

B

B400	194
B411	198
B441	196
B442	199
B451	197
B452	200
B460	189
B461	191
B462	193
B463	188
B464	190
B465	192
B481	195

G

G400	201
G405	202



185 - 256

B

B100	210
B101	229
B121	231
B156	222
B157	226
B161	228
B162	230
B170	223
B180	219
B181	221
B191	220
B301	215
B334	212

B335	213
B341	211
B500	218
B901	225
B903	216
B951	214
B952	217
B953	227
B954	232
B955	233
B956	234
B957	235

G

G125	253	G154	239
G126	254	G155	240
G127	255	G170	250
G129	241	G171	250
G131	237	G236	246
G132	248	G237	247
G135	236	G314	252
G136	244	G335	236
G137	238	G336	245
G138	249	G338	249
G139	246	G349	242
G142	243	G560	245
G149	242	M138	251

	B463	B460	B464	B461	B465	B462	B400	B481	B441	B451	B411	B442	B452		G400	G405
																
	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM		HM	HM
																
																
																
																
	B	A	B	A	B	A	B	B	A	A	B	A	A			
	H7	H7	H7	H7	H7	H7	H7	8.95-5.5 8. +0.08 9.5-12 10. +0.08	H7	H7	H7	H7	H7		90°	90°
																
	3.97 - 20.00	3.97 - 20.00	3.97 - 20.00	3.97 - 20.00	3.97 - 20.00	3.97 - 20.00	1.00 - 20.00	0.98 - 12.05	10.00 - 20.00	8.00 - 20.00	5.00 - 30.00	10.00 - 20.00	8.00 - 30.00		6.30 - 31.00	8.30 - 12.40
																
	2008.09	2008.09	2008.09	2008.09	2008.09	2008.09									2008.09	2008.09
	188	189	190	191	192	193	194	195	196	197	198	199	200		201	202
1.1	■30D	■30D	■185F	■185F			■18B	■18B	■18B	■16B	■18B	■18B	■16B		■30F	■30F
1.2	■30D	■30D	■185F	■185F			■18B	■18B	■18B	■16B	■18B	■18B	■16B		■25E	■25E
1.3	■30D	■30D	■185F	■185F			■14B	■14B	■14B	■12B	■14B	■14B	■12B		■20D	■20D
1.4	■25D	■25D	■160E	■160E			■14B	■14B	■14B	■12B	■14B	■14B	■12B		■15D	■15D
1.5	■20B	■20B	■140E	■140E			■10C	■10C	■10C	■8C	■10C	■10C	■8C		■10B	■10B
1.6	■15B	■15B	■120E	■120E			■10C	■10C	■10C	■8C	■10C	■10C	■8C		■6A	■6A
1.7																
1.8																
2.1					■40D	■40D									■8C	■8C
2.2					■40D	■40D									■6B	■6B
2.3					■30D	■30D									■4A	■4A
2.4					■30D	■30D										
3.1	■40D	■40D	■120F	■120F			■17D	■17D	■17D	■15D	■17D	■17D	■15D		■25F	■25F
3.2	■40D	■40D	■185F	■185F			■17D	■17D	■17D	■15D	■17D	■17D	■15D		■15D	■15D
3.3	■30D	■30D	■90F	■90F			■17D	■17D	■17D	■15D	■17D	■17D	■15D		■12C	■12C
3.4	■30D	■30D	■60F	■60F			■14D	■14D	■14D	■12D	■14D	■14D	■12D		■8C	■8C
4.1	■15B	■15B					■14C	■14C	■14C	■12C	■14C	■14C	■12C		■12C	■12C
4.2	■10A	■10A					■14C	■14C	■14C	■12C	■14C	■14C	■12C		■10A	■10A
4.3	■10A	■10A					■10B	■10B	■10B	■8B	■10B	■10B	■8B		■8A	■8A
5.1							■10C	■10C	■10C	■8C	■10C	■10C	■8C		■12C	■12C
5.2							■10B	■10B	■10B	■8B	■10B	■10B	■8B		■6B	■6B
5.3							■10B	■10B	■10B	■8B	■10B	■10B	■8B		■4A	■4A
6.1	■80E	■80E					■38E	■38E	■38E	■36E	■38E	■38E	■36E		■25D	■25D
6.2	■80D	■80D					■38E	■38E	■38E	■36E	■38E	■38E	■36E		■20F	■20F
6.3	■50D	■50D					■38E	■38E	■38E	■36E	■38E	■38E	■36E		■25F	■25F
6.4	■30D	■30D					■38D	■38D	■38D	■36D	■38D	■38D	■36D		■10D	■10D
7.1	■80D	■80D					■60D	■60D	■60D	■58D	■60D	■60D	■58D		■30G	■30G
7.2	■80D	■80D					■60D	■60D	■60D	■58D	■60D	■60D	■58D		■25F	■25F
7.3	■80D	■80D					■25D	■25D	■25D	■23D	■25D	■25D	■23D		■20F	■20F
7.4	■80D	■80D					■25D	■25D	■25D	■23D	■25D	■25D	■23D		■10F	■10F
8.1							■25C	■25C	■25C	■23C	■25C	■25C	■23C		■30G	■30G
8.2							■13C	■13C	■13C	■11C	■13C	■13C	■11C		■20G	■20G
8.3																
9.1																
10.1	■40B	■40B														

	Ø mm												
	1,5	2	3	5	8	10	12	16	20	25	30	40	50
A	0,045	0,055	0,078	0,100	0,150	0,170	0,185	0,220	0,250	0,280	0,320	0,390	0,440
B	0,055	0,072	0,110	0,150	0,180	0,210	0,240	0,280	0,310	0,360	0,400	0,500	0,550
C	0,065	0,085	0,135	0,185	0,220	0,260	0,285	0,335	0,390	0,440	0,480	0,600	0,680
D	0,080	0,110	0,160	0,200	0,270	0,320	0,360	0,410	0,470	0,540	0,600	0,730	0,850
E	0,100	0,140	0,180	0,250	0,350	0,390	0,430	0,500	0,530	0,640	0,750	0,910	1,100
mm/REV ± 15%													

	Ø mm									
	6	8	10	16	20	25	32	40	60	80
A	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.12	0.14	0.16
B	0.04	0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20
C	0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22
D	0.06	0.08	0.10	0.12	0.15	0.18	0.20	0.22	0.25	0.28
E	0.08	0.10	0.12	0.15	0.18	0.20	0.25	0.27	0.30	0.32
F	0.09	0.11	0.13	0.16	0.19	0.21	0.26	0.29	0.33	0.36
G	0.10	0.12	0.15	0.18	0.20	0.22	0.28	0.32	0.36	0.40
mm/N										

• General guidelines for stock removal when pre-drilling holes • Allgemeine Richtlinien für Materialabtragung beim Vorbohren • Algemene richtlijn voor materiaal afname bij voorboren • Préconisations de surépaisseur de perçage avant alésage • Guía general para la eliminación de material cuando existe agujero pre-taladrado • Regras gerais para material a ser removido durante a furação

	Ø (mm)				
	3 - 5mm	5.1 - 10mm	10.1 - 20mm	20.1 - 30mm	> 30mm
1.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
1.2	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
1.3	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
1.4	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.5	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.6	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.7	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.8	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.1	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.4	0.1-0.2	0.2	0.2	0.3	0.3-0.4
3.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
3.2	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
3.3	0.1-0.2	0.2	0.3	0.4	0.5
3.4	0.1-0.2	0.2	0.3	0.4	0.5
4.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.3-0.4
4.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
4.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
5.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
5.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
5.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
6.1	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
6.2	0.1-0.2	0.2	0.2-0.3	0.3	0.3-0.4
6.3	0.1-0.2	0.2	0.2-0.3	0.3	0.3-0.4
6.4	0.1-0.2	0.2	0.2-0.3	0.3	0.3-0.4
7.1	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
7.2	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
7.3	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
7.4	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
8.1	0.1-0.2	0.3	0.4	0.4-0.5	0.5
8.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
8.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
9.1	0.1-0.2	0.2	0.2	0.3	0.3-0.4
10.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5

For adjustable or blade reamers reduce stock removal by 30%. For quick helix reamers increase by 50% / Für verstellbare Reibahlen die Materialabtragung um 30% reduzieren. Für Schälreibahlen um 50% erhöhen. / Voor verstelbare reamers de materiaal afname met 30% reduceren. Voor schilreimers met 50% verhogen. / Pour les alésoirs expansibles ou brasés réduire l'avance de 30%. Pour les alésoirs à hélice rapide augmenter de 50%. / Para escariadores ajustables y con cuchillas reducir la eliminación de material un 30%. Para escariadores de hélice rápida incrementar un 50% / Para alargadores ajustáveis reduza o sobremetal em 30%. Para alargadores com hélice rápida aumente em 50%

- NC - High Speed Precision Reamer
- NC-Präzisionreibahlen
- NC- precisiezuimer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC

NEW

2008.09



B463

Extremely unequal spacing / Extrem ungleiche Teilung / Differentialaalt vertand / Pas différentiel / Espacio extremadamente irregular / Espaçamento Assimétrico



■	1.1	1.2	1.3	1.4	1.5	1.6	3.1	3.2	3.3	3.4		
●	4.1	4.2	4.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	10.1

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
3.97	75	12	39	4	6	B4633.97 ¹⁾
3.98	75	12	39	4	6	B4633.98 ¹⁾
3.99	75	12	39	4	6	B4633.99 ¹⁾
4.00	75	12	39	4	6	B4634.0
4.01	75	12	39	4	6	B4634.01 ¹⁾
4.02	75	12	39	4	6	B4634.02 ¹⁾
4.03	75	12	39	4	6	B4634.03 ¹⁾
4.50	75	12	39	4	6	B4634.5
4.97	75	12	39	4	6	B4634.97 ¹⁾
4.98	75	12	39	4	6	B4634.98 ¹⁾
4.99	75	12	39	4	6	B4634.99 ¹⁾
5.00	75	12	39	4	6	B4635.0
5.01	75	12	39	4	6	B4635.01 ¹⁾
5.02	75	12	39	4	6	B4635.02 ¹⁾
5.03	75	12	39	4	6	B4635.03 ¹⁾
5.50	75	12	39	4	6	B4635.5
5.97	75	12	39	4	6	B4635.97 ²⁾
5.98	75	12	39	4	6	B4635.98 ²⁾
5.99	75	12	39	4	6	B4635.99 ²⁾
6.00	75	12	39	4	6	B4636.0
6.01	75	12	39	4	6	B4636.01 ²⁾
6.02	75	12	39	4	6	B4636.02 ²⁾
6.03	75	12	39	4	6	B4636.03 ²⁾
6.50	100	16	64	6	8	B4636.5
7.00	100	16	64	6	8	B4637.0
7.50	100	16	64	6	8	B4637.5
7.97	100	16	64	6	8	B4637.97 ²⁾
7.98	100	16	64	6	8	B4637.98 ²⁾
7.99	100	16	64	6	8	B4637.99 ²⁾
8.00	100	16	64	6	8	B4638.0
8.01	100	16	64	6	8	B4638.01 ²⁾
8.02	100	16	64	6	8	B4638.02 ²⁾

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
8.03	100	16	64	6	8	B4638.03 ²⁾
8.50	100	20	60	6	10	B4638.5
9.00	100	20	60	6	10	B4639.0
9.50	120	20	80	6	10	B4639.5
9.97	120	20	80	6	10	B4639.97 ²⁾
9.98	120	20	80	6	10	B4639.98 ²⁾
9.99	120	20	80	6	10	B4639.99 ²⁾
10.00	120	20	80	6	10	B46310.0
10.01	120	20	80	6	10	B46310.01 ²⁾
10.02	120	20	80	6	10	B46310.02 ²⁾
10.03	120	20	80	6	10	B46310.03 ²⁾
10.50	120	20	75	6	12	B46310.5
11.00	120	20	75	6	12	B46311.0
11.50	120	20	75	6	12	B46311.5
11.97	120	20	75	6	12	B46311.97 ²⁾
11.98	120	20	75	6	12	B46311.98 ²⁾
11.99	120	20	75	6	12	B46311.99 ²⁾
12.00	120	20	75	6	12	B46312.0
12.01	120	20	75	6	12	B46312.01 ²⁾
12.02	120	20	75	6	12	B46312.02 ²⁾
12.03	120	20	75	6	12	B46312.03 ²⁾
13.00	130	22	85	6	14	B46313.0
14.00	130	22	85	6	14	B46314.0
15.00	130	22	82	6	16	B46315.0
16.00	150	25	102	6	16	B46316.0
17.00	150	25	102	6	18	B46317.0
18.00	150	25	102	6	18	B46318.0
19.00	150	25	100	6	20	B46319.0
20.00	150	25	100	6	20	B46320.0

¹⁾ Limit of tolerance +0.0040 / Toleranz +0.0040 / Tolerantie +0.0040 / Tolérance +0.0040 / Límite de tolerancia +0.0040 / Limite de tolerância +0.0040

²⁾ Limit of tolerance +0.0050 / Toleranz +0.0050 / Tolerantie +0.0050 / Tolérance +0.0050 / Límite de tolerancia +0.0050 / Limite de tolerância +0.0050

- NC - High Speed Precision Reamer
- NC-Präzisionreibahlen
- NC- precisieiruimer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC

NEW

2008.09



B460

Extremely unequal spacing / Extrem ungleiche Teilung / Differentialaaf vertand / Pas différentiel / Espacio extremadamente irregular / Espaçamento Assimétrico



■	1.1	1.2	1.3	1.4	1.5	1.6	3.1	3.2	3.3	3.4		
●	4.1	4.2	4.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	10.1

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code		d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
mm	mm	mm	mm		mm			mm	mm	mm	mm		mm	
3.97	75	12	39	4	6	B4603.97	¹⁾	8.03	100	16	64	6	8	B4608.03
3.98	75	12	39	4	6	B4603.98	¹⁾	8.50	100	20	60	6	10	B4608.5
3.99	75	12	39	4	6	B4603.99	¹⁾	9.00	100	20	60	6	10	B4609.0
4.00	75	12	39	4	6	B4604.0		9.50	120	20	80	6	10	B4609.5
4.01	75	12	39	4	6	B4604.01	¹⁾	9.97	120	20	80	6	10	B4609.97
4.02	75	12	39	4	6	B4604.02	¹⁾	9.98	120	20	80	6	10	B4609.98
4.03	75	12	39	4	6	B4604.03	¹⁾	9.99	120	20	80	6	10	B4609.99
4.50	75	12	39	4	6	B4604.5		10.00	120	20	80	6	10	B46010.0
4.97	75	12	39	4	6	B4604.97	¹⁾	10.01	120	20	80	6	10	B46010.01
4.98	75	12	39	4	6	B4604.98	¹⁾	10.02	120	20	80	6	10	B46010.02
4.99	75	12	39	4	6	B4604.99	¹⁾	10.03	120	20	80	6	10	B46010.03
5.00	75	12	39	4	6	B4605.0		10.50	120	20	75	6	12	B46010.5
5.01	75	12	39	4	6	B4605.01	¹⁾	11.00	120	20	75	6	12	B46011.0
5.02	75	12	39	4	6	B4605.02	¹⁾	11.50	120	20	75	6	12	B46011.5
5.03	75	12	39	4	6	B4605.03	¹⁾	11.97	120	20	75	6	12	B46011.97
5.50	75	12	39	4	6	B4605.5		11.98	120	20	75	6	12	B46011.98
5.97	75	12	39	4	6	B4605.97	²⁾	11.99	120	20	75	6	12	B46011.99
5.98	75	12	39	4	6	B4605.98	²⁾	12.00	120	20	75	6	12	B46012.0
5.99	75	12	39	4	6	B4605.99	²⁾	12.01	120	20	75	6	12	B46012.01
6.00	75	12	39	4	6	B4606.0		12.02	120	20	75	6	12	B46012.02
6.01	75	12	39	4	6	B4606.01	²⁾	12.03	120	20	75	6	12	B46012.03
6.02	75	12	39	4	6	B4606.02	²⁾	13.00	130	22	85	6	14	B46013.0
6.03	75	12	39	4	6	B4606.03	²⁾	14.00	130	22	85	6	14	B46014.0
6.50	100	16	64	6	8	B4606.5		15.00	130	22	82	6	16	B46015.0
7.00	100	16	64	6	8	B4607.0		16.00	150	25	102	6	16	B46016.0
7.50	100	16	64	6	8	B4607.5		17.00	150	25	102	6	18	B46017.0
7.97	100	16	64	6	8	B4607.97	²⁾	18.00	150	25	102	6	18	B46018.0
7.98	100	16	64	6	8	B4607.98	²⁾	19.00	150	25	100	6	20	B46019.0
7.99	100	16	64	6	8	B4607.99	²⁾	20.00	150	25	100	6	20	B46020.0
8.00	100	16	64	6	8	B4608.0								
8.01	100	16	64	6	8	B4608.01	²⁾							
8.02	100	16	64	6	8	B4608.02	²⁾							

¹⁾ Limit of tolerance +0.0040 / Toleranz +0.0040 / Tolerantie +0.0040 / Tolérance +0.0040 / Límite de tolerancia +0.0040 / Limite de tolerância +0.0040

²⁾ Limit of tolerance +0.0050 / Toleranz +0.0050 / Tolerantie +0.0050 / Tolérance +0.0050 / Límite de tolerancia +0.0050 / Limite de tolerância +0.0050

- NC - High Speed Precision Reamer
- NC-Präzisionreihbahlen
- NC- precisieruimer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC

NEW

2008.09



B464

Extremely unequal spacing / Extrem ungleiche Teilung / Differentialaalt vertand / Pas différentiel / Espacio extremadamente irregular / Espaçamento Assimétrico



■ 1.1 1.2 1.3 1.4 1.5 1.6 3.1 3.2 3.3 3.4

d ₁ Ø	l ₁	l ₂	l ₃		d ₂ Øh ₆		d ₁ Ø	l ₁	l ₂	l ₃		d ₂ Øh ₆	
mm	mm	mm	mm	z	mm	e-Code	mm	mm	mm	mm	z	mm	e-Code
3.97	75	12	39	4	6	B4643.97 ¹⁾	8.03	100	16	64	6	8	B4648.03 ²⁾
3.98	75	12	39	4	6	B4643.98 ¹⁾	8.50	100	20	60	6	10	B4648.5
3.99	75	12	39	4	6	B4643.99 ¹⁾	9.00	100	20	60	6	10	B4649.0
4.00	75	12	39	4	6	B4644.0	9.50	120	20	80	6	10	B4649.5
4.01	75	12	39	4	6	B4644.01 ¹⁾	9.97	120	20	80	6	10	B4649.97 ²⁾
4.02	75	12	39	4	6	B4644.02 ¹⁾	9.98	120	20	80	6	10	B4649.98 ²⁾
4.03	75	12	39	4	6	B4644.03 ¹⁾	9.99	120	20	80	6	10	B4649.99 ²⁾
4.50	75	12	39	4	6	B4644.5	10.00	120	20	80	6	10	B46410.0
4.97	75	12	39	4	6	B4644.97 ¹⁾	10.01	120	20	80	6	10	B46410.01 ²⁾
4.98	75	12	39	4	6	B4644.98 ¹⁾	10.02	120	20	80	6	10	B46410.02 ²⁾
4.99	75	12	39	4	6	B4644.99 ¹⁾	10.03	120	20	80	6	10	B46410.03 ²⁾
5.00	75	12	39	4	6	B4645.0	10.50	120	20	75	6	12	B46410.5
5.01	75	12	39	4	6	B4645.01 ¹⁾	11.00	120	20	75	6	12	B46411.0
5.02	75	12	39	4	6	B4645.02 ¹⁾	11.50	120	20	75	6	12	B46411.5
5.03	75	12	39	4	6	B4645.03 ¹⁾	11.97	120	20	75	6	12	B46411.97 ²⁾
5.50	75	12	39	4	6	B4645.5	11.98	120	20	75	6	12	B46411.98 ²⁾
5.97	75	12	39	4	6	B4645.97 ²⁾	11.99	120	20	75	6	12	B46411.99 ²⁾
5.98	75	12	39	4	6	B4645.98 ²⁾	12.00	120	20	75	6	12	B46412.0
5.99	75	12	39	4	6	B4645.99 ²⁾	12.01	120	20	75	6	12	B46412.01 ²⁾
6.00	75	12	39	4	6	B4646.0	12.02	120	20	75	6	12	B46412.02 ²⁾
6.01	75	12	39	4	6	B4646.01 ²⁾	12.03	120	20	75	6	12	B46412.03 ²⁾
6.02	75	12	39	4	6	B4646.02 ²⁾	13.00	130	22	85	6	14	B46413.0
6.03	75	12	39	4	6	B4646.03 ²⁾	14.00	130	22	85	6	14	B46414.0
6.50	100	16	64	6	8	B4646.5	15.00	130	22	82	6	16	B46415.0
7.00	100	16	64	6	8	B4647.0	16.00	150	25	102	6	16	B46416.0
7.50	100	16	64	6	8	B4647.5	17.00	150	25	102	6	18	B46417.0
7.97	100	16	64	6	8	B4647.97 ²⁾	18.00	150	25	102	6	18	B46418.0
7.98	100	16	64	6	8	B4647.98 ²⁾	19.00	150	25	100	6	20	B46419.0
7.99	100	16	64	6	8	B4647.99 ²⁾	20.00	150	25	100	6	20	B46420.0
8.00	100	16	64	6	8	B4648.0							
8.01	100	16	64	6	8	B4648.01 ²⁾							
8.02	100	16	64	6	8	B4648.02 ²⁾							

¹⁾ Limit of tolerance +0.0040 / Toleranz +0.0040 / Tolerantie +0.0040 / Tolérance +0.0040 / Límite de tolerancia +0.0040 / Limite de tolerância +0.0040

²⁾ Limit of tolerance +0.0050 / Toleranz +0.0050 / Tolerantie +0.0050 / Tolérance +0.0050 / Límite de tolerancia +0.0050 / Limite de tolerância +0.0050

- NC - High Speed Precision Reamer
- NC-Präzisionreibahlen
- NC- precisieiruimer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC

NEW

2008.09



B461

Extremely unequal spacing / Extrem ungleiche Teilung / Differentialaalt vertand / Pas différentiel / Espacio extremadamente irregular / Espaçamento Assimétrico



■ 1.1 1.2 1.3 1.4 1.5 1.6 3.1 3.2 3.3 3.4

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Ø _{h₆}	e-Code	d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Ø _{h₆}	e-Code
3.97	75	12	39	4	6	B4613.97 ¹⁾	8.03	100	16	64	6	8	B4618.03 ²⁾
3.98	75	12	39	4	6	B4613.98 ¹⁾	8.50	100	20	60	6	10	B4618.5
3.99	75	12	39	4	6	B4613.99 ¹⁾	9.00	100	20	60	6	10	B4619.0
4.00	75	12	39	4	6	B4614.0	9.50	120	20	80	6	10	B4619.5
4.01	75	12	39	4	6	B4614.01 ¹⁾	9.97	120	20	80	6	10	B4619.97 ²⁾
4.02	75	12	39	4	6	B4614.02 ¹⁾	9.98	120	20	80	6	10	B4619.98 ²⁾
4.03	75	12	39	4	6	B4614.03 ¹⁾	9.99	120	20	80	6	10	B4619.99 ²⁾
4.50	75	12	39	4	6	B4614.5	10.00	120	20	80	6	10	B46110.0
4.97	75	12	39	4	6	B4614.97 ¹⁾	10.01	120	20	80	6	10	B46110.01 ²⁾
4.98	75	12	39	4	6	B4614.98 ¹⁾	10.02	120	20	80	6	10	B46110.02 ²⁾
4.99	75	12	39	4	6	B4614.99 ¹⁾	10.03	120	20	80	6	10	B46110.03 ²⁾
5.00	75	12	39	4	6	B4615.0	10.50	120	20	75	6	12	B46110.5
5.01	75	12	39	4	6	B4615.01 ¹⁾	11.00	120	20	75	6	12	B46111.0
5.02	75	12	39	4	6	B4615.02 ¹⁾	11.50	120	20	75	6	12	B46111.5
5.03	75	12	39	4	6	B4615.03 ¹⁾	11.97	120	20	75	6	12	B46111.97 ²⁾
5.50	75	12	39	4	6	B4615.5	11.98	120	20	75	6	12	B46111.98 ²⁾
5.97	75	12	39	4	6	B4615.97 ²⁾	11.99	120	20	75	6	12	B46111.99 ²⁾
5.98	75	12	39	4	6	B4615.98 ²⁾	12.00	120	20	75	6	12	B46112.0
5.99	75	12	39	4	6	B4615.99 ²⁾	12.01	120	20	75	6	12	B46112.01 ²⁾
6.00	75	12	39	4	6	B4616.0	12.02	120	20	75	6	12	B46112.02 ²⁾
6.01	75	12	39	4	6	B4616.01 ²⁾	12.03	120	20	75	6	12	B46112.03 ²⁾
6.02	75	12	39	4	6	B4616.02 ²⁾	13.00	130	22	85	6	14	B46113.0
6.03	75	12	39	4	6	B4616.03 ²⁾	14.00	130	22	85	6	14	B46114.0
6.50	100	16	64	6	8	B4616.5	15.00	130	22	82	6	16	B46115.0
7.00	100	16	64	6	8	B4617.0	16.00	150	25	102	6	16	B46116.0
7.50	100	16	64	6	8	B4617.5	17.00	150	25	102	6	18	B46117.0
7.97	100	16	64	6	8	B4617.97 ²⁾	18.00	150	25	102	6	18	B46118.0
7.98	100	16	64	6	8	B4617.98 ²⁾	19.00	150	25	100	6	20	B46119.0
7.99	100	16	64	6	8	B4617.99 ²⁾	20.00	150	25	100	6	20	B46120.0
8.00	100	16	64	6	8	B4618.0							
8.01	100	16	64	6	8	B4618.01 ²⁾							
8.02	100	16	64	6	8	B4618.02 ²⁾							

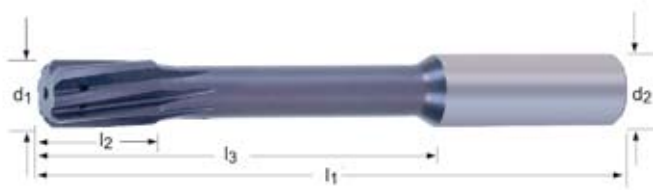
¹⁾ Limit of tolerance +0.0040 / Toleranz +0.0040 / Tolerantie +0.0040 / Tolérance +0.0040 / Límite de tolerancia +0.0040 / Limite de tolerância +0.0040

²⁾ Limit of tolerance +0.0050 / Toleranz +0.0050 / Tolerantie +0.0050 / Tolérance +0.0050 / Límite de tolerancia +0.0050 / Limite de tolerância +0.0050

- NC - High Speed Precision Reamer
- NC-Präzisionreibahlen
- NC- precisieuer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC

NEW

2008.09



B465



■ 2.1 2.2 2.3 2.4

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
3.97	75	12	39	4	6	B4653.97 ¹⁾
3.98	75	12	39	4	6	B4653.98 ¹⁾
3.99	75	12	39	4	6	B4653.99 ¹⁾
4.00	75	12	39	4	6	B4654.0
4.01	75	12	39	4	6	B4654.01 ¹⁾
4.02	75	12	39	4	6	B4654.02 ¹⁾
4.03	75	12	39	4	6	B4654.03 ¹⁾
4.50	75	12	39	4	6	B4654.5
4.97	75	12	39	4	6	B4654.97 ¹⁾
4.98	75	12	39	4	6	B4654.98 ¹⁾
4.99	75	12	39	4	6	B4654.99 ¹⁾
5.00	75	12	39	4	6	B4655.0
5.01	75	12	39	4	6	B4655.01 ¹⁾
5.02	75	12	39	4	6	B4655.02 ¹⁾
5.03	75	12	39	4	6	B4655.03 ¹⁾
5.50	75	12	39	4	6	B4655.5
5.97	75	12	39	4	6	B4655.97 ²⁾
5.98	75	12	39	4	6	B4655.98 ²⁾
5.99	75	12	39	4	6	B4655.99 ²⁾
6.00	75	12	39	4	6	B4656.0
6.01	75	12	39	4	6	B4656.01 ²⁾
6.02	75	12	39	4	6	B4656.02 ²⁾
6.03	75	12	39	4	6	B4656.03 ²⁾
6.50	100	16	64	6	8	B4656.5
7.00	100	16	64	6	8	B4657.0
7.50	100	16	64	6	8	B4657.5
7.97	100	16	64	6	8	B4657.97 ²⁾
7.98	100	16	64	6	8	B4657.98 ²⁾
7.99	100	16	64	6	8	B4657.99 ²⁾
8.00	100	16	64	6	8	B4658.0
8.01	100	16	64	6	8	B4658.01 ²⁾
8.02	100	16	64	6	8	B4658.02 ²⁾

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
8.03	100	16	64	6	8	B4658.03 ²⁾
8.50	100	20	60	6	10	B4658.5
9.00	100	20	60	6	10	B4659.0
9.50	120	20	80	6	10	B4659.5
9.97	120	20	80	6	10	B4659.97 ²⁾
9.98	120	20	80	6	10	B4659.98 ²⁾
9.99	120	20	80	6	10	B4659.99 ²⁾
10.00	120	20	80	6	10	B46510.0
10.01	120	20	80	6	10	B46510.01 ²⁾
10.02	120	20	80	6	10	B46510.02 ²⁾
10.03	120	20	80	6	10	B46510.03 ²⁾
10.50	120	20	75	6	12	B46510.5
11.00	120	20	75	6	12	B46511.0
11.50	120	20	75	6	12	B46511.5
11.97	120	20	75	6	12	B46511.97 ²⁾
11.98	120	20	75	6	12	B46511.98 ²⁾
11.99	120	20	75	6	12	B46511.99 ²⁾
12.00	120	20	75	6	12	B46512.0
12.01	120	20	75	6	12	B46512.01 ²⁾
12.02	120	20	75	6	12	B46512.02 ²⁾
12.03	120	20	75	6	12	B46512.03 ²⁾
13.00	130	22	85	6	14	B46513.0
14.00	130	22	85	6	14	B46514.0
15.00	130	22	82	6	16	B46515.0
16.00	150	25	102	6	16	B46516.0
17.00	150	25	102	6	18	B46517.0
18.00	150	25	102	6	18	B46518.0
19.00	150	25	100	6	20	B46519.0
20.00	150	25	100	6	20	B46520.0

¹⁾ Limit of tolerance +0.0040 / Toleranz +0.0040 / Tolerantie +0.0040 / Tolérance +0.0040 / Límite de tolerancia +0.0040 / Limite de tolerância +0.0040

²⁾ Limit of tolerance +0.0050 / Toleranz +0.0050 / Tolerantie +0.0050 / Tolérance +0.0050 / Límite de tolerancia +0.0050 / Limite de tolerância +0.0050

- NC - High Speed Precision Reamer
- NC-Präzisionreibahlen
- NC- precisieuermer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC

NEW

2008.09



B462



■ 2.1 2.2 2.3 2.4

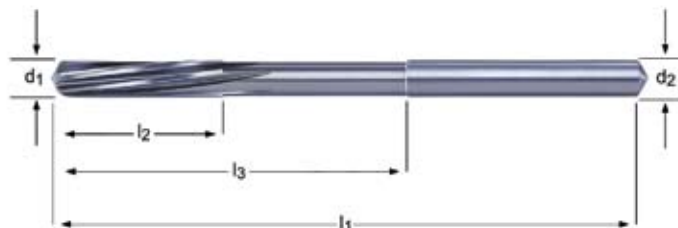
d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Ø _{h₆}	e-Code
3.97	75	12	39	4	6	B4623.97 ¹⁾
3.98	75	12	39	4	6	B4623.98 ¹⁾
3.99	75	12	39	4	6	B4623.99 ¹⁾
4.00	75	12	39	4	6	B4624.0
4.01	75	12	39	4	6	B4624.01 ¹⁾
4.02	75	12	39	4	6	B4624.02 ¹⁾
4.03	75	12	39	4	6	B4624.03 ¹⁾
4.50	75	12	39	4	6	B4624.5
4.97	75	12	39	4	6	B4624.97 ¹⁾
4.98	75	12	39	4	6	B4624.98 ¹⁾
4.99	75	12	39	4	6	B4624.99 ¹⁾
5.00	75	12	39	4	6	B4625.0
5.01	75	12	39	4	6	B4625.01 ¹⁾
5.02	75	12	39	4	6	B4625.02 ¹⁾
5.03	75	12	39	4	6	B4625.03 ¹⁾
5.50	75	12	39	4	6	B4625.5
5.97	75	12	39	4	6	B4625.97 ²⁾
5.98	75	12	39	4	6	B4625.98 ²⁾
5.99	75	12	39	4	6	B4625.99 ²⁾
6.00	75	12	39	4	6	B4626.0
6.01	75	12	39	4	6	B4626.01 ²⁾
6.02	75	12	39	4	6	B4626.02 ²⁾
6.03	75	12	39	4	6	B4626.03 ²⁾
6.50	100	16	64	6	8	B4626.5
7.00	100	16	64	6	8	B4627.0
7.50	100	16	64	6	8	B4627.5
7.97	100	16	64	6	8	B4627.97 ²⁾
7.98	100	16	64	6	8	B4627.98 ²⁾
7.99	100	16	64	6	8	B4627.99 ²⁾
8.00	100	16	64	6	8	B4628.0
8.01	100	16	64	6	8	B4628.01 ²⁾
8.02	100	16	64	6	8	B4628.02 ²⁾

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Ø _{h₆}	e-Code
8.03	100	16	64	6	8	B4628.03 ²⁾
8.50	100	20	60	6	10	B4628.5
9.00	100	20	60	6	10	B4629.0
9.50	120	20	80	6	10	B4629.5
9.97	120	20	80	6	10	B4629.97 ²⁾
9.98	120	20	80	6	10	B4629.98 ²⁾
9.99	120	20	80	6	10	B4629.99 ²⁾
10.00	120	20	80	6	10	B46210.0
10.01	120	20	80	6	10	B46210.01 ²⁾
10.02	120	20	80	6	10	B46210.02 ²⁾
10.03	120	20	80	6	10	B46210.03 ²⁾
10.50	120	20	75	6	12	B46210.5
11.00	120	20	75	6	12	B46211.0
11.50	120	20	75	6	12	B46211.5
11.97	120	20	75	6	12	B46211.97 ²⁾
11.98	120	20	75	6	12	B46211.98 ²⁾
11.99	120	20	75	6	12	B46211.99 ²⁾
12.00	120	20	75	6	12	B46212.0
12.01	120	20	75	6	12	B46212.01 ²⁾
12.02	120	20	75	6	12	B46212.02 ²⁾
12.03	120	20	75	6	12	B46212.03 ²⁾
13.00	130	22	85	6	14	B46213.0
14.00	130	22	85	6	14	B46214.0
15.00	130	22	82	6	16	B46215.0
16.00	150	25	102	6	16	B46216.0
17.00	150	25	102	6	18	B46217.0
18.00	150	25	102	6	18	B46218.0
19.00	150	25	100	6	20	B46219.0
20.00	150	25	100	6	20	B46220.0

¹⁾ Limit of tolerance +0.0040 / Toleranz +0.0040 / Tolerantie +0.0040 / Tolérance +0.0040 / Límite de tolerancia +0.0040 / Limite de tolerância +0.0040

²⁾ Limit of tolerance +0.0050 / Toleranz +0.0050 / Tolerantie +0.0050 / Tolérance +0.0050 / Límite de tolerancia +0.0050 / Limite de tolerância +0.0050

- Machine Reamer Extremely unequal spacing
- Maschinenreihable Extrem ungleiche Teilung
- Machineruimer Differentiaal vertand
- Alésoir machine Pas différentiel
- Escariador de máquina Espacio extremadamente irregular
- Mandril p/ Cavilhas Cónicas Espaçamento Assimétrico



B400



■	1.5	1.6	3.1	3.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4
	8.1	8.2																		
●	1.1	1.2	1.3	1.4																

d_1 Ø mm	l_1 mm	l_2 mm	l_3 mm	z	d_2 Ø h_9 mm	e-Code	d_1 Ø mm	l_1 mm	l_2 mm	l_3 mm	z	d_2 Ø h_9 mm	e-Code
1.0	34	6	15	3	1.0	B4001.0 ³⁾	4.5	80	21	46	6	4.5	B4004.5 ³⁾
1.2	38	8	16.5	3	1.2	B4001.2 ³⁾	5.0	86	23	53	6	5.0	B4005.0 ³⁾
1.4	40	8	18	3	1.4	B4001.4 ³⁾	5.5	93	26	56	6	5.5	B4005.5 ³⁾
1.5	40	8	18	3	1.5	B4001.5 ³⁾	6.0	93	26	56	6	5.6	B4006.0 ³⁾
1.6	49	11	26	3	1.6	B4001.6 ³⁾	6.5	101	28	63	6	6.3	B4006.5 ⁴⁾
1.8	49	11	25	4	1.8	B4001.8 ³⁾	7.0	109	31	69	6	7.1	B4007.0 ⁴⁾
2.0	49	11	24	4	2.0	B4002.0 ³⁾	8.0	117	33	75	6	8.0	B4008.0 ⁴⁾
2.2	57	15	30	4	2.2	B4002.2 ³⁾	9.0	125	36	81	6	9.0	B4009.0 ⁴⁾
2.5	57	15	28	4	2.5	B4002.5 ³⁾	10.0	133	38	87	6	10.0	B40010.0 ⁴⁾
2.8	61	15	32	6	2.8	B4002.8 ³⁾	12.0	151	44	105	6	10.0	B40012.0 ⁴⁾
3.0	61	15	30	6	3.0	B4003.0 ³⁾	14.0	160	47	110	8	12.5	B40014.0 ⁴⁾
3.2	70	18	33	6	3.2	B4003.2 ³⁾	16.0	170	52	120	8	12.5	B40016.0 ⁴⁾
3.5	70	18	33	6	3.5	B4003.5 ³⁾	18.0	182	56	130	6	14.0	B40018.0 ³⁾
4.0	75	19	44	6	4.0	B4004.0 ³⁾	20.0	195	60	137	6	16.0	B40020.0 ³⁾

³⁾ Solid Carbide / VHM / Volhardmetalen machineruimer / Carbure monobloc / Monobloc de Metal Duro / Metal Duro Integral

⁴⁾ Carbide Head / VHM-Kopf / Hardmetalen kop / Tête carbure / Cabeza de Metal Duro / Empastilhado

- NC - Centesimal Reamer for High Precision Chucks
- NC - Alésoir au centième pour mandrins haute précision

- NC- 1/100 Reibahle für Hochgenauigkeitsfutter
- NC - Escariador Centesimal para portos de alta precisión

- NC-1/100 ruimers
- NC - Mandril Centesimal p/ buchas de alta precisão



B481

Extremely unequal spacing / Extrem ungleiche Teilung / Differentialaaf vertand / Pas différentiel / Espacio extremadamente irregular / Espaçamento Assimétrico

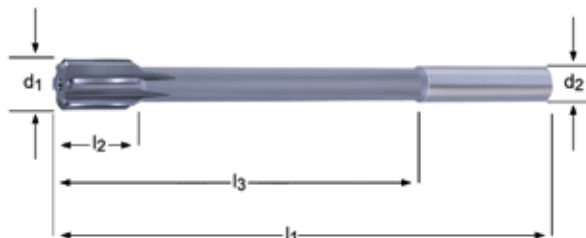


■	1.5	1.6	3.1	3.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4
	8.1	8.2																		
●	1.1	1.2	1.3	1.4																

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₆ mm	e-Code
0.98	49.5	6	21.5	3	4	B4810.98
0.99	49.5	6	21.5	3	4	B4810.99
1.00	49.5	6	21.5	3	4	B4811.00
1.01	49.5	6	21.5	3	4	B4811.01
1.02	49.5	6	21.5	3	4	B4811.02
1.03	49.5	9	21.5	3	4	B4811.03
1.48	49	9	21	3	4	B4811.48
1.49	49	9	21	3	4	B4811.49
1.50	49	9	21	3	4	B4811.50
1.51	49	9	21	3	4	B4811.51
1.52	49	9	21	3	4	B4811.52
1.53	49	9	21	3	4	B4811.53
1.98	49	12	21	4	4	B4811.98
1.99	49	12	21	4	4	B4811.99
2.00	49	12	21	4	4	B4812.00
2.01	49	12	21	4	4	B4812.01
2.02	49	12	21	4	4	B4812.02
2.03	49	12	21	4	4	B4812.03
2.48	59	16	31	4	4	B4812.48
2.49	59	16	31	4	4	B4812.49
2.50	59	16	31	4	4	B4812.50
2.51	59	16	31	4	4	B4812.51
2.52	59	16	31	4	4	B4812.52
2.53	59	16	31	4	4	B4812.53
2.97	62.5	17	35	6	4	B4812.97
2.98	62.5	17	35	6	4	B4812.98
2.99	62.5	17	35	6	4	B4812.99
3.00	62.5	17	35	6	4	B4813.00
3.01	62.5	17	35	6	4	B4813.01
3.02	62.5	17	35	6	4	B4813.02
3.03	62.5	17	35	6	4	B4813.03
3.97	75	19	47	6	4	B4813.97
3.98	75	19	47	6	4	B4813.98
3.99	75	19	47	6	4	B4813.99
4.00	75	19	47	6	4	B4814.00
4.01	75	19	47	6	4	B4814.01
4.02	75	19	47	6	4	B4814.02
4.03	75	19	47	6	4	B4814.03
4.97	86	23	50	6	6	B4814.97
4.98	86	23	50	6	6	B4814.98

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₆ mm	e-Code
4.99	86	23	50	6	6	B4814.99
5.00	86	23	50	6	6	B4815.00
5.01	86	23	50	6	6	B4815.01
5.02	86	23	50	6	5	B4815.02
5.03	86	23	50	6	6	B4815.03
5.97	93	26	57	6	6	B4815.97
5.98	93	26	57	6	6	B4815.98
5.99	93	26	57	6	6	B4815.99
6.00	93	26	57	6	6	B4816.00
6.01	93	26	57	6	6	B4816.01
6.02	93	26	57	6	6	B4816.02
6.03	93	26	57	6	6	B4816.03
7.97	117	33	81	6	8	B4817.97
7.98	117	33	81	6	8	B4817.98
7.99	117	33	81	6	8	B4817.99
8.00	117	33	81	6	8	B4818.00
8.01	117	33	81	6	8	B4818.01
8.02	117	33	81	6	8	B4818.02
8.03	117	33	81	6	8	B4818.03
8.04	117	33	81	6	8	B4818.04
9.97	133	38	93	6	10	B4819.97
9.98	133	38	93	6	10	B4819.98
9.99	133	38	93	6	10	B4819.99
10.00	133	38	93	6	10	B48110.00
10.01	133	38	93	6	10	B48110.01
10.02	133	38	93	6	10	B48110.02
10.03	133	38	93	6	10	B48110.03
10.04	133	38	93	6	10	B48110.04
10.05	133	38	93	6	10	B48110.05
11.97	151	44	106	6	12	B48111.97
11.98	151	44	106	6	12	B48111.98
11.99	151	44	106	6	12	B48111.99
12.00	151	44	106	6	12	B48112.00
12.01	151	44	106	6	12	B48112.01
12.02	151	44	106	6	12	B48112.02
12.03	151	44	106	6	12	B48112.03
12.04	151	44	106	6	12	B48112.04
12.05	151	44	106	6	12	B48112.05

- Machine Reamer Extremely unequal spacing
- Alésoir machine Pas différentiel
- Maschinenreibahle Extrem ungleiche Teilung
- Escariador de máquina Espacio extremadamente irregular
- Machineruimer Differentiaal vertand
- Mandril p/ Cavilhas Cónicas Espaçamento Assimétrico



B441



■	1.5	1.6	3.1	3.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4
	8.1	8.2																		
●	1.1	1.2	1.3	1.4																

d_1 Ø	l_1	l_2	l_3	z	d_2 Ø _{h₉}	e-Code
10.0	133	19	87	6	10	B44110.0
11.0	142	19	96	6	10	B44111.0
12.0	151	19	105	6	10	B44112.0
13.0	151	19	105	6	10	B44113.0
14.0	160	19	110	6	12.5	B44114.0
15.0	162	19	112	6	12.5	B44115.0

d_1 Ø	l_1	l_2	l_3	z	d_2 Ø _{h₉}	e-Code
16.0	170	22	120	6	12.5	B44116.0
17.0	175	22	123	6	14	B44117.0
18.0	182	22	130	6	14	B44118.0
19.0	189	22	131	6	16	B44119.0
20.0	195	22	137	6	16	B44120.0

B451

DORMER

- Expanding Machine Reamer
- Maschinenreibahle, einstellbar
- Machineruimer - nastelbaar
- Alésoir machine queue cône morse
- Réglable
- Escariador de máquina , mango cónico
- regulable
- Mandril de Máq. c/ Haste Cónica
- Ajustáveis



B451

Adjustment Range 0.03mm / verstellbar im Bereich 0,03mm / Instelbereik 0.03 mm / Gamme réglable à 0,03 mm /
0,03 mm / Gama Ajustável 0,03mm

Ajustable



■	1.5	1.6	3.1	3.2	3.3	3.4	4.1	4.2	5.1	5.2	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	8.1	8.2
●	1.1	1.2	1.3	1.4	4.3	5.3														

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
8.0	117	12	75	4	8.0	B4518.0
9.0	125	12	79	6	10.0	B4519.0
10.0	133	12	87	6	10.0	B45110.0
11.0	142	12	96	6	10.0	B45111.0
12.0	151	12	105	6	10.0	B45112.0
13.0	151	12	105	6	10.0	B45113.0

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₆	e-Code
14.0	160	16	110	6	12.0	B45114.0
15.0	162	16	112	6	12.0	B45115.0
16.0	170	19	120	6	12.0	B45116.0
18.0	182	19	130	6	14.0	B45118.0
20.0	195	19	137	6	16.0	B45120.0

- Machine Reamer Extremely unequal spacing
- Maschinenreihahle Extrem ungleiche Teilung
- Machineruimer Differentiaal vertand
- Alésoir machine Pas différentiel
- Escariador de máquina Espacio extremadamente irregular
- Mandril p/ Cavilhas Cónicas Espaçamento Assimétrico



B411



■	1.5	1.6	3.1	3.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4
	8.1	8.2																		
●	1.1	1.2	1.3	1.4																

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
5.0	133	23	67.5	6	1	B41115.0 ¹⁾
6.0	138	26	72.5	6	1	B41116.0 ¹⁾
7.0	150	31	84.5	6	1	B41117.0 ¹⁾
8.0	156	33	90.5	6	1	B41118.0 ¹⁾
9.0	162	36	96.5	6	1	B41119.0 ¹⁾
10.0	168	38	102.5	6	1	B411110.0 ¹⁾
12.0	182	44	116.5	6	1	B411112.0 ¹⁾
14.0	189	47	123.5	8	1	B411114.0 ¹⁾
15.0	204	50	124	8	2	B411115.0 ¹⁾
16.0	210	52	130	8	2	B411116.0 ¹⁾

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
17.0	214	54	134	6	2	B411117.0 ²⁾
18.0	219	56	139	6	2	B411118.0 ²⁾
19.0	223	58	143	6	2	B411119.0 ²⁾
20.0	228	60	148	6	2	B411120.0 ²⁾
22.0	237	64	157	6	2	B411122.0 ²⁾
24.0	268	68	169	8	3	B411124.0 ²⁾
25.0	268	68	169	8	3	B411125.0 ²⁾
26.0	273	70	174	8	3	B411126.0 ²⁾
30.0	281	73	182	8	3	B411130.0 ²⁾

¹⁾ Solid Carbide / VHM / Volhardmetalen machineruimer / Carbure monobloc / Monobloc de Metal Duro / Metal Duro Integral

²⁾ Carbide Head / VHM-Kopf / Hardmetalen kop / Tête carbure / Cabeza de Metal Duro / Empastilhado

B442



- Machine Reamer Extremely unequal spacing
- Alésoir machine Pas différentiel
- Maschinenreibahle Extrem ungleiche Teilung
- Escariador de máquina Espacio extremadamente irregular
- Machineruimer Differentiaal vertand
- Mandril p/ Cavilhas Cónicas Espaçamento Assimétrico



B442



- 1.5 1.6 3.1 3.2 3.3 3.4 4.1 4.2 4.3 5.1 5.2 5.3 6.1 6.2 6.3 6.4 7.1 7.2 7.3 7.4
- 8.1 8.2
- 1.1 1.2 1.3 1.4

d_1 Ø	l_1	l_2	l_3	z	MK	e-Code
mm	mm	mm	mm			
10.0	168	19	102.5	6	1	B44210.0
12.0	182	19	116.5	6	1	B44212.0
14.0	189	19	123.5	6	1	B44214.0
15.0	204	19	124	6	2	B44215.0
16.0	210	22	130	6	2	B44216.0
17.0	214	22	134	6	2	B44217.0

d_1 Ø	l_1	l_2	l_3	z	MK	e-Code
mm	mm	mm	mm			
18.0	219	22	139	6	2	B44218.0
19.0	223	22	143	6	2	B44219.0
20.0	228	22	148	6	2	B44220.0

- Expanding Machine Reamer
- Maschinenreibahle, einstellbar
- Machineruimer - nastelbaar
- Alésoir machine queue cône morse
- Réglable
- Escariador de máquina , mango cónico
- regulable
- Mandril de Máq. c/ Haste Cónica
- Ajustáveis



B452

Adjustment Range 0.03mm / verstellbar im Bereich 0,03mm / Verstellbare diameters (0,03 mm / Gamme réglable à 0,03 mm / Ajustable 0,03 mm / Gama Ajustável 0,03mm



■	1.5	1.6	3.1	3.2	3.3	3.4	4.1	4.2	5.1	5.2	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	8.1	8.2
●	1.1	1.2	1.3	1.4	4.3	5.3														

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
mm	mm	mm	mm			
8.0	156	12	90.5	4	1	B4528.0
10.0	168	12	102.5	6	1	B45210.0
11.0	175	12	109.5	6	1	B45211.0
12.0	182	12	116.5	6	1	B45212.0
13.0	182	12	116.5	6	1	B45213.0
14.0	189	16	123.5	6	1	B45214.0
15.0	204	16	124	6	2	B45215.0
16.0	210	19	130	6	2	B45216.0
17.0	214	19	134	6	2	B45217.0
18.0	219	19	139	6	2	B45218.0

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
mm	mm	mm	mm			
19.0	223	19	143	6	2	B45219.0
20.0	228	19	148	6	2	B45220.0
22.0	237	22	157	6	2	B45222.0
24.0	268	22	169	6	3	B45224.0
25.0	268	22	169	6	3	B45225.0
26.0	273	22	174	6	3	B45226.0
28.0	277	25	178	6	3	B45228.0
30.0	281	25	182	6	3	B45230.0

G400

DORMER

- Countersink for High Precision Chucks
- Senker für Hochgenauigkeitsfutter
- Verzinkers voor High Precision opnames
- Fraise à chanfreiner pour mandrins haute précision
- Avellanadores para portas de alta precisión
- Escareadores p/ buchas de alta precisão



NEW

2008.09



G400



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d	l ₁ mm	d ₂ Øh ₆ mm	z	e-Code	max d mm	min d	l ₁ mm	d ₂ Øh ₆ mm	z	e-Code
6.3	1.5	45	5	3	G4006.3	16.5	3.2	60	10	3	G40016.5
8.3	2.0	50	6	3	G4008.3	20.5	3.5	63	10	3	G40020.5
10.4	2.5	50	6	3	G40010.4	25.0	3.8	67	10	3	G40025.0
12.4	2.8	56	8	3	G40012.4	31.0	4.2	71	12	3	G40031.0

- Countersink Double Ended
- Senker , 2-seitig
- Verzinkers - dubbelzijdig
- Fraise à chanfreiner - Double
- Avellanadores - Doble punta
- Escareador - Dupla

NEW

2008.09



G405



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d	min d	l ₁	l ₃	d ₂ Øh ₆	z	e-Code	max d	min d	l ₁	l ₃	d ₂ Øh ₆	z	e-Code
mm	mm	mm	mm	mm			mm	mm	mm	mm	mm		
8.3	2.0	67	46	10	3	G4058.3	12.4	2.8	76	45	14	3	G40512.4
10.4	2.5	74	47	12	3	G40510.4							



	B100	B341	B334	B335	B951	B301	B903	B952	B500	B180	B191	B181
												
	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS-E	HSS-E	HSS-E	HSS-E
	ST	ST			ST	ST	ST					
	DIN 206	DIN 859	D	D	D	BS 328	DIN 9	DIN 9	DIN 212	DIN 212	DIN 212	DIN 212
												
												
	B	B			B	A	A	B	A	B	B	B
	H7								H7	H7	H7	
												
	1.50 - 50.00	6.00 - 20.00	N000 - N16	N000 - N16	10.00 - 45.00	1/16 - 7/8	1.50 - 20.00	1.20 - 50.00	2.00 - 20.00	1.50 - 20.00	Set 10S	1.00 - 12.00
	210	211	212	213	214	215	216	217	218	219	220	221
1.1	■18C	■18C	■18C		■18C	■18C	■18C	■18C		■25C	■25C	■25C
1.2	■14C	■14C	■14C		■14C	■14C	■14C	■14C		■20C	■20C	■20C
1.3	■11C	■11C	■11C		■11C	■11C	■11C	■11C		■16C	■16C	■16C
1.4	■10B	■10B	■10B		■10B	■10B	■10B	■10B		■15B	■15B	■15B
1.5	●5B	●5B	●5B		●5B	●5B	●5B	●5B		●9B	●9B	●9B
1.6	●4A	●4A	●4A		●4A	●4A	●4A	●4A		●5A	●5A	●5A
1.7												
1.8												
2.1	■8F	■8F	■8F		■8C	■8C	■8C	■8C		■11C	■11C	■11C
2.2						●5B	●5B	●5B		●6B	●6B	●6B
2.3						●6B	●6B	●6B		●8B	●8B	●8B
2.4										●6B	●6B	●6B
3.1	■14E	■14E	■14E		■14E	■14E	■14E	■14E	■16E	●16E	●16E	●16E
3.2	●11D	●11D	●11D		●11D	●11D	●11D	●11D	●15D	●15D	●15D	●15D
3.3	●10C	●10C	●10C		●10C	●10C	●10C	●10C	●13C	●13C	●13C	●13C
3.4	●9C	●9C	●9C		●9C	●9C	●9C	●9C	●11C	●11C	●11C	●11C
4.1	■11C	■11C	■11C		■11C	■11C	■11C	■11C	■11C	●15C	●15C	●15C
4.2	●5B	●5B	●5B		●5B	●5B	●5B	●5B		●9B	●9B	●9B
4.3	●4B	●4B	●4B		●4B	●4B	●4B	●4B		●5B	●5B	●5B
5.1	●5D	●5D	●5D		●5D	●5D	●5D	●5D		■8D	■8D	■8D
5.2	●3C	●3C	●3C		●3C	●3C	●3C	●3C		●5C	●5C	●5C
5.3	●2C	●2C	●2C		●2C	●2C	●2C	●2C		●3C	●3C	●3C
6.1	●18D	●18D	●18D		●18D	●18D	●18D	●18D		●25D	●25D	●25D
6.2	■20E	■20E	■20E		■20E	■20E	■20E	■20E	●28E	●28E	●28E	●28E
6.3	●18D	●18D	●18D		●18D	●18D	●18D	●18D	●25D	●25D	●25D	●25D
6.4	●11D	●11D	●11D		●11D	●11D	●11D	●11D	●14D	●14D	●14D	●14D
7.1	●23F	●23F	●23F		●23F	●23F	●23F	●23F				
7.2	●18F	●18F	●18F		●18F	●18F	●18F	●18F				
7.3					●15E	●15E	●15E	●15E				
7.4					●14D	●14D	●14D	●14D				
8.1												
8.2	●21B	●21B	●21B		●21B	●21B	●21B	●21B	●30B			
8.3												
9.1												
10.1												



[illegible]

207

208

	Ø mm												
	1,5	2	3	5	8	10	12	16	20	25	30	40	50
A	0,045	0,055	0,078	0,100	0,150	0,170	0,185	0,220	0,250	0,280	0,320	0,390	0,440
B	0,055	0,072	0,110	0,150	0,180	0,210	0,240	0,280	0,310	0,360	0,400	0,500	0,550
C	0,065	0,085	0,135	0,185	0,220	0,260	0,285	0,335	0,390	0,440	0,480	0,600	0,680
D	0,080	0,110	0,160	0,200	0,270	0,320	0,360	0,410	0,470	0,540	0,600	0,730	0,850
E	0,100	0,140	0,180	0,250	0,350	0,390	0,430	0,500	0,530	0,640	0,750	0,910	1,100
F	0,140	0,180	0,260	0,350	0,440	0,500	0,550	0,630	0,700	0,800	0,930	1,200	1,500
mm/REV ± 15%													

	Ø mm									
	6	8	10	16	20	25	32	40	60	80
A	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.12	0.14	0.16
B	0.04	0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20
C	0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22
D	0.06	0.08	0.10	0.12	0.15	0.18	0.20	0.22	0.25	0.28
E	0.08	0.10	0.12	0.15	0.18	0.20	0.25	0.27	0.30	0.32
F	0.09	0.11	0.13	0.16	0.19	0.21	0.26	0.29	0.33	0.36
G	0.10	0.12	0.15	0.18	0.20	0.22	0.28	0.32	0.36	0.40
H	0.12	0.15	0.18	0.20	0.22	0.25	0.30	0.35	0.40	0.45
mm/N										

- General guidelines for stock removal when pre-drilling holes • Allgemeine Richtlinien für Materialabtragung beim Vorbohren • Algemene richtlijn voor materiaal afname bij voorboren • Préconisations de surépaisseur de perçage avant alésage • Guía general para la eliminación de material cuando existe agujero pre-taladrado • Regras gerais para material a ser removido durante a furação

	Ø (mm)				
	3 - 5mm	5.1 - 10mm	10.1 - 20mm	20.1 - 30mm	> 30mm
1.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
1.2	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
1.3	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
1.4	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.5	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.6	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.7	0.1-0.2	0.2	0.2	0.3	0.3-0.4
1.8	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.1	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
2.4	0.1-0.2	0.2	0.2	0.3	0.3-0.4
3.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
3.2	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
3.3	0.1-0.2	0.2	0.3	0.4	0.5
3.4	0.1-0.2	0.2	0.3	0.4	0.5
4.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.3-0.4
4.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
4.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
5.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5
5.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
5.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
6.1	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
6.2	0.1-0.2	0.2	0.2-0.3	0.3	0.3-0.4
6.3	0.1-0.2	0.2	0.2-0.3	0.3	0.3-0.4
6.4	0.1-0.2	0.2	0.2-0.3	0.3	0.3-0.4
7.1	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
7.2	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
7.3	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
7.4	0.1-0.2	0.2-0.3	0.3-0.4	0.4-0.5	0.5
8.1	0.1-0.2	0.3	0.4	0.4-0.5	0.5
8.2	0.1-0.2	0.2	0.2	0.3	0.3-0.4
8.3	0.1-0.2	0.2	0.2	0.3	0.3-0.4
9.1	0.1-0.2	0.2	0.2	0.3	0.3-0.4
10.1	0.1-0.2	0.2	0.2-0.3	0.3-0.4	0.4-0.5

For adjustable or blade reamers reduce stock removal by 30%. For quick helix reamers increase by 50% / Für verstellbare Reibahlen die Materialabtragung um 30% reduzieren. Für Schälreibahlen um 50% erhöhen. / Voor verstelbare ruimers de materiaal afname met 30% reduceren. Voor schilruimers met 50% verhogen. / Pour les alésoirs expansibles ou brasés réduire l'avance de 30%. Pour les alésoirs à hélice rapide augmenter de 50%. / Para escariadores ajustables y con cuchillas reducir la eliminación de material un 30%. Para escariadores de hélice rápida incrementar un 50% / Para alargadores ajustáveis reduza o sobremetal em 30%. Para alargadores com hélice rápida aumente em 50%

- Hand Reamer
- Handreibahle
- Handruimer
- Alésoir à main
- Escariador de mano
- Mandril Manual



B100

d2=d1 with tolerance e9 / d2=d1 mit Toleranz e9 / d2=d1 met tolerantie e9 / d2=d1 en tolérance e9 / d2=d1 con tolerancia e9 / d2=d1
tolerância e9



■	1.1	1.2	1.3	1.4	2.1	3.1	4.1	6.2									
●	1.5	1.6	3.2	3.3	3.4	4.2	4.3	5.1	5.2	5.3	6.1	6.3	6.4	7.1	7.2	8.2	

d ₁ Ø Inch	d ₁ Ø mm	l ₁ mm	l ₂ mm	z	a mm	e-Code
1/16	1.50	41	20	3	1.12	B1001.5
	1.59	41	20	3	1.12	B1001/16
	1.60	44	21	3	1.25	B1001.6
5/64	1.98	47	23	4	1.40	B1005/64
	2.00	50	25	4	1.60	B1002.0
3/32	2.38	54	27	4	1.80	B1003/32
	2.50	58	29	4	2.10	B1002.5
7/64	2.78	62	31	6	2.10	B1007/64
	3.00	62	31	6	2.40	B1003.0
1/8	3.18	66	33	6	2.40	B1001/8
	3.20	66	33	6	2.40	B1003.2
	3.50	71	35	6	2.70	B1003.5
9/64	3.57	71	35	6	2.70	B1009/64
5/32	3.97	76	38	6	3.00	B1005/32
	4.00	76	38	6	3.00	B1004.0
11/64	4.37	81	41	6	3.40	B10011/64
	4.50	81	41	6	3.40	B1004.5
3/16	4.76	87	44	6	3.80	B1003/16
	5.00	87	44	6	3.80	B1005.0
13/64	5.16	87	44	6	3.80	B10013/64
	5.50	93	47	6	4.30	B1005.5
7/32	5.56	93	47	6	4.30	B1007/32
15/64	5.95	93	47	6	4.90	B10015/64
	6.00	93	47	6	4.90	B1006.0
1/4	6.35	100	50	6	4.90	B1001/4
	6.50	100	50	6	4.90	B1006.5
17/64	6.75	107	54	6	5.50	B10017/64
	7.00	107	54	6	5.50	B1007.0
9/32	7.14	107	54	6	6.20	B1009/32
	7.50	107	54	6	6.20	B1007.5
19/64	7.54	115	58	6	6.20	B10019/64
5/16	7.94	115	58	6	6.20	B1005/16
	8.00	115	58	6	6.20	B1008.0
21/64	8.33	115	58	6	7.00	B10021/64
	8.50	115	58	6	7.00	B1008.5
11/32	8.73	124	62	6	7.00	B10011/32
	9.00	124	62	6	7.00	B1009.0
23/64	9.13	124	62	6	8.00	B10023/64
	9.50	124	62	6	8.00	B1009.5
3/8	9.53	124	62	6	8.00	B1003/8
25/64	9.92	133	66	6	8.00	B10025/64
	10.00	133	66	6	8.00	B10010.0
13/32	10.32	133	66	6	8.00	B10013/32
	10.50	133	66	6	8.00	B10010.5
	11.00	142	71	6	9.00	B10011.0
7/16	11.11	142	71	6	9.00	B1007/16

d ₁ Ø Inch	d ₁ Ø mm	l ₁ mm	l ₂ mm	z	a mm	e-Code
	11.50	142	71	6	9.00	B10011.5
	12.00	152	76	6	9.00	B10012.0
	12.50	152	76	6	10.00	B10012.5
1/2	12.70	152	76	6	10.00	B1001/2
	13.00	152	76	6	10.00	B10013.0
17/32	13.49	163	81	8	11.00	B10017/32
	13.50	163	81	8	11.00	B10013.5
	14.00	163	81	8	11.00	B10014.0
9/16	14.29	163	81	8	11.00	B1009/16
	14.50	163	81	8	11.00	B10014.5
	15.00	163	81	8	12.00	B10015.0
19/32	15.08	163	81	8	12.00	B10019/32
5/8	15.88	175	87	8	12.00	B1005/8
	16.00	175	87	8	12.00	B10016.0
	17.00	175	87	8	13.00	B10017.0
11/16	17.46	188	93	8	14.50	B10011/16
	18.00	188	93	8	14.50	B10018.0
	19.00	188	93	8	14.50	B10019.0
3/4	19.05	188	93	8	14.50	B1003/4
	20.00	201	100	8	16.00	B10020.0
13/16	20.64	201	100	8	16.00	B10013/16
	21.00	201	100	8	16.00	B10021.0
	22.00	215	107	8	18.00	B10022.0
7/8	22.23	215	107	8	18.00	B1007/8
	23.00	215	107	8	18.00	B10023.0
	24.00	231	115	8	18.00	B10024.0
	25.00	231	115	8	20.00	B10025.0
1"	25.40	231	115	8	20.00	B1001
	26.00	231	115	8	20.00	B10026.0
	27.00	247	124	10	22.00	B10027.0
	28.00	247	124	10	22.00	B10028.0
	29.00	247	124	10	22.00	B10029.0
	30.00	247	124	10	24.00	B10030.0
	31.00	265	133	10	24.00	B10031.0
	32.00	265	133	10	24.00	B10032.0
	33.00	265	133	10	26.00	B10033.0
	34.00	284	142	10	26.00	B10034.0
	35.00	284	142	10	29.00	B10035.0
	36.00	284	142	10	29.00	B10036.0
	37.00	284	142	10	29.00	B10037.0
	38.00	305	152	10	29.00	B10038.0
	39.00	305	152	10	32.00	B10039.0
	40.00	305	152	10	32.00	B10040.0
	45.00	326	163	12	35.00	B10045.0
	50.00	347	174	12	39.00	B10050.0

B341



- Adjustable Hand Reamer
- Handreibahle, verstellbar
- Handruimer - nastelbaar
- Alesoir main réglable
- Escariador de mano ajustable
- Mandril Manual Ajustável



B341

d2=d1 with tolerance e9, adjustment Range 1/100 of Diameter / d2=d1 mit Toleranz e9, einstellbereich 1/100 Durchmesser / d2=d1 met tolerantie e9, instelbereik 1/100 diameter / d2=d1 en tolérance e9, gamme complémentaire au 1/100 / d2=d1 con tolerancia e9, gama de ajuste 1/100 del Diámetro / d2=d1 tolerância e9



■	1.1	1.2	1.3	1.4	2.1	3.1	4.1	6.2									
●	1.5	1.6	3.2	3.3	3.4	4.2	4.3	5.1	5.2	5.3	6.1	6.3	6.4	7.1	7.2	8.2	

d ₁ Ø mm	l ₁ mm	l ₂ mm	z	a mm	e-Code
6.0	93	33	6	4.9	B3416.0
7.0	107	38	9	5.5	B3417.0
8.0	115	42	9	6.2	B3418.0
10.0	133	50	9	8.0	B34110.0
11.0	142	51	9	9.0	B34111.0
12.0	152	56	9	9.0	B34112.0

d ₁ Ø mm	l ₁ mm	l ₂ mm	z	a mm	e-Code
14.0	163	61	9	11.0	B34114.0
16.0	175	67	9	12.0	B34116.0
18.0	188	68	9	14.5	B34118.0
20.0	201	75	9	16.0	B34120.0

- Hand Reamer Quickly Adjustable
- Verstellbare-Handreibahle
- Verstellbare handruimers
- Alésoirs à main extensibles
- Escariador de mano Extensibles
- Mandril Manual Expansível



B334



■	1.1	1.2	1.3	1.4	2.1	3.1	4.1	6.2									
●	1.5	1.6	3.2	3.3	3.4	4.2	4.3	5.1	5.2	5.3	6.1	6.3	6.4	7.1	7.2	8.2	

Nr.	d min-max mm	l ₁ mm	l ₂ mm	z	a mm	e-Code
000	6.4 - 7.2	110	32	4	3.0	B334000
00	7.2 - 8.0	110	32	4	3.4	B33400
0	8.0 - 9.0	115	34	5	3.8	B3340
1	9.0 - 10.0	115	34	5	4.3	B3341
2	10.0 - 11.0	115	34	5	4.9	B3342
3	11.0 - 12.0	125	35	5	4.9	B3343
4	12.0 - 13.5	135	41	5	6.2	B3344
5	13.5 - 15.5	146	50	5	7.0	B3345
6	15.5 - 18.0	166	60	5	8.0	B3346
7	18.0 - 21.0	178	65	5	9.0	B3347

Nr.	d min-max mm	l ₁ mm	l ₂ mm	z	a mm	e-Code
8	21.0 - 24.0	195	76	5	11.0	B3348
9	24.0 - 27.5	218	82	5	12.0	B3349
10	27.5 - 31.5	245	86	5	14.5	B33410
11	31.5 - 37.0	280	98	6	18.0	B33411
12	37.0 - 45.0	325	108	6	20.0	B33412
13	45.0 - 55.0	370	118	6	26.0	B33413
14	55.0 - 67.0	400	125	6	32.0	B33414
15	67.0 - 80.0	435	140	8	39.0	B33415
16	80.0 - 95.0	475	155	8	49.0	B33416

B335



- Hand Reamer Quickly Adjustable - Spare Parts (B334)
- Ersatzteile für B334
- Verstellbare handruimers - reserve onderdelen (B334)
- Accessoires pour alésoirs à main expansibles (B334)
- Accesorios para el porta-escariador tipo B334
- Acessórios de Substituição p/ B334



BLADES



NUT

B335



Nr.	e-Code
000	B335000BLADES
000	B335000NUT
00	B33500BLADES
00	B33500NUT
0	B3350BLADES
0	B3350NUT
1	B3351BLADES
1	B3351NUT
2	B3352BLADES
2	B3352NUT
3	B3353BLADES
3	B3353NUT
4	B3354BLADES
4	B3354NUT
5	B3355BLADES
5	B3355NUT
6	B3356BLADES
6	B3356NUT
7	B3357BLADES
7	B3357NUT

Nr.	e-Code
8	B3358BLADES
8	B3358NUT
9	B3359BLADES
9	B3359NUT
10	B33510BLADES
10	B33510NUT
11	B33511BLADES
11	B33511NUT
12	B33512BLADES
12	B33512NUT
13	B33513BLADES
13	B33513NUT
14	B33514BLADES
14	B33514NUT
15	B33515BLADES
15	B33515NUT
16	B33516BLADES
16	B33516NUT

- Hand Taper Reamer
- Handreibahle, konisch, spiralgenutet
- Conische handruimer
- Alésoir à main conique
- Escariador conico de mano
- Mandril Manual Cónico



B951



■	1.1	1.2	1.3	1.4	2.1	3.1	4.1	6.2									
●	1.5	1.6	3.2	3.3	3.4	4.2	4.3	5.1	5.2	5.3	6.1	6.3	6.4	7.1	7.2	8.2	

d_2 Ø mm	d_1 Ø mm	l_1 mm	l_2 mm	z	a mm	d_3 Ø _{h₁₁} mm	e-Code
10	3	100	70	5	6.2	8	B95110.0
15	5	140	100	7	10.0	13	B95115.0
25	10	195	150	9	16.0	21	B95125.0
35	15	250	200	11	24.0	30	B95135.0

d_2 Ø mm	d_1 Ø mm	l_1 mm	l_2 mm	z	a mm	d_3 Ø _{h₁₁} mm	e-Code
45	20	275	220	11	32.0	40	B95145.0

DORMER

-
- The diagram shows a horizontal tapered rod. The left end has a diameter d_1 and the right end has a diameter d_2 . A central section of length l_2 is marked with a vertical line. The total length of the rod is l_1 . A small section of length a is indicated at the right end.

HSS	ST	BS 328			A	 1:48
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■	1.1	1.2	1.3	1.4	2.1	3.1	4.1	6.2												
●	1.5	1.6	2.2	2.3	3.2	3.3	3.4	4.2	4.3	5.1	5.2	5.3	6.1	6.3	6.4	7.1	7.2	7.3	7.4	8.2



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B903

- | | | |
|--------------------------|---|-------------------------------------|
| • Hand Taper Pin Reamer | • Handreibahle, konisch | • Pengat handruimers |
| • Alésoir à main conique | • Escariador de mano para pasadores cónicos | • Mandril Manual Cónico p/ Cavilhas |



B903



nom Ø	d ₁ Ø mm	d ₂ Ø mm	l ₁ mm	l ₂ mm	z	□ a mm	d ₃ Ø _{h₁₁} mm	e-Code
1.5	1.40	2.14	57	37	4	1.80	2.14	B9031.5 ¹⁾
2.0	1.90	2.86	68	48	4	2.24	2.86	B9032.0 ¹⁾
2.5	2.40	3.36	68	48	4	2.80	3.36	B9032.5 ¹⁾
3.0	2.90	4.06	80	58	4	3.15	4.00	B9033.0 ¹⁾
4.0	3.90	5.26	93	68	4	4.00	5.00	B9034.0 ¹⁾
5.0	4.90	6.36	100	73	4	5.00	6.30	B9035.0 ¹⁾
6.0	5.90	8.00	135	105	6	6.30	7.90	B9036.0 ²⁾
8.0	7.90	10.80	180	145	6	8.00	10.50	B9038.0 ²⁾
10.0	9.90	13.40	215	175	6	10.00	13.30	B90310.0 ²⁾
12.0	11.80	16.00	255	210	8	11.20	16.00	B90312.0 ²⁾
13.0	12.86	16.74	255	210	8	12.50	16.74	B90313.0 ²⁾
14.0	13.86	17.74	255	210	8	12.50	17.74	B90314.0 ²⁾
16.0	15.80	20.40	280	230	8	14.00	20.40	B90316.0 ²⁾
20.0	19.80	24.80	310	250	8	18.00	24.80	B90320.0 ²⁾

¹⁾ Limit of tolerance +0.0750 / Toleranz +0.0750 / Tolerantie +0.0750 / Tolérance +0.0750 / Límite de tolerancia +0.0750 / Limite de tolerância +0.0750

2) Limite de tolerancia +0.1250 / Toleranz +0.1250 / Tolerantie +0.1250 / Tolérance +0.1250 / Límite de tolerancia +0.1250 / Limite de tolerância +0.1250

DORMER

-
- The diagram shows a horizontal shaft with a tapered section. The total length is labeled l_1 . The tapered section has a length l_2 . The diameters at the left, tapered, and right ends are labeled d_1 , d_2 , and d_3 respectively. A distance a is marked from the right end to the start of the tapered section.

HSS		DIN 9			B	 1:50
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- Machine Reamer
- Maschinenreibahle
- Machineruimer
- Alésoir machine
- Escariador de máquina
- Mandril p/ Cavilhas Cónicas



B500



- 3.1 4.1
- 3.2 3.3 3.4 6.2 6.3 6.4 8.2

d_1 Ø mm	l_1 mm	l_2 mm	l_3 mm	z	d_2 Ø h_9 mm	e-Code
2.0	49	11	24	4	2.0	B5002.0
2.5	57	14	28	4	2.5	B5002.5
3.0	61	15	32	6	3.0	B5003.0
3.5	70	18	40	6	3.5	B5003.5
4.0	75	19	43	6	4.0	B5004.0
4.5	80	21	47	6	4.5	B5004.5
5.0	86	23	52	6	5.0	B5005.0
6.0	93	26	57	6	5.6	B5006.0
7.0	109	31	69	6	7.1	B5007.0
8.0	117	33	75	6	8.0	B5008.0
9.0	125	36	81	6	9.0	B5009.0
10.0	133	38	87	6	10.0	B50010.0

d_1 Ø mm	l_1 mm	l_2 mm	l_3 mm	z	d_2 Ø h_9 mm	e-Code
11.0	142	41	96	6	10.0	B50011.0
12.0	151	44	105	6	10.0	B50012.0
13.0	151	44	105	6	10.0	B50013.0
14.0	160	47	110	8	12.5	B50014.0
15.0	162	50	112	8	12.5	B50015.0
16.0	170	52	120	8	12.5	B50016.0
17.0	175	54	123	8	14.0	B50017.0
18.0	182	56	130	8	14.0	B50018.0
19.0	189	58	131	8	16.0	B50019.0
20.0	195	60	137	8	16.0	B50020.0

B180



- NC - Reamer for High Precision Chucks
- Alésoir de précision - NC
- NC-Maschinen-Reibahle
- NC- Escariador de precisión
- NC- precisieurer met eenheidschacht
- Mandril de Precisão p/ CNC



B180



- 1.1 1.2 1.3 1.4 2.1 4.2 5.1
- 1.5 1.6 2.2 2.3 2.4 3.1 3.2 3.3 3.4 4.1 4.3 5.2 5.3 6.1 6.2 6.3 6.4

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Ø _{h6} mm	e-Code
1.5	40	8	18	3	2	B1801.5
1.6	43	9	20	3	2	B1801.6
1.7	43	9	20	3	2	B1801.7
1.8	46	10	22	4	2	B1801.8
1.9	46	10	22	4	2	B1801.9
2.0	49	11	24	4	2	B1802.0
2.1	49	11	24	4	2	B1802.1
2.2	53	12	26	4	3	B1802.2
2.3	53	12	26	4	3	B1802.3
2.4	57	14	28	4	3	B1802.4
2.5	57	14	28	4	3	B1802.5
2.6	57	14	28	4	3	B1802.6
2.7	61	15	32	6	3	B1802.7
2.8	61	15	32	6	3	B1802.8
2.9	61	15	32	6	3	B1802.9
3.0	61	15	32	6	3	B1803.0
3.1	65	16	35	6	4	B1803.1
3.2	65	16	35	6	4	B1803.2
3.3	65	16	35	6	4	B1803.3
3.4	70	18	40	6	4	B1803.4
3.5	70	18	40	6	4	B1803.5
3.6	70	18	40	6	4	B1803.6
3.7	70	18	40	6	4	B1803.7
3.8	75	19	43	6	4	B1803.8
3.9	75	19	43	6	4	B1803.9
4.0	75	19	43	6	4	B1804.0
4.1	75	19	43	6	4	B1804.1
4.2	75	19	43	6	4	B1804.2
4.3	80	21	47	6	5	B1804.3
4.4	80	21	47	6	5	B1804.4
4.5	80	21	47	6	5	B1804.5
4.6	80	21	47	6	5	B1804.6
4.7	80	21	47	6	5	B1804.7
4.8	86	23	52	6	5	B1804.8
4.9	86	23	52	6	5	B1804.9
5.0	86	23	52	6	5	B1805.0
5.1	86	23	52	6	5	B1805.1
5.2	86	23	52	6	5	B1805.2
5.3	86	23	52	6	5	B1805.3
5.4	93	26	57	6	6	B1805.4
5.5	93	26	57	6	6	B1805.5
5.6	93	26	57	6	6	B1805.6
5.7	93	26	57	6	6	B1805.7
5.8	93	26	57	6	6	B1805.8
5.9	93	26	57	6	6	B1805.9
6.0	93	26	57	6	6	B1806.0
6.1	101	28	63	6	6	B1806.1
6.2	101	28	63	6	6	B1806.2

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Ø _{h6} mm	e-Code
6.3	101	28	63	6	6	B1806.3
6.4	101	28	63	6	6	B1806.4
6.5	101	28	63	6	6	B1806.5
6.6	101	28	63	6	6	B1806.6
6.7	101	28	63	6	6	B1806.7
6.8	109	31	69	6	8	B1806.8
6.9	109	31	69	6	8	B1806.9
7.0	109	31	69	6	8	B1807.0
7.1	109	31	69	6	8	B1807.1
7.2	109	31	69	6	8	B1807.2
7.3	109	31	69	6	8	B1807.3
7.4	109	31	69	6	8	B1807.4
7.5	109	31	69	6	8	B1807.5
7.6	117	33	75	6	8	B1807.6
7.7	117	33	75	6	8	B1807.7
7.8	117	33	75	6	8	B1807.8
7.9	117	33	75	6	8	B1807.9
8.0	117	33	75	6	8	B1808.0
8.1	117	33	75	6	8	B1808.1
8.2	117	33	75	6	8	B1808.2
8.3	117	33	75	6	8	B1808.3
8.4	117	33	75	6	8	B1808.4
8.5	117	33	75	6	8	B1808.5
8.6	125	36	81	6	10	B1808.6
8.7	125	36	81	6	10	B1808.7
8.8	125	36	81	6	10	B1808.8
8.9	125	36	81	6	10	B1808.9
9.0	125	36	81	6	10	B1809.0
9.1	125	36	81	6	10	B1809.1
9.2	125	36	81	6	10	B1809.2
9.3	125	36	81	6	10	B1809.3
9.4	125	36	81	6	10	B1809.4
9.5	125	36	81	6	10	B1809.5
9.6	133	38	87	6	10	B1809.6
9.7	133	38	87	6	10	B1809.7
9.8	133	38	87	6	10	B1809.8
9.9	133	38	87	6	10	B1809.9
10.0	133	38	87	6	10	B18010.0
11.0	142	41	96	6	10	B18011.0
12.0	151	44	105	6	10	B18012.0
13.0	151	44	105	6	10	B18013.0
14.0	160	47	110	8	14	B18014.0
15.0	162	50	112	8	14	B18015.0
16.0	170	52	120	8	14	B18016.0
17.0	175	54	123	8	14	B18017.0
18.0	182	56	130	8	14	B18018.0
19.0	189	58	131	8	16	B18019.0
20.0	195	60	137	8	16	B18020.0

- NC - Reamer for High Precision Chucks, set (B180)
- Alésoir de précision - NC
- NC-Maschinen-Reibahle
- NC- Escariador de precisión
- NC- precisiezuimer met eenheidschacht
- Mandril de Precisão p/ CNC



B191

A=Types in Set, B=No. in Set, C=Diameters in Set / A = Typen in Satz, B=Stückzahl, C=Durchmesser im Satz / A = Typen in set, B=No. ruimers in set, C=Diameters in set / A = Types de coffrets, B=Nombre de forets dans le coffret, C=Diamètres dans le coffret / A = Tipos en el juego, B=No. Brocas en el Juego, C=Diámetros en el Juego / A = Tipos no Jogo, B=No. brocas/jogo, C=Diâmetros por Jogo



Nr.	A	B	C													e-Code
10S	B180 type inside	10 pcs	1.5mm 2.0mm 3.0mm 4.0mm 5.0mm 6.0mm 7.0mm 8.0mm 10.0mm 12.0mm													B19110S

- NC - Centesimal Reamer for High Precision Chucks
- NC - 1/100 Reibahle für Hochgenauigkeitsfutter
- NC - 1/100 ruimers met eenheidschacht
- NC - Alésoir au centième pour mandrins haute précision
- NC - Escariador Centesimal para portatas de alta precisión
- NC - Mandril Centesimal p/ buchas de alta precisão



B181



Ø.95-5.5
0,+0.004
Ø5.51-12
0,+0.005

- 1.1 1.2 1.3 1.4 2.1 4.2 5.1
● 1.5 1.6 2.2 2.3 3.1 3.2 3.3 3.4 4.1 4.3 5.2 5.3 6.1 6.2 6.3 6.4

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Ø _{h₆} mm	e-Code
1.00	34	5.5	15	3	1	B1811.00
1.01	34	5.5	15	3	1	B1811.01
1.02	34	5.5	15	3	1	B1811.02
1.50	40	8.0	18	3	2	B1811.50
1.51	43	9.0	20	3	2	B1811.51
1.52	43	9.0	20	3	2	B1811.52
1.97	49	11.0	24	4	2	B1811.97
1.98	49	11.0	24	4	2	B1811.98
1.99	49	11.0	24	4	2	B1811.99
2.00	49	11.0	24	4	2	B1812.00
2.01	49	11.0	24	4	2	B1812.01
2.02	49	11.0	24	4	2	B1812.02
2.48	57	14.0	28	4	3	B1812.48
2.49	57	14.0	28	4	3	B1812.49
2.50	57	14.0	28	4	3	B1812.50
2.51	57	14.0	28	4	3	B1812.51
2.52	57	14.0	28	4	3	B1812.52
2.97	61	15.0	32	6	3	B1812.97
2.98	61	15.0	32	6	3	B1812.98
2.99	61	15.0	32	6	3	B1812.99
3.00	61	15.0	32	6	3	B1813.00
3.01	65	16.0	35	6	4	B1813.01
3.02	65	16.0	35	6	4	B1813.02
3.97	75	19.0	43	6	4	B1813.97
3.98	75	19.0	43	6	4	B1813.98
3.99	75	19.0	43	6	4	B1813.99
4.00	75	19.0	43	6	4	B1814.00
4.01	75	19.0	43	6	4	B1814.01
4.02	75	19.0	43	6	4	B1814.02
4.97	86	23.0	52	6	5	B1814.97
4.98	86	23.0	52	6	5	B1814.98
4.99	86	23.0	52	6	5	B1814.99
5.00	86	23.0	52	6	5	B1815.00
5.01	86	23.0	52	6	5	B1815.01
5.02	86	23.0	52	6	5	B1815.02
5.97	93	26.0	57	6	6	B1815.97
5.98	93	26.0	57	6	6	B1815.98
5.99	93	26.0	57	6	6	B1815.99
6.00	93	26.0	57	6	6	B1816.00
6.01	101	28.0	63	6	6	B1816.01
6.02	101	28.0	63	6	6	B1816.02
7.97	117	33.0	75	6	8	B1817.97
7.98	117	33.0	75	6	8	B1817.98
7.99	117	33.0	75	6	8	B1817.99
8.00	117	33.0	75	6	8	B1818.00
8.01	117	33.0	75	6	8	B1818.01
8.02	117	33.0	75	6	8	B1818.02
9.00	125	36.0	81	6	10	B1819.00
9.01	125	36.0	81	6	10	B1819.01
9.02	125	36.0	81	6	10	B1819.02
9.97	133	38.0	87	6	10	B1819.97
9.98	133	38.0	87	6	10	B1819.98
9.99	133	38.0	87	6	10	B1819.99
10.00	133	38.0	87	6	10	B18110.00
10.01	133	38.0	87	6	10	B18110.01
10.02	133	38.0	87	6	10	B18110.02
11.97	151	44.0	105	6	10	B18111.97
11.98	151	44.0	105	6	10	B18111.98
11.99	151	44.0	105	6	10	B18111.99
12.00	151	44.0	105	6	10	B18112.00

- Machine Reamer
- Maschinenreibahle
- Machineruimer
- Alésoir machine
- Escariador de máquina
- Mandril p/ Cavilhas Cónicas



B156



- 1.1 1.2 1.3 1.4 2.1 4.2 5.1
- 1.5 1.6 2.2 2.3 3.1 3.2 3.3 3.4 4.1 4.3 5.2 5.3 6.1 6.2 6.3 6.4

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₉ mm	e-Code
1.5	40	8	18	3	1.5	B1561.5
1.6	43	9	20	3	1.6	B1561.6
1.8	46	10	22	4	1.8	B1561.8
2.0	49	11	24	4	2.0	B1562.0
2.2	53	12	26	4	2.2	B1562.2
2.5	57	14	28	4	2.5	B1562.5
2.8	61	15	32	6	2.8	B1562.8
3.0	61	15	32	6	3.0	B1563.0
3.2	65	16	35	6	3.2	B1563.2
3.5	70	18	40	6	3.5	B1563.5
4.0	75	19	43	6	4.0	B1564.0
4.5	80	21	47	6	4.5	B1564.5
5.0	86	23	52	6	5.0	B1565.0
5.5	93	26	57	6	5.6	B1565.5
6.0	93	26	57	6	5.6	B1566.0
6.5	101	28	63	6	6.3	B1566.5

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₉ mm	e-Code
7.0	109	31	69	6	7.1	B1567.0
8.0	117	33	75	6	8.0	B1568.0
9.0	125	36	81	6	9.0	B1569.0
10.0	133	38	87	6	10.0	B15610.0
11.0	142	41	96	6	10.0	B15611.0
12.0	151	44	105	6	10.0	B15612.0
13.0	151	44	105	6	10.0	B15613.0
14.0	160	47	110	8	12.5	B15614.0
15.0	162	50	112	8	12.5	B15615.0
16.0	170	52	120	8	12.5	B15616.0
17.0	175	54	123	8	14.0	B15617.0
18.0	182	56	130	8	14.0	B15618.0
19.0	189	58	131	8	16.0	B15619.0
20.0	195	60	137	8	16.0	B15620.0

- Machine Centesimal Reamer
- 1/100 Maschinen-Reibahle
- 1/100 Machineruimers
- Alésoir Machine au centième
- Escariador de máquina centesimal
- NC - Mandril de Máquina Centesimal



B170



- 1.1 1.2 1.3 1.4 2.1 4.2 5.1
- 1.5 1.6 2.2 2.3 3.1 3.2 3.3 3.4 4.1 4.3 5.2 5.3 6.1 6.2 6.3 6.4

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₉ mm	e-Code
0.98	34	5.5	15	3	1.0	B170.98
0.99	34	5.5	15	3	1.0	B170.99
1.00	34	5.5	15	3	1.0	B1701.0
1.01	34	5.5	15	3	1.0	B1701.01
1.02	34	5.5	15	3	1.0	B1701.02
1.03	34	5.5	15	3	1.0	B1701.03
1.04	34	5.5	15	3	1.0	B1701.04
1.05	34	5.5	15	3	1.0	B1701.05
1.49	40	8.0	18	3	1.5	B1701.49
1.50	40	8.0	18	3	1.5	B1701.5
1.51	43	9.0	20	3	1.6	B1701.51
1.52	43	9.0	20	3	1.6	B1701.52
1.98	49	11.0	24	4	2.0	B1701.98
1.99	49	11.0	24	4	2.0	B1701.99
2.00	49	11.0	24	4	2.0	B1702.0
2.01	49	11.0	24	4	2.0	B1702.01
2.02	49	11.0	24	4	2.0	B1702.02
2.03	49	11.0	24	4	2.0	B1702.03
2.04	49	11.0	24	4	2.0	B1702.04
2.05	49	11.0	24	4	2.0	B1702.05
2.49	57	14.0	28	4	2.5	B1702.49
2.50	57	14.0	28	4	2.5	B1702.5
2.51	57	14.0	28	4	2.5	B1702.51
2.52	57	14.0	28	4	2.5	B1702.52
2.98	61	15.0	32	6	3.0	B1702.98
2.99	61	15.0	32	6	3.0	B1702.99
3.00	61	15.0	32	6	3.0	B1703.0
3.01	65	16.0	35	6	3.2	B1703.01
3.02	65	16.0	35	6	3.2	B1703.02
3.03	65	16.0	35	6	3.2	B1703.03
3.04	65	16.0	35	6	3.2	B1703.04
3.05	65	16.0	35	6	3.2	B1703.05
3.49	70	18.0	40	6	3.5	B1703.49
3.50	70	18.0	40	6	3.5	B1703.5
3.51	70	18.0	40	6	3.5	B1703.51
3.52	70	18.0	40	6	3.5	B1703.52
3.98	75	19.0	43	6	4.0	B1703.98
3.99	75	19.0	43	6	4.0	B1703.99
4.00	75	19.0	43	6	4.0	B1704.0
4.01	75	19.0	43	6	4.0	B1704.01
4.02	75	19.0	43	6	4.0	B1704.02
4.03	75	19.0	43	6	4.0	B1704.03
4.04	75	19.0	43	6	4.0	B1704.04
4.05	75	19.0	43	6	4.0	B1704.05

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₉ mm	e-Code
4.49	80	21.0	47	6	4.5	B1704.49
4.50	80	21.0	47	6	4.5	B1704.5
4.51	80	21.0	47	6	4.5	B1704.51
4.52	80	21.0	47	6	4.5	B1704.52
4.98	86	23.0	52	6	5.0	B1704.98
4.99	86	23.0	52	6	5.0	B1704.99
5.00	86	23.0	52	6	5.0	B1705.0
5.01	86	23.0	52	6	5.0	B1705.01
5.02	86	23.0	52	6	5.0	B1705.02
5.03	86	23.0	52	6	5.0	B1705.03
5.04	86	23.0	52	6	5.0	B1705.04
5.05	86	23.0	52	6	5.0	B1705.05
5.49	93	26.0	57	6	5.6	B1705.49
5.50	93	26.0	57	6	5.6	B1705.5
5.51	93	26.0	57	6	5.6	B1705.51
5.52	93	26.0	57	6	5.6	B1705.52
5.98	93	26.0	57	6	5.6	B1705.98
5.99	93	26.0	57	6	5.6	B1705.99
6.00	93	26.0	57	6	5.6	B1706.0
6.01	101	28.0	63	6	6.3	B1706.01
6.02	101	28.0	63	6	6.3	B1706.02
6.03	101	28.0	63	6	6.3	B1706.03
6.04	101	28.0	63	6	6.3	B1706.04
6.05	101	28.0	63	6	6.3	B1706.05
6.49	101	28.0	63	6	6.3	B1706.49
6.50	101	28.0	63	6	6.3	B1706.5
6.51	101	28.0	63	6	6.3	B1706.51
6.52	101	28.0	63	6	6.3	B1706.52
6.98	109	31.0	69	6	7.1	B1706.98
6.99	109	31.0	69	6	7.1	B1706.99
7.00	109	31.0	69	6	7.1	B1707.0
7.01	109	31.0	69	6	7.1	B1707.01
7.02	109	31.0	69	6	7.1	B1707.02
7.03	109	31.0	69	6	7.1	B1707.03
7.04	109	31.0	69	6	7.1	B1707.04
7.05	109	31.0	69	6	7.1	B1707.05
7.49	109	31.0	69	6	7.1	B1707.49
7.50	109	31.0	69	6	7.1	B1707.5
7.51	117	33.0	75	6	8.0	B1707.51
7.52	117	33.0	75	6	8.0	B1707.52
7.98	117	33.0	75	6	8.0	B1707.98
7.99	117	33.0	75	6	8.0	B1707.99
8.00	117	33.0	75	6	8.0	B1708.0
8.01	117	33.0	75	6	8.0	B1708.01

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₉	e-Code
8.02	117	33.0	75	6	8.0	B1708.02
8.03	117	33.0	75	6	8.0	B1708.03
8.04	117	33.0	75	6	8.0	B1708.04
8.05	117	33.0	75	6	8.0	B1708.05
8.49	117	33.0	75	6	8.0	B1708.49
8.50	117	33.0	75	6	8.0	B1708.5
8.51	125	36.0	81	6	9.0	B1708.51
8.52	125	36.0	81	6	9.0	B1708.52
8.98	125	36.0	81	6	9.0	B1708.98
8.99	125	36.0	81	6	9.0	B1708.99
9.00	125	36.0	81	6	9.0	B1709.0
9.01	125	36.0	81	6	9.0	B1709.01
9.02	125	36.0	81	6	9.0	B1709.02
9.03	125	36.0	81	6	9.0	B1709.03
9.04	125	36.0	81	6	9.0	B1709.04
9.05	125	36.0	81	6	9.0	B1709.05
9.49	125	36.0	81	6	9.0	B1709.49
9.50	125	36.0	81	6	9.0	B1709.5
9.51	133	38.0	87	6	10.0	B1709.51
9.52	133	38.0	87	6	10.0	B1709.52
9.98	133	38.0	87	6	10.0	B1709.98
9.99	133	38.0	87	6	10.0	B1709.99
10.00	133	38.0	87	6	10.0	B17010.0
10.01	133	38.0	87	6	10.0	B17010.01

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Øh ₉	e-Code
10.02	133	38.0	87	6	10.0	B17010.02
10.03	133	38.0	87	6	10.0	B17010.03
10.04	133	38.0	87	6	10.0	B17010.04
10.05	133	38.0	87	6	10.0	B17010.05
10.49	133	38.0	87	6	10.0	B17010.49
10.50	133	38.0	87	6	10.0	B17010.5
10.51	133	38.0	87	6	10.0	B17010.51
10.52	133	38.0	87	6	10.0	B17010.52
10.98	142	41.0	96	6	10.0	B17010.98
10.99	142	41.0	96	6	10.0	B17010.99
11.00	142	41.0	96	6	10.0	B17011.0
11.01	142	41.0	96	6	10.0	B17011.01
11.02	142	41.0	96	6	10.0	B17011.02
11.03	142	41.0	96	6	10.0	B17011.03
11.04	142	41.0	96	6	10.0	B17011.04
11.05	142	41.0	96	6	10.0	B17011.05
11.49	142	41.0	96	6	10.0	B17011.49
11.50	142	41.0	96	6	10.0	B17011.5
11.51	142	41.0	96	6	10.0	B17011.51
11.52	142	41.0	96	6	10.0	B17011.52
11.98	151	44.0	105	6	10.0	B17011.98
11.99	151	44.0	105	6	10.0	B17011.99
12.00	151	44.0	105	6	10.0	B17012.0

B901

DORMER

- Machine Reamer
- Maschinenreibahle
- Machineruimer
- Alésoir machine
- Escariador de máquina
- Mandril p/ Cavilhas Cónicas



B901

d2=d1-0.025



- 1.1 1.2 1.3 1.4 2.1 3.1 4.1 6.2
- 1.5 1.6 3.2 3.3 3.4 4.2 4.3 5.1 5.2 5.3 6.1 6.3 6.4 7.1 7.2 8.2

d ₁ Ø	d ₁ Ø	l ₁	l ₂	z	e-Code
Inch	mm	mm	mm		
	1.50	44	21	4	B9011.5
1/16	1.59	44	21	4	B9011/16
	2.00	50	25	4	B9012.0
3/32	2.38	58	29	4	B9013/32
	2.50	58	29	4	B9012.5
	3.00	62	31	4	B9013.0
1/8	3.18	66	33	4	B9011/8
	3.50	71	35	4	B9013.5
9/64	3.57	71	35	4	B9019/64
5/32	3.97	76	38	6	B9015/32
	4.00	76	38	6	B9014.0
11/64	4.37	81	41	6	B90111/64
	4.50	81	41	6	B9014.5
3/16	4.76	87	44	6	B9013/16
	5.00	87	44	6	B9015.0
13/64	5.16	87	44	6	B90113/64
	5.50	93	47	6	B9015.5
7/32	5.56	93	47	6	B9017/32

d ₁ Ø	d ₁ Ø	l ₁	l ₂	z	e-Code
Inch	mm	mm	mm		
15/64	5.95	93	47	6	B90115/64
	6.00	93	47	6	B9016.0
1/4	6.35	100	50	6	B9011/4
	7.00	107	54	6	B9017.0
9/32	7.14	107	54	6	B9019/32
5/16	7.94	115	58	6	B9015/16
	8.00	115	58	6	B9018.0
11/32	8.73	124	62	6	B90111/32
	9.00	124	62	6	B9019.0
3/8	9.53	133	66	6	B9013/8
	10.00	133	66	6	B90110.0
13/32	10.32	133	66	6	B90113/32
	11.00	142	71	6	B90111.0
7/16	11.11	142	71	6	B9017/16
	12.00	152	76	6	B90112.0
1/2	12.70	152	76	6	B9011/2

- Machine Reamer Left Hand Helix 45°
- Maschinenreibahle mit 45° linksdrall
- Machine-schilruimer met 45° linkse spiraal
- Alésoir Machine Hélice 45° à gauche
- Escariador de máquina Hélice a izquierdas 45°
- Mandril de Máquina Hélice à Esquerda - 45°



B157



■	2.1	2.2	2.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	7.1	7.2	7.3	7.4	8.1
●	1.1	1.2	1.3	1.4	1.5	1.6	6.2	9.1							

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₉ mm	e-Code
2.0	49	11	24	3	2.0	B1572.0
3.0	61	15	32	3	3.0	B1573.0
4.0	75	19	43	3	4.0	B1574.0
5.0	86	23	52	3	5.0	B1575.0
6.0	93	26	57	3	5.6	B1576.0
7.0	109	31	69	3	7.1	B1577.0
8.0	117	33	75	3	8.0	B1578.0
9.0	125	36	81	3	9.0	B1579.0
10.0	133	38	87	3	10.0	B15710.0
11.0	142	41	96	3	10.0	B15711.0

d ₁ Ø mm	l ₁ mm	l ₂ mm	l ₃ mm	z	d ₂ Øh ₉ mm	e-Code
12.0	151	44	105	3	10.0	B15712.0
13.0	151	44	105	3	10.0	B15713.0
14.0	160	47	110	3	12.5	B15714.0
15.0	162	50	112	3	12.5	B15715.0
16.0	170	52	120	3	12.5	B15716.0
17.0	175	54	123	3	14.0	B15717.0
18.0	182	56	130	3	14.0	B15718.0
19.0	189	58	131	3	16.0	B15719.0
20.0	195	60	137	3	16.0	B15720.0

- Machine Reamer for Conical Pin Left Hand Helix 45°
- Alésoir Machine pour goupille conique Hélice à gauche à 45°
- Maschinen-Kegelreibahle mit 45° linksdrall
- Escariador de máquina para pasadores cónicos Hélice a izquierdas 45°
- Machine-pengatruimer met 45° linkse spiraal
- Mandril de Máquina p/ Cavilhas Cónicas Hélice à Esquerda - 45°



B953

Tang to DIN 1809 / mit Mitnehmer DIN 1809 / met lip DIN 1809 / Tenon selon la DIN 1809 / Lengüeta según DIN 1809 / Lingueta DIN 1809



■	2.1	2.2	2.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	7.1	7.2	7.3	7.4	8.1
●	1.1	1.2	1.3	1.4	1.5	1.6	6.2	9.1							

nom Ø	d ₁ Ø mm	d ₂ Ø mm	l ₁ mm	l ₂ mm	z	d ₃ Ø _{h₉} mm	e-Code
1.0	0.8	1.46	60	33	2	1.4	B9531.0
1.5	1.4	2.14	70	37	2	2.1	B9531.5
2.0	1.9	2.86	86	48	3	3.15	B9532.0
2.5	2.4	3.36	86	48	3	3.15	B9532.5
3.0	2.9	4.06	100	58	3	4.0	B9533.0
4.0	3.9	5.26	112	68	3	5.0	B9534.0

nom Ø	d ₁ Ø mm	d ₂ Ø mm	l ₁ mm	l ₂ mm	z	d ₃ Ø _{h₉} mm	e-Code
5.0	4.9	6.36	122	73	3	6.3	B9535.0
6.0	5.9	8.00	160	105	3	8.0	B9536.0
6.5	6.4	8.78	188	119	3	8.5	B9536.5
8.0	7.9	10.80	207	145	3	10.0	B9538.0
10.0	9.9	13.40	245	175	3	12.5	B95310.0
12.0	11.8	16.00	290	210	3	16.0	B95312.0

- Machine Reamer
- Maschinenreibahle
- Machineruimer
- Alésoir machine
- Escariador de máquina
- Mandril p/ Cavilhas Cónicas



B161



- 1.1 1.2 1.3 1.4 2.1 4.1 5.1
- 1.5 1.6 2.2 2.3 3.1 3.2 3.3 3.4 4.2 4.3 5.2 5.3 6.1 6.2 6.3 6.4

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
3.0	113	15	47.5	6	1	B1613.0
4.0	124	19	58.5	6	1	B1614.0
5.0	133	23	67.5	6	1	B1615.0
6.0	138	26	72.5	6	1	B1616.0
7.0	150	31	84.5	6	1	B1617.0
8.0	156	33	90.5	6	1	B1618.0
9.0	162	36	96.5	6	1	B1619.0
10.0	168	38	102.5	6	1	B16110.0
11.0	175	41	109.5	6	1	B16111.0
12.0	182	44	116.5	6	1	B16112.0
13.0	182	44	116.5	6	1	B16113.0
14.0	189	47	123.5	8	1	B16114.0
15.0	204	50	124	8	2	B16115.0
16.0	210	52	130	8	2	B16116.0
17.0	214	54	134	8	2	B16117.0
18.0	219	56	139	8	2	B16118.0
19.0	223	58	143	8	2	B16119.0
20.0	228	60	148	8	2	B16120.0
21.0	232	62	152	8	2	B16121.0
22.0	237	64	157	8	2	B16122.0
23.0	241	66	161	8	2	B16123.0
24.0	268	68	169	8	3	B16124.0

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
25.0	268	68	169	8	3	B16125.0
26.0	273	70	174	8	3	B16126.0
27.0	277	71	178	10	3	B16127.0
28.0	277	71	178	10	3	B16128.0
29.0	281	73	182	10	3	B16129.0
30.0	281	73	182	10	3	B16130.0
31.0	285	75	186	10	3	B16131.0
32.0	317	77	193	10	4	B16132.0
33.0	317	77	193	10	4	B16133.0
34.0	321	78	197	10	4	B16134.0
35.0	321	78	197	10	4	B16135.0
36.0	325	79	201	10	4	B16136.0
38.0	329	81	205	10	4	B16138.0
40.0	329	81	205	10	4	B16140.0
42.0	333	82	209	12	4	B16142.0
44.0	336	83	212	12	4	B16144.0
45.0	336	83	212	12	4	B16145.0
46.0	340	84	216	12	4	B16146.0
47.0	340	84	216	12	4	B16147.0
48.0	344	86	220	12	4	B16148.0
50.0	344	86	220	12	4	B16150.0

B101

DORMER

- Machine Reamer
- Maschinenreihahle
- Machineruimer
- Alésoir machine conique pour trous de goupilles
- Escariador de máquina
- Mandril p/ Cavilhas Cónicas



B101



- 1.1 1.2 1.3 1.4 2.1 3.1 4.1 6.2
- 1.5 1.6 3.2 3.3 3.4 4.2 4.3 5.1 5.2 5.3 6.1 6.3 6.4 7.1 7.2 8.2

d ₁ Ø	d ₁ Ø	l ₁	l ₂	z	MK	e-Code
Inch	mm	mm	mm			
	3.00	112	33	4	1	B1013.0
1/8	3.18	112	33	4	1	B1011/8
	3.50	115	35	6	1	B1013.5
5/32	3.97	117	38	6	1	B1015/32
	4.00	117	38	6	1	B1014.0
	4.50	120	41	6	1	B1014.5
3/16	4.76	124	44	6	1	B1013/16
	5.00	124	44	6	1	B1015.0
	5.50	127	47	6	1	B1015.5
7/32	5.56	127	47	6	1	B1017/32
	6.00	127	47	6	1	B1016.0
1/4	6.35	130	50	6	1	B1011/4
	6.50	130	50	6	1	B1016.5
	7.00	134	54	6	1	B1017.0
9/32	7.14	134	54	6	1	B1019/32
	7.50	134	54	6	1	B1017.5
5/16	7.94	138	58	6	1	B1015/16
	8.00	138	58	6	1	B1018.0
	8.50	138	58	6	1	B1018.5
11/32	8.73	142	62	6	1	B10111/32
	9.00	142	62	6	1	B1019.0
	9.50	142	62	6	1	B1019.5
3/8	9.53	146	66	6	1	B1013/8
	10.00	146	66	6	1	B10110.0
13/32	10.32	146	66	6	1	B10113/32
	10.50	146	66	6	1	B10110.5
	11.00	151	71	6	1	B10111.0
7/16	11.11	151	71	6	1	B1017/16
	11.50	151	71	6	1	B10111.5
15/32	11.91	156	76	6	1	B10115/32
	12.00	156	76	6	1	B10112.0
	12.50	156	76	6	1	B10112.5
1/2	12.70	156	76	6	1	B1011/2
	13.00	156	76	6	1	B10113.0
17/32	13.49	161	81	6	1	B10117/32
	13.50	161	81	6	1	B10113.5
	14.00	161	81	8	1	B10114.0
9/16	14.29	181	81	8	2	B1019/16
	14.50	181	81	8	2	B10114.5
	15.00	181	81	8	2	B10115.0
19/32	15.08	187	87	8	2	B10119/32
	15.50	187	87	8	2	B10115.5
5/8	15.88	187	87	8	2	B1015/8
	16.00	187	87	8	2	B10116.0
	16.50	187	87	8	2	B10116.5
	17.00	187	87	8	2	B10117.0

d ₁ Ø	d ₁ Ø	l ₁	l ₂	z	MK	e-Code
Inch	mm	mm	mm			
11/16	17.46	193	93	8	2	B10111/16
	18.00	193	93	8	2	B10118.0
	19.00	193	93	8	2	B10119.0
3/4	19.05	200	100	8	2	B1013/4
	20.00	200	100	8	2	B10120.0
13/16	20.64	200	100	8	2	B10113/16
	21.00	200	100	8	2	B10121.0
	22.00	207	107	8	2	B10122.0
7/8	22.23	207	107	8	2	B1017/8
	23.00	207	107	8	2	B10123.0
15/16	23.81	242	115	8	3	B10115/16
	24.00	242	115	8	3	B10124.0
	25.00	242	115	10	3	B10125.0
1"	25.40	242	115	10	3	B1011
	26.00	242	115	10	3	B10126.0
1.1/16	26.99	251	124	10	3	B1011.1/16
	27.00	251	124	10	3	B10127.0
	28.00	251	124	10	3	B10128.0
1.1/8	28.58	251	124	10	3	B1011.1/8
	29.00	251	124	10	3	B10129.0
	30.00	251	124	10	3	B10130.0
1.3/16	30.16	260	133	10	3	B1011.3/16
	31.00	260	133	10	3	B10131.0
1.1/4	31.75	260	133	10	3	B1011.1/4
	32.00	293	133	10	4	B10132.0
	33.00	293	133	10	4	B10133.0
	34.00	302	142	10	4	B10134.0
1.3/8	34.93	302	142	10	4	B1011.3/8
	35.00	302	142	10	4	B10135.0
	36.00	302	142	10	4	B10136.0
	37.00	302	142	10	4	B10137.0
	38.00	312	152	10	4	B10138.0
1.1/2	38.10	312	152	10	4	B1011.1/2
	39.00	312	152	10	4	B10139.0
	40.00	312	152	10	4	B10140.0
	41.00	312	152	10	4	B10141.0
	42.00	312	152	10	4	B10142.0
	43.00	323	163	10	4	B10143.0
	44.00	323	163	10	4	B10144.0
1.3/4	44.45	323	163	10	4	B1011.3/4
	45.00	323	163	12	4	B10145.0
	46.00	323	163	12	4	B10146.0
	47.00	323	163	12	4	B10147.0
	48.00	334	174	12	4	B10148.0
	50.00	334	174	12	4	B10150.0
2"	50.80	334	174	12	4	B1012

- Machine Reamer Left Hand Helix 45°
- Maschinenreibahle mit 45° linksdrall
- Machine-schilruimer met 45° linkse spiraal
- Alésoir Machine Hélice 45° à gauche
- Escariador de máquina Hélice a izquierdas 45°
- Mandril de Máquina Hélice à Esquerda - 45°



B162



■	1.1	1.2	1.3	1.4	2.1	4.1	5.1	7.1	7.2	7.3	7.4	8.1
●	1.5	1.6	2.2	2.3	3.1	4.2	4.3	5.2	5.3	6.1	6.2	9.1

d_1 Ø	l_1	l_2	l_3	z	MK	e-Code
8.0	156	33	90.5	3	1	B1628.0
10.0	168	38	102.5	3	1	B16210.0
12.0	182	44	116.5	3	1	B16212.0
13.0	182	44	116.5	3	1	B16213.0
14.0	189	47	123.5	3	1	B16214.0
16.0	210	52	130	3	2	B16216.0
17.0	214	54	134	3	2	B16217.0
18.0	219	56	139	3	2	B16218.0

d_1 Ø	l_1	l_2	l_3	z	MK	e-Code
20.0	228	60	148	3	2	B16220.0
22.0	237	64	157	3	2	B16222.0
24.0	268	68	169	3	3	B16224.0
25.0	268	68	169	3	3	B16225.0
28.0	277	71	178	3	3	B16228.0
30.0	281	73	182	3	3	B16230.0
32.0	317	77	193	3	4	B16232.0

- Bridge Reamer
- Nietloch-Reibahlen mit Morsekegel,
- Klinkgatraumer
- Alésoirs de chaudronnerie queue cône morse
- Escariador de mango cónico
- Mandril de Caldeireiro Haste Cônica



B121

With 1:10 starting taper (l3) / für Kegelstifte 1:10 (l3) / Coniciteit 1:10 (l3) / Avec une conicité de départ de 1:10 (l3) / Conicidad 1:10 empezando en L3/ Conicidade 1:10 (l3)



■	1.1	1.2	1.3	1.4	3.1	4.1	
●	1.5	1.6	3.2	3.3	3.4	7.2	8.2

d ₁ Ø	l ₁	l ₃	l ₂	z	MK	e-Code
mm	mm	mm	mm			
10.0	171	30	95	4	1	B12110.0
11.0	176	33	100	4	1	B12111.0
12.0	199	39	105	4	2	B12112.0
13.0	199	39	105	4	2	B12113.0
14.0	209	42	115	4	2	B12114.0
15.0	219	45	125	4	2	B12115.0
16.0	229	48	135	4	2	B12116.0
17.0	251	51	135	4	3	B12117.0
18.0	261	58	145	4	3	B12118.0
19.0	261	58	145	4	3	B12119.0

d ₁ Ø	l ₁	l ₃	l ₂	z	MK	e-Code
mm	mm	mm	mm			
20.0	271	62	155	4	3	B12120.0
21.0	271	62	155	4	3	B12121.0
22.0	281	66	165	4	3	B12122.0
23.0	281	66	165	4	3	B12123.0
24.0	296	72	180	4	3	B12124.0
25.0	296	72	180	4	3	B12125.0
26.0	296	72	180	4	3	B12126.0
30.0	311	78	195	5	3	B12130.0

- Machine Reamer for Conical Pin Left Hand Helix 45°
- Alésoir Machine pour goupille conique Hélice à gauche à 45°
- Maschinen-Kegelreibahle mit 45° linksdrall
- Escariador de máquina para pasadores cónicos Hélice a izquierdas 45°
- Machine-pengatruimer met 45° linkse spiraal
- Mandril de Máquina p/ Cavilhas Cónicas Hélice à Esquerda - 45°



B954



■	2.1	2.2	2.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	7.1	7.2	7.3	7.4	8.1
●	1.1	1.2	1.3	1.4	1.5	1.6	6.2	9.1							

nom Ø	d ₁ Ø mm	d ₂ Ø mm	l ₁ mm	l ₂ mm	z	MK	e-Code
5.0	4.90	6.36	155	73	3	1	B9545.0
6.0	5.90	8.00	187	105	3	1	B9546.0
8.0	7.90	10.80	227	145	3	1	B9548.0
10.0	9.90	13.40	257	175	3	1	B95410.0
12.0	11.80	16.00	315	210	3	2	B95412.0
13.0	12.86	16.74	295	194	3	2	B95413.0

nom Ø	d ₁ Ø mm	d ₂ Ø mm	l ₁ mm	l ₂ mm	z	MK	e-Code
14.0	13.86	17.74	295	194	3	2	B95414.0
16.0	15.80	20.40	335	230	3	2	B95416.0
20.0	19.80	24.80	377	250	3	3	B95420.0
25.0	24.70	30.70	427	300	3	3	B95425.0
30.0	29.70	36.10	475	320	4	4	B95430.0

DORMER

-

d_1 Ø	l_1	l_2		d_2 Ø	e-Code
mm	mm	mm	z	mm	
42.0	56	40	10	19	B95542.0
44.0	63	45	12	22	B95544.0
45.0	63	45	12	22	B95545.0
48.0	63	45	12	22	B95548.0
50.0	63	45	12	22	B95550.0
52.0	71	50	12	27	B95552.0
55.0	71	50	12	27	B95555.0
58.0	71	50	12	27	B95558.0
60.0	71	50	12	27	B95560.0
65.0	80	56	14	32	B95565.0
70.0	80	56	14	32	B95570.0
75.0	90	63	14	40	B95575.0
80.0	90	63	14	40	B95580.0

- Shell Reamer Arbor (B955)
- MK-Halter für Aufsteck-Reibahle
- Houder voor opsteekruimer
- Porte-alésoirs creux
- Portaescariadores para escariadores huecos
- Haste p/ Cabeças de Mandrilar



B956



d_1 Ø	l_1	l_2	l_3	MK	e-Code
mm	mm	mm	mm		
13.0	250	45	151	3	B95613.0
16.0	261	50	162	3	B95616.0
19.0	298	56	174	4	B95619.0
22.0	312	63	188	4	B95622.0

d_1 Ø	l_1	l_2	l_3	MK	e-Code
mm	mm	mm	mm		
27.0	359	71	203	5	B95627.0
32.0	376	80	220	5	B95632.0
40.0	396	90	240	5	B95640.0

B957



- Shell Reamer Arbor - Spare Parts (B956)
- Ersatzteile für B956
- Onderdelen voor B956
- Accessoires pour porte-alésoirs creux machine (B956)
- Portaescariadores para escariadores huecos - Accesorios (B956)
- Suplentes p/ (B956)



B957

Nr.	d	e-Code
3	13.00	B957N3DRIVER
3		B957N3NUT
3		B957N3WASHER
4	16.00	B957N4DRIVER
4		B957N4NUT
4		B957N4WASHER
5	19.00	B957N5DRIVER
5		B957N5NUT
5		B957N5WASHER
6	22.00	B957N6DRIVER
6		B957N6NUT
6		B957N6WASHER

Nr.	d	e-Code
7	27.00	B957N7DRIVER
7		B957N7NUT
7		B957N7WASHER
8	32.00	B957N8DRIVER
8		B957N8NUT
8		B957N8WASHER
9	40.00	B957N9DRIVER
9		B957N9NUT
9		B957N9WASHER

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G135



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code	max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
6.3	1.6	45	5	3	G1356.3	16.0	4.0	63	10	3	G13516.0
8.0	2.0	50	6	3	G1358.0	20.0	5.0	67	10	3	G13520.0
10.0	2.5	50	6	3	G13510.0	25.0	6.3	71	10	3	G13525.0
12.5	3.2	56	8	3	G13512.5						



G335



■	1.1	1.2	1.3	3.1	3.2	3.3	3.4	7.1	7.2	7.3	7.4				
●	1.4	1.5	1.6	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	8.1	8.2

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code	max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
6.3	1.6	45	5	3	G3356.3	16.0	4.0	63	10	3	G33516.0
8.0	2.0	50	6	3	G3358.0	20.0	5.0	67	10	3	G33520.0
10.0	2.5	50	6	3	G33510.0	25.0	6.3	71	10	3	G33525.0
12.5	3.2	56	8	3	G33512.5						

G131



- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G131



- 1.3 1.4 1.5 1.6 3.4 4.2 4.3 5.2 5.3 6.4
- 2.3 8.3

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z e-Code	max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z e-Code
8.0	-	50	8	5 G1318.0	16.0	3.2	60	10	7 G13116.0
12.5	2.0	50	8	5 G13112.5	20.0	5.0	63	10	7 G13120.0

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G137



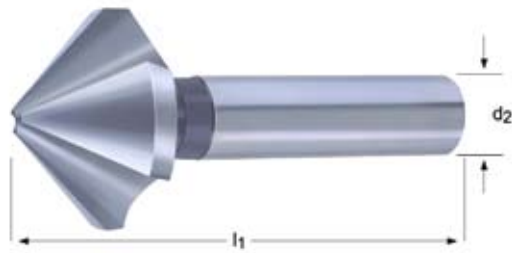
■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d	l_1 mm	MK	z	e-Code	max d mm	min d	l_1 mm	MK	z	e-Code
16.0	4.0	90	1	3	G13716.0	40.0	12.5	150	3	3	G13740.0
20.0	5.0	106	2	3	G13720.0	50.0	16.0	160	3	3	G13750.0
25.0	6.3	112	2	3	G13725.0	63.0	20.0	190	4	3	G13763.0
31.5	10.0	118	2	3	G13731.5	80.0	25.0	200	4	3	G13780.0

G154

DORMER

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G154



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
6.3	1.5	45	5	3	G1546.3
8.3	2.0	50	6	3	G1548.3
10.4	2.5	50	6	3	G15410.4
12.4	2.8	56	8	3	G15412.4

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
16.5	3.2	60	10	3	G15416.5
20.5	3.5	63	10	3	G15420.5
25.0	3.8	67	10	3	G15425.0

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G155



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

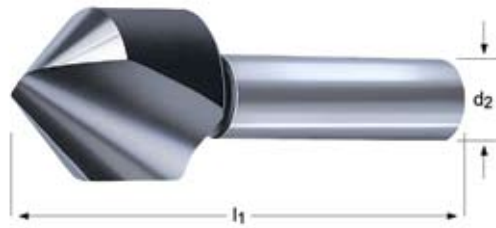
max d mm	min d	l_1 mm	MK	z	e-Code
16.5	3.2	85	1	3	G15516.5
20.5	3.5	100	2	3	G15520.5
25.0	3.8	106	2	3	G15525.0
31.0	4.2	112	2	3	G15531.0

max d mm	min d	l_1 mm	MK	z	e-Code
40.0	10.0	140	3	3	G15540.0
50.0	14.0	150	3	3	G15550.0
63.0	16.0	180	4	3	G15563.0
80.0	22.0	190	4	3	G15580.0

G129



- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G129



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	5.1	5.2	6.1	6.2	6.3	7.1	7.2
●	1.6	2.1	2.2	3.1	3.2	3.3	3.4	4.3	5.3	6.4	7.3	7.4	8.1	8.2

max d mm	l_1 mm	d_2 $\varnothing h_9$ mm	z	e-Code
6.00	45	6	1	G1296.0
8.00	50	8	1	G1298.0
10.00	49	8	1	G12910.0
12.50	49	8	1	G12912.5

max d mm	l_1 mm	d_2 $\varnothing h_9$ mm	z	e-Code
16.00	56	10	1	G12916.0
20.00	60	10	1	G12920.0
25.00	75	12	1	G12925.0
31.50	80	12	1	G12931.5



- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G149



■	1.1	1.2	1.3	1.4	4.1	4.2	5.1	5.2	6.1	6.2	6.3	7.1	7.2		
●	1.5	1.6	2.1	2.2	3.1	3.2	3.3	3.4	4.3	5.3	6.4	7.3	7.4	8.1	8.2

max d mm	min d mm	l ₁ mm	d ₂ Ø mm	d ₁ Ø mm	z	e-Code
5	2	45	6	10	1	G1495
10	5	48	8	14	1	G14910
15	10	65	10	21	1	G14915
20	15	84	12	28	1	G14920
25	20	102	15	35	1	G14925
30	25	115	15	44	1	G14930

max d mm	min d mm	l ₁ mm	d ₂ Ø mm	d ₁ Ø mm	z	e-Code
35	30	127	15	48	1	G14935
40	35	136	15	53	1	G14940
50	40	166	20	60	1	G14950



G349



■	1.1	1.2	1.3	1.4	1.5	3.1	3.2	3.3	3.4	7.1	7.2	7.3	7.4
●	1.6	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	8.1	8.2

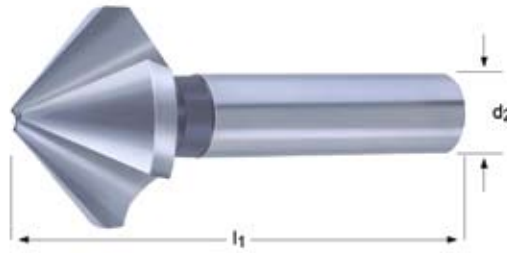
max d mm	min d mm	l ₁ mm	d ₂ Ø mm	d ₁ Ø mm	z	e-Code
5	2	45	6	10	1	G3495
10	5	48	8	14	1	G34910

max d mm	min d mm	l ₁ mm	d ₂ Ø mm	d ₁ Ø mm	z	e-Code
15	10	65	10	21	1	G34915
20	15	84	12	28	1	G34920

G142



- Countersink with extra radial relief
- Senker, radial hinterschliffen
- Verzinker, radiaal achtergeslepen
- Fraise à chanfreiner avec dépouille accentuée
- Escareador com alívio radial extra
- Escareador (extra radial relief)



G142



■	1.1	1.2	2.1	2.2	2.3	4.1	5.1	6.1	6.2	7.1	7.2	8.1	8.2
●	1.3	1.4	4.2	5.2	6.3	7.3	7.4						

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
4.8	1.3	40	4	3	G1424.8
5.0	1.5	40	4	3	G1425.0
6.0	1.5	45	4	3	G1426.0
6.3	1.5	45	5	3	G1426.3
7.0	1.8	50	6	3	G1427.0
7.3	1.8	50	6	3	G1427.3
8.0	2.0	50	6	3	G1428.0
8.3	2.0	50	6	3	G1428.3
10.0	2.5	50	6	3	G14210.0
10.4	2.5	50	6	3	G14210.4

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
11.5	2.8	56	8	3	G14211.5
12.4	2.8	56	8	3	G14212.4
15.0	3.2	60	10	3	G14215.0
16.5	3.2	60	10	3	G14216.5
19.0	3.5	63	10	3	G14219.0
20.5	3.5	63	10	3	G14220.5
23.0	3.8	67	10	3	G14223.0
25.0	3.8	67	10	3	G14225.0
31.0	4.2	71	12	3	G14231.0

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G136



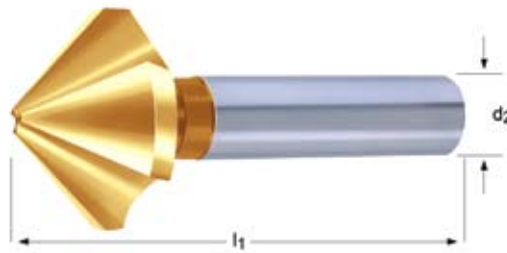
■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code	max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
4.3	1.3	40	4	3	G1364.3	12.4	2.8	56	8	3	G13612.4
5.0	1.5	40	4	3	G1365.0	13.4	2.9	56	8	3	G13613.4
5.3	1.5	40	4	3	G1365.3	15.0	3.2	60	10	3	G13615.0
5.8	1.5	45	5	3	G1365.8	16.5	3.2	60	10	3	G13616.5
6.0	1.5	45	5	3	G1366.0	19.0	3.5	63	10	3	G13619.0
6.3	1.5	45	5	3	G1366.3	20.5	3.5	63	10	3	G13620.5
7.0	1.8	50	6	3	G1367.0	23.0	3.8	67	10	3	G13623.0
7.3	1.8	50	6	3	G1367.3	25.0	3.8	67	10	3	G13625.0
8.0	2.0	50	6	3	G1368.0	26.0	3.8	67	10	3	G13626.0
8.3	2.0	50	6	3	G1368.3	28.0	4.0	71	12	3	G13628.0
9.4	2.2	50	6	3	G1369.4	30.0	4.2	71	12	3	G13630.0
10.0	2.5	50	6	3	G13610.0	31.0	4.2	71	12	3	G13631.0
10.4	2.5	50	6	3	G13610.4						
11.5	2.8	56	8	3	G13611.5						

G336 / G560

DORMER

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G336



■	1.1	1.2	1.3	1.4	1.5	3.1	3.2	3.3	3.4	7.1	7.2	7.3	7.4
•	1.6	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	8.1	8.2

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
5.0	1.5	40	4	3	G3365.0
6.0	1.5	45	5	3	G3366.0
6.3	1.5	45	5	3	G3366.3
7.0	1.8	50	6	3	G3367.0
7.3	1.8	50	6	3	G3367.3
8.0	2.0	50	6	3	G3368.0
8.3	2.0	50	6	3	G3368.3
10.0	2.5	50	6	3	G33610.0
10.4	2.5	50	6	3	G33610.4
11.5	2.8	56	8	3	G33611.5

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
12.4	2.8	56	8	3	G33612.4
15.0	3.2	60	10	3	G33615.0
16.5	3.2	60	10	3	G33616.5
19.0	3.5	63	10	3	G33619.0
20.5	3.5	63	10	3	G33620.5
23.0	3.8	67	10	3	G33623.0
25.0	3.8	67	10	3	G33625.0
31.0	4.2	71	12	3	G33631.0



G560



■	1.1	1.2	1.3	3.1	3.2	3.3	3.4	7.1	7.2	7.3	7.4				
●	1.4	1.5	1.6	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	8.1	8.2

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
6.3	1.5	45	5	3	G5606.3
8.0	2.0	50	6	3	G5608.0
8.3	2.0	50	6	3	G5608.3
10.0	2.5	50	6	3	G56010.0
10.4	2.5	50	6	3	G56010.4
12.4	2.8	56	8	3	G56012.4

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
16.5	3.2	60	10	3	G56016.5
20.5	3.5	63	10	3	G56020.5
25.0	3.8	67	10	3	G56025.0
31.0	4.2	71	12	3	G56031.0

- Countersink, set
- Kegelsenker-Satz
- Verzinkboren in sets
- Coffrets de fraises à ébavurer et à chanfreiner
- Juego de Avellanadores
- Jogo de Escareadores



G139



Nr.	A	e-Code
70	G136 6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5	G13970
71	G136 6.0 - 8.0 - 10.0 - 11.5 - 15.0 - 19.0	G13971
72	G136 6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5 - 25.0	G13972



G236

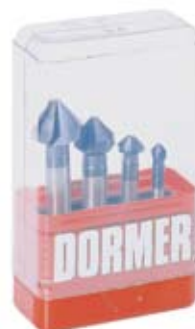


Nr.	A	e-Code
1	G136 6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5	G2361
2	G136 6.3 - 10.4 - 16.5 - 20.5	G2362

G237



- Countersink, set
- Kegelsenker-Satz
- Verzinkboren in sets
- Coffrets de fraises à ébavurer et à chanfreiner
- Juego de Avellanadores
- Jogo de Escareadores



G237



Nr.	A	e-Code
10	G560 6.3 - 10.4 - 16.5 - 20.5	G23710



- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G132



■	1.5	1.6	3.4	4.2	4.3	5.2	5.3	6.4
●	1.3	1.4	2.3	8.3				

max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code	max d mm	min d	l ₁ mm	d ₂ Øh ₉ mm	z	e-Code
8.0	-	48	8	5	G1328.0	16.0	3.2	56	10	7	G13216.0
12.5	2.0	48	8	5	G13212.5	20.0	5.0	60	10	7	G13220.0

G138 / G338

DORMER

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador

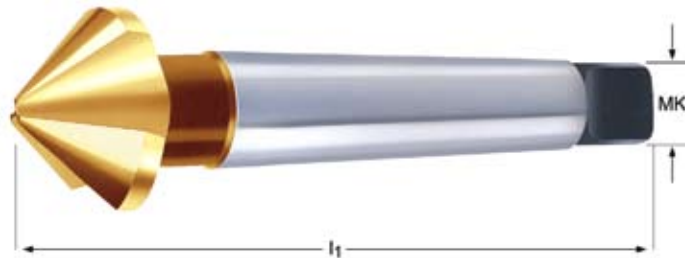


G138



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d	l ₁ mm	MK	z	e-Code	max d mm	min d	l ₁ mm	MK	z	e-Code
15.0	3.2	85	1	3	G13815.0	30.0	4.2	112	2	3	G13830.0
16.5	3.2	85	1	3	G13816.5	31.0	4.2	112	2	3	G13831.0
19.0	3.5	100	2	3	G13819.0	34.0	4.5	118	2	3	G13834.0
20.5	3.5	100	2	3	G13820.5	37.0	4.8	118	2	3	G13837.0
23.0	3.8	106	2	3	G13823.0	40.0	10.0	140	3	3	G13840.0
25.0	3.8	106	2	3	G13825.0	50.0	14.0	150	3	3	G13850.0
26.0	3.8	106	2	3	G13826.0	63.0	16.0	180	4	3	G13863.0
28.0	4.0	112	2	3	G13828.0	80.0	22.0	190	4	3	G13880.0



G338



■	1.1	1.2	1.3	1.4	1.5	3.1	3.2	3.3	3.4	7.1	7.2	7.3	7.4
•	1.6	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	8.1	8.2

max d mm	min d	l ₁ mm	MK	z	e-Code	max d mm	min d	l ₁ mm	MK	z	e-Code
25.0	3.8	106	2	3	G33825.0	50.0	14.0	150	3	3	G33850.0
31.0	4.2	112	2	3	G33831.0	63.0	16.0	180	4	3	G33863.0
37.0	4.8	118	2	3	G33837.0						
40.0	10.0	140	3	3	G33840.0						

- Countersink
- Kegelsenker
- Verzinkboren
- Fraise à ébavurer et à chanfreiner
- Avellanadores
- Escareador



G170



■	1.1	1.2	1.3	1.4	1.5	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	
●	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.1	7.2	7.3	7.4	8.1	8.2

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z e-Code	max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z e-Code
6.3	1.5	44.0	5.0	3 G1706.3	16.5	3.2	56.0	6.0	3 G17016.5
8.3	2.0	49.0	6.0	3 G1708.3	20.5	3.5	61.0	10.0	3 G17020.5
10.4	2.5	49.0	6.0	3 G17010.4	25.0	3.8	65.0	10.0	3 G17025.0
12.4	2.8	53.0	6.0	3 G17012.4					



G171



■	1.1	1.2	1.3	3.1	3.2	3.3	3.4	7.1	7.2	7.3	7.4				
●	1.4	1.5	1.6	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	8.1	8.2

max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z e-Code	max d mm	min d mm	l ₁ mm	d ₂ Øh ₉ mm	z e-Code
6.3	1.5	44.0	5.0	3 G1716.3	16.5	3.2	56.0	6.0	3 G17116.5
8.3	2.0	49.0	6.0	3 G1718.3	20.5	3.5	61.0	10.0	3 G17120.5
10.4	2.5	49.0	6.0	3 G17110.4	25.0	3.8	65.0	10.0	3 G17125.0
12.4	2.8	53.0	6.0	3 G17112.4					

M138

DORMER

- Conical Drill
- Konische Bohrer
- Getrapte plaatboren
- Forets multi-diamètres
- Broca Multi-diámetro
- Broca Cónica Multi-Diâmetros



M138



■	1.1	1.2	1.3	1.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	8.1	8.2
•	1.5	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.3	7.4					

Nr.	max d mm	min d mm	l_2 mm	l_1 mm	d_2 h11 mm	e-Code
1	14	3	36	58	6	M1381
2	20	8	40	62	8	M1382
3	30	16	48	70	10	M1383
4	40	26	51	76	10	M1384

Nr.	max d mm	min d mm	l_2 mm	l_1 mm	d_2 h11 mm	e-Code
5	50	36	54	79	10	M1385
6	60	46	57	82	13	M1386

- Conical Drill
- Konische Bohrer
- Getrapte plaatboren
- Forets multi-diamètres
- Broca Multi-diámetro
- Broca Cónica Multi-Diâmetros



G314



■	1.1	1.2	1.3	1.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	8.1	8.2
•	1.5	1.6	2.1	2.2	2.3	3.1	3.2	3.3	3.4	6.4	7.3	7.4					

Nr.	d min-max mm	l ₃ mm	l ₁ mm	d ₃ Ø mm	e-Code
412	4.0 mm ÷ 12.0 mm x 1.0 mm	5.0	80	6.0	G314412
1220	12.0 mm ÷ 20.0 mm x 1.0 mm	4.0	76	9.0	G3141220
2030	20.0 mm ÷ 30.0 mm x 1.0 mm	4.0	88	12.0	G3142030
3040	30.0 mm ÷ 40.0 mm x 1.0 mm	4.0	98	13.0	G3143040
420	4.0 mm ÷ 20.0 mm x 2.0 mm	4.0	76	8.0	G314420
630	6.0 mm ÷ 30.0 mm x 2.0 mm	4.0	98	10.0	G314630
M	9.0 mm ÷ 36.0 mm x 3.0 mm	3.0	86	12.0	G314M

DORMER

-
- A schematic diagram of a drill bit. The bit has a cutting edge with diameter d_1 and a central flute with diameter d_3 . The length of the cutting edge is l_2 , and the total length of the bit is l_1 . The diameter of the shank is d_2 .

HSS		DIN 373				180°
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■	1.1	1.2	1.3	2.1	3.1	3.2	7.1	7.2	8.1										
●	1.4	1.5	1.6	2.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.3	7.4	8.2	

d ₁ Øz ₉ mm	d ₃ Øe ₈ mm	M	l ₁ mm	l ₂ mm	d ₂ Øh ₉ mm	z	e-Code	
6.50	2.50	M 3 t	71	14	5.0	3	G1256.5X2.5	1)
6.50	3.20	M 3 f	71	14	5.0	3	G1256.5X3.2	2)
6.50	3.40	M 3 m	71	14	5.0	3	G1256.5X3.4	3)
8.00	3.30	M 4 t	71	14	5.0	3	G1258.0X3.3	1)
8.00	4.30	M 4 f	71	14	5.0	3	G1258.0X4.3	2)
8.00	4.50	M 4 m	71	14	5.0	3	G1258.0X4.5	3)
10.00	4.20	M 5 t	80	18	8.0	3	G12510.0X4.2	1)
10.00	5.30	M 5 f	80	18	8.0	3	G12510.0X5.3	2)
10.00	5.50	M 5 m	80	18	8.0	3	G12510.0X5.5	3)
11.00	5.00	M 6 t	80	18	8.0	3	G12511.0X5.0	1)
11.00	6.40	M 6 f	80	18	8.0	3	G12511.0X6.4	2)
11.00	6.60	M 6 m	80	18	8.0	3	G12511.0X6.6	3)
15.00	6.80	M 8 t	100	22	12.5	3	G12515.0X6.8	1)
15.00	8.40	M 8 f	100	22	12.5	3	G12515.0X8.4	2)
15.00	9.00	M 8 m	100	22	12.5	3	G12515.0X9.0	3)
18.00	8.50	M 10 t	100	22	12.5	3	G12518.0X8.5	1)
18.00	10.50	M 10 f	100	22	12.5	3	G12518.0X10.5	2)
18.00	11.00	M 10 m	100	22	12.5	3	G12518.0X11.0	3)
20.00	10.20	M 12 t	100	22	12.5	3	G12520.0X10.2	1)
20.00	13.00	M 12 f	100	22	12.5	3	G12520.0X13.0	2)
20.00	13.50	M 12 m	100	22	12.5	3	G12520.0X13.5	3)

253

- Counterbore
- Flachsenker
- Verzinkboren
- Fraises pour logement de tête de vis
- Refrentadores
- Broca de Caixas



G126



- 1.1 1.2 1.3 2.1 3.1 3.2 7.1 7.2 8.1
- 1.4 1.5 1.6 2.2 3.3 3.4 4.1 4.2 4.3 5.1 5.2 5.3 6.1 6.2 6.3 7.3 7.4 8.2

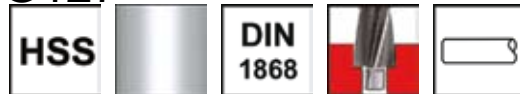
d_1 $\varnothing z_9$ mm	l_1 mm	l_2 mm	d_2 $\varnothing h_8$ mm	MK	z	e-Code
15.00	132	22	4	2	3	G12615.0
18.00	140	25	5	2	3	G12618.0
20.00	140	25	5	2	3	G12620.0
24.00	150	30	6	2	3	G12624.0
26.00	180	35	8	3	3	G12626.0
30.00	180	35	8	3	3	G12630.0

d_1 $\varnothing z_9$ mm	l_1 mm	l_2 mm	d_2 $\varnothing h_8$ mm	MK	z	e-Code
33.00	190	40	10	3	3	G12633.0
36.00	190	40	10	3	3	G12636.0
40.00	190	40	10	3	3	G12640.0
43.00	236	50	12	4	4	G12643.0
46.00	236	50	12	4	4	G12646.0

- Detachable Pilot (G126)
- Führungszapfen (G126)
- Verwisselbare geleiden (G126)
- Pilote (G126)
- Guía desmontable para Refrentador (G126)
- Piloto Amovível (G126)



G127



d ₁ Ø mm	d ₂ Ø _f mm	M	e-Code	
6.80	4	M 8 t	G1276.8X4.0	¹⁾
8.40	4	M 8 f	G1278.4X4.0	²⁾
9.00	4	M 8 m	G1279.0X4.0	³⁾
6.80	5	M 8 t	G1276.8X5.0	¹⁾
8.40	5	M 8 f	G1278.4X5.0	²⁾
8.50	5	M 10 t	G1278.5X5.0	¹⁾
9.00	5	M 8 m	G1279.0X5.0	³⁾
10.20	5	M 12 t	G12710.2X5.0	¹⁾
10.50	5	M 10 f	G12710.5X5.0	²⁾
11.00	5	M 10 m	G12711.0X5.0	³⁾
13.00	5	M 12 f	G12713.0X5.0	²⁾
13.50	5	M 12 m	G12713.5X5.0	³⁾
8.50	6	M 10 t	G1278.5X6.0	¹⁾
10.20	6	M 12 t	G12710.2X6.0	¹⁾
10.50	6	M 10 f	G12710.5X6.0	²⁾
11.00	6	M 10 m	G12711.0X6.0	³⁾
12.00	6	M 14 t	G12712.0X6.0	¹⁾
13.00	6	M 12 f	G12713.0X6.0	²⁾
13.50	6	M 12 m	G12713.5X6.0	³⁾
15.00	6	M 14 f	G12715.0X6.0	²⁾
15.50	8	M 18 t	G12715.5X6.0	¹⁾
10.20	8	M 12 t	G12710.2X8.0	¹⁾
12.00	8	M 14 t	G12712.0X8.0	¹⁾
13.00	8	M 12 f	G12713.0X8.0	²⁾
13.50	8	M 12 m	G12713.5X8.0	³⁾
14.00	8	M 16 t	G12714.0X8.0	¹⁾
15.00	8	M 14 f	G12715.0X8.0	²⁾
15.50	8	M 14 m	G12715.5X8.0	³⁾

d ₁ Ø mm	d ₂ Ø _f mm	M	e-Code	
17.00	8	M 16 f	G12717.0X8.0	²⁾
17.50	10	M 20 t	G12717.5X8.0	¹⁾
19.00	8	M 18 f	G12719.0X8.0	²⁾
20.00	8	M 18 m	G12720.0X8.0	³⁾
14.00	10	M 16 t	G12714.0X10.0	¹⁾
15.50	10	M 18 t	G12715.5X10.0	¹⁾
17.00	10	M 16 f	G12717.0X10.0	²⁾
17.50	10	M 16 m	G12717.5X10.0	³⁾
19.00	10	M 18 f	G12719.0X10.0	²⁾
19.50	10	M 22 t	G12719.5X10.0	¹⁾
20.00	10	M 18 m	G12720.0X10.0	³⁾
21.00	10	M 24 t	G12721.0X10.0	¹⁾
22.00	10	M 20 m	G12722.0X10.0	³⁾
23.00	10	M 22 f	G12723.0X10.0	²⁾
24.00	16	M 27 t	G12724.0X10.0	¹⁾
25.00	10	M 24 f	G12725.0X10.0	²⁾
26.00	10	M 24 m	G12726.0X10.0	³⁾
19.50	12	M 22 t	G12719.5X12.0	¹⁾
21.00	12	M 24 t	G12721.0X12.0	¹⁾
23.00	12	M 22 f	G12723.0X12.0	²⁾
24.00	12	M 27 t	G12724.0X12.0	¹⁾
25.00	12	M 24 f	G12725.0X12.0	²⁾
26.00	12	M 24 m	G12726.0X12.0	³⁾
26.50	12	M 30 t	G12726.5X12.0	¹⁾
30.00	12	M 27 m	G12730.0X12.0	³⁾
33.00	12	M 30 m	G12733.0X12.0	³⁾

¹⁾ t= for tap hole / t= für Kernloch / t= voor kerngat / t= pour trou taraudé / t= Para agujero roscado / t= para furo de rosca

²⁾ f= for through hole fine / f= für Durchgangsloch fein / f= fijnpassing voor doorlopende gaten / f= pour trou de vis précis / f= Para agujero pasante fino / f= para furo passante raso

³⁾ m= for through hole medium / m= für Durchgangsloch mittel / m= middelpassing voor doorlopende gaten / m= pour trou de vis moyen / m= Para agujero pasante medio / m= para furo passante médio

