





























B	
B400	88
B411	91
B441	90
B442	92
B451	93

85 - 94

B452	94
B481	89



General application / Standardprodukte / Standaardproducten /
Produits d'application générale / Aplicaciones generales / Aplicação Geral

B400		HM		DIN 8093			B	H7	88
B411		HSS HM		DIN 8094			B	H7	91
B441		HSS HM		DIN 8090				H7	90
B442		HSS HM	ST	DIN 8091				H7	92
B451		HSS HM	ST	DIN 8090			A	H7	93
B452		HSS HM		DIN 8091				H7	94
B481		HM	ST	DIN 8093					89

	B400	B481	B441	B411	B442	B451	B452
	HM	HM	HSS HM	HSS HM	HSS HM	HSS HM	HSS HM
	B			B		A	
	H7		H7	H7	H7	H7	H7
	1.00 - 20.00	0.98 - 12.05	10.00 - 20.00	5.00 - 30.00	10.00 - 20.00	8.00 - 20.00	8.00 - 30.00
	88	89	90	91	92	93	94
1.1	●18B	●18B	●18B	●18B	●18B	●16B	●16B
1.2	●18B	●18B	●18B	●18B	●18B	●16B	●16B
1.3	●14B	●14B	●14B	●14B	●14B	●12B	●12B
1.4	●14B	●14B	●14B	●14B	●14B	●12B	●12B
1.5	■10C	■10C	■10C	■10C	■10C	■8C	■8C
1.6	■10C	■10C	■10C	■10C	■10C	■8C	■8C
1.7							
1.8							
2.1							
2.2							
2.3							
2.4							
3.1	■17D	■17D	■17D	■17D	■17D	■15D	■15D
3.2	■17D	■17D	■17D	■17D	■17D	■15D	■15D
3.3	■17D	■17D	■17D	■17D	■17D	■15D	■15D
3.4	■14D	■14D	■14D	■14D	■14D	■12D	■12D
4.1	■14C	■14C	■14C	■14C	■14C	■12C	■12C
4.2	■14C	■14C	■14C	■14C	■14C	■12C	■12C
4.3	■10B	■10B	■10B	■10B	■10B	■8B	■8B
5.1	■10C	■10C	■10C	■10C	■10C	■8C	■8C
5.2	■10B	■10B	■10B	■10B	■10B	■8B	■8B
5.3	■10B	■10B	■10B	■10B	■10B	■8B	■8B
6.1	■38E	■38E	■38E	■38E	■38E	■36E	■36E
6.2	■38E	■38E	■38E	■38E	■38E	■36E	■36E
6.3	■38E	■38E	■38E	■38E	■38E	■36E	■36E
6.4	■38D	■38D	■38D	■38D	■38D	■36D	■36D
7.1	■60D	■60D	■60D	■60D	■60D	■58D	■58D
7.2	■60D	■60D	■60D	■60D	■60D	■58D	■58D
7.3	■25D	■25D	■25D	■25D	■25D	■23D	■23D
7.4	■25D	■25D	■25D	■25D	■25D	■23D	■23D
8.1	■25C	■25C	■25C	■25C	■25C	■23C	■23C
8.2	■13C	■13C	■13C	■13C	■13C	■11C	■11C
8.3							
9.1							
10.1							

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

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



B400

Extremely unequal spacing / Extrem ungleiche Teilung / Differential 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	l ₁	l ₂	l ₃	z	d ₂ Ø	e-Code	d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Ø	e-Code
1.0	34	6		3	1.0	B4001.0 ¹⁾	4.5	80	21	46	6	4.5	B4004.5 ¹⁾
1.2	40	8		3	1.2	B4001.2 ¹⁾	5.0	86	23	53	6	5.0	B4005.0 ¹⁾
1.4	40	8		3	1.4	B4001.4 ¹⁾	5.5	93	26	56	6	5.5	B4005.5 ¹⁾
1.5	40	8		3	1.5	B4001.5 ¹⁾	6.0	93	26	56	6	5.6	B4006.0 ¹⁾
1.6	49	11		3	1.6	B4001.6 ¹⁾	6.5	101	28	63	6	6.3	B4006.5 ²⁾
1.8	49	11		4	1.8	B4001.8 ¹⁾	7.0	109	31	69	6	7.1	B4007.0 ²⁾
2.0	49	11		4	2.0	B4002.0 ¹⁾	8.0	117	33	75	6	8.0	B4008.0 ²⁾
2.2	57	15		4	2.2	B4002.2 ¹⁾	9.0	125	36	81	6	9.0	B4009.0 ²⁾
2.5	57	15		4	2.5	B4002.5 ¹⁾	10.0	133	38	87	6	10.0	B40010.0 ²⁾
2.8	61	15		4	2.8	B4002.8 ¹⁾	12.0	151	44	105	6	10.0	B40012.0 ²⁾
3.0	61	15	30	6	3.0	B4003.0 ¹⁾	14.0	160	47	110	6	12.5	B40014.0 ²⁾
3.2	70	18	33	6	3.2	B4003.2 ¹⁾	16.0	170	52	120	6	12.5	B40016.0 ²⁾
3.5	70	18	33	6	3.5	B4003.5 ¹⁾	18.0	182	56	130	6	14.0	B40018.0 ³⁾
4.0	75	19	44	6	4.0	B4004.0 ¹⁾	20.0	195	60	137	6	16.0	B40020.0 ³⁾

¹⁾ Solid Carbide / VHM / Volhardmetalen machineruimer / Tête carbure / Monobloc de Metal Duro / Metal Duro Integral

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

³⁾ Carbide Tipped / Vollhartmetallbestückt / Hardmetaal gesoldeerd / Carbure monobloc / Punta de Metal Duro / Metal Duro

B481



- NC - Precision Reamer
- NC-Maschinen-Reibahle
- NC- precisieürimer
- Alésoir de précision - NC
- NC- Escariador de precisión
- Mandril de Precisão p/ CNC



B481

HM

ST

DIN
8093



Ø.95-5.5
0,+0.004
Ø5.51-12
0,+0.005

- 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 _{h₆}	e-Code
0.98	34	5.5	20.5	3	4	B4810.98
0.99	34	5.5	20.5	3	4	B4810.99
1.00	34	5.5	20.5	3	4	B4811.00
1.01	34	5.5	20.5	3	4	B4811.01
1.02	34	5.5	20.5	3	4	B4811.02
1.03	34	5.5	20.5	3	4	B4811.03
1.48	40	8.0	23	3	4	B4811.48
1.49	40	8.0	23	3	4	B4811.49
1.50	40	8.0	23	3	4	B4811.50
1.51	40	8.0	23	3	4	B4811.51
1.52	40	8.0	23	3	4	B4811.52
1.53	40	8.0	23	3	4	B4811.53
1.98	49	11.0	26	4	4	B4811.98
1.99	49	11.0	26	4	4	B4811.99
2.00	49	11.0	26	4	4	B4812.00
2.01	49	11.0	26	4	4	B4812.01
2.02	49	11.0	26	4	4	B4812.02
2.03	49	11.0	26	4	4	B4812.03
2.48	57	15.0	30	4	4	B4812.48
2.49	57	15.0	30	4	4	B4812.49
2.50	57	15.0	30	4	4	B4812.50
2.51	57	15.0	30	4	4	B4812.51
2.52	57	15.0	30	4	4	B4812.52
2.53	57	15.0	30	4	4	B4812.53
2.97	61	16.0	31	6	4	B4812.97
2.98	61	16.0	31	6	4	B4812.98
2.99	61	16.0	31	6	4	B4812.99
3.00	61	16.0	31	6	4	B4813.00
3.01	61	16.0	31	6	4	B4813.01
3.02	61	16.0	31	6	4	B4813.02
3.03	61	16.0	31	6	4	B4813.03
3.97	75	21.0	47	6	4	B4813.97
3.98	75	21.0	47	6	4	B4813.98
3.99	75	21.0	47	6	4	B4813.99
4.00	75	21.0	47	6	4	B4814.00
4.01	75	21.0	47	6	4	B4814.01
4.02	75	21.0	47	6	4	B4814.02
4.03	75	21.0	47	6	4	B4814.03
4.97	86	27.0	58	6	5	B4814.97
4.98	86	27.0	58	6	5	B4814.98

d ₁ Ø	l ₁	l ₂	l ₃	z	d ₂ Ø _{h₆}	e-Code
4.99	86	27.0	58	6	5	B4814.99
5.00	86	27.0	58	6	5	B4815.00
5.01	86	27.0	58	6	5	B4815.01
5.02	86	27.0	58	6	5	B4815.02
5.03	86	27.0	58	6	5	B4815.03
5.97	93	27.0	57	6	6	B4815.97
5.98	93	27.0	57	6	6	B4815.98
5.99	93	27.0	57	6	6	B4815.99
6.00	93	27.0	57	6	6	B4816.00
6.01	93	27.0	57	6	6	B4816.01
6.02	93	27.0	57	6	6	B4816.02
6.03	93	27.0	57	6	6	B4816.03
7.97	117	33.0	81	6	8	B4817.97
7.98	117	33.0	81	6	8	B4817.98
7.99	117	33.0	81	6	8	B4817.99
8.00	117	33.0	81	6	8	B4818.00
8.01	117	33.0	81	6	8	B4818.01
8.02	117	33.0	81	6	8	B4818.02
8.03	117	33.0	81	6	8	B4818.03
8.04	117	33.0	81	6	8	B4818.04
9.97	133	38.0	93	6	10	B4819.97
9.98	133	38.0	93	6	10	B4819.98
9.99	133	38.0	93	6	10	B4819.99
10.00	133	38.0	93	6	10	B48110.00
10.01	133	38.0	93	6	10	B48110.01
10.02	133	38.0	93	6	10	B48110.02
10.03	133	38.0	93	6	10	B48110.03
10.04	133	38.0	93	6	10	B48110.04
10.05	133	38.0	93	6	10	B48110.05
11.97	151	44.0	111	6	10	B48111.97
11.98	151	44.0	111	6	10	B48111.98
11.99	151	44.0	111	6	10	B48111.99
12.00	151	44.0	111	6	10	B48112.00
12.01	151	44.0	111	6	10	B48112.01
12.02	151	44.0	111	6	10	B48112.02
12.03	151	44.0	111	6	10	B48112.03
12.04	151	44.0	111	6	10	B48112.04
12.05	151	44.0	111	6	10	B48112.05

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



B441

Extremely unequal spacing. Tang to DIN 1809 / Extrem ungleiche Teilung, Mitnehmerlappen nach DIN 1809 / Differential vertand.
 Meeneemlip DIN 1809 / Espacement extrême inégal. Tenon selon la norme DIN 1809. / Espacio extremadamente irregular.
 Lengüeta según DIN 1809 / Espaço muito irregular. Patilhão DIN 1809



- 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	d_2 h_9	z	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	d_2 h_9	z	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

B411



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



B411

Extremely unequal spacing / Extrem ungleiche Teilung / Differential 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	l_1	l_2	l_3	z	MK	e-Code
5.0	133	23	67.5	6	1	B4115.0
6.0	138	26	72.5	6	1	B4116.0
7.0	150	31	84.5	6	1	B4117.0
8.0	156	33	90.5	6	1	B4118.0
9.0	162	36	96.5	6	1	B4119.0
10.0	168	38	102.5	6	1	B41110.0
12.0	182	44	116.5	6	1	B41112.0
14.0	189	47	123.5	6	1	B41114.0
15.0	204	50	124	6	2	B41115.0
16.0	210	52	130	6	2	B41116.0

d_1 Ø	l_1	l_2	l_3	z	MK	e-Code
17.0	214	54	134	6	2	B41117.0
18.0	219	56	139	6	2	B41118.0
19.0	223	58	143	6	2	B41119.0
20.0	228	60	148	6	2	B41120.0
22.0	237	64	157	6	2	B41122.0
24.0	268	68	169	8	3	B41124.0
25.0	268	68	169	8	3	B41125.0
26.0	273	70	174	8	3	B41126.0
30.0	281	73	182	8	3	B41130.0



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



B442

Extremely unequal spacing / Extrem ungleiche Teilung / Differential 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	l_1	l_2	l_3	z	MK	e-Code
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
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

B451



- Machine Reamer - Adjustable
- 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 / 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 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	e-Code
8.0	117	16	75	4	8.0	B4518.0
9.0	125	19	81	4	9.0	B4519.0
10.0	133	19	87	6	10.0	B45110.0
11.0	142	19	96	6	10.0	B45111.0
12.0	151	19	105	6	10.0	B45112.0
13.0	151	19	105	6	10.0	B45113.0

d_1 Ø	l_1	l_2	l_3	z	d_2 Ø	e-Code
14.0	160	19	110	6	12.5	B45114.0
15.0	162	19	112	6	12.5	B45115.0
16.0	170	22	120	6	12.5	B45116.0
18.0	182	22	130	6	14.0	B45118.0
20.0	195	22	137	6	16.0	B45120.0

- Machine Reamer - Adjustable
- 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 / Verstellbereich 0,03 / Verstellbare diameters (0,03 mm) / 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 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
8.0	156	16	90.5	4	1	B4528.0
10.0	168	19	102.5	6	1	B45210.0
11.0	175	19	109.5	6	1	B45211.0
12.0	182	19	116.5	6	1	B45212.0
13.0	182	19	116.5	6	1	B45213.0
14.0	189	19	123.5	6	1	B45214.0
15.0	204	19	124	6	2	B45215.0
16.0	210	22	130	6	2	B45216.0
17.0	214	22	134	6	2	B45217.0
18.0	219	22	139	6	2	B45218.0

d ₁ Ø	l ₁	l ₂	l ₃	z	MK	e-Code
19.0	223	22	143	6	2	B45219.0
20.0	228	22	148	6	2	B45220.0
22.0	237	25	157	6	2	B45222.0
24.0	268	25	169	8	3	B45224.0
25.0	268	25	169	8	3	B45225.0
26.0	273	25	174	8	3	B45226.0
28.0	277	30	178	8	3	B45228.0
30.0	281	30	182	8	3	B45230.0