 12-30 mm diam. = 2.5 mm

Height: 3-20 mm diam. = 7 mm; 25-30 mm diam. = 8 mm

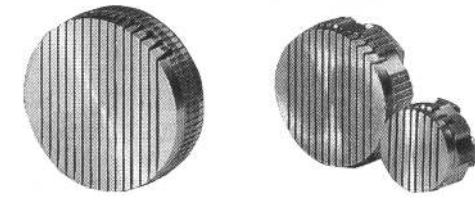
Each package contains 100 p. per dia.

- 1) self-cleaning with **tapered slots**, from 10 mm with one, 18 mm dia. and up with two reinforcing rings
- a) slot width **0.3 mm (standard version)**
- b) slot width **0.2 mm (for very fine sand)**
- 2) **Super-ring vents** – with up to **68 % more venting surface** thanks to tapered ring slots and conical vent channels, other features as described under 1a)
- 3) with **straight slots** and reinforcing ring (10 mm dia. and up)
- a) slot width **0.3 mm (standard version)**
- b) slot width **0.2 mm (for very fine sand)**
- 4) with **0.3 mm tapered slots and reinforced front**
- 5) **Blind vents** (without slots)

Diameter	3 mm	4 mm	5 mm	6 mm	7 mm	8 mm	9 mm	10 mm	12 mm
Design	Item No.								
1a)	571.103	571.104	571.105	571.106	571.107	571.108	571.109	571.110	571.112
1b)	571.703	571.704	571.705	571.706	571.707	571.708	571.709	571.710	571.712
2)	-	-	-	-	-	571.208	-	571.210	571.212
3a)	571.303	571.304	571.305	571.306	571.307	571.308	571.309	571.310	571.312
3b)	571.803	571.804	571.805	571.806	571.807	571.808	571.809	571.810	571.812
4)	-	-	-	-	-	571.408	-	571.410	571.412
5)	571.503	571.504	571.505	571.506	571.507	571.508	571.509	571.510	571.512

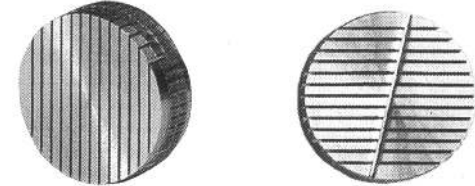
Diameter	13 mm	14 mm	15 mm	16 mm	18 mm	20 mm	25 mm	26 mm	30 mm
Design	Item No.								
1a)	571.113	571.114	571.115	571.116	571.118	571.120	571.125	571.126	571.130
1b)	571.713	571.714	571.715	571.716	571.718	571.720	571.725	571.726	571.730
2)	-	571.214	571.215	571.216	571.218	571.220	571.225	-	-
3a)	571.313	571.314	571.315	571.316	571.318	571.320	571.325	571.326	571.330
3b)	571.813	571.814	571.815	571.816	571.818	571.820	571.825	571.826	571.830
4)	-	571.414	571.415	571.416	571.418	571.420	571.425	-	571.430
5)	571.513	571.514	571.515	571.516	571.518	571.520	571.525	571.526	571.530

Remark: These vents are also available with a **different slot width** (0.4/0.6 mm), a **different bottom thickness**, a **different height** (10 mm) or in **imperial sizes**.



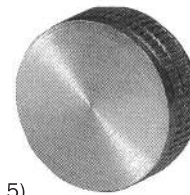
1a) and 1b)

2)



3a) and 3b)

4)



5)

Brass venting rims

571A

Especially designed for use on moulding machines where a maximum venting area in small places is necessary.

Standard slot type: 0.3 mm tapered (other slot types and non-slotted parts for screw holes also available!)

Standard sizes:

Width	Height	Length
15 mm	12 mm	30-200 mm (max.)
20 mm	10 mm	30-200 mm (max.)



Steel slotted vents

572

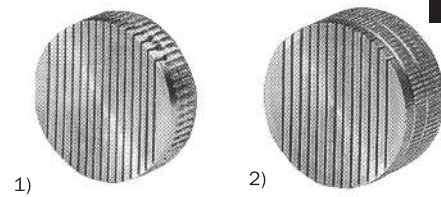
for Croning and hotbox core boxes, bottom thickness 2 mm, height 10 mm, from 10 mm with one, 18 mm dia. and up with two reinforcing rings.

Each package contains 100 p. per dia.

- 1) with **0.3 mm tapered slots** self-cleaning
- 2) with **0.3 mm straight slots** for light duties
- 3) with **0.2 mm straight slots** (for ingot and low-pressure die casting)
- 4) with **0.15 mm straight slots** (for ingot and low-pressure die casting)
- 5) with **0.3 mm tapered slots, external thread and hexagonal recess**
- 5a) Key for screwing in the vent
- 6) **Blind vents** (without slots)

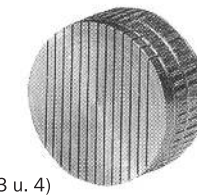
Diameter	2 mm	3 mm	4 mm	5 mm	6 mm	7 mm	8 mm	9 mm	10 mm	12 mm
Type	Item No.									
1)	-	572.103	572.104	572.105	572.106	572.107	572.108	572.109	572.110	572.112
2)	-	572.203	572.204	572.205	572.206	572.207	572.208	572.209	572.210	572.212
3)	572.302	572.303	572.304	572.305	572.306	572.307	572.308	572.309	572.310	572.312
4)	-	572.353	572.354	572.355	572.356	-	572.358	-	572.360	572.362
5)	-	-	572.404	-	572.406	-	572.408	-	572.410	572.412
5a) Key	-	-	572.504	-	572.506	-	572.508	-	572.510	572.512
6)	-	572.603	572.604	572.605	572.606	572.607	572.608	572.609	572.610	572.612

Diameter	14 mm	15 mm	16 mm	18 mm	20 mm	25 mm	26 mm	30 mm
Type	Item No.							
1)	572.114	572.115	572.116	572.118	572.120	572.125	572.126	572.130
2)	572.214	572.215	572.216	572.218	572.220	572.225	-	-
3)	572.314	572.315	572.316	572.318	572.320	572.325	572.326	-
4)	572.364	572.365	572.366	572.368	572.370	-	-	-
5)	572.414	-	572.416	572.418	572.420	-	-	-
5a) Key	572.514	-	572.516	572.518	572.520	-	-	-
6)	572.614	572.615	572.616	572.618	572.620	572.625	572.626	572.630

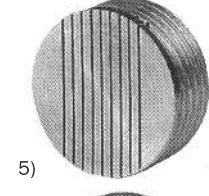


1)

2)



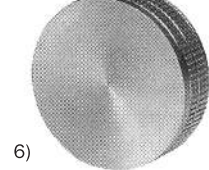
3 u. 4)



5)



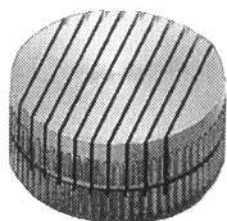
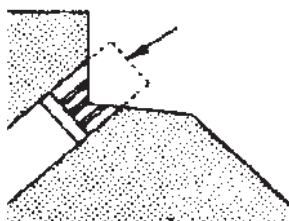
5a)



6)

Remark: These vents are also available with a **different slot width** (0.4/0.6 mm), a **different height** (7 mm), **different bottom thickness** or in **imperial sizes**.

572A



Deep slotted vents of steel

with a bottom **thickness of 6 mm**, slot width 0.3 or 0.2 mm, height 10 mm, for use in ingot moulds and low-pressure casting. These vents can be installed in corners, at radii or grooves thanks to the large bottom thickness (can be ground off).

Diameter	6 mm	8 mm	10 mm	12 mm	14 mm	15 mm	16 mm	18 mm	20 mm
Slot width	Item No.								
0.3 mm	572.706	572.708	572.710	572.712	572.714	572.715	572.716	572.718	572.720
0.2 mm	572.726	572.728	572.730	572.732	572.734	572.735	572.736	572.738	572.740

Each package contains 100 p. per diameter.

Vents with a larger height and thicker bottom upon request.

572B



Sintered vents made of steel

used for very difficult venting problems in gravity or low-pressure die-castings.

A **maximum of venting** results from a large number of straight, parallel and uniform pores.

Tolerances: height +/- 0.5 mm, diameter: + 0.08 mm; - 0.05 mm

Diam. mm	Pore diam. 0.5 mm			Pore diam. 0.3 mm			Pore diam. 0.1 mm		Pore diam. 0.05 mm		Pore diam. 0.03 mm	
	Number of pores	Item No.		Number of pores	Item No.		Number of pores	Item No.	Number of pores	Item No.	Number of pores	Item No.
3	37	572.823	-	-	-	-	-	-	-	-	-	-
4	37	572.824	-	-	-	-	-	-	-	-	-	-
5	61	572.825	-	89	572.805	572.845	-	-	-	-	-	-
6	61	572.826	572.866	89	572.806	572.846	-	-	880	572.946	880	572.966
8	96	572.828	572.868	200	572.808	572.848	880	572.928	880	572.948	880	572.968
10	200	572.830	572.870	340	572.810	572.850	880	572.930	880	572.950	880	572.970
12	200	572.832	572.872	340	572.812	572.852	-	-	-	-	-	-
14	341	-	572.874	-	-	-	-	-	-	-	-	-
16	341	-	572.876	-	-	-	-	-	-	-	-	-
18	553	-	572.878	-	-	-	-	-	-	-	-	-
20	550	-	572.880	-	-	-	-	-	-	-	-	-
28	970	-	572.888	-	-	-	-	-	-	-	-	-
Design	solid						partial solid					

573



Brass vents (mesh vents)

with mesh of stainless steel wires (Monel-metal) with a particularly high venting capacity, height 8 mm, **mesh width 0.4 mm**.

Package with 100 p. per diameter.

Item No.	573.004	573.005	573.006	573.008	573.010	573.012	573.014	573.015	573.016	573.018	573.020	573.025
Diameter	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	14 mm	15 mm	16 mm	18 mm	20 mm	25 mm

574



Screen vents 'Super Vent' of stainless-steel

self-cleaning thanks to undulated wire openings, the air can escape through more than 43% of the surface area.

Mesh width 0.25 mm, package with 100 p. per diameter.

Height	Diameter / Item No.											
	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	14 mm	15 mm	16 mm	18 mm	20 mm
6 mm	574.103	574.104	574.105	574.106	574.108	574.110	574.112	-	-	-	-	-
8 mm	-	-	-	574.206	574.208	574.210	574.212	574.214	574.215	574.216	574.218	574.220
10 mm	-	-	-	574.306	574.308	574.310	574.312	574.314	574.315	574.316	574.318	574.320

575



Plastic vents, height 8 mm

Slot width (tapered)	Diameter / Item No.							
	6 mm	8 mm	10 mm	12 mm	15 mm	20 mm	25 mm	30 mm
0.3 mm	575.106	575.108	575.110	575.112	575.115	575.120	575.125	575.130
0.6 mm	575.206	575.208	575.210	575.212	575.215	575.220	575.225	575.230

Vents for polystyrene

of **brass** or **aluminium**, with **0.2 or 0.3 mm straight slots**, knurled rim, without reinforcing rings, bottom thickness 2.0 mm.
Height: 3-20 mm diam. = 7 mm; 25-26 mm diam. = 8 mm

Package with 100 p. per diameter.



576

Material	slot with	Diameter / Item No.																
		3 mm	4 mm	5 mm	6 mm	7 mm	8 mm	9 mm	10 mm	12 mm	13 mm	14 mm	15 mm	16 mm	18 mm	20 mm	25 mm	26 mm
Brass	0.3 mm	576.103	576.104	576.105	576.106	576.107	576.108	576.109	576.110	576.112	576.113	576.114	576.115	576.116	576.118	576.120	576.125	576.126
	0.2 mm	576.303	576.304	576.305	576.306	-	576.308	-	576.310	576.312	-	-	-	-	-	-	-	-
Alu	0.3 mm	576.203	576.204	576.205	576.206	576.207	576.208	576.209	576.210	576.212	576.213	576.214	576.215	576.216	576.218	576.220	576.225	576.226
	0.2 mm	576.403	576.404	576.405	576.406	-	576.408	-	576.410	576.412	-	-	-	-	-	-	-	-

Perforated vents of aluminium

with holes and knurled rim, hole dia. 0.8 mm, bottom thickness 1 mm

Item No.	577.102	577.103	577.104	577.104-V	577.105	577.106
Diam. mm	2	3	4	4(4sq.)	5	6
Height mm	7					
No. of holes	1	1	4	4	5	6

Item No.	577.108	577.110	577.210	577.112	577.212	577.113	577.115
Diam. mm	8	10	10	12	12	13	15
Height mm	5,5						
No. of holes	12	19	28	22	36	36	30

Other heights, diam. of holes, bottom thicknesses or materials (brass, steel) upon request, also blind-vents without holes!

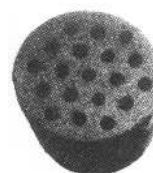


577

Perforated vents 'Regitz system' of plastic

for cold-box, CO₂- and vacuum-method, max. temperature 80°C, self-cleaning (conical holes widening from 0.4 - 0.8 mm), height 6 mm

Item No.	577.006	577.010
Diameter	6 mm	10 mm

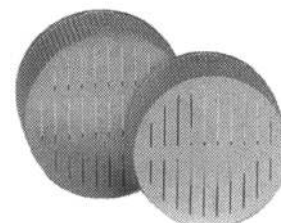


577A

SV-vents made of stainless sinter steel

Especially designed for low-pressure die-casting of aluminium alloys. Improved stability, quick exchange, improved economy in operation. Also for high temperatures.

Diam. mm	Height mm	Joint	Slot width / Item No.				
			0.1 mm str.	0.12 mm tap.	0.2 mm tap.	0.25 mm tap.	0.3 mm tap.
2.5	5	without	-	-	578.302	-	-
3	5	without	-	-	578.303	-	-
4	5	without	-	-	578.304	-	-
5	5	without	-	-	578.305	-	-
6	10	without	578.106	578.206	578.306	578.406	578.506
8	10	without	578.108	578.208	578.308	-	578.508
8	10	with	578.108S	-	-	578.408S	-
10	10	without	578.110	578.210	578.310	-	578.510
10	10	with	578.110S	-	-	578.410S	-
12	10	without	578.112	578.212	578.312	-	578.512
12	10	with	578.112S	-	-	578.412S	-
14	10	with	-	578.214S	578.314S	-	578.514S
16	10	with	-	578.216S	578.316S	-	578.516S
18	10	with	-	-	578.318S	-	578.518S
20	10	with	-	578.220S	578.320S	-	578.520S



578

Vent cleaner

for slotted vent of all kinds

1) Standard version length 140 mm, with rimmed screw and knife-blade
Item No. 579.001

Fitting spare blades:

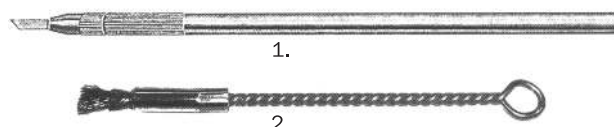
Item No.	579.002	579.003
Thickness of blade	0.2 mm	0.15 mm
for slot width	0.3 mm	0.2 mm

2) Scrubbing brushes for vents: tube handle length 150 mm with interior thread and screwed brush made of steel wire, 0.25 mm thick

Item No. 579.101

Spare brushes Item No. 579.102

Spare brushes with other thickness or length or made of other material upon request!



579

580

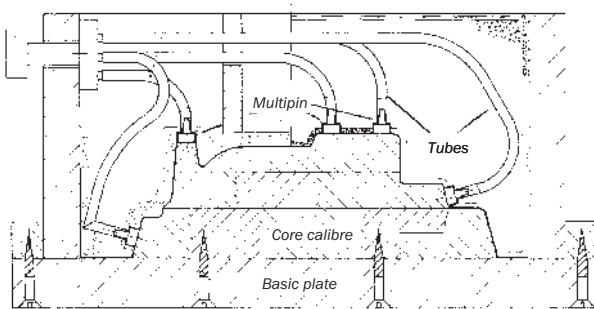


Special HSS-step drills

for drilling vent holes in wood, resin, cast iron and steel.

Item No.	For vent dia.	Step dia.	Step length	Total length	Shaft dia.
580.003	3 mm	2,5 mm	15 mm	100 mm	3 mm
580.004	4 mm	3,5 mm	20 mm	120 mm	4 mm
580.005	5 mm	4,0 mm	30 mm	132 mm	5 mm
580.006	6 mm	5,0 mm	30 mm	139 mm	6 mm
580.007	7 mm	6,0 mm	30 mm	156 mm	7 mm
580.008	8 mm	6,0 mm	30 mm	165 mm	8 mm
580.009	9 mm	7,0 mm	30 mm	175 mm	9 mm
580.010	10 mm	8,0 mm	30 mm	185 mm	10 mm
580.012	12 mm	10,0 mm	30 mm	205 mm	12 mm
580.013	13 mm	11,0 mm	30 mm	205 mm	13 mm
580.014	14 mm	12,0 mm	30 mm	215 mm	14 mm
580.015	15 mm	13,0 mm	30 mm	220 mm	15 mm
580.016	16 mm	14,0 mm	30 mm	227 mm	16 mm
580.018	18 mm	16,0 mm	30 mm	240 mm	16 mm
580.020	20 mm	18,0 mm	30 mm	254 mm	16 mm
580.025	25 mm	23,0 mm	30 mm	230 mm	16 mm
580.030	30 mm	28,0 mm	30 mm	240 mm	16 mm

580A



Multipin

The Multipin-system allows to get places for vents and degassing-systems during production and **before** using resins. There's no more need for drilling the finished core-box.

Advantages: Benefit of time up to 80%, saving of tools. Vents may be placed in an optimal position.

The system is available as follows:

1) Multipin-system-box, complete (Item No. 580.101)

containing all accessories:

25 pcs. Multipin each of vents-diameter 4, 6, 8, 10, 12, 15, 18, 20, 25, 30 mm

15 pcs. Multifill (to close not used holes)

each of the same diameter as Multipin

2 mtr. tubes, each of diameter 2, 4, 6, 8 mm

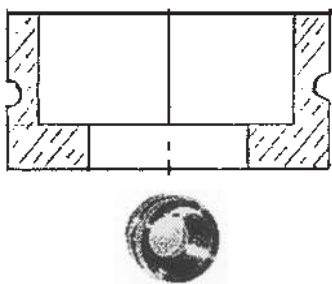
and other material for setting.

2) Spare parts:

For vents dia.	4 mm	6 mm	8 mm	10 mm	12 mm	15 mm
Item No. MULTIPIN	580.104	580.106	580.108	580.110	580.112	580.115
MULTIFILL	580.304	580.306	580.308	580.310	580.312	580.315
Tube	580.202	580.204			580.206	

For vents dia.	18 mm	20 mm	25 mm	30 mm
Item No. MULTIPIN	580.118	580.120	580.125	580.130
MULTIFILL	580.318	580.320	580.325	580.330
Tube			580.208	

580B



Supports for core-box vents, brass

These supports for the core-box vents will be placed during the production of resin core-boxes where the vents shall be placed later on.

So later boring is no longer necessary and the vents may be placed on **optimal** positions (also on positions where it would be very difficult to place borings).

Besides this gain of time and facilitation of work the supports will render possible a **quick and simple change of vents** when these will be damaged.

The dimension of the supports are fitting perfectly to the core-box vents made of brass with conical slots.

Fitting **tubes** are also available .

For vent dia.	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Boring back-side	3 mm	3,5 mm	4 mm	5 mm	7 mm	8 mm
Item No.	580.504	580.505	580.506	580.508	580.510	580.512
Ref. No. of tube	-	-	580.604	580.605	580.607	580.608

For vent dia.	14 mm	15 mm	16 mm	18 mm	20 mm
Boring back-side	10 mm	10 mm	10 mm	13 mm	16 mm
Item No.	580.514	580.515	580.516	580.518	580.520
Ref. No. of tube		580.610		580.613	580.616

Core box clamps

of light metal and Conidur perforated sheet
for sealing lateral core box openings

1) Gooseneck-shapes

Diameter	581.001	581.003	581.004	581.005	581.006	581.007	581.008
Item No.	36 mm	60 mm	70 mm	80 mm	110 mm	125 mm	160 mm

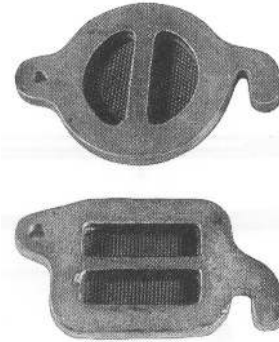
(diameter from c/l hole to c/l recess on the opposite side)

2) Rectangular shape

Item No.	581.021	581.022	581.023	581.024	581.025
Length x width	50 x 40 mm	60 x 50 mm	70 x 60 mm	100 x 80 mm	110 x 90 mm

(net body length **without** lateral projections)

The item will be discontinued, available in limited quantities only!



581

Perforated brass sheet metal

pickled and straightened

Available types and sizes:

Item-No. 581.101:

2000 x 600 x 0,6 mm, hole-diam. 0,8 mm (also cuts available)

Item-No. 581.201:

445 x 335 x 3 mm, hole-diam. 0,3 mm (no cuts available)



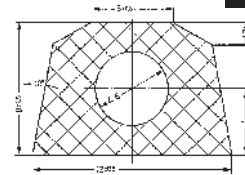
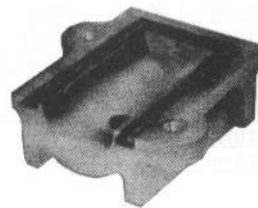
581A

Special sealing rope for gassing plates

for cold and thermo-setting method, of silicon, trapezoidal shape (for insertion into the milled groove)

Item No. 181.001

Size: 12 x 10 x 5 mm; 10 degrees, 8 mm high, 4,5 mm hole diameter



582

Dovetail cutter for sealing rope item No. 582

Item No. 181.101, carbide-tipped, shank dia. 12 mm



582A

UNITUBE blow-tubes

for blowing the core sand into the core boxes.

Made of impact-resistant plastics, inexpensive and uniquely flexible.
The depth may be adjusted by the rimmed screw and may be cutted to accommodate virtually any flow rate, thus eliminating the need to stock several sizes.

Item No.	182.001	182.001L	182.002
Design	Unitube	Unitube long	Unitube-screw
Dimension ab.	Ø 30 x 180 mm	Ø 30 x 210 mm	M 30 x 2 mm

Available accessories:

Special cutter for the setting
(for this cutter a 1" chuck will be needed)

Thread drill M 30 x 2 mm

Item No. 182.101

Item No. 182.102



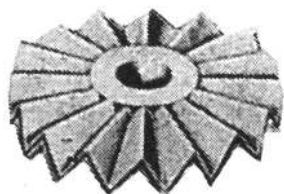
582B

583

Truing devices **Item No. 583.001**

for grinding wheels, with guard and steel handle, length 39 cm, with four 5 mm-dia. wheels, hole dia. 10 mm.

a) compl. set of spare wheels, **Item No. 583.002**

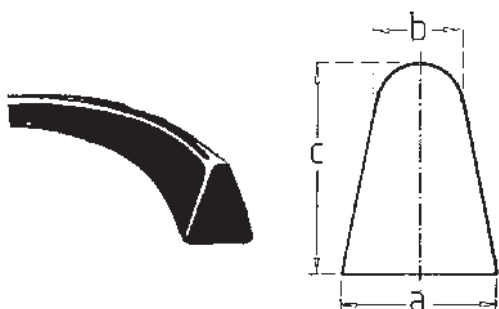
583A

Truing wheels

1) of prime-quality special cast iron, deburred, **corrupted**

2) of prime-quality steel, hardened, with 16 to 20 teeth

Diameter	30 mm	40 mm	50 mm	50 mm	60 mm
Hole dia.	7 mm	10 mm	10 mm	13 mm	10 mm
Material	Item No.				
Cast iron	–	–	583.101	–	583.102
Steel	583.201	583.202	583.203	583.204	–

584

Casting ducts

of soft PVC

sold per meter, max. temperature 60°C, durable and reusable. The ducts can easily be fixed on moulding plates; they can easily be removed from the mould thanks to its smooth, wear-resistant surfaces. Bending these ducts does not produce creases.

Item No.	Base (a) mm	Radius (b) mm	Height (c) mm	Cross section mm ²
205.001	10	3,5	10	75
205.002	12	4,0	13	116
205.003	14	4,0	17	168
205.004	17	5,0	20	280
205.005	20	6,0	22	323
205.006	24	7,0	26	509
205.007	30	10,0	35	845

585

Leather fillets

of prime neat leather, sharp edges, flexible

Item No.	585.010	585.020	585.025	585.030	585.040
Radius	2 mm	3 mm	4 mm	5 mm	6,5 mm
Width	3 mm	5 mm	6,5 mm	8 mm	10 mm

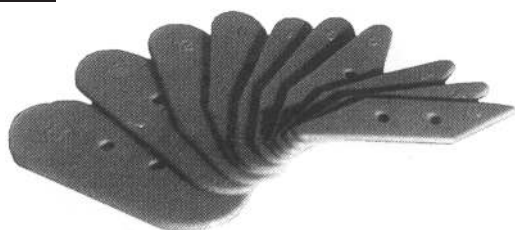
Item No.	585.050	585.060	585.080	585.100	585.120
Radius	8 mm	10 mm	13 mm	16 mm	20 mm
Width	12,5 mm	15 mm	20 mm	25 mm	30 mm

Wax fillets available upon request!

586

Filled pressing rods of nickel-plated steel

Item No.	586.000	586.001	586.002	586.003	586.004	586.005	586.006	586.007	586.100
Size	0	1	2	3	4	5	6	7	compl.
Ball dia.	1 + 2 mm	3 + 5 mm	4 + 6 mm	8 + 10 mm	12 + 14 mm	16 + 20 mm	25 + 30 mm	40 + 50 mm	set

586A

Set of radius fillet trowels of plastic

Item No. 586.200

Trowel thickness appr. 2 mm, for drawing and smoothing fillets, one set consists of trowels for R 2, 3, 4, 5, 6, 8, 10, 12, 15, 20 mm (individual trowels are not available).

Note: Fillet mastics see item 930-933

Wooden pegs, smooth or grooved

587

of beach wood, round bars

1 m long or in other lengths upon request

Dia.	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	14 mm
Design	Item No.						
smooth	587.004	587.005	587.006	587.008	587.010	587.012	587.014
grooved	-	587.105	587.106	587.108	587.110	587.112	587.114
Dia.	16 mm	18 mm	20 mm	25 mm	30 mm	35 mm	40 mm
Design	Item No.						
smooth	587.016	587.018	587.020	587.025	587.030	587.035	587.040
grooved	587.116	587.118	587.120	-	-	-	-

Other diameters upon request!

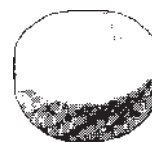


Wooden disks

588

of pine wood, round, for filling branch holes, 10mm thick,
packing unit = 1 kg

Item No.	588.010	588.015	588.020	588.025	588.030	588.035	588.040	588.050
Diameter	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	50 mm



Disk cutters (No. 02213) of tool steel, qual. WS

589

with 2 cutting edges, periph. edges und straight shank, total length 140 mm,
for cutting disks.

Item No.	589.008	589.010	589.012	589.015	589.020	589.025	589.030	589.035	589.040
Inner dia.	8 mm	10 mm	12 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm
Shank dia.	13 mm							16 mm	



Hook nails, galvanized

590

for fastening loose pattern parts

Item No.	590.001	590.002	590.003	590.004	590.005	590.006
Size	1	2	3	4	5	6
Length	40 mm	55 mm	82 mm	105 mm	128 mm	155 mm
Height	17 mm	23 mm	27 mm	30 mm	32 mm	35 mm
Dia.	2,3 mm	3 mm	3,4 mm	4 mm	5 mm	5,8 mm



Sealing ropes of silicone, round, solid

591

transparent, 60° shore

Item No.	181.206	181.208	181.209	181.210	181.212
Diam. mm	6	8	9	10	12

Also available in green or with interior diam. of 2-3 mm.
Minium quantity 25m per diam.



Scrapers of silver steel

592

hardened and ground, with wooden handle, angle 90°

Item No.	Shape	Size L x W	Shank dia.	Length without handle
592.008	pointed shape 50°	33 x 17 mm	10 mm	280 mm
592.016	drop-shaped	40 x 18 mm	10 mm	280 mm

This item is being phased out, available in limited quantities only!



Pointed shape



Drop-shaped

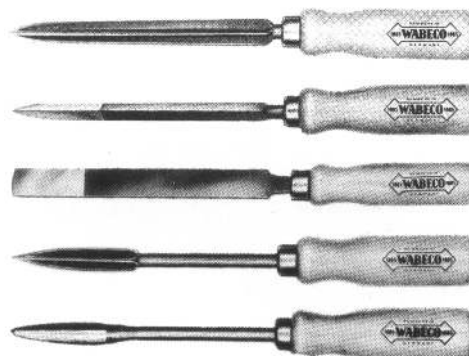
Scraper of special steel

593

forged, with bright edges and varnished wooden handle

Blade length	100 mm	150 mm	200 mm	250 mm	300 mm
Design	Item No.				
Triangular hollow scraper	593.110	593.115	593.120	593.125	593.130
triangular solid scraper	593.210	593.215	593.220	593.225	593.230
flat scraper	593.310	593.315	593.320	593.325	593.330
triangular spoon scraper	593.410*	593.415	593.420	593.425	593.430*
american spoon scraper	-	593.515	593.520	593.525	593.530

* This item will be discontinued. Available while stocks last.



594

Prüfzertifikat



Identnummer	161186072				
Gegenstand	DIN 875 Pattern maker's slide gauges 300-1000 mm, 1/20 mm vernier				
Hersteller	Preisser Messtechnik, D-72521 Gemmingen				
Artikelnummer	028703				
Messbereich mm	150				
Ablesung	0,01 mm				
Die Prüfung erfolgte in Anlehnung an die Richtlinie des VDI/VDE/DGQ 2210 unter folgenden Bedingungen:					
Referenz	Lineare, kalibrierte				
Bestimmungsgenauigkeit laut Zulassungsgesetz	±0,1 % ± 0,05				
Merkmale	Sollmaß	Istmaß	Abweichung	Fehlertoleranz	Beurteilung
	mm	mm	mm	mm	
Außenmessung	0,00	0,00	0	0	in Ordnung
	41,30	41,29	-10	30	in Ordnung
	131,40	131,39	-10	30	in Ordnung
Innenmessung	0	0,98	-10	30	in Ordnung
Nuttmessung Tiefenmaß					in Ordnung
Datum	Montag, 14. Dezember 1999				
Prüfer	Dieter Krebs				
Die Prüfung erfolgte nach den in der Richtlinie des VDI/VDE/DGQ 2210 unter folgenden Bedingungen:					

Certificates of calibration for measuring instruments

QM-systems acc. to ISO 9000 a.s.o. demand for regular calibration and controlling of measuring instruments. They have to be calibrated within fixed intervals by licenced testing instruments. As a supplier of tools and measuring instruments we offer the possibilities to get either new measuring tools with certificates of calibration or to re-calibrate **used** tools. The certificates are issued by the producer of the tools.

- 1) Certificates for **new measuring tools**: Please mark in your orders clearly "**with certificate**". The costs of calibration will be invoiced separately. Please regard some delivery time because the certificates must be issued each time new.

a) for caliper gauges, depth gauges und height gauges

Remark: For gauges with several graduations like item 595, 596, 613 and 614 you'll have to order a certificate for **every graduation**!

Measuring range	up to 300 mm	up to 500 mm	up to 1000 mm
Item No.	594,081	594,082	594,083

b) for squares acc. to DIN 875

Measuring range	up to 200 mm	200 – 500 mm	500 – 750 mm	750 – 1000 mm
Item No.	594,084	594,085	594,086	594,080

c) for rules

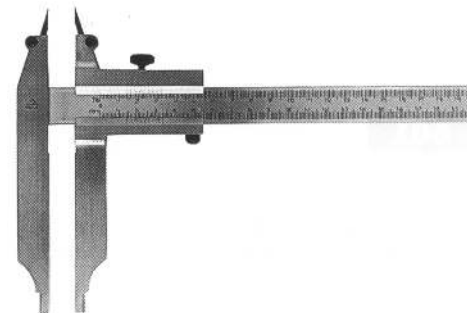
Measuring range	up to 500 mm	500 – 1000 mm	über 1000 mm
Item No.	594,087	594,088	594,089

Certificates for other measuring tools on request!

- 2) Certificates for **used tools** (subsequent calibration):

Please send us the tools convenient packed and free of transport-charges. The costs will depend on the necessary operations.

595



Pattern maker's slide gauges No. 020

of dull chrome-plated stainless steel accuracy in accordance with DIN 862

with exchangeable, hardened steel points, open slider, measuring faces hardened, graduated rail and measuring jaw of one piece, 1/20 mm vernier

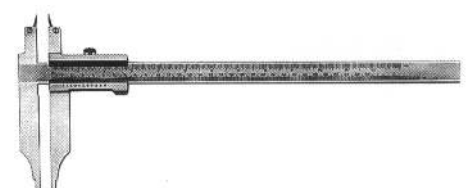
Shrinkage graduation				Measuring range mm		
front		back		300	600	1000
bottom	top	bottom	top	Item No.		
mm	1,0 %	1,5 %	2,0 %	595,102	595,104	595,106
mm	1,0 %	1,25 %	2,0 %	595,103	595,105	595,107

Other shrinkage graduations upon request!

Measuring ranges and spares:

Measuring range	Jaw length	Jaw tip	Item No.			
			Tip dia.	Locking screw slider	Setscrew tips	Brass spring
300 mm	100 mm	10 mm	595,202 (∅ 3,0 mm)	595,212	595,222	595,232
600 mm	150 mm	20 mm	595,203 (∅ 3,5 mm)	595,213	595,223	595,233
1000 mm	200 mm	20 mm	595,204 (∅ 4,0 mm)	595,214	595,224	595,234

596



Pattern maker's slide gauges No. 250 RC

of stainless steel-dullchrome-plated, accuracy in accordance with DIN 862

with exchangeable, hardened steel points, open slider, measuring faces hardened, graduated rail and measuring jaw of one piece, 1/10 mm vernier, precise lasers graduation

Shrinkage graduation				Measuring range mm				
front		back		300	500	600	800	1000
bottom	top	bottom	top	Item No.				
1,0 %	1,5 %	2,0 %	mm	596,511	596,512	596,513	596,514	596,515
0,5 %	0,8 %	1,0 %	mm	596,521	596,522	596,523	596,524	596,525
1,0 %	1,25 %	1,5 %	mm	596,531	596,532	596,533	596,534	596,535
1,75 %	2,0 %	2,5 %	mm	596,541	596,542	596,543	596,544	596,545
1,0 %	1,25 %	2,0 %	mm	596,551	596,552	596,553	596,554	596,555
0,3 %	0,4 %	0,6 %	mm	596,561	596,562	596,563	596,564	596,565
1,0 %	1,25 %	1,5 %	2,0 %	596,571	596,572	596,573	596,574	596,575

Other shrinkage graduations upon request!

Measuring ranges and spares:

Measuring range	Jaw length	Jaw tip	Item No.			
			Tip dia.	Locking screw slider	Setscrew tips	Brass spring
300 mm	90 mm	10 mm	596,631 (∅ 3,0 mm)	596,611	596,621N	596,641
500 mm	150 mm	20 mm	596,632 (∅ 3,0 mm)	596,612	596,622N	596,642
600 mm	150 mm	20 mm	596,632 (∅ 3,0 mm)	596,613	596,622N	596,643
800 mm	150 mm	20 mm	596,633 (∅ 4,0 mm)	596,614	596,622N	596,644
1000 mm	150 mm	20 mm	596,633 (∅ 4,0 mm)	596,615	596,622N	596,645

Pattern maker's slide gauges without shrinkage

597

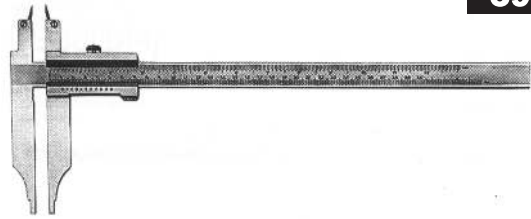
graduation of dull-chrome-plated stainless steel

1/20 vernier, as described under No. 596 (p. 26)

Graduation		Measuring range mm				
front		300	500	600	800	1000
bottom*	top**	Item No.				
mm	mm	597.501	597.502	597.503	597.504	597.505

* for direct readings of external measurements

** for direct readings of internal measurements

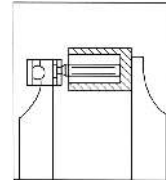


Wall thickness calipers (2 pieces)

598

fits all pattern maker's slide gauges with 250 and 300 mm measuring range.

Consisting of a clamp (item-no. 598.203) and a measuring pin of 50 mm length (item-no. 598.206). Both parts will be needed together.



Pattern maker's pocket slide gauges with shrinkage graduation

599

of dull chrome-plated stainless steel, accuracy in accordance with DIN 862, 1/20 vernier, with quick level measuring range 150 mm, jaw length 40 mm

Item No.		599.005	599.001	599.002	599.003	599.004
Grad.	front	0,5 % SM	1,0 % SM	1,25 % SM	1,5 % SM	2,0 % SM
	top					
	bottom					
		mm-graduation				



Precision pocket slide gauges

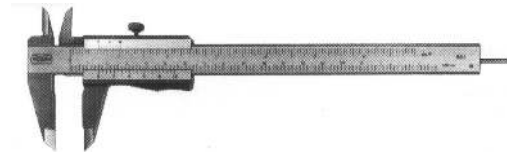
600

without shrinkage graduations, of dull chrome-plated stainless steel, accuracy in accordance with DIN 862, precise laser graduation, measuring faces hardened and lapped

Measuring range 150 mm, jaw length 40 mm

For applications: ext., int. and depth measurements as well as marking.

Graduation			Item No.	
front top	front bottom	back	with locking screw	with quick level
inch with 1/128 vernier	mm with 1/20 vernier	mm-depth	600.001	600.002



Precision dial slide gauges No. 1323

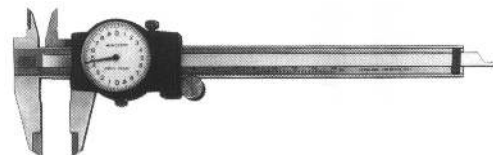
601

stainless steel dull chrome-plated, measuring accuracy better than DIN 862, with measuring edges for internal gauging, in a case.

One dial rev. = 5 mm; dial numbers indicate full mm, one grad. = 1/20 or 0,05 mm

Item No.	Measuring range mm	Reading precision mm	Jaw length mm
601.501	150	1/20	40

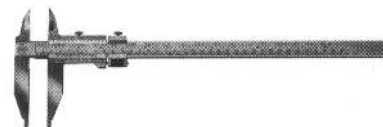
Dial slide gauges with larger measuring ranges upon request!



Workshop slide gauges marking gauges etc.

602

in all sizes and designs available upon request.



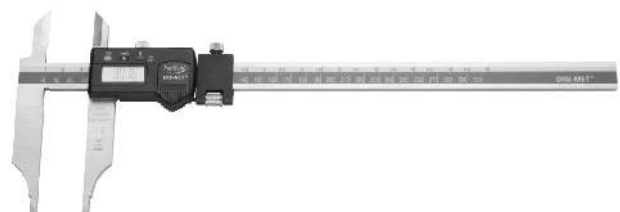
Workshop slide gauges with digital indicator with Quick-Start-Electronic

603

and Quick-Lock-Function, with knife points

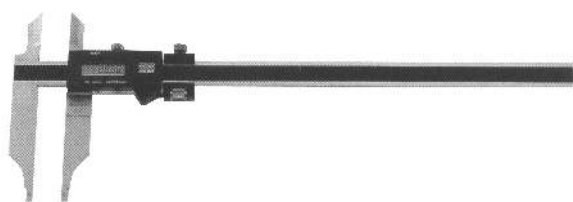
Only set the zero position once, it will remain stored for all further measurements. The need to reset (as with a conventional caliper once it is switched on) is obsolete. The caliper is immediately ready for measurements, the display is automatically activated when the slide is moved. Made of stainless steel, with inductive measuring system, resistant to damp and sweat.

Measuring range	300 mm	500 mm	800 mm	1000 mm
Jaw length	90 mm	125 mm	150 mm	150 mm
Stepped jaws	10 mm	20 mm	20 mm	20 mm
Design	Item No.			
w/o fine-adjustment	603.301	603.302	603.303	603.304
with fine-adjustment	603.401	603.402	603.403	603.404



For calibration see page 26, Item No. 594

604



Workshop slide gauges with digital indicator

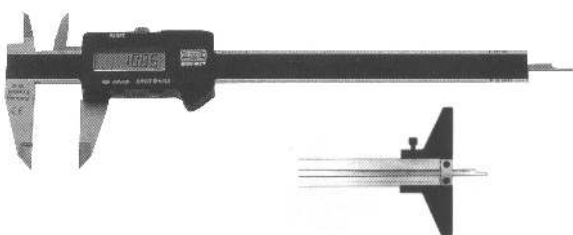
All parts of best qualified stainless steel, measuring parts carefully hardened and smoothed.

With certificate of calibration!

Measuring range	300 mm	500 mm	800 mm	1000 mm
Jaw length	90 mm	125 mm	150 mm	150 mm
Stepped jaws	10 mm	20 mm	20 mm	20 mm
Design	Item No.			
with knife points, w/o fine adjustment	604.201	604.202	604.203	604.204
with knife points, with fine adjustment	604.301	604.302	604.303	604.304
without knife points, w/o fine adjustment	604.401	604.402	604.403	604.404
without knife points, with fine adjustment	604.501	604.502	604.503	604.504

Larger measuring ranges upon request!
Delivered in a wooden case!

605



Workshop pocket slide gauges with digital indicator

All parts of best qualified stainless steel, measuring parts carefully hardened and smoothed.

With certificate of calibration!

Four measuring functions: outside, inside or depth measuring and marking operations.

For depth measuring a convenient **measuring bridge** is available!

(Bridge length 75 mm)

Measuring range	Jaw length	Item No.	Measuring bridge
150 mm	40 mm	605.201	605.203
200 mm	40 mm	605.202	

606



horizontal version

Measuring slider with digital indicator

Can be fitted to various measuring and checking tools, machines and devices.

With preset, resolution 0,01 mm; cross section of bar 20 x 5 mm

a) horizontal

Item No.	606.731	606.732	606.735	606.738	606.741
Measuring range	150 mm	200 mm	300 mm	450 mm	600 mm

b) vertical

Item No.	606.751	606.752	606.755	606.758	606.761
Measuring range	150 mm	200 mm	300 mm	450 mm	600 mm

Larger measuring ranges upon request!

607

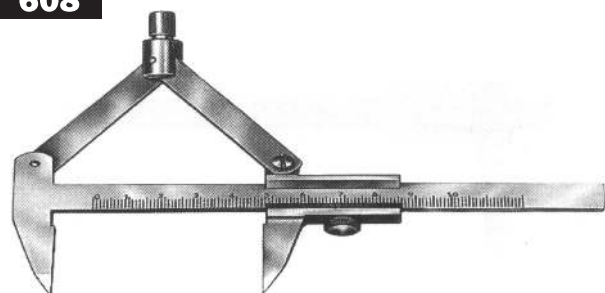


External Displays 3 axis

For all digital measuring instruments with RS 232 data output, esp. for digital scales item no. 606. Strong magnetic backside, strong plastic-case, height of figures 10 mm. Equipped with switch to half-measuring value, with 220V adapter.

Item No. 607.310

608



Precision compass-type slide gauges

with locking screw

Accuracy in accordance with DIN 862, vernier 1/10 mm, with precise laser graduation, components of stainless steel, measuring rail and jaw of one piece, vernier milled of a solid piece, jaws (measuring faces) hardened, superfinished and lapped; parallel marking legs guarantee accurate marking.

Measuring range mm	Dia. mm	Jaw length mm	Item No.	
			without carbide	carbide tipped
150	300	40	608.002	608.102
200	400	40	608.003	608.103
250	500	40	608.004	608.104
300	600	40	608.005	608.105

For calibration see page 26, Item No. 594

Beam compass

609

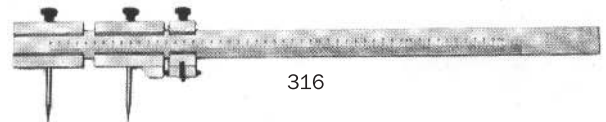
- 1) **No. 316 flat beam**, of stainless steel, with mm-graduation and micro-meter slide and locking screw, replaceable steel points, 1/10 mm vernier

Measuring range	Beam cross section	Item No.	Item No. of a pair of spare points
500 mm	25 x 6 mm	609.2201	609.2210
1000 mm	25 x 6 mm	609.2202	

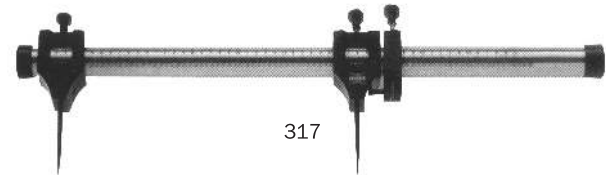
- 2) **No. 317 round beam**, of special steel with malleable iron slider, with or without fine setting, replaceable steel points, measuring rod steel tube with guide groove and mm-graduation, 1/10 mm vernier

Measuring range	Beam cross section dia.	Item No.		Pair of spare points
		without fine setting	with fine setting	
500 mm	20 mm	609.1001	609.1101	609.1010
1000 mm	20 mm	609.1002	609.1102	
1500 mm	20 mm	609.1003	609.1103	
2000 mm	20 mm	609.1004	609.1104	
3000 mm	28 mm	609.1005	609.1105	609.1012
4000 mm	28 mm	609.1006	609.1106	

The beam can also be equipped with **shrinkage graduation** upon request!



316

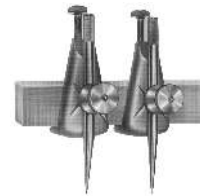


317

Compass points 'E' Item No. 610.001

with hardened and ground points, without wooden beam, for dia. 20 to 40 mm, points can be set vertically and at 45°.

These points can also be used for gauging in two different levels.



610

Scratch gauges

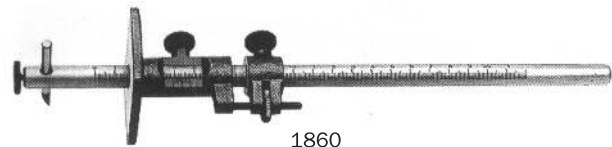
611

- 1) **No. 1860** of stainless steel, with round bar, guide proove and mm-graduation, 1/10 mm vernier, slider of malleable iron, with or without fine setting, with back stop and locking screw, scriber hardened and replaceable.

Measuring range mm	Bar dia. mm	Item No.		Spare needle
		w/o fine setting	with fine setting	
200	11	611.001	611.101	611.010
300	11	611.002	611.102	
400	11	611.003	611.103	
500	11	611.004	611.104	

- 2) **No. 1866** with roller of stainless steel, slider with locking screw, hardened roller as back stop, lightweight and handy design, measuring beam hardened with mm-graduation, scriber of hardened steel is replaceable.

Measuring range	Vernier	Item No.	Spare scriber
200 mm	bottom 1/10 mm	611.501	611.521
	top 1/128"		



1860



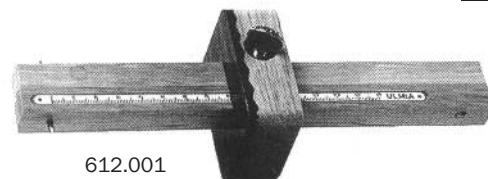
1866

'ULMIA' - Scratch gauges of white beech wood with embedded white graduation and lockable marking tips

612

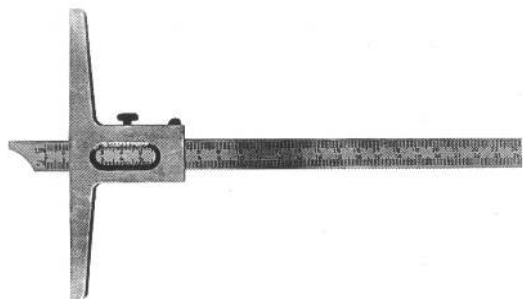
Measuring range 150 mm, head size 66 x 50 mm, total length 220 mm

Item No.	Curve stop	Marking method
612.001	without	needle top and bottom
612.002	with	needle top and bottom
612.003	without	cutting wheel top and bottom
612.004	-	spare cutting wheel for 612.003



612.001

613



Remark: Do not reverse the measuring bar as the verniers for the front and **back graduations** would otherwise not correspond.

Pattern maker's depth gauges No. 040

of dull chrome-plated stainless steel, accuracy in accordance with DIN 862 open slider front, back of slider with oval vernier bezel milled of a solid piece, measuring faces hardened, 1/20 vernier.

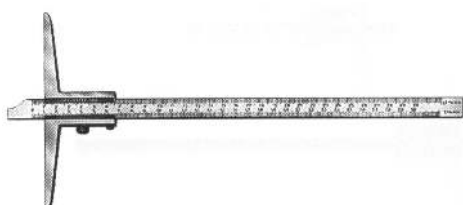
Shrinkage graduation				Measuring range	
front		back		300 mm	500 mm
top	bottom	top	bottom	Item No.	
1,0 %	mm	2,0 %	1,50 %	613.101	613.103
1,0 %	mm	2,0 %	1,25 %	613.102	613.104

Other shrinkage graduations upon request!

Measuring ranges and spare parts

Measuring range	Crossbar length	Bar cross section	Item No.	
			locking screw	brass spring
300 mm	160 mm	17 x 4 mm	613.201	613.301
500 mm	160 mm	17 x 4 mm	613.202	613.302

614



Other shrinkage graduations upon request!

Remark: Do not reverse the measuring bar as the verniers for the front and **back graduations** would otherwise not correspond.

Pattern maker's depth gauges No. 289 RC

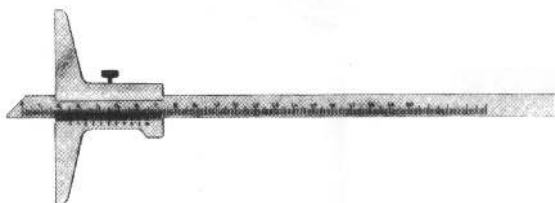
of stainless steel, dull-chrome plated, accuracy in accordance with DIN 862, open slider front, back of slider with oval vernier bezel milled of a solid piece, measuring faces hardened, 1/10 vernier (over 19 mm), high-precision laser graduation.

Shrinkage graduation				Measuring range	
front		back		300 mm	500 mm
bottom	top	bottom	top	Item No.	
1,0 %	1,5 %	2,0 %	mm	614.511	614.512
0,5 %	0,8 %	1,0 %	mm	614.521	614.522
1,0 %	1,25 %	1,5 %	mm	614.531	614.532
1,75 %	2,0 %	2,5 %	mm	614.541	614.542
1,0 %	1,25 %	2,0 %	mm	614.551	614.552
0,3 %	0,4 %	0,6 %	mm	614.561	614.562
1,0 %	1,25 %	1,5 %	2,0 %	614.571	614.572

Measuring ranges and spare parts

Measuring range	Crossbar length	Bar cross section	Item No.	
			locking screw	brass spring
300 mm	150 mm	16 x 3,5 mm	614.601	614.611
500 mm	150 mm	16 x 3,5 mm	614.602	614.612

615



Pattern maker's pocket depth gauges

with shrinkage graduation

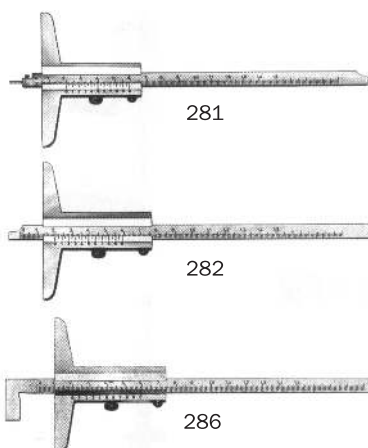
dull chrome-plated stainless steel, accuracy in accordance with DIN 862, open front slider, back of slider closed, measuring faces hardened, 1/20 mm vernier.

Measuring range 200 mm, cross bar length 100 mm, bar cross section-□ 10 x 3 mm

Item No.		615.112	615.122	615.132	615.142
Graduation front	bottom	1,0 % SM	1,25 % SM	1,5 % SM	2,0 % SM
	top	mm-graduation			

Other shrinkage graduations upon request!

616



Depth gauge, of stainless steel or dull chrome-plated stainless-steel

without shrinking graduation. Accuracy according to DIN 862. Measuring faces inductive-hardened, with adjustable phosphor-bronze slide spring and captive screw; vernier dull chrome-plated, all measuring faces superfinished and lapped; mm-graduation, high-precise laser graduation.

- 1) No. 281** with replaceable hardened pin; division on both sides of the bar
- 2) No. 282** with straight bar and graduation on one side
- 3) No. 286** with 90° rod butt, double-sided graduation

Design			stainless steel			stainless steel dull chrome-plated		
Measuring range	Cross bar length	Bar cross section	Item No.					
			No. 281	No. 282	No. 286	No. 281	No. 282	No. 286
150 mm	100 mm	8 x 3 mm	616.1201	616.2201	616.3201	616.1501	616.2501	616.3501
200 mm	100 mm	8 x 3 mm	616.1202	616.2202	616.3202	616.1502	616.2502	616.3502
250 mm	130 mm	12 x 4 mm	616.1204	616.2204	616.3204	616.1504	616.2504	616.3504
300 mm	150 mm	12 x 4 mm	616.1205	616.2205	616.3205	616.1505	616.2505	616.3505
400 mm	150 mm	12 x 4 mm	—	616.2206	616.3206	—	—	—
500 mm	150 mm	12 x 4 mm	—	616.2207	616.3207	—	616.2507	616.3507

Other measuring ranges or crossbar lengths upon request!

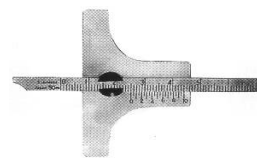
For calibration see page 26, Item No. 594

Small depth gauge made of stainless steel

without shrinkage graduation

for quick measurement of the depth of channels, wholes and differences of levels.

Item No.	Measuring range	Crossbar length	Vernier
617.201	50 mm	58 mm	1/20



617

Depth gauges with digital indicator

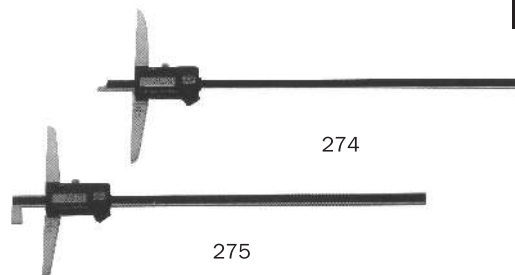
of stainless steel, box hardened, surfaces inductive-hardened

1) No. 274 with straight bar

2) No. 275 with 90° shank bar

Measuring range	Cross bar length	Bar cross section	Item No.	
			No. 274	No. 275
300 mm	150 mm	12 x 3,5 mm	618.101	618.111
500 mm	150 mm	12 x 3,5 mm	618.102	618.112

Other measuring ranges upon request!



618

High-power spare batteries

for digital measuring tools

Item No.	Voltage	Type	Ø	for
619.001	1,5 V	button	11 mm	older electronic
619.704	3,0 V	Lithium	20 mm	TOP-electronic (> 1994)



619

Connecting cable for digital measuring tools

for directly connecting tools to a PC or printer, with RS 232-interface and USB-coupling, for all digital measuring tools, length 2 m

On request!




620

Precision vernier height gauge No. 336

Hardened steel base, dust grooves, foot upper face surface ground, special steel measuring rule, vernier and scale satin chromed, parallax-free reading, manufacturers standard, with locking screw, dial holder 8H7, **replaceable, carbide tipped scriber**, protective cover, with fine adjustment.

Supplied: individually packed.

Item No.	Meas. range mm	Reading mm	Beam sect. mm	Foot-  mm	Carb.tip.scriber, short		Carb.tip.scriber, long		Item No. Dial holder
					length	Item No.	length	Item No.	
621.301	300	0,02	25 x 6	60 x 40 x 100	65 mm	621.101	120 mm	621.105	621.110
621.302	600	0,02	30 x 12	110 x 50 x 160	75 mm	621.102	150 mm	621.106	
621.304	1000	0.02	30 x 12	110 x 50 x 160					



621

Precision height measuring and marking instrument No. 1828

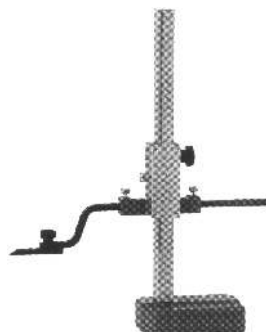
with adjustable scribes

accuracy in accordance with DIN 862, 1/20 mm vernier

Slider and scriber mount of one piece, square rail with precision graduation, the square scriber is precisely guided by two hardened screws.

Basic model: with straight scriber, without hard-metal equipment

Item No.	Meas. range mm	Bar cross section □ mm	Foot size □ mm	Spare scribes			
				straight		cranked	
				without HM	with HM	without HM	with HM
622.301	300	14 x 14	120 x 75	622.011	622.111	622.030	622.130
622.303	600	20 x 20	120 x 75				
622.304	1000	20 x 20	180 x 100				



622

Precision height measuring and marking instrument No. 1841

Accuracy in accordance with DIN 862, parallax-free reading, vernier and scale satin chromed, slider adjustment by gear-wheel and gear-rack.

Basic model: Instruments with 65 mm scriber, without hard-metal.

Item No.	Meas. range mm	Bar cross section □ mm	Foot size □ mm	Spare scribes				
				65 mm lg.		120 mm lg.		200 mm lg.
				without HM	with HM	without HM	with HM	with HM
623.101	300	14 x 14	120 x 75	623.201	623.202	623.211	623.212	623.222
623.102	500	14 x 14	120 x 75					



623

For calibration see page 26, Item No. 594

624

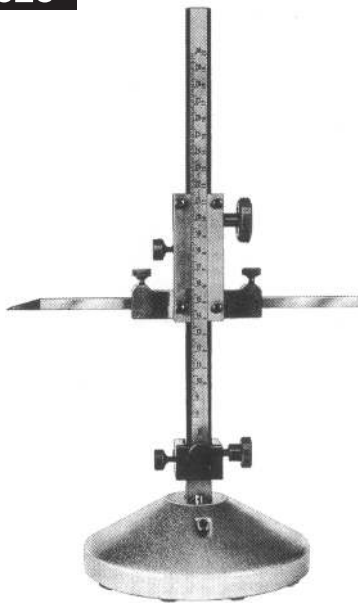


Scribing block No. 433 without scale

with round bar, scriber rotatable and tiltable, scriber and scriber mount clamped simultaneously, scriber 45° cranked off

Item No.	Marking height mm	Bar dia. mm	Foot dia. mm
624,001	300	8	80
624,002	500	10	80

625



Height gauge and marking instrument No. 1814

with exchangeable rule with mm- or **shrinkage graduation**, chromed.

Rules with two numbers for straight and stepped scribes.

Accuracy acc. to DIN 862, vernier 1/10 mm, dazzling-free reading, reading parts stain chromed. The verniers are screwed on and adjustable. Sliding adjustment over gearwheel and gearrod. The base with hardened pins guarantees a work free of vibrations on the marking plate. Rule height adjustment.

Supply schedule: 1 straight scriber point (not carbide tipped) and 1 rule with mm graduation.

Meas. range mm	Instrument w. basic equipm.	Item No.						
		Shrinkage rules						
		0,5 %	0,8 %	1,0 %	1,25 %	1,5 %	1,75 %	2,0 %
600	625,001	625,105	625,108	625,110	625,112	625,115	625,117	625,120
1000	625,002	625,205	625,208	625,210	625,212	625,215	625,217	625,220
1500	625,003	625,305	625,308	625,310	625,312	625,315	625,317	625,320
2000	625,004	625,405	625,408	625,410	625,412	625,415	625,417	625,420

Dimensions and accessories

Meas. range mm	Cross sect. of beam mm	Base Ø mm	Cross sect. of rule mm	Scriber points / Item No.				
				Dimension mm	straight		stepped	
					not carb.tip	carb.tip	not carb.tip	carb.tip
600/1000	20 x 20	160	12 x 4	8 x 8 x 270	625,531	625,501	625,511	625,521
1500/2000	40 x 20	280	25 x 5	12 x 10 x 350	625,533	625,503	625,513	625,523

626



3-axis measuring and marking instrument MARKER

with shrinkage function

replaces the traditional one-axis measuring and marking instruments and is intended to be operated manually. It allows you to execute your work steps easily, quickly, exactly and flawlessly.

Electronic 3-D-probes may be applied routinely.

Digital displays as standard, optional with RS 232 interface, so that measuring software may be applied. Supply includes installation instruction.

Measuring range

Item No.		
Length (X-axis)	500 mm	1000 mm
Width (Y-axis)	500 mm	
Height (Z-axis)	800 mm	

Accessories	Item No.
Cube five sides	626,301
Fixing clamp	626,302
Scriber holder	626,303
Probe incl. cable	626,304
Compass	626,305
Extension 200 mm	626,306
Lathe centre	626,307
Square scriber 200 mm	626,308
Dial indicator, 100 mm	626,309
Centering cone Ø 0.7-10 mm	626,310

For calibration see page 26, Item No. 594

Digital height measuring and marking instrument No. 342

627

These tools are of high precision and final tested.

All blank surfaces are hard chrome-plated, foot hardened, black finished, base super-finished with dirt grooves.

Hardened guide bar, micrometer adjustment, locking screw, mm- and inch-display, can be set to "zero" in any position, preset feature, Carbide-tipped scriber, display, display can be switched off, with RD 232 C port, increment 0,01 mm, accuracy 0,05 mm.

For this instrument will also fit the scribers and dial holders of instrument no. 336 (see item no. 621)

Item No.	Measuring range	Bar cross section	Foot size
627.301	300 mm	25 x 6 mm	60 x 40 x 100 mm
627.302	600 mm	30 x 12 mm	110 x 50 x 160 mm
627.304	1000 mm	30 x 12 mm	110 x 50 x 160 mm



Digital height measuring and marking instrument No. 340

628

Specification:

Cast iron base, LCD display, manufacturers standard, with locking screw, replaceable carbide tipped scriber, protective cover, fine adjustment. Supplied: individually packed. Reading = 0,01 mm.

Electronic functions:

On/off switch, Zero setting at any point, mm/inch, data output opto RS 232, holding function, +/- preset function

Item No.	Measuring range	Beam section	Foot dimension
628.201	300 mm	25 x 10 mm	140 x 90 x 40 mm
628.202	600 mm	25 x 10 mm	140 x 90 x 40 mm

For this instrument will also fit the scribers and dial holders of instrument no. 336 (see item no. 621)

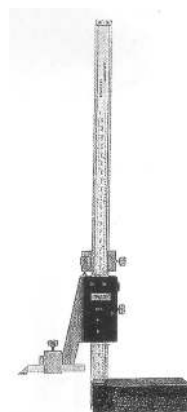


Digital height marking instrument No. 437

629

inexpensive imported instrument, chrome-plated, with HM-scriber, fine adjustment, reading 0,01 mm, supplied in a wooden case, with exchangeable, slidable scriber, about 75 mm long

Item No. Instrument	Measuring range	Measuring beam cross section	Foot size	Item No. spare-scriber
629.130	300 mm	18 x 4 mm	100 x 60 x 40 mm	629.140
629.131	500 mm	18 x 4 mm	160 x 110 x 50 mm	629.141
629.132	600 mm	18 x 4 mm	160 x 110 x 50 mm	629.142
629.133	1000 mm	18 x 4 mm	160 x 110 x 50 mm	629.143

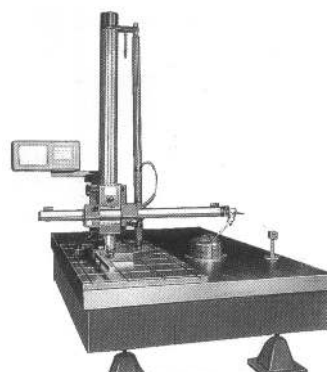


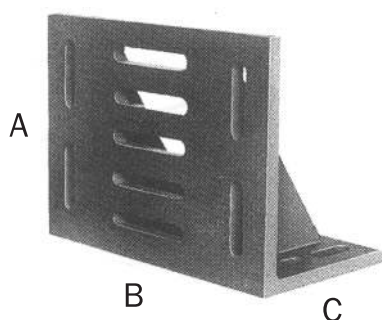
3-Coordinate measuring machines

630

Portal measuring machines.

For these machines we will provide quotations upon request!



631

Clamping angle 'WS' of cast iron

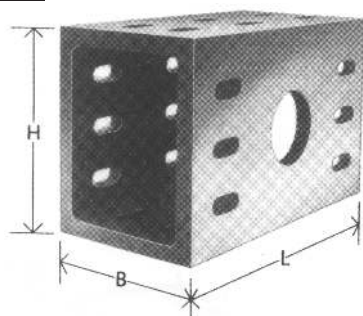
all edges milled, accuracy of angles in acc. with DIN 875

surface finished in acc. with DIN 876-III, DIN 876-II or DIN 876-I

Tolerances see p. 46

This angle has slots in the clamping and base surface and two reinforcing ribs on the back side.

Size	Edge size appr. mm			Slot width mm	Weight kg	Item No		
	A	B	C			876-I	876-II	876-III
1	100	150	75	16	3	631.311	631.312	631.313
2	150	200	100	16	6	631.321	631.322	631.323
3	200	275	150	20	12	631.331	631.332	631.333
3A	250	300	150	20	16	631.331A	631.332A	631.333A
4	300	400	225	20	38	631.341	631.342	631.343
5	400	500	300	24	75	631.351	631.352	631.353
5A	500	600	350	24	146	631.351A	631.352A	631.353A
6	520	700	390	24	156	631.361	631.362	631.363
7	600	800	450	24	220	631.371	631.372	631.373
8	800	1000	600	30	430	631.381	631.382	631.383
9	1000	1200	700	30	850	631.391	631.392	631.393
10	1250	1500	900	30	1370	631.401	631.402	631.403

632

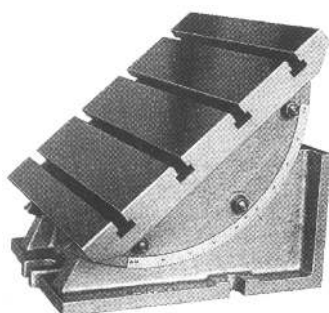
Box-type angle 'KW' of cast iron

for clamping workpieces, with slots; can also be used as spacers.

Angularity in acc. with DIN 875, surface accuracy acc. to DIN 876-III

Tolerances see p. 46

Item No	Size	Edge size appr. mm			Slot width mm	Weight kg
		L	B	H		
632.103	1	250	150	100	18	10
632.203	2	300	200	150	18	20
632.303	3	400	250	200	20	50
632.403	4	500	300	250	22	85
632.503	5	600	350	250	22	120
632.603	6	800	500	400	24	400
632.703	7	1000	600	500	30	600

633

Clamping device 'WA' of cast iron

small overall height

Tilttable part positively guided in a prismatic guide; the device can be locked in any angle; with a precise scala; tiltable part with T-grooves in accordance with DIN 650. Clamping surface **shaped**.

Item No.	633.102	633.103
Adj. range	90°	90°
Size of clamping surface appr. mm	300/300	390/400
Size of bottom surface appr. mm	255/300	300/370
Height of clamping plate appr. mm	160	210
No. of grooves	3	4
T-groove size mm	14	14
Weight appr. kg	45	65

Other sizes upon request!

Protractors with digital display

634

of stainless steel, gauge hardened

Accuracy 1 angle minute or decimals 0,01 degree. Display difference $\pm 0,5$ angle minute or decimals $\pm 0,005$ degree.

Measuring range can be switched to 1 x 360°, 2 x 180° or 4 x 90°.
Display of degrees/minutes or decimals optional.

Zero at stop or any other position.

Item No.	634.702	634.703
Rail length	200 mm	300 mm



Protractors with Micrometer adjustment

635

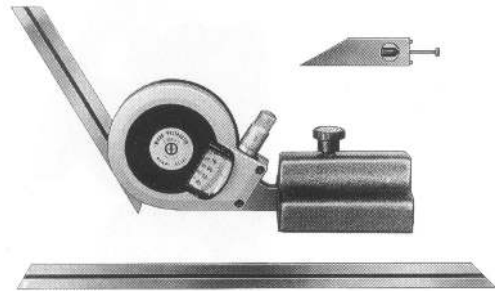
of stainless steel, hardened. **Reading accuracy 1 angle minute (1')**

High accuracy, easily readable graduation: 1 angle minute on the micrometer dial, 1 degree on the 4 x 90°-graduation with magnifier. Quick adjustment by pressing a button. Automatic 1° locking feature.

Accessories

- 1) **prismatic base** for setting the protractor;
- 2) **square** for measuring small acute angles;
- 3) **spare magnifier**

Bar length mm	Item No.			
	Protractors	Base	Acute angle sq.	Spare magnifier
300	635.001	635.002	635.003	635.004



Protractors with magnifier

636

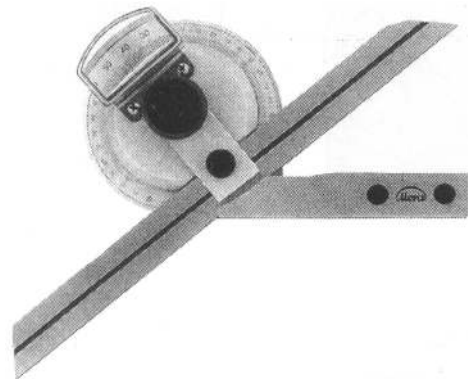
of stainless steel, reading parts dull chrome-plated

The instrument can easily be read and set due to a 4 x 90° graduation. Vernier division allows an even more precise reading of $1/12^\circ = 5'$.

Accessories

- 1) **backsquare for measuring** even the smallest acute angles;
- 2) **prismatic foot** (90 x 25 mm), especially for measuring angles on surface plates

Bar length mm	Item No.				
	protractor	spare bar	magnifier	back square	foot
150	636.201	636.206	636.121	636.122	636.124
200	636.202	636.207			
300	636.203	636.208			



Combination protractors

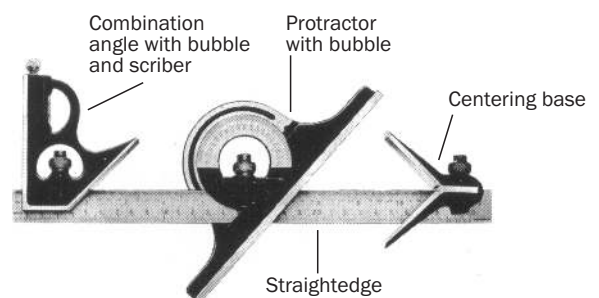
637

comprising combination angle, protractor and straightedge with centering base.

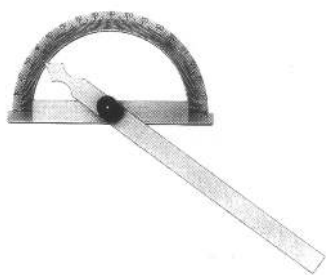
Graduation **on both sides** mm- 1/2 mm

Other graduations upon request!

Straight-edge length mm	Item No.				
	compl. tool	spare straightedge	protractor w/bubble	comb-angle	foot
300	637.112	637.132	637.151	637.152	637.153
600	637.115	637.135			



For calibration see page 26, Item No. 594

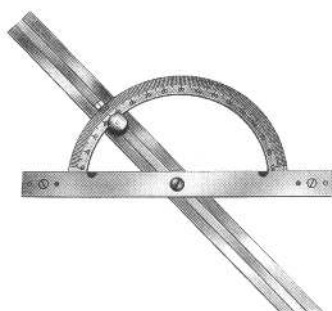
638**Bevels No. 411 with locking screw**

measuring range 0 – 180°, with single rail

Pointer and graduated arc are connected with a locking screw. Thus a fixation is possible at any position.

Size	1	2	3	4	5	6	7
Grad arc. diameter	80 mm	120 mm	150 mm	200 mm	300 mm	300 mm	300 mm
Pointer length	120 mm	150 mm	200 mm	300 mm	500 mm	600 mm	800 mm
Design	Item No.						
bright	638.101	638.102	638.103	638.104	638.105	638.106	638.107
chrome-plated	638.301	638.302	638.303	638.304	638.305	638.306	638.307
stainless steel	638.201	638.202	638.203	638.204	–	–	–

Other sizes available upon request!

639**Bevels No. 416 with twin rail, adjustable**

measuring range 10 – 170°

The twin rail guarantees that the graduation is always on the upper side.

Size	1	2	3	4	5
Grad arc. diameter	100 mm	150 mm	200 mm	250 mm	300 mm
Pointer length	150 mm	300 mm	400 mm	500 mm	600 mm
Design	Item No.				
chrome-plated	639.301	639.302	639.303	639.304	639.305
Spares:					
Center guide	639.901	639.902	639.902	639.904	639.905
Vernier	639.911	639.912	639.913	639.914	639.915

Remark: Spares are delivered with **oversize** and must be adapted accordingly!**640****Graduator and protractor 'PERNUMETER'**

made of plastic, graduation with vernier scale reading to 1/4°, division mm and 3,5", with locking screw

Item No.	Size	Ø dividing disc	Graduation
640.001	100x100mm	85mm	2x90°/2x0-150°

640A**Magnetic angle gauge, Item No. 640.101**

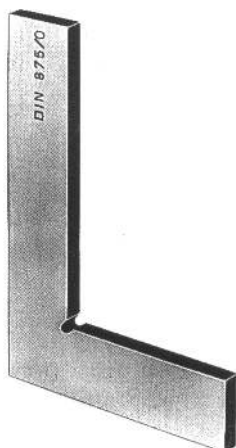
Accuracy +/- 0,5°

Design:

The magnetic angle gauge with center pointer is a mechanic's level with 360° scale built-in in a magnetic prismatic 90° base

Purpose:

For easy marking and punching on round materials from 10 to 90 mm

641**Solid steel square, unhardened**1) highly accurate in acc. DIN 875-0
No. 369 = standard quality steel
No. 369 R = stainless steel2) accurate in acc. DIN 875-I
No. 371 = standard quality steel
No. 371 R = stainless steel3) machined in acc. with
DIN 875-II. **No. 373**
= standard quality steel

Leg length mm	Width x thickness mm	Item No.				
		No. 369	No. 369 R	No. 371	No. 371 R	No. 373
75 x 50	15 x 5	641.1102	641.1202	641.2102	641.2202	641.3102
100 x 70	20 x 5	641.1103	641.1203	641.2103	641.2203	641.3103
150 x 100	28 x 6	641.1104	641.1204	641.2104	641.2204	–
150 x 100	25 x 6	–	–	–	–	641.3104
200 x 130	32 x 7	641.1105	641.1205	641.2105	641.2205	–
200 x 130	28 x 7	–	–	–	–	641.3105
250 x 165	35 x 8	641.1106	641.1206	641.2106	641.2206	–
250 x 165	30 x 7	–	–	–	–	641.3106
300 x 200	40 x 8	641.1107	641.1207	641.2107	641.2207	–
300 x 175	32 x 7	–	–	–	–	641.3107
400 x 265	45 x 10	641.1108	641.1208	641.2108	641.2208	–
400 x 200	35 x 8	–	–	–	–	641.3108
500 x 330	50 x 10	641.1109	641.1209	641.2109	641.2209	–
500 x 250	40 x 8	–	–	–	–	641.3109
600 x 400	55 x 12	–	–	641.2110	641.2210	–
600 x 300	40 x 8	–	–	–	–	641.3110
750 x 500	60 x 12	–	–	641.2111	641.2211	–
750 x 375	45 x 10	–	–	–	–	641.3111
1000 x 660	70 x 14	–	–	641.2112	641.2212	–
1000 x 500	50 x 10	–	–	–	–	641.3112

For calibration see page 26, Item No. 594

Solid steel square, fully hardened

testing surfaces superfinished and lapped, highly accurate in acc. with DIN 875-0.

No. 386 = standard quality steel

No. 386 R = stainless steel

Leg length mm	Width x thickn. mm	Item No.	
		No. 386	No. 386 R
50 x 40	15 x 4	642.102	642.202
75 x 50	15 x 4	642.103	642.203
100 x 70	20 x 5	642.104	642.204
150 x 100	30 x 6	642.105	642.205
200 x 130	30 x 7	642.106	642.206
300 x 200	40 x 8	642.108	642.208



642

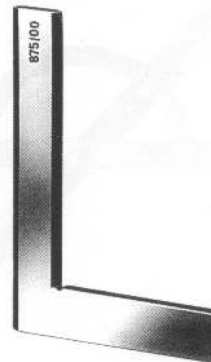
Super-Accurate steel square, fully hardened

accuracy in acc. with DIN 875-00, upright edges lapped, with 2 superfinished edges in acc. with DIN 875.

No. 388 = of wear-resistant special steel

No. 388 R = of stainless steel wear-resistant special steel

Leg length mm	Width x thickn. mm	Item No.	
		No. 388	No. 388 R
50 x 40	14 x 4,5	643.102	643.202
75 x 50	16 x 4	643.103	643.203
100 x 70	20 x 5	643.104	643.204
150 x 100	28 x 6	643.105	643.205
200 x 130	30 x 7	643.106	643.206
300 x 200	40 x 8	643.108	643.208



643

Backsquares of steel, unhardened

1) highly accurate in acc. DIN 875-0

No. 368 = of standard quality steel

No. 368 R = stainless steel

2) accurate in acc. DIN 875-I

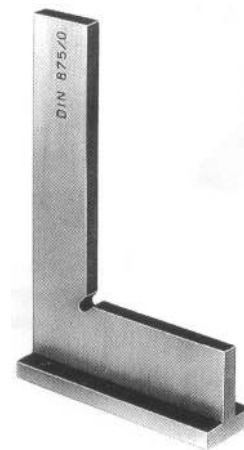
No. 370 = of standard quality steel

No. 370 R = stainless steel

3) machined in acc. with DIN 875-II
accurate square

No. 372 = standard quality steel

Leg length mm	Width x thickness mm	Item No.				
		No. 368	No. 368 R	No. 370	No. 370 R	No. 372
75 x 50	15 x 5	644.1102	644.1202	644.2102	644.2202	644.3102
100 x 70	20 x 5	644.1103	644.1203	644.2103	644.2203	644.3103
150 x 100	28 x 6	644.1104	644.1204	644.2104	644.2204	-
150 x 100	25 x 6	-	-	-	-	644.3104
200 x 130	32 x 7	644.1105	644.1205	644.2105	644.2205	-
200 x 130	28 x 7	-	-	-	-	644.3105
250 x 165	35 x 8	644.1106	644.1206	644.2106	644.2206	-
250 x 165	30 x 7	-	-	-	-	644.3106
300 x 200	40 x 8	644.1107	644.1207	644.2107	644.2207	-
300 x 175	32 x 7	-	-	-	-	644.3107
400 x 265	45 x 10	644.1108	644.1208	644.2108	644.2208	-
400 x 200	35 x 8	-	-	-	-	644.3108
500 x 330	50 x 10	644.1109	644.1209	644.2109	644.2209	-
500 x 250	40 x 8	-	-	-	-	644.3109
600 x 400	55 x 12	-	-	644.2110	644.2210	-
600 x 300	40 x 8	-	-	-	-	644.3110
750 x 500	60 x 12	-	-	644.2111	644.2211	-
750 x 375	45 x 10	-	-	-	-	644.3111
1000 x 660	70 x 14	-	-	644.2112	644.2212	-
1000 x 500	50 x 10	-	-	-	-	644.3112



644

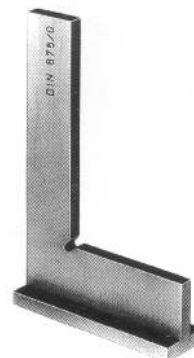
Backsquare of steel, fully hardened

testing surfaces superfinished and lapped, highly accurate in acc. with DIN 875-0.

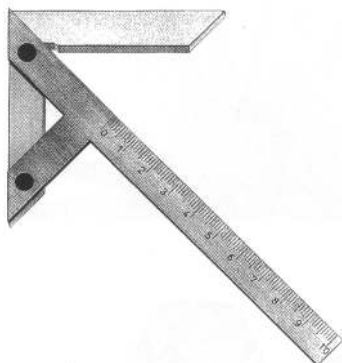
No. 385 = standard quality steel

No. 385 R = stainless steel

Leg length mm	Width x thickn. mm	Item No.	
		No. 385	No. 385 R
50 x 40	15 x 4	645.102	645.202
75 x 50	15 x 4	645.103	645.203
100 x 70	20 x 5	645.104	645.204
150 x 100	30 x 6	645.105	645.205
200 x 130	30 x 7	645.106	645.206
300 x 200	40 x 8	645.108	645.208



645

646

Centering square of steel, unhardened

Accuracy in acc. with DIN 875-I, with mm-graduation.
For centering shafts and disks,
all surfaces chrome-plated, graduation dulled, thus rust proofed

No. 380 = standard quality steel

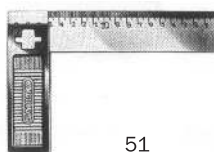
Item No.	Leg length mm	for dia. up to mm
646.103	100 x 70	90
646.104	150 x 130	190
646.105	200 x 150	220
646.106	250 x 160	230
646.107	300 x 180	280
646.108	400 x 250	380
646.109	500 x 330	530

647

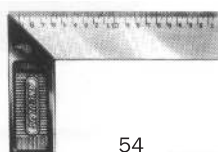
Precision squares 'Ulmia' (No. 600)

leg of rose wood, with cavetto, spring hard, blue steel rail, with brass sheathing fixed with four rivets

Item No.	647.150	647.250	647.350	647.600	647.750
Rail length	150 mm	250 mm	350 mm	600 mm	750 mm

648

51



54

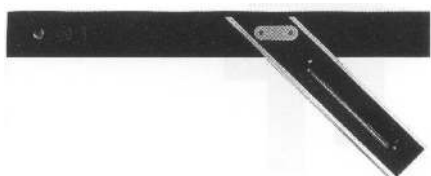
Carpenter's square 'Angulus'

with nickel-coloured cast steel leg and bright, hardened steel rail

Design	Rail length / Item No.			
	150 mm	200 mm	250 mm	300 mm
without division, without miter division (No. 50)	—	648.020*	—	648.030*
with miter division (No. 51)	648.115	648.120	648.125	648.130
with division, without miter division (No. 53)	648.315*	648.320*	648.325*	—
with miter division (No. 54)	—	648.420	648.425	648.430

* discontinued

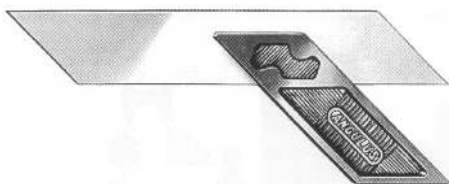
Other lengths upon request!

649

Precision miter gauges 'Ulmia' (No. 603)

of varnished rose wood, with spring hard, blue steel rail and brass sheathing on both sides, leg with cavetto

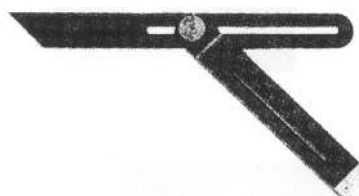
Item No.	649.350
Rail length	350 mm

650

Miter gauge 'Angulus' (No. 56)

with nickel-coloured cast steel leg and bright, hardened steel rail

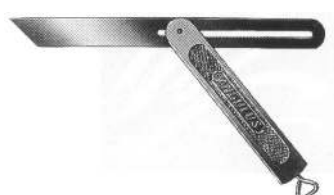
Item No.	650.250	650.300	650.350
Rail length	250 mm	300 mm	350 mm

651

Precision bevels 'Ulmia' (No. 604)

of varnished rose wood, with spring hard, blue steel rail and brass sheathing on both sides, leg with cavetto

Item No.	651.250	651.330
Rail length	250 mm	330 mm

652

Bevel 'Angulus' (No. 57)

with galvanized cast steel leg and bright, hardened steel rail

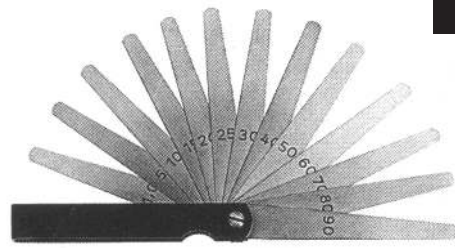
Item No.	652.150	652.200	652.250	652.300
Rail length	150 mm	200 mm	250 mm	300 mm

Feeler gauges, 100 mm long

Spring hard, exchangeable steel gauges; gauges can also be supplied individually

Item No.	No. of gaug.	Thickness mm
653.123	8	0,05 0,10 0,15 0,20 0,25 0,30 0,40 0,50
653.127	13	0,05 0,10 0,15 0,20 0,25 0,30 0,40 0,50 0,60 0,70 0,80 0,90 1,00
653.130	20	0,05 0,10 0,15 0,20 0,25 0,30 0,35 0,40 0,45 0,50 0,55 0,60 0,65 0,70 0,75 0,80 0,85 0,90 0,95 1,00

Other assortments can be supplied upon request!



653

Feeler gauges tape in a plastic box

length 5,0 m, width 13 mm, for checking the workpiece backlash and for use as installation aid

Item No.	653.101	653.102	653.103	653.104	653.105	653.110	653.111	653.112
Thickness	0,01 mm	0,02 mm	0,03 mm	0,04 mm	0,05 mm	0,10 mm	0,15 mm	0,20 mm

Item No.	653.113	653.114	653.115	653.116	653.117	653.118	653.120	653.122
Thickness	0,25 mm	0,30 mm	0,35 mm	0,40 mm	0,45 mm	0,50 mm	0,60 mm	0,70 mm

Item No.	653.124	653.126	653.128
Thickness	0,80 mm	0,90 mm	1,00 mm

Other thicknesses upon request!

Tape clip: Item No. 653.150

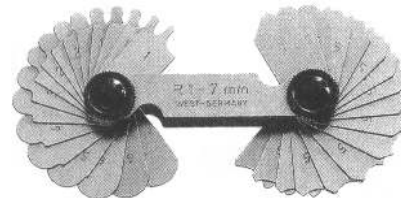


653A

Radius gauges, concave and convex

milled design with locking screw, steel gauges 40 mm long

Size	Measrg. range	No. of radii						Item No.	
								standard	st. steel
1	1 - 7 mm	1,0	1,25	1,5	1,75	2,0	2,25	654.101	654.201
		2,5	2,75	3,0	3,5	4,0	4,5		
		5,0	5,5	6,0	6,5	7,0			
2	7,5 - 15 mm	7,5	8,0	8,5	9,0	9,5	10,0	654.102	654.202
		10,5	11,0	11,5	12,0	12,5	13,0		
		13,5	14,0	14,5	15,0				
3	15,5 - 25 mm	15,5	16,0	16,5	17,0	17,5	18,0	654.103	654.203
		18,5	19,0	19,5	20,0	21,0	22,0		
		23,0	24,0	25,0					



654

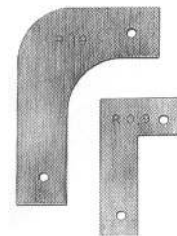
Radius gauges, individually available, with inside and outside radius

unhardened, measuring range 0,3 to 100 mm

Item No.	654.001	654.010	654.015	654.020	654.025	654.030	654.035	654.040
Radius mm	0,5 - 0,9	1,0 - 10	10,5 - 15	15,5 - 20	21 - 25	26 - 30	31 - 35	36 - 40
Increment mm	0,1	0,5	0,5	0,5	1,0	1,0	1,0	1,0

Item No.	654.045	654.050	654.055	654.060	654.070	654.080	654.090	654.100
Radius mm	41 - 45	46 - 50	55	60	70	80	90	100
Increment mm	1,0	1,0	-	-	-	-	-	-

Other sizes and hardened design upon request!



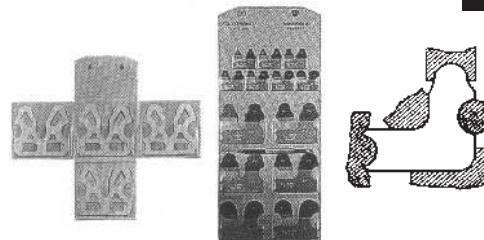
654A

Set of radius gauges L 300

with 5 different measuring features for concave and convex radii (see ill.) of stainless steel, hardened and chrome-plated, complete with sheath, radius is given on each gauge.

Spare gauges are also available.

Item No.	655.001	655.002	655.003	655.004	655.005	655.006	655.007
Type	MX	MC	MD	ME	MF	MG	MH
Measrg. range mm	0,5 - 13	13,5 - 17	17,5 - 21	21,5 - 25	25,5 - 30	31,0 - 38	39,0 - 50
Increment mm	0,5	0,5	0,5	0,5	0,5	1,0	1,0
Tolerance	± 0,03 mm				± 0,05 mm		
No. of gauges	26 (+1 holder)	8	8	8	10	9	12



655

Radius curves for auto-body patterns

Made of 2 mm transparent acrylic, incl. wooden case.

Item No.	655.101	655.102	655.103
Radii	100-1000mm	30-2900mm	30-5000mm
No. of gauges	30 pcs.	50 pcs.	100 pcs.
Increment	100- 200mm each 10mm 200- 300mm each 20mm 300-1000mm each 50mm	30- 100mm each 10mm 150-1600mm each 20mm 1700-2900mm each 50mm	30- 300mm each 10mm 300-1000mm each 20mm 1000-1700mm each 50mm 1700-3200mm each 100mm 3200-5000mm each 200mm

Other radii sets upon demand! Please ask for our special catalogue!



655A

656



Radii and profile gauges

of steel, with enameled housing, for measuring all kinds of radii and profiles on tools, workpieces etc.

Item No.	Useful length	Useful depth	Pin dia.	Wooden case
656.001	150 mm	50 mm	1,0 mm	656.002
656.003	300 mm	105 mm	1,0 mm	–

657

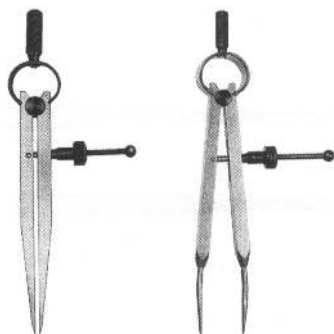


HOCO-Profile master (extendable profile template)

The 20 cm long basic profile master elements can be combined to form any length, thus ideal for long and uneven shapes.

Item No.	Design	Useful length	Useful depth	No. of templates	Bevel rule	Pin dia.
657.101	large case	1000 mm	50 mm	5 à 200 mm	1	0,8 mm
657.102	small case	400 mm	50 mm	2 à 200 mm	1	0,8 mm

658



No. 409

No. 409a

Precision spring compasses

with quick adjustment nut and full-length spindle
sturdy design with square legs, points hardened

1) No. 409 fixed points 2) No. 409a replaceable points

Length - point to spring	100 mm	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm
Distance between points	80 mm	120 mm	160 mm	200 mm	240 mm	320 mm	400 mm	500 mm
Design:	Item No.							
No. 409, standard steel	658.010	658.015	658.020	658.025	658.030	658.040	658.050	658.060
nickel plated*	658.110	658.115	658.120	658.125	658.130	658.140	658.150	658.160
No. 409a, steel points	658.210	658.215	658.220	658.225	658.230	–	–	–
HM points	658.310	658.315	658.320	658.325	658.330	–	–	–
Spare nuts (thread)	658.501 (M 3,5)				658.503 (M 4)			

* This item will be discontinued. Available as long as stock lasts.

659



No. 475

No. 478

No. 478
with pencil holder

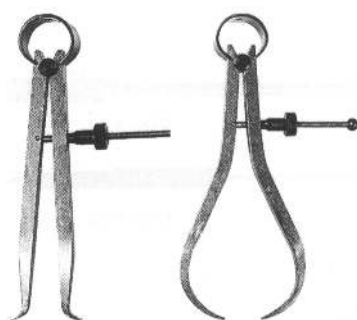
Precision rivet compasses

sturdy design with square legs

1) No. 475 without adj. rail 2) No. 478 with adj. rail

Length	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm
Design:	Item No.					
No. 475, without pencil holder	659.015	659.020	659.025	659.030	659.040	659.050
No. 478, without pencil holder	659.215	659.220	659.225	659.230	659.240	659.250
with pencil holder	659.315	659.320	659.325	659.330	–	659.350

660



No. 410

No. 411

Precision spring calipers

with quick adjustment nut and full-length spindle
sturdy design with square legs

1) No. 410 inside spring caliper 2) No. 411 outside spring caliper

Length - point to spring	100 mm	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm
Measuring width	70 mm	105 mm	140 mm	175 mm	210 mm	280 mm	350 mm	420 mm
Design:	Item No.							
No. 410, standard version	660.010	660.015	660.020	660.025	660.030	660.040	660.050	660.060
nickel plated*	660.110	660.115	660.120	660.125	660.130	660.140	660.150	660.160
No. 411, standard version	660.210	660.215	660.220	660.225	660.230	660.240	660.250	660.260
nickel plated*	660.310	660.315	660.320	660.325	–	660.340	660.350	660.360
Spare caliper nuts (thread)	658.501 (M 3,5)				658.503 (M 4)			

* This item will be discontinued. Available as long as stock lasts.

661



No. 416

No. 417

Precision calipers

with sturdy flat legs, without graduation

1) No. 416 inside caliper 2) No. 417 outside caliper

Length	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm	750 mm	1000 mm
Measuring width:	200 mm	260 mm	325 mm	390 mm	520 mm	650 mm	780 mm	975 mm	1300 mm
Design:	Item No.								
No. 416	661.015	661.020	661.025	661.030	661.040	661.050	661.060	661.075	661.100
No. 417	661.215	661.220	661.225	661.230	661.240	661.250	661.260	661.275	661.300

Precision calipers No. 1887, chrome-plated, with scale

with sturdy flat legs, for inside and outside measurements

662



Item No.	662.112	662.116	662.120	662.125	662.130	662.140	662.150	662.160
Measuring range	120 mm	160 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm
Total length	190 mm	250 mm	310 mm	380 mm	460 mm	610 mm	760 mm	920 mm

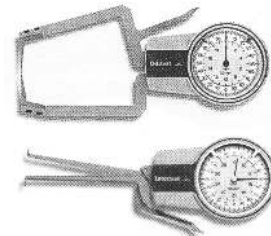
Quick setting caliper with dial gauge

division 0,05 mm, with ball-shaped measuring points, dia. 2 mm

663

Item No.	663.201	663.202	663.301	663.302	663.303
Type	OD 2050	OD 20100	ID 2015	ID 2040	ID 2070
Application	outside measuring		inside measuring		
Measuring range	0-50 mm	50-100 mm	15-65 mm	40-90 mm	70-120 mm
Measuring depth	170 mm	170 mm	175 mm	175 mm	175 mm

Other designs and sizes upon request!

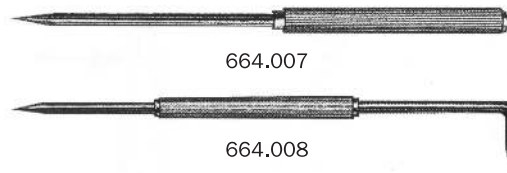


Marking scribers for wood

with exchangeable points, 4 mm dia., with knurled handle, 8 mm dia.

664

Item No.	Design	Length	Spare points
664.007	with 1 point, straight	180 mm	664.009 (straight)
664.008	with 1 straight and 1 cranked needle	250 mm	664.009 (straight) 664.010 (cranked)



Marking scribers of CV-steel for wood

664A

Item No.	Design	Dimensions
664.013	with aluminium anodised hexagonal handle and fine slim needle (incl. 20 spares needles)	dia. 6 mm x 125 mm lg.
664.014	spare needle (per package 50 p.)	dia. 1.5 mm



Blade-type scribers for wood 'W'

665

Item No.	Design	Length
665.001	with blade, point and knurled round shaft, dia. 6 mm	175 mm

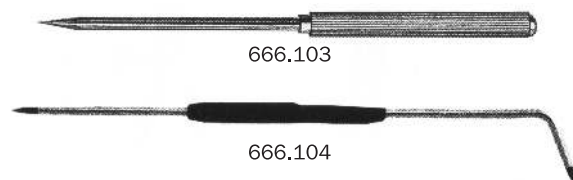


Hard metal scribers

666

for hard materials, such as steel and castings.
with knurled handle, dia. 8 mm, dia. of needle 4 mm

Item No.	Design	Length
666.103	1 straight needle	180 mm
666.104	1 straight and cranked needle	250 mm



Hard metal scribers No. 3540, pencil shape

667

for hard materials, such as steel and cast metals

Item No.	Design	Length	Spare needles
667.001	HM-insert with feeder	150 mm	667.002



668



Folding rules with springs

Material	Length	Width	Elem.	Grad.:	1% SM/mm	1,25% SM/mm	2% SM/mm	mm/mm
Wood	1 m	16 mm	6	Item No.	–	–	668,120	668,100
Wood	2 m	16 mm	10		668,210	–	–	668,200
Plastic	2 m	16 mm	10		–	668,312	–	–
Plastic	1 m	13 mm	10		–	–	–	668,300

Remark: 2% shrinkage is being discontinued and therefore available in limited quantities only.

668A



Roll-tape measures with shrinkage graduation length 2 mtrs.

Tape measure of hardened steel, built in an impact housing, auto-roll back and stop-key, shrinkage graduation at the lower edge, accuracy acc. to DIN 866, stop at the 0-position.

Item No.	668,410	668,412	668,415	668,420
Graduation	1,0%	1,25%	1,5%	2,0%

Other shrinkage graduations upon request!

669



Pattern maker's shrinkage rules of stainless steel and dull chrome-plated

hardened, with one precision shrinkage graduation, accuracy in acc. with DIN 866/2, edges ground straight, one end rounded, with hole

Shrinkage graduation	Dimensions in mm / Item No.			
	300 x 13 x 0,5	500 x 30 x 1,0	1000 x 35 x 1,2	2000 x 35 x 1,2
0,3 %	669,501	669,502	669,503	669,504
0,4 %	669,505	669,506	669,507	669,508
0,5 %	669,509	669,510	669,511	669,512
0,6 %	669,513	669,514	669,515	669,516
0,7 %	669,517	669,518	669,519	669,520
0,75 %	669,521	669,522	669,523	669,524
0,8 %	669,525	669,526	669,527	669,528
0,9 %	669,529	669,530	669,531	669,532
1,0 %	669,533	669,534	669,535	669,536
1,25 %	669,537	669,538	669,539	669,540
1,5 %	669,541	669,542	669,543	669,544
1,75 %	669,545	669,546	669,547	669,548
1,8 %	669,570	669,571	669,572	669,573
2,0 %	669,549	669,550	669,551	669,552
2,25 %	669,553	669,554	669,555	669,556
2,5 %	669,557	669,558	669,559	669,560
3,0 %	669,561	669,562	669,563	669,564

669A



Pattern maker's shrinkage and growth rule No. 592S / 592 W

of stainless spring strip steel, with etched graduation on the lower edge

Available shrinkage grad.:	0,4%	0,5%	0,75%	0,8%	1,0%	1,2%	1,5%
	1,8%	2,0%	2,3%	2,5%	2,7%	3,5%	4,0%
Available growth grad.:	0,5%	1,0%	1,5%	2,0%	2,5%	3,0%	3,5%
	3,75%	4,0%	4,25%	4,5%			

Other graduations upon request!

Dimensions	300 x 20 x 0,5 mm	500 x 30 x 1,0 mm	1000 x 30 x 1,0 mm
Design	Item No.		
w/shrinkage grad.	669,601	669,602	669,603
w/growth grad.	669,801	669,802	669,803

Please specify the required shrinkage or growth graduation.

670



Hardened steel rules, No. 175 RV

of stainless steel, dull chrome-plated

Maker Stiefelmeyer, without shrinkage graduation, with two 1/1-mm-graduations

Item No.	670,201	670,202	670,203	670,204	670,205	670,206
Length mm	150	200	300	300	500	500
Cross section mm	13 x 0,5	15 x 0,5	15 x 0,5	25 x 0,8	19 x 0,5	30 x 0,8
Item No.	670,207	670,208	670,209	670,210	670,211	
Length mm	1000	1000	1500	2000	3000	
Cross section mm	20 x 0,5	35 x 1,3	35 x 1,3	35 x 1,3	35 x 1,3	

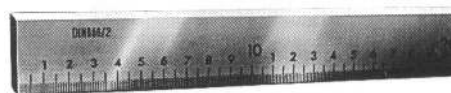
For calibration see page 26, Item No. 594

Workshop steel rules with mm-graduation

671

- 1) **No. 101** accuracy in acc. with DIN 866-I
flat side superfinished, narrow sides precision ground, division ending
10 mm from both ends

Length mm	500	1000	1500	2000	3000	4000
Cross section mm	30 x 6	40 x 8	40 x 8	50 x 10	50 x 10	60 x 12
Design	Item No.					
Standard steel	671.1101	671.1102	671.1103	671.1104	671.1105	671.1106
Stainless steel	671.1201	671.1202	671.1203	671.1204	671.1205	671.1206



- 2) **No. 102** accuracy in acc. with DIN 866-II
flat side superfinished, narrow sides precision ground, full length graduation

Length mm	500	1000	1500	2000	2500	3000	4000
Cross section mm	25 x 5	30 x 6	30 x 6	40 x 8	40 x 8	40 x 8	50 x 10
Design	Item No.						
Standard steel	671.2101	671.2103	671.2104	671.2105	671.2106	671.2107	671.2108
Stainless steel	671.2201	671.2203	671.2204	671.2205	671.2206	671.2207	671.2208

Rules can also be provided with shrinkage graduation at extra charge.

Super precise rules, No. 512, hardened

672

Accuracy in acc. with DIN 874/00,
with insulated grip, fully hardened, all surfaces superfinished, measuring
edge additional lapped. Corners and grooves can be checked with the
point on one side of the instrument.



Length mm	75	100	125	150	200	300	400	500	600	800	1000
Cross section mm	22 x 6	22 x 6	22 x 6	22 x 6	22 x 6	30 x 7	40 x 7	40 x 7	40 x 7	45 x 10	45 x 10
Design	Item No.										
Standard steel	672.101	672.102	672.103	672.104	672.105	672.106	672.107	672.108	-	-	-
Stainless steel	672.201	672.202	672.203	672.204	672.205	672.206	672.207	672.208	672.209	672.210	672.211
Wooden case	672.601	672.602	672.603	672.604	672.605	672.606	672.607	672.608	672.609	672.610	672.611

Workshop steel rules without mm-division

673

- 1) **No. 94** accuracy in acc. with DIN 874-I
flat and narrow sides are superfinished up to 2000 mm with square cross section,
2000 mm and longer rules with I-shaped cross section and two slots

Length mm	500	750	1000	1500	2000	2500	3000	4000
Cross section mm	40 x 8	50 x 10	50 x 10	60 x 12	70 x 15	80 x 15	100 x 16	120 x 18
Design	Item No.							
Standard steel	673.1101	673.1102	673.1103	673.1104	673.1105	673.1106	673.1107	673.1108



- 2) **No. 96** accuracy in acc. with DIN 874-II
flat sides superfinished, narrow sides precision ground, up to 3000 mm with square
cross section, 4000 mm and longer rules with I-shaped cross section and two slots

Length mm	500	750	1000	1500	2000	2500	3000	4000
Cross section mm	30 x 6	40 x 8	40 x 8	50 x 10	60 x 12	70 x 15	80 x 15	100 x 16
Design	Item No.							
Standard steel	673.2101	673.2102	673.2103	673.2104	673.2105	673.2106	673.2107	673.2108

For calibration see page 26, Item No. 594

Lightmetal rules Type 418

674

accuracy in acc. with DIN 866-II

Description:
of drawn aluminium, anodised, glare-free reading
with black mm-graduation

Item No.	674.307	674.310	674.312
Dimensions	300 x 50 x 5	600 x 50 x 5	1000 x 50 x 5

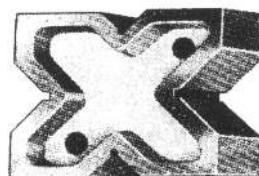


Parallel blocks of cast iron

675

machined in pairs, with four recesses, milled acc. to DIN 876-II

Item No.	675.101	675.102	675.103
Length x width x height	60 x 120 x 100 mm	75 x 150 x 130 mm	90 x 200 x 170 mm
Weight/pair	6 kg	10 kg	20 kg

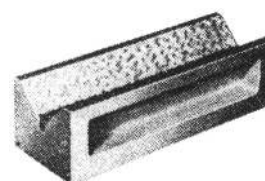


Prisms of tight special cast iron, milled

676

for use on marking plates for marking, levelling and checking round workpieces

Item No.	676.110	676.120	676.130	676.135	676.140
Length x width x height	100 x 40 x 30 mm	150 x 50 x 40 mm	200 x 70 x 50 mm	250 x 85 x 60 mm	300 x 100 x 65 mm
Weight/pair	0,6 kg	1,4 kg	2,7 kg	6,5 kg	7,3 kg
for dia.	7 - 35 mm	8 - 45 mm	10 - 70 mm	10 - 80 mm	10 - 90 mm



677

Finishing plates

of special cast iron with a close-grained, non-porous structure, high precision, no warping

Accuracy of the surface (tolerances see page 46)

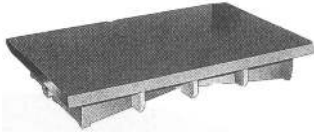
DIN 876 III = planed

DIN 876 II = scraped or lapped

DIN 876 I = narrow-scraped or lapped

Lateral edges machined at precise angularity. Underside with supporting cams

Wooden cover and handles available at extra charge.



For bigger sizes see item no. 678

Size mm	Height mm	Weight kg
200 x 200	65	7
300 x 200	65	10
300 x 300	85	19
400 x 300	85	25
400 x 400	85	27
500 x 400	95	37
500 x 500	100	50
600 x 400	100	55
600 x 500	100	59

Size mm	Height mm	Weight kg
600 x 600	125	81
700 x 500	125	88
800 x 500	125	100
800 x 600	145	127
800 x 800	150	176
1000 x 600	150	164
1000 x 800	175	236
1000 x 1000	175	290
1200 x 800	175	287

678

Marking plates

of prime special cast iron with a close-grained, non-porous structure in the standard design

Sturdy structure with reinforcing ribs; if correctly supported on the recommended number of supports, no warping of the marking plate will occur.

Accuracy of the surface: in accordance with

DIN 876 III = planed

DIN 876 II = scraped

Allowances see page 46



Plate size mm	Plate thickness mm	Rib height mm	Plate height mm	Weight kg	No. of supports reqd.
1500 x 1000	40	175	215	820	5
2000 x 1000	40	205	245	1120	5
2000 x 1250	50	200	250	1600	6
2000 x 1500	50	200	250	2040	5
2000 x 2000	50	200	250	2530	5
2500 x 1000	50	200	250	1730	6
2500 x 1250	50	200	250	2020	6
2500 x 1500	50	200	250	2470	8
2500 x 2000	50	200	250	3050	8
3000 x 1000	50	200	250	2100	6
3000 x 1500	50	200	250	2980	8
3000 x 2000	50	250	300	3940	8
3000 x 2500	50	250	300	5100	9
3500 x 1000	50	200	250	2460	8

Plate size mm	Plate thickness mm	Rib height mm	Plate height mm	Weight kg	No. of supports reqd.
3500 x 1500	50	200	250	3500	11
3500 x 2000	50	250	300	4630	11
3500 x 2500	50	250	300	5970	12
4000 x 1000	50	200	250	2820	8
4000 x 1500	50	200	250	4000	11
4000 x 2000	50	250	300	5300	11
4000 x 2500	50	250	300	6850	12
4500 x 1500	50	200	250	4450	11
4500 x 2000	50	250	300	5850	11
4500 x 2500	50	250	300	7600	12
5000 x 1000	50	250	300	3780	10
5000 x 1500	50	250	300	5330	14
5000 x 2000	50	250	300	6540	14
5000 x 2500	50	250	300	8500	15

Other sizes upon request!

All the above mentioned plates are cast, machined and supplied **in one piece**. Larger marking plates are assembled out of several smaller plates which are screwed together. We can also supply marking plates with marking lines or dust groove in accordance to customer's specifications. **Plates with milled T-grooves in accordance with DIN 650 in longitudinal direction as well as across can also be supplied.**

Note: Supports and stands are not included in the delivery and must be ordered separately!

679

Supports of cast iron, for marking-, measuring- and leveling plates

with height adjustment screws (ball head), sturdy and stable. **Support height (h) + plates height = working height**



Size	0	1	2	3	4	5	6	7
h appr. mm	220 - 270	270 - 320	340 - 390	425 - 475	530 - 580	575 - 625	630 - 680	695 - 745
Weight appr. kg	15	24	29	32	38	43	47	49
Item No.	679.000	679.001	679.002	679.003	679.004	679.005	679.006	679.007

Supports with ball bearing support (VSK) available at extra price.

680

Steel stands for marking and measuring plates

Sturdy and stable stand of rolled angles.

At an extra charge the stands can also be equipped with setscrews.

For a working height of 800 mm.



for plates up to mm	Weight appr. kg	for plates up to mm	Weight appr. kg	for plates up to mm	Weight appr. kg
400 x 400	16	800 x 800	46	1200 x 800	54
500 x 500	27	1000 x 800	50	1500 x 1000	72
600 x 600	29	1000 x 1000	54	2000 x 1000	86

Intermediate sizes also available.

Leveling plate, ripped

681

of top-quality special cast iron with the addition of steel.

This proven alloy guarantees a unsurpassable density and strength.

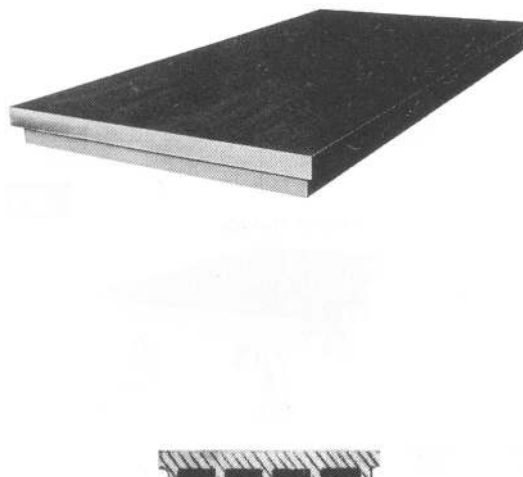
Surface and 4 sides shaped (no surface acc. to DIN 876)

Size appr. mm	Thickness appr. mm	Rib height appr. mm	Weight appr. kg
200 x 200	20	40	9
300 x 300	20	40	16
400 x 400	30	50	42
500 x 500	40	40	84
600 x 600	40	40	120
800 x 800	40	40	216
1000 x 800	40	60	270
1000 x 1000	40	60	340
1200 x 800	40	60	325
1200 x 1000	40	60	410
1500 x 1000	60	60	735
2000 x 1000	40	60	680
2000 x 1000	60	60	980
2000 x 1500	50	65	1380

Other sizes upon request.

Remark: Supports and stands are not included in the delivery; please refer to p. 44/45, Item Nos. 679/682.

The plates can also be supplied with cast integral or drilled holes or with grooves.



Leveling plates, solid

681A

of top-quality special cast iron with the addition of steel.

This proven alloy guarantees a unsurpassable density and strength.

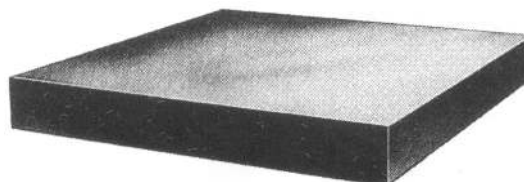
Surface and 4 sides shaped (no surface acc. to DIN 876)

Size appr. mm	Thickness appr. mm	Weight appr. kg
200 x 200	40	12
300 x 300	50	34
400 x 400	50	60
600 x 600	60	160

Other sizes upon request.

Remark: Supports and stands are not included in the delivery; please refer to p. 44/45, Item Nos. 679/682.

The plates can also be supplied with cast integral or drilled holes or with grooves.



Stands, for ripped or solid leveling plates

682

The stands have 4 or more feet of sturdy rolled angles with flat iron reinforcements.

Height including plate is always app. 800 mm from the floor.

Larger plates should be placed on supports (see p. 44).

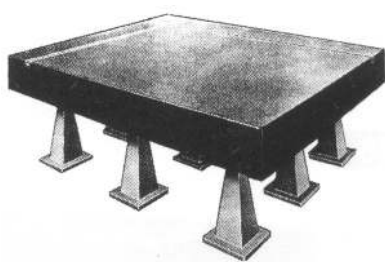
For plate size	appr. mm	400 x 400	500 x 500	600 x 600	800 x 800	1000 x 800	1000 x 1000	1200 x 800
Weight	appr. kg	16	27	29	46	50	54	54
No. of legs		4	4	4	4	4	4	4

For plate size	appr. mm	1200 x 1000	1500 x 1000	2000 x 1000	2000 x 1500
Weight	appr. kg	65	72	86	105
No. of legs		4	4	4	6

Other sizes upon request!



683



Check plate of dark hardrock

of selected close and fine grained granite of prime quality, absolutely free of flaws.

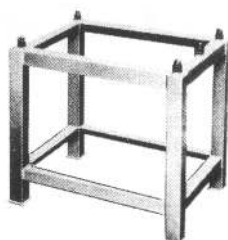
The top surface of the plate is superfinished in accordance with DIN 876, DIN 876-0 or DIN 876-I.

All plates are designed for three-point support. For stands or supports **steel inserts** can be fitted on the underside at an extra charge (3 inserts up to plate size 600 x 500 mm, larger plates with 5 inserts).

Plate length	appr. mm	400	500	600	800	1000	1200
Plate width	appr. mm	400	400	500	600	600	800
Plate thickn.	appr. mm	50	90	100	120	140	160
Weight	appr. kg	24	54	90	173	252	460

Other sizes upon request!

684



Stands for hardrock check plates

Sturdy structure of square tubing; height including plate is always around 850 mm from the floor.

All sizes with adjusting spindle with fine thread M 27 x 1,5.

For plate size	appr. mm	400 x 400	500 x 400	600 x 500	800 x 600
Weight	appr. kg	18	19	21	24

For plate size	appr. mm	1000 x 600	1200 x 800
Weight	appr. kg	28	36

Surface accuracy DIN 876, applies to items 631, 632 and 677-686

Total length of the longest edge in mm	adm. deviation from the plane at any point in mm				
	Class of accuracy 00	Class of accuracy 0	Class of accuracy I	Class of accuracy II	Class of accuracy III
100	0,002	0,004	0,011	0,022	0,044
200	0,002	0,004	0,012	0,024	0,048
300	0,003	0,005	0,013	0,026	0,052
400	0,003	0,006	0,014	0,028	0,056
500	0,003	0,006	0,015	0,030	0,060
600	0,003	0,007	0,016	0,033	0,065
800	0,004	0,007	0,018	0,036	0,072
1000	0,004	0,008	0,020	0,040	0,080
1200	0,004	0,009	0,022	0,044	0,088
1500	0,005	0,010	0,025	0,050	0,100
2000	0,006	0,012	0,030	0,060	0,120
2500	0,007	0,014	0,035	0,070	0,140
3000	0,008	0,016	0,040	0,080	0,160
3500	0,009	0,018	0,045	0,090	0,180

685



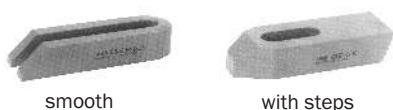
Universal step blocks

Tempering steel, varnished

Item No.	Length	Width	Height	Step increment	
				vertical	horizontal
685.011	23mm	30mm	33mm	4,65mm	2,3mm
685.012	39mm	30mm	66mm	4,65mm	2,3mm
685.013	71mm	30mm	131mm	4,65mm	2,3mm

These step blocks may be used **in pairs** with all clamps and single with the step clamps (see below). Upon request also in sets available!

685A



smooth

with steps



Clamps

1) Forked clamps, tempering steel, varnished

Slot width mm	Length mm	for clamp screws	Design/Item No.	
			smooth	with steps*
14	160	M12/M14	685.101	685.111
18	200	M16/M18	685.102	685.112

* The step clamps fit to the universal step blocks (see item no. 685)!

2) Hammering clamps of aluminium with steel points

Item No.	Slot width	Length	for clamp screws	Height	outs. width
685.201	14mm	170mm	M12/M14	15mm	45mm

Bolts for T-slots

complete with hexagon nut and washer

Item No.	686.001	686.002	686.003	686.004	686.011	686.012	686.013	686.014	686.015	686.016
Thread	M12									
for slot width	12mm				14mm					
Length	50mm	125mm	200mm	350mm	50mm	80mm	125mm	200mm	300mm	350mm

Item No.	686.021	686.022	686.023	686.024	686.025	686.026	686.027
Thread	M16						
for slot width	18mm						
Length	63mm	100mm	160mm	250mm	300mm	400mm	500mm

Other dimensions upon request!



686

Nuts for T-slots (T-nuts) as work-piece-block

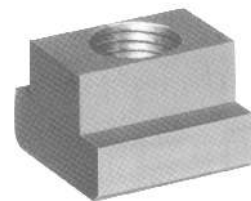
1) flat nuts

Item No.	686.082	686.083
Dimensions	40x45x14	40x45x18

2) standard T-nut

Item No.	Thread	f. slot width	Height
686.091	M 12	14mm	16mm
686.092	M 16	18mm	20mm

Other dimensions and types upon request!



686A

Toggle clamps, manual operated

Large and quick opening, minimum operating effort effects maximum clamping-force. The clamps are self-arresting, they remain locked, resisting the forces produced by machining components. Galvanized and passivated, rivets made of stainless steel, which (for size 2 to 6) run in hardened bushes.

Ergonomic handle with large grip surface, **complete with tempered and galvanized clamping screw.**

1) Vertical acting toggle clamp No. 6800

Item No.	Size	Clamp. force		Total height	Total length	Clamping screw	Weight
		front	rear				
687.501	0	0,5 kN	0,7 kN	81 mm	49 mm	M 4 x 25	60 g
687.519	1	0,6 kN	1,1 kN	98,5 mm	60 mm	M 5 x 30	105 g
687.527	2	0,8 kN	1,2 kN	130 mm	78 mm	M 6 x 35	175 g
687.535	3	1,2 kN	2,5 kN	186 mm	112 mm	M 8 x 45	410 g
687.543	4	1,7 kN	3,0 kN	221 mm	140 mm	M 8 x 65	630 g
687.550	5	3,0 kN	5,0 kN	281 mm	195 mm	M 12 x 80	1480 g
687.568	6	3,4 kN	5,5 kN	332 mm	230 mm	M 12 x 110	2200 g

2) Horizontal acting toggle clamp No. 6830

Item No.	Size	Clamp. force		Total height	Total length	Clamping screw	Weight
		front	rear				
687.605	0	0,25 kN	0,4 kN	28 mm	79 mm	M 4 x 25	35 g
687.613	1	0,8 kN	1,1 kN	42 mm	120 mm	M 5 x 30	105 g
687.621	2	1,0 kN	1,2 kN	64 mm	162 mm	M 6 x 35	185 g
687.639	3	1,8 kN	2,5 kN	73 mm	206 mm	M 8 x 45	320 g
687.647	4	2,0 kN	3,0 kN	113 mm	281 mm	M 8 x 65	700 g
687.654	5	3,0 kN	5,0 kN	123 mm	321 mm	M 8 x 65	1080 g

Other designs and accessories upon request!

Please ask for the special catalogue for toggle clamps!



687

687A



Machine table clamps

Extremely compact and powerful, with long, acute or short pressure arm, base and wrench, very quick clamping, exceptionally compact design, extensible clamping height.

1) clamping unit

made of tempered stainless steel, extremely powerful, space saving design. Design **BSP** with acute pressure arm, **BAS** plane by pressure shoe. High clamping force.

With open or closed fixing hole for M 10 and/or M 12.

Compact design 95 x 35 x 78 mm.

Item No.	Design	clamping height mm	reach mm	radius press. arm mm	max.clamping force kN	weight kgs	autom.clam. release syst.	pressure shoe	fixing hole
687.401	BAS	88	40	75	16	1,3	no	yes	open
687.402	BAS	97	60	94	12	1,3	no	yes	open
687.403	BSP	97	60	94	12	1,3	no	no	open
687.411	BAS	88	40	75	16	1,3	no	yes	closed
687.412	BAS	97	60	94	12	1,3	no	yes	closed
687.413	BSP	97	60	94	12	1,3	no	no	closed
687.421	BAS	90	47	75	16	1,25	yes	yes	open
687.422	BAS	100	67	94	12	1,35	yes	yes	open
687.423	BSP	100	67	94	12	1,35	yes	no	open

2) base unit

to increase clamping height. Exact fitting by centering pin.

Stackable up to 10 units. With cheese head screw M 10 x 25 mm, dim. 95 x 35 x 80 mm.

Item No.	clamping height mm	fastening thread	fixing hole	weight kgs
687.431	80 mm	M 10	open	0,45

3) wrench with T-bar

with three different widths

Item No.	width across flats		Tommy bar length mm	weight kgs
	allen key	ball allen key		
687.441	SW 11	SW 8 a. SW 10	230	0,3

688



Permanent magnet check and clamping prisms

suitable for clamping workpieces for marking; the prisms can also be used for cylindrical workpieces.

All surfaces and angles finely ground, face opposite the switch is the magnetic surface.

Item No.		688.001	688.002	688.003
Length x width x height	mm	73 x 54 x 70	100 x 70 x 95	150 x 70 x 95
Cl. dia.	mm	2 - 40	6 - 70	6 - 70
Adhesion - prisms	kg appr.	30	40	n. a.
Adhesion - face	kg appr.	60	120	n. a.

689



Marking fluid

facilitates the marking of workpieces

Supplied in	contents	Colour / Item No.		
		blue	red	white
Plastic bottles	500 ml	689.101	689.102	689.103
Spray can	300 ml	689.201	689.202	-

Solvent spray for removing marking fluid

Supplied in	contents	Item No.
Spray cans	300 ml	689.301

690



Marking paste

for checking the surface finish. The paste is applied to the workpieces to be checked and is then spread evenly. The surface finish can be judged by the uniformity of the paste layer.

Supplied in	contents	Colour / Item No.			
		blue	red	blue-HT*	red-HT*
Tubes	80 ml	690.101	690.102	690.104	690.105
Cans	250 ml	690.201	690.202	690.204	690.205
Cans	500 ml	690.301	690.302	-	-

* The types "HT" are heat-resisting up to 200 °C.

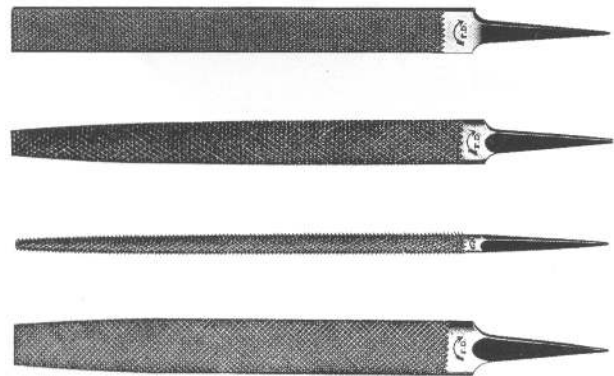
Dick-Pattern maker's rasps

691

with extra sharp and deep cut teeth

Cuts: Cut 2 = coarse Cut 3 = medium Cut 5 = fine (most popular in pattern making)

Shape	Dimensions mm	Item No.		
		Cut 2	Cut 3	Cut 5
flat, blunt shape	150 x 16 x 4,0	691.112	-	691.115
	200 x 20 x 5,0	691.122	-	691.125
	250 x 25 x 6,3	691.132	-	-
	300 x 30 x 6,3	691.142	-	-
half-round shape	150 x 9 x 4,0	-	-	691.205
	150 x 12 x 5,3	-	-	691.215
	150 x 16 x 5,3	691.222	691.223	691.225
	200 x 20 x 5,5	691.232	691.233	691.235
	250 x 25 x 7,0	691.242	691.243	691.245
	300 x 29 x 9,0	691.252	-	-
round shape	150 x 6,3 Ø	691.312	-	691.315
	200 x 8,0 Ø	691.322	-	691.325
	250 x 10,0 Ø	691.332	-	-
flat half-round shape	150 x 25 x 4,2	-	-	691.415
	200 x 25 x 4,7	691.422	691.423	691.425
	250 x 29 x 5,3	691.432	691.433	691.435
	300 x 34 x 6,0	691.442	691.443	691.445



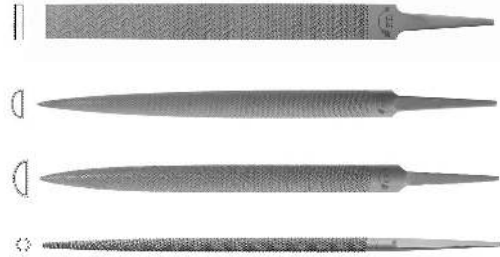
Dick 'HISTORIC' rasps, extra-fine

692

For finest working with perfect results by means of very fine special cuts and particular ends

Cuts: Cut 5 = fine Cut 6 = extra fine Cut 7 = ultra fine

Shape	Dimensions mm	End	Item No.		
			Cut 5	Cut 6	Cut 7
flat, blunt shape	150 x 15,5 x 3,5	blunt	-	-	692.317
	200 x 19,3 x 4,5		-	692.326	-
	250 x 25,3 x 5,3		-	-	692.337
half-round shape narrow	165 x 12,3 x 4,7	pointed	-	-	692.417
	160 x 15,1 x 4,5		-	-	692.427
	205 x 15,5 x 5,0		-	692.436	-
	250 x 21,8 x 4,3		692.445	692.446	-
flat half-round shape narrow	150 x 18,0 x 3,5	pointed	-	-	692.517
	200 x 22,0 x 4,3		-	692.526	-
	250 x 26,0 x 5,2		-	692.536	692.537
round shape	150 x 6,0	semi-pointed	-	-	692.617
	200 x 7,5		-	692.626	-
	250 x 9,0		-	692.636	-

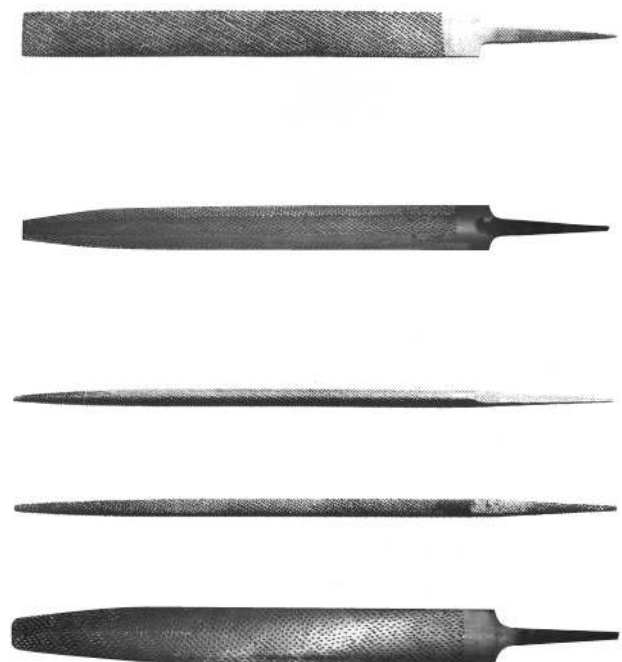


Hand cut rasps

693

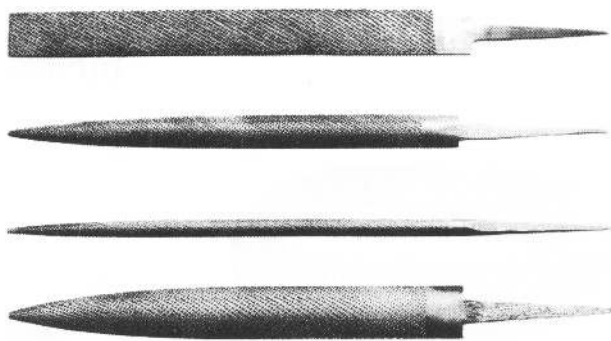
Cuts: Cut 3 = medium Cut 4 = medium fine Cut 5 = fine Cut 6 = extra fine

Shape	Dimensions mm	Item No.			
		Cut 3	Cut 4	Cut 5	Cut 6
flat, blunt shape	100 x 10 x 2,5	-	693.114	693.115	-
	125 x 12,5 x 3,2	-	693.124	693.125	-
	150 x 16 x 4,0	693.133	693.134	693.135	693.136
	200 x 12 x 3,0	693.153	693.154	693.155	693.156
	200 x 20 x 5,0	693.143	693.144	693.145	693.146
	250 x 25 x 6,3	693.163	693.164	693.165	-
	300 x 30 x 6,7	693.173	693.174	693.175	-
	100 x 10 x 3,3	-	693.214	693.215	-
half-round shape	125 x 12 x 4,0	-	693.224	693.225	-
	150 x 9 x 3,0	693.233	693.234	693.235	693.236
	150 x 12 x 4,0	693.243	693.244	693.245	693.246
	150 x 16 x 5,0	693.253	693.254	693.255	693.256
	200 x 12 x 4,0	693.263	693.264	693.265	693.266
	200 x 20 x 6,7	693.273	693.274	693.275	693.276
	250 x 25 x 8,3	693.283	693.284	693.285	-
	300 x 31,5 x 10,5	693.293	693.294	693.295	-
	100 x 4,0 Ø	-	693.314	693.315	-
	125 x 5,0 Ø	-	693.324	693.325	-
round shape	150 x 6,3 Ø	693.333	693.334	693.335	693.336
	200 x 8,0 Ø	693.343	693.344	693.345	693.346
	250 x 10,0 Ø	693.353	693.354	693.355	-
	300 x 12,0 Ø	693.363	693.364	693.365	-
	125 x 5 x 5	-	693.424	693.425	-
	150 x 6 x 6	693.433	693.434	693.435	693.436
	200 x 8 x 8	693.443	693.444	693.445	693.446
	250 x 10 x 10	693.453	693.454	693.455	-
square shape	300 x 12 x 12	693.463	693.464	693.465	-
	150 x 18 x 4,2	693.533	693.534	693.535	693.536
	150 x 25 x 4,2	693.543	693.544	693.545	693.546
	200 x 28 x 4,7	693.553	693.554	693.555	693.556
	250 x 31,5 x 5,3	693.563	693.564	693.565	-
flat half-round shape	300 x 35,5 x 6,0	693.573	693.574	693.575	-



Remarks: Item No. 691 - 693 supplied without handle; handles see No. 715.

694



Special hand-cut rasps

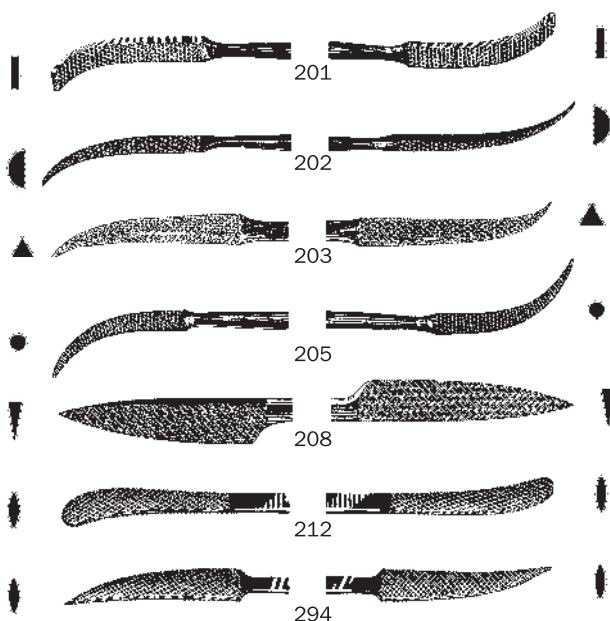
with superfine special cut, ideal for pattern making!
(similar to cut 6)

Shape	Dimensions mm	Item No.
flat, blunt shape	150 x 15 x 3,5	694.131
half-round shape	150 x 11 x 3,5	694.251
round	150 x 6 Ø	694.331
	200 x 8 Ø	694.341
flat, half-round shape	200 x 23 x 4,5	694.551
	250 x 23 x 4,5	694.561

Other sizes upon request!

Remark: Item No. 694 supplied without handle.
Handles see No. 715.

695



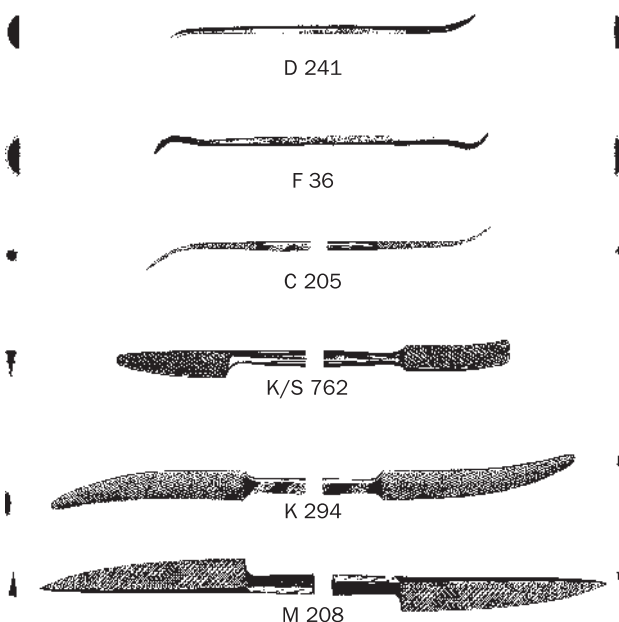
Dick-Grooved rasps, standard model

Cuts: Cut 3 = medium

Cut 5 = fine

Model No.	Total length	Shaft thickness	Item No.	
			Cut 3	Cut 5
G 201	200 mm	5 mm	695.301	695.501
G 202	200 mm	5 mm	695.302	695.502
G 203	200 mm	5 mm	695.303	695.503
G 205	200 mm	5 mm	695.305	695.505
G 208	200 mm	5 mm	695.308	695.508
G 212	200 mm	5 mm	695.312	695.512
G 294	200 mm	5 mm	695.394	695.594

696



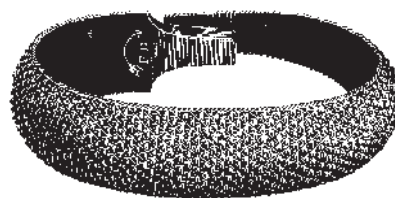
Special Dick-Grooved rasps

Model No.	Total length	Shaft thickness	Cut	Item No.
D 241	160 mm	3,5 mm	5	696.001
F 36	180 mm	4,0 mm	5	696.002
C 205	185 mm	3,0 mm	5	696.003
K/S 762	210 mm	6,0 mm	3	696.004
K 294	280 mm	6,5 mm	4	696.006
M 208	300 mm	7,0 mm	4	696.007

Other models upon request!

Rasps for staircase-makers

Item No.	Type	Stretched length appr.	Cross section appr.	Cut
697.301	T 301	250 mm	25 x 7/ 17 x 6 mm	cut 2
697.302	T 302	300 mm	20 x 10 mm	one side cut 1 one side cut 2



T 301



T 302

697

Rasps, with handle

Types of cut: cut 2 = coarse cut 6 = extra fine

Shape	Total length	Cut length	Cross section	Item No.	
				Cut 2	Cut 6
flat blunt	200 mm	100 mm	10 x 2,5 mm	698.102	698.106
half-round	200 mm	100 mm	12 x 3,5 mm	698.202	698.206
set of 5 rasps (flat, blunt, half-round, triang., sq.)				698.302	-









698

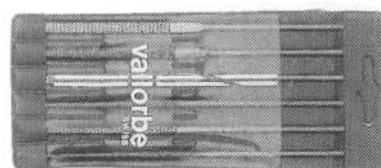
Sets of Dick-needle point rasps

Item No. 698.401 (RA 2530)

Assortment of 6 shapes, shank-dia. 3 mm, total length 140 mm, length of cut 70 mm, cut 4 = medium fine

Shapes						
Width x thickness mm	flat, blunt 5 x 1,4	half-round 5 x 2,5	triangular 4 x 4 x 4	square 3,2 x 3,2	round 3,2 Ø	flat, pointed 5 x 1,4

All shapes are also available individually.



698A

Pattern maker's fillet rasps fine special cut

hand cut, with strong shank and wooden handle

For working fillets to the specified radius; in contrary to all other rasps, these fillet rasps are pulled to rasp material off.

1) Ball shape:

Item No.	699.106	699.108	699.110	699.115	699.120	699.125	699.130	699.135	699.140	699.150
dia. mm	6	8	10	15	20	25	30	35	40	50

2) Disk shape:

Thickness mm	Radius mm	Diameter mm / Item No.				
		10	15	20	25	30
6	3	699.211	699.212	699.213	699.214	699.215
8	4	699.221	699.222	699.223	699.224	699.225
12	6	-	-	699.233	699.234	699.235
14	7	-	-	699.243	699.244	699.245
16	8	-	-	-	699.254	699.255
18	9	-	-	-	699.264	699.265



699

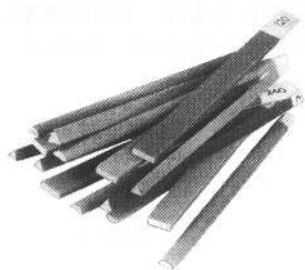
Wood files, coarse cut

Item No.	Shape	Dimensions	Cut
700.120	half-round	200 x 21 x 6 mm	0
700.125		250 x 25 x 7 mm	0
700.225	flat/half-round	250 x 29 x 5,3 mm	1
700.230*		300 x 35,5 x 6 mm	1

* discontinued, available as long as stock lasts



700

701

Abrasive paper files

multi-purpose abrasive paper glued to wooden strip,
total length about 250 mm

Shape	Cross section		Item No.					
			grain 60	grain 80	grain 100	grain 120	grain 150	grain 180
flat blunt		18 x 5 mm	701.106	701.108	701.110	701.112	701.115	701.118
half-round		12 x 5 mm	701.206	701.208	701.210	701.212	701.215	701.218
triangular		10 x 10 x 10 mm	701.306	701.308	701.310	701.312	701.315	701.318
square		9 x 9 mm	701.406	701.408	701.410	701.412	701.415	701.418
round		10 mm Ø	701.506	701.508	701.510	701.512	701.515	701.518

Other grains upon request!

702

Special files for plastics

Item No.	Shape	Dimensions	Cut
702.115	flat blunt	150 x 16 x 4 mm	2
702.215	half-round	150 x 18 x 5 mm	2

703

Mini-multi-purpose files (1102 MZ)

with PVC-coated steel handle

Special cut for dressing soft metals, plastics and wood.

Item No.	Shape	Total length	Cut length	Width x thickness
703.100	flat, bunt	200 mm	100 mm	10 x 4 mm

703A

Multi-purpose files (1104 MZ)

with special cut, one face coarse (roughing), the other side fine (smoothing),
for dressing steel, non-ferrous metals, soft metals, plastics and wood.

Item No.	Shape	Dimensions
703.220	flat, bunt	200 x 20 x 5 mm
703.225		250 x 25 x 6,3 mm

704

Saw files, triangular (sharpening files)

with blank tip, single cut, cut 2

1) No. 1232, most common version

Item No.	704.110	704.111	704.112	704.115	704.117	704.120
Length of cut x width mm	100 x 9	113 x 10	125 x 11	150 x 13	175 x 14	200 x 16

2) No. 1237, small, thin

Item No.	704.210	704.211	704.212	704.215	704.217	704.220
Length of cut x width mm	100 x 6,3	113 x 7,1	125 x 7,2	150 x 9	175 x 11,2	200 x 12

705

Fine saw files No. 1240, parallel, single cut, cut 3

Item No.	705.100
Length of cut x width mm	110 x 7 x 5

706

Band saw files, triangular

No. 1231, round edges, cut 2

Item No.	706.112*	706.115	706.117	706.120
Length of cut x width mm	125 x 13	150 x 15	175 x 16	200 x 17

* Discontinued model

Remark for Item Nos. 702 - 706: Supplied without handle. Handles see page 54, Item No. 715.

707

Machine band saw files, triangular

single cut, No. 3231

with rounded edges, cut 2, without handle and slot

Item No.	707.100
Length of cut x width mm	215 x 15

DICK files for metal treatment

Each package unit contains 5 files; single files available at extra charge.

Cut 1 = coarse, cut 2 = semi coarse, cut 3 = medium, cut 4 = medium fine, cut 5 = fine, cut 6 = extra fine

Flat bunt precision files

708

1) Normal width shape (1112 P)

Dimensions mm	Item No.					
	Cut 1	2	3	4	5	6
100 x 9,5 x 2,5	708.111	708.112	708.113	708.114	708.115	-
125 x 12,5 x 3,2	708.121	708.122	708.123	708.124	-	-
150 x 16 x 4	708.131	708.132	708.133	708.134	708.135	708.136
200 x 21,5 x 5	708.141	708.142	708.143	708.144	708.145	-
250 x 25,5 x 6,3	708.151	708.152	708.153	708.154	-	-
300 x 29,5 x 7,8	708.161	708.162	708.163	-	-	-



2) Semi-narrow shape (1113 P)

Dimensions mm	Item No.		
	Cut 1	2	3
150 x 12 x 4	708.231	708.232	708.233
200 x 15 x 5	708.241	708.242	708.243
250 x 18 x 5	708.251	708.252	708.253

3) Narrow shape (1114 P)

Dimensions mm	Item No.				Dimensions mm	Item No.		
	Cut 1	2	3	4		Cut 1	2	3
125 x 8 x 3	708.321	708.322	708.323	-	250 x 15 x 5	708.351	708.352	708.353
150 x 9 x 3,8	708.331	708.332	708.333	708.334	300 x 18 x 5	708.361	-	708.363
200 x 12 x 4	708.341	708.342	708.343	708.344				

Triangular precision files

709

1) Normal, pointed shape (1136 P)

Dimensions mm	Item No.			
	Cut 1	2	3	4
100 x 5,8	709.111	709.112	709.113	-
125 x 8,3	709.121	709.122	709.123	-
150 x 10,3	709.131	709.132	709.133	709.134
200 x 14,2	709.141	709.142	709.143	-
250 x 17,2	709.151	709.152	709.153	-

2) Narrow shape (1135 P)

Dimensions mm	Item No.		
	Cut 2	3	
150 x 7,5	-	709.233	
200 x 10	709.242	-	



Square precision files (1146 P)

710

Dimensions mm	Item No.			Dimensions mm	Item No.		
	Cut 1	2	3		Cut 1	2	3
100 x 3,6	710.111	710.112	710.113	200 x 7,5	710.141	710.142	710.143
125 x 4,5	710.121	-	710.123	250 x 9,4	710.151	710.152	710.153
150 x 5,5	710.131	710.132	710.133				



Knife-shaped precision files

711

(1176 P) back without cut

Dimensions mm	Item No.			Dimensions mm	Item No.		
	Cut 1	2	3		Cut 1	2	3
100 x 12 x 3	-	711.112	-	200 x 22 x 4,2	711.141	711.142	711.143
150 x 18 x 3,5	711.131	711.132	711.133	250 x 25 x 6,5	-	711.152	-



Birds tongue-shaped precision files

712

(1196 P) unequally rounded

Dimensions mm	Item No.			Dimensions mm	Item No.			
	Cut 2	3			Cut 1	2	3	4
100 x 12 x 3,5	712.112	712.113		150 x 15 x 5	712.131	712.132	712.133	712.134
125 x 13 x 4	712.122	-		200 x 21 x 6,3	712.141	-	712.143	-



Half round precision files

713

1) Normal, pointed shape (1156 P)

Dimensions mm	Item No.				
	Cut 1	2	3	4	5
100 x 13 x 3,5	713.111	713.112	713.113	713.114	-
125 x 13 x 4	713.121	713.122	713.123	713.124	-
150 x 18 x 5,5	713.131	713.132	713.133	713.134	713.135
200 x 21 x 6,5	713.141	713.142	713.143	713.144	-
250 x 26 x 7,5	713.151	713.152	713.153	-	-

2) Narrow, pointed shape (1155 P)

Dimensions mm	Item No.			
	Cut 1	2	3	4
125 x 10 x 3	-	713.222	-	-
150 x 13 x 3,5	713.231	713.232	713.233	713.234
200 x 15 x 4,5	713.241	713.242	713.243	-
250 x 15 x 4,5	713.251	713.252	713.253	-



Round precision files

714

1) Normal, pointed shape (1166 P)

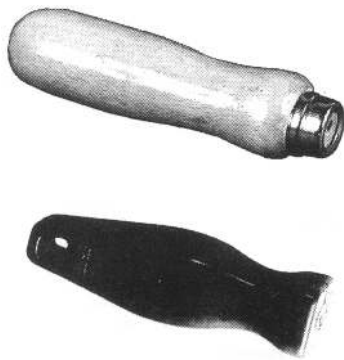
Dimensions mm	Item No.			
	Cut 1	2	3	4
100 x 4,0	714.111	714.112	714.113	-
125 x 5,0	714.121	714.122	714.123	-
150 x 6,0	714.131	714.132	714.133	714.134
200 x 7,8	714.141	714.142	714.143	
250 x 9,4	714.151	714.152	714.153	

2) Thin, pointed shape (1165 P)

Dimensions mm	Item No.	
	Cut 2	
150 x 3,9	714.232	



Remarks for item Nos. 708 - 714: Supplied without handle. Handles see page 54. Item No. 715.

715

File handles

1) hardwood handle in accordance with DIN 395, ground and waxed, with clamp

Item No.	715.108	715.110	715.112	715.114	715.116
Length of handle	80 mm	100 mm	120 mm	140 mm	160 mm
for file length	100 mm	125 – 175 mm	200 mm	250 – 300 mm	400 mm

2) plastic handle, handy, impact resistant, excellent grip
Sizes 110 and 120 can be used on both sides.

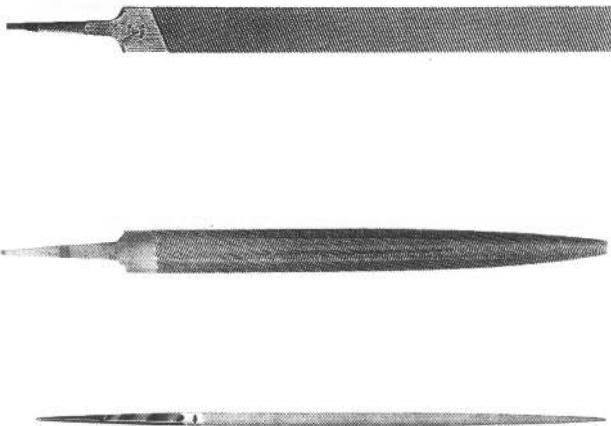
Item No.	715.210	715.211	715.212
Length of handle	100 mm	110 mm	120 mm
for file length	100 – 150 mm	200 – 250 mm	250 – 300 mm

716

File brushes

For easily cleaning files and for removing fillings, thus increasing the performance.

Item No.	716.134	716.334
Length mm	115	115
Width mm	40	55

717

Special files for light metals

(aluminium files) cut 0

1) flat, blunt (1312)

both flat sides and one narrow side with cut
a) standard width shape

Item No.	717.130	717.140	717.150
Dimensions mm	150 x 16 x 4	200 x 20 x 5	250 x 25 x 6,3

b) narrow shape

Item No.	717.230 *
Dimensions mm	150 x 8 x 3

2) half-round (1352)

a) standard width shape

Item No.	717.330	717.340	717.350
Dimensions mm	150 x 18 x 5,5	200 x 20 x 5	250 x 25 x 6,3

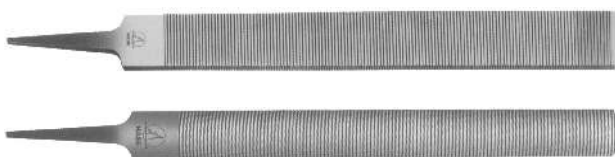
b) narrow shape

Item No.	717.430 *	717.440 *
Dimensions mm	150 x 10,3 x 3,3	200 x 12,5 x 4,2

3) round

Item No.	717.530 *	717.540 *
Dimensions mm	150 x 6 dia.	200 x 8 dia.

* discontinued, available as long as stock lasts

718

Special files for soft metals

(tin files) cut 0

1) flat, blunt (1612 w)

both flat sides and one narrow side with cut

Item No.	718.140*	718.150	718.160
Dimensions mm	200 x 20 x 5	250 x 25 x 6,3	300 x 30 x 6,7

2) half-round (1652 w)

Item No.	718.240	718.250	718.260
Dimensions mm	200 x 20 x 6,7	250 x 24 x 7	300 x 29 x 10

* discontinued, available as long as stock lasts

Concerning Item No. 717 – 718: supplied without handle.
Handles see above.

Milled hand files (milled cut)

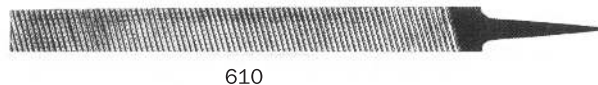
719

cut 1 = coarse cut 2 = medium cut 3 = fine

Package contains 5 files. Single files available at extra price.

1) No. 610 flat, blunt, diagonal toothing, both flat sides and one narrow side toothed

Dimensions mm	Item No.		
	250 x 26 x 7	300 x 31 x 8	350 x 34 x 9
Cut 1	719.151	719.161	719.171
Cut 2	719.152	719.162	719.172
Cut 3	719.153	719.163	-



610

2) No. 611 flat, blunt, radial toothing, both flat sides and one narrow side with radial cut

Dimensions mm	Item No.		
	250 x 24 x 6,2	300 x 29 x 8	350 x 34 x 9,2
Cut 1	719.251	719.261	719.271
Cut 2	719.252	719.262	-



611

3) No. 640 square, all four sides toothed

Dimensions mm	Item No.	
	250 x 10	300 x 12
Cut 1	719.451	719.461
Cut 2	719.452	719.462



640

4) No. 650 half-round, concave, curved, externally toothed only

Dimensions mm	Item No.		
	250 x 23	300 x 27	350 x 30
Cut 1	719.551	719.561	719.571
Cut 2	719.552	719.562	-



650

5) No. 660 round, tapered

Dimensions mm	Item No.	
	250 x 10	300 x 12
Cut 1	719.651	719.661



660

Concerning Item No. 719: supplied without handles. File handles see Item No. 715.

Hand deburring tool Item No. 719.800

719A

complete set with universal handle, tool holder and one tool
Item No. 719.810 and 719.820

Tools available (shaft dia. 2,6 mm, each package contains 10 pieces):

Item No.	Application
719.810	universal-HSS-tool for steel and aluminium
719.815	tin-coated-HSS-tool with greater hardness
719.814	HM-tool for long shavings materials
719.811	diamond-coated tool for hardened steel
719.820	light HSS-tool for brass and plastics
719.822	tin-coated-HSS-tool with incr. hardness
719.821	HM-tool for short shavings materials
719.830	light HSS-tool for deburring holes in steel and aluminium
719.860	HSS-tool for deburring places which are hard to reach



719.810/815



719.811



719.820/822



719.830



719.814



719.821



719.860

Special deburring tool for plastic GRAT-TEC

719B

with very hard ceramic blade for easy deburring
of plastics and other soft materials. Deburring without damaging by a
convex blade, long-lasting by nonwearing ceramic blade, fatigue-proof,
ergonomic handle, stable blade thickness.

Item No.	blade
719.900	fixed
719.901	replaceable
719.9922	spare blade slightly convex (for 719.901)
719.9925	spare blade crescent-shape (for 719.901)



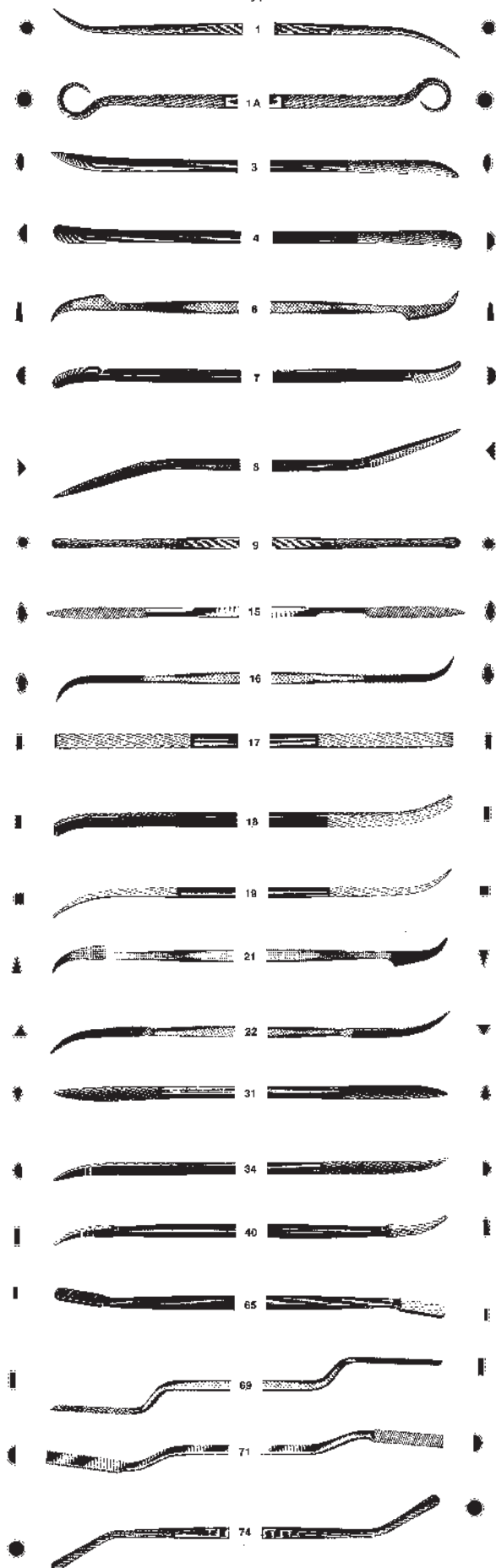
719.900



719.901

720

Type



Light-duty files for metal working

with high precision cuts

Type 1 to 74, in two different sizes:

Size B = 150 mm total length

Size E = 170 mm total length

Cut 1 = coarse (**pref. for alu-working**)

Cut 2 = medium

Cut is adapted to the size of the file; cut 1 of size B is for example finer than cut 1 of size E

Type	Size	Item No.	
		Cut 1	Cut 2
1	B	720.01B1	720.01B2
	E	720.01E1	720.01E2
1A	B	720.1AB1	720.1AB2
	E	720.1AE1	720.1AE2
3	B	720.03B1	720.03B2
	E	—	720.03E2
4	B	720.04B1	720.04B2
	E	720.04E1*	720.04E2*
6	B	—	720.06B2
	E	—	720.06E2
7	B	720.07B1	720.07B2
	E	720.07E1	720.07E2
8	B	720.08B1	—
	E	720.08E1	720.08E2*
9	B	720.09B1	720.09B2
	E	—	720.09E2
15	B	—	720.15B2
	E	—	720.15E2*
16	B	—	720.16B2
	E	—	720.16E2
17	B	—	720.17B2
	E	720.17E1*	720.17E2
18	B	720.18B1	720.18B2
	E	720.18E1	720.18E2
19	B	720.19B1	720.19B2
	E	720.19E1	720.19E2
21	B	720.21B1	720.21B2
	E	720.21E1	720.21E2
22	B	720.22B1	720.22B2
	E	720.22E1	720.22E2
31	B	—	720.31B2
	E	720.31E1*	720.31E2*
34	B	—	720.34B2
	E	720.34E1*	720.34E2
40	B	—	720.40B2
	E	—	—
65	B	720.65B1	720.65B2
	E	720.65E1	720.65E2
69	B	—	720.69B2
	E	720.69E1*	720.69E2
71	B	—	720.71B2
	E	—	720.71E2
74	B	—	720.74B2*
	E	720.74E1*	—

Files of size E, cut 1 are available from stock.

Min. quantities for all other types are 5 pieces per type.

* discontinued models

Heavy-duty files for metal working

with high precision cuts

Type 101 to 143, in three different sizes:

Size F = 180 mm total length

Size G = 200 mm total length

Size R = 315 mm total length

Cut 1 = coarse (**pref. for alu-working**)

Cut 2 = medium

Cut 3 = fine

Cut is adapted to the size of the file; cut 1 of size F is for example finer than cut 1 of size R

Type	Size	Cut 1	Cut 2	Cut 3
		Item No.		
101	F	720.101F1	720.101F2	–
	G	720.101G1	–	720.101G3*
	R	720.101R1	720.101R2	720.101R3
102	F	720.102F1	720.102F2	–
	G	720.102G1	–	720.102G3*
	R	720.102R1*	720.102R2	720.102R3
103	F	720.103F1	720.103F2	–
	G	720.103G1	–	720.103G3*
	R	720.103R1	720.103R2	720.103R3
104	F	720.104F1	720.104F2	–
	G	720.104G1	–	720.104G3*
	R	720.104R1*	720.104R2	720.104R3
105	F	720.105F1	720.105F2	–
	G	720.105G1	–	720.105G3*
	R	720.105R1	720.105R2	720.105R3
106	F	720.106F1	720.106F2	–
	G	720.106G1*	–	720.106G3*
	R	720.106R1*	720.106R2	720.106R3
107	F	720.107F1	720.107F2	–
	G	720.107G1	–	720.107G3
	R	720.107R1	720.107R2	–
108	F	720.108F1	720.108F2	–
	G	720.108G1	–	720.108G3*
	R	720.108R1*	720.108R2	720.108R3
113	F	720.113F1	720.113F2	–
	G	720.113G1*	–	720.113G3*
	R	720.113R1	720.113R2	–
142	F	720.142F1	720.142F2*	–
	G	720.142G1	–	–
	R	720.142R1	720.142R2	–
143	F	720.143F1	720.143F2*	–
	G	720.143G1	–	720.143G3*
	R	720.143R1*	720.143R2	720.143R3

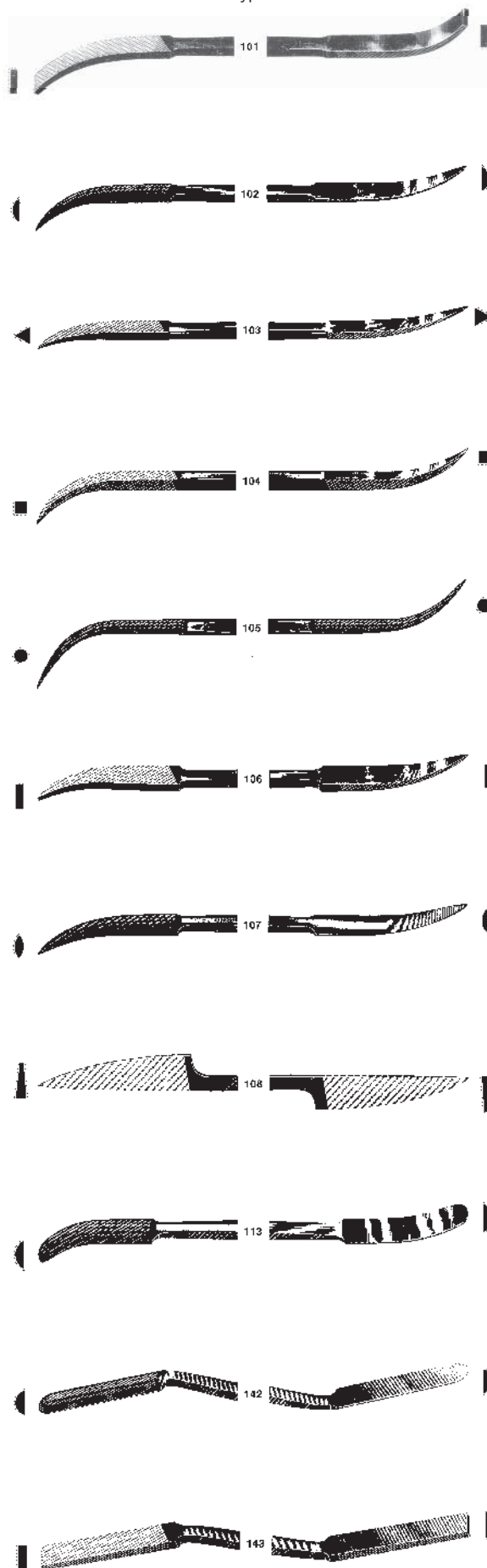
Files of size F, cut 1 are available from stock.

Min. quantities for all other types are 5 pieces per type.

* discontinued models

720A

Type















721

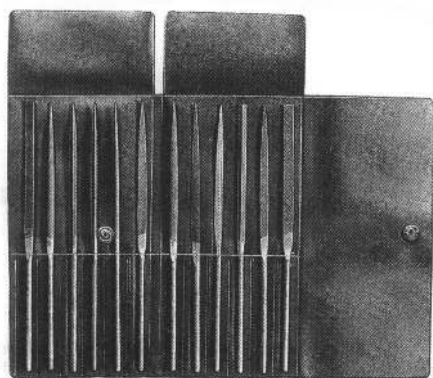
Needle point files with round handle

Shaft dia. 2,25 mm
Cuts: 00 (coarse), 2 (medium) or 4 (fine)
(Other cuts upon request)

Minimum quantity per shape and cut: 5 pieces

	Type	Shape	Total length	100 mm	140 mm	160 mm	180 mm	200 mm
			Length of cut	50 mm	70 mm	80 mm	90 mm	100 mm
	2112	flat, blunt	Cut 00	–	–	Item No.	721.140	721.150
			2	721.112	721.122	721.132	721.142	721.152
			4	721.114	721.124	721.134	721.144	721.154
	2113	flat, blunt with rounded edges	Cut 2	721.162	–	721.182	721.192	721.202
	2122	flat, pointed	Cut 00	–	–	721.230	–	–
			2	721.212	721.222	721.232	721.242	721.252
			4	–	–	722.234	–	–
	2123	flat, pointed with rounded edges	Cut 2	721.262	721.272	721.282	721.292	721.302
	2132	triangular	Cut 00	–	–	721.330	721.340	721.350
			2	721.312	721.322	721.332	721.342	721.352
			4	721.314	721.324	721.334	721.344	721.354
	2142	square	Cut 00	–	–	721.430	721.440	721.450
			2	721.412	721.422	721.432	721.442	721.452
			4	721.414	721.424	721.434	–	721.454
	2152	half-round	Cut 00	–	–	721.530	721.540	721.550
			2	721.512	721.522	721.532	721.542	721.552
			4	721.514	721.524	721.534	721.544	721.554
	2162	round	Cut 00	–	721.620	721.630	721.640	721.650
			2	721.612	721.622	721.632	721.642	721.652
			4	721.614	721.624	721.634	–	721.654
	2172	knife	Cut 00	–	–	721.730	721.740	721.750
			2	721.712	721.722	721.732	721.742	721.752
			4	–	721.724	721.734	–	–
	2182	sword	Cut 2	721.812	721.822	721.832	–	–
	2192	birds tongue	Cut 2	721.912	721.922	721.932	721.942	721.952
	2102	cant	Cut 00	–	–	721.030	–	721.050
			2	721.012	721.022	721.032	721.042	721.052
			4	721.014	721.024	721.034	–	721.054

721A



No. 2100

Set of needle point files

comprising 12 different shapes, shapes are listed under No. 721 cut 2

1) in a plastic case, No. 2100

2) in a plastic box, No. 2101

Total length	Item No.				
	100 mm	140 mm	160 mm	180 mm	200 mm
Type 2100	721.960	721.964	721.966	721.968	721.970
Type 2101	–	721.974	721.976	–	–

721B



Plastic handles

with collet, total length 80 mm, for needle point files with total length 140 – 200 mm

Item No. 721.980

Diamond files

722

for work on hardened steel, hard metal, ceramic and other hard materials. Indispensable in tool and jig making. Just apply **light pressure** as high pressure increases the wear, but not the performance, clean files with a metal brush in petroleum.



1) Multi-purpose-diamond files

Handle with comfortable **PVC-coating**

Grain D 126 (medium) - for multi-purpose application)

Length available: Total length mm 160 200
length with coating mm 50 80

Model	Length	160 mm	200 mm
	Shape	Item No.	
2312	flat, blunt	722.011	722.012
2332	triangular	722.021	722.022
2342	square	722.031	722.032

Model	Length	160 mm	200 mm
	Shape	Item No.	
2352	half-round	722.041	722.042
2362	round	722.051	722.052
2300	compl. 5-p.-set	722.061	722.062

2) Needle point diamond files

shapes as illustrated under "Needle point files" - Item No. 721

3 different grain sizes:

D 91 (fine), for fine filing);

D 126 (medium), for multi-purpose);

D 181 (coarse), for rough filing)

Model	Grain	D 91	D 126	D 181
	Shape	Item No.		
D 2112	flat, blunt	722.111	722.112	722.113
D 2113	flat, blunt with trimmed edges	722.115	722.116	722.117
D 2122	flat, pointed	722.121	722.122	722.123
D 2132	triangular	722.131	722.132	722.133

Total length 140 mm, length with diamond coating 70 mm, shaft dia. 3 mm

Model	Grain	D 91	D 126	D 181
	Shape	Item No.		
D 2142	square	722.141	722.142	722.143
D 2152	half-round	722.151	722.152	722.153
D 2162	round	722.161	722.162	722.163
D 2172	knife	722.171	722.172	722.173
D 2182	sword	722.181	722.182	722.183
D 2192	birds tonque	722.191	722.192	722.193



VALTITAN®-needle point files

722A

with **yellow** shaft (Swiss make)

hardened (1200 HV), for work on extremely hard materials such as titanium, molybdenum or polyester, acrylic or similar materials.

Stainless, non-clogging, simply beat out to remove filings

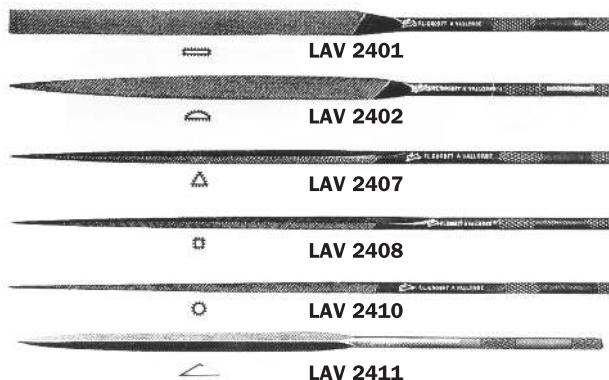
Cuts available: Swiss cut 0 2
equal to German cut 1 3
Total length 180 mm, shaft dia. 3,8 mm

Model	Cut	0	2
	Shape	Item No.	
LAV 2401	flat, blunt	722.310	722.312
LAV 2402	half-round	722.320	722.322
LAV 2407	triangular	722.340	722.342

Model	Cut	0	2
	Shape	Item No.	
LAV 2408	square	722.350	722.352
LAV 2410	round	722.360	722.362
LAV 2411	cant	722.370	722.372
LAV 2495	Set (6 pcs.)	722.380	722.382

Package contains 12 pieces

Individual files are available at extra charge (except set 2495).



HABILIS-files with integrated handle (Swiss make)

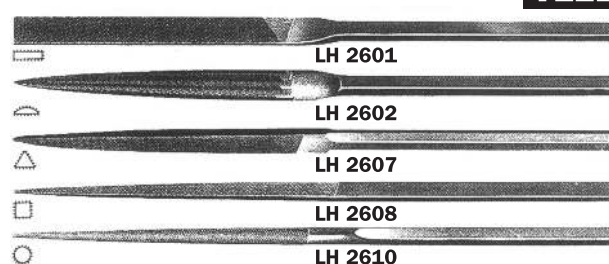
722B

with cylindrical forged tongue which makes the use of a handle obsolete. Especially suitable for tool and jig making. Thanks to its narrow shape hard-to-reach-places can be worked. More robust than needle point files, therefore higher working pressure can be applied.

Cuts available: Swiss cut 00 1
equal to German cut 0 2
Total length 215 mm, length of cut 105 mm

Model	Cut	00	1
	Shape	Item No.	
LH 2601	flat, blunt	722.410	722.411
LH 2602	half-round	722.420	722.421
LH 2607	triangular	722.430	722.431

Model	Cut	00	1
	Shape	Item No.	
LH 2608	square	722.440	722.441
LH 2610	round	722.450	722.451
LH 2630	5-p.-set	722.460	722.461



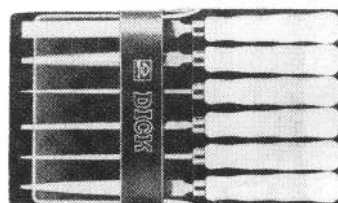
Package contains 12 pieces. Individual files are available at extra charge (with the exception of set 2630)

Set of warding files Item No. 723.001 (1187 S)

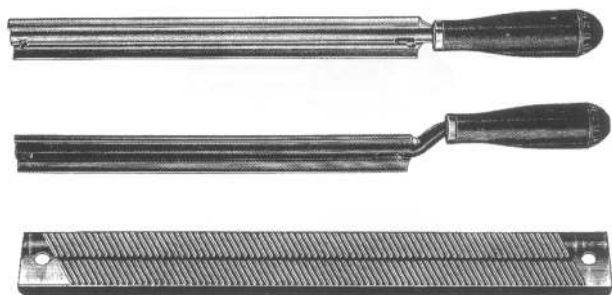
assortment of 6 shapes, with wooden handle, in a plastic case, length of cut 100 mm, cut 2

Shapes						
	flat, blunt	half-round	triangular	square	round	flat, pointed
Width x thickness mm	10 x 1,4	9 x 2,5	5	3,2	3,2	10 x 1,4

All shapes are also available individually.



723

724

DICKOFIL-files

for soft metals, wood, plastics, plaster etc. The tools cut like a plane without chamfers, several different blades are available, the shavings pass through the fine slots in the tool.

1) Straight holder No. 1526

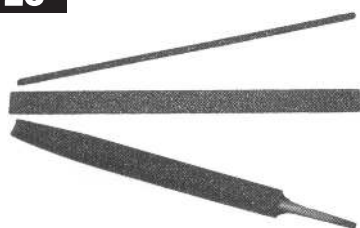
2) Cranked holder No. 1527

3) Blades

a) No. 1522, especially suitable for working plastics such as formic or similar materials, edges without cut

b) No. 1523, coarser blade, edges also cut, thus corners can also be worked

	Holder		Blades	
	1526	1527	1522	1523
Length	Item No.			
260 mm	724.126	724.226	724.326	724.426
400 mm	724.140	-	724.340	724.440

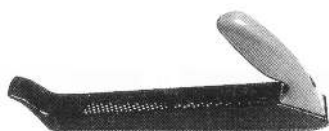
725

Core files coated with tungstencarbide

abrasion resistant special coating, the thin types are highly flexible, as adaptable to the shapes of the core. Roughness 60 grit.

Item No.	253.300	253.300A	253.310	253.311
Design	round		half-round	
Length mm	200	200	150	210
Section mm	3,2 Ø	1,6 Ø	16 x 5	20 x 5,5

Item No.	253.301	253.302	253.303	253.304	253.307	253.308	253.305	253.305A	253.306	253.313
Design	flat									
Length mm	200	200	200	200	250	250	300	300	300	300
Section mm	6,4 x 1,6	6,4 x 3,2	12,7 x 1,6	12,7 x 3,2	19 x 1,6	19 x 3,2	25,4 x 1,6	25,4 x 2	25,4 x 3,2	50 x 3,2

726

'Surform'-tools

for work on hardwood and softwood as well as on plastics of all kinds, soft metals and for smoothing fillers.

1) Multi-purpose plane

Item-No. 726.122

can be used as a plane with upright handle or otherwise as a file; red plastic handle, black metal body.



2) Standard plane

Item-No. 726.296

with a plane handle of black plastic, black metal body



3) Standard file

Item-No. 726.295

ideal file shape, black plastic handle, black metal body



4) Round file

Item-No. 726.297

for enlarging holes and for working and smoothing round edges, ideal for turnery, strong plastic handle



5) Block plane

Item-No. 726.399

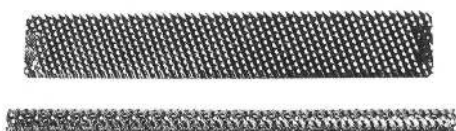
handy tool for working corners and small surfaces, red metal body, with adjustable blade



6) Scraper

Item-No. 726.115

handy plastic handle, increased cutting action by slightly curved blade, blade exchangeable within seconds



7) Spare blades

Item No.	Description	Dimensions	suitable for Item No.
726.293	standard blade	250 x 42 mm	726.122, 726.296, 726.295
726.393	fine blade	250 x 42 mm	726.122, 726.296, 726.295
726.299	half-round blade	250 x 42 mm	726.122, 726.296, 726.295
726.291	round blade	250 x 15 mm	726.297
726.398	block plane blade	140 x 42 mm	726.399
726.515	scraper blade	60 x 42 mm	726.115

Special milling tools of HSS, shank dia. 8 x 25 mm, for pattern making

1) Shank cutter, with one cutting edge, length of cutting edge 30 mm

Shape	Radius mm	3	4	5	6	7	8
cylindrical	Item No.	727.003	727.004	727.005	727.006	727.007	727.008
2° taper		727.023	727.024	727.025	727.026	727.027	727.028
5° taper		727.053	727.054	727.055	727.056	727.057	727.058

2) Shank cutter, with two cutting edges, length of cutting edge 20-30 mm

Shape	Dia. mm	6	8	10	12	14	15
cylindrical	Item No.	727.106	727.108	727.110	727.112	727.114	727.115
2° taper		727.126	727.128	727.130	727.132	727.134	727.135
5° taper		727.156	727.158	727.160	727.162	727.164	727.165

3) Rounding cutter with pilot, safe type*

Item No.	727.205	727.214	727.215
Radius mm	5	14	15

* discontinued, available as long as stock lasts

4) Cutter, ground, safe type*

Item No.	727.301
Radius mm	45°, 36 mm Ø

* discontinued, available as long as stock lasts

5) Dovetail cutter, safe type

Item No.	727.401	727.402
Size	30°, 15 mm Ø	20°, 25 mm Ø

6) Cutters, 35 x 25 x 2 mm

Item No.	727.500	727.501
Design	ground	coarse

6a) Universal spindle for the cutter

Item No.	727.502
Size	2 mm sloth width

7) Round cutter, 3 mm thick

Item No.	727.610	727.612	727.614	727.615	727.617	727.618	727.620
Radius mm	10	12	14	15	17	18	20

7a) Round cutter spindle

Item No.	727.630
Size	3 mm sloth width

8) Collet for Bosch-motor

Item No.	Item No.		Cap screw
	for 6 mm shank dia.	for 8 mm shank dia.	
old version	727.806	727.808	-
new version	727.816	727.818	727.820



old version

new version
with cap screw

Special milling tools of HSS, shank dia. 12 x 25 mm, for pattern making

1) HSS-shank cutter, with one cutting edge, length of cutting edge 50 mm

Shape	Radius mm	10	12	14	15	16	18
cylindrical	Item No.	728.010	728.012	728.014	728.015	728.016	728.018
1° taper		728.020	728.022	728.024	728.025	728.026	728.028
3° taper		728.030	728.032	728.034	728.035	728.036	728.038

2) HSS-shank cutter, with two cutting edges, length of cutting edge 50 mm

Shape	Dia. mm	16	20	22	25	28	30
cylindrical	Item No.	728.116	728.120	728.122	728.125	728.128	728.130
1° taper		728.136	728.140	728.142	728.145	728.148	728.150
3° taper		728.156	728.160	728.162	728.165	728.168	728.170

3) HSS-rounding cutter with pilot

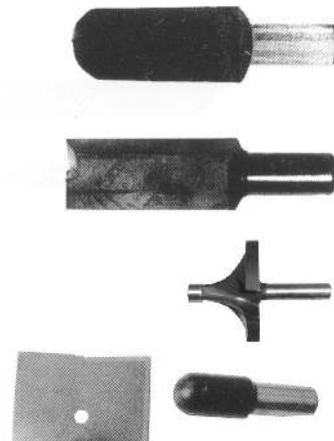
Item No.	728.220	728.225	728.230
Radius mm	20	25	30

4) Cutter, ground

Item No.	728.301
Size	50 x 35 x 3 mm

4a) Universal spindle for the cutter

Item No.	728.302
Size	3 mm sloth width

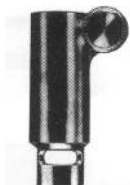


When using 12 mm-shank-dia. cutters and tools with cutting edge diameter over 16 mm always clamp workpieces!

729

Cutters with internal thread

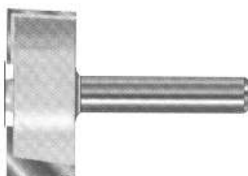
for cutters manufactured by **Striffler, Elu, Scheer** etc.
Upon request!

730

Cutting bushes (fitting for Zimmermann FZ0-machines)

mounted on the motor spindle and for free-hand use
with rounding-off cutters

Item No.	730.117	730.127	730.137
Diameter	17 mm	27 mm	37 mm
Suitable rounding-off cutter R	3/4/5 mm	6/8/10 mm	12/14/15 mm

731

Milling tools, carbide-tipped, for routing cutters (with soldered carbide tips)

Shank 8 x 30 mm.

Tools with replaceable carbide tips see No. 732/733

1) Face milling cutter, closed shape, two cutting edges

Item No.	731.124	731.130
Diameter	24 mm	30 mm
Cutting edge length	10 mm	10 mm

2) Slot cutter, with two cutting edges, end and side cutting

a) cylindrical

Item No.	731.206	731.208	731.210	731.212	731.215	731.216	731.218	731.220	731.222	731.225
Diameter	6 mm	8 mm	10 mm	12 mm	15 mm	16 mm	18 mm	20 mm	22 mm	25 mm
Length of cuttg. edge	25 mm	30 mm	30 mm	32 mm	30 mm	32 mm	30 mm	30 mm	30 mm	30 mm

Tools with larger shank or cutter dia. upon request!

b) tapered: 1°, 2°, 3° or 5°

Dia- meter	Length of cutting edge	Item No.			
		1° taper	2° taper	3° taper	5° taper
6,5 mm	30 mm	731.236	731.246	731.256	731.266
8,0 mm	30 mm	731.238	731.248	731.258	731.268
10,0 mm	30 mm	731.240	731.250	731.260	731.270
12,0 mm	30 mm	731.242	731.252	731.262	731.272

3) Trimming cutter with ball bearing, two flutes

Diameter of the tool and the bearing are exactly the same

Item No.	731.710	731.712	731.720
Diameter	9,5mm	12,7mm	19,05mm
Cutting edge length	25,4mm	25,4mm	25,4mm
Spare ball bearing	731.590	731.390	731.790

4) Rounding cutter with ball bearing pilot, with two cutting edges

closed shape.

No more pressure marks on the patterns – thanks to the ball bearing

Item No.	731.302	731.303	731.304	731.305	731.306	731.308	731.310	731.312	731.314	731.315
Radius mm	2	3	4	5	6	8	10	12	14	15
Total length mm	57	57	57	57	57	57	62	62	62	62
Spare ball bearing	1/2" Item No. 731.390									

5) Fillet cutter (without stud), with two cutting edges

closed shape.

Item No.	731.402	731.403	731.404	731.405	731.406	731.408	731.410	731.412
Radius mm	2	3	4	5	6	8	10	12
Total length mm	52	52	52	52	52	52	57	57

6) Guide cutter with ball bearing stud, with two cutting edges

closed shape.

No more pressure marks on the patterns – thanks to the ball bearing

Size	Total length	Item No.
45°, 27 mm dia.	57 mm	731.501
Spare ball bearing	3/8"	731.590

7) Side milling cutter for slots, with two cutting edges dia. 40 mm, hole dia. 6 mm

closed shape.

Item No.	731.615	731.620	731.625	731.630	731.635	731.640	731.650	731.660
Slot width mm	1,5	2,0	2,5	3,0	3,5	4,0	5,0	6,0
Spindle	Item No. 731.680 (Shank dia. 8 mm)							

Other slot widths upon request!

Milling cutter with spindle

When using 12 mm-shank-dia. cutters and tools with cutting edge diameter over 16 mm always clamp workpieces!

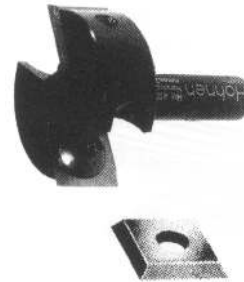
Milling tools with replaceable carbide tips

for routing cutters

Maximal service life of the tools, for machining laminated wood, plastics and light metal.

1) HM-face milling cutter, closed shape

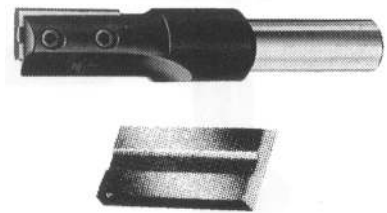
Dia- meter	Carbide tips	Total length	No. of cutting edges	Shank size	Item No.
22 mm	12 x 12 x 1,5 mm	40 mm	2	6 x 25 mm	732.122
30 mm	12 x 12 x 1,5 mm	40 mm	2	8 x 25 mm	732.130
55 mm	12 x 12 x 1,5 mm	52 mm	3	12 x 30 mm	732.155
Spares: HM-tips 12 x 12 x 1,5 mm					732.191
special screws (Torx) for HM-tips					732.192
special key (Torx)					732.193



2) HM-slot-cutter, with one cutting edge, end and side cutting

a) cylindrical, shank dia. 8 x 30 mm, length of cutting edge 20 mm

Item No.	732.308	732.310	732.312	732.314	732.315	732.316	732.318	732.320	732.322
Diameter	8 mm	10 mm	12 mm	14 mm	15 mm	16 mm	18 mm	20 mm	22 mm
Spare carbide tips	20 x 5,5 x 1,1 mm No. 732.391			20 x 10 x 1,5 mm No. 732.392					
Screw	M 2,5 x 2,5 mm No. 732.393			M 4 x 4 mm No. 732.395					
Key	SW 1,3 No. 732.396			SW 2 No. 732.397					



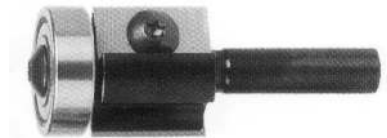
b) tapered: 2° or 5°, with replaceable tips 7 x 30 mm and flutes

Dia- meter	Length of cutting edge	Shank size	Item No.		Spare tips	Torx- screws	Torx- wrench
			2° taper	5° taper			
10,0 mm	30 mm	8 x 25 mm	732.421	732.451	732.491	732.492	732.493
12,0 mm	30 mm	8 x 25 mm	732.422	732.452			



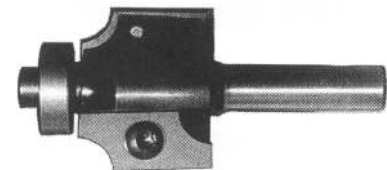
3) Trimming cutter with ball bearing and replaceable carbide tips, two flutes, shank diam. 8 mm Diameters of the tool and the bearing are exactly the same

Item No.	732.701	732.702
Diameter	19mm	19mm
Cutting edge length	12mm	30mm
Spare parts:		
Replaceable tips	732.191	732.710
Spare ball bearing	19mm Ø 732.711	



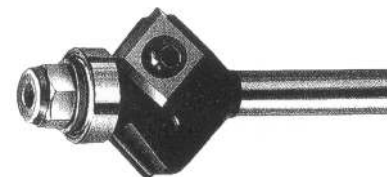
4) Rounding-off cutters with replaceable carbide tips, with two cutting edges and ball bearing pilot ring

Item No.	732.502	732.503	732.504	732.505	732.506	732.508	732.510
Radius mm	2	3	4	5	6	8	10
Total length mm	60	60	60	60	60	60	70
Shank mm	8 x 25	8 x 25	8 x 25	8 x 25	8 x 25	8 x 25	8 x 25
Spares	Item No.						
Replaceable tips	732.582	732.583	732.584	732.585	732.586	732.588	732.590
Torx-screws	732.591		732.592				
Torx-wrench	732.593						
Ball bearing	732.594				732.595	732.596	732.597



5) Guide cutter with replaceable carbide tips, with two cutting edges and ball bearing pilot ring

Angle	Diameter	Total length	Shank size	Item No.
45°	29 mm	64 mm	8 x 30 mm	732.601
Spares: replaceable tips				732.191
Torx-screws				732.192
Torx-wrench				732.193
ball bearing 16 Ø				732.610



When using 12 mm-shank-dia. cutters and tools with cutting edge diameter over 16 mm always clamp workpieces!

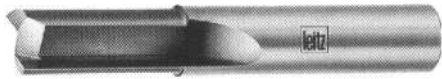
Cutting tools, HW, for router machines with CNC

for machining workpieces of PU-boards or similar materials



1) Router cutter, one edge, solid tungsten-carbide, rotation clockwise

Item No.	Diameter	Cutt. edge length	Total length	Shank dim.
733.209	8 mm	27 mm	70 mm	8 x 30 mm



2) Router cutter, two edges, solid tungsten-carbide, rotation clockwise

Item No.	Diameter	Cutt. edge length	Total length	Shank dim.
733.213	3 mm	12 mm	60 mm	6 x 30 mm
733.214	4 mm	7 mm	50 mm	6 x 30 mm
733.214A	4 mm	12 mm	60 mm	6 x 40 mm
733.215	5 mm	10 mm	50 mm	6 x 30 mm
733.215A	5 mm	18 mm	80 mm	6 x 40 mm
733.216	6 mm	14 mm	50 mm	6 x 30 mm
733.218	8 mm	20 mm	55 mm	8 x 30 mm
733.220	10 mm	20 mm	70 mm	10 x 40 mm
733.222	12 mm	25 mm	70 mm	12 x 40 mm



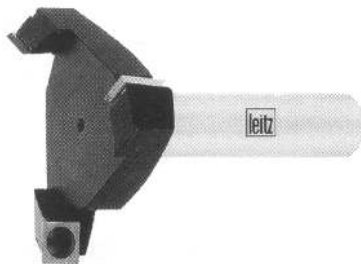
3) Spiral finishing router cutter, solid tungsten-carbide, rotation clockwise

Item No.	Diameter	Cutt. edge length	Total length	No. of edges	Shank dim.
733.308	8 mm	20 mm	65 mm	2	8 x 30 mm
733.310	10 mm	25 mm	70 mm	2	10 x 40 mm
733.312	12 mm	35 mm	80 mm	3	12 x 40 mm
733.314	14 mm	50 mm	110 mm	3	14 x 55 mm
733.316	16 mm	55 mm	110 mm	3	16 x 55 mm
733.318	18 mm	60 mm	120 mm	3	18 x 55 mm
733.320	20 mm	60 mm	120 mm	3	20 x 55 mm
733.321	20 mm	75 mm	130 mm	3	20 x 50 mm



4) Spiral roughing router cutter, solid tungsten-carbide, rotation clockwise with add. "Marathon"-coating for better durability

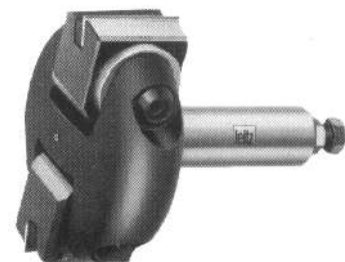
Item No.	Diameter	Cutt. edge length	Total length	No. of edges	Shank dim.
733.348	8 mm	20 mm	65 mm	2	8 x 40 mm
733.349	8 mm	25 mm	80 mm	2	8 x 50 mm
733.350	10 mm	25 mm	70 mm	2	10 x 40 mm
733.352	12 mm	35 mm	80 mm	3	12 x 40 mm
733.352A	12 mm	42 mm	90 mm	3	12 x 40 mm
733.354	14 mm	50 mm	110 mm	3	14 x 55 mm
733.356	16 mm	55 mm	110 mm	3	16 x 55 mm
733.360	20 mm	60 mm	120 mm	3	20 x 55 mm
733.361	20 mm	75 mm	130 mm	3	20 x 50 mm



5) Planing cutter, turnblade design, carbide-tipped, rotation clockwise

Item No.	Diameter	No. of edges	Cutt. edge length	Total length	Shank dim.
733.408	80 mm	3	12 mm	90 mm	20 x 50 mm
733.408A	135 mm	4	12 mm	90 mm	25 x 60 mm
733.409	180 mm	5	12 mm	90 mm	25 x 55 mm

Spare parts	Item No.
Turnblades 12 x 12 x 1,5 mm	732.191
Oval head screw TORX M 4	732.192
Screw driver TORX T 15	732.193



6) Bevelling cutterhead, turnblade design, carbide-tipped, rotation clockwise, stepless adjustable bevel angle, accurate, easy readable scale for precise and fast adjustment, swivel range from 0 to 85°.

Item No.	Diameter	Cutting width	Total length	Shank dim.
733.410	100 mm	40 mm	110 mm	25 x 60 mm
733.411	100 mm	40 mm	100 mm	20 x 50 mm

Spare parts	Item No.
Turnblades 40 x 12 x 1,5 mm	733.415
Clamping wedge 40 mm	733.416
Screw M 6 x 12 mm	733.417
Key SW 8	733.418
Key SW 3	733.419

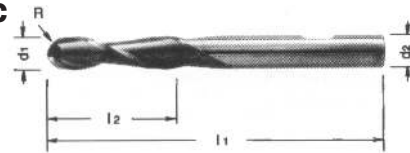
Further designs and clamping systems upon request!

End mills, solid carbide, for router machines with CNC

733A

1) Ball nose end mills, 2 flutes

Rotation clockwise, flatted shank acc. DIN 6535 HB (or cyl. straight shank acc. to DIN 6535 HA).
Carbide type KF 10, useable for aluminium, uncoated.

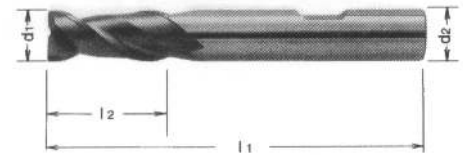


		Design/Length											
		short				middle				long			
d1	d2	R	l1	l2	Item No.	l1	l2	Item No.		l1	l2	Item No.	
mm	mm	mm	mm	mm		mm	mm			mm	mm		
6	6	3	100	40	733.501	150	50	733.511	-	-	-	-	-
8	8	4	100	40	733.502	150	50	733.512	200	50	733.522	-	-
10	10	5	100	40	733.503	150	50	733.513	200	50	733.523	-	-
12	12	6	100	40	733.504	150	60	733.514	200	60	733.524	-	-
16	16	8	100	40	733.505	150	60	733.515	200	80	733.525	310	60
20	20	10	100	40	733.506	150	60	733.516	200	80	733.526	310	60
25	25	12,5	-	-	-	150	60	733.517	200	80	733.527	310	60
32	32	16	-	-	-	-	-	-	-	-	-	310	60

2) Square end mills for aluminium and PU-boards, 2 flutes

Spiral angle 40°, flatted shank acc. DIN 6535 HB (or cyl. straight shank acc. to DIN 6535 HA).
Carbide type KF 10, uncoated

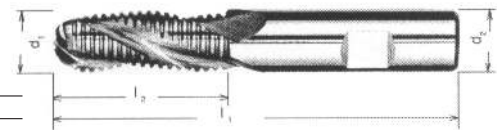
		Design/Length											
		short				middle				long			
d1	d2	l1	l2	Item No.	l1	l2	Item No.	l1	l2	Item No.	l1	l2	Item No.
mm	mm	mm	mm		mm	mm		mm	mm		mm	mm	
6	6	57	13	733.551	100	40	733.561	150	50	733.571	-	-	-
8	8	63	19	733.552	100	40	733.562	150	50	733.572	-	-	-
10	10	72	22	733.553	100	40	733.563	150	50	733.573	-	-	-
12	12	83	26	733.554	100	40	733.564	150	60	733.574	-	-	-
16	16	92	32	733.555	100	-	733.565	150	90	733.575	200	90	733.585
20	20	104	40	733.556	-	-	-	150	90	733.576	200	90	733.586
25	25	-	-	-	-	-	-	150	90	733.577	200	90	733.587



3) Roughing ball nose end mills for aluminium and PU-boards

flatted shank acc. DIN 6535 HB (or cyl. straight shank acc. to DIN 6535 HA).
Carbide type KF 10, uncoated

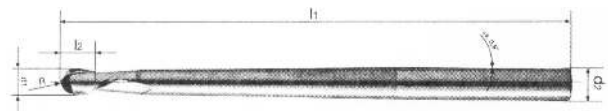
		Design/Length											
		short				middle				long			
d1	d2	R	l1	l2	Item No.	l1	l2	Item No.		l1	l2	Item No.	
mm	mm	mm	mm	mm		mm	mm			mm	mm		
16	16	8	100	45	733.601	150	45	733.611	150	80	733.621	200	120
20	20	10	100	45	733.602	150	45	733.612	150	80	733.622	200	120
25	25	12,5	-	-	-	150	45	733.613	-	-	-	200	120
32	32	16	-	-	-	-	-	-	-	-	-	230	150



4) Ball nose end mills for graphite and PU-boards. 2 flutes

Spiral angle 30°, cyl. straight shank acc. to DIN 6535 HA, slim design.
Carbide type KF 06, uncoated or with diamond coating

		Design/Length											
		short				long							
d1	R	d2	l1	l2	Item No.	d2	l1	l2	Item No.	d2	l1	l2	Item No.
mm	mm	mm	mm	mm		mm	mm	mm		mm	mm	mm	
2	1	3	100	4	733.701	4	150	4	733.711	4	150	4	733.711B
3	1,5	4	100	6	733.702	6	150	6	733.712	6	150	6	733.712B
4	2	5	100	8	733.703	8	150	8	733.713	8	150	8	733.713B
5	2,5	6	100	10	733.704	10	150	10	733.714	10	150	10	733.714B
6	3	7	100	12	733.705	12	150	12	733.715	12	150	12	733.715B
8	4	9	100	16	733.706	16	150	16	733.716	16	150	16	733.716B
10	5	-	-	-	-	12	150	20	733.717	20	150	20	733.717B
12	6	-	-	-	-	14	150	24	733.718	24	150	24	733.718B

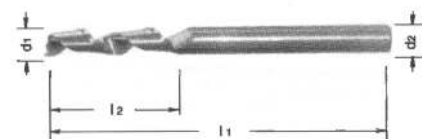


Further types upon request!

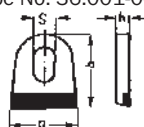
5) 1 flute end mills, especially designed for clay-application (see item no. 916A)

cyl. straight shank acc. to DIN 6535 HA, carbide type KF 10, uncoated

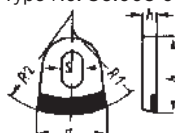
d1	d2	l1	l2	Design/Item No.	
mm	mm	mm	mm	square	ball nose
4	4	70	15	-	733.804R
6	6	85	25	733.806	733.806R
8	8	120	50	733.808	733.808R
10	10	120	50	733.810	733.810R
12	12	120	50	733.812	733.812R
16	16	200	70	733.816	733.816R
20	20	200	70	733.820	733.820R
25	25	200	70	-	733.825R



Type No. 36.001-004



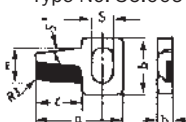
Type No. 36.005-007



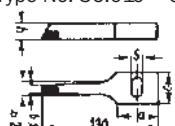
Type No. 36.008



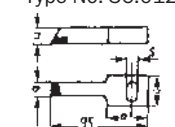
Type No. 36.009



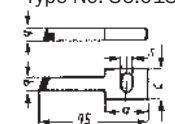
Type No. 36.010 + 011



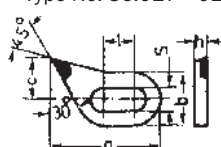
Type No. 36.012



Type No. 36.013



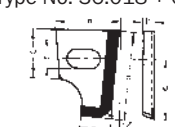
Type No. 36.014 + 015



Type No. 36.016



Type No. 36.018 + 019



Carbide-tipped cutters

which can be fitted to pattern millers in various makes
(all dimensions in mm)

1.) FACE CUTTERS

Item No.	Cutter No.	s	a	b	h
734,001	36,001	9	20	35	5
734,002	36,002	9	30	30	5
734,003	36,003	13	40	45	8
734,004	36,004	17	50	55	10

2.) PROFILE CUTTER

Item No.	Cutter No.	s	a	b	h	R1	R2
734,005	36,005	13	40	45	8	25	30
734,006	36,006	17	50	55	10	40	50
734,007	36,007	17	50	55	10	60	80

3.) FLAT CUTTER, straight

Item No.	Cutter No.	s	a	b	c	h	R1
734,008	36,008	17	55	63	63	10	1

4.) FINGER CUTTER, tapered

Item No.	Cutter No.	s	a	b	c	h	m
734,009	36,009	17	64	40	34	9	24

5.) FINGER CUTTER, various shapes

Item No.	Cutter No.	s	a	b1	b2	c	h
734,010	36,010	17	40	10	20	40	10
734,011	36,011	17	40	22	35	40	10

Item No.	Cutter No.	s	a	b	c	h
734,012	36,012	17	40	15	40	10

Item No.	Cutter No.	s	a	b	c	h
734,013	36,013	17	40	22	40	10

6.) HOOK-SHAPED FACE CUTTERS

Item No.	Cutter No.	s	a	b	c	h	l
734,014	36,014	17	086	40	26	10	29
734,015	36,015	17	143	45	32	10	63

7.) COUNTERSINK CUTTER

Item No.	Cutter No.	s	a	b	c	e	h	m
734,016	36,016	13	60	085	30	45	8	18

8.) FLANK CUTTER

Item No.	Cutter No.	s	a	b	c	e	h	m	r
734,018	36,018	17	75	60	40	55	10	35	1
734,019	36,019	17	75	60	40	55	10	35	12

Remark:

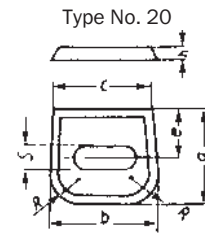
Cutter arbors and clamping screw diameter must match slot width and hole diameter given.

Cutters of tool steel *

which can be fitted to pattern maker's millers in various makes
(all dimensions in mm)

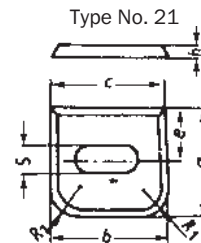
1.) FLAT CUTTERS FOR FILLETS

Item No.	Cutter No.	S	a	b	c	e	h	R
735.001	20.004	9	40	40	36	20	5	4
735.002	20.006	9	40	40	36	20	5	6
735.003	20.008	13	45	45	41	22,5	6	8
735.004	20.010	13	45	45	41	22,5	6	10
735.005	20.012	13	50	55	51	25	7	12
735.006	20.014	13	50	55	51	25	7	14
735.007	20.016	13	50	55	51	25	7	16
735.008	20.018	13	50	55	51	25	7	18
735.009	20.020	17	70	65	59	35	7	20
735.010	20.025	17	70	65	59	35	7	25
735.011	20.030	17	70	75	69	35	7	30
735.012	20.040	17	80	115	109	40	7	40
735.013	20.050	17	80	115	109	40	7	50



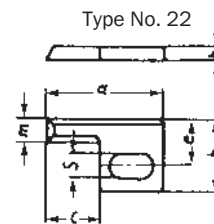
2.) ROUNDING-OFF CUTTER

Item No.	Cutter No.	S	a	b	c	e	h	R1	R2
735.020	FZ07.1201	13	47	52	49	23,5	6	8	10
735.022	21.002	13	50	55	52	25	6	12	15
735.023	FZ07.1203	17	72	87	83	36	7	25	30
735.024	21.004	17	80	95	90	40	7	35	40



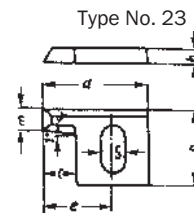
3.) BUSH-CUTTER

Item No.	Cutter No.	S	a	b	c	e	h	m
735.031	22.001	9	50	27	25	16,5	5	6
735.032	22.002	9	50	27	25	16,5	5	8
735.033	22.003	9	50	27	25	16,5	5	10
735.034	22.004	9	50	27	25	16,5	5	12
735.035	22.005	13	55	35	25	21,5	6	8
735.036	22.006	13	55	35	25	21,5	6	10
735.037	22.007	13	55	35	25	21,5	6	12
735.039	22.009	17	75	47	35	28,5	6	8
735.040	22.010	17	75	47	35	28,5	6	10
735.041	22.011	17	75	47	35	28,5	6	12
735.042	22.012	17	75	47	35	28,5	6	15
735.043	22.013	17	95	47	40	28,5	7	12
735.044	22.014	17	95	47	40	28,5	7	15
735.045	22.015	17	95	47	40	28,5	7	18
735.046	22.016	17	95	47	40	28,5	7	20
735.047	FZ07.1908	17	100	42	35	25,0	8	25



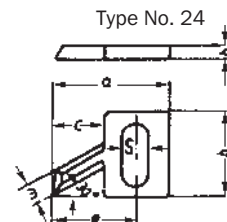
4.) EYE CUTTER

Item No.	Cutter No.	S	a	b	c	e	h	m
735.052	23.002	17	81	65	35	58	8	15
735.053	23.003	17	96	80	50	73	8	20



5.) DOVETAIL CUTTER

Item No.	Cutter No.	S	a	b	c	e	h	m
735.061	24.001	13	60	50	30	45	6	12
735.062	24.002	17	90	50	50	70	7	20
735.063	FZ07.2101	17	108	80	65	85	8	30



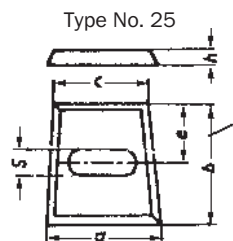
* This item will be discontinued. Available as long as stock lasts.

Remark:

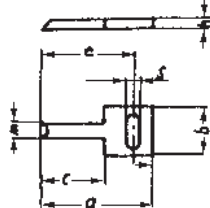
Cutter arbors and clamping screw diameter must match slot width and hole diameter given.

Cutters of tool steel (continued)*

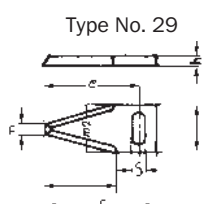
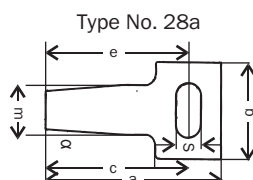
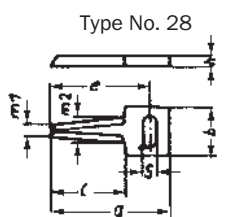
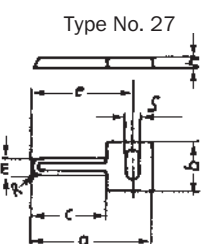
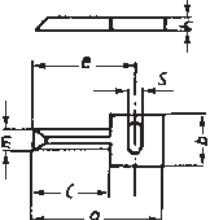
(all dimensions in mm)



Type No. 26 (735.091-095)



Type No. 26 (735.102-111)



6.) FLAT CUTTER, straight

Item No.	Cutter No.	S	a	b	c	e	h
735,073	FZ07.1101	9	37	85	30	44	6
735,076	25.006	13	55	80	45	40	7
735,079	FZ07.1103	17	70	85	60	40	8
735,080	FZ07.1106	17	80	100	80	50	8
735,083	FZ07.1105	17	150	85	140	40	8

7.) FINGER CUTTER, straight

Item No.	Cutter No.	S	a	b	c	e	h	m
735,091	26.005	9	47	24	25	37	5	5
735,092	26.006	9	47	24	25	37	5	6
735,093	26.007	9	52	24	30	42	5	7
735,094	26.008	9	57	24	35	47	6	8
735,095	26.009	9	57	24	35	47	6	9

735,102	26,022	17	105	40	65	85	7	22
735,103	26,024	17	105	40	65	85	7	24
735,106	26,030	17	110	40	70	90	7	30
735,107	26,032	17	115	46	75	95	7	32
735,108	26,034	17	115	46	75	95	7	34
735,108A	FZ07.1505	17	120	50	80	100	10	35
735,109	26,036	17	120	46	80	100	7	36
735,110	26,038	17	125	46	85	105	7	38
735,111	26,040	17	125	46	85	105	7	40

8.) FINGER CUTTER, half-round

Item No.	Cutter No.	S	a	b	c	e	h	m	R
735,121	27.003	9	47	24	25	37	5	6	3
735,122	27.004	9	57	24	35	47	5	8	4
735,123	27.005	9	67	24	45	57	6	10	5
735,125A	FZ07.1602	13	85	40	50	65	5	15	7,5
735,126	27.008	13	85	30	55	70	7	16	8
735,127	27.009	13	90	30	60	75	7	18	9
735,128	27.010	13	90	30	60	75	7	20	10
735,129	27.011	17	105	40	65	85	7	22	11
735,130	27.012	17	105	40	65	85	7	24	12
735,131	27.013	17	110	40	70	90	7	26	13
735,132	27.014	17	110	40	70	90	7	28	14
735,133	27.015	17	110	40	70	90	7	30	15

9.) FINGER CUTTER, tapered

Item No.	Cutter No.	S	a	b	c	e	h	m1	m2
735,141	28.001	9	58	24	36	48	5	6	12
735,143	28.003	17	105	40	65	85	7	15	22
735,144	28.004	17	105	40	65	85	7	20	30
735,145	28.005	17	105	40	65	85	7	25	30
735,147	FZ07.1802	17	100	50	60	115	10	35	50

9a.) FINGER CUTTER, straight tapered

Item No.	Cutter No.	S	a	b	c	e	h	m	α
735,140	FZ07.1700	17	100	60	60	80	10	30/26	3°/5°
735,140A	FZ07.1701	17	110	60	70	90	10	30/23	3°/5°

10.) FINGER CUTTER, acute tapered

Item No.	Cutter No.	S	a	b	c	e	h	m1	m2
735,151	29.001	9	58	24	36	48	5	6	24
735,152	29.002	13	75	30	45	60	6	10	30
735,153	29.003	17	105	40	65	85	7	15	50

* This item will be discontinued. Available as long as stock lasts.

Remark:

Cutter arbors and clamping screw diameter must match slot width and hole diameter given.

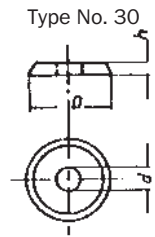
Cutters of tool steel (continued) *

(all dimensions in mm)

11.) ROUND CUTTER

Item No.	Cutter No.	Hole dia. d	D	h
735.161	30.030	8,5	30	5
735.162	30.032	8,5	32	5
735.162A	30.034	8,5	34	5
735.162B	30.035	8,5	35	5
735.163	30.036	8,5	36	5
735.163A	30.038	8,5	38	5
735.164A	30.042	12,5	42	5
735.164B	30.044	12,5	44	5
735.165	30.045	12,5	45	6
735.165A	30.046	12,5	46	5
735.165B	30.048	12,5	48	5
735.166	30.050	12,5	50	6
735.166A	30.052	12,5	52	5

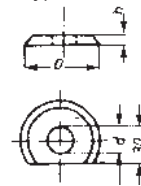
Item No.	Cutter No.	Hole dia. d	D	h
735.166B	30.054	12,5	54	5
735.167	30.055	12,5	55	5
735.167A	30.056	12,5	56	5
735.167B	30.058	12,5	58	5
735.168	30.060	16,5	60	7
735.169	30.065	16,5	65	7
735.170	30.070	16,5	70	7
735.171	30.075	16,5	75	7
735.172	30.080	16,5	80	7
735.173	30.085	16,5	85	7
735.174	30.090	16,5	90	7
735.175	30.095	16,5	95	7



12.) ROUND CUTTER, obliterated

Item No.	Cutter No.	Hole dia. d	D	h
735.181	31.100	17 alt. 21	100	8
735.182	31.110	21	110	8
735.182A	31.115	17	115	9
735.183	31.125	17 alt. 21	125	8
735.183A	31.130	17	130	9
735.183B	31.135	17	135	10
735.183C	31.140	17	140	10
735.184	31.150	17 alt. 21	150	10
735.185	31.160	17	160	10
735.186	31.170	17	170	12
735.187	31.180	17	180	12

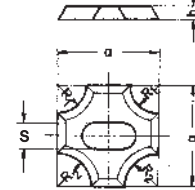
Type No. 31



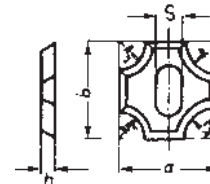
13a.) ROUNDING-OFF CUTTERS with 4 cutting edges and two different radii

Item No.	Cutter No.	S	a	b	H	R1	R2
735.191	32.001	13	40	40	5	6	8
735.192	32.002	13	44	44	5	10	12
735.193	32.003	13	48	48	6	14	16
735.194	32.004	13	56	56	6	18	20
735.196	32.006	13	72	72	6	26	28
735.197	32.007	13	80	80	6	30	32
735.198	32.008	13	88	88	6	34	36
735.200	32.010	17	104	104	7	42	44
735.201	32.011	17	112	112	7	46	48

Type No. 32



Type No. 32a



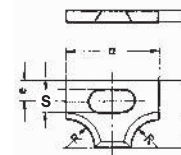
13b.) ROUNDING-OFF CUTTERS with 4 cutting edges and four different radii

Item No.	Cutter No.	S	a	b	H	R1	R2	R3	R4
735.204	FZ07.2201	13	70	70	5	15	20	25	30
735.205	FZ07.2202	17	140	140	8	35	45	55	65

14a.) ROUNDING-OFF CUTTERS with 2 cutting edges with the same radius

Item No.	Cutter No.	S	a	b	e	h	R
735.212	33.003	17	140	80	22	8	60
735.213	33.005	17	165	90	22	8	70
735.214	33.007	21	185	110	25	9	80
735.215	33.011	21	225	130	25	9	100

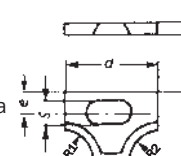
Type No. 33



14b.) ROUNDING-OFF CUTTERS with 2 cutting edges and two different radii

Item No.	Cutter No.	S	a	b	e	h	R1	R2
735.217	FZ07.2211	17	160	110	22	10	60	70
735.218	FZ07.2212	17	205	130	22	10	85	80
735.219	FZ07.2213	17	205	140	22	10	80	100

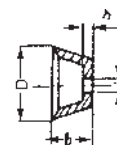
Type No. 33a



15.) BELL SHAPED CUTTER of HSS with hole

Item No.	Cutter No.	D	b	d	h
735.221	35.020	20,4	12	6,5	4
735.222	35.030	30,5	15	15,0	3

Type No. 35

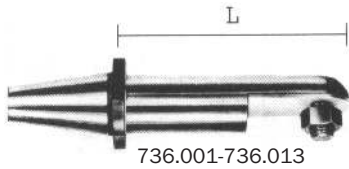


* This item will be discontinued. Available as long as stock lasts.

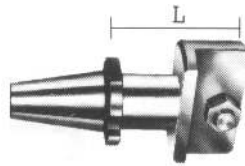
Remark:

Cutter arbors and clamping screw diameter must match slot width and hole diameter given.

736



736.001-736.013



736.019

Cutter arbors*

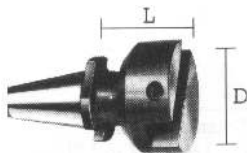
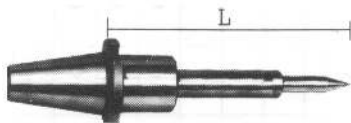
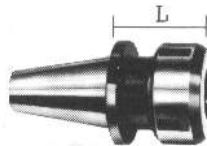
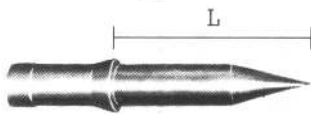
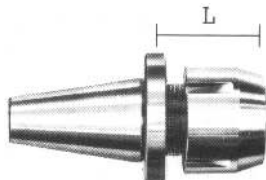
fitting for cutter item no. 734 & 735

Item No.	736.001	736.003	736.004	736.005
Shank	MK 4	MK 4	ISO 30	ISO 30
Clamping screw	M 8	M 16	M 6	M 8
L	105mm	200mm	58mm	73mm

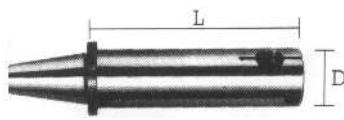
Item No.	736.009	736.010	736.013	736.019
Shank	ISO 40	ISO 40	ISO 40	ISO 40
Clamping screw	M 8	M 12	M 16	M 16
L	125mm	115mm	240mm	90mm

* Discontinued. Available as long as stock lasts.

736A



for tools



for rods



Arbors for milling machines*

1a) Arbors for collets

(collets see below item 736B/1)

Item No.	736.310	736.330	736.340
Shank	MK 3	ISO 30	ISO 30
for chucks	6-12mm	6-12mm	6-12mm
L	120mm	40mm	130mm

Centring point fitting L = 80 mm. Item No. 736.990

1b) Arbors with chuck

(collets see below item 736B/2)

Item No.	736.395
Shank	ISO 40
for chucks	6-25mm
L	50mm

2) Centring arbors

Item No.	736.250	736.650
Shank	ISO 30	ISO 40
L	130mm	160mm

3) Arbors for turning tools

Item No.	736.360	736.370	736.670	736.660
Shank	ISO 30	ISO 30	ISO 40	ISO 40
to be used for	turning tool 8x8mm horizontal	45° angular	Tool 20x20mm	Turning rods
L	40mm	65mm	60mm	180mm
D	40mm	40mm	80mm	50mm

Fitting tools: Turning rod M 12 x 220mm

Balance weight Ø 50 x 30mm

Item No. 736.661

Item No. 736.662

All arbors will be delivered normally with internal thread.
Several clamp bolts are available according to the used tool holder.

Other arbors (for tools with boring) or reductions upon request!

* Discontinued. Available as long as stock lasts.

736B



1.)



2.)

Collets for arbors

1) fitting for arbors 1a (see above)

Length 56 mm, outside diam. 22,5 mm

Item No.	736.406	736.408	736.410	736.412
Inside diam.	6mm	8mm	10mm	12mm

2) fitting for arbors with chuck 1b (see above)

Length 52 mm, outside diam. 35 mm

Item No.	736.506	736.508	736.510	736.512	736.514	736.516
Inside diam.	6mm	8mm	10mm	12mm	14mm	16mm

Item No.	736.518	736.520	736.522	736.524	736.525
Inside diam.	18mm	20mm	22mm	24mm	25mm

For further collets see item-no. 727!

Tapered shank-type cutters for light metal, plywood and plastics

face-cutting, 35° spiral-fluted cutter, Material: HSS-E (5% Co.)

1) with straight shank, 3 cutting edges, No. 2100

Item No.	Shank dia. h8 mm	Angle	Min. dia. (face dia.) mm	Max. dia. mm	Cutting length mm	Total length mm
737.101	8	0°	8,0	8,0	40	90
737.102	8	30'	7,3	8,0	40	90
737.103	8	1°	6,6	8,0	40	90
737.104	8	1° 30'	5,9	8,0	40	90
737.105	8	2°	5,2	8,0	40	90
737.106	8	3°	3,8	8,0	40	90
737.107	8	5°	4,0	11,0	40	90
737.122	14	0°	14,0	14,0	75	130
737.123	14	30'	12,7	14,0	75	130
737.124	14	1°	11,4	14,0	75	130
737.125	14	1° 30'	10,07	14,0	75	130
737.126	14	2°	8,7	14,0	75	130
737.127	14	3°	6,2	14,0	75	130
737.128	14	5°	6,2	19,3	75	130



2) with Morse-taper and thread, No. 2110

up to pos. 737.214 with 3 cutting edges, all other cutters with 4

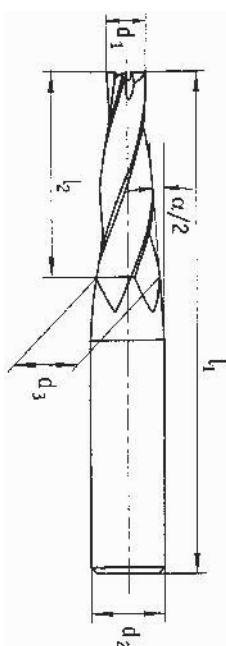
Item No.	MK shank/ thread	Angle	Min. dia. (face dia.) mm	Max. dia. mm	Cutting length mm	Total length mm
737.208	3/M12	0°	24,0	24,0	115	216
737.209	3/M12	30'	22,0	24,0	115	216
737.210	3/M12	1°	20,0	24,0	115	216
737.211	3/M12	1° 30'	17,98	24,0	115	216
737.212	3/M12	2°	16,0	24,0	115	216
737.213	3/M12	3°	12,0	24,0	115	216
737.214	3/M12	5°	12,0	32,0	115	216
737.215	4/M16	0°	35,0	35,0	150	307
737.216	4/M16	30'	32,4	35,0	150	307
737.217	4/M16	1°	30,0	35,2	150	307
737.218	4/M16	1° 30'	27,64	35,5	150	307
737.219	4/M16	2°	25,0	35,5	150	307
737.220	4/M16	3°	20,0	35,7	150	307
737.221	4/M16	5°	20,0	46,2	150	307

Other sizes upon request!

The HSS-types are being phased out and replaced by solid tungsten carbide types (see item-no. 738)!

Available in limited quantities only.





Shank acc. to EN 6535HA, cutting material K40F finest grain, spiral 30°, tooth N, face and periphery cutting.

For materials up to max. 58 HRC(A).

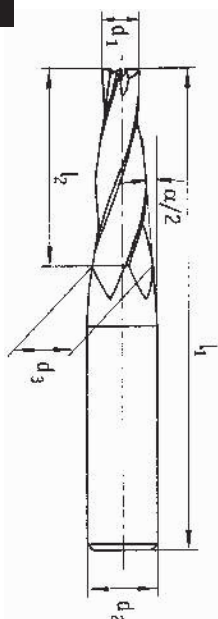
The given inclination is the angle to the middle axis.

Tolerances: cutting diam. d1=k10, shank-diam. d2=h6.

Tapered shank-type cutters of solid tungsten-carbide

Item No.	$\alpha/2$	d1 mm	d3 mm	l2 mm	l1 mm	d2 mm	Z
738.1101	0,5°	2	2,35	20	75	6	3
738.1102	0,5°	3	3,44	25	75	6	3
738.1103	0,5°	4	4,52	30	75	6	3
738.1104	0,5°	5	5,52	30	75	6	3
738.1105	0,5°	6	6,70	40	100	8	3
738.1106	0,5°	8	8,79	45	100	10	4
738.1107	0,5°	10	10,79	45	100	12	4
738.1108	0,5°	12	12,79	45	100	14	4
738.1109	1°	2	2,70	20	75	6	3
738.1110	1°	3	3,87	25	75	6	3
738.1111	1°	4	5,05	30	75	6	3
738.1112	1°	5	5,98	28	75	6	3
738.1113	1°	6	7,40	40	100	8	3
738.1114	1°	8	9,57	45	100	10	4
738.1115	1°	10	11,57	45	100	12	4
738.1116	1°	12	13,57	45	100	14	4
738.1201	1,5°	2	3,05	20	75	6	3
738.1202	1,5°	3	4,31	25	75	6	3
738.1203	1,5°	4	5,57	30	75	6	3
738.1204	1,5°	5	6,83	35	100	8	3
738.1205	1,5°	6	7,83	35	100	8	3
738.1206	1,5°	8	10,36	40	100	12	4
738.1207	1,5°	10	12,88	55	125	14	4
738.1208	1,5°	12	15,14	60	125	16	4
738.1209	2°	2	3,40	20	75	6	3
738.1210	2°	3	4,75	25	75	6	3
738.1211	2°	4	5,96	28	75	6	3
738.1212	2°	5	7,79	40	100	8	3
738.1213	2°	6	9,14	40	100	10	3
738.1214	2°	8	11,14	45	100	12	4
738.1215	2°	10	13,84	55	125	14	4
738.1216	2°	12	15,84	55	125	16	4
738.1301	3°	2	4,10	20	75	6	3
738.1302	3°	3	5,62	25	75	6	3
738.1303	3°	4	7,98	38	100	8	3
738.1304	3°	5	10,00	48	100	10	3
738.1305	3°	6	11,24	50	100	12	3
738.1306	3°	8	13,76	55	125	14	4
738.1307	3°	10	15,76	55	125	16	4
738.1308	3°	12	17,76	55	125	18	4
738.1309	5°	2	5,50	20	75	6	3
738.1310	5°	3	7,90	28	100	8	3
738.1311	5°	4	9,95	34	100	10	3
738.1312	5°	5	12,00	40	100	12	3
738.1313	5°	6	13,87	45	100	14	3
738.1314	5°	8	15,87	45	125	16	4
738.1315	5°	10	17,87	45	125	18	4
738.1316	5°	12	19,87	45	125	20	4

Upon request also available with additional ALCRONA-coating!



Acute tapered shank cutters of solid tungsten-carbide

Item No.	$\alpha/2$	d1 mm	d3 mm	l2 mm	l1 mm	d2 mm	Z
739.1002	10°	2	9,05	20	75	10	3
739.1003	10°	3	13,58	30	100	14	3
739.1004	10°	4	15,64	33	100	16	4
739.1005	10°	5	15,58	30	100	16	4
739.1006	10°	6	17,64	33	100	18	4
739.1008	10°	8	19,64	33	100	20	4
739.1502	15°	2	12,72	20	100	14	3
739.1503	15°	3	15,86	24	100	16	4
739.1504	15°	4	17,40	25	100	18	4
739.1505	15°	5	17,86	24	100	18	4
739.1506	15°	6	19,40	25	100	20	4
739.1508	15°	8	19,79	22	100	20	4
739.2002	20°	2,5	9,78	10	75	10	3
739.2005	20°	5	19,56	20	100	20	4
739.3002	30°	2,5	14,05	10	75	16	4
739.3004	30°	4	24,78	18	100	25	4
739.4503	45°	3	25,00	11	100	25	4

For further details see item-no. 738 above.

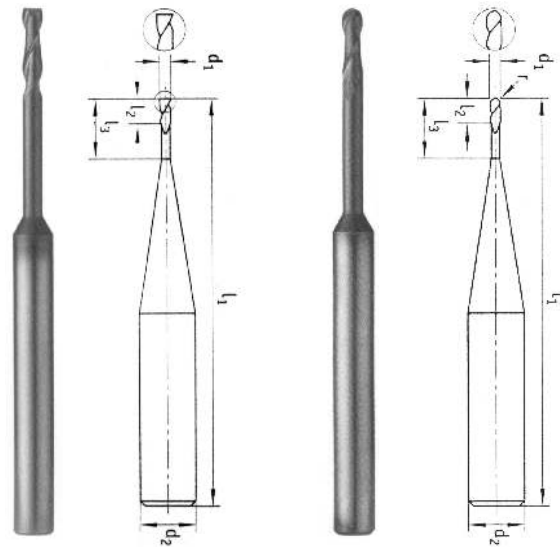
Mini end mill cutters of solid tungsten-carbide, HSC suitable

740

Shank acc. to EN 6535HA, cutting material K30F fine grade, cutting geometry 30°, toothed type N, 2 flutes, TiAlN coated, application range: steel up to 55 HRC.

With flat or round face

d ₁	l ₂	l ₁	l ₃	d ₂	r	Item No.	
						flat face	round face
0,5	1	40	1,5	3	0,25	740.1105	740.2105
1	2,5	40	3	4	0,5	740.1110	740.2110
1,5	4	40	4,5	4	0,75	740.1115	740.2115
2	6	40	6,5	4	1,0	740.1120	740.2120
0,5	1	50	2,5	3	0,25	740.1205	740.2205
1	2,5	50	5	4	0,5	740.1210	740.2210
1,5	4	50	7,5	4	0,75	740.1215	740.2215
2	6	50	10	4	1,0	740.1220	740.2220
0,5	1	50	5	4	0,25	740.1305	740.2305
1	2,5	50	10	4	0,5	740.1310	740.2310
1,5	4	50	15	4	0,75	740.1315	740.2315
2	6	50	20	4	1,0	740.1320	740.2320



End mill cutters of solid tungsten-carbide

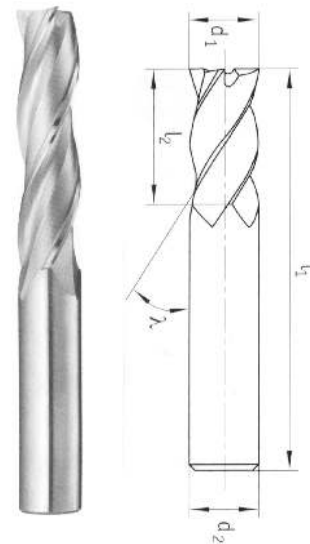
741

Extra long version, shank acc. to EN 6535HA, cutting material K40F fine grade, cutting geometry 30°, toothed type N, 3 flutes, face and periphery cutting.

Item No.	d ₁ mm	l ₂ mm	l ₁ mm	d ₂ h6
741.501	3	15	65	6
741.502	4	20	70	6
741.503	5	25	75	6
741.504	6	30	75	6
741.505	6	45	100	6
741.506	8	30	100	8
741.507	8	45	100	8
741.508	10	30	100	10
741.509	10	45	100	10
741.510	12	30	100	12
741.511	12	45	100	12
741.512	14	30	100	14
741.513	14	45	100	14

Item No.	d ₁ mm	l ₂ mm	l ₁ mm	d ₂ h6
741.514	16	45	100	16
741.515	16	60	125	16
741.516	16	90	155	16
741.517	18	45	100	18
741.518	18	60	125	18
741.519	18	90	155	18
741.520	20	45	110	20
741.521	20	60	125	20
741.522	20	90	155	20
741.523	25	45	120	25
741.524	25	60	135	25
741.525	25	90	163	25

Also with 2 or 4 flutes available.



End mill cutters of solid tungsten-carbide

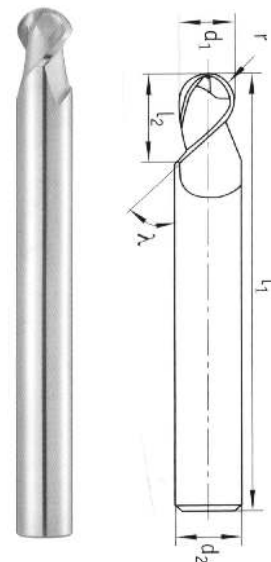
741A

for aluminium working

Round face, shank acc. to EN 6535HA, cutting material K40F fine grade, cutting geometry 45°, toothed type W, 2 flutes, face and periphery cutting, shank tolerance h6.

d ₁ =d ₂ mm	l ₂ mm	r mm	Total-length l ₁ mm							
			short	Item No.	middle	Item No.	long	Item No.	extra-long	Item No.
2	2	1	70	741.602	100	741.702	-	-	-	-
3	3	1,5	70	741.603	100	741.703	-	-	-	-
4	4	2	70	741.604	100	741.704	125	741.804	-	-
5	5	2,5	70	741.605	100	741.705	125	741.805	-	-
6	6	3	70	741.606	100	741.706	125	741.806	150	741.906
8	8	4	100	741.608	125	741.708	150	741.808	-	-
10	10	5	100	741.610	125	741.710	150	741.810	175	741.910
12	12	6	100	741.612	125	741.712	150	741.812	175	741.912
14	14	7	100	741.614	125	741.714	150	741.814	175	741.914
16	16	8	100	741.616	125	741.716	150	741.816	175	741.916
20	20	10	100	741.620	125	741.720	150	741.820	175	741.920

Alternatively: toric end with 1 mm radiused edges



Types of serration and applications

Serration 1



light metals (long chips)
light metal alloys, lead, tin,
plastics

Serration 2



light metal (short chips)
brass, copper alloys

Serration 3



steel and cast steel,
alloyed and unalloyed,
cast iron and
malleable cast iron

Serration 5



steel and cast
steel, alloyed and
unalloyed

Cyl. shape 'AS' with face serration

* without face serration

Type	A 0304*	A 0607*	AS 0616	AS 0820	AS 1013	AS 1225	AS 1625
Head size	3 x 4 mm	6 x 7 mm	6 x 16 mm	8 x 20 mm	10 x 13 mm	12 x 25 mm	16 x 25 mm
Serration/ 1	-	-	742.031	-	-	742.061	742.071
Item No. 2	-	-	742.032	-	742.052	742.062	742.072
3	-	-	742.033	742.043	742.053	742.063	742.073
5	742.015	742.025	742.035	-	-	-	-

Pointed arch shape G



Type	G 0618	G 1220	G 1225	G 1230	G 1630
Head size	6 x 18 mm	12 x 20 mm	12 x 25 mm	12 x 30 mm	16 x 30 mm
Serration/ 1	742.211	742.221	-	742.241	742.251
Item No. 2	742.212	742.222	-	742.242	742.252
3	742.213	742.223	742.233	742.243	742.253
5	-	-	-	742.245	742.255

Spherical shape D



Type	D 0302	D 0403	D 0504	D 0605	D 0807	D 1009	D 1210	D 1614
Head size	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	16 mm
Serration/ 1	-	-	-	-	742.451	-	742.471	742.481
Item No. 2	-	-	-	742.442	742.452	742.462	742.472	742.482
3	742.413	742.423	742.433	742.443	742.453	742.463	742.473	742.483
5	-	-	-	-	742.455	742.465	-	-

Flame shape H



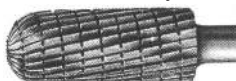
Type	H 0305	H 0820	H 1230	H 1635	H 1750
Head size	3 x 5 mm	8 x 20 mm	12 x 30 mm	16 x 35 mm	17 x 50 mm
Serration/ 1	-	-	-	-	742.551
Item No. 3	-	742.523	742.533	742.543	-
5	742.505	-	-	-	-

Acute taper shape M



Type	M 0304	M 0607	M 0618	M 0820	M 1020	M 1225	M 1230
Head size	3 x 4 mm	6 x 7 mm	6 x 18 mm	8 x 20 mm	10 x 20 mm	12 x 25 mm	12 x 30 mm
Serration/ 1	-	-	742.831	-	-	742.861	742.871
Item No. 2	-	-	742.832	-	742.852	-	742.872
3	-	-	742.833	742.843	742.853	742.863	742.873
5	742.815	742.825	-	-	-	-	742.875

rounded cyl. shape 'C'



Type	C 0304	C 0620	C 0850	C 1020	C 1225
Head size	3 x 4 mm	6 x 20 mm	8 x 50 mm	10 x 20 mm	12 x 25 mm
Serration/ 1	-	742.121	742.131	-	742.151
Item No. 2	-	742.122	742.132	-	742.152
3	-	742.123	-	742.143	742.153
5	742.115	742.125	-	-	742.155

Drop shape E



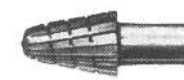
Type	E 0607	E 1220	E 1625
Head size	6 x 7 mm	12 x 20 mm	16 x 25 mm
Serration/ 1	-	742.321	742.331
Item No. 2	-	-	742.332
3	-	742.323	742.333
5	742.315	-	-

Club shape K



Type	K 0620	K 1230
Head size	6 x 20 mm	12 x 30 mm
Serration/ 2	742.612	742.622
Item No. 3	742.613	742.623

Rounded taper shape L



Type	L 1020	L 1230	L 1630
Head size	10 x 20 mm	12 x 30 mm	16 x 30 mm
Serration/ 1	-	-	742.731
Item No. 2	742.712	-	742.732
3	742.713	742.723	742.733
5	-	-	742.735

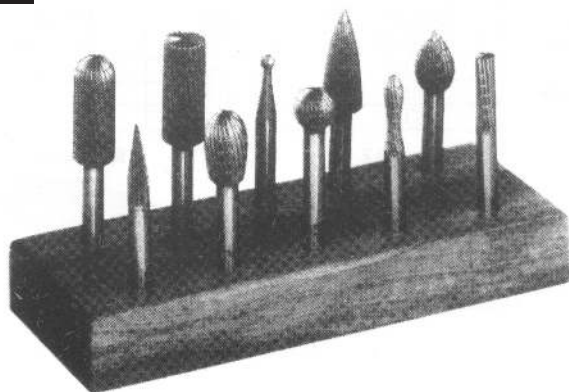
Angle shape N



Type	N 0303	N 0606	N 1213	N 1230
Head size	3 x 3 mm	6 x 6 mm	12 x 13 mm	12 x 30 mm
Inclination	20°	20°	17°	8°
Serration/ 1	-	-	742.931	-
Item No. 3	-	-	742.933	742.943
5	742.915	742.925	-	-

Turbo-cutter sets of HSS

with straight shank, 6 x 40 mm, serration 3 (see above)



Item No.	Each set comprises one of the following cutters:				
743.303	A 0616	A 1225	C 1225	D 0403	D 1210
	E 1220	G 1230	H 1230	K 0620	M 0618
743.403	A 0304*	A 0607*	A 0616	A 1013	A 1225
	C 1225	D 0807	D 1210	E 1220	E 1625
	G 1220	G 1230	K 1230	L 1630	M 0618
	M 1230	N 0303*	N 0606*	N 1213	N 1230








* Serration 5

We also resharpen cutters!

Turbo-cutters (with internal thread) of HSS

744

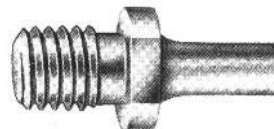
types of serration and fields of application see page 74. Fitting cutter bolts see item 744A below.

	Cyl. form AS with face serration				Pointed arch shape G		Round taper shape L	
								
Type	AS 2215		AS 3030		G 2045	G 3555	L 2055	
Head size	22 x 15 mm		30 x 30 mm		20 x 45 mm	35 x 55 mm	20 x 55 mm	
Intern. thread	M 8		M 10		M 10	M 12	M 10	
Serration/ 1	-		-		-	744,221	744,611	
Item No. 2	-		744,122		744,212	-	-	
3	744,113		-		-	-	-	
	Spherical shape D				Drop shape E		Flame shape H	Acute taper sh. M
								
Type	D 2018	D 2522	D 3027	D 3532	E 2535		H 2055	M 2540
Head size	20 mm Ø	25 mm Ø	30 mm Ø	35 mm Ø	25 x 35 mm		20 x 55 mm	25 x 40 mm
Intern. thread	M 8	M 10	M 12	M 12	M 12		M 10	M 10
Serration/ 1	744,411	744,421	-	-	-		744,511	-
Item No. 2	-	744,422	-	-	-		744,512	-
3	744,413	-	744,433	744,443	744,313		-	744,713

Cutter bolts for internal-thread cutters

744A

Item No.	744,801	744,802	744,803	744,811	744,812	744,821
Shank dia.	6 mm			8 mm		10 mm
Thread	M 10	M 12	M 8	M 10	M 12	M 10
Total length	52 mm	54 mm	50 mm	52 mm	54 mm	52 mm



Turbo-files of HSS

745

Cuts and applications



Cut 1

steel, cast iron, malleable cast iron




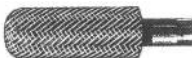



Cut 2

steel and cast steel, alloyed and unalloyed



Cut 3

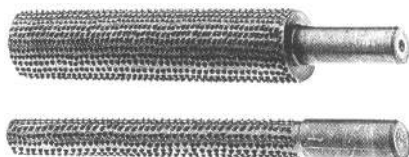
steel and cast steel, alloyed and unalloyed

	Cyl. shape AS with face serration			Rounded cyl. shape C		Spherical shape D
						
Type	AS 0616FH	AS 1225FH	AS 1625FH	C 0620FH	C 1225FH	D 0807FH
Head size	6 x 16 mm	12 x 25 mm	16 x 25 mm	6 x 20 mm	12 x 25 mm	8 mm Ø
Cut/ 1	745,111	745,121	745,131	-	745,221	-
Item No. 2	745,112	745,122	-	-	745,222	745,312
3	745,113	-	-	745,213	-	745,313
	Pointed tree shape G		Conical shape M			
						
Type	G 0618FH	G 1230FH	M 0618FH	M 1230FH		
Head size	6 x 18 mm	12 x 30 mm	6 x 18 mm	12 x 30 mm		
Cut/ 1	745,511	745,521	-	-		
Item No. 2	745,512	745,522	745,712	745,722		
3	745,513	745,523	-	-		

Turbo-rasps HSS-Quality

746


Item No.	746,001	746,002	746,003	746,004	746,005
Head dia. x length mm	15 x 30	15 x 30	15 x 30	15 Ø	15 x 30
Shank dia. x length mm	6 x 40	6 x 40	6 x 40	6 x 40	6 x 40
Rasp cut	medium	medium	medium	medium	medium

747


Cylindrical rasps for oscillating bobbin sanders of prime special steel with medium-coarse, inclined serration

Dia.	10mm	15mm	20mm	25mm	30mm	40mm	50mm
Serration length	150mm						220mm
Shank dia. x length	16mm	12mm	16mm	16mm	12mm	16mm	16mm
Item No.	747.010	747.011	747.015	747.020	747.021	747.025	747.030

748

Engraving cutters of HSS with straight shanks

Serration 5 (see ill.) Shaft: 3 x 40 mm



Shape 1

Item No.	Head dia. x length mm
748.827	4 x 2,8
748.828	5 x 3,5
748.829	6 x 4,2
748.831	8 x 5,5
748.837	6 x 6
748.839	8 x 8



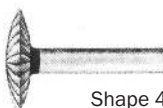
Shape 2

Item No.	Head dia. x length mm
748.840	1,6 x 2,8
748.841	2,3 x 4
748.842	3,2 x 5,6
748.843	4 x 7
748.844	5 x 8,7
748.845	6 x 10,5
748.846	7 x 12,5
748.847	8 x 14



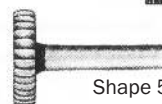
Shape 3

Item No.	Head dia. mm
748.848	1,6
748.849	2,3
748.850	3,2
748.851	4,0
748.852	5,0
748.853	6,0
748.854	7,0
748.855	8,0



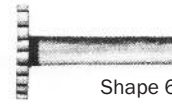
Shape 4

Item No.	Head dia. x length mm
748.864	8 x 2
748.865	10 x 2,5
748.866	12 x 3
748.867	14 x 3,5



Shape 5

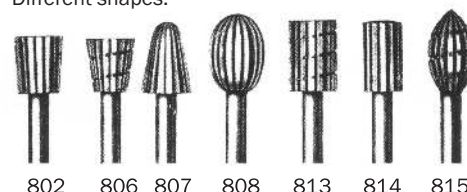
Item No.	Head dia. x thickn. mm
748.868	8 x 2
748.869	10 x 2,3
748.870	12 x 2,6
748.871	14 x 3



Shape 6

Item No.	Head dia. x thickn. mm
748.872	6 x 1
748.873	8 x 1
748.874	10 x 1

Different shapes:



802 806 807 808 813 814 815

Item No.	Head dia. x length mm
748.802	7 x 8
748.806	7 x 7,5
748.807	7 x 10
748.808	8 x 11

Item No.	Head dia. x length mm
748.813	7 x 10
748.814	6 x 10
748.815	7 x 12

The above graving millers cannot be resharpened!

749

Reducers (adapters)

The above reducers are required when using 3-mm shank tools on machines with 6-mm chucks.



Item No.	749.001
Outside dia. mm	6
Inside dia. mm	3
Total length mm	25

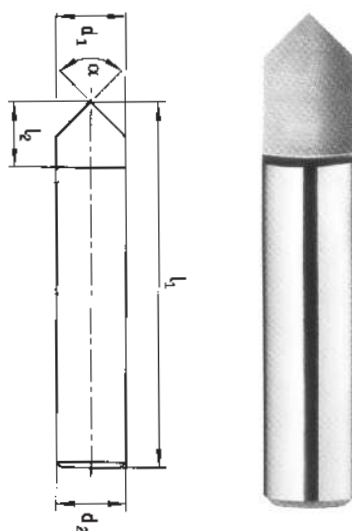
750

Engraving cutters of solid tungsten-carbide

Cutting material K40F fine grade, 1 flute, application range: steel up to 40 HRC.

d1 = d2 mm	l2 mm	l1 mm	Design / Item No.	
			$\alpha = 60^\circ$	$\alpha = 90^\circ$
2	7	40	750.402	750.452
3	8	50	750.403	750.453
4	8	60	750.404	750.454
5	10	60	750.405	750.455
6	10	75	750.406	750.456
8	12	100	750.408	750.458
10	15	100	750.410	750.460
12	17	100	750.412	750.462

Other profiles and qualities are also available!
Quantities should be specified.



Marking pen MST 31, compressed-air operated

Item No. 285.001

Patented pneumatic engraving pen working on a new principle at about three times the frequency of existing similar products.

For engraving markings in metal, glass, plastics and even heat-treated tool steel (with fine needle). Does not transmit harmful vibrations to the hand.

Delivery contains tungsten carbide engraving needle medium.

Front exhaust

Air consumption 25 - 30 m³/min

For 4 mm ID air supply hose

Frequency: 500 - 600

strokes/sec.

Hose length 3000 mm

Operating pressure 6 - 7 bar

Supplied complete with air supply

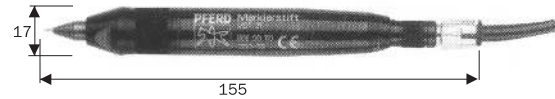
PFERD



750A

Additional needles:

Needle type	Coarse	Medium	Fine
Item No.	285.101	285.102	285.103



Pneumatic filing machine FRV 110 with lever valve

For deburring and chamfering of cast and machine parts. High precision, calm run, vibration level <2.5m/s².

For files with shank diam. 6 mm

Item No.	No. of blows	Frequency	Stroke length	Weight	Ø x length	Connect. thread	Hose
307.110	9000 min ⁻¹	150 Hz	8 mm	1,0 kg	41 x 180 mm	G 1/4" i	6 mm I.W.

Fitting files, shank Ø 6 mm, useable length 80 mm, cut 1

Item No.	Design	Cross section
307.201	flatbunt	12,3 x 6,3 mm
307.202	half round	12,0 x 6,0 mm
307.203	triangular	9,0 x 9,0 mm
307.204	square	8,0 x 8,0 mm
307.205	round	6,0 mm Ø



750B



Tungsten carbide miniature burrs with 3 mm shank

A high stock removal capability over the entire tool life ensures maximum results within a minimum of time. Thus, PFERD quality burrs and rotary cutters will help you to reduce labour cost.

Cut 3 PLUS (3P)



- Universal use on ferrous and non-ferrous metals and plastics.
- Fettling of castings.
- Surface machining.
- No loading problems.
- Produces even, smooth surfaces.

Cut 5



- For hardened and high-strength materials, die steels and steel castings.
- For tough welded claddings, weld seam dressing.
- Deburring and chamfering.
- Cut 5 produces smoother surface than cut 3.

PFERD



751

	Cylindrical ZYAS with end				Flame shape B		Cylindrical radius end WRC			Ball shape KUD		
Type	ZYAS 0210	ZYAS 0313	ZYAS 0607	ZYAS 0613	3B 0307	3B 0613	WRC 0210	WRC 0313	WRC 0613	KUD 0302	KUD 0403	KUD 0605
Head dim.	2 x 10 mm	3 x 13 mm	6 x 7 mm	6 x 13 mm	3 x 7 mm	6 x 13 mm	2 x 10 mm	3 x 13 mm	6 x 13 mm	3 mm Ø	4 mm Ø	6 mm Ø
Cut/ 3P	751.002	751.012	751.022	751.032	-	-	751.062	751.072	751.082	751.122	751.132	751.142
Item No. 5	751.005	751.015	751.025	751.035	751.045	751.055	751.065	751.075	751.085	751.125	751.135	751.145
	Oval shape TRE		Tree shape RBF		Pointed tree shape SPG			Conical SKM		Inverted cone shape WKN		
Type	TRE 0307	TRE 0610	RBF 0307	RBF 0613	SPG 0307	SPG 0313	SPG 0613	SKM 0307	SKM 0311	SKM 0613	WKN 0307	WKN 0607
Head dim.	3 x 7 mm	6 x 10 mm	3 x 7 mm	6 x 13 mm	3 x 7 mm	3 x 13 mm	6 x 13 mm	3 x 7 mm	3 x 11 mm	6 x 13 mm	3 x 7 mm	6 x 7 mm
Cut/ 3P	751.112	751.232	751.182	751.222	751.192	751.202	751.212	751.152	751.162	751.172	751.092	751.102
Item No. 5	751.115	751.235	751.185	751.225	751.195	751.205	751.215	751.155	751.165	751.175	751.095	751.105

Remark: 6-mm dia. reducers for 3-mm shank tools see page 76, item-no. 749

751A**PFERD**

Tungsten Carbide Burrs with straight shank

A high stock removal capability over the entire tool life ensures maximum results within a minimum of time. Thus, PFERD quality burrs and rotary cutters will help you to reduce labour cost.

Recommendation: The harder the material the finer the cut should be.

Cut ALU



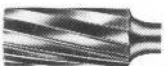
- Greasy aluminium alloys, all soft non-ferrous metals and structural thermoplastics.
- Deburring.
- No loading of flutes, even with greasy materials.
- Robotized use on aluminium castings.

Cut Alu PLUS



- For aluminium, other soft non-ferrous metals, thermoplastics.
- High stock removal rate.
- Special tooth geometry designed for coarse machining applications.
- Optimum cutting performance at low r.p.m.

Cut 1



- Easily machineable light metal alloys, non-ferrous alloys, soft stainless steels, plastics.
- Deburring.
- Weld dressing on light alloy parts.
- Coarse plastic fettling work.
- High cutting performance, suitable for high r.p.m.

Cut 3



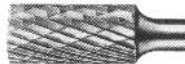
- For high-strength steels, die steels, steel castings, tough welded claddings, weld seams.
- Deburring work (including robotized)
- Without chip breaker, for scratch-free surfaces.

Cut 3 R



- Extreme impact resistant
- High stock removal
- For cast iron, steel <55HRC, stainless steel and titanium alloys

Cut 3 PLUS (3P)



- Universal use on ferrous and non-ferrous metals and plastics.
- Fettling of castings.
- Surface machining.
- No loading problems.
- Produces even, smooth surfaces.

Cut 4



- For high-strength and ductile material, high-strength stainless steel, alloyed steel castings, fibre-reinforced plastics.
- Edge and surface work.
- Minimum axial forces due to short cutting.
- For enhanced surface qualities facilitating subsequent surface coating.

Cut 5



- For hardened and high-strength materials, die steels and steel castings.
- For tough welded claddings, weld seam dressing.
- Deburring and chamfering.
- Cut 5 produces a smoother surface than cut 3.



Shape ZYA



Shape ZYA-S



Shape WRC



Shape KUD



Shape RBF

Type/ shank	Head dim. mm	Cut/Item No.							
		Alu	Alu-plus	1	3	3 R	3Plus	4	5
Cylindrical ZYA (without end cut)									
ZYA0413/6	4 x 13	-	-	-	-	-	751.242	751.244	751.245
ZYA0616/6	6 x 16	-	751.256	-	751.253	-	751.252	751.254	751.255
ZYA0820/6	8 x 20	-	-	-	751.263	-	751.262	751.264	751.265
ZYA1013/6	10 x 13	-	-	-	-	-	751.272	751.274	751.275
ZYA1020/6	10 x 20	-	-	751.281	751.283	-	751.282	751.284	751.285
ZYA1025/6	10 x 25	-	-	-	-	-	751.292	751.294	-
ZYA1225/6	12 x 25	-	751.306	751.301	751.303	-	751.302	751.304	751.305
ZYA1225/8	12 x 25	-	751.310	-	-	-	751.307	751.309	-
ZYA1625/6	16 x 25	-	-	-	751.313	-	751.312	751.314	-
ZYA1625/8	16 x 25	-	-	-	-	-	751.317	-	-
Cylindrical ZYA-S (with end cut)									
ZYAS0413/6	4 x 13	-	-	-	-	-	751.322	751.324	751.325
ZYAS0616/6	6 x 16	751.330	-	-	751.333	-	751.332	751.334	751.335
ZYAS0820/6	8 x 20	-	-	-	751.343	751.346	751.342	751.344	751.345
ZYAS1013/6	10 x 13	-	-	-	-	-	751.352	-	-
ZYAS1020/6	10 x 20	751.360	-	-	751.363	751.366	751.362	751.364	751.365
ZYAS1025/6	10 x 25	-	-	-	-	-	751.372	751.374	-
ZYAS1225/6	12 x 25	751.380	-	-	751.383	-	751.382	751.384	751.385
ZYAS1225/8	12 x 25	751.390	-	-	-	751.386	751.387	-	-
ZYAS1625/6	16 x 25	-	-	-	751.393	-	751.392	751.394	751.395
Cylindrical radius end WRC									
WRC0413/6	4 x 13	-	-	-	-	-	751.432	751.434	-
WRC0616/6	6 x 16	751.440	751.446	751.441	751.443	-	751.442	751.444	751.445
WRC0820/6	8 x 20	-	-	751.451	751.453	751.456	751.452	751.454	751.455
WRC1020/6	10 x 20	-	-	751.461	751.463	751.466	751.462	751.464	751.465
WRC1020/8	10 x 20	-	-	-	-	-	751.467	-	-
WRC1025/6	10 x 25	-	-	-	751.473	-	751.472	751.474	-
WRC1225/6	12 x 25	751.480	751.480A	751.481	751.483	751.488	751.482	751.484	751.485
WRC1225/8	12 x 25	751.486	-	-	-	-	751.487	751.489	-
WRC1625/6	16 x 25	-	-	751.491	751.493	-	751.492	751.494	-
WRC1625/8	16 x 25	-	-	-	-	-	751.497	-	-
Ball shape KUD									
KUD0403/6	4 Ø	-	-	-	-	-	751.502	-	751.505
KUD0605/6	6 Ø	-	-	751.511	751.513	-	751.512	751.514	751.515
KUD0807/6	8 Ø	-	751.526	751.521	751.523	-	751.522	751.524	751.525
KUD1009/6	10 Ø	-	-	751.531	751.533	-	751.532	751.534	751.535
KUD1210/6	12 Ø	751.540	751.540A	-	751.543	751.548	751.542	751.544	751.545
KUD1210/8	12 Ø	751.546	-	-	-	-	751.547	-	-
KUD1614/6	16 Ø	-	-	751.551	-	751.556	751.552	751.554	751.555
KUD1614/8	16 Ø	-	-	-	-	-	751.557	-	-
KUD2018/6	20 Ø	-	-	-	751.563	-	751.562	-	-
KUD2018/8	20 Ø	-	-	-	-	-	751.567	-	-
Tree shape RBF									
RBF0618/6	6 x 18	751.660	-	-	751.663	-	751.662	751.664	751.665
RBF0820/6	8 x 20	-	-	-	751.673	751.676	751.672	751.674	-
RBF1020/6	10 x 20	-	-	-	751.683	751.686	751.682	751.684	751.685
RBF1225/6	12 x 25	751.690	-	751.691	751.693	751.698	751.692	751.694	751.695
RBF1225/8	12 x 25	751.696	-	-	-	-	751.697	-	-
RBF1630/6	16 x 30	751.700	-	-	751.703	-	751.702	751.704	-
RBF1630/8	16 x 30	-	-	-	-	-	751.707	-	-

Tungsten Carbide Burrs (continued)

Toothing illustrated on page 91.

751A

PFERD



Type/ shank	Head dim. mm	Cut/Item No.							
		Alu	Alu-plus	1	3	3 R	3Plus	4	5
Pointed tree shape SPG									
SPG0618/6	6 x 18	-	-	751.711	751.713	-	751.712	751.714	751.715
SPG1020/6	10 x 20	-	-	751.721	751.723	751.726	751.722	751.724	751.725
SPG1020/8	10 x 20	-	-	-	-	-	751.727	-	-
SPG1225/6	12 x 25	-	-	751.731	751.733	751.736	751.732	751.734	751.735
SPG1225/8	12 x 25	-	-	-	-	-	751.737	751.739	-
SPG1230/6	12 x 30	-	-	751.741	751.743	-	751.742	751.744	751.745
SPG1630/6	16 x 30	-	-	751.751	751.753	-	751.752	751.754	-
SPG1630/8	16 x 30	-	-	751.756	-	-	751.757	-	-
Cone radius end KEL									
KEL1020/6	10 x 20	-	751.766	-	751.763	-	751.762	751.764	-
KEL1225/6	12 x 25	-	-	-	751.773	751.776	751.772	751.774	-
KEL1225/8	12 x 25	-	-	-	-	-	751.777	-	-
KEL1230/6	12 x 30	751.780	751.780A	751.781	751.783	-	751.782	751.784	751.785
KEL1230/8	12 x 30	751.786	-	-	-	-	751.787	-	-
KEL1630/6	16 x 30	751.790	-	-	-	-	751.792	751.794	-
KEL1630/8	16 x 30	-	751.798	-	-	-	-	-	-
Oval shape TRE									
TRE0610/6	6 x 10	-	-	-	-	-	751.822	-	751.825
TRE0813/6	8 x 13	-	-	-	-	-	751.832	751.834	-
TRE1016/6	10 x 16	-	-	-	-	751.846	751.842	751.844	-
TRE1220/6	12 x 20	-	-	751.851	751.853	751.856	751.852	751.854	751.855
TRE1220/8	12 x 20	-	-	-	-	-	751.857	751.859	-
TRE1625/6	16 x 25	-	-	751.861	-	-	751.862	751.864	-
TRE1625/8	16 x 25	-	-	-	-	-	751.867	-	-
Conical SKM									
SKM0618/6	6 x 18	-	-	751.571	751.573	-	751.572	751.574	751.575
SKM1020/6	10 x 20	-	-	-	751.583	-	751.582	751.584	751.585
SKM1225/6	12 x 25	-	-	751.591	751.593	-	751.592	751.594	751.595
SKM1225/8	12 x 25	-	-	-	-	-	751.597	-	-
Conical cone KSJ/KSK									
KSJ0605/6*	6 x 5/60°	-	-	-	751.603	-	-	-	-
KSK0603/6*	6 x 3/90°	-	-	-	751.613	-	-	-	-
KSJ1008/6	10 x 13/60°	-	-	-	751.623	-	-	-	-
KSK1005/6	10 x 10/90°	-	-	-	751.633	-	-	-	-
KSJ1613/6	16 x 16/60°	-	-	-	751.643	-	-	-	751.645
KSK1608/6	16 x 13/90°	-	-	-	751.653	-	-	-	751.655

* KSJ 0605 and KSK 0603 are toothed at both head ends.



Shape B

Type/ shank	Head dim. mm	Cut/Item No.		
		3	3 R	3Plus
Flame shape B				
B 0820/6	8 x 20	751.403	751.406	751.402
B 1230/6	12 x 30	751.413	751.416	751.412
B 1635/6	16 x 35	—	—	751.422



Shape X

Type/ shank	Head dim. mm	Item- No.
Miniatur burrs X		
X 0204/3	2,5 x 4	751.954
X 0408/3	4 x 8	751.964
X 0610/6	6 x 10	751.974
X 0810/6	8 x 10	751.984
X 1010/6	10 x 10	751.994

Available only with diamond cut, similar to cut 4, but significantly finer



Tungsten carbide burrs with 150 mm long shanks upon request!



Shape WKN

Type/ shank	Head dim. mm	Item- No.
Inverted cone shape WKN, cut 3		
WKN 1013/6	10 x 13/10°	751.913
WKN 1213/6	12 x 13/20°	751.923
WKN 1613/6	16 x 13/20°	751.933



Shape N

Type/ shank	Head dim. mm	Item- No.
Rim shape N, cut 3		
N 2503/8	25 x 3/90°	751.803
N 2506/8	25 x 6/90°	751.813



Shape SPG



Shape KEL



Shape TRE



Shape SKM



Shape KSJ/KSK



Shape KSJ 0605/KSK 603



Shape V

Type/ shank	Head dim. mm	Item- No.
Concave radius burrs V, cut 3		
V 1015/6	10 x 15	751.883
V 1215/6	12 x 15	751.893
V 1315/6	13 x 15	751.903
With 10 mm cut radius.		



R 1618



R 0615/0830

Type/ shank	Head dim. mm	Cut radius	Item- No.
Radius burrs R			
R 1618/8	16 x 18	6,0 mm	751.870
R 0615/6	n.a.	1,5 mm	751.871
R 0830/8	n.a.	3,0 mm	751.872

Special cut

Tungsten Carbide Burrs for GRP/CRP

Produced specially for use on fibre reinforced plastics. Extremely high stock removal rates and high feed rates. The special end cut allows good penetration into solid materials, allowing drilling and milling in one operation. Shape similar to the cylindrical shape A.

Type/ shank	Burr dim. mm	Item- No.
A0625BS/6	6 x 25	751.941
A0825BS/8	8 x 25	751.942

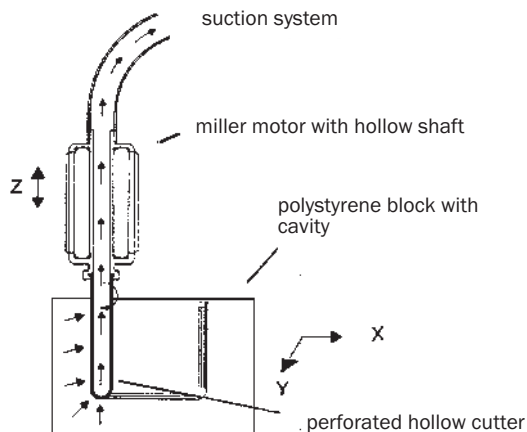


751B

PFERD



Diagram of the system



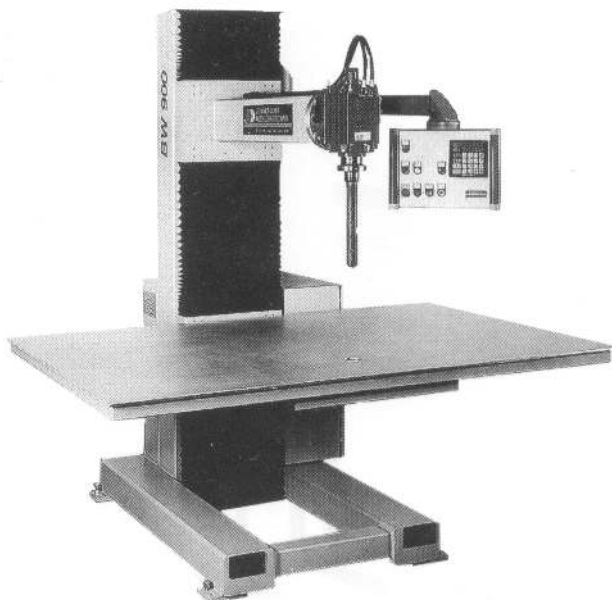
Dust free polystyrene cutting with the unique dust exhaust system

- high performance
- neat and clean workpieces and workplace
- unhindered vision
- no health hazards
 - a) because no harmful gasses are generated by or during this milling process
 - b) the operator does not inhale polystyrene particles thanks to the constant and direct removal of plastic chips by means of the exhaust system.

Remark: a sufficiently powerful suction system with filter is required for operating the system (see next page).

The exhaust system is **not** included in the scope of supply of the milling machines

752



Milling machine BW 900

Item No. 752.009

for production of models and packings made of rigid foam materials (polystyrene, polyurethane etc.)

Mechanics:

- aluminium milling machine table plate, 2000 x 1300 mm
- milling table with motor elevation, $s = 450$ mm
- milling table adjustable on all sides
- projection to the center of milling spindle 1040 mm, also after lowering milling table
- feeding unit with working gear, high-speed and low-speed gear, $s = 750$ mm
- milling motor with hollow shaft, $P = 1,1$ kW, infinitely variable from 2.000 to 6.000 min^{-1}
- linear guidings (free from backlash) and ball screw
- swivelling motor $\pm 90^\circ$, precise angle adjustment with large and accurate degree scale
- locking bolt for 0° -position
- dust-free expansion bellows
- stable, accurate and vibration-free mechanics

Control:

- positioning controller for 40 positive and negative start-up positions
- zeropoint level adjustable at will
- shrinkage dimension input
- millimeter/inch input
- switching to higher position number (e.g. from position 4 to position 8) by multiple pushing of start key
- display of actual and set value

Operating:

- workpiece height max. 1.000 mm at 300 mm effective cutter length; hollow cutters up to 600 mm effective cutter length (including customized version) may be utilized

Large range of hollow cutters see page 82/83.

- ergonomic operation tableau, swivelling
- large and easy-to-operate keys

Electrical connection data:

- main voltage: 230/400 V, 50 Hz
- control voltage: 24 V, 50 Hz or optional

Other features:

- with connection to one of our high-powered suction units (not included in BW 900 delivery scope, see next page), the suction unit is switched on simultaneously via the milling motor.
- lacquering: RAL 7036/3000 (platinegrey/flame red) or optional
- machine weight: 900 kg

Safety equipment:

- construction acc. to the law about technical work equipment, VDE directives, rules for accident prevention and EC-machinery directive. The EC-declaration of conformity will be included.

Dust free polystyrene cutting with the unique dust exhaust system (continued)

Cutter motor with hollow shaft

which can be fitted to conventional cutters

Accessories: 1 clamping nut, 2 hook wrenches

Technical data	Item No.	
	752.002	752.005 ¹⁾
Motor power	1,1	4,4
Voltage	230/400 ²⁾	230/400 ²⁾
Frequency	50	200
No. of revs. ⁻¹	3000 – 6000	2000 – 12000

¹⁾ to be used with a suitable frequency converter (not included in the supply)

²⁾ or spec.

Suitable motor holders can be supplied upon request!

Special switch

with brake for cutter motor with hollow shaft

Item No. 752.003



752A



Highly effective suction system

to be used with cutting machines BW 900 and cutter motors with hollow shafts

1. Suction machine BW 950 Item No. 752.801

Function:

- powerful suction of big quantities of plastic shavings during the production process

Advantages:

- maximum groove of the potential of the machine while milling polystyrene with hollow cutters
- exchange of the plastic bag without break of milling
- effective suction of shavings through the interior of the hollow cutters
- the suction machine works at low noise level

Technical data:

- Power: 5.9 kW
- Compressed air: 6 bar
- Suction access: diam. 70 and 50 mm
- Disposal of shavings: Connection for plastic bag or access to central suction unit
- Dimensions: 1,250 x 850 x 3,780 mm (L x W x H)
- Weight: 500 kgs
- Colour: RAL 9010 (white)

Optional features:

- Pneumatic filter-cleaning, avoids blinding of the special filter element

Item No. 752.802

- Control cabinet with push-buttons. Item No. 752.803

- Set of 100 plastic bags, volume 1 m³. Item No. 752.804

2. Highly effective suction system Item No. 752.008

Function:

- powerful suction of plastic shavings during the production process

Advantages:

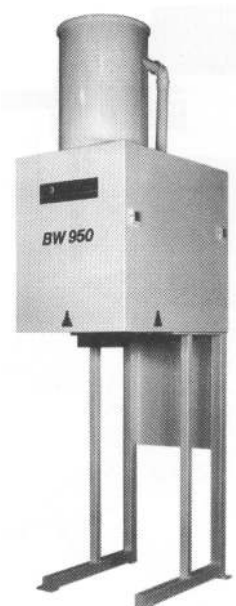
- effective suction of shavings through the interior of the hollow cutters
- economical solution esp. for routers

Technical data:

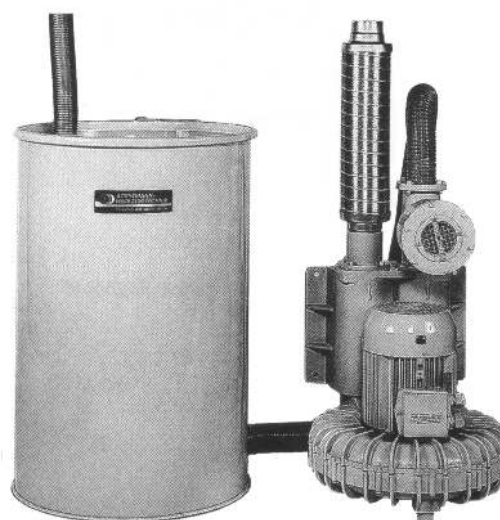
- Power: 5.5 kW
- Volume of shavings separator: 200 ltrs.
- Suction access: diam. 50 mm
- Disposal of shavings: Connection for plastic bag or manual clearance of shavings separator
- Dimensions shavings separator: 600 x 650 x 900 mm (L x W x H)
Weight: 75 kgs
- Dimensions compressor: 500 x 500 x 1200 mm (L x W x H)
Weight: 28 kgs
- Colour: RAL 9010 (white)

Optional features

- Set of 100 plastic bags, 900 x 1400 mm, air-permeable. Item No. 752.010



752.801

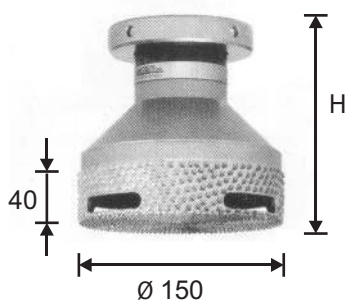
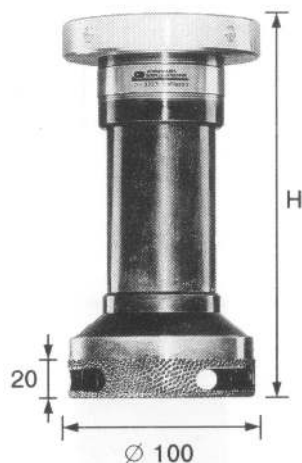
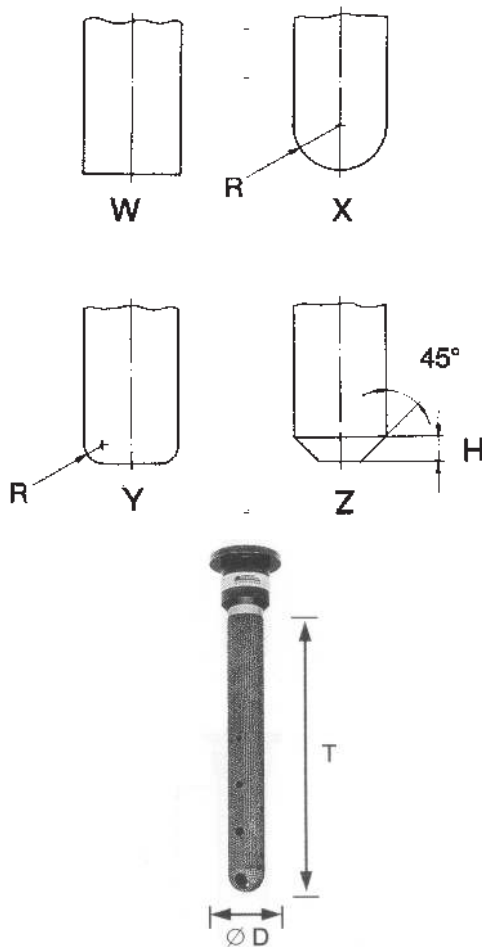


752.008

Dust free polystyrene cutting with the unique dust exhaust system (continued)

752C

Different heat-types available



Hollow cutters with rasp cut for milling machine BW 900 and motors with hollow shafts

- quick clean-out or rigid foam materials
- accurate, dimensionally precise milling results
- a polished, flow-optimized suction channel with suction openings ensures a clean work area
- composite hollow cutters enable exchange of milling cutter tips
- long lifetime due to special curing

T = useful cutting depth	Head type	D = Diameter / Item No.						
		15 mm	20 mm	30 mm	40 mm	45 mm	50 mm	60 mm
120 mm	W	752.011	-	-	-	-	-	-
	X	752.012	-	-	-	-	-	-
	Y	752.013	-	-	-	-	-	-
	Z	752.014	-	-	-	-	-	-
200 mm	W	-	752.021	752.031	752.041	752.051	752.061	752.071
	X	-	752.022	752.032	752.042	752.052	752.062	752.072
	Y	-	752.023	752.033	752.043	752.053	752.063	752.073
	Z	-	752.024	752.034	752.044	752.054	752.064	752.074
250 mm	W	-	752.081	752.091	752.101	752.111	752.121	752.131
	X	-	752.082	752.092	752.102	752.112	752.122	752.132
	Y	-	752.083	752.093	752.103	752.113	752.123	752.133
	Z	-	752.084	752.094	752.104	752.114	752.124	752.134
300 mm	W	-	-	752.141	752.151	752.161	752.171	752.181
	X	-	-	752.142	752.152	752.162	752.172	752.182
	Y	-	-	752.143	752.153	752.163	752.173	752.183
	Z	-	-	752.144	752.154	752.164	752.174	752.184
350 mm	W	-	-	752.191	752.201	752.211	752.221	752.231
	X	-	-	752.192	752.202	752.212	752.222	752.232
	Y	-	-	752.193	752.203	752.213	752.223	752.233
	Z	-	-	752.194	752.204	752.214	752.224	752.234
400 mm	W	-	-	-	752.241	752.251	752.261	752.271
	X	-	-	-	752.242	752.252	752.262	752.272
	Y	-	-	-	752.243	752.253	752.263	752.273
	Z	-	-	-	752.244	752.254	752.264	752.274
450 mm	W	-	-	-	752.281	752.291	752.301	752.311
	X	-	-	-	752.282	752.292	752.302	752.312
	Y	-	-	-	752.283	752.293	752.303	752.313
	Z	-	-	-	752.284	752.294	752.304	752.314
500 mm	W	-	-	-	-	752.321	752.331	752.341
	X	-	-	-	-	752.322	752.332	752.342
	Y	-	-	-	-	752.323	752.333	752.343
	Z	-	-	-	-	752.324	752.334	752.344
600 mm	W	-	-	-	-	-	-	752.351
	X	-	-	-	-	-	-	752.352
	Y	-	-	-	-	-	-	752.353
	Z	-	-	-	-	-	-	752.354

- Please state required head type (please indicate for type Y radius R and for type Z height H)
- Hollow cutters with tapered shape for pattern milling as well as other sizes and forms available on request.

Surface cutter heads (dia. 100 mm, toothed on the complete surface and 20 mm high on the periphery)

Item No.	752.391	752.392	752.393
H = Length mm	100	200	300

Surface cutter heads (dia. 150 mm, toothed on the complete surface and 40 mm high on the periphery)

Item No.	752.394
H = Length mm	150

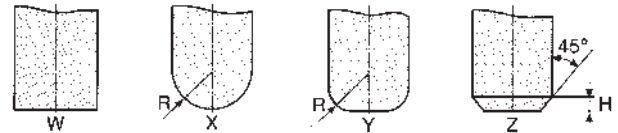
Dust free polystyrene cutting with the unique dust exhaust system (continued)

V-HSC-Hollow cutters with special cut for CNC-milling and motors with hollow shafts

752D

- for superfast clearing of pockets and 3D-contours
- for fine and accurate milling results
- for vertical immersion into the plastic material without melting effects
- long life-time due to special curing
- composite hollow cutters enable exchange of milling cutter tops.

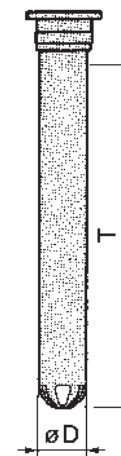
Please state the required head type of the cutter top.



T = Effective cutter length	Head type	D = Diameter / Item No.						
		20 mm	25 mm	30 mm	40 mm	45 mm	50 mm	60 mm
200 mm	W	752.401	752.411	752.421	-	-	-	-
	X	752.402	752.412	752.422	-	-	-	-
	Y	752.403	752.413	752.423	-	-	-	-
	Z	752.404	752.414	752.424	-	-	-	-
250 mm	W	752.431	752.441	752.451	-	-	-	-
	X	752.432	752.442	752.452	-	-	-	-
	Y	752.433	752.443	752.453	-	-	-	-
	Z	752.434	752.444	752.454	-	-	-	-
300 mm	W	-	752.461	752.471	752.491	752.501	752.511	-
	X	-	752.462	752.472	752.492	752.502	752.512	-
	Y	-	752.463	752.473	752.493	752.503	752.513	-
	Z	-	752.464	752.474	752.494	752.504	752.514	-
350 mm	W	-	-	752.521	752.541	752.551	752.561	752.571
	X	-	-	752.522	752.542	752.552	752.562	752.572
	Y	-	-	752.523	752.543	752.553	752.563	752.573
	Z	-	-	752.524	752.544	752.554	752.564	752.574
400 mm	W	-	-	-	752.591	752.601	752.611	752.621
	X	-	-	-	752.592	752.602	752.612	752.622
	Y	-	-	-	752.593	752.603	752.613	752.623
	Z	-	-	-	752.594	752.604	752.614	752.624
450 mm	W	-	-	-	752.631	752.641	752.651	752.661
	X	-	-	-	752.632	752.642	752.652	752.662
	Y	-	-	-	752.633	752.643	752.653	752.663
	Z	-	-	-	752.634	752.644	752.654	752.664
500 mm	W	-	-	-	-	-	752.671	752.681
	X	-	-	-	-	-	752.672	752.682
	Y	-	-	-	-	-	752.673	752.683
	Z	-	-	-	-	-	752.674	752.684

Other dimensions are available upon request!

- Please state required head type
(please indicate for type Y radius R and for type Z height H)

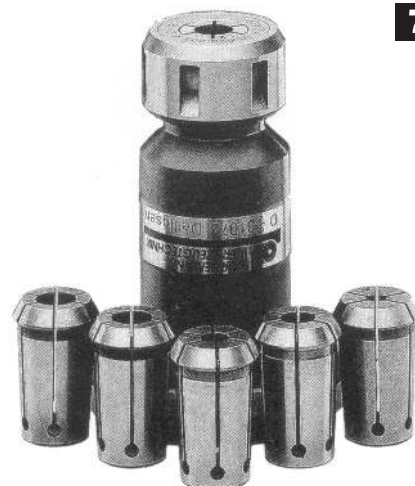


Collets and casings for shank-type cutters

This item allows to use normal shank-type cutters in combination with cutter motors with hollow shafts (however without the dust-free effect).

752E

Item No.	Item
752.701	Casing for collets with cooling slots for shank diameter 2 - 25 mm complete with fixing nut and wrench
752.704	Collet for diameter 4
752.706	Collet for diameter 6
752.708	Collet for diameter 8
752.710	Collet for diameter 10
752.712	Collet for diameter 12
752.716	Collet for diameter 16
752.720	Collet for diameter 20
752.725	Collet for diameter 25



Dust free polystyrene cutting with the unique dust exhaust system (continued)

753

Apollo 2N-pattern-making-set

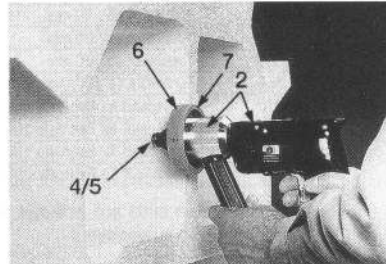
the ideal milling machine for model making mills rigid foams dust-free with minimum expenditure of time

- for fine and accurate milling results
- for rapid chamfering and grinding of model edges
- six different milling cutters are permanently available
- compatible extension sets for bore cutting and 3D-milling are also available.

- **APOLLO 2N** with electronic revolution control adapts optimally to all materials
- **APOLLO 2N** milling cutters with super-long tool life due to BW-special hardening
- convenient tool exchange



1



8



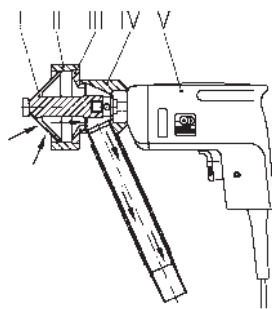
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11



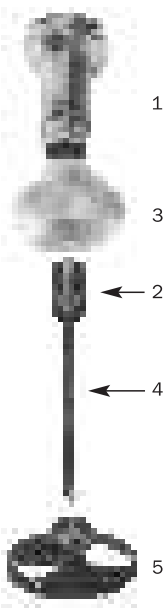
- I perforated hollow cutter
- II depth limit
- III adaptor
- IV suction device
- V electrical power machine

III. No.	Item No.	Item	Technical data
1	753.002	APOLLO 2-modelling-set, complete, 17 parts, scope see underneath	230 V 50 – 60 Hz, 500 – 4.500 min ⁻¹ or 110 V, 50 – 60 Hz, 500 – 4.500 min ⁻¹
2	753.460	APOLLO 2-drive incl. 2 socket wrenches	230 V 50 – 60 Hz, 500 – 4.500 min ⁻¹ or 110 V, 50 – 60 Hz, 500 – 4.500 min ⁻¹
3	753.461	case with insertion	
4	753.465	chamfering cutter 45°	
4	753.466	chamfering cutter 30°	
5	753.467	rounding-off cutter R 10	
5	753.468	rounding-off cutter R 15	
5	753.469	rounding-off cutter R 20	
5	753.470	rounding-off cutter R 25	
6	753.471	depth limit H 10	
6	753.472	depth limit H 15	
6	753.473	depth limit H 20	
6	753.474	depth limit H 25	
6	753.475	depth limit H 30	
6	753.476	depth limit H 35	
7	753.477	connection piece	

Additional accessories:

III. No.	Item No.	Item	Technical data
8	753.480	profile cutter	Ø 55 x 70 mm
9	753.481	engraving cutter	Ø 20 x 75 mm, R 5
10	753.482	cylindrical cutter	Ø 20 x 75 mm
11	753.483	suction nozzle	
-	753.039	suction hose	Ø 25 mm x 5 mtr, long

753A



1

3

2

4

5

Apollo 2N-extension-set

III. No.	Item No.	Item	Technical data
-	753.510	APOLLO 2-extension set, complete, 18 parts, scope see underneath	
1	753.490	suction tube	
2	753.491	connection piece	
3	753.492	suction funnel	for Ø 35 – 50 mm
3	753.493	suction funnel	for Ø 50 – 70 mm
3	753.494	suction funnel	for Ø 70 – 90 mm
3	753.495	suction funnel	for Ø 90 – 100 mm
4	753.371	drilling shaft	depth = 100 mm
5	753.350	TunnelCut	Ø 40 mm
5	753.351	TunnelCut	Ø 50 mm
5	753.343	TunnelCut	Ø 60 mm
5	753.345	TunnelCut	Ø 70 mm
5	753.352	TunnelCut	Ø 80 mm
5	753.353	TunnelCut	Ø 90 mm
5	753.354	TunnelCut	Ø 100 mm
-	753.464	Case with inserts, acc.: 2 socket wrenches, 1 screw wrench	

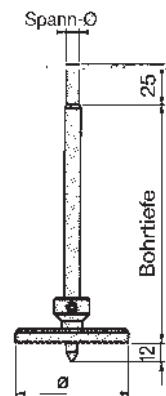
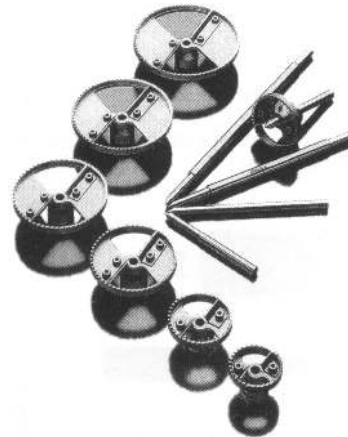
TunnelCut

753B

- the ideal tool for 'rigid foam model-makers'
- cuts bores (e.g. for cables and waterdrains) with minimum effort and time expenditure
- provides for smooth milling surfaces
- also handles bonded rigid foam plates
- can be used in angle drills, manual drills and APOLLO-handmilling machines (see page 84)

Item No.	Item
753.350	TunnelCut Ø 40 mm
753.351	TunnelCut Ø 50 mm
753.343	TunnelCut Ø 60 mm
753.345	TunnelCut Ø 70 mm
753.352	TunnelCut Ø 80 mm
753.353	TunnelCut Ø 90 mm
753.354	TunnelCut Ø 100 mm
753.370	drilling shafts for drilling depth 60 mm, d = 8 mm
753.371	drilling shafts for drilling depth 100 mm, d = 8 mm
753.372	drilling shafts for drilling depth 150 mm, d = 8 mm
753.373	drilling shafts for drilling depth 200 mm, d = 8 mm

Other sizes on request!



Special shank cutters for hard polystyrene

754

Angle cutter (for undercuts)

Angle	Diameter/Item No.		
	15 mm	25 mm	35 mm
20°	—	754.102	754.104
30°	754.101	754.103	754.105
Shank-Ø	8 mm	8 mm	8 mm

Chamfer cutters with two ball bearings

Angle	Diameter/Item No.	
	35 mm	50 mm
30°	754.201	754.203
45°	754.202	754.204
Shank-Ø	8 mm	12 mm

Rounding-off cutters with two bevel angles

Item No.	754.303	754.304	754.305	754.306	754.308	754.310	754.312
Radius	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Ø	17 mm	19 mm	21 mm	23 mm	29 mm	33 mm	37 mm
Shank-Ø	8 mm					12 mm	

Item No.	754.315	754.320	754.325	754.330	754.335	754.340
Radius	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm
Ø	43 mm	55 mm	65 mm	77 mm	87 mm	97 mm
Shank-Ø	12 mm		16 mm			

Rounding-off cutters with two bevel angles and two ball bearings

Item No.	754.403	754.404	754.405	754.406	754.408	754.410	754.412	754.415
Radius	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	15 mm
Ø	22 mm	24 mm	26 mm	28 mm	32 mm	36 mm	40 mm	46 mm
Shank-Ø	8 mm						12 mm	

Item No.	754.420	754.425	754.430	754.435	754.440	754.450	754.480
Radius	20 mm	25 mm	30 mm	35 mm	40 mm	50 mm	80 mm
Ø	56 mm	66 mm	77 mm	87 mm	97 mm	117 mm	177 mm
Shank-Ø	16 mm			20 mm			

Hole cutters, flat

Item No.	754.500	754.501	754.502	754.503	754.504	754.504L	754.505	754.505L
Ø	15 mm	20 mm	25 mm	30 mm	40 mm	40 mm	50 mm	50 mm
Length	70 mm				70 mm	160 mm	70 mm	160 mm
Shank-Ø	8 mm	10 mm			12 mm			

Item No.	754.506	754.506L	754.507	754.508	754.508L	754.509	754.510	754.510L
Ø	60 mm	60 mm	70 mm	80 mm	80 mm	90 mm	100 mm	100 mm
Length	70 mm	160 mm	70 mm	70 mm	160 mm	70 mm	70 mm	160 mm
Shank-Ø	12 mm							

Facing cutters, full face toothing, standard height 30 mm

Item No.	754.520	754.523	754.524	754.529	754.530
Ø	50 mm	100 mm	120 mm	150 mm	180 mm
Shank-Ø	10 mm	12 mm	16 mm		25 mm



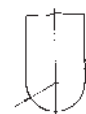
Special shank cutters for hard polystyrene (continued)

Cylindrical cutters

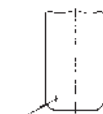
Choice of various cutter heads:



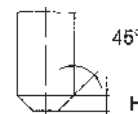
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X



Y



Z

Ø		Length														
		20 mm	25 mm	30 mm	35 mm	40 mm	50 mm	60 mm	80 mm	100 mm	120 mm	150 mm	180 mm	200 mm	230 mm	250 mm
8 mm	Item No.* Shank-Ø min.	754.601 6 mm	754.611 6 mm	754.621 6 mm	754.631 6 mm	754.641 6 mm	754.651 8 mm	754.661 8 mm	-	-	-	-	-	-	-	-
10 mm	Item No.* Shank-Ø min.	754.602 6 mm	754.612 6 mm	754.622 6 mm	754.632 8 mm	754.642 8 mm	754.652 8 mm	754.662 8 mm	754.672 8 mm	754.682 10 mm	754.692 12 mm	-	-	-	-	-
15 mm	Item No.* Shank-Ø min.	754.603 6 mm	754.613 6 mm	754.623 8 mm	754.633 8 mm	754.643 8 mm	754.653 8 mm	754.663 8 mm	754.673 10 mm	754.683 10 mm	754.693 16 mm	754.703 16 mm	-	-	-	-
20 mm	Item No.* Shank-Ø min.	754.604 6 mm	754.614 6 mm	754.624 8 mm	754.634 8 mm	754.644 8 mm	754.654 8 mm	754.664 8 mm	754.674 10 mm	754.684 10 mm	754.694 16 mm	754.704 16 mm	754.714 16 mm	754.724 20 mm	754.734 20 mm	754.744 20 mm
25 mm	Item No.* Shank-Ø min.	754.605 6 mm	754.615 6 mm	754.625 8 mm	754.635 8 mm	754.645 8 mm	754.655 8 mm	754.665 8 mm	754.675 10 mm	754.685 10 mm	754.695 16 mm	754.705 16 mm	754.715 16 mm	754.725 20 mm	754.735 20 mm	754.745 20 mm
30 mm	Item No.* Shank-Ø min.	754.606 8 mm	754.616 8 mm	754.626 8 mm	754.636 8 mm	754.646 8 mm	754.656 8 mm	754.666 10 mm	754.676 10 mm	754.686 12 mm	754.696 16 mm	754.706 16 mm	754.716 20 mm	754.726 20 mm	754.736 20 mm	754.746 25 mm
35 mm	Item No.* Shank-Ø min.	754.607 8 mm	754.617 8 mm	754.627 8 mm	754.637 8 mm	754.647 8 mm	754.657 10 mm	754.667 10 mm	754.677 12 mm	754.687 12 mm	754.697 16 mm	754.707 16 mm	754.717 20 mm	754.727 20 mm	754.737 25 mm	754.747 25 mm
40 mm	Item No.* Shank-Ø min.	754.608 8 mm	754.618 8 mm	754.628 8 mm	754.638 8 mm	754.648 8 mm	754.658 10 mm	754.668 10 mm	754.678 12 mm	754.688 12 mm	754.698 16 mm	754.708 16 mm	754.718 20 mm	754.728 25 mm	754.738 25 mm	754.748 25 mm
45 mm	Item No.* Shank-Ø min.	-	-	-	-	-	-	-	-	-	-	754.710 20 mm	-	-	-	-
50 mm	Item No.* Shank-Ø min.	754.609 8 mm	754.619 8 mm	754.629 8 mm	754.639 8 mm	754.649 8 mm	754.659 10 mm	754.669 10 mm	754.679 12 mm	754.689 16 mm	754.699 16 mm	754.709 20 mm	754.719 20 mm	754.729 25 mm	754.739 25 mm	754.749 25 mm
60 mm	Item No.* Shank-Ø min.	-	-	-	-	-	-	-	-	-	-	754.711 25 mm	-	-	-	-

* Please complete the given item-nos. by


a) the desired head type (W,X,Y or Z, see above)

b) for head type Y radius R or for type Z height H

c) the desired shank-diameter (please observe the above mentioned min.shank-diameters.

example for order: Item No. 754.635 X = cyl. cutter dia. 25 mm x 35 mm length, head type X, shank-diameter (min. 8 mm)

Item No. 754.728 Z = cyl. cutter dia. 40 mm x 200 mm length, head type Z, height H, shank-diameter (min. 25 mm)

- The by  marked cutters are **most common** types
- Other cutters types or sizes and cutters for soft foams on request!

Electric cutting equipment for cutting and modelling foam plates and blocks

Sturdy unit, easy to operate, for cutting and modeling individual components or in series. Both units are equipped with a stepless controller; max. cutting wire length 180 cm; housing of light metal with hammer finish.

Steel housing, plastic coated with firm carrying handle. No irritation by cutting shavings and no electrostatic charge.

Tension 230V - 50 Hz

Type Sfs ItemNo. 755.001

Weight 10 kgs, cable length 2 m with 3 pole plug, max. cable length between housing and handle-cutter or cutting-bow = 4 mtrs. Input power max. 900VA. For cutting wire diam. 0,8 or 1,6 mm.

Attachments may be connected to the unit with a special socket.

Type Sfs/E, mobile with two rotatable wheels Item No. 755.002

Weight 38 kgs, cable length 2 m with 3 pole plug, max. cable length between housing and handle-cutter or cutting-bow = 6 mtrs. Input power max. 1800VA. For cutting wire diam. 0,8, 1,6, 2,2 or 3,0 mm. Attachments may be connected to the unit with a special socket. Thus two accessories of the light series or one of the fortified may be used simultaneously.

Accessories:

1.) Handle-cutter

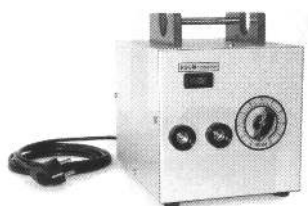
For type	Sfs	Sfs/E
Item No.	755.201	755.202

2.) Cutting bow

Length x depth	60 x 40 cm	90 x 100 cm	100 x 90 cm	120 x 80 cm	150 x 75 cm	160 x 70 cm	180 x 60 cm
Item No.	755.101	755.102	755.103	755.104	755.105	755.106	755.107

3.) Cutting wire

Wire dia.	0,8 mm	1,6 mm	2,2 mm	3,0 mm
Item No.	755.408	755.416	755.422	755.430



Sfs



Sfs/E



Handle-cutter



Cutting bow

Polystyrene electric cutting equipment Type 98

Item No. 756.001

Low-cost table model

Design: table of plastic-coated pressed chip-board with grid, angle and cm-scale, slots for circular cutter and cross cut gauge, bow tiltable to both sides, metal feet

Controls: on/off-switch, 3-stage selector switch, pilot lamp, fuse, plug for connecting cutters

Technical data: size of the table: 600 x 500 mm
passage between wire and bow: 600 mm
cutting height: 400 mm
bevel cutting feature

Power source: 220 V / 50 cps

Standard: 3 m spare cutting wire (0,5 mm dia.), operating instructions, 1,5 m long cable with plug

Special accessories:

Item	Parallel square	Circular cut attachment	Cross cut-gauge	Modelling-pin	Back square	Cutting wire 0,5 mm dia.
Item No.	756.101	756.102	756.103	756.104	756.105	756.106



756

The above illustration shows the equipment with parallel square, cross cut gauge and circular cutting device.

Other models of cutting machines for polystyrene upon request!

Electrical cutting device Item No. 757.001

for hard polystyrene panels

for connection to 220 V via a 3-m-long cable with Euro-plug, speedy and clean cutting action, with standard blade with which panels up to a thickness of 70 mm can be cut, blade is heated as long as the switch lever is actuated; blade can easily be replaced. Max.wattage 100 W, max. cutting temperature 500 °C, with standard blade and suspension hook.

Spare blades:

Item No.	Item
757.101	C 70 (standard blade), for straight cuts up to 70 mm
757.102	C 100, for straight cuts up to 100 mm
757.103	CN 14, round, for groove width 14 mm
757.104	CN 20, round, for groove width 20 mm
757.105	CN 26, round, for groove width 26 mm
757.106	CR 20, round, for groove width 20 mm (with depth limiter)
757.107	CS 20, square, for groove width 20 mm (with depth limiter)
757.108	CV 20, V-shape, for groove width 20 mm (with depth limiter)



757

Cutting knives for polystyrene

1) SCHAUMEX

Item No. 757.201

for plates of max. 60 mm thickness. A safety bar may be set in front of the blade. The depot in the handle contains 5-spare-blades.

Spare-blades Item No. 757.202
(0,3mm thick, packing unit = 10 pcs.)



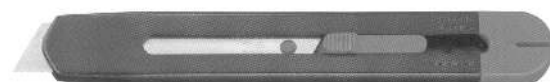
757A

2) CUTTEX

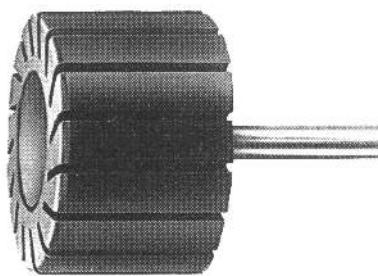
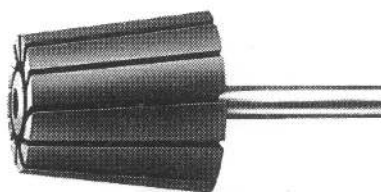
Item No. 757.210

for cutting polystyrene with a blade of 18 mm width

Spare-blades Item No. 757.212
(Width 18mm, 0,5mm thick, packing unit = 10 pcs.)



Note: Polystyrene adhesive, adhesive tape and primer see item nos. 933/938/939

758**PFERD****Designs:****cylindrical****tapered**

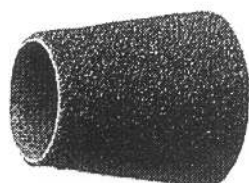
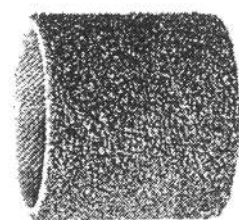
Rotary grinding tools (suitable grinders see Item No. 758A)

5 elements per package

Item No.	Type	Dia. x height mm	Shank dia. mm	Max. speed min ⁻¹	Min. speed min ⁻¹
cylindrical					
758.009	GK 0410/3	4 x 10	3	55000	30000
758.010	GK 0410/6	4 x 10	6	55000	30000
758.019	GK 0610/3	6 x 10	3	55000	30000
758.020	GK 0610/6	6 x 10	6	55000	30000
758.029	GK 0810/3	8 x 10	3	55000	30000
758.030	GK 0810/6	8 x 10	6	55000	30000
758.040	GK 1010/6	10 x 10	6	44000	30000
758.050	GK 1020/6	10 x 20	6	44000	30000
758.060	GK 1310/6	13 x 10	6	44000	30000
758.070	GK 1325/6	13 x 25	6	44000	30000
758.080	GK 1510/6	15 x 10	6	36000	25000
758.090	GK 1530/6	15 x 30	6	36000	25000
758.100	GK 1925/6	19 x 25	6	30000	20000
758.110	GK 2220/6	22 x 20	6	26000	18000
758.110H	GK 2220/6H	22 x 20	6	26000	18000
758.120	GK 2525/6	25 x 25	6	22900	16000
758.130	GK 3020/6	30 x 20	6	19100	13000
758.140	GK 3030/6	30 x 30	6	19100	13000
758.140H	GK 3030/6H	30 x 30	6	19100	13000
758.150	GK 3825/6	38 x 25	6	15100	10000
758.160	GK 4530/6	45 x 30	6	12700	8500
758.160H	GK 4530/6H	45 x 30	6	12700	8500
758.170	GK 5125/6	51 x 25	6	11200	7500
758.180	GK 6030/6	60 x 30	6	9500	6500
758.188	GK 6030/8	60 x 30	8	9500	6500
758.190	GK 7530/8	75 x 30	8	7600	5000
tapered					
758.220	GK 201463/6	20 / 14 x 63	6	26000	18000
758.230	GK 362260/6	36 / 22 x 60	6	15900	10000

The rotary grinders marked 'H' have a higher rubber hardness allowing for higher grinding pressure. The rotary grinders are less flexible and are thus better suitable for grinding edges.

Note: Reducers (dia. 6 mm) for 3-mm-shank tools see page 76, Item 749

758A**PFERD**

Rotary grinders (for the above grinding tools)

Design: Backing of an artificial resin bonded material with high tearing strength guaranteeing a long service life.

Remark: We recommend that grease or grinding oil should be added, especially when working light metals. Recommended circumferential speed: appr. 20 m/sec.

Type	suitable for tool	Grains/ Item No.				Contents per package
		40	60	80	150	
cylindrical						
KSB 0410	GK 0410	—	—	—	758.014	25 pcs.
KSB 0610	GK 0610	—	—	—	758.024	25 pcs.
KSB 0810	GK 0810	—	—	—	758.034	25 pcs.
KSB 1010	GK 1010	—	—	758.043	758.044	25 pcs.
KSB 1020	GK 1020	—	—	758.053	758.054	25 pcs.
KSB 1310	GK 1310	—	—	758.063	758.064	25 pcs.
KSB 1325	GK 1325	—	—	758.073	758.074	25 pcs.
KSB 1510	GK 1510	—	758.082	758.083	758.084	25 pcs.
KSB 1530	GK 1530	—	758.092	758.093	758.094	25 pcs.
KSB 1925	GK 1925	—	758.102	758.103	758.104	25 pcs.
KSB 2220	GK 2220	—	758.112	758.113	758.114	25 pcs.
KSB 2525	GK 2525	—	758.122	758.123	758.124	25 pcs.
KSB 3020	GK 3020	758.131	758.132	758.133	758.134	25 pcs.
KSB 3030	GK 3030	758.141	758.142	758.143	758.144	25 pcs.
KSB 3825	GK 3825	758.151	758.152	758.153	758.154	25 pcs.
KSB 4530	GK 4530	758.161	758.162	758.163	758.164	10 pcs.
KSB 5125	GK 5125	758.171	758.172	758.173	758.174	10 pcs.
KSB 6030	GK 6030	758.181	758.182	758.183	758.184	10 pcs.
KSB 7530	GK 7530	758.191	758.192	758.193	758.194	10 pcs.
tapered						
PCH 2065 L	GK 201463	—	758.222	—	758.224	10 pcs.
PCH 3665 L	GK 362260	—	758.232	—	758.234	10 pcs.

POLICAP-rotary grinding tools

consisting of slotted rubber element and seamless grinder cap. Due to the centrifugal force the grinder sits firmly on the rubber element; easily exchangeable. **Each package contains 5 tools of each type.**

Item No.	Type	Dia. x height mm	Shank dia. mm	Rec. speed rpm ⁻¹
Shape A				
759.010	PCT 0510 A	5 x 10	3	40000
759.020	PCT 0712 A	7 x 12	3	30000
759.030	PCT 1015 A	10 x 15	3	20000
759.040	PCT 1317 A	13 x 17	6	16000
759.050	PCT 1626 A	16 x 26	6	12000
Shape C				
759.060	PCT 0511 C	5 x 11	3	40000
759.070	PCT 0713 C	7 x 13	3	30000
759.080	PCT 1015 C	10 x 15	3	20000
759.090	PCT 1317 C	13 x 17	6	16000
759.100	PCT 1626 C	16 x 26	6	12000
Shape G				
759.110	PCT 0511 G	5 x 11	3	40000
759.120	PCT 0713 G	7 x 13	3	30000
759.130	PCT 1015 G	10 x 15	3	20000
759.140	PCT 1317 G	13 x 17	6	16000
759.150	PCT 1626 G	16 x 26	6	12000
Shape L				
759.160	PCT 0515 L	5 x 15	6	40000
759.170	PCT 1125 L	11 x 25	6	20000
759.180	PCT 1632 L	16 x 32	6	12000
759.190	PCT 2140 L	21 x 40	6	9500

Remark: 6-mm-dia. reducers for 3-mm-shank tools see page 76, Item 749



Shape A



Shape C



Shape G



Shape L

759

PFERD

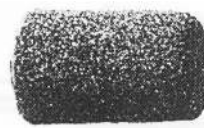


POLICAP-grinder caps for the above grinding tools

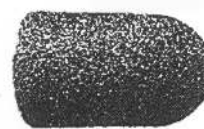
Each package contains 50 caps per type

Type	suitable for tool	Grain/Item No.		
		60	150	280
Shape A				
PC 05 A	PCT 0510 A	759.011*	759.012	759.013
PC 07 A	PCT 0712 A	759.021	759.022	759.023
PC 10 A	PCT 1015 A	759.031	759.032	759.033
PC 13 A	PCT 1317 A	759.041	759.042	759.043
PC 16 A	PCT 1626 A	759.051	759.052	759.053
Shape C				
PC 05 C	PCT 0511 C	759.061*	759.062	759.063
PC 07 C	PCT 0713 C	759.071	759.072	759.073
PC 10 C	PCT 1015 C	759.081	759.082	759.083
PC 13 C	PCT 1317 C	759.091	759.092	759.093
PC 16 C	PCT 1626 C	759.101	759.102	759.103
Shape G				
PC 05 G	PCT 0511 G	759.111*	759.112	759.113
PC 07 G	PCT 0713 G	759.121	759.122	759.123
PC 10 G	PCT 1015 G	759.131	759.132	759.133
PC 13 G	PCT 1317 G	759.141	759.142	759.143
PC 16 G	PCT 1626 G	759.151	759.152	759.153
Shape L				
PC 05 L	PCT 0515 L	759.161*	759.162	759.163
PC 11 L	PCT 1125 L	759.171	759.172	759.173
PC 16 L	PCT 1632 L	759.181	759.182	759.183
PC 21 L	PCT 2140 L	759.191	759.192	759.193

* grain 80



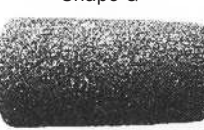
Shape A



Shape C



Shape G



Shape L

759A

PFERD



POLICAP-rotary grinding sleeves

Each package contains 5 tools

Item No.	Type	Dia. x height mm	Shank dia. mm	Rec. speed rpm ⁻¹
760.010	PCT 0585 L	8 x 85	6	12000
760.020	PCT 1185 L	13 x 85	6	12000
760.030	PCT 1685 L	18 x 85	6	12000
760.040	PCT 2185 L	23 x 85	6	12000



760

PFERD



POLICAP-rotary grinding sleeves

Each package contains 10 sleeves

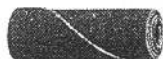
Type	suitable for tool	Grain/Item No.		
		60	150	280
PCH05 L	PCT 0585L	760.011	760.012	760.013
PCH11 L	PCT 1185L	760.021	760.022	-
PCH16 L	PCT 1685L	760.031	760.032	-
PCH21 L	PCT 2185L	760.041	760.042	-



760A

PFERD



761**PFERD**

Shape PR



Shape PRK

POLIROLL-rotary grinding rolls

are used for grinding and equalising hard-to-reach areas. After the top layer is worn, the next layer is used to complete the grinding job. **Always grind with the tip and not with the shell area** to avoid heat damage to the adhesive coating. Cylindrical rolls become tapered rolls by grinding. POLIROLL-rolls are **easily replaced**.

Each package contains 50 pieces per type.

Type	Dia. x height mm	Grain/Item No.			Suitable holder	Max. speed
		50	80	150		
cylindrical						
PR 0625	6 x 25	–	761.011	761.012	3 a, 6-18-3	25000
PR 0635	6 x 35	–	761.021	761.022	6-24-3	25000
PR 0925	9 x 25	–	761.031	761.032	6-18-3	23000
PR 0935	9 x 35	–	761.041	761.042	6-24-3	23000
PR 1225	12 x 25	761.050	761.051	761.052	6-18-3	17000
PR 1235	12 x 35	761.060	761.061	761.062	6-24-3	17000
PR 1835	18 x 35	761.070	761.071	761.072	6-25-5	12000
PR 1850	18 x 50	761.080	761.081	761.082	6-30-5	12000
tapered						
PRK 1025	10 x 25	–	761.091	761.092	3 a, 6-18-3	23000
PRK 1225	12 x 25	761.100	761.101	761.102	6-18-3	17000
PRK 1235	12 x 35	761.110	761.111	761.112	6-24-3	17000
PRK 1535	15 x 35	761.120	761.121	761.122	6-24-3	15000

761A**PFERD**

Shape PCO

POLICO-rotary grinding cones

for deburring bores or hard-to-reach places; self-chucking due to fluted conical holder.

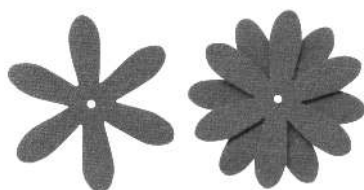
Each package contains 50 cones per grain.

Type	Dia. x height mm	Grain/Item No.		Suitable holder	Max. speed	Taper
		80	150			
PCO 1050	10 x 50	761.201	761.202	6-50-8	23000	5°

762**PFERD**

Holders for POLIROLL- and POLICO-grinding tools

Item No.	762.318	762.618	762.624	762.625	762.630	762.650
Type	3-18-3	6-18-3	6-24-3	6-25-5	6-30-5	6-50-8
Shank dia. mm	3	6	6	6	6	6
Suitable for	PR 0625 PRK 1025	PR 0625 PR 0925 PR 1225 PRK 1025 PRK 1225	PR 0635 PR 0935 PR 1235 PRK 1235 PRK 1535	PR 1835	PR 1850	PCO 1050
PR = cylindrical PRK = tapered POLICO PCO						holder taper 5°

763**PFERD**

POLISTAR abrasive pads

Flexible tools for grinding on internal surfaces of bores or pipes. The pads can be stacked in several layers. To benefit from a maximum abrasive surface area, ensure that the lobes of the individual star pads are aligned.

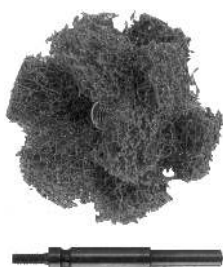
Type	Diam. mm	Hole-dia. mm	for bore- diam. mm	suitable holder	Grain/Item No.			Contents per package
					60	80	120	
PST 20	20	1,6	7-15	B0 3	763.121	763.122	763.123	100 pcs.
PST 30	30	1,6	10-20	B0 3	763.131	763.132	763.133	100 pcs.
PST 40	40	3,0	15-25	B0 6	763.141	763.142	763.143	100 pcs.
PST 50	50	3,0	20-40	B0 6	763.151	763.152	763.153	100 pcs.

764**PFERD**

Holders for POLISTAR

Important reduction of the time for assembling because the POLISTAR pads may be changed without removing the holder from the machine.

Item No.	Type	Shank diam.	Chuck range	Content p. pack.
764.103	B0 3	3mm	1-5mm	10 pcs.
764.106	B0 6	6mm	1-6mm	1 pc.

765**PFERD**

POLINOX cross buffs

Consist of polyamide fibres, impregnated with resin and permeated with grit. Particularly suitable for narrow places such as bores and cavities and hard-to-reach places.

Type	Ø mm	No. of layers	Grit size/Item No.		Packing unit
			medium	very fine	
PNST 25-2A	25	2	765.301	765.302	20 pcs.
PNST 38-3A	38	3	765.311	765.312	20 pcs.

Fitting arbors: Item No. **765.401** 6 x 75 mm
Item No. **765.402** 6 x 120 mm

POLINOX-grinding tools, shank dia. 6 mm

1) Type PNL. The abrasive elements of the type 'PNL' are aligned radially. The abrasive elements are available with **abrasive A (corundum)** or **C (silicon-carbide)**. For grinding surfaces.

2) Type PNR. The abrasive elements of type 'PNR' are aligned axially, therefore good adaption to contours.

3) Type PNZ. The abrasive elements of type 'PNZ' are radially aligned and they produce a coarser grinding pattern and increase the performance.

Each package contains 10 tools per type.

Type	Dia. x height mm	Grains (A = corundum; C = sil.-carb.)/Item No.				
		A 100	A 180	A 280	C 180	C 280
PNL 4020	40 x 20	766.110	766.111	766.112	766.114	766.115
PNL 5030	50 x 30	766.120	766.121	766.122	766.124	766.125
PNL 6050	60 x 50	766.130	766.131	766.132	766.134	766.135
PNL 8050	80 x 50	766.140	766.141	766.142	766.144	766.145
PNR 6050	60 x 50	766.210	766.211	766.212	-	-
PNR 8050	80 x 50	766.220	766.221	766.222	-	-
PNZ 4020	40 x 20	766.310	766.311	-	-	-
PNZ 6050	60 x 50	766.320	766.321	-	-	-
PNZ 8050	80 x 50	766.330	766.331	-	-	-
PNZ 10050	100 x 50	766.340	766.341	-	-	-



PNL



PNR



PNZ

766

PFERD

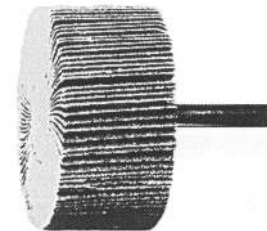


Rotary surface grinder tools F

for grinding; radii, smaller surface or hard-to-reach places.

Each package contains 10 tools per type.

Type	Dia. x height mm	Shank dia. mm	Grain/Item No.						
			60	80	120	150	180	240	320
F2010/3	20 x 10	3	-	-	767.014	767.015	767.016	-	-
F2010/6	20 x 10	6	-	767.023	767.024	767.025	767.026	-	-
F2515/6	25 x 15	6	-	767.033	767.034	767.035	767.036	-	-
F2525/6	25 x 25	6	-	767.043	767.044	767.045	767.046	-	-
F3005/3	30 x 5	3	767.052	767.053	767.054	767.055	767.056	767.057	767.058
F3005/6	20 x 10	6	767.062	767.063	767.064	767.065	767.066	767.067	767.068
F3010/3	30 x 10	3	767.072	767.073	767.074	767.075	767.076	767.077	767.078
F3010/6	30 x 10	6	767.082	767.083	767.084	767.085	767.086	767.087	767.088
F3015/6	30 x 15	6	767.102	767.103	767.104	767.105	767.106	767.107	767.108
F3030/6	30 x 30	6	767.112	767.113	767.114	767.115	767.116	767.117	767.118
F4010/6	40 x 10	6	767.122	767.123	767.124	767.125	767.126	767.127	-
F4015/6	40 x 15	6	767.132	767.133	767.134	767.135	767.136	767.137	767.138
F4020/6	40 x 20	6	767.142	767.143	767.144	767.145	767.146	767.147	-
F5010/6	50 x 10	6	767.152	767.153	767.154	767.155	767.156	767.157	767.158
F5015/6	50 x 15	6	767.162	767.163	767.164	767.165	767.166	767.167	767.168
F5020/6	50 x 20	6	767.172	767.173	767.174	767.175	767.176	-	767.178
F5030/6	50 x 30	6	767.182	767.183	767.184	767.185	767.186	767.187	767.188
F6015/6	60 x 15	6	767.192	767.193	767.194	767.195	-	767.197	767.198
F6020/6	60 x 20	6	767.202	767.203	767.204	767.205	-	767.207	767.208
F6030/6	60 x 30	6	767.212	767.213	767.214	767.215	767.216	767.217	767.218
F6040/6	60 x 40	6	767.232	767.233	767.234	767.235	-	767.237	-
F6050/6	60 x 50	6	767.242	767.243	767.244	767.245	-	767.247	767.248
F8015/6	80 x 15	6	767.252	767.253	767.254	767.255	-	-	-
F8020/6	80 x 20	6	767.262	767.263	767.264	767.265	-	-	-
F8030/6	80 x 30	6	767.272	767.273	767.274	767.275	-	767.277	767.278
F8040/6	80 x 40	6	767.292	767.293	767.294	767.295	-	767.297	-
F8050/6	80 x 50	6	767.302	767.303	767.304	767.305	-	767.307	767.308



767

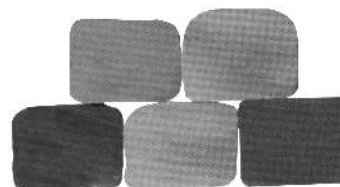
PFERD



Polishing-paste bars

Five different pastes, indicating its purpose by different colours. Bar size 70 x 50 x 140 mm.

Item No.	Type	Colour	Purpose
768.101	PP1 VP FE	green	Pre-polishing of steel and stainl. steel
768.102	PP2 VP MS	grey	Pre-polishing of aluminum and brass
768.103	PP3 VP NE	brown	Pre-polishing of nonferrous metals
768.104	PP4 HGP	pink	high-gloss of all metals
768.105	PP5 HGP K	beige	high-gloss polishing of plastics



768

PFERD



Grinding oils

Grinding oils avoid both too high temperatures and the contamination of the abrasive materials by shavings. Also the surface quality of the workpiece will be ameliorated. The life-time of surface grinder tools (see item 767) will increase using grinding oil. The oils prevents nonferrous metals from irritating spots and effect rust prevention for ferrous metals.

Purpose	Packing/Item No.		
	Spray can 470 ml	Bottle 1 ltr.	Bottle 5 ltr.
Iron and steel	769.100	769.101	769.105
Nonferrous metals, INOX,	769.110	769.111	769.115
Aluminium	769.120	769.121	769.125



769

PFERD



770**PFERD**

Complete holder



Shank



Chuck



Supporting disk



Grinding disks

ATADISC-grinding disk holders

Thanks to the patented chucking system, the grinding disks can be exchanged in a matter of seconds. No slipping of the grinding disk, no gluing.

Types of supporting disks: **standard**, flexible, for arched surfaces
inflexible, for surface grinding

Shank dia. 6 mm

Item No.	Type	Complete holder		Suitable components and spares			
		suitable grinding disks		shank	chuck	supporting disk flexible	inflexible
770.010	SH 2000	2005, 2505, 3505-2		770.110	770.210	770.320	770.420
770.020	SHT 2025	2505, 3505-2				770.330	770.430
770.030	SHT 2035	3505-2				—	—
770.040	SH 3500	3505, 5005, 7505		770.140	770.240	770.350	770.450
770.050	SHT 3550	5005, 7505				770.360	770.460
770.060	SHT 3575	7505				—	—

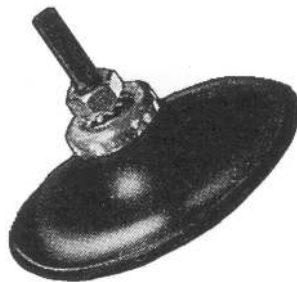
ATADISC-grinding disks

disks in: **A = corundum**

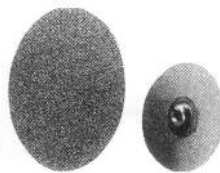
brown = for normal use

Each package contains 50 disks per type.

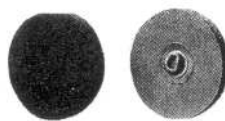
Type	Dia. mm	Suitable chucks	Grain/Item No.			
			A 60	A 120	A 180	A 320
AD 2005	20	770.210	770.510	770.511	770.512	770.513
AD 2505	25		770.520	770.521	770.522	770.523
AD 3505-2	35		770.530	770.531	770.532	770.533
AD 3505	35	770.240	770.540	770.541	770.542	770.543
AD 5005	50		770.550	770.551	770.552	770.553
AD 7505	75		770.560	770.561	770.562	770.563

770A**PFERD**

Holder



Abrasive disks



Non-woven disks

COMBI-DISC-grinding tools

ideal composition of reusable holder and grinding sheets or grinding disks by means of a **metal screw connection**, very easy to handle, quick tool change.

1) COMBI-DISC-holder in 3 degrees of hardness

soft for contours; **medium** for radii, **hard** for surfaces

Item No.	Type	Dia. mm	Degree of hardn.	Shank dia.	Max. speed
770.601	SBH 38 W	38	soft	6	25,000
770.602	SBH 50 W	50		6	19,000
770.603	SBH 75 W	75		6	12,500
770.611	SBH 20 M	20	medium	6	47,500
770.612	SBH 25 M	25		6	38,000
770.613	SBH 38 M	38		6	25,000
770.614	SBH 50 M	50		6	19,000
770.615	SBH 75 M	75		6	12,500
770.621	SBH 38 H	38	hard	6	25,000
770.622	SBH 50 H	50		6	19,000
770.623	SBH 75 H	75		6	12,500

2) COMBI-DISC abrasive disks in 2 versions

corundum A, dark brown, for normal use

ceramic grain CO, red-brown for grinding with outstanding abrasive results, to be used with powerful machines

Type	Dia. mm	Grain/Item No.								Pack. cont.
		A 60	A 80	A120	A180	A320	CO 36	CO 60	CO 80	
CD 20	20	770.631	770.632	770.633	770.634	770.635	-	-	-	100
CD 25	25	770.641	770.642	770.643	770.644	770.645	-	-	-	100
CD 38	38	770.651	770.652	770.653	770.654	770.655	-	-	-	100
CD 50	50	770.661	770.662	770.663	770.664	770.665	770.667	770.668	770.669	100
CD 75	75	770.671	770.672	770.673	770.674	770.675	770.677	770.678	770.679	50

3) COMBI-DISC non-woven disks in two degrees of hardness

hard: for all kinds of surface working, open structure, flexibility determined by the degree of hardness of the holder

soft: for finely grinding surfaces and contours, very open structure

Type	Dia. mm	Degree of hardn.	Grain/Item No.				Pack. cont.
			coarse	medium	fine	very fine	
VRH 20	20	hard	—	—	—	770.704	50
VRH 25	25		770.711	770.712	—	770.714	50
VRH 38	38		770.721	770.722	—	770.724	50
VRH 50	50		770.731	770.732	—	770.734	50
VRH 75	75		770.741	770.742	—	770.744	25
VRW 50	50	soft	—	770.752	770.753	770.754	50
VRW 75	75		—	770.762	770.763	770.764	25

Rubber supporting disks and plane grinding disks

1) self-adhering

a) rubber supporting disk 'GTH'

Item No.	Type	Diameter	Shank dia. x length mm	Max. speed rpm
771.110	GTH018.03	18	3 x 30	20.000
771.120	GTH030.03	30	3 x 30	12.500
771.130	GTH030.06	30	6 x 40	12.500
771.140	GTH045.06	45	6 x 40	10.000
771.150	GTH060.06	60	6 x 40	8.000
771.160	GTH075.06	75	6 x 40	6.000
771.170	GTH120.06	120	6 x 25	4.000
771.180	GTH120.08	120	8 x 25	4.000

5 per package (2 per package from 75 mm dia. up)

b) self-adhering plane grinding disks 'PSH'

Type	Dia. mm	Grain/Item No.						
		60	80	120	150	180	240	320
PSH018A	20	771.111	771.112	771.113	771.114	771.115	771.116	771.117
PSH030A	33	771.121	771.122	771.123	771.124	771.125	771.126	771.127
PSH045A	48	771.141	771.142	771.143	771.144	771.145	771.146	-
PSH060A	63	771.151	771.152	771.153	771.154	771.155	771.156	771.157
PSH075A	78	771.161	771.162	771.163	771.164	771.165	771.166	771.167
PSH120A	125	771.171	771.172	-	-	-	-	-

Package contains 100 pieces per type

2) self-adhesive

a) rubber supporting disk 'GTK'

Item No.	Type	Diameter	Shank dia. x length mm	Max. speed rpm
771.210	GTK018.03	18	3 x 30	20.000
771.220	GTK030.03	30	3 x 30	12.500
771.230	GTK030.06	30	6 x 40	12.500
771.240	GTK045.06	45	6 x 40	10.000
771.250	GTK060.06	60	6 x 40	8.000
771.260	GTK075.06	75	6 x 40	6.000

5 per package (2 per package from 75 mm dia. up)

b) self-adhesive plane grinding disks 'PSK'

Type	Dia. mm	Grain/Item No.						
		60	80	120	150	180	240	
PSK018A	21	771.211	771.212	771.213	771.214	771.215	771.216	
PSK030A	33	771.221	771.222	771.223	771.224	771.225	771.226	
PSK045A	48	771.241	771.242	771.243	771.244	771.245	771.246	
PSK060A	63	771.251	771.252	771.253	771.254	-	-	
PSK075A	78	771.261	771.262	771.263	771.264	-	-	

Package contains 100 pieces per type

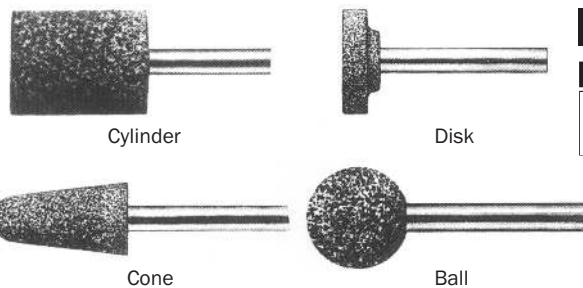
Remark: 6mm dia. reducers for 3-mm shank tools see p. 76, Item No. 749

Ceramic grinding tools

of electro-corundum, pink colour, hardness 'O', for steel and cast iron, grinding speed appr. 25 to 40 m/sec.

Min. quantity 10 per type.

We can also supply ceramic grinding tools in different degrees of hardness and of different materials and different shapes.



1) with straight shank, diameter 6 mm, length 40 mm

Cylinder		Disk	
Item No.	Head dia. x length	Item No.	Head dia. x length
772.101	3 x 6 mm	772.121	20 x 6 mm
772.102	4 x 8 mm	772.122	25 x 6 mm
772.103	5 x 10 mm	772.123	40 x 10 mm
772.104	6 x 13 mm	Cone	
772.105	8 x 10 mm		
772.106	10 x 13 mm	Item No.	Head dia. x length
772.107	13 x 13 mm	772.131	20 x 32 mm
772.108	16 x 20 mm	772.132	20 x 40 mm
772.109	10 x 32 mm	Ball	
772.110	13 x 40 mm		
772.111	16 x 40 mm	Item No.	Head dia.
772.112	20 x 40 mm	772.141	16 mm
772.113	32 x 20 mm	772.142	32 mm
772.114	40 x 20 mm		

2) with straight shank, diameter 3 mm, length 25 mm

Cylinder		Disk	
Item No.	Head dia. x length	Item No.	Head dia. x length
772.202	2 x 5 mm	772.221	13 x 3 mm
772.203	3 x 6 mm	772.222	16 x 4 mm
772.204	4 x 8 mm	772.223	20 x 6 mm
772.205	5 x 10 mm	Ball	
772.206	6 x 13 mm		
772.207	8 x 10 mm	Item No.	Head dia.
772.208	8 x 16 mm	772.241	5 mm
772.210	10 x 13 mm	772.242	8 mm
772.211	13 x 13 mm	772.243	10 mm
		772.244	13 mm

Remark: 6mm dia. reducers for 3-mm shank tools see p. 76, Item No. 749

773



Polishing tools, rubber bonded

Quality P1 rubber-bonded polishing tools, gr. 100

for fine polishing cast metals, hardened and unhardened, alloyed and unalloyed steels; max. circumferential speed 50 m/sec.

Quality P2 soft rubber-bonded flexible polishing tools, gr. 120

for fine and high polishing prefinished surfaces; very fine finish; max. circumferential speed 15 m/sec.

Min. quantity 20 per type.

Cylinder (other shapes upon request)

Head dia. x lg. mm	Shank dia. mm	Item No.		Head dia. x lg. mm	Shank dia. mm	Item No.	
		Qual. P1	Qual. P2			Qual. P1	Qual. P2
4 x 8	3	773.101	773.201	13 x 20	6	773.109	773.209
5 x 10	3	773.102	773.202	16 x 16	3	773.110	773.210
6 x 10	3	773.103	773.203	16 x 20	6	773.111	773.211
8 x 10	3	773.104	773.204	16 x 32	6	773.112	773.212
8 x 16	6	773.105	773.205	20 x 20	6	773.113	773.213
10 x 10	3	773.106	773.206	20 x 32	6	773.114	773.214
10 x 20	6	773.107	773.207	32 x 10	6	773.115	773.215
13 x 13	3	773.108	773.208	40 x 20	6	773.116	773.216

Remark: 6 mm dia. reducers for 3-mm shank tools see p. 76, Item No. 749

773A



Grinder blocks

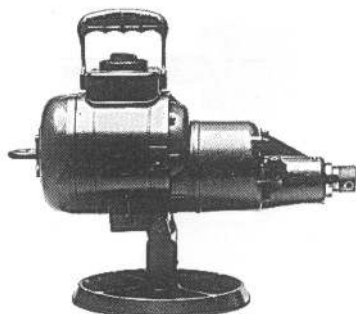
of silicon carbide, for trimming and shaping grinding tools

Item No.	Length mm	Width mm	Height mm
303.001	50	25	15
303.002	100	30	15
303.003	100	50	25
303.004	150	50	25

Packages contains 5 pieces per size.

774

PFERD



Flexible shaft drives
with electronic upon request!

Flexible shaft machine 'Mammut'

powerful tools, multi-purpose application for milling, grinding and polishing

7 speed ranges: 12.000; 8.000; 5.700; 3.200; 2.100; 1.600; 850 rpm

In connection with the overdrive ST 103 (see p. 95, item 776)

the drive speed may be transmitted in a ratio of 1:3.

Motor design	Three-phase curr. 50 Hz 220 / 380 V	Weight kg
Mammut	Item No.	
- Motor with base (see ill.)	774.100	16,5
- hanging	774.101	16,0
- in overhead trolley	774.102	17,0
- on base trolley	774.103	44,5
Wattage/horsepower (output)	736 / 1	
Wattage (input)	1000	
Dimensions (L x W x H) mm	460 x 160 / 240 x 400	
Motor connection	DIN 10	
Tool holder	6 mm collet	
Shaft connector	DIN 10	
Standard shaft	10 ZG DIN 10 (see item 306)	
Additional shafts		
a) for light duty	4 ZG DIN 10; 7 ZG DIN 10 (see item 306)	
b) for heavy duty	12 ZG DIN 10 (see item 306)	

The machines are supplied without plug and shaft (see item 776).

775

PFERD



Motor RU 8/180SI
with speed control,
table stand, support
and shaft with
handpiece.

Record universal motor RU 8/180 SI

For general use in milling, grinding and polishing work. Extremely low noise development, particularly suitable for use in tool and mould construction.

Item No.	775.201
Technical data:	
Dimension	222 x 98 x 98mm
power input	1020W
power output	600W
motor connection	DIN 10
RPM*	0-18.000
Suitable shafts	4ZG and 7ZG/ZGU (see item 776)

* Variable speed due to the **combi-speed control** (may be used as a table-top or foot-control)

Recommended accessories:

1) **Table stand TSL 1400** with screw clamp for bench tops up to 65mm in thickness.

The telescopic system allows individual height adjustment up to max. 140cm. **Item No. 775.203**

2) **Handpiece support TSA L 1400** matches the table stand and allows you to place optimally various handpieces, ready for use **Item No. 775.204**

The machine is delivered **without a flexible shaft**. Please order separately (see item no. 776).

Accessory tools for Item No. 774 / 775

1) Flexible shafts (connector to motor acc. to DIN 10), cpl. with handle
Core of piano wire, core coupling M 10. Protective hose of oil-resistant rubber, hose coupling 30 mm dia.

Core or protective hose cannot be repaired.

Item No.	776.101	776.102	776.103	776.104	776.105
Type	4 ZG DIN 10	7 ZG DIN 10	7 ZGU DIN 10	10 ZG DIN 10	12 ZGA DIN 10
Core dia. x length mm	4 x 1330	7 x 1590	7 x 2090	10 x 1600	12 x 2100
Hose dia. mm	13	18	18	22	25
Handle Item No.	4 ZGB	7 ZGA	7 ZGA	10 ZGE	12 ZGA
Handle size dia. x length mm	19,5 x 110	27 x 130	27 x 130	33 x 170	33 x 162
Handle connector	G 16	G 22	G 22	G 28	G 28
Handle coupling dia. mm	16	22	22	28	28
Standard collet mm	6	6	6	6	12
Opt. available collets mm	3/5	3/5/8			5/6/8/10
Max. speed revs/min.	40.000	25.000	25.000	18.000	12.000
Weight kg	0,6	1,5	2,0	2,5	4,25

Rigid or flexible extensions available upon request!



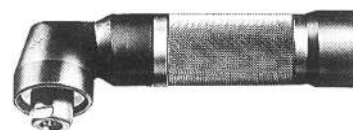
2) Pre-assembled replacement cores

Item No.	776.601	776.602	776.603	776.604	776.605
For shaft	4 ZG	7 ZG	7 ZGU	10 ZG	12 ZGA



3) Angle tool holder

Item No.	776.201	776.202	776.204
Type	WZ 4A	WZ 7B	WZ 10B
For shaft	4 ZG	7 ZG / 7 ZGU	10 ZG / 12Z GA
Head height x length mm	43 x 111	55 x 157	55 x 166
Max. speed revs/min.	20.000	17.000	17.000
Weight kg	0,27	0,60	0,58
Collets mm	3 mm	6 mm	6 mm



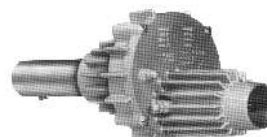
4) Chuck

Item No.	776.301
Type	207
Shank dia. mm	6
Chuck range mm	0 - 6
Weight kg	0,14



5) Overdrive ST 103 DIN 10 Item No. 776.501

Ratio 1:3; i.e. threefold rpm (f.e. fitting for machine Mammüt - item. 774)



6) Flexible shaft grease

- a) Hose brushes for the shafts
- b) Non-fuzzing cleaning towels (package contains 2)
- c) Shaft grease FT 4 (appr. 450 gr. tin)

Item No.	776.402	776.403	776.404
For shaft	4 ZG	7 ZG / 7 ZGU	10 ZG / 12 ZGA



777



(Clamp w/tommy 777.400)

Malleable cast iron screw clamps

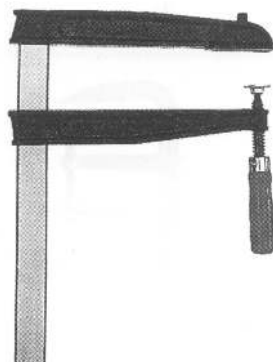
up to 400 mm with clamping protection.

Profile rail fluted on both sides, spindle galvanized, with plastic protectors up to 400 mm clamping width. **Anti-slip-system**, with wooden handles.

Item No.	Type	Clamping width mm	Reach mm	Steel rail mm	Weight kg
777.010	TG 10	100	50	15 x 5	0,26
777.012	TG 12	120	60	20 x 5	0,42
777.016	TG 16	160	80	25 x 6	0,66
777.020	TG 20	200	100	27 x 7	1,06
777.025	TG 25	250	120	29 x 9	1,54
777.030	TG 30	300	140	32 x 10	2,20
777.040	TG 40	400	175	32 x 10	2,70
777.050	TGK 50	500	120	35 x 11	2,70
777.060	TGK 60	600	120	35 x 11	3,00
777.080	TGK 80	800	120	35 x 11	3,53
777.100	TGK 100	1000	120	35 x 11	4,00
777.125	TGK 125	1250	120	35 x 11	4,69
777.150	TGK 150	1500	120	35 x 11	5,38
777.200	TGK 200	2000	120	35 x 11	6,66
777.250	TGK 250	2500	120	35 x 11	7,94
777.300	TGK 300	3000	120	35 x 11	9,22

Intermediate sizes or clamps with tommy also available (for type TG 16 and bigger, see ill.).

778



Deep throat screw clamps

Clamping force up to 7000 N.

with rail fluted on both sides, spindle galvanized, with red vamish handle

Item No.	Type	Clamping width mm	Reach mm	Steel rail mm	Weight kg
778.030	TGN30T20	300	200	35 x 11	3,11
778.040	TGN40T20	400	200	35 x 11	3,41
778.060	TGN60T20	600	200	35 x 11	3,97
778.080	TGN80T20	800	200	35 x 11	4,67
778.100	TGN100T20	1000	200	35 x 11	5,15
778.140	TGN40T25	400	250	40 x 11	4,50
778.160	TGN60T25	600	250	40 x 11	5,06
778.180	TGN80T25	800	250	40 x 11	5,71
778.200	TGN100T25	1000	250	40 x 11	6,63

Clamps with larger reach and intermediate sizes as well as tommy also available.

779



Clamp trolleys (without clamps)

heavy-duty design holds about 90 clamps

Item No.	Type	Lateral clamp holder	Dimension B x T x H mm	Weight kg
779.001	ZW 1	without	500 x 600 x 1460	16,5
779.002	ZW 2	1	1000 x 600 x 1525	33,0

780



All-steel screw clamps

Clamping force up to 5500 N.

annealed, high-polish galvanized

forged slider, spindle black finished, with wooden handle

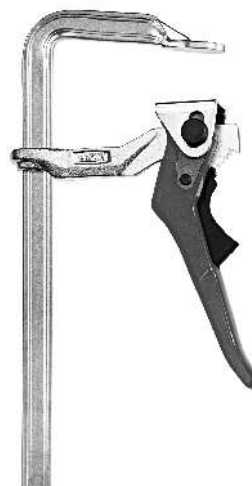
Item No.	Type	Clamping width mm	Reach mm	Steel rail mm	Weight kg
780.010	GZ 10	100	60	15 x 6	0,19
780.012	GZ 12	120	60	15 x 6	0,29
780.016	GZ 16	160	80	17,5 x 6,8	0,48
780.020	GZ 20	200	100	22 x 8,5	0,97
780.025	GZ 25	250	120	24,5 x 9,5	1,25
780.030	GZ 30	300	140	28 x 11	1,85
780.040	GZ 40	400	120	28 x 11	2,00
780.050	GZ 50	500	120	28 x 11	2,20
780.060	GZ 60	600	120	28 x 11	2,40
780.080	GZ 80	800	120	28 x 11	2,79
780.100	GZ 100	1000	120	28 x 11	3,19
780.125	GZ 125	1250	120	28 x 11	4,26

Intermediate sizes or tommy bar upon request!

All-steel lever clamp annealed and high-polish galvanized

bow and forget slider of special steel, lever with plastic coating, large steel pressure plate, galvanized (clamping force up to 8500 N)

Item No.	Type	Clamping width mm	Reach mm	Steel rail mm	Weight kg
781.012	GH 12	120	60	15 x 6	0,49
781.016	GH 16	160	80	17,5 x 6,8	0,64
781.020	GH 20	200	100	22 x 8,5	1,11
781.025	GH 25	250	120	24,5 x 9,5	1,44
781.030	GH 30	300	140	28 x 11	2,27
781.040	GH 40	400	120	28 x 11	2,41
781.050	GH 50	500	120	28 x 11	2,61
781.060	GH 60	600	120	28 x 11	2,84
781.080	GH 80	800	120	28 x 11	3,58
781.100	GH 100	1000	120	28 x 11	4,06



781

All-steel clamp extra heavy-duty design

annealed, high polish galvanized, strength and breakage tested, special pressure plate, easily moveable and replaceable, spindle hardened, **clamping force appr. 2200 kp** at 150 mm clamping width.

Item No.	Type	Clamping width mm	Reach mm	Steel rail mm	Weight kg
782.130	STB 30M	300	175	40 x 20	5,61
782.140	STB 40M	400	175	40 x 20	6,10
782.150	STB 50M	500	175	40 x 20	6,67
782.160	STB 60M	600	175	40 x 20	7,23
782.180	STB 80M	800	175	40 x 20	8,35
782.200	STB 100M	1000	175	40 x 20	9,42
782.225	STB 125M	1250	175	40 x 20	10,77
782.250	STB 150M	1500	175	40 x 20	12,20

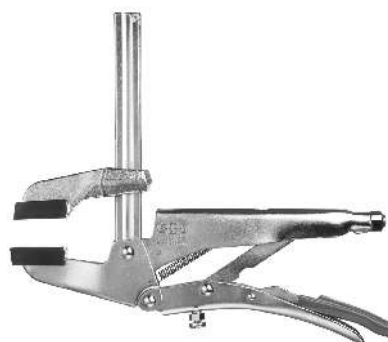


782

Grip pliers GRZ

Clamping jaws of chrome-vanadium steel, hardened and chrome-plated, beam heat-treated and chrome plated. Universal jaws for clamping all kinds of workpieces. Parallelism easily adjusted by means of a knurled-head screw.

Item No.	Type	Clamping width mm	Reach mm	Weight kg
189.010	GRZ 10	100	65	1,0
189.020	GRZ 20	200	65	1,2



782A

Wood clamps

of white beech, steel rail galvanized, with eccentric clamping area with cork lining.

Item No.	Type	Clamping width mm	Reach mm	Steel rail mm	Weight kg
783.020	HKL 20	200	110	20 x 5	0,32
783.030	HKL 30	300	110	20 x 5	0,46
783.040	HKL 40	400	110	20 x 5	0,54
783.060	HKL 60	600	110	20 x 5	0,70
783.080	HKL 80	800	110	20 x 5	0,86
783.100	HKL 100	1000	110	20 x 5	1,00



783

784

Chisels, make 'Kirschen'

No. 1001: flat, with flat wooden handle and lateral chamfers, in acc. with B DIN 5139
No. 1002: flat, with octagonal wooden handle and striking butt, in acc. with B DIN 5139
No. 1431: hollow, with flat wooden handle, without lateral chamfers, in acc. with DIN 5142
No. 1432: hollow, with octagonal wooden handle and striking butt, in acc. with DIN 5142



No. 1001



No. 1431

Width mm	Item No.			
	Nr. 1001	Nr. 1002	Nr. 1431	Nr. 1432
2	784.102	784.202	—	—
4	784.104	784.204	—	—
6	784.106	784.206	784.306	784.406
8	784.108	784.208	784.308	784.408
10	784.110	784.210	784.310	784.410
12	784.112	784.212	784.312	784.412
14	784.114	784.214	784.314	784.414
16	784.116	784.216	784.316	784.416
18	784.118	784.218	784.318	784.418
20	784.120	784.220	784.320	784.420

Width mm	Item No.			
	Nr. 1001	Nr. 1002	Nr. 1431	Nr. 1432
22	784.122	784.222	784.322	784.422
24	784.124	784.224	784.324	784.424
26	784.126	784.226	784.326	784.426
28	784.128	784.228	784.328	784.428
30	784.130	784.230	784.330	784.430
32	784.132	784.232	784.332	784.432
35	784.135	784.235	784.335	784.435
40	784.140	784.240	784.340	784.440
45	784.145	784.245	784.345	784.445
50	784.150	784.250	784.350	784.450

785

Wooden handles for Item No. 784

No. 1901 =
suitable for No. 1001 & 1431

No. 1902 =
suitable for No. 1002 & 1432



No. 1901



No. 1902

Item No.	Handle length	For chisel width
785.101	120 mm	2 – 10 mm
785.102	125 mm	12 – 16 mm
785.103	130 mm	18 – 26 mm
785.104	140 mm	28 – 32 mm
785.105	150 mm	35 – 50 mm

Item No.	Handle length	For chisel width
785.201	130 mm	2 – 20 mm
785.203	145 mm	22 – 30 mm
785.204	152 mm	32 – 50 mm

786

Chisel, make 'Bahco' of genuine Swedish steel

No. 33/1031: flat, with lateral chamfers and impact resistant red plastic handle.
Two thirds of the chisel blade are annealed and hardened; the blade can be resharpened several times.



No. 33/1031

Width	4 mm	6 mm	8 mm	10 mm	12 mm	14 mm	16 mm	18 mm
Item No.	786.104	786.106	786.108	786.110	786.112	786.114	786.116	786.118
Width	20 mm	22 mm	25 mm	28 mm	30 mm	32 mm	40 mm	
Item No.	786.120	786.122	786.125	786.128	786.130	786.132	786.140	

787

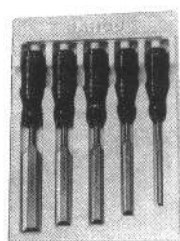
Set of chisels, flat

Item No. 787.002: make 'Kirschen' comprising chisels No. 1001, in lid box
Contents: one of size 6, 10, 12, 16, 20, 26 mm

Item No. 787.003: make 'Bahco' comprising chisels No. 33/1031, in display box
Contents: one of size 6, 12, 16, 20, 25mm



787.002



787.003

Other sets upon demand!

788

'Dastra'-Pattern chisels*, cranked with ash handle



Hollow chisel



Straight chisel

Hollow chisel					
Radius	Width	Item No.	Radius	Width	Item No.
2 mm	4 mm	788.102	30 mm	40 mm	788.130
12 mm	21 mm	788.112	35 mm	35 mm	788.135
15 mm	25 mm	788.115	40 mm	40 mm	788.140
25 mm	30 mm	788.125	80 mm	30 mm	788.180

Straight chisel	
Width	Item No.
10 mm	788.210
25 mm	788.225

* discontinued

Modeling tools „SH“

789

Ideal tools for working with design-clay (see item no. 916A) or plaster.
Made of stainless, non-magnetic and acid-proof steel, especially hardened. All tools with handy wooden handle.

1) Modeling slings

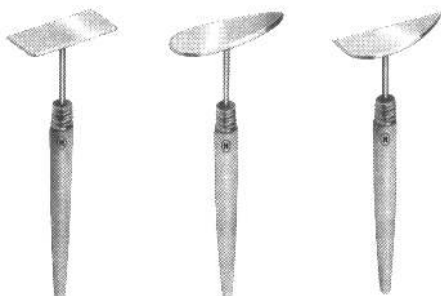
Item No.	Total length
789.921	185 mm
789.922	185 mm
789.923	190 mm
789.924	190 mm
789.925	185 mm
789.926	185 mm
789.927	185 mm
789.928	185 mm
789.929	185 mm
789.930	185 mm
789.931	190 mm
789.932	185 mm



789.921 789.922 789.923 789.924 789.925 789.926 789.927 789.928 789.929 789.930 789.931 789.932

2) Dressing iron

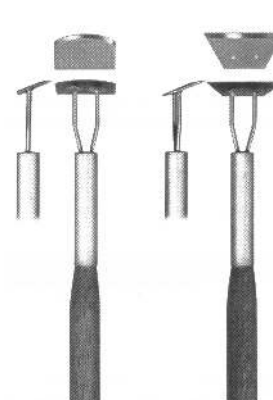
Item No.	Total length
789.910	200 mm
789.912	200 mm
789.914	200 mm



789.910 789.912 789.914

3) Scraper

Item No.	Total length
789.933	180 mm
789.934	180 mm



789.933 789.934

4) Knife spatula

Item No.	Total length
789.915	175 mm

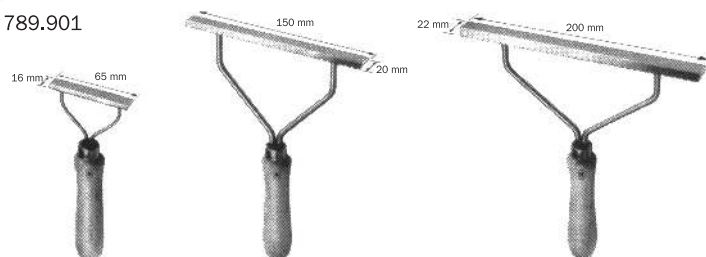


789.901

789.915

5) Racloirs

Item No.	Total length
789.901	330 mm
789.909	170 mm
789.911	220 mm
789.913	220 mm



789.909

789.911

789.913

6) Racloir slings

Item No.	Total length
789.907	200 mm
789.908	200 mm

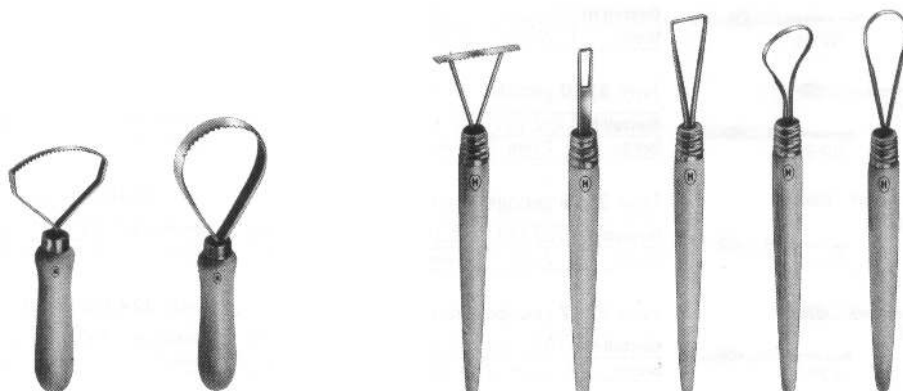


789.907

789.908

7) Smoother slings

Item No.	Total length
789.902	200 mm
789.903	200 mm
789.904	200 mm
789.905	220 mm
789.906	210 mm



789.902

789.903

789.904

789.905

789.906

Further modeling tools upon demand! Please ask for our special catalogue!

790

„Kirschen“-2-Cut multi-purpose tool

Item No. 790.001

The universal tool **with two cutting edges**: front cutting edge 26 mm width for chiseling and mortising, extra-long 90 mm side cutting edge for all cutting purposes. Cutting edges ground on both sides and mirror bright polished, usable length hardened. Holster with belt loop included.

790A

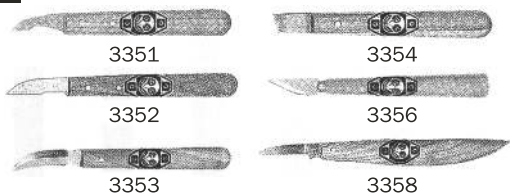
790.406



Carving tools, make 'Kirschen'

in display-box

Item No.	Contents (see Item Nos. 791 & 792): 1 each
790.406	carving knife type 3351, 3354 & 3358
set of 6	carving chisel type 3201 (10 mm), 3208 (6 mm) & 3239 (4 mm)
790.427	carving knife type 3351, 3354 & 3358, sharpening stone 80 x 30 mm
set of 7	carving chisel type 3201 (8 mm), 3208 (6 mm) & 3239 (6 mm)

791

Carving knives, make 'Kirschen'

with round wooden handle, total length abt. 130 mm

Item No.	Type	Description
791.351	3351	with short, oblique knife
791.352	3352	with long, oblique knife
791.353	3353	with curved knife and cutting edges on both sides
791.354	3354	with straight knife and oblique edge
791.356	3356	with narrow knife and straight edge
791.358	3358	with rounded back and straight edge

791A

HOCO-multiple purpose knives Item No. 791.401

renew knife edge by breaking off 5 mm long portions, total length appr. 145 mm, with clip.

791B

Scalpel knives

1) Item No. 791.501 Handle made of green impact-resistant polystyrene for light demands while cutting paper, paperboard or foils. With assembled blade no. 791.591 (0,4mm thick)

2) Item No. 791.511 Handle made of forged and chrome-plated steel for heavy demands while cutting paper, paperboard or foils. With assembled blade no. 791.591 (0,4mm thick)

3) Item No. 791.521 Handle made of aluminium die-casting Ideal tool for the deburring of small plastic parts and for fine cuttings. With assembled blade no. 791.593 (0,5mm thick)

4) Item No. 791.531 Round aluminium handle with checkered hand area Typical scalpel in pencil-design for fine cuttings With assembled blade no. 791.594 (0,5mm thick)



Spare blades (packing unit = 10 pcs.):

Item No.	Thickness	fitting for scalpel no.
791.591	0,4mm	791.501/791.511
791.592	0,4mm	791.501/791.511
791.593	0,5mm	791.521
791.594	0,5mm	791.531
791.595	0,5mm	791.531

Carving tools, make 'Kirschen'

with octagonal white beech handle, blade length 90 mm

Type **3201** straight, with straight edge

Item No.	792.011	792.012	792.013	792.014	792.015
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3202** straight, with oblique edge

Item No.	792.021	792.022	792.023	792.024	792.025
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3206** straight, with slightly hollow blade

Item No.	792.061	792.062	792.063	792.064	792.065
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3208** straight, with medium cavity

Item No.	792.081	792.082	792.083	792.084	792.085
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3210** straight, with deep cavity

Item No.	792.101	792.102	792.103	792.104	792.105
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3215** curved, with slightly hollow blade

Item No.	792.151	792.152	792.153	792.154	792.155
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3217** curved, with medium cavity

Item No.	792.171	792.172	792.173	792.174	792.175
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3219** curved, with deep cavity

Item No.	792.191	792.192	792.193	792.194	792.195
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3221** cranked, with flat straight blade

Item No.	792.211	792.212	792.213	792.214	792.215
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3227** cranked, with slightly hollow blade

Item No.	792.271	792.272	792.273	792.274	792.275
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3229** cranked, with medium cavity

Item No.	792.291	792.292	792.293	792.294	792.295
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3231** cranked, with deep cavity

Item No.	792.311	792.312	792.313	792.314	792.315
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3239** straight, with V-shape blade

Item No.	792.391	792.392	792.393	792.394	792.395
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3240** curved, with V-shape blade

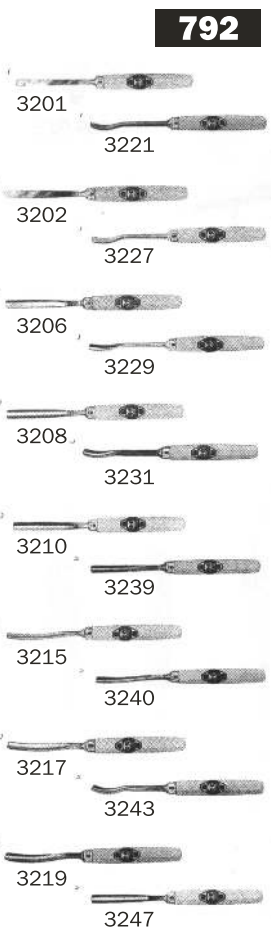
Item No.	792.401	792.402	792.403	792.404	792.405
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3243** cranked, with V-shape blade

Item No.	792.431	792.432	792.433	792.434	792.435
Width	2 mm	4 mm	6 mm	8 mm	10 mm

Type **3247** straight, with deep cavity

Item No.	792.471	792.472	792.473	792.474	792.475
Width	2 mm	4 mm	6 mm	8 mm	10 mm



792

Sculptor's tools, make 'Kirschen'

available in a wide variety of shapes and widths.
Please ask for our special leaflet.



793

Turning chisels, make 'Kirschen'

No. 1609: flat, with long wooden handle, total length appr. 400 mm, in acc. with A DIN 5144.

No. 1619: hollow, with long wooden handle, total length appr. 400 mm, in acc. with B DIN 5144.

Width mm	Item No.	
	No. 1609	No. 1619
4	794.304	794.604
6	794.306	794.606
8	794.308	794.608
10	794.310	794.610
12	794.312	794.612
14	794.314	794.614
16	794.316	794.616
18	794.318	794.618
20	794.320	794.620

Width mm	Item No.	
	No. 1609	No. 1619
22	794.322	794.622
24	794.324	794.624
26	794.326	794.626
28	794.328	794.628
30	794.330	794.630
32	794.332	794.632
35	794.335	794.635
40	794.340	794.640



No. 1609



No. 1619

794

Cutting-off chisels, (turner's cross-cutting chisel) make 'Kirschen'

No. 1629 with long wooden handle, total length appr. 400 mm

Width	4 mm	6 mm	8 mm	10 mm	12 mm
Item No.	795.304	795.306	795.308	795.310	795.312



No. 1629

795

Boring chisels, make 'Kirschen'

No. 1639: oblique, with long wooden handle, total length appr. 400 mm

No. 1649: round, with long wooden handle, total length appr. 400 mm

Width mm	Item No.	
	No. 1639	No. 1649
20	796.220	796.420
26	-	796.426



No. 1609



No. 1619

796

797

Oil stones (No. 3704)

Genuine oil stones, size appr. 60 x 25 x 5 mm, 4 different shapes available.

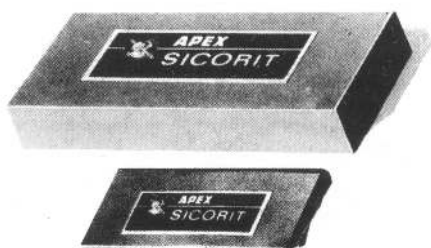
Item No. 797.001

798

Goliath whet stones

for use with water (not oil)

Item No.	798.004	798.005	798.006	798.008
Dimensions mm	100 x 50 x 20	105 x 65 x 20	150 x 50 x 20	200 x 50 x 20

799

Sicorit oil stones

1) Rectangular stones in a wooden case

Item No.	799.781	799.782	799.783
Dimensions mm	100 x 40 x 12	125 x 40 x 12	150 x 40 x 12

2) Hollow chisel stones, in a cardboard box, tapered, with rounded edges

Item No.	799.791
Dimensions mm	100 x 40 x 6 x 3

799A

Sharpening system (16-050)

Item No. 799.301

Complete system for exact and precise grinding of blades.

Set contains:

guidance element: for accurate grinding
sharpening stone: 200 x 50 mm, both sides may be used: fine and coarse surface
white oil: to be used with the stone, non toxic, not inflammable

Properties:

- accurate grinding due to the exact angle to the blade
- special feature: angle may be fixed in 25°, 30° or 35° position
- fitting for all chisels, cutters or knife blades from 4 mm up to 60 mm

800

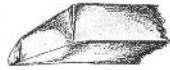
Shape A



Shape B



Shape C



Shape D



Shape E



Shape F

Turning tools, forged for woodworking

(excellent tool life also when working plywood)
 can be resharpened over the entire length

Shape A: square

tapered tool – for tapered slots and flanges.

Shape B: square

dovetail-shaped tool – for slots, both flanks can be employed simultaneously.

Shape C: square or round

left corner tool for turning outside diameters.

Shape D: square or round

right corner tool for turning inside diameters.

Shape E: square or round

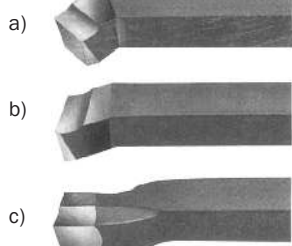
small right corner tool for turning small diameters (holes).

Shape F: square

roughing tool

Cross section: 10 x 10 to 30 x 30 mm square or 10 – 30 mm Ø round
 Length: 200 to 400 mm

Upon demand!

801

Turning tools of HSS

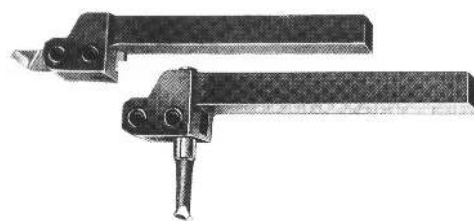
right cutting edge, butt welded, with square shank

	Dimension mm / Item No.			
Design	10 x 10 x 100	12 x 12 x 110	16 x 16 x 140	20 x 20 x 160
a) curved tool 45° cutting	801.210	801.212	801.216	801.220
b) corner tool	801.310	801.312	801.316	801.320
c) stepped lateral tool	801.410	801.412	801.416	801.420

Tool holders No. 17150

for working inside and outside surfaces, right and left turning.
Holder can be clamped in two positions (see ill.).

Item No.	802.008	802.010
Dimensions mm	21 x 12 x 120	21 x 12 x 120
Cutting edge height mm	10,5	10,5
For blanks mm	8 x 8 / 8 Ø	10 x 10 / 10 Ø



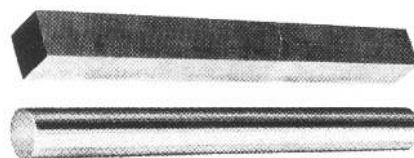
802

Blank tools of HSS

for woodworking, length 160 mm (other dimensions upon request!)

Item No.	803.108	803.110	803.112	803.116	803.120
Square, cross section	8 x 8 mm	10 x 10 mm	12 x 12 mm	16 x 16 mm	20 x 20 mm

Item No.	803.208	803.210	803.212	803.216	803.220
Round, dia.	8 mm	10 mm	12 mm	16 mm	20 mm



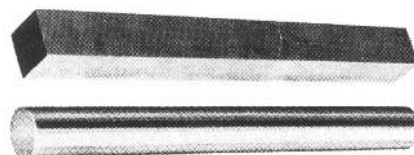
803

Blank tools of solid carbide

Quality KXF 10F, length 100 mm

Item No.	803.305	803.306	803.308	803.310
Square, cross section	5 x 5 mm	6 x 6 mm	8 x 8 mm	10 x 10 mm

Item No.	803.404	803.405	803.406	803.408	803.410	803.412
Round, dia.	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm



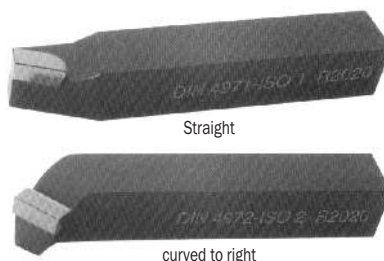
803A

Carbide tipped turning chisels

with welded blades acc. to DIN 4950.

Quality P 20 with square shank

	Dimensions mm / Item No.				
Design	10 x 10 x 90	12 x 12 x 110	16 x 16 x 110	20 x 20 x 125	25 x 25 x 140
Straight	-	804.112	804.116	804.120	804.125
curved to right	804.310	804.312	804.316	804.320	804.325
curved to left	804.410	804.412	804.416	804.420	804.410



804

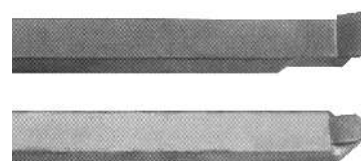
Carbide tipped turning chisels 'FZ'

a) cutting off chisel 20 x 20 x 350 mm

Item No. 804.216

b) roughing chisel 20 x 20 x 250 mm

Item No. 804.217

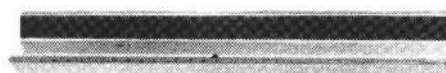


804A

Discontinued, delivery as long as stock lasts!

Tool shims, prismatic for round turning tools

Item No.	805.001
Dimensions	20 x 10 x 150 mm



805

Tool shims, adjustable for turning tools of all kinds

Adjustment: in long direction = fine adjustment
in lateral direction = coarse adjustment

Item No.	806.001
Dimensions (conical)	11/16 x 40 x 150 mm



806

807

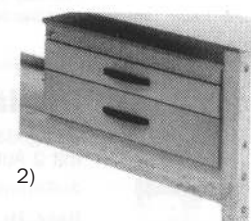
Ulmia carpenter's benches No. 2

Very sturdy design, top and trestle made of selected solid red beech, 60 mm wide cross bars on the face sides, 155 mm wide storage recess, surface waxed and polished. Front vise made of a solid cast iron and steel construction, tail vise as an aluminium box guide with adjustable guide V block and plastic glide. Delivery includes 2 tommy bars and 2 rectangular bench dogs.

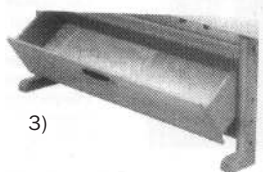
Item No.	807.017	807.020	807.021	807.023
Length (without rear vise head)	1700 mm	2000 mm	2150 mm	2300 mm
Max. width	640 mm	640 mm	640 mm	640 mm
Height of the bench	900 mm	900 mm	900 mm	900 mm
Weight	108 kg	116 kg	120 kg	124 kg

808

1)



2)



3)

Carpenter's bench accessories

Fitting for all lengths

1) Underhung drawer with drawer stop **Item No. 808.210**

Guide rails and fastening materials will be supplied. The bench worktops are predrilled underneath.

Dim.: 540 mm width x 535 mm depth x 140 mm height

2) Substructure cabinet with two drawers **Item No. 808.220**

Drawers lockable, ball bearing roller guide, 100% drawer, without tool fixtures

Overall dim.: 860 mm width x 455 mm depth x 400 mm height (Front heights 120/180 mm)

3) Pull-out compartment, lockable **Item No. 808.250**

Without tool fixtures

The pedestals in the carpenter's benches are prepared for the installation.

Inside dim.: 1500 mm width x 370 mm depth x 200 mm height

Remark: The substructure cabinet and the pull-compartment may be delivered complete with tool sets and matching fixtures!

Please ask for it!

4) Storage trays, for mounting in the pedestals, 20 mm thick

430 mm depth (w/o ill.)

a) Length 1550 mm

Item No. 818.240

b) Length 700 mm

(Fitting to the substructure cabinet 808.220 **Item No. 808.230**)

809

Carpenter's benches No. 2012

for light duties

- Top, trestle and cross bars made of selected solid red beech, tooth glued joint, waxed and polished.
- Front vise (French system) made of a solid cast iron and steel construction, guarantees maximum even pressure over the entire vise width.
- German tail vise welded steel construction, adjustable.
- Underhang drawer of solid red beech with pullout-stop.
- Delivery includes two vise handles and two rectangular bench dogs.

Item No.	809.117	809.120
Length (without rear vise)	1700 mm	2000 mm
Max. width	640 mm	640 mm
Height of the bench	900 mm	900 mm
Weight	109 kg	109 kg

810

Ulmia bench dogs No. 10 - 63

for clamping bulky workpieces, for bench No. 2

Item No.	Length	Height	Weight
810.160	110 mm	110 mm	0,85 kg

811

Multi-purpose workbenches

We can supply **workbenches** of various designs **upon request!**

Please ask for our special leaflet!

Ulmia tool chests No. 42-316 for woodworking

812

of solid red beech, varnished, with veneer wood backwall, two lockable doors, with one open shelf and two suspension lugs.

Overall dimensions: height 820 mm, width 705 mm, depth 230 mm.

Item No. 812.001: chest with 50 pieces set of tools No. 316

Item No. 812.002: as described before, however, **without** tools, without tool fixtures

Set of tools No. 316 / 50 pieces

1 cross-head screwdriver PZ 1	1102-1	1 burnisher	1067	1 firmer chisel 12 mm	164-12
1 cross-head screwdriver PZ 2	1102-2	1 semi-round file 250 mm, cut 1	1078-250-1	1 firmer chisel 16 mm	164-16
1 cross-head screwdriver PZ 3	1102-3	1 semi-round rasp 250 mm, cut 2	1088-250-2	1 firmer chisel 20 mm	164-20
1 countersink 16 mm, with tang	1011	1 round file 200 mm, cut 2	1080-200-2	1 firmer chisel 26 mm	164-26
1 fretsaw 290 mm	714	1 flat file 200 mm, cut 2	1082-200-2	1 carpenter's mallet size 2	300-2
1 spare wood saw blade for fretsaw	712	1 sanding cork	814	1 carpenter's hammer 22 mm	1025-22
1 spare metal saw blade for fretsaw	713	1 precision try square 150 mm	600-150	1 carpenter's hammer 28 mm	1025-28
1 wooden folding ruler 2 m	802	1 precision try square 350 mm	600-350	1 taper punch 2 mm	1071-2
1 jointer plane 60 mm	HW1-60	1 special marking square 300 mm	602	1 taper punch 4 mm	1071-4
1 jack plane 48 mm	HW2-48	1 precision slide bevel 330 mm	604-330	1 pincer 210 mm	2564-210
1 smoothing plane 48 mm	HW3-48	1 marking gauge	0029	1 combination plier 180 mm	2388
1 bench plane 48 mm	HW4-48	1 steel rule 400 mm, rustproof	1116-2	1 hand saw „DOZUKI-Universal“	
1 scrub plane 33 mm	HW5-33	1 step drill round	1046	blade length 240 mm	261-240
1 rabbet plane w. dbl. iron 30 mm	HW8-30	1 step drill round	1047	1 screwdriver 3,5 mm	1109-035
1 reform-smoothing plane 48 mm	25-48	1 awl 200 mm	1110-3	1 screwdriver 5,5 mm	1109-055
1 oilstone	2015	1 firmer chisel 6 mm	164-6	1 screwdriver 8,0 mm	1109-090
1 rectangular scraper	1062-1	1 firmer chisel 10 mm	164-10	1 screwdriver 10,0 mm	1109-100



Ulmia tool chests No. 40-306 for vocational training

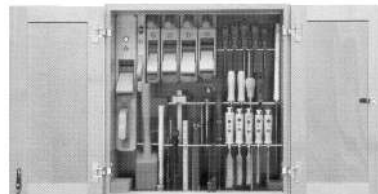
813

of solid red beech, varnished, with veneer wood backwall, two lockable doors and two suspension lugs.

Overall dimensions: height 650 mm, width 615 mm, depth 230 mm.

Item No. 813.001: containing a set of 37 tools:

1 short jointer plane 54 mm	HW1A-54	1 precision mitre rule 350 mm	603	1 pincer 210 mm	2564-210
1 jack plane 48 mm	HW2-48	1 precision slide bevel 330 mm	604-330	1 combination plier 180 mm	2388
1 smoothing plane 48 mm	HW3-48	1 marking gauge	0029	1 hand saw „DOZUKI-Universal“	
1 bench plane 48 mm	HW4-48	1 step drill round	1047	blade length 240 mm	261-240
1 scrub plane 33 mm	HW5-33	1 awl 200 mm	1110-3	1 screwdriver 4,0 mm	1109-045
1 rabbet plane w. dbl. iron 30 mm	HW8-30	1 firmer chisel 6 mm	164-6	1 screwdriver 6,5 mm	1109-070
1 oilstone	2015	1 firmer chisel 10 mm	164-10	1 screwdriver 10,0 mm	1109-100
1 rectangular scraper	1062-1	1 firmer chisel 16 mm	164-16	1 cross-head screwdriver PZ 1	1102-1
1 semi-round file 250 mm, cut 1	1078-250-1	1 firmer chisel 20 mm	164-20	1 cross-head screwdriver PZ 2	1102-2
1 semi-round rasp 250 mm, cut 2	1088-250-2	1 firmer chisel 26 mm	164-26	1 countersink 16 mm, with tang	1011
1 sanding cork	814	1 carpenter's mallet size 2	300-2	1 wooden folding ruler 2 m	802
1 precision try square 150 mm	600-150	1 carpenter's hammer 22 mm	1025-22	1 burnisher	1067
1 precision try square 350 mm	600-350	1 taper punch 2 mm	1071-2		



Ulmia planes

814

1) Double plane, length 240 mm, iron width 48 mm

Item No.	814.102	814.103
Base with	white beech	lignum vitae
Spare iron	814.111	

2) Dressing plane, length 220 mm, iron width 48 mm

Item No.	814.202	814.203	814.204
Base with	white beech	lignum vitae	white beech (iron fine adjustment)
Spare iron	814.111		814.212

3) Smoothing plane, length 240 mm, iron width 48 mm

Item No.	814.302	814.303
Base with	white beech	lignum vitae
Spare iron	814.311	

4) Jack plane, length 240 mm, iron width 33 mm

Item No.	814.401	814.402	814.403
Base with	white beech	lignum vitae	white beech
Plane iron	single	single	double
Spare iron	814.411		814.412

5) Tooth plane, length 220 mm, iron width 48 mm

Item No.	814.501
Base with	white beech
Spare iron	814.511

6) Rabbet plane, length 270 mm, iron width 30 mm

Item No.	814.604	814.606	814.607
Plane iron	single	double	
Base with	white beech	white beech	lignum vitae
Spare iron	814.611	814.612	



Planes Types 1 – 4



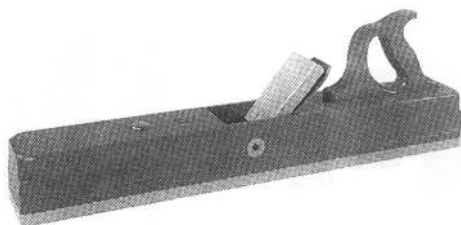
Dressing plane (iron fine adjustment)
(814.204)



Tooth plane

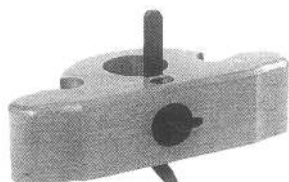


Rabbet plane

814A

Ulmia jointer planes

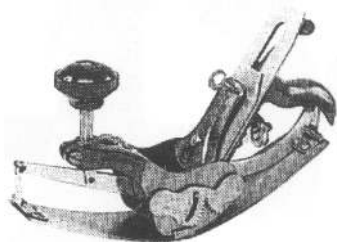
Item No.	814.701	814.702	814.703
Base with	white beech	lignum vitae	white beech
Length	600 mm	600 mm	480 mm
Iron width	60 mm	60 mm	54 mm
Spare iron	814.711		814.712

815

Ulmia router planes No. 500 E

adjustable, of red beech, for planing grooves and edges

Item No.	815.001
Length	235 mm
Iron width	10, 15, 20 mm (Set)
Spare iron	815.101 (Set)

816

Ulmia radius plane of iron No. 546

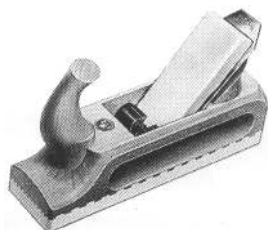
for planing concave or convex surfaces and curved parts of hardwood or plastics.

Item No.	816.001
Length	260 mm
Iron width	44 mm
Spare iron	816.101

817

Ulmia scraper planes of cast iron

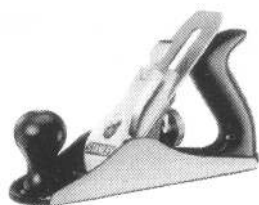
Item No.	817.001	817.002
Iron	straight	curved
Length	250 mm	
Iron width	52 mm	
Spare iron No.	817.101	817.102

818

Fillet planes No. 51s

hand plane with white beech base, hand protector, striking butt

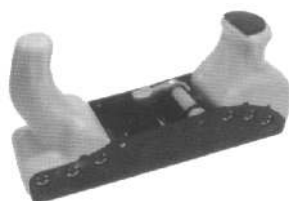
Item No.	818.101	818.103
Iron width	33 mm	48 mm
Length	240 mm	

819

Special planes of iron

for working plastic, soft metal etc.

Item No.	819.003	819.004	819.005	819.006	819.007
Design	dressing plane	double plane		jointer plane	
Length	240 mm	245 mm	355 mm	460 mm	560 mm
Iron width	45 mm	50 mm	50 mm	60 mm	60 mm

820

RALI®-planer „220EVO“ with reversible blade

Made from metal, with handles made from high-strength plastic. Non warping sole. Useable as planer with a fixed blade, smoothing planer or jack planer, planing width 48 mm.

Item No. 820.220: Plane incl. 4 blades

Spare blades: **Item No. 820.410** standard type (Pack = 10 pcs.)
Item No. 820.411 blade of tungsten carbide (Pack = 2 pcs.)

Parallel vice S 20 V

Item No. 821.020

With replaceable wooden jaws.

The vice and the jaws are both 360° rotatable!

Chuckling width		Chuckling depth	Jaw width	Weight
Outside	Inside			
0 – 200 mm	190 – 380 mm	150 mm	135 mm	19 kg

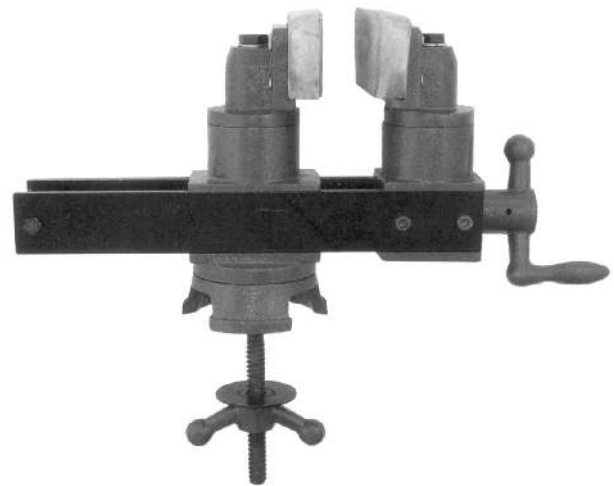


821

Patternmaker's vice No. 35

One of the most versatile tools which can be mounted to a workbench top. The exceptionally solid, cast iron heads can be tightened parallel to one another or individually swiveled to accept oddly shaped pieces. The vise mounts through any hole in the bench top (a dog hole will do) in a matter of seconds. Once mounted, it can be easily swiveled a full 360° and locked in place via a winged nut. The swivel base can be either mounted above the bench top (working height 250 mm) or below (working height 215 mm). Cast iron body, steel guide rails, trapezoidal threads on the spindle with hand crank, hardwood jaws with soft polyurethane linings.

Item No.	Chuckling width	Jaw width	Weight
823.035	150 mm	125 mm	14 kg



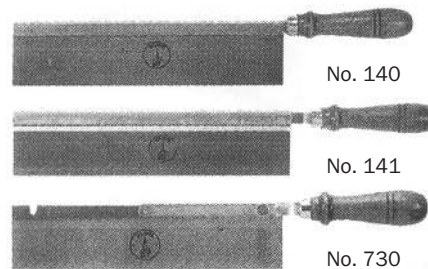
823

Ulmia gent's saws

with steel back, sharpened and set

No. 140: straight **No. 141: cranked** **No. 730: cranked, with reversible handle**

Design	Blade length / Item No.		
	200 mm	250 mm	300 mm
No. 140	824.120	824.125	-
No. 141	824.220	824.225	-
No. 730	-	824.325	824.330



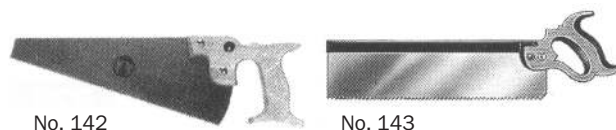
824

Ulmia hand- and dovetail saws

sharpened and set

No. 142: without dovetail **No. 143: with dovetail**

Design	Blade length / Item No.			
	300 mm	350 mm	400 mm	450 mm
No. 142	825.130	825.135	825.140	825.150
No. 143	825.230	825.235	-	-



825

Ulmia compass saws

with wooden handle

Item No. 826.144

Blade length 300 mm



826.144

826

827



Japanese saws

All saws are cut in the reverse stroke (to be pulled). Their cut is razor sharp and extremely precise and only a low cutting force is required. The blades are exchangeable!

a) „Dozuki Universel“

With teeth on one side and reinforced back.

Item No.	Blade length	Blade width	Blade thickness	Tooth pitch	Spare blade
827.101	240 mm	50 mm	0,3 mm	1,5 mm	827.110

b) „Ryoba Komane“

Teeth on both sides (one side trapezoidal toothing, the other side triangular toothing), permits widely varying applications.

Item No.	Blade length	Blade width	Blade thickness	Tooth pitch	Spare blade
827.201	240 mm	70 mm	0,4 mm	1,2 / 3 mm	827.210

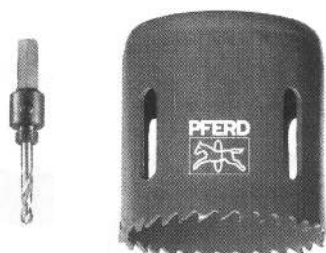
c) „Kataba Vario“

With teeth on one side, trapezoidal toothing, without back. For cross-grain and mitre cuts, rubberized pistol handle.

Item No.	Blade length	Blade width	Blade thickness	Tooth pitch	Spare blade
827.301	270 mm	55 mm	0,6 mm	1,7 mm	827.310

828

PFERD



Hole saws of HSS

Safe working as maximum concentricity is ensured, for cutting out circular holes in wood, metal, plastic, fast and easy. Maximum cutting depth for all sizes 28 mm.

Item No.	828.019	828.022	828.025	828.029	828.032	828.035	828.038
Dia.	19 mm	22 mm	25 mm	29 mm	32 mm	35 mm	38 mm

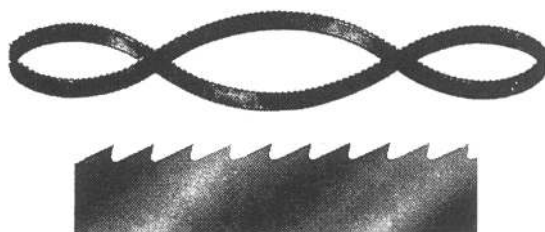
Item No.	828.044	828.051	828.057	828.064	828.070	828.076	828.089
Dia.	44 mm	51 mm	57 mm	64 mm	70 mm	76 mm	89 mm

Other diameters upon request!

Suitable saw holders (with center drill, dia. 6,35 mm)

Item No.	Type	for diameter	shank
828.301	LSS 1	14 – 30 mm	9 mm hexagonal
828.302	LSS 2	32 – 152 mm	9 mm hexagonal

829



Zahnform A

Band saw blades for wood of genuine Swedish steel

Tooth shape A, sharpened and set, can be resharpened

Blades available

- 1) in 50 or 100 m rolls
- 2) cut-to-size, also ready-soldered blades (**min quantity 2 blades per size**)

Width x thickness mm	Tooth spacing appr. mm	Item No.	
		Roll	Endless *
6 x 0,45	5	829.006	829.106
8 x 0,6	6	829.008	829.108
10 x 0,6	6	829.010	829.110
16 x 0,6	7	829.016	829.116
20 x 0,7	8	829.020	829.120
25 x 0,7	9	829.025	829.125
30 x 0,7	9	829.030	829.130
35 x 0,8	10	829.035	829.135
40 x 0,8	12	829.040	829.140

The thickness of the band saw blades should be 1/1000 of the wheel diameter minus 1/10 mm.

Example: 700 mm dia. = 0,7 minus 0,1 mm = 0,6 mm blade thickness.

For smaller wheel dia. use one of these blades:

Width x thickness mm	Tooth spacing appr. mm	Item No.	
		Roll	Endless *
10 x 0,4	4	829.210	829.310
16 x 0,4	5	829.216	829.316
20 x 0,4	6	829.220	829.320
25 x 0,4	6	829.225	829.325

* Please specify length!

830



Band saw blades for plastic

Sharpened and set, can be resharpened

Blades available

- 1) in 50 or 100 m rolls
- 2) cut-to-size, also ready-soldered blades (**min quantity 3 blades per size**)

Width x thickness mm	Tooth spacing appr. mm	Item No.	
		Roll	Endless *
6 x 0,45	2,5	830.006	830.106
10 x 0,45	2,5	830.010	830.110
15 x 0,6	3	830.015	830.115
20 x 0,6	3	830.021	830.121

* Please specify length!

Band saw blades for polystyrene

831

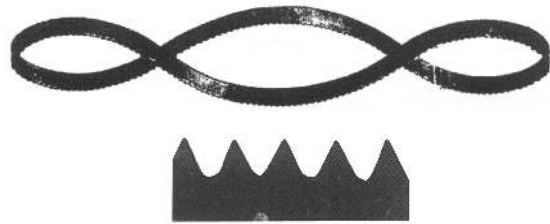
Tooth shape H, sharpened and set.

Blades available

- 1) in 100 m rolls
- 2) cut-to-size, also ready-soldered blades (**min quantity 3 blades per size**)

Width x thickness mm	Tooth spacing appr. mm	Item No.	
		Roll	Endless *
6 x 0,45	3	831.206	831.306
10 x 0,45	3	831.210	831.310
15 x 0,45	3	831.215	831.315
20 x 0,45	3	831.220	831.320
25 x 0,45	3	831.225	831.325

* Please specify length!



Tooth shape H

High-performance metal band saw blades

832

with flexible back

tooth shape S or K, ready for use, sharpened and set.

Saw blades available:

- 1) 30 m rolls
- 2) cut-to-size, also ready-welded blades (**min. quantity 5 blades per size**).

A) Type 510 of tungsten-silicon alloy steel with annealed back, cannot be resharpened

Width x thickness mm	Item No.		Teeth per inch (tpi)	
	roll	endless	tooth shape S	tooth shape K
6 x 0,65	832.306	832.406	6,8,10,14,18	6
8 x 0,65	832.308	832.408	6,8,10,14,18	4,6
10 x 0,65	832.310	832.410	6,8,10,14,18	3,4,6
13 x 0,65	832.313	832.413	4,6,8,10,14,18	3,4,6
16 x 0,65	832.316	832.416	4,6,8,10	3,4,6
16 x 0,80	832.317	832.417	8,10	3,4,6
20 x 0,80	832.320	832.420	8,10	3,4,6
25 x 0,90	832.325	832.425	6,8,10	3,4,6

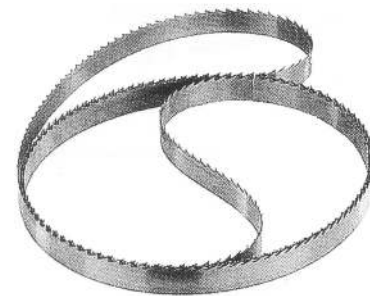
Please specify tooth shape and tpi as well as length (for **endless** blades).

B) Type 526 of cobalt-bi-metal, teeth of HSS, band of flexible steel, for highest requirements, can be resharpened.

Width x thickness mm	Item No.		Teeth per inch (tpi)	
	roll	endless	tooth shape K	
13 x 0,65	832.513	832.613	4,6	
13 x 0,90	832.514	832.614	3,4,6	
20 x 0,90	832.520	832.620	3,4,6	

Please specify tpi and length (for **endless** blades).

C) Carbide tipped blades upon request!



Tooth shape S (standard toothing) for universal use for steel, cast iron or hard non-ferrous metals



Tooth shape K (claw teeth) outstanding efficiency for non-ferrous metals and steels of lower strength

Metal band saw blades for aluminium

833

of genuine Swedish steel

tooth shape A, ready for use, set and sharpened, can be resharpened.

Saw blades available:

- 1) 50 or 100 m rolls
- 2) cut-to-size, also ready-welded blades (**min. quantity 2 blades per size**).

Width x thickness mm	Item No.		Teeth spacing appr. mm
	roll	endless	
10 x 0,60	833.010	833.110	4
25 x 0,80	833.025	833.125	6

Please specify length for **endless** blades.



Tooth shape A

Hard metal circular saw blades

834

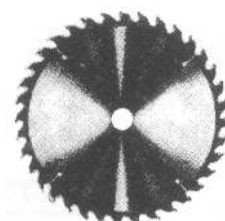
for solid and laminated wood, center hole = 30 mm dia.

1.) Multi-purpose blade alternate top bevel teeth

Item No.	834.201	834.203	834.204	834.211	834.213	834.214	834.221	834.222	834.223	834.230	834.231	834.241	834.251
Dia.	250 mm			300 mm			350 mm			400 mm		450 mm	500 mm
Kerf mm	3,2 mm			3,2 mm			3,2 mm			3,5 mm	3,8 mm	4,4 mm	4 mm
No. of teeth	40	60	80	48	72	96	54	72	84	48	60	54	60

2.) Blades for cutting along grain, square teeth, closed shape

Item No.	834.100	834.110	834.120	834.130	834.140
Dia.	250 mm	300 mm	350 mm	400 mm	450 mm
Kerf mm	3,2 mm	3,5 mm	3,5 mm	4,0 mm	4,0 mm
No. of teeth	18	20	24	28	34



835



Top guide



Bottom guide

Bandsaw blade guide for wood saws (APA type 2)

For all wood-bandsaw-machines. Lateral and rear roller bearings lubricated for life, microadjustment. Lateral rollers self-locking. Spare parts may be exchanged without disassembling the complete guide.

Size	1*	2*
wheel diam. mm	300-500	600-900
blade width mm	3-25	5-40
Item No.		
top guide	835.248	835.254
bottom guide	835.250	835.256

* Size 1 replaces the former types I and II, size 2 replaces the former types III and IV of the model 1055.

Remark for the bottom guide: the position (right or left) may be arranged by turning the holding fixtures around its axis.

836



Top guide



Bottom guide

Bandsaw guides APA type 2

with ball bearing back roller, exchangeable especially abrasionproof sliding ring, side roller finely adjustable.

May be used both for wood- and metalworking band saws.

Spare parts may be exchanged without disassembling the complete guide.

Size	2*
for wheel-diam.	600-900
for blade-width	5-40
Item No.	
top guide	836.276
bottom guide	836.277

* replaces the former sizes III and IV of type 1057

Remark for the bottom guide: the position (right or left) may be arranged by turning the holding fixtures around its axis.

837



Lateral roller and bearing sleeve,
sealing and closing plug

Spares for the APA type 2 wood bandsaw guides (Year of manufacturing 2005 or later)

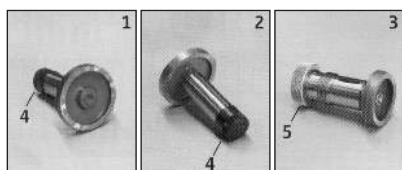
Size	1	2
dia. of rear roller	40mm	58mm
dia. of lateral roller	26mm	40mm
Design		
Item No.		
top rear roller *	838.046	838.047
bottom rear roller *	838.052	838.053
lateral roller top **	837.290	837.291
lateral roller bottom **	837.252	837.258
susp. bolt top/bottom	837.146	837.270
front clip	837.268	
rear clip	837.269	

* with bearing sleeve and closing cap
** with bearing sleeve and closing plug

Further spares upon demand!

838

Spares for wood bandsaw guides model 1055 (manufactured before 2005)



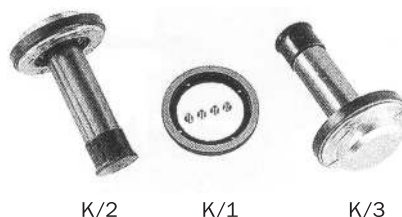
Part No.	Size	0	I	II	III	IV	VI
	dia. of rear roller	28 mm	35 mm	40 mm	58 mm	65 mm	78 mm
	dia. of lateral roller	22 mm	26 mm	35 mm	40 mm	48 mm	65 mm
Design		Item No.					
1	top rear roller *	838.044	838.045	838.046	838.047	838.048	838.049
2	bottom rear roller *	-	838.051	838.052	838.053	838.054	838.055
3	lateral roller **	838.064	838.065	838.066	838.067	838.068	838.069
4	top & bottom screw	-	838.097		838.099	838.100	838.101
5	lateral screw	-	838.091		838.093	838.094	838.095

* with bearing sleeve and cap

** with bearing sleeve and screw and closing plug

839

Spares for bandsaw guides Item no. 836 and model 1057 (manufactured before 2005)



K/2

K/1

K/3

Part No.	Size	III	IV	VI
	dia. of rear roller	58 mm	65 mm	78 mm
Description		Item No.		
K/2	ball bearing rear roller (top) with sleeve & cap	839.168*	839.169	839.170
K/3	ball bearing rear roller (bottom) with sleeve & cap	839.171*	839.172	839.173
K/1	spare treads with screws	839.174*	839.175	839.176

* These parts fit for the guide APA 2 (Item No. 836)

The lateral rollers are the same as under item no. 837 mentioned!

Special oil 1059 for band saw guides

Only this oil should be used for lubricating lateral and rear roller bearings. A different oil or ball bearing grease influences the smooth motion of the rollers and the special oil extends the life of the saw guides.

Item No. 840.059 in 20 ml bottles



840

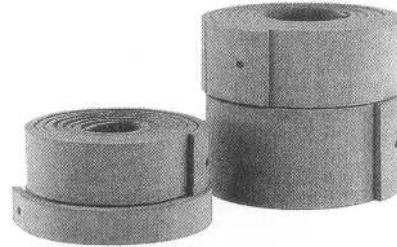
Rubber cork lining for band saw wheels

of a special flexible quality, thickness 5 mm

Item No.	841.020	841.025	841.030	841.035	841.040	841.045
Width	20 mm	25 mm	30 mm	35 mm	40 mm	45 mm
Item No.	841.050	841.055	841.060	841.065	841.070	841.080
Width	50 mm	55 mm	60 mm	65 mm	70 mm	80 mm

Can be supplied in the following lengths or also per meter:

Wheel dia. mm	300	400	500	600	700	800	900	1000
Length mm	1000	1320	1620	1950	2280	2600	2900	3200



841

Cork lining cement Type 1014

for glueing cork linings to band saw wheels.

Item No.	842.500
Contents	650 gr.
Results	7,8 m



842

Scraper for coverings type 1020

for bandsaw wheels to 60 mm width, complete with knife

Item No.	842.050	842.051
Design	Scraper compl. with knife	Spareknife without screw



843

Band saw welding device

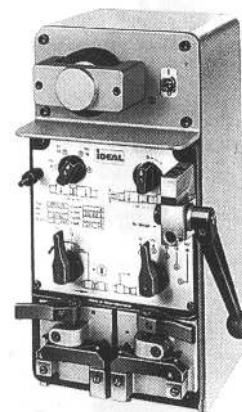
for blunt-welding of band saw blades and knives without solder and flux; fast welding of saw blades, lasting and high-strength joints, simple to operate, minimum of maintainance required.

For welding bimetal saw blades, welding devices can be equipped with an electronic heating attachment.

Available for voltages from 110 to 380 V, 50/60 cps, with additional transformer also up to 500 V, 50/60 cps.

Welding devices BSS 040 to BSS 060 must be equipped with water-cooled electrodes for welding tungsten-alloy saw blades.

Type	Saw blades for		Wattage kVA	Item No.			
	metall mm	wood mm		basic device	device w/shears	w/shears & grindg. attach.	w/heating attachment
BSS 016	6 - 12	3 - 16	2	-	843.016	843.017	843.018
BSS 025	6 - 19	4 - 25	3	-	843.025	843.026	843.027
BSS 040	6 - 27	6 - 40	4	843.040	843.041	843.042	843.043
BSS 050	6 - 34	6 - 50	8	843.050	-	-	843.051
BSS 060	6 - 34	6 - 60	8	843.060	-	-	843.061



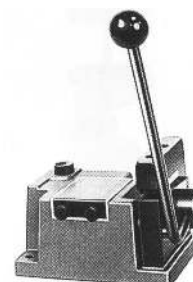
BSS 016 / 025 with attachment

844

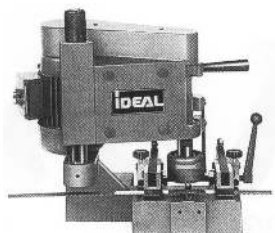
Shears for Item No. 844

The band shears have been especially developed for burless, straight and rectangular cuts guarantee clean cuts and no twisting. A clean and rectangular end is a prerequisite for immaculate butt welding.

Item No.	Type	For band width	For welding machine
844.025	AHM 025	up to 25 mm	BSS 016/025 (incl.)
844.040	AHM 040	up to 40 mm	BSS 040 (f. attachmt)
844.050	AHE 050	up to 50 mm	BSS 050 (separate)
844.060	AHE 060	up to 60 mm	BSS 060 (separate)



845

846

Grinding machines for Item No. 844

Filling devices and grinding machines are used for redressing blade welds. The grinding machine grinds the welds of butt welded blades or facets the blade ends for overlap soldering.

Item No.	Type	For band width	For welding machine
845.025	ESM 025	up to 25 mm	BSS 016/025 (av. built-in)
845.040	ESM 040	up to 40 mm	BSS 040 (av. built-in)
845.060	SMH 060	up to 60 mm	BSS 050/060 (separate available)

847

Cooling lubricant stick 'Manitou Easy Cut'

used in metal-cutting and metal forming.

Reduces friction between tool and workpiece, excellent adhesion, economical in use for sawing, grinding and thread-cutting.

Item No. 847.100 in sticks of appr. 350 gr.

848

Saw rests for band saws

Item No. 848.001

Tiltable by 40° to both sides, can also be used on grinding machines, very strong, easy to install and fast to remove, can be set at any angle, protects the blade.

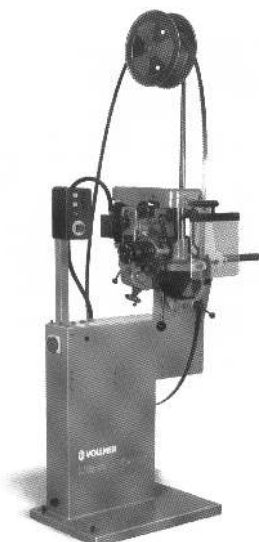
Rest dimensions: 440 x 260 mm

Height: 100 mm

849

Blade solder

Item No.	Description
847.089	solder with flux 10 mm (1,4 m)
847.270	silver solder 10 mm (3,0 m)
847.280	silver solder 15 mm (3,0 m)

850

Band saw sharpening equipment

Upon request!

Plane blades in accordance with DIN 8828

851

Uniformly hardened and annealed, all sides ground, straightened and perfectly straight cutting edge.

Standard cross sections: 30 x 3 mm or 35 x 3 mm

Available in **2 qualities:**

- 1) **HSS-18:** of HSS with 18% tungsten
- 2) **HM:** carbide tipped blade



Length mm	Quality/Item No.				Length mm	Quality/Item No.			
	HSS-18		HM			HSS-18		HM	
	30 x 3 mm	35 x 3 mm	30 x 3 mm	35 x 3 mm		30 x 3 mm	35 x 3 mm	30 x 3 mm	35 x 3 mm
500	851.201	851.202	851.301	851.302	600	851.251	851.252	851.351	851.352
510	851.211	851.212	851.311	851.312	610	851.261	851.262	851.361	851.362
520	851.221	851.222	851.321	851.322	630	851.281	851.282	851.381	851.382
530	851.231	851.232	851.331	851.332	640	851.291	851.292	851.391	851.392

Other length and cross sections upon request!

Magnetic quick-setting device for plane blades, adjustable

852

Item No. 852.533

with strong magnets, blade projection can quickly be set to 1/10 mm thanks to a scale provided, suitable for all spindle diameters from 80 to 145 mm, two blades setters up to a total length of 610 mm are required; three setters should be used for blades over 620 mm long.

1 set comprises two setters in a wooden box.



TERSA plane reversing blades

853

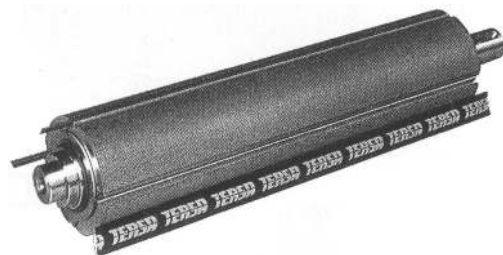
in 3 qualities: a) standard

b) HSS

c) HM = carbide (one-piece version only up to 635 mm length, longer blades will be combined)

Planing width	410 mm	510 mm	520 mm	610 mm	630 mm	640 mm	810 mm
Quality	Item No.						
Standard	853.113	853.114	853.115	853.116	853.124	853.117	853.118
HSS	853.213	853.214	853.215	853.216	853.224	853.217	853.218
HM	853.313	853.314	853.315	853.316	853.324	853.317	853.318

Other dimensions upon request!



Electric blower/suction fan

Item No. 854.001

854

with 220 Volt motor, certified and fully insulated.

Current consumption of motor 600 Watt

Speed 16000 rpm

Blower capacity 2,8 m³/min

Weight 1,7 kg

The blower comes complete with rubber nozzle and dust catcher. The blower can be converted into a suction fan simply by attaching the nozzle to the other port.



Echometer

855

To check wall thicknesses of sound conducting metal pieces. Measuring range (in steel) 0,7 to 400 mm. Resolution or reading 0,1 or 0,01 mm. Weight only 175 g. Different measuring adaptors, several accessories and software are available.

Upon request!



Wet coating thickness measuring tool

856

'Surfa-Test' Item No. 856.001

tools of stainless steel for fast and easy measurement of the thickness of wet paint coats. Tool is pressed to the base material, allowing the reading of the coat thickness at 16 different measuring points (between 25 and 800 µm, 1 to 32 mils).

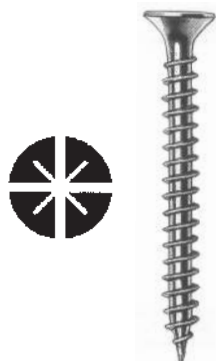
Other thickness measuring tools upon request!



857**Cross-slotted wood screws (Spax-S screws)**

wave cut

Flat head with Pozidriv-cross slots, hardened, electro-plated, self-tapping, easy to screw in (50% less force is required), high tear-cut strength.



Length	Diameter/Item No.						
	2,5 mm	3,0 mm	3,5 mm	4,0 mm	4,5 mm	5,0 mm	6,0 mm
PZ-size	1	1	2	2	2	2	3
12 mm	857.102	857.202	857.302	857.402	-	-	-
16 mm	857.105	857.205	857.305	857.405	857.505	857.605	-
20 mm	857.107	857.207	857.307	857.407	857.507	857.607	-
25 mm*	857.109	857.209	857.309	857.409	857.509	857.609	-
30 mm*	-	857.210	857.310	857.410	857.510	857.610	857.710
35 mm*	-	857.211	857.311	857.411	857.511	857.611	857.711
40 mm*	-	857.212	857.312	857.412	857.512	857.612	857.712
45 mm*	-	857.213	857.313	857.413	857.513	857.613	857.713
50 mm*	-	-	857.314	857.414	857.514	857.614	857.714
55 mm	-	-	-	857.415	857.515	857.615	857.715
60 mm	-	-	-	857.416	857.516	857.616	857.716
65 mm	-	-	-	857.417	-	857.617	-
70 mm	-	-	-	857.418	857.518	857.618	857.718
80 mm	-	-	-	857.419	857.519	857.619	857.719
Contains	1000 pcs.		500 pcs.		200 pcs.		

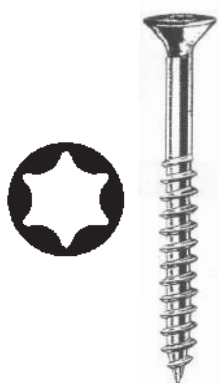
* Upon request also with partial-length thread; from 60 mm screws always with partial length thread!

Other designs, for example passivated, black finished, of brass or stainless steel, fillister head etc. are available upon request.

Length	Diameter/Item No.	
	5,0 mm	6,0 mm
PZ-size	2	3
90 mm	857.620	857.720
100 mm	857.621	857.721
110 mm	857.622	857.722
120 mm	857.623	857.723
130 mm	-	857.724
140 mm	-	857.725
150 mm	-	857.726
160 mm	-	857.727
180 mm	-	857.728
200 mm	-	857.729
220 mm	-	857.730
240 mm	-	857.731
Contains	200 pcs.	100 pcs.

857A**TORX-wood screws**

Flat-head wood screw with star-shaped Torx-head, galvanized, with partial thread, can be screwed in easily thanks to sharp thread and an anti-friction coating, the driving tool, even at high torques, will not tend to slip out of the screw head.



Length	Diameter/Item No.					
	3,0 mm	3,5 mm	4,0 mm	4,5 mm	5,0 mm	6,0 mm
Torx-size	TX 10	TX 10	TX 20	TX 20	TX 25	TX 30
16 mm	857.911	857.921	857.931	-	-	-
20 mm	857.912	857.922	857.932	857.942	-	-
25 mm	857.913	857.923	857.933	857.943	-	-
30 mm	857.914	857.924	857.934	857.944	857.954	-
35 mm	857.915	857.925	857.935	857.945	857.955	-
40 mm	857.916	857.926	857.936	857.946	857.956	857.966
45 mm	-	857.927	857.937	857.947	857.957	-
50 mm	-	857.928	857.938	857.948	857.958	857.968
55 mm	-	-	857.939	857.949	857.959	-
60 mm	-	-	857.940	857.950	857.960	857.970
70 mm	-	-	857.941	857.951	857.961	857.971
Contains	1000 pcs.		500 pcs.		200 pcs.	

Length	Diameter/Item No.	
	5,0 mm	6,0 mm
Torx-size	TX 25	TX 30
80 mm	857.962	857.972
90 mm	857.963	857.973
100 mm	857.964	857.974
120 mm	857.965	857.975
140 mm	-	857.976
160 mm	-	857.977
180 mm	-	857.978
200 mm	-	857.979
220 mm	-	857.980
240 mm	-	857.981
Contains	200 pcs.	100 pcs.

858**Cordless drill DRC 12-4****Item No. 858.201**

- The brushless EC-TEC-motor offers you an extensive service life and a high degree of efficiency.
- The lithium-ion battery combines minimum weight with energy density
- The combination of the EC-TEC-motor and the lithium-ion battery up to 100% power more
- 4 gears with up to 3800 rpm for a quick, clean and precise work

Main areas of application:

- Up to 45 Nm for screws up to 8 x 240 mm
- Bore holes up to 40 mm with our ZOBO-drills
- Drilling and fastening also in bottlenecks with the crosshead (optional)
- Thanks to FastFix interface the machine can be adjusted to different functions

Technical specifications:

Battery voltage/capacity	10,8 V Li-ion 3.0 Ah
No-load speed, 1st gear	0-400 min ⁻¹
No-load speed, 2nd gear	0-850 min ⁻¹
No-load speed, 3rd gear	0-1850 min ⁻¹
No-load speed, 4th gear	0-3800 min ⁻¹
Torque hard/soft	45/25 Nm
Drilling dia. in wood/metal	40/12 mm
Chuck jaw width	1,5-13 mm
Weight incl. CENTROTEC	1,6 kg

859**Accessory tool for electric screw drivers**

1) Universal holder with permanent magnet Item No. 859.001
with 1/4" hexagonal shank and 1/4" hexagonal recess

2) Screw-driver bits, 1/4" hexagonal shank

a) for SPAX Pozidriv screws

b) for TORX-screws, length 25 mm

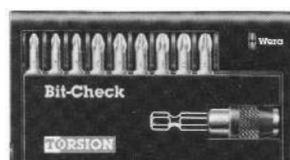
PZ-size	Item No.	
	25 mm long	50 mm long
1	859.101	859.201
2	859.102	859.202
3	859.103	-

Torx-size	Item No.	
	25 mm long	50 mm long
TX 10	859.310	859.320
TX 20	859.325	859.330
TX 25	859.325	859.330
TX 30	859.330	859.330

860**Bit check Item No. 860.001**

in a very practically designed plastic box

Contains: 1 quick release universal bit holder for 1/4" hexagonal shank
3 pcs. each off bits PZ 1, 2 and 3, 25 mm length, superior quality.



Proficraft socket set no. 8652, 45 pices, 1/4"

Set of 45 assorted tools in superior quality, metric, with ratchet 72 teeth, 13 pcs. sockets 4 to 14 mm, one bit each off slot-type 4-5.5 and 7 mm, PH-type size 1-2-3, PZ-Type size 1-2-3, hexagonal insert 3-8 mm, TORX-insert T10-15-20-25-30-40 mm, handle, lengthening pieces 50 and 100 mm rigid and 150 mm flexible, universal joint a.s.o.



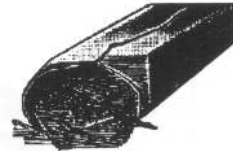
861

Jolted nails (wire nails)

862

Item No.	862.021	862.022	862.031	862.041	862.051	862.061	862.071	862.081	862.091	862.101
Thickness	0,7 mm	0,8 mm	0,8 mm	0,9 mm	1,0 mm	1,2 mm	1,4 mm	1,6 mm	1,8 mm	2,0 mm
Length	7 mm	9 mm	11 mm	13 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm
Pack. cont.	0,5 kg	0,5 kg	0,5 kg	1,0 kg	1,0 kg	1,0 kg	1,0 kg	1,0 kg	2,5 kg	2,5 kg

Item No.	862.111	862.112	862.121	862.131	862.132	862.141	862.151	862.152	862.161
Thickness	2,2 mm	2,2 mm	2,5 mm	2,8 mm	2,8 mm	3,1 mm	3,1 mm	3,4 mm	3,8 mm
Length	45 mm	50 mm	55 mm	60 mm	65 mm	70 mm	80 mm	90 mm	100 mm
Pack. cont.	2,5 kg	2,5 kg	2,5 kg	2,5 kg	2,5 kg	5,0 kg	5,0 kg	5,0 kg	5,0 kg



Counter sink 90° for woodworking

863

with straight shank and 5 cutting edges

Item No.	863.010	863.013	863.016	863.020	863.025
Diameter	10 mm	13 mm	16 mm	20 mm	25 mm
Length	70 mm	80 mm	90 mm	100 mm	105 mm



Milling countersinks 90° for woodworking

864

with straight shank

Item No.	864.013	864.016	864.020
Diameter	13 mm	16 mm	20 mm
Length	90 mm	100 mm	105 mm

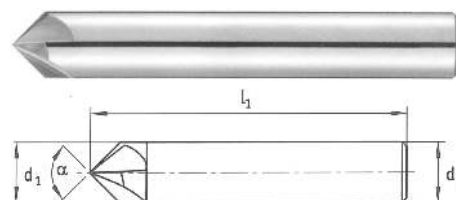


Deburring cutters of solid tungsten carbide 90°

865

Cutting material K 40 F for materials up to 40HRC, 4 teeth

Item No.	865.204	865.206	865.208	865.210	865.212
d ₁ =d ₂ mm	4	6	8	10	12
l ₁ mm	54	57	63	72	83



Countersinks SENKFIX HSS 90°

866

with straight shank and one cutting edge, for nearly all materials

Item No.	866.106	866.108	866.110	866.112	866.116	866.120	866.125	866.130	866.140
Diameter	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	40 mm
Length	45 mm	50 mm	50 mm	51 mm	60 mm	63 mm	67 mm	71 mm	80 mm
Shank dia.	5 mm	6 mm	6 mm	8 mm	10 mm	10 mm	10 mm	12 mm	15 mm



Countersinks TRISENKFIX HSS 90°

867

with straight shank and three cutting edges, for nearly all materials

Item No.	867.106	867.108	867.110	867.111	867.115	867.119	867.125	867.130	867.140
Diameter	6 mm	8 mm	10 mm	11,5 mm	15 mm	19 mm	25 mm	30 mm	40 mm
Length	45 mm	50 mm	50 mm	56 mm	60 mm	63 mm	67 mm	71 mm	80 mm
Shank dia.	5 mm	6 mm	6 mm	8 mm	10 mm	10 mm	10 mm	12 mm	15 mm



Braces Item No. 868.920

868

Chuck with 4 jaws for round and square shanks up to 13 mm, 12 teeth ratchet, with ball bearing, chrome-plated, turning circle diameter 250 mm



Set of Allen wrenches

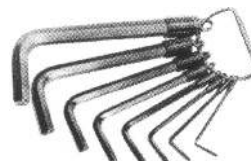
869

with key ring

Item No. 869.001

angle-shaped shaft, fully hardened, chrome-vanadium steel, nickel-plated.

Contents: Set comprises 1 key of size 2-2,5-3-4-5-6-8-10 mm



870

Screw drivers

with hexagonal neck shank in accordance with DIN 5265, blade of special steel, fully hardened and nickel-plated, with extra large striking butt, wooden handle, brown varnished.

Item No.	870.075	870.100	870.125	870.150	870.175	870.200	870.250
Blade size mm	3,5 x 90	5,5 x 100	7 x 125	9 x 150	10 x 175	12 x 200	14 x 250
Total length mm	192	210	240	300	300	330	390

871

Cross-slotted screw driver

for Pozidriv cross-slotted screws

with hexagonal neck shank, wooden handle and extra large striking butt,

Item No.	871.001	871.002	871.003
PZ-Size	1	2	3
For screw diameter	2 – 3 mm	3,5 – 5 mm	5,5 – 7 mm
Blade length	90 mm	100 mm	175 mm
Total length	190 mm	210 mm	300 mm

872

Piercer

of chrome-vanadium steel, fine polished, with large striking butt, handle riveted through collar.

Item No.	Piercer type	Piercer size
872.516	round	dia. 6 mm x 105 mm
872.520	square	7 x 7 x 110 mm

873

Center punches Item No. 873.001

octagonal, extra quality, 120 mm long, 10 mm thick.

874

Drift punches

octagonal, extra quality, 120 mm long, 10 mm thick.

Item No.	874.001	874.002	874.003	874.004	874.005	874.006
Diameter	1 mm	2 mm	3 mm	4 mm	5 mm	6 mm

875

Pin punches

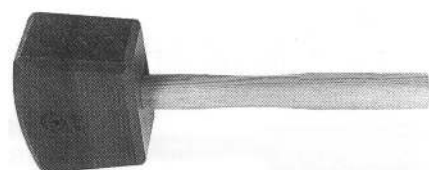
octagonal, of chrome-vanadium, 150 mm long, 10-12 mm thick.

Item No.	875.002	875.003	875.004	875.005	875.006	875.008	875.010
Diameter	2 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm

876

Cutting pliers heavy-duty version, head-polished.

Item No.	094.001	094.002	094.003	094.004
Length	160 mm	180 mm	210 mm	225 mm

877

Ulmia carpenter's mallets

of heavy beech, oval handle, glued and wedged up.

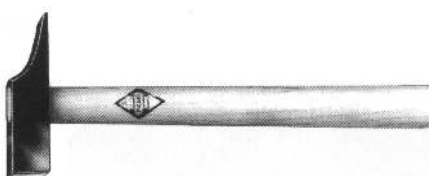
Item No.	877.001	877.002	877.003
Mallet size	105 x 65 mm	140 x 80 mm	160 x 85 mm
Head height	80 mm	110 mm	120 mm
Total length	300 mm	375 mm	385 mm

877A

Ulmia carving mallets

of hard white beech, round handle, glued and wedged up.

Item No.	877.101	877.102	877.103
Mallet size	100 mm	120 mm	130 mm
Head height	120 mm	120 mm	120 mm
Total length	230 mm	250 mm	265 mm

878

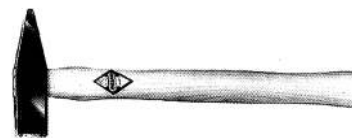
Carpenter's hammers

with ash handle

Item No.	878.018	878.020	878.022	878.025	878.028	878.030
Thickness	18 mm	20 mm	22 mm	25 mm	28 mm	30 mm
Weight appr.	140 g	190 g	230 g	320 g	400 g	520 g

Fitter's hammers with ash handle

Item No.	131.020	131.030	131.040	131.050	131.060	131.080	131.100	131.150	131.200
Hammer weight gr.	200	300	400	500	600	800	1000	1500	2000
Handle length cm	28	30	32	32	33	35	36	38	40



879

FERROPLEX combination hammer

unifies the properties of fitters hammers and soft headed hammers. One side hammer head of high quality steel, on the other side replaceable nylon element, steel handle fixed at the hammer head.

Item No.	128.330	128.335
Head dia. mm	30	35
Head length mm	104	104
Hammer length mm	290	295
Weight gr	600	800



879A

Metal wedges SFIX (hammer wedges)

for fast and firm attachment of hammer heads to handles

Item No.	150.001	150.002	150.003	150.004	150.005	150.006	150.007	150.008	150.009
Size	00	0	1	2	3	4	5	5,5	6
For handle length cm	28	30	31 - 33	35	36 - 38	40	60 - 70	80 - 90	90
Wedge width mm	13	16	20	23	26	29	33	40	50



880

Hammer handles of ash

Item No.	148.028	148.030	148.032	148.033	148.035	148.036	148.038	148.040
Length cm	28	30	32	33	35	36	38	40
For hammers gr.	200	300	400/500	600	800	1000	1500	2000
Head size mm	19 x 11	21 x 12	26 x 15	28 x 16	29 x 17	31 x 18	33 x 20	37 x 22



881

THURA flexible handles, DIN 5111/12

nearly unbreakable, durability 15 to 20 times of conventional handles

Item No.	149.026	149.028	149.030	149.032	149.033	149.035	149.036	149.038	149.040
Length cm	26	28	30	32	33	35	36	38	40
For hammer gr.	100	200	300	500	600	800	1000	1500	2000
Head size mm	17 x 10	19 x 11	21 x 12	26 x 15	28 x 16	29 x 17	31 x 18	33 x 20	37 x 22



882

Simplex soft headed hammers with malleable cast-iron housing, replaceable hammer elements and amazonas wood handle

The following elements are available in all combinations:

TPE-soft rubber, blue (soft) Plastic, red (hard)
 Rubber compound, black (medium hard) Nylon, white (extremely hard)
 Super plastic, white (medium hard) Soft metal, silver (high inertia)



883

Size =	Head length	Hammer length	Type / Item No.											
			TPE-soft		Rubber compound		Super plastic		Plastic		Nylon		Soft metal	
Head dia.			complete	insert	complete	insert	complete	insert	complete	insert	complete	insert	complete	insert
30 mm	90	300 mm	124.003	124.030	124.203	124.230	124.403	124.430	124.503	124.530	124.603	124.630	124.703	124.730
40 mm	110	330 mm	124.004	124.040	124.204	124.240	124.404	124.440	124.504	124.540	124.604	124.640	124.704	124.740
50 mm	135	350 mm	124.005	124.050	124.205	124.250	124.405	124.450	124.505	124.550	124.605	124.650	124.705	124.750
60 mm	145	405 mm	124.006	124.060	124.206	124.260	124.406	124.460	124.506	124.560	124.606	124.660	124.706	124.760
80 mm	175	490 mm	-	-	124.208	124.280	124.408	124.480	-	-	124.608	124.680	124.708	124.780

Hand brooms

with wood handle

Item No.	105.001	105.002
Material	horsehair	coco fibers



884

Workshop broom

square shape bristle length 90 mm, 5 rows, wood 310 x 65 mm

Item No.	106.001	106.002
Material	horsehair	coco fibers



885

Workshop broom, narrow shape

1) with fine, black-grey fibers (Arenga), similar to coco fibers
 2) with bright red, smooth plastic bristles (Elaston)

Width	40	50	60	80	100 cm
Material	Item No.				
Arenga	106.201	106.202	106.203	106.204	106.205
Elaston	106.301	106.302	106.303	-	-



886

887



Broom handles

1400 x 24 mm, brazil pine wood, with round head
Item No. 147.001

888



Lightweight rim shovel

of hard-aluminium, stainless, lightweight, strong as steel, with protective edge of steel

Item No.	Description	Size	Shovel dim.	Weight
140.202	Rim shovel	5	340 x 265 mm	0,80 kg
140.204	Halle-rim shovel	7	340 x 325 mm	0,85 kg
140.206		9	380 x 380 mm	1,00 kg

Spares available:

steel protective edges, galvanized, with holes and rivets.

889



Shovel handles (long handle)

130 cm long, curved, ash, with round head
Item No. 142.001

890



D-shovel handles

85 cm long, curved, ash
Item No. 143.001

891



pear shape



cyl. shape

Bellows

Item No.	115.101	115.102	115.103	115.201
Desgin	Pear-shaped, of hard wood			Cyl. shape
Dimension	200 x 280 mm	220 x 320 mm	250 x 360 mm	Ø 75 x 500 mm lg.

892



Steel wire hand brushes

Wood slightly curved, total length appr. 290 mm,
bristle area appr. 150 mm, steel bristle height 25 mm

No. of rows	Width mm		Steel wire, round 0,30/0,35 mm (STANDARD)	Undulated, round 0,2 mm	Undulated, round 0,3 mm
2	22	Item No.	244,592	244,512	244,522
3	30	Item No.	244,593	244,513	244,523
4	35	Item No.	244,594	244,514	244,524
5	40	Item No.	244,595	-	-
6	45	Item No.	244,596	-	-

893



893.108



893.208



893.308

Scrapers, in a special quality

Item No.	893.106	893.108	893.110	893.208	893.308
Shape	square			hollow/round	gooseneck-shape
Size	150 x 60 mm			150 x 50 mm	120 x 70 mm
Thickness	0,6 mm	0,8 mm	1,0 mm	0,8 mm	0,8 mm

894



894.916

Scraper steels with polished handle, steel length 120 mm

Item No.	894.914	894.915	894.916
Shape	oval	round	triangular

Smoothers (No. 602) of hardened steel

with flat, oval wooden handles

Item No.	895.002	895.004	895.006	895.008	895.010	895.012
Width	2 cm	4 cm	6 cm	8 cm	10 cm	12 cm



895

Smoothers of thin spring steel

Design	Compl. set	Individual smoothers			
	5, 8, 10, 12 cm	5 cm	8 cm	10 cm	12 cm
Item No.	896.001	896.005	896.008	896.010	896.012



896

Smoothers (No. 592)

with flexible blades

Item No.	897.006	897.010	897.014	897.020
Width	6 mm	10 mm	14 mm	20 mm



897

Sleekers of steel (Length L = overall length)

898

1) Spoon-type sleekers.

Item No.	Sleeker size mm	L = mm	Spoon size mm
082.113	90 x 37	275	85 x 30
082.115	80 x 32	250	75 x 25
082.117	70 x 27	230	70 x 23
082.117A	70 x 27	230	65 x 23
082.119	65 x 25	220	65 x 21
082.119A	55 x 19	205	55 x 18
082.121	50 x 18	190	55 x 17
082.121A	50 x 18	190	33 x 23
082.130	65 x 25	210	52 x 30
082.130A	70 x 27	230	55 x 35
089.024	30 x 12	150	30 x 12
089.024A	30 x 13	150	35 x 11
089.025	45 x 15	160	30 x 14



2) Shovel-type sleekers

Item No.	Sleeker size mm	L = mm	Shovel size mm
082.112	90 x 37	275	75 x 35
082.114	80 x 32	250	65 x 31
082.116	70 x 27	230	60 x 27
082.118	65 x 25	230	57 x 25
082.118A	55 x 20	205	55 x 18
082.120	50 x 18	190	45 x 12
082.120A	50 x 18	190	40 x 16



Panel carrier KFP with automatic clamp-system

For the safe lifting and carrying of panels. Self-adjusting and -locking clamp system. High-friction rubber coating on the moving clamping jaws. Made of aluminium die casting.

Item No.	Clamping width (panel thickness)	Load-bearing capacity per carrier	Weight per carrier
899.201	up to 65 mm	75 kg	1,0 kg



899

Halogen magnetic lamps

with flexible arm, Item No. 109.001

with prot. glass, special reflector, total length 600 mm, reflector dia. 70 mm with a 12 Volt/20 Watt halogen bulb, built-in transformer and clamping attachment. Can be connected to the mains (230 Volt, 50 cps).



900

Marking paste LYRA-mark

marks quickly and legible on all surfaces. Temperature resistant up to 1000°C. Especially suitable also for rusty, oily, smooth and wet surfaces! Easy to use. Tube of 50ml cont.

Item No.	120.201	120.204	120.206	120.208
Colour	white	yellow	black	blue



901

Carpenter's pencil Item No. 902.001

red varnished, for writing on dry wood, oval shape, medium-hardness graphite lead, length 18 cm.



902

903



Felt-tip pens

Uni Prockey with wedge, shaped for 3 lettering widths (3 - 6 mm), **water-based ink**, for nearly all surfaces, intensive colour, waterproof, odorless

Item No.	903.001	903.002	903.003	903.004
Colour	black	red	blue	green

904



Oil marking crayon

One box contains 12 crayons of each color.

High **oil content**, in non-fading bright colours.

Especially suitable for writing on **cold** and **hot iron**, on dry and wet wood and rough surfaces.

Item No.	904.001	904.002	904.003	904.004	904.005
Colour	blue	yellow	red	white	green

905



Varnish pens UNI-PAINT

package contains 6 pens

fully covering, also white and black, adheres to nearly all materials, even to glass and china, fast drying, **resistant to water**, can only be attacked by leaches and spirit, nonfading.

Type	Line width	Colour/Item No.				
		white	black	yellow	green	red
PX 20	2 - 3 mm	905.101	905.102	905.103	905.104	905.105
PX 21	1 - 1,5 mm	905.201	905.202	905.203	905.204	905.205

906



Pen for writing on metal surfaces

Item No. 906.001

Plastic pen with two refills containing etching ink, with protective cap and clip. The etching ink begin to flow as soon as the point of the pen touches the metal surface; it immediately turns black, leaving an indelible mark on the metal (can be removed by means of grinding cloth). For writing on steel, copper, nickel, tin, lead, non-ferrous metal alloys (with the exception of aluminium) and stainless steels. Especially suitable for hardened materials and thinwalled sensitive metal surfaces, for example foils.

Spare refill (Item No. 906.002)

907

atlas® – Safety shoes

ALU-TEC 440

- EN ISO 20345 S1
- Oiled buk leather
- Aluminium protection cap
- safety reflectors



Standard equipment

- 1) Safety reflectors 3M Scotchlife
- 2) **ERGO-TEX** functional lining
- 3) joint-preserving PPS-damping
- 4) inside anatomic leather sole
- 5) anatomic last
- 6) antistatic sole (10^5 - 10^9 Ohm)
- 7) proofed anti-sliding
- 8) eco-friendly production
- 9) Made in Germany

ERGOTEX 480

- EN ISO 20345 S2
- Ergo-Tex functional lining
- special waterproof leather
- PPS damping system
- MPU-3 sole
- sizes: 39 - 48



TX 600

- EN ISO 20345 S2
- safety reflectors
- Ergo-Tex functional lining
- Oil buked leather
- PPS damping system
- MPU sole
- sizes: 39 - 48



Type	Item No.								
	Size 39	Size 40	Size 41	Size 42	Size 43	Size 44	Size 45	Size 46	Size 47
ALU-TEC 440	396.109	396.110	396.111	396.112	396.113	396.114	396.115	396.116	396.117
ERGOTEX 480	396.439	396.440	396.441	396.442	396.443	396.444	396.445	396.446	396.447
TX 600	396.139	396.140	396.141	396.142	396.143	396.144	396.145	396.146	396.147

Trendy protective goggles

Model AIRSIGHT PH No. 1611

Protective goggles with only one sheet (made of polycarbonate), surface hardened, non-clouding, adjustable bow-length, very comfortable and light-weight (only 28 g)

Item No.	378.101	378.102	378.103
Colour of shield	clear	yellow	grey
function	high mechanical and UV-protection	mechanical and UV-protection better contrast	sun filtration mechanical and dazzling protection optimal sight of alarm colours



908

Swing-up protective shields

of crystal-clear plastic, flame resistant, excellent protection against chips, splinters and spatters. Head band of vulcanized fiber with soft foam padding, shield easily exchangeable.

Shield size: 46 cm wide, 29 cm high, thickness 1 mm

Item No.	Model	Description
389.001	5524	standard model
389.002	5527	with additional dust hood
389.101		spare shield (standard model)



5524



5527

909

Particle filter masks of fleece

no protection against gasses and vapours

No. 8710-E (Item No. 391.002)

degree of protection: FFP1 (EN 149) very light (8 gr. only), comfortable, easy to use, no restriction of sight, hygienic, inexpensive.

Carton contains 20 masks.



8710 E

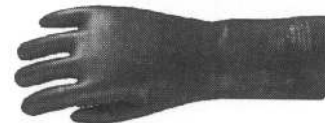
910

Rubber 5-finger gloves Type 720

medium-duty design, appr. 300 mm long, inner surface of glove velourized dark grey, resistant against many organic and inorganic acids, oils and grease

Good flexibility at low temperature, heat resistant up to about 120 °C.

Item No.	366.307	366.308	366.309	366.310	366.311
Size	7	8	9	10	11



911

Disposable gloves, made of Latex, Vinyl, Nitril or PE

pre-powdered or not powdered, each package contains 100 pcs., length ab. 24 cm, useable for right and left hand.

Latex offers most highly flexibility and comfort while wearing

Vinyl has an excellent chemical resistance and is anti-allergic

Nitril is anti-allergic, silicon-free, has excellent both mechanical and chemical resistance, outstanding comfort while wearing, highly flexible, skin-tight

PE (Poly-Ethylene) is a low cost solution for shortly cleaning

Material	LATEX		VINYL		NITRIL		PE
Colour	transparent		transparent		blue		transp.
Design	powdered	not powder.	powdered	not powder.	powdered	not powder.	not powder.
Size	Item No.						
L	912.101	912.111	912.201	912.301	912.401	912.501	-
XL	912.103	912.113	912.203	912.303	912.403	912.503	912.001

Other sizes upon request! Please ask for graduated prices!



PE

912

Disposable overall, Item No. 913.001

with zip, tough and strong quality, can be used several times.

Other protective clothing upon request!



913

Canvas aprons

red-brown, with bib, 80 x 100 cm

Item No.	371.101	371.102
Design	standard	belly with leather patch



914

915**Silver lubricant** Item No. 915.001

lubricant for woodworking machinery.

Apply with a cloth, thin with petroleum (if required), in 1 kg tins.

915A**Rust removing spray** Item No. 915.201transparent, extremely capable of creep (w/o MoS₂) e.g. for mould making, core and mould shops, permanent moulds and maintenance. Anitcorrosive, creeps under humidity and stops squeaking.

in tins of 500 ml

916**Plasticine (modeling compound)**to be used at room temperature, non toxic, not smearing. According to producers' declaration **free of sulphur**. Therefore usable also in connection with silicones (tests should be done in before nevertheless). Temperature resistant upto 40°C, in 500 gr packages (red also in 1kg packages).

Item No.	916.001	916.002	916.003	916.004	916.005	916.006	916.007	916.008	916.009	916.101
Colour	green	brown	yellow	blue	red	grey	black	white	violet	red (1kg p.)

Other colors upon demand!

916A**Industry plasticine (Design Clay)** brown

inherently stable modeling compound, after heating to 50° - 60°C soft and pliable, between - 30° to + 40°C absolutely stable, surfaces can be smoothed after cooling, even plaster casts can be made from the original pattern, therefore also ideal for rapid prototyping.

Item No.	916.201M	916.202
Version	Standard	Light
spec. weight g/cm ³	1,45	0,86
workg. temperature	55-60°C	55-60°C
Weight/Pack.	2,3 kgs	1,3 kgs

Remark: the Light-version is 100% free of sulphur, has the same volume and the same productiveness as the standard type.

917**Super plasticine**considerably **softer and of greater plasticity** than the standard plasticine, excellent workability, 650 gr packages (compl. carton contains 32 p.)

According to producers' declaration **free of sulphur**. Therefore usable also in connection with silicones (tests should be done in before nevertheless).

Item No.	917.001	917.002
Colour	yellow	red

918**Sculpture waxes**

Item No.	Type	Characteristics	Melting point	Colour
426.301	BRONZE	A highly refined wax specifically designed for the art and sculpture application. Ideal for hand forming. Pliable but not sticky. It can be used alone or blended with a hardener, such as PX 30 Artisan, to obtain extraordinary performance slush casting wax, in plates of ab. 5 kg	70° C	dark brown
426.302	COPPER	An extremely pliable, medium soft modeling wax. Can be slightly handwarmed before application, in plates of ab. 5 kg	61° C	dark tan
426.303	BEES-WAX	Very fine natural wax for a developed modeling in granules	64° C	white/natural

919**Releasing spray DEMOTEX-S** Item No. 445.201for all common cold-setting methods (Cold-box, furan resin, CO₂ a.s.o.) and green-sand systems, contains aluminium pigments.

in spray cans of 500 ml.

920**Aluminium-paste-Silver-Ink** T 1005parting agent for the cold-box and CO₂-methods, easy mould removal, apply by dabbing to achieve a uniform coating.

	Cont./Item No.			
Product	1 kg	5 kg	25 kg	50 kg
Silver-Ink	446.001	446.002	-	446.003
Solvent	446.101	446.102	446.103	-

Polyester filler „Airo“, grey

Sprayable 2-comp. polyester filler with excellent filling properties. Excellent adhesion on various bases f. ex. wood, glass-fibre reinforced parts or as primer for light pattern boards such as Sika-Block® M 80.

Item No. 921.200 in tins of 1,5 kgs incl. a special liquid catalyst (the normal catalyst paste will not work!).

May be diluted by:

Item No. 921.201 Dilution for polyester products in tins of 1 ltrs.



921

Repair compound AVOLITH 3-components

for repairing shrinkage holes or weldings, may be used as filler or primer.

The pourable or brushable AVOLITH liquids becomes pasty after adding max. 10 parts of AVOLITH-powder. Viscosity may be varied by changing the quantity of powder. To harden mixture 2 - 3 % catalyst paste must be added and mixed thoroughly – avoid air-inclusions – until the colour becomes homogenous. Working time 3 to 5 min., machinable after 20 or 30 min.

Item	Mat. cpl.=3-comp.	Liquid (1,5 l)	Powder (0,2 kg)	Catalyst (35 gr.)
Item No.	433.001	433.002	433.003	433.004



922

Aluminium soft solder in rods

Item No. 432.001 melting point 260 °C

for filling holes and flaws in light metal castings; heat area to 300 °C, then ream to achieve a permanent joint, rod diameter appr. 6 mm, rod length appr. 50 cm, weight appr. 100 gr.



923

Repair stick ALUMINIUM

on epoxy base with aluminium fillers, aluminium colour after curing. The uncomplicated solution for all repair and maintenance work. Easy to use: cutt off - knead - use. The cure product may be machined and over-painted without pre-treatment. Temperature resistant up to 120 °C, resist against oils and most acids. Pot life 5-10 min., cure time ab. 30 min.

Item No. 924.001 sticks with 57 gr.



924

Multi-purpose repair mastic 'Airo'

2-component compound, excellent bond with metal, wood, plastic, can be applied in any layer thickness, pore-free, manufactured under vacuum, addition of setting agent appr. 2 %, pot time 4 to 6 min., polishable after appr. 20 min.

Item No.	Type	Prob.	Size
925.001	airo-elastic	grey filler	2,5 kg incl. hardener
925.002	airo-plastic	white filler	2,5 kg incl. hardener
925.004	airo-fix-Polyester	clear polyester-resin	2,5 kg incl. hardener
925.006	airo-Faserplast	olive-green filler with cont. glass fibres	2,0 kg incl. hardener
925.101	airo-hardener	red	50 gr.
925.102	airo-hardener	white	50 gr.



925

Wood mastic 'MS/PK-L', colourless

1-component mastic, for amending flaws and for fillets

(various types of wood are available)

Thinner 'MS 50 C'

in 0,88 kg tins

in 1 l tin bottles

Item No. 926.001

Item No. 926.002



926

Aluminium plastic 'Superior'

Item No. 434.091

2-component mastic, metal powder with setting agent, pourable and smoothable in any layer thickness, polishable, metal content 96 %, for machined and unmachined aluminium, sets after 20 to 30 min., temperature-resistant up to appr. 200°C

Complete package of 1,5 kg (1,15 kg powder & 0,35 kg setting agent)



927

Aluminium mastic 'Alu Superior'

Item No. 434.260

1-component mastic, ready for use

temperature-resistant up to appr. 500°C, for repairing aluminium castings, well polishable, excellent matching to metal, metal content 90 %

in 1 kg tins

Special thinner: 0,5 l tins **Item No. 434.270**



928

929**Super-Metal silver**

2-component plastic mastic containing aluminium, for repairing aluminium or iron castings, in body repair, welding seams can be covered and smoothed.

Temp. resistant up to 220°C for ab. 30 min.

In 1,4 kg packages incl. setting agent

Item No. 929.001

930**ELGO-fillet mastics,** 2-component compounds

each packing complete with hardener



Product	Properties/Application	Packing
ELGO-Plastic (MB)	specific gravity 1,4 red-brown, for universal application as fillet mastic and for PU-plates Item No. 930.001	3 kg
ELGO-Plastic (HP)	specific gravity 1,4 a little bit more bright and fine than type MB Item No. 930.201	3 kg
ELGO-Lightplastic (LP)	specific gravity 1,25 cream-coloured mastic of high density and low weight; very easy machinable, tool saving Item No. 930.203	3 kg
ELGO-filling plastic (FP)	specific gravity 0,88 (!) very fine, easy to model material esp. fitting for large fillets, abrasion resistant surface Item No. 930.204	20 kg
ELGO-hardeners	red Item No. 930.101 white Item No. 930.102	60 gr tubes 60 gr tubes

931**ELGO-quick-setting Polyester-mastics,** 2-component compounds

each packing complete with hardener, for universal applications



Product	Properties/Application	Packing
ELGO-Plastic soft/beige	specific gravity 1,93 compact material with easy machinable surface; for pattern-plates, mould-construction a.s.o. Item No. 931.001	2,5 kg
ELGO-Plastic white	specific gravity 1,94 as the type soft/beige, but with harder surface Item No. 931.101	2,5 kg
ELGO-hardeners	red Item No. 930.101 white Item No. 930.102	60 gr tubes 60 gr tubes

932**Combi mastics,** 1-component compound

Colour	Properties/Application	Packing
grey/green	specific gravity 1,56 fine mastic for small grooves or uneven areas on metal wood; drying on air depending on thickness after 30 - 60 minutes Item No. 932.101	2 kg

Pattern varnish VIETOR

933

Description	Properties	Colours	Container size/Item No.		
			1 ltr.	2,5 ltr.	5 ltr.
Vitolux-pattern varnish B 33	Quick-drying; excellent smoothing properties, easy removal of moulds, good protection of patterns and core boxes. First prime the pattern with primer 10.108 red or grey, then paint or spray twice with B 33. Please respect a drying time of 2 or 3 hours before painting the second time. For spraying use 5 to 10 % of dilution 10.009.	red	933.111	–	933.115
		blue	933.121	–	933.125
		colourless	–	933.135	–
		green	933.141	–	933.145
		yellow	933.151	–	933.155
		violet	933.161	–	933.165
		black	933.171	–	933.175
		grey	933.181	–	933.185
		white	933.191	–	933.195
Vitolux-pattern varnish B 33 G 10/A	Similar to B 33, with additional parting properties, esp. for cold setting mould and core sand binders	silver-red	933.311	–	933.315
		silver-blue	933.321	–	933.325
Vitolux-pattern varnish B 85 E	Additional layer giving high chemical resistance, highly abrasion-proof.	colourless	933.201	–	–
Vitolux-primer 10.108	Quick-drying & setting, excellent smoothing properties, well polishable.	red	933.411	–	933.415
		grey	933.421	–	933.425
Vitolux-core box-varnish 11.108	For unvarnished outside surfaces of patterns and core boxes, protection against moisture and dirt.	yellowish	–	933.602	–
Vitolux-core box-varnish, water-based	as 11.108, but water-soluble	yellowish	–	933.603	–
Vitolux-foam primer	Quick-drying primer for closing pores and strengthening the surface. Painting then with B 33 will allow repeated demoulding.	yellow	–	933.702 (2,3 l)	–
Vitopal-pattern and sand hopper paint	Highly abrasion-proof 2-component paint (epoxy resin based)	red-brown	0,50 l varnish (933.651)		
			+ 0,23 l harden. (933.652)		
			0,73 l cpl. (933.650)		

VIETOR-mastics

933A

Description	Properties	Colours	Container size/Item No.		
			1 kg	1,5 kg	1,5 ltr.
Vitolux-fillet mastic 11.401	1-component mastic, easy to use, excellent bond, suitable for wood, metal and resin patterns	beige	933.002	–	933.001
Vitolux-surfacer 11.201	1-component mastic applied by drawing, quick drying, excell. bond, for small uneven areas, polishable after 10 to 20 min.	beige	–	–	933.010
Vitolux-2-compound-mastic	Suitable for filling uneven surfaces and for reparations of patterns or core-boxes	beige	933.952	–	–
Vitolux-2-compound-mastic paste	Suitable for filling uneven surfaces, for modelling and moulding, easy machinable	brown	–	933.951	–

VIETOR-dilution

933B

Description	Properties	Colour	Container size/Item No.		
			5 ltr.	10 ltr.	25 ltr.
Vitolux-dilution 10.009	For Vitolux B 33 and B 33 G 10/A	colourless	933.505	933.510	933.525

VIETOR-release agents

933C

Description	Properties	Colours	Container size/Item No.			
			1 ltr.	5 ltr.	10 ltr.	25 ltr.
Vitol-Silver 4/G parting & antifricition compound	Quick-drying parting & lubricating compound for easy removal of moulds, esp. of cold-setting	silver	–	933.805	933.810	933.825
Vitolux-release agent T	For resins, moulding and core-making, highly heat resistant (ab. 115 °C), outstanding polishable	milky	933.900	–	–	–

ZIMA-glue for abrasive disks, red

934

Rubber-based contact glue, temperature resistant up to 80 °C; apply on both sides, then connect with light pressure.

Item No. **934.401** in tins of 1 ltr.

a) fitting thinner Item No. **934.402** in tins of 1 ltr.



Blue glue for abrasive disks

934A

should be applied thinly, quick-drying, abrasive paper sits smoothly on the grinding disk, can be removed like an adhesive plaster, no solvent required, metal disk does not have to be replaced.

1) **Standard quality:** Item No. **934.101** in 750 cc tins
Item No. **934.102** in 3,5 kg buckets

Thinner Item No. **934.301** in 1 kg tins

2) **Super-quality:** Item No. **934.201** in 860 cc tins
only to be thinned with water



935



Construction adhesive RK-700

2-comp. construction adhesive with high strength, quick setting, will bond different materials f. ex. also **pattern boards like SikaBlock®**. High tensile, shear and peel strength, fast curing, excellent adhesion, grindable and overpaintable, temperature resistant from -55°C to +125°C, mixing ratio 1:1, handling strength after 25 min., mechanical loads after 60 min, final strength after 12h, adhesive gap bridging 0,1-4,0 mm.

Item No. 935.301 double springe with 24 gr. (packing cont. 12 pcs.)

Item No. 935.302 double cartridge with 50 gr. (packing cont. 4 pcs.)

936



Cold glue for wood

white, quick-setting wood glue

Item No.	936.001	936.002	936.003
Type	Ponal-Express	Keimfix-S	Keimfix-Aqua (water proof)

937



Adhesives



Activating spray



Adhesive remover



MD-Primer spray bottle



MD-Primer bottle with brush

HOCO-quick setting adhesive (CA adhesive)

Type	Viscosity / Application	Content	Item No.
HC 0	very low viscosity , extremely quick setting for smooth surfaces of plastic, rubber or patternplates	25 gr.	937.525
		50 gr.	937.550
HC 1	low viscosity , quick setting, for combination of plastic and/or metal with high-strength	25 gr.	937.125
		50 gr.	937.150
HC 3	medium viscosity , for porous surfaces esp. for wood, rubber, ceramics or cork	25 gr.	937.625
		50 gr.	937.650
HC 2	viscous , a little bit more of wet life, for highly porous surfaces and parts which require a filling of fissures	25 gr.	937.225
		50 gr.	937.250

Accessories

Name/Application	Content	Item No.
Activating spray / Catalyst	150 ml	937.300
Accelerator for HOCO-quick setting adhesives		
Adhesive remover for HOCO-quick setting adhesives. Removes deposits of adhesive from hands, plastics and many other materials	20 gr	937.800
MD-Primer , allows glueing of difficult bondable materials such as PE, PP, PTFE and silicon		
in spray bottles	15 ml	937.810
in bottles with brush	15 ml	937.811

938



Polystyrene adhesive 'technicoll' No. 8153

for foam models, ash content < 1 %

Item No.	938.006	938.040	938.220
Contents	650 gr	4 kg	22 kg

Adhesive remover = 'technicoll' No. 8363

Item No.	938.506	938.535	938.700
Contents	675 gr	3,5 kg	20 kg

Spray adhesive for polystyrene tesa 57064

in tins of 500 ml **Item No. 938.901**

939



Adhesive tape for polystyrene pattern

for covering gaps, grooves and joints on polystyrene patterns of all kinds, vaporizes without residues, non absorbing coating, high tensile strength, 0,07 mm thick only.

Item No.	939.009	939.012	939.018	939.024
Width	9 mm	12 mm	18 mm	24 mm
Length per roll	18 m	18 m	50 m	50 m

939A

Flexible tapes

1) IC-tapes in plastic boxes, length 10 m

	Width / Item No.												
Colour	0,5mm	0,7mm	1,0mm	1,5mm	2,0mm	2,5mm	3,0mm	4,0mm	5,0mm	6,0mm	8,0mm	10,0mm	12,0mm
black	939.105	939.107	939.110	939.115	939.120	939.125	939.130	939.140	939.150	939.160	939.180	939.190	939.195
grey	939.205	939.207	939.210	939.215	939.220	939.225	939.230	939.240	939.250	939.260	939.280	939.290	939.295
blue	939.305	939.307	939.310	939.315	939.320	939.325	939.330	939.340	939.350	939.360	939.380	939.390	939.395
red	939.405	939.407	939.410	939.415	939.420	939.425	939.430	939.440	939.450	939.460	939.480	939.490	939.495

2) Modeling-tapes no. 9152, length 50 m

	Width / Item No.									
Colour	3,0mm	6,0mm	9,0mm	12,0mm	15,0mm	19,0mm	25,0mm	30,0mm	38,0mm	50,0mm
black	939.503	939.506	939.509	939.512	939.515	939.519	939.525	939.530	939.538	939.550
brown/clav	939.603	939.606	939.609	939.612	939.615	939.619	939.625	939.630	939.638	939.650

Further types of tapes upon request! Please ask for the special catalogue!

Toothed scrapers **Item No. 940.001**

of high-quality polypropylene, unbreakable, especially for applying adhesive, 13,7 cm wide, tooth width ab. 2,5 mm



940

Smoother **Item No. 940.101**

made of high-quality PP, unbreakable, for smoothing and priming works, width 11,5 cm, without teeth



940A

Varnish brushes

1) Type 665, prime dark neathair, round, nickel collar

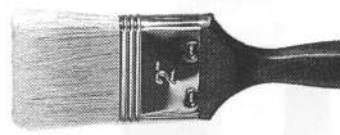
Item No.	941.102	941.104	941.106	941.108	941.110	941.112	941.114	941.116	941.118
Size	2	4	6	8	10	12	14	16	18
Dia.	8,5 mm	10 mm	13 mm	17 mm	20 mm	23 mm	25 mm	29 mm	32 mm
Hair lg.	22 mm	26 mm	31 mm	37 mm	43 mm	48 mm	51 mm	53 mm	56 mm

2 Type 910, white bristles, flat, raw handle

Item No.	941.210	941.215	941.220	941.225	941.230	941.240
Width	1"	1 1/2"	2"	2 1/2"	3"	4"
Bristle lgth.	37 mm	45 mm	45 mm	52 mm	56 mm	60 mm



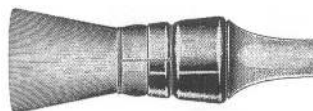
665



910

Glue brushes **Type 1420**, pale yellow bristles

Item No.	942.108	942.110	942.112	942.114	942.116
Size	8	10	12	14	16
Dia.	17 mm	20 mm	23 mm	25 mm	29 mm
Bristle lgth.	45 mm	47 mm	50 mm	55 mm	60 mm

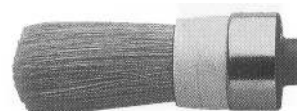


942

Annular brushes **Type 1040**

standard bristles, with plastic collar

Item No.	100.102	100.104	100.106	100.108	100.110	100.112	100.114	100.116
Size	2	4	6	8	10	12	14	16
Dia.	20	25	30	35	40	45	50	55 mm
Bristle lgth.	60	65	65	70	75	80	85	85 mm



943

Glue or paint pots

galvanized, pot with lugs and handle

Item No.	Diameter	Height	Capacity
117.001	120 mm	120 mm	1,0 Ltr.
117.002	140 mm	140 mm	2,0 Ltr.
117.003	170 mm	155 mm	3,0 Ltr.
117.005	200 mm	200 mm	6,0 Ltr.

Other sizes upon request!

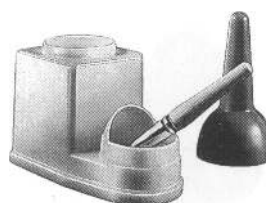


944

Glue pot 'TS-Boy'

of plastic, for glue, adhesive, varnish or paint, liquids do not dry out, enables economical use, easy to clean, with tight-sealing lid, brush wiper and brush

Item No.	Cap.	Size	Spare brush.-no.
945.045	0,45 l	127 x 87 x 86 mm	945.245
945.090	0,90 l	180 x 115 x 100 mm	945.290
945.150	1,50 l	210 x 125 x 110 mm	945.350



945

Paint pots with special lid **Item No. 946.001**

drawn of aluminium, holding appr. 0,7 l, total height 275 mm, bottom diameter 90 mm



946

Compressed air spraying pistols 'MAFA' 9022 F

Low cost, robust pistol of aluminium, nozzle and nozzle needle of steel, nozzle head self-centering, for round, wide and flat sprays. Standard nozzle dia. 1,5 mm. Quick-connect/-disconnect air coupling. Other nozzle sizes upon request!

Item No.	230.201
Design	Plastic reservoir 0,5 l

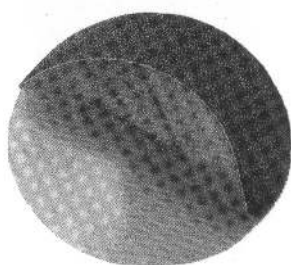
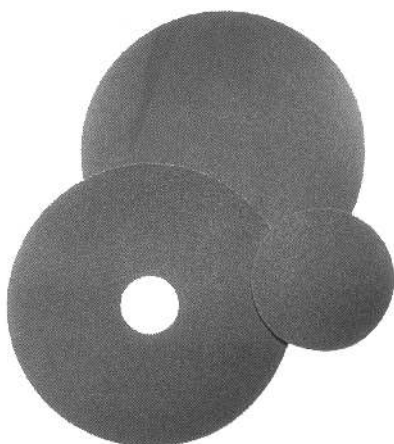


947

948

Grinding blocks

of cork, size 120 x 60 x 35 mm **Item No. 948.001**

949

Abrasives

1) Disks

a) not self-adhesive, without hole
fused aluminium oxide, resin bonded

Grain	Diameter / Item No.							
	300 mm	400 mm	500 mm	600 mm	700 mm	800 mm	900 mm	1000 mm
40	949.114	949.124	949.144	949.154	949.164	949.184	949.194	949.204
60	949.116	949.126	949.146	949.156	949.166	949.186	949.196	949.206
80	949.118	949.128	949.148	949.158	949.168	949.188	949.198	949.208
100	949.120	949.130	949.150	949.160	949.170	949.190	949.200	949.210
Min. quant. per grain	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.

b) not self-adhesive, with central hole
fused aluminium oxide, resin bonded

Grain	Diameter x hole-dia. / Item No.	
	350 x 80mm	600 x 120mm
40	949.254	949.274
60	949.256	949.276
80	949.258	949.278
100	949.260	949.280
Min. quant. per grain	10 pcs.	10 pcs.

c) self-adhesive, without hole
fused aluminium oxide, resin bonded

Grain	Diameter / Item No.					
	300 mm	400 mm	500 mm	600 mm	800 mm	900 mm
40	949.114K	949.124K	949.144K	949.154K	949.184K	949.194K
60	949.116K	949.126K	949.146K	949.156K	949.186K	949.196K
80	949.118K	949.128K	949.148K	949.158K	949.188K	949.198K
100	949.120K	949.130K	949.150K	949.160K	949.190K	949.200K
Min. quant. per grain	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.

Other diameters and grains as well as **velcro-disks** upon request.

Remark: Self-adhesive disks will remove better if the dish wheel will be treated with talc or a liquid release agent before bonding. The disk should be removed always immediately after use when it is still warm. Or you can let a used disk on the dish wheel and bond the new one over this.

2) In endless belts, highly flexible fabric, fully resin bonded min. quantity: 10 p. per type

a) narrow belts for ZIMMERMANN profile belt grinders

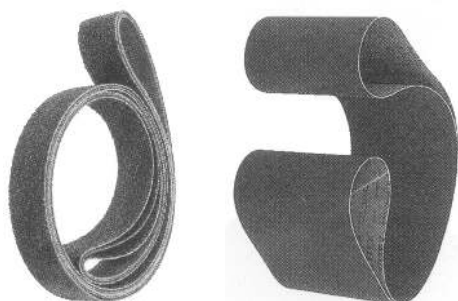
Width	1985 mm long: Item No.				2370 mm long: Item No.			
	grain 40	grain 60	grain 80	grain 100	grain 40	grain 60	grain 80	grain 100
15 mm	949.504	949.506	949.508	949.510	949.554	949.556	949.558	949.560
30 mm	949.524	949.526	949.528	949.530	949.574	949.576	949.578	949.580
40 mm	949.534	949.536	949.538	949.540	949.584	949.586	949.588	949.590

Width	2710 mm long: Item No.				3200 mm long: Item No.			
	grain 40	grain 60	grain 80	grain 100	grain 40	grain 60	grain 80	grain 100
15 mm	949.604	949.606	949.608	949.610	949.644	949.646	949.648	949.650
30 mm	949.614	949.616	949.618	949.620	949.654	949.656	949.658	949.660
40 mm	949.624	949.626	949.628	949.630	949.664	949.666	949.668	949.670
50 mm	949.634	949.636	949.638	949.640	949.674	949.676	949.678	949.680

b) wide belts for ZIMMERMANN vertical belt grinders
250 mm wide x 2400 mm long, paper based

Grain	Item No.
40	949.694
60	949.696
80	949.698
100	949.700

Other sizes and grains upon request!



To be continued see next page

Please respect the safety recommendations for the use of abrasive products! If needed, please ask for it!

Abrasives (continued)

949

3) Abrasive sleeves for bobbin sanders ZIMMERMANN (min quant. = 10 pcs. per type, 300 mm length = 5 pcs.)

Outside- diam.*	Length 120 mm / Item No.			Length 160 mm / Item No.			Length 200 mm / Item No.			Lgth. 300mm/Item No.	
	grain 40	grain 60	grain 80	grain 40	grain 60	grain 80	grain 40	grain 60	grain 80	grain 40	grain 60
20 mm	949,710	949,711	949,712	-	-	-	-	-	-	-	-
30 mm	949,713	949,714	949,715	-	-	-	949,747	949,748	949,750	-	-
40 mm	949,716	949,717	949,718	-	-	-	-	-	-	-	-
50 mm	949,719	949,720	949,721	-	-	-	949,751	949,752	949,753	-	-
60 mm	-	-	-	949,722	949,723	949,724	-	-	-	-	-
80 mm	-	-	-	949,725	949,726	949,727	-	-	-	-	-
100 mm	-	-	-	949,728	949,729	949,730	949,754	949,755	949,756	-	-
120 mm	-	-	-	949,731	949,732	949,733	-	-	-	-	-
150 mm	-	-	-	-	-	-	-	-	-	949,757	949,758
200 mm	-	-	-	-	-	-	-	-	-	949,759	949,760
250 mm	-	-	-	-	-	-	-	-	-	949,761	949,762

* The inside diameter will be about 2 mm smaller!
Other sizes and grains upon request! (Minimum quantity 150 pcs. per type)

4) Sheets, sheet size 230 x 280 mm a) Flint paper, light C-paper, part. resin bonded

Item No.	949,004	949,005*	949,006	949,008	949,010	949,012	949,015	949,018
Grain	40	50	60	80	100	120	150	180

* Discontinued! Available as long as stock lasts!

b) Linen grinding sheets, fully resin bonded

Item No.	949,026	949,028	949,030	949,032	949,035	949,038	949,044
Grain	60	80	100	120	150	180	240

c) Waterproof paper, fully resin bonded

Item No.	949,062*	949,065*	949,068	949,072	949,074	949,078	949,082	949,090
Grain	120	150	180	220	240	280	320	400

* Discontinued! Available as long as stock lasts!
Other grains upon request!

5) In rolls, length 50 m a) strong paper for manual or machine grinding, fully resin bonded

Grain	Width / Item No.				
	100 mm	110 mm	115 mm	120 mm	150 mm
40	949,304	949,314	949,324	949,334	949,344
60	949,306	949,316	949,326	949,336	949,346
80	949,308	949,318	949,328	949,338	949,348
100	949,310	949,320	949,330	949,340	949,350
120	949,312	949,322	949,332	949,342	949,352

b) light paper for finishing, part. resin bonded

Grain	Width / Item No.				
	100 mm	110 mm	115 mm	120 mm	150 mm
40	949,364	949,374	949,384	949,394	949,404
60	949,366	949,376	949,386	949,396	949,406
80	949,368	949,378	949,388	949,398	949,408
100	949,370	949,380	949,390	949,400	949,410
120	949,372	949,382	949,392	949,402	949,412

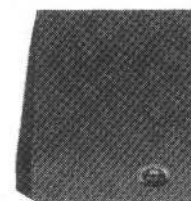
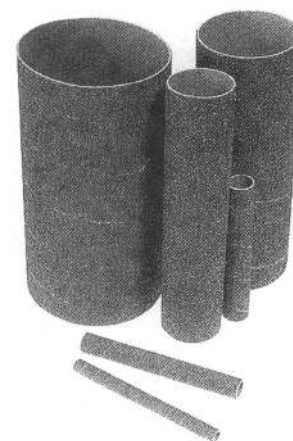
c) economic rolls, highly flexible grinding linen, fully resin bonded

Width	Grain / Item No.							
	60	80	100	120	150	180	240	320
25 mm	949,416	949,418	949,420	949,422	949,425	949,428	949,434	949,432
40 mm	949,436	949,438	949,440	949,442	949,445	949,448	949,454	949,462
50 mm	949,466	949,468	949,470	949,472	949,475	949,478	949,484	949,492

Other widths upon request!

6) Abrasive fleece: nylon fabric fleece with resin bonded grinding grains In rolls 115 mm wide, 10 m long

Item No.	949,812	949,818	949,828
Grain	fine (120)	very fine (180)	ultra-fine (280)
Colour	green	red	grey



To be continued see next page

Please respect the safety recommendations for the use of abrasive products! If needed, please ask for it!

949



Abrasives (continued)

7) ABRANET®-abrasives

Innovative abrasives for grinding fillers, varnish and lacquers. Also outstanding properties when grinding plaster, MDF, wood or aluminium due to the possibility of **exhausting harmful dust** during working! The products consists of strips with thousands of very small holes. No dust part will be more than 0,5 mm away from an exhausting hole. Thus the grinding will be dust-free and the work environment will stay clean.

a) ABRANET®-strips 70 x 125 mm, system VELCRO, packing contains 50 pcs. per grit.

Item No.	949.831	949.832	949.833	949.834	949.835	949.836	949.837
Grain	80	120	180	240	320	400	600

Other sizes upon demand!

Fitting for those strips:

ABRANET®-handblocks soft 70 x 125 mm, without holes, foamed rubber with recessed grip, VELCRO surface

Item No. 949.840

b) ABRANET®-rolls, length 10 m, system VELCRO

Width mm	Grain / Item No.					
	80	120	180	240	320	400
75	949.851	949.852	949.853	949.854	949.855	949.856
115	949.861	949.862	949.863	949.864	949.865	949.866

Other grits upon request! Also other ABRANET®-products!

8) 3M-foampads, 140 x 115 x 5 mm

One side coated, for dry or wet sanding, not buckling, no sharp edges, very fine and smooth finish, packing contains 20 pcs. per grit.

Item No.	949.871	949.872	949.873	949.874	949.875
Grit	MEDIUM	FINE	SUPERFINE	ULTRAFINE	MICROFINE
adequate to	grain 220-280	grain 320-400	grain 400-500	grain 800-1200	grain 1500-2200

Other 3M-abrasive products (Stikit, Hookit a.s.o) upon demand!

9) Sandflex universal cleaners

Soft cleaning compound with abrasive; for polishing and matting; addition of water, soap, petroleum or other liquids or paste increases the effectiveness.

Size mm	Grain / Item No.		
	60	120	240
80 x 50 x 20	949.906	949.912	949.924
Colour	red	green	yellow

Please respect the safety recommendations for the use of abrasive products! If needed, please ask for it!

949A



Flexible holder for abrasive belts (bendable files)

Made of a flexible plastic material, inclined support, safe clamping of the belt by bracket and tensioning screw. For strips of 280 mm length (sheets or rolls). Very handy for difficult to access places.

Total length 280 mm, useable length 120 mm

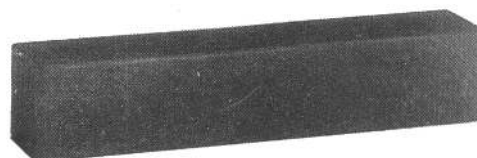
Item No.	949.901	949.902
for belt width	13 mm	25 mm

Cleaner for abrasives

Item No. 950.001

Elastic cleaner for abrasives, removes grinding residues which are stuck among the grains and rend difficult the grinding. No grooves, no vibrations of machines. Uniform results and long-life of abrasives.

Dimensions 41 x 41 x 209 mm



950

Steel backing plate HL

Item No. 950.101

Very stable heavy steel backing plate for manual sharpening of all kind of parts.

- 4 non-slip rubber feet
- for abrasive papers 230 x 280 mm
- 3 mm adjustment range for non-crease holding



950A

Aluminium bobbins

for bobbin sanders "ZIMMERMANN"

fitting to the sleeves of item 949/3.

Nominal diam.*	Length / Item No.			
	120 mm	160 mm	200 mm	300 mm
20 mm	951.101	-	-	-
30 mm	951.102	-	951.401	-
40 mm	951.103	-	-	-
50 mm	951.104	-	951.402	-
60 mm	-	951.201	-	-
80 mm	-	951.202	-	-
100 mm	-	951.203	951.403	-
120 mm	-	951.204	-	-
150 mm	-	-	-	951.501
200 mm	-	-	-	951.502
250 mm	-	-	-	951.503

* The bobbins have 2 mm undersize!



951

Machines for thermoforming with vacuum

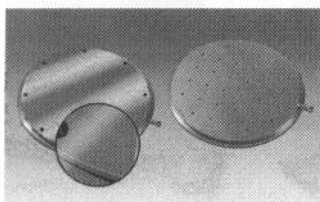
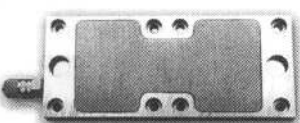
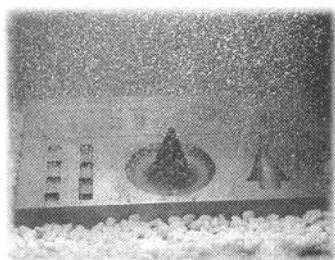
Size from 300 x 210 mm up to 3000 x 1500mm.

We may arrange offers upon demand!

Please see the air-permeable, breathable mould material "METAPOR" for thermoforming on page 132!



953

953A

METAPOR® – the unique air-permeable construction material

METAPOR® is a composite material consisting of two major components. Different granules, such as aluminium or ceramic materials, and binders are currently used in various applications. The material is air-permeable over the entire surface, because of its micro-porous structure. In contrast to sintered materials, the pores are not closed off after machining.

Design flexibility is enhanced because micro-vents are an integral part of the complete surface. The material's inherent properties eliminate the need to design and manufacture complex venting systems.

Main areas of applications:

1) Thermoforming moulds

- METAPOR® delivers advanced solutions for many thermoforming applications.
- METAPOR® eliminates the need to drill vacuum holes, expanding technical capabilities of the thermoforming process at a lower cost.
- METAPOR® material has consistent porosity which offers unparalleled design flexibility and new ways to optimize performance of thermoform tooling.

2) Vacuum clamping system

METAPOR® vacuum clamping devices permits holding of extremely sensitive parts without deformation, since there are no drill holes or channels. Static jam while ejecting can be eliminated using compressed air, which creates a smooth and even air cushion.

Vacuum clamping devices made from METAPOR® are used for complex 3D-shapes and for complete surface coverage, to clamp parts and films without any deformation.

3) Air cushioning systems

Because of the distribution of pressure within METAPOR®'s microstructure a uniform lifting capacity is assured even if the surface will be covered only partially. Air consumption and noise emission thus will be reduced importantly. Due to the simply machining savings of costs for all aerostatic components is guaranteed and there will be new possibilities in the construction of transportation devices.

For various applications, five different METAPOR® products are available at present. The major differences are within the air permeability, pore size and temperature stability.

Applications / Properties

Product	Thermoforming Standard Transparent	Vacuum- clamping	Air cushion systems	Heat resistance	Perme- ability*
BF 100 AL	X	X	X	108°C	100%
HD 100 AL		X		108°C	50%
HD 210 AL	X	X		210°C	100%
CE 100 White		X	X	100°C	100%
MC 100 AL		X		100°C	800%

* The percentage refer to the permeability of BF 100 AL.

METAPOR® is manufactured in slabs of 500 x 500 mm with thickness ranging from 10 - 400 mm. **HD 100 AL and HD 210 AL are also available in slabs of 1000 x 500 mm.** Larger dimensions up to 3500 x 2000 mm may be bonded at the producer's facilities upon request!

Properties/Product	BF 100 AL	HD 100 AL	HD 210 AL	CE 100 White	MC 100 AL
Density g/cm³	1,8	1,9	1,9	1,7	1,7
Hardness shore D	81	81	82	98	82
Flexural strength N/mm²	56	43,6	43	24	25
E-module N/mm²	9000	9200	10800	8700	8600
Impact strength kJ/m²	14	11	11	1,3	3,5
Coefficient of thermal expansion at 25 - 125°C °C⁻¹x10⁻⁶	30,4	36	32	20,7	34
Heat conductivity at 100°C Wm⁻¹ °C⁻¹	19,1	20,5	19	n.a.	n.a.
Dim. stability acc. Martens °C	108	108	210	100	100
Mean pore diameter µm	15	12	12	10	400
Total porosity %	15	16	16	20	26

Thickness	10 mm	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm	70 mm	80 mm	100 mm	150 mm	200 mm	250 mm	300 mm
Product	Item No. (500 x 500 mm)														
BF 100 AL	953.010	953.015	953.020	953.025	953.030	953.040	953.050	953.060	953.070	953.080	953.100	953.150	953.200	953.250	953.300
HD 100 AL	953.010HD	953.015HD	953.020HD	953.025HD	953.030HD	953.040HD	953.050HD	953.060HD	953.070HD	953.080HD	953.100HD	953.150HD	953.200HD	953.250HD	953.300HD
HD 210 AL	953.010HT	953.015HT	953.020HT	953.025HT	953.030HT	953.040HT	953.050HT	953.060HT	953.070HT	953.080HT	953.100HT	953.150HT	953.200HT	953.250HT	953.300HT
CE 100 White	953.010W	953.015W	953.020W	953.025W	953.030W	953.040W	953.050W	953.060W	953.070W	953.080W	953.100W	953.150W	953.200W	953.250W	953.300W
MC 100 AL	953.010M	953.015M	953.020M	953.025M	953.030M	953.040M	953.050M	953.060M	953.070M	953.080M	953.100M	953.150M	953.200M	953.250M	953.300M
Product	Item No. (1000 x 500 mm)														
HD 100 AL	-	953.415HD	953.420HD	953.425HD	953.430HD	953.440HD	953.450HD	953.460HD	953.470HD	953.480HD	953.500HD	953.550HD	953.600HD	-	-
HD 210 AL	-	953.415HT	953.420HT	953.425HT	953.430HT	953.440HT	953.450HT	953.460HT	953.470HT	953.480HT	953.500HT	953.550HT	953.600HT	-	-

Other thicknesses may also be delivered.

For glueing we recommend:

Item No. 953.400: 2-component adhesive AV 138 with hardener HV 998 in packings of 1,4 kg, **heat resisting up to 120 °C.**

Please ask for further informations and handling guidelines for METAPOR® !

Upon request available: air-permeable moulds made of **ESPOR-material** with smooth or grained surfaces made according to the customer's pattern.

In Germany we're distribution-partner for
SIKA®'s tooling and composite products
SikaBlock® and Biresin®-resins.

Customers from abroad (in order to find
the right Sika-partner in their country)
are kindly requested to contact:

SIKA Deutschland GmbH
Stuttgarterstr. 117
72574 Bad Urach
Tel. 0049-7125-940492
Fax 0049-7125-940482
e-mail: tooling@de.sika.com
www.toolingandcomposite.sika.com



**We're a
effective
team**

GIESSEREI-BEDARF

HOHNEN & CO

MODELLBAU-BEDARF

Auxiliary materials and tools for resin working

956



Fillers in large quantities upon request;
please specify quantity!

Fillers (available either in the following package sizes or partial quantities)

Modify the properties of the resins: Ameliorate the shrinkage rate and/or heat conductivity. Especially when big volumes have to be poured the material costs may be reduced importantly.

Item No.	Product	Properties	Packing size
956.020	Alu grit	grain 0 - 2 mm (spattered)	50 kg bags
956.025		grain 2 - 6 mm (spherical, small granules)	50 kg bags
956.030	Alu powder	< 65 µm, finely ground	25 kg bags
956.040	Cotton flakes	powdery, fibre length appr. 0,4 mm bulk density 135 kg/cbm, temp. res. appr. 120°C	25 kg bags
956.145	KR filler, coarse	white calcium carbonate, grain size 1,0 - 1,5 mm	25 kg bags
956.180	LF filler	lightweight, microsilicate, grey, grain size 0,01 - 0,25 mm	20 kg bags
956.050	Micro balloons	red-brown, bulk density 48/80 kg/cbm	12 kg bags
956.051	Micro balloons, white	mineral glass hollow spheres, bulk density 110g/ltr.	27 kg box
956.060	Microdol	norwegian special chalk	50 kg bags
956.070	Nut shells, granulated	grain size appr. 2 mm, backing material	25 kg bags
956.150	PVC granules	milled hard PVC, grain size 0 - 6 mm	25 kg bags
956.090	Quartz powder	finely ground	50 kg bags
956.100	Quartz sand	grain 0,3 - 0,7 mm	50 kg bags
956.101	Quartz gravel	grain 1 - 3 mm	50 kg bags
956.110	Slate powder	acid resistant	50 kg bags
410.001	Talcum	finely ground, grey-green	25 kg bags
956.130	TE filler	aluminium hydroxide, white powder, dust-free	25 kg bags

956A

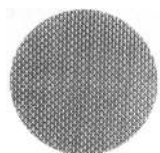


Fibreglass chips

Item No.	956.203	956.206
Length	3 mm	6 mm

in 25 kg bags or partial quantities

957



Fibreglass fabrics for lamination in 50 m rolls

Quality	Type	Weight per qm	Backing	Width/Item No.		
				50 mm	100 mm	1000 mm
thin	224	170 gr.	linen	957.101	957.102	957.103
medium	775	280 gr.	linen	957.401	957.402	957.403
thick	410	365 gr.	linen	957.201	957.202	957.203
extra thick	1367	460 gr.	twill	957.301	957.302	957.303

Upon request: fibrous weg, filaments, glass silk fabrics, roving-,
Aramid or carbon fabrics

958



Scissors

Sturdy design, length ab. 250 mm

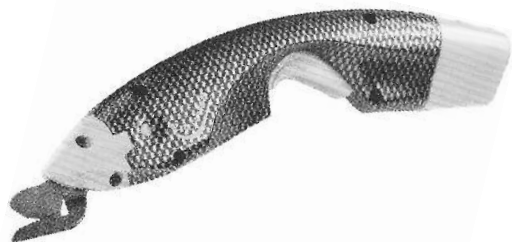
- a) standard type for fibreglass fabrics
- b) Tech-Tex scissors, serrated, esp.
for Aramid- or Kevlar-fabrics

Item No. 958.001

Item No. 958.002

Other types upon request!

958A



Electric scissors EC-Cutter, serrated

For effortless single-layers cuts, low weight (200 grs.), ergo-styled design, operates on mains and/or rechargeable battery. Cutter grip complete with flat-foot for straight cuts and shot-blade for contoured cuts.

Item No.	958.100	958.101	958.102	958.103
Design	EC-cutter-set with two cutter grips, rechargeable battery, charger base and power mains adaptor	Spare cutter grip for contoured cuts, serrated	Spare cutter grip for straight cuts, serrated	Spare battery rechargeable

Item No.	958.104	958.105
Design	Spare charger base	Spare power mains adaptor

Additives for resins

(inking, accelerating, diluting and thixotropic agents)

1) Biresin®-colouring pastes, in 500 gr. tins

for colouring epoxy and PU-resins. Addition amount max. 2%, related to resin plus hardener.

The colours blue, red and green may be used for glazing (transparent) inking. Using white, black or yellow will produce opaque colours.

Item No.	959.101	959.102	959.103	959.104	959.105	959.106
Colour	red	green	yellow	blue	black	white

2) Catalyst Biresin® HC 586

Accelerate the reaction (reduces the pot-life) for PU-systems with MDI-setting. Add-on (depending on the resin type) 0,05 - 1,0 %, in 500 gr. tins.

3) Sikamol®

Plasticizer for PU-systems, increasing flexibility, also for lubrication and cleaning of PU-processing devices. With increasing addition the Shore hardness will be reduced and pot-life and setting-time will be longer. In 10 kg tins.

4) Thixotropic agents

Item No.	Name	Colour	Density kg/l	Packing Unit
959.501	Aerosil	white	2,2	10 kg bags
959.502	Extender T	white	0,96	1 kg pail



959

Polyethylene funnels

Item No. 960.001

conical shape, for casting artificial resins, fits on polyethylene hoses, Item No. 960.119.

total height 175 mm

top dia. incl. rim 86 mm

downgate dia. 55 mm, spout outside dia. 19 mm



960

Hoses of polyethylene, crystal-clear

Item No.	Inside dia.	Wall thickness	Outside dia.
960.107	7 mm	1 mm	9 mm
960.119	19 mm	2,5 mm	24 mm

(fits to tunnel 960.001)



960A

Mixer 'Rührfix'

reasonable mixer for mixing 25 kg or 50 kg at one time, strong, solid, easy to handle, homogeneous mixtures, mixes thoroughly without residues. Complete with impeller, bucket and cover.

Item No.	Cont. max.	Motor			Weight	Spare parts	
		Voltage	Power	RpM		Bucket	Impeller
961.065	65 l	230 V	0,75 kW	68	44 kg	961.165	961.265



961

Mixer DHM 8

Item No. 961.301

operated by hand and compressed air, light and handy, well considered, rigid construction, powerful, number of revolutions infinitely variable reasonable.

Delivery contains: compressed-air operated motor with handle, impeller and mixer.

Weight	Power	Pressure	RpM	Length of impeller	Mixer diameter
1,8 kg	0,34 kW	3 - 8 bar	800/min	600 mm	120 mm

As usual a service-unit for compressed-air should be used.



961A

Mixer for 2-comp. cartridges

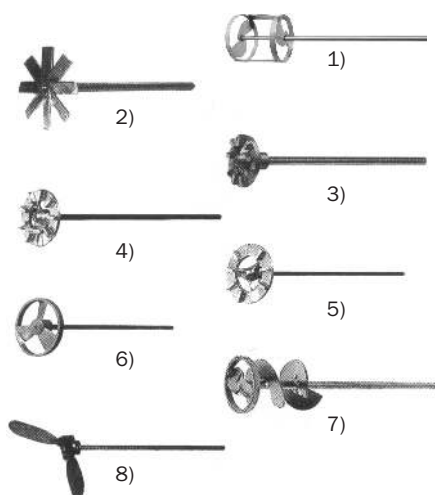
In several designs.

Upon request!



961B

962



Mixing tools

- 1) **Jiffy-Mixer HS1**
Item No. 962.010 Ø 66/60 mm, length 260 mm, shaft dia. 6 mm
- 2) **Star mixer** (of heavy metal)
a) Item No. 962.001 Ø 80 x 250 mm long, shaft dia. 10 mm
b) Item No. 962.001A Ø 130 x 380 mm long, shaft dia. 10 mm
- 3) **Friction mixer**
Item No. 962.002 Ø 45 x 325 mm long, shaft dia. 8 mm
- 4) **Friction mixer**
Item No. 962.003 Ø 65 x 320 mm long, shaft dia. 8 mm
- 5) **Friction mixer**
Item No. 962.004 Ø 90 x 340 mm long, shaft dia. 10 mm
- 6) **Mixing impeller**
Item No. 962.005 Ø 100 x 400 mm long, shaft dia. 12 mm
- 7) **Screw-type mixer**
Item No. 962.006 Ø 75 x 380 mm long, shaft dia. 12 mm
- 8) **Barrel impeller mixer**
Item No. 962.007 Ø 230 mm, 110 cm long. Can be introduced through the 2"-barrel hole; folds out by centrifugal force.

963



Mixing pots of hard paper, PE-coated, without scale

Item No.	Volume	Height	Dia. top	Dia. bottom	Box cont.
963.020	200 ccm	98 mm	70 mm	45 mm	2,500 pcs.
963.035	350 ccm	81 mm	90 mm	69 mm	1,520 pcs.
963.053	530 ccm	83 mm	110 mm	90 mm	1,100 pcs.
963.075	750 ccm	98 mm	119 mm	90 mm	700 pcs.
963.110	1100 ccm	112 mm	138 mm	110 mm	504 pcs.

963A



Mixing pots of polyethylene, without scale

reusable, resistant to solvents

Item No.	Volume	Height	Dia. top	Dia. bottom	Box cont.	Fitting lid Item No.
963.118	180 ccm	72 mm	66 mm	57 mm	500 pcs.	963.119
963.135	350 ccm	82 mm	85 mm	72 mm	550 pcs.	963.136
963.150	500 ccm	89 mm	103 mm	88 mm	300 pcs.	963.151
963.186	860 ccm	113 mm	107 mm	95 mm	300 pcs.	963.187
963.262	1600 ccm	144 mm	136 mm	119 mm	150 pcs.	963.263

963B



Mixing pots of PP, with scale, clear

reusable, resistant to solvents, reinforced edges, with printed heights for the following ratios: 2:1, 3:1, 4:1 and 5:1.

Item No.	Volume	Height	Dia. top	Dia. bottom	Box cont.	Fitting lid Item No.
963.340	385 ccm	80 mm	90 mm	75 mm	200 pcs.	963.341
963.365	750 ccm	90 mm	115 mm	95 mm	200 pcs.	963.366
963.413	1400 ccm	120 mm	140 mm	110 mm	200 pcs.	963.414
963.523	2300 ccm	175 mm	155 mm	115 mm	100 pcs.	963.524

Dispenser for all sizes upon request!

964



Plastic buckets for bigger mixing quantities

without lip, with handle and scale, heavy-duty version

Item No.	137.102	137.105	137.110	137.112
Cap. ltr.	2,5	5	10	12
Top dia. mm	170	200	270	280
Bottom dia. mm	130	150	185	205
Height mm	150	200	240	260

965



Vers. 2)

Stirrers

- 1) of beech, handle side rounded, 250 x 25 x 4 mm **Item No. 965.001**
- 2) of recycled plastics
solvent-resistant, acid-resistant, can be recycled, reusable, with recesses for the tin rim
255 x 25 x 4 mm **Item No. 965.002**

966

FIX-A-Form mould connections

Three part mould screw union for quickly sealing split moulds.
The distance between the screw unions is 20-30 cm.

The complete set consists of: 1 union 12 x 12 mm, M6
1 insert 12 x 12 mm, bore 0,1 mm
1 Allen screw M 6 x 30 mm
1 Allen key for M 6

All parts may be delivered separately in the beyond mentioned packing units:

Item No.	966.301	966.311	966.321	966.331	966.341
Item	Set compl.	M6 union	Insert	Allen screw	Allen key
Packing unit	6 sets	50 pcs.	50 pcs.	50 pcs.	1 pc.

967

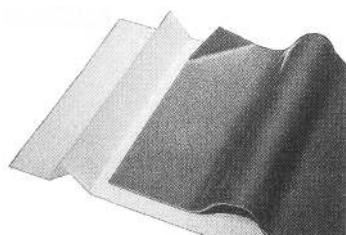
Primer for wax sheets

To be thinly applied with a brush to the sheets, avoids release of the sheets by solvents which may be contained in parting fluids and the PVA-film's roll-off the sheets.

Item No. 967.901 in 1 ltr. bottles

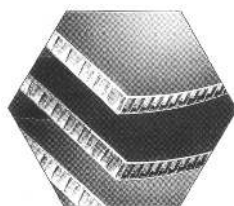
968

Wax sheets



* Thickness 5 and 6 mm
will be delivered in two parts
of 450 x 500 mm

Type	STANDARD			TRANS	FLEX	HIGHTEMP	Packing
Colour	red			clear	brown	dark brown	
Melting point	60°C			60°C	130°C	150°C	
Application	wooden patterns			wooden patterns	resin patterns	metal patterns	
Size mm	305 x 610	305 x 610	450 x 1000	305 x 610	305 x 610	305 x 610	
Adhesive layer	without	with	without	with	with	with	
Thickness	Item No.						
0,25 mm	-	-	-	-	968.500	-	10 pcs.
0,4 mm	-	-	-	-	968.501	-	10 pcs.
0,5 mm	968.102	968.202	968.302	968.402	968.502	968.702	12 pcs.
0,6 mm	968.103	968.203	968.303	968.403	968.503	968.703	12 pcs.
0,7 mm	968.104	968.204	968.304	968.404	968.504	968.704	12 pcs.
0,75 mm	968.105	968.205	968.305	968.405	968.505	968.705	12 pcs.
0,8 mm	968.106	968.206	968.306	968.406	968.506	968.706	12 pcs.
0,9 mm	968.107	968.207	968.307	968.407	968.507	968.707	12 pcs.
1,0 mm	968.108	968.208	968.308	968.408	968.508	968.708	12 pcs.
1,2 mm	968.109	968.209	968.309	968.409	968.509	968.709	8 pcs.
1,4 mm	968.110	968.210	968.310	968.410	968.510	968.710	8 pcs.
1,5 mm	968.111	968.211	968.311	968.411	968.511	968.711	8 pcs.
1,6 mm	968.112	968.212	968.312	968.412	968.512	968.712	8 pcs.
1,8 mm	968.113	968.213	968.313	968.413	968.513	968.713	8 pcs.
2,0 mm	968.114	968.214	968.314	968.414	968.514	968.714	8 pcs.
2,5 mm	968.115	968.215	968.315	968.415	968.515	968.715	6 pcs.
3,0 mm	968.116	968.216	968.316	968.416	968.516	968.716	4 pcs.
3,5 mm	968.117	968.217	968.317	-	-	968.717	4 pcs.
4,0 mm	968.118	968.218	968.318	-	-	968.718	4 pcs.
5,0 mm	968.119	968.219	968.319*	-	-	968.719	3 pcs.
6,0 mm	968.120	968.220	968.320*	-	-	-	2 pcs.
7,0 mm	968.121	968.221	-	-	-	-	2 pcs.
8,0 mm	968.122	968.222	-	-	-	-	2 pcs.

969

Aluminium-honeycomb boards (M-Boards)

lightweight sandwich-boards, honeycombs and sheeting glued together, 0,6 mm thick aluminium sheeting, honeycombs aluminium (d = appr. 6 mm).

extremely lightweight, for tools and gauges

board size 1250 x 2500 mm

Item No.	967.005	967.010	967.020
Thickness	13,9	26,6	52,0
Weight (kg/m²)	4,8	6,0	8,0

Also available: ALU-U-channels for rims

Item No.	967.105	967.110	967.120
Inside appr.	1/2"	1"	2"
Length mm	2500	3000	3000

Item No.	967.200
Alu-angles appr	ca. 3000x50x30x2



Silicon rubber, condensation-curing

1) Moulding materials Nedasil / TLV (A+B Comp.)

Reasonable, pourable silicon rubbers with different viscosities (s. below) and an outstanding tensile and tear strength. These products may even be thinned with silicon oil without loss of their excellent physical properties. White, add. 5% catalyst, pot life ab. 50 min., demoulding may start after about 8hrs., shrinkage <2%.

These products contain agents with longer lifetime (up to 4x) in comparison with other condensation-curing silicon rubbers. By adding ab. 0 to 2 % of **Thixotropic Add.** these products will become pasty.

Technical data	Nedasil 20	722 TLV*	730 TLV
Hardness (Shore A)	20	22	30
Viscosity (Mpa.s)	20.000	30.000	32.000
Tear strength (kg/cm)	28	26	28
Tensile strength (kg/cm ²)	40	38	44
Elongation at break %	450	500	450
Density (g/cm ³)	1,08	1,12	1,13
Item No.			
Rubber Comp. A	à 1 kg	427.020A	427.722A
	à 5 kg	427.021A	427.723A
	à 20 kg	427.022A	427.724A
Catalyst Comp. B	à 50 g	427.722B	427.730B
	à 200 g	427.723B	427.731B
	à 1 kg	427.724B	427.732B

* standard type

Thixotropic Add. (0,5 kg): **Item No. 427.800**

2) CARA-514 with catalyst T 21

white, multi-purpose, pourable, good flow, hardness Shore A 25, linear shrinkage 0,4 %, outstanding resistance to casting resins, particularly to polyesters, especially suitable for reproducing models with extensive undercuts in casting resins. Other materials, such as wax and plaster, can be processed also without any problem. Working time 40 min., demoulding may start after ab. 4-5 hrs.

3) Elastosil M 1470 with catalyst paste T 40

kneadable, especially for making moulds from low structured surfaces, hardness Shore A 55, low shrinkage (0,2 %), therefore excellent moulding accuracy, high mechanical strength. Add 5 % catalyst, working time 20 min., demoulding may start after about 2 hrs., pink colour.

4) Elastosil M 4470 with catalyst T 40

pourable, high heat resistance and thermal conductivity, for low melting point metals and alloys (tin), hardness Shore A 60, shrinkage 0,8 %, excellent flow, working time 20 - 40 min., demoulding may start after 2 or 4 hours (depending on the added quantity of catalyst, which should be between 2 and 3 % w/ w), red-brown.

5) Elastosil M 4440 with catalyst T

pourable, flexible, white, of medium hardness (Shore A 37), shrinkage 0,4 %, working time 20 - 40 min. (depending on the added quantity of catalyst which should be between 2 and 4 % w/ w), demoulding may start after 2 or 4 hours.

6) RT 480 with catalyst T40

brushable, no flowing on vertical surfaces, light-grey, hardness Shore A 55, shrinkage 0,4 %, working time 20 - 50 min. (depending on the added quantity of catalyst which should be between 2 and 3 % w/w), demoulding may start after 2 or 4 hours.

Rubber type	Cont./Item No.		Catalyst-type	Cont./Item No.				
	1 kg	5 kg		40 gr.	50 gr.	100 gr.	200 gr.	250 gr.
CARA-514	427.201	427.202	T 21	-	427.211	-	-	427.212
M 1470	427.001	427.002	T 40	427.011	-	427.015	427.012	-
M 4470	427.101	427.102	T	427.411	-	-	427.412	-
M 4440	427.401	427.402						
RT 480	427.301	427.302						



Silicon oil

for thinning silicon rubber, also usable as an impregnating or parting agent, lubricant or maintenance product.

Temperature of application: - 50 to + 250° C. Viscosity: 350

Item No.	427.601	427.605
Volume	1 ltr.	5 ltr.

Releasing agents

972

Product	Cont.	Item No.
Sika® 810 wax dispersion with low viscosity, drying time 20-30 min, drying to a colourless film, very good polishing	0,7 kg 3,5 kg	972.810 972.811
Sika® 815-Quick as type 810, but drying time only 5-10 min.	0,68 kg 3,4 kg	972.815 972.816
Sika® 818 pasty, for application by brush or cloth, good polishing, for sealed or laquered surfaces	0,7 kg	972.818
Sika®-Release LG Semipermanent release agent, high heat resistance, for EP, polyester or vinyl ester resins, but not for PU-systems	1 ltr.	972.821
Releasing film, water soluble (NL 2) for waxed surfaces, forms a flexible, transparent film	1,0 kg	972.030



Product	Cont.	Item No.
ACHEM MB 3007-S Spray wax dispersion, free of silicones, good slipping properties, good polishing, results high quality of surfaces	500 ml	972.122
ACHEM MB 3540, pasty free of silicones, film forming	1,0 kg	972.140
ACMOSAN 82-2405 , parting spray free of silicones and CFC, wide range of application, excellent polishable, high quality of surface	400 ml	972.130

Product	Cont.	Item No.
Releasing spray ALPA-SEP Super releasing spray for universal use for PU-, Epoxy- or polyester-components esp. from Elastomer moulds	400 ml	972.050
ACHEM SG-1008M, liquid wax dispersion, free of silicones, good polishing, quick drying, good wetting power	0,7 kg	972.100
ACHEM SG-1008S, Spray like 1008M, but as spray	500 ml	972.110

Remark: Cleaning agents for pretreatment see item no. 988

Sika®-Primers

Product	Cont.	Item No.
Icosit® KC 330 low viscosity one-comp. PUR-system for increasing the adhesion of PUR-synthetic resins on grinded metal and different plastic surfaces	3 ltr.	973.201
Sika®-Primer 3N transparent reactive primer one comp.-EP-system, for use with slightly wet or dry porous and sucking materials or metals	250 ml	973.202
	1000 ml	973.203



973

Remark: Cleaning agents for pretreatment see item no. 988

Surface sealers

Product	Cont.	Item No.
Kronengrund 111 Brushable or sprayable 1-comp. product for sealing of porous surfaces, esp. wood, applying 2 or 3 fold will result impermeable and releasable surfaces. Quick drying and grindable, colourless, satin-finished	750 ml	974.111
Sika®-MouldSealer Mould sealer for GRP, vinylester, epoxy or metal moulds, seals microporosity and fills minor scratches, quick setting, also for heat resistant materials	1 ltr.	974.201



974

Remark: Cleaning agents for pretreatment see item no. 988

Parting compound spraying cans SG

for liquid parting compounds (don't use with inflammable liquids or acids).

Without propellant, environmentally friendly, as compressed air is used, max. pressure 10 bar, optimum pressure 7,5 bar, volume up to 0,7 l parting compound. Different spray and jet nozzles are included in the scope of supply; can be refilled and reused.

Item No.	975.001
Cont.	0,7 ltr.

Set of spares Item No. 975.101
comprises valve, 200 mm long extension tube as well as 4 different spray heads.



975

Dosing tools

for resins and hardener upon request!



976

977

Measuring jugs

with handle, of hard pl. material, natural colour, with scale

Item No.	112.001*	112.002	112.005	112.010	112.020	112.030	112.050
Cap. Ltr.	0,1	0,25	0,5	1,0	2,0	3,0	5,0
Height mm	75	120	135	170	205	230	267
Scale lucrement ml	10	5	50	50	100	100	100
Material	PP	PP	PP	PE	PE	PE	PE

* without handle

978

Injectors of plastic

for injecting artificial resin into small crevices

Item No.	978.005	978.010	978.020	978.050
Contents	5 ml	10 ml	20 ml	50 ml

979

Balances with digital indication

for resin/hardener mixtures

Low cost platform balances with clearly readable LCD-display, operates on mains and/or battery, setting program, unit counter, separate memories for tara containers and resin-/hardener-components, dust- and splash water-safe, protection cover for the display, calibratable, platform 315 x 305 mm of stainless steel.

Item No.	979.006	979.015	979.036
Balance range	6 kg	15 kg	36 kg
Weight steps	2 g	5 g	10 g

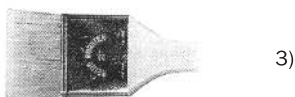
Other types upon request!

980

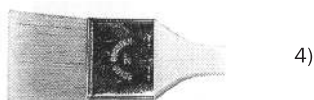
1)



2)



3)



4)



5)



6)



7)



8)

Brushes

1) **Flat brush, No. 820**, short handles (ab. 15 cm)
for applying coating resins, with metal collar

Item No.	098.401	098.402	098.403	098.404	098.405	098.406
Size	00	0	1	2	3	4
Width	12 mm	13,5 mm	17 mm	19 mm	21 mm	23 mm

2) **Gussow-brush**, long handles (ab. 30 cm)
with metal collar, short, strong bristles, ideal for deep crevices

Item No.	980.002	980.004	980.006	980.008	980.010	980.012	980.014	980.016
Size	2	4	6	8	10	12	14	16
Width	3 mm	4,5 mm	5,8 mm	8,7 mm	10 mm	10,6 mm	14,3 mm	16,4 mm

Item No.	980.018	980.020
Size	18	20
Width	21,8 mm	22,5 mm

3) **Flat brush, No. 845M**
ideal for applying resins, with metal collar, short, strong bristles

Item No.	980.275	980.280	980.285	980.290
Width	3/4"	1"	1 1/2"	2"
Bristle lgth.	23 mm	25 mm	27 mm	30 mm

4) **Flat brush, No. 845**
multi-purpose brush with slightly longer bristles, with metal collar

Item No.	098.207	098.210	098.215	098.220
Width	3/4"	1"	1 1/2"	2"
Bristle lgth.	29 mm	31 mm	33 mm	35 mm

5) **Surface brush** Item No. 980.400 size 3 x 10 cm

6) **Annular brush, No. 1040**

Item No.	100.102	100.104	100.108	100.112
Size	2	4	8	12
Dia.	20 mm	25 mm	35 mm	45 mm

7) **Pointed brush, No. 705** flat brush for applying
coating resins in narrow recesses, flat, with metal collar

Item No.	099.204	099.208	099.212	099.216	099.220	099.224
Size	4	8	12	16	20	24
Width	4,5 mm	8,3 mm	12 mm	16,8 mm	21 mm	26,8 mm

8) **Special brush, Item No. 980.700**
special brush for applying thin layers of gelcoats, width 10 cm

981

Rollers (Nylon-fur)

Item No.	Width
981.010	140 mm
981.020	100 mm
981.030	180 mm

Metal rollers, flexible

The spring coil adapts to any concave or convex curvature, these rollers are ideal for removing air inclusions, easy to clean, well-thought through design.

Item No.	982.001	982.002
Dimensions	40 x 130 mm	26 x 90 mm



982

Metal rollers, rigid

1) Metal disc rollers

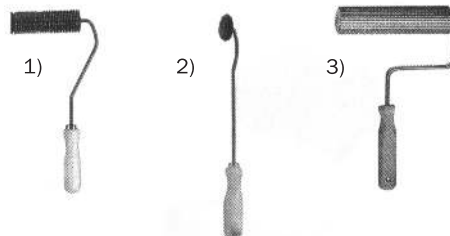
Item No.	983.101	983.102	983.103	983.104
Dimensions	40 x 120 mm	40 x 65 mm	15 x 85 mm	15 x 40 mm

2) Metal disc corner rollers

Item No.	983.201
Dimensions	45 x 8 mm

3) Alu-transverse groove rollers

Item No.	983.701	983.702	983.703	983.704	983.705
Dimensions	45 x 170 mm	45 x 135 mm	45 x 70 mm	21 x 135 mm	21 x 70 mm



983

Delrin-rollers

1) Grooved rollers

Item No.	984.301	984.302	984.303	984.304	984.305
Dimensions	10 x 40 mm	10 x 80 mm	15 x 30 mm	15 x 40 mm	15 x 50 mm

Item No.	984.306	984.307	984.308	984.309	984.310
Dimensions	15 x 80 mm	15 x 100 mm	20 x 40 mm	20 x 80 mm	20 x 120 mm

Item No.	984.311	984.312	984.313	984.314
Dimensions	20 x 160 mm	25 x 135 mm	30 x 90 mm	30 x 195 mm

2) Curved rollers

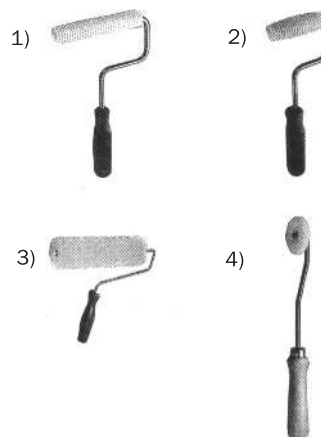
Item No.	984.401	984.402
Dimensions	25/30 x 90 mm	25/30 x 135 mm

3) Hedgehog rollers

Item No.	984.501	984.502
Dimensions	25 x 90 mm	25 x 135 mm

4) Corner rollers

Item No.	984.601
Dimensions	50 x 8 mm



984

Barrel cocks of cast iron

Item No.	985.007	985.020
Thread	3/4"	2"



985

Barrel cocks of polyethylene

Item No.	986.107	986.120
Thread	3/4"	2"



986

Cocks of plastic material fitting for the BIRESIN®-cans

Item No.	986.205	986.220
fitting for	5kg-cans	20kg-cans



986A

Barrel keys Item No. 987.001

fits in both barrel bung holes



987

988



Mould cleaning agents

Product	Cont.	Item No.
Sika®-cleaning agent "5" ecological solvent mixture for cleaning of devices and surfaces, e.g. from release agent remains	1 l	988.501
	5 l	988.505
	10 l	988.510
Sika®-MoldCleaner designed to remove dirt, grease, wax, silicone or other types of contaminants	1 kg	988.601
Sika®-bonding primer "1" 1-comp. primer, free of aggressive solvents, transparent, for cleaning and at the same time activating of non-porous backgrounds as metal or plastic	1 l	988.301
	5 l	988.305
ELGO-universal dilution 1015 low-cost universal cleaning agent	10 l	988.410
Cleaning spray TN removes remains of releasing agents or resins	500 ml	988.100
Acetone (inflammable, non-toxic) efficient solvent	20 l	988.220

989



ACMOSITAL resin remover

for all woodworking tools

Base-free and not inflammable product for the cleaning of all kinds of common woodworking tools. Guarantees a quick solvent of resin residues. May be diluted with water, ratio 1:5.

Do not apply to aluminium tools!

Item No.	Cont.
989.105	5 ltr.

990



Cleaning rages

cleaned and disinfected, in 10 kg bags

Item No.	990.001	990.002
Quality	coloured cotton	white linen

991



Steel wool

long uniform shavings, tough in 200 gr. packages

Item No.	991.100	991.102
Quality	00 = fine	2 = medium

Upon request also as pads ready-to-use

992



Skin cleaning and skin-care products

1) Hand cleaning product

Product	Cont.	Item No.
Gentilo -hand cleaning and skin-care cream, apply before beginning the work, wash and rinse dirty hands with water	100 gr	992.110
Cupran -paint remover the mild, special skin cleaning agent	1000 ml	992.121

2) Skin-care products

Product	Cont.	Item No.
Arretil-Qu , water-soluble skin-care cream silicon-free, to be rubbed into the skin after washing	100 ml	992.210
Silicoderm-F , skin-care cream	35 gr	992.220

992A



PEVA skin protection system

1) Skin cleaner PEVASTAR – pasty hand cleaning products for strong dirt, cleans gently and deeply by means of high-class synthetic rubbing compounds.

Item No.	992.505	992.506	992.503
Packing	1 ltr.-pouch	3 ltr.-tin	10 ltr.-pail

2) Skin cleaner PEVALIN – cleaning cream for strong adhesive dirt and smell, long lasting protective effect.

Item No.	992.515	992.516	992.513
Packing	1 ltr.-pouch	3 ltr.-tin	10 ltr.-pail

Other packings and dispenser-system upon request!

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