

ph HORN ph



NEW

插削系列扩展

新尺寸及方形插削

BROACHING SYSTEMS EXTENDED

New dimensions and square broaching



不同之处： 更多可能

THE DIFFERENCE: MORE POSSIBILITIES

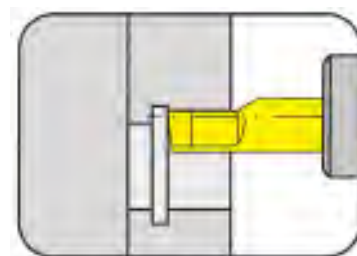
- **新系列方形插削**
New programme for square broaching
- **根据不同的加工工况, 补充不同尺寸的插削刀片**
Supplementary dimensions for broaching inserts for conventional broaching and broaching units
- **新刀杆用于通用插削和动力刀座插削**
New toolholder for conventional broaching and broaching units

插削 Broaching

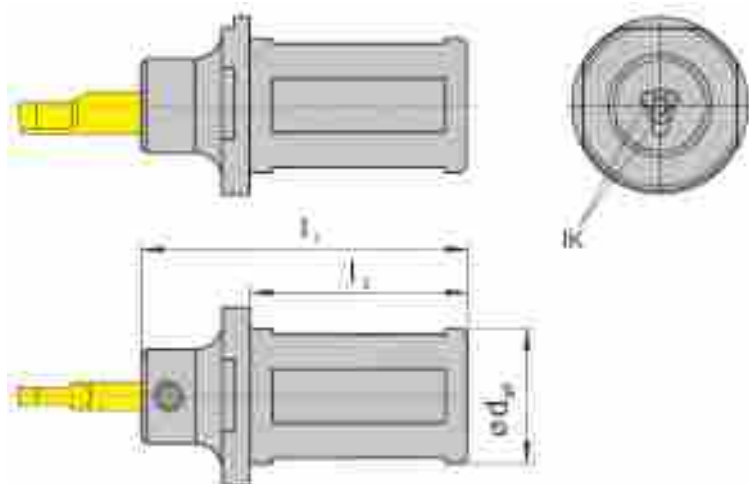


刀杆 Toolholder

SB105



孔径Ø 自	Bore Ø from	6 mm
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配合刀片
for Insert

型号 N105
Type

产品型号 Part number	d	l ₁	l ₂	D _{min}
SB105.0016.1.01.IK	16	73	50	6
SB105.0020.1.01.IK	20	73	50	6
SB105.0022.1.01.IK	22	73	50	6
SB105.0025.1.01.IK	25	73	50	6
SB105.0032.1.01.IK	32	73	50	6

按需提供更多尺寸

Further sizes upon request

螺丝的扭矩规格，详见技术说明。

For torque specification of the screw, please see Technical Instructions.

尺寸单位：mm

Dimensions in mm

配件 Spare Parts

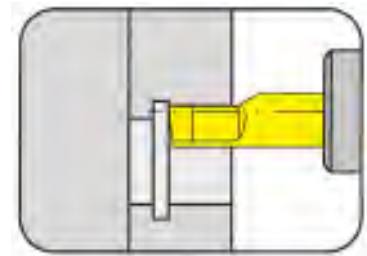
刀杆 Toolholder	锁紧螺钉 Clamping Screw	TORX PLUS®扳手 TORX PLUS® Wrench
SB105...	6.075T15P	T15PQ

插削 Broaching

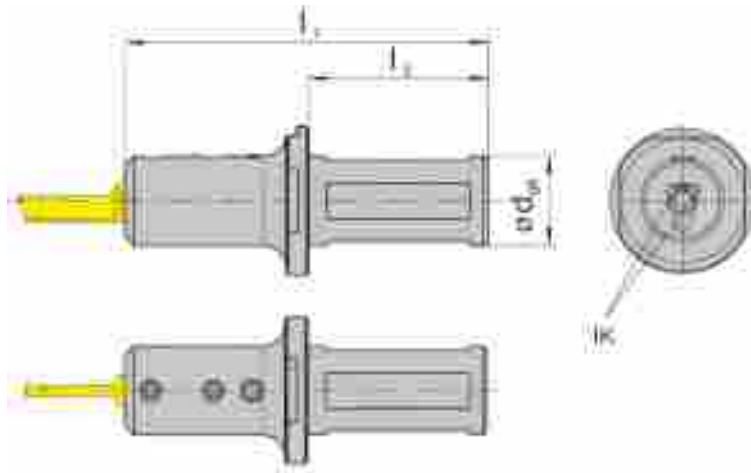


刀杆 Toolholder

SB110



孔径Ø 自	Bore Ø from	9 mm
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配合刀片
for Insert

型号 N110
Type

产品型号 Part number	d	l ₁	l ₂	D _{min}
SB110.0020.1.02.IK	20	88	50	9
SB110.0025.1.02.IK	25	88	50	9
SB110.0032.1.02.IK	32	88	50	9

按需提供更多尺寸
Further sizes upon request

螺丝的扭矩规格，详见技术说明。

For torque specification of the screw, please see Technical Instructions.

尺寸单位：mm
Dimensions in mm

配件 Spare Parts

刀杆 Toolholder	锁紧螺钉 Clamping Screw	TORX PLUS®扳手 TORX PLUS® Wrench
SB110...	6.075T15P	T15PQ

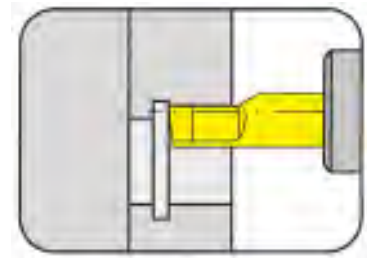
插削 Broaching



刀片 Insert

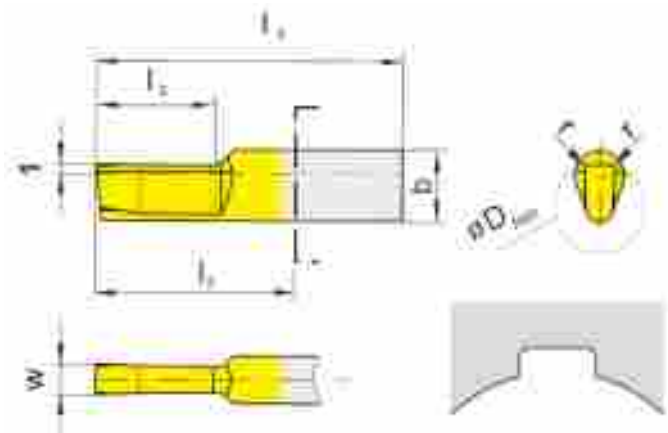
N105/N110

公差等级 C11
Tolerance grade C11



孔径Ø 自	Bore Ø from	6 mm
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推荐:使用动力刀座
Recommended for: Broaching units



配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

键槽 (DIN138)
Keyways according to
DIN138

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0210.2.08.A2	2.11	7	30	12	18	0.35	6.0	▲
N105.0310.2.10.A2	3.11	7	30	12	18	0.35	6.5	▲
N105.0310.2.13.A2	3.11	7	30	12	18	0.50	6.5	▲
N105.0410.2.16.A2	4.13	7	30	12	18	0.50	6.5	▲
N110.0410.05.04.A2	4.13	-	60	25	34	0.50	9.0	▲
N110.0410.05.07.A2	4.13	-	75	40	49	0.50	9.0	▲
N110.0510.05.04.A2	5.13	-	60	25	34	0.50	9.0	▲
N110.0510.05.07.A2	5.13	-	75	40	49	0.50	9.0	▲
N110.0610.05.04.A2	6.14	-	60	25	34	0.50	10.0	△
N110.0610.05.07.A2	6.14	-	75	40	49	0.50	10.0	△

- ▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request
- 推荐 / recommended
- 次推荐 / alternative recommendation
- 不合适 / not suitable
- 非涂层 / uncoated grades
- 涂层 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

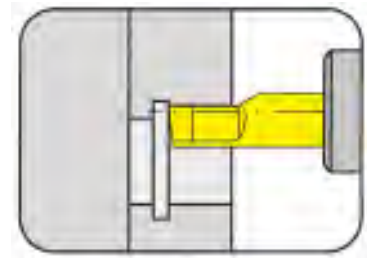
插削 Broaching



刀片 Insert

N105/N110

公差等级 D10
Tolerance grade D10

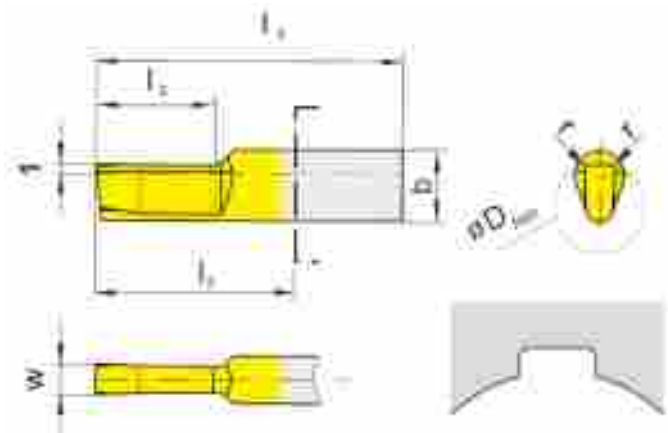


孔径Ø 自	Bore Ø from	6 mm
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推荐:使用动力刀座
Recommended for: Broaching units

配合刀杆
for Toolholder

型号 SB105
Type B105
SB110



产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0205.01.01.A2	2.055	7	30	12	18	0.12	6.0	▲
N105.0305.01.01.A2	3.055	7	30	12	18	0.12	6.5	▲
N105.0407.01.01.A2	4.073	7	35	15	23	0.12	6.5	▲
N110.0407.02.04.A2	4.073	-	60	25	34	0.20	9.0	▲
N110.0407.02.07.A2	4.073	-	75	40	49	0.20	9.0	▲
N110.0507.02.04.A2	5.073	-	60	25	34	0.20	9.0	▲
N110.0507.02.07.A2	5.073	-	75	40	49	0.20	9.0	▲
N110.0607.02.04.A2	6.073	-	60	25	34	0.20	10.0	△
N110.0607.02.07.A2	6.073	-	75	40	49	0.20	10.0	△

▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	●
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

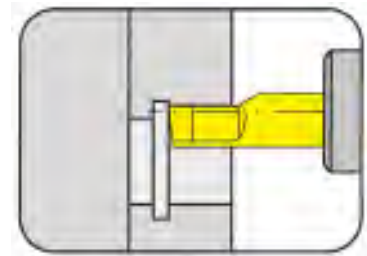
插削 Broaching



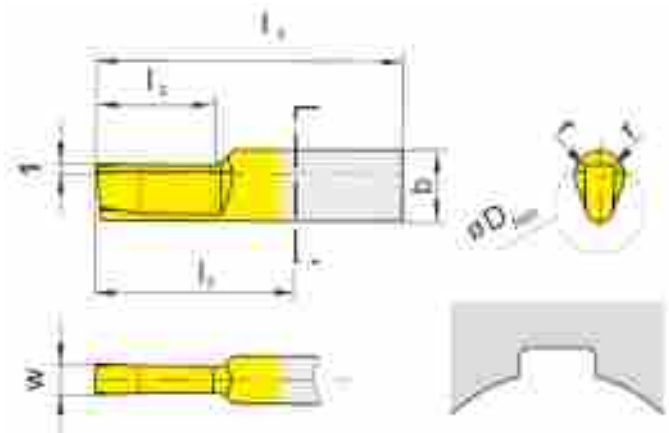
刀片 Insert

N105/N110

公差等级 H9
Tolerance grade H9



孔径Ø 自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0202.01.01.A2	2.020	7	30	12	18	0.1	6.0	▲
N105.0302.01.01.A2	3.020	7	30	12	18	0.1	6.5	▲
N105.0402.01.01.A2	4.025	7	35	15	23	0.1	6.5	▲
N110.0402.02.04.A2	4.025	-	60	25	34	0.2	9.0	▲
N110.0402.02.07.A2	4.025	-	75	40	49	0.2	9.0	▲
N110.0502.02.04.A2	5.025	-	60	25	34	0.2	9.0	▲
N110.0502.02.07.A2	5.025	-	75	40	49	0.2	9.0	▲
N110.0602.02.04.A2	6.025	-	60	25	34	0.2	10.0	△
N110.0602.02.07.A2	6.025	-	75	40	49	0.2	10.0	△

▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

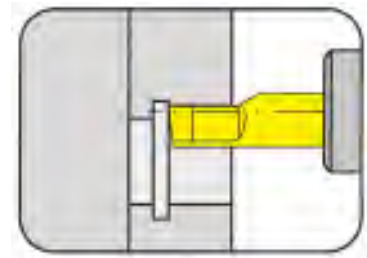
插削 Broaching



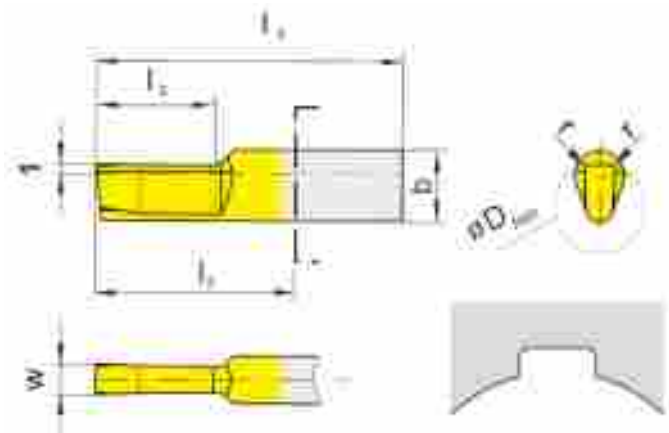
刀片 Insert

N105/N110

公差等级 P9
Tolerance grade P9



孔径Ø 自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

键槽 (DIN6885)
Keyways according to
DIN6885

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0198.01.01.A2	1.982	7	30	12	18	0.1	6.0	▲
N105.0298.01.01.A2	2.982	7	30	12	18	0.1	6.5	▲
N105.0397.01.01.A2	3.973	7	35	15	23	0.1	6.5	▲
N110.0397.02.04.A2	3.976	-	60	25	34	0.2	9.0	▲
N110.0397.02.07.A2	3.976	-	75	40	49	0.2	9.0	▲
N110.0497.02.04.A2	4.976	-	60	25	34	0.2	9.0	▲
N110.0497.02.07.A2	4.976	-	75	40	49	0.2	9.0	▲
N110.0597.02.04.A2	5.983	-	60	25	34	0.2	10.0	x
N110.0597.02.07.A2	5.983	-	75	40	49	0.2	10.0	x

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

非涂层 / uncoated grades

涂层 / coated grades

钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

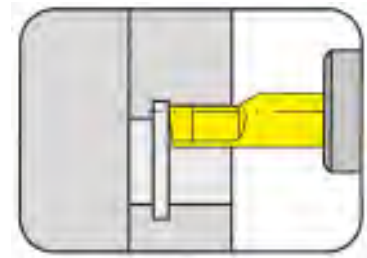
插削 Broaching



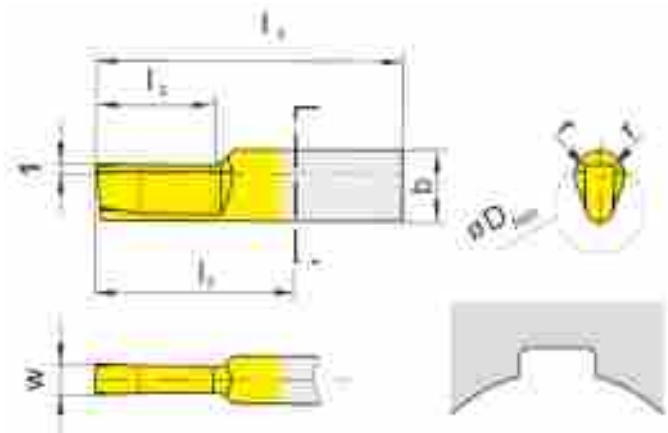
刀片 Insert

N105/N110

公差等级 JS9
Tolerance grade JS9



孔径Ø自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

键槽 (DIN6885)
Keyways according to
DIN6885

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0200.01.01.A2	2.00	7	30	12	18	0.1	6.0	▲
N105.0300.01.01.A2	3.00	7	30	12	18	0.1	6.5	▲
N105.0400.01.01.A2	4.00	7	35	15	23	0.1	6.5	▲
N105.0400.02.01.A2	4.00	7	35	15	23	0.2	6.5	▲
N110.0400.02.04.A2	4.00	-	60	25	34	0.2	9.0	▲
N110.0400.02.07.A2	4.00	-	75	40	49	0.2	9.0	▲
N110.0500.02.04.A2	5.00	-	60	25	34	0.2	9.0	▲
N110.0500.02.07.A2	5.00	-	75	40	49	0.2	9.0	▲
N110.0600.02.04.A2	6.01	-	60	25	34	0.2	10.0	△
N110.0600.02.07.A2	6.01	-	75	40	49	0.2	10.0	△

▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

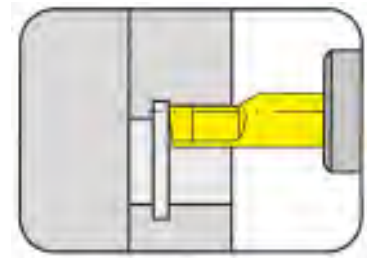
插削 Broaching



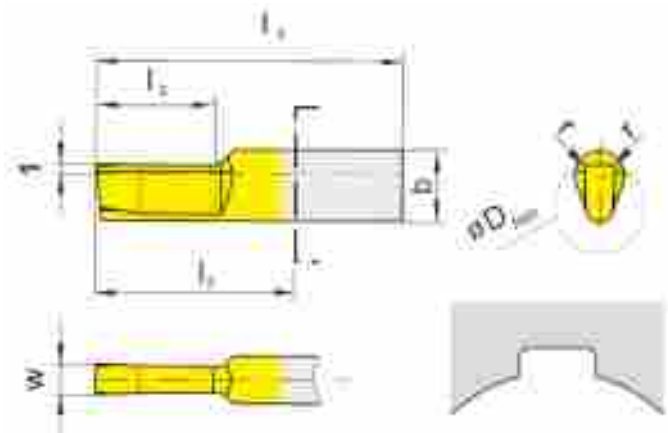
刀片 Insert

N105/N110

公差等级 C11
Tolerance grade C11



孔径Ø自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

键槽 (DIN138)
Keyways according to
DIN138

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0210.2.08.B1	2.11	7	30	12	18	0.35	6.0	▲
N105.0310.2.10.B1	3.11	7	30	12	18	0.35	6.5	▲
N105.0310.2.13.B1	3.11	7	30	12	18	0.50	6.5	▲
N105.0410.2.16.B1	4.13	7	30	12	18	0.50	6.5	▲
N110.0410.05.04.B1	4.13	-	60	25	34	0.50	9.0	▲
N110.0410.05.07.B1	4.13	-	75	40	49	0.50	9.0	▲
N110.0510.05.04.B1	5.13	-	60	25	34	0.50	9.0	▲
N110.0510.05.07.B1	5.13	-	75	40	49	0.50	9.0	▲
N110.0610.05.04.B1	6.14	-	60	25	34	0.50	10.0	△
N110.0610.05.07.B1	6.14	-	75	40	49	0.50	10.0	△

- ▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request
- 推荐 / recommended
- 次推荐 / alternative recommendation
- 不合适 / not suitable
- 非涂层 / uncoated grades
- 涂层 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

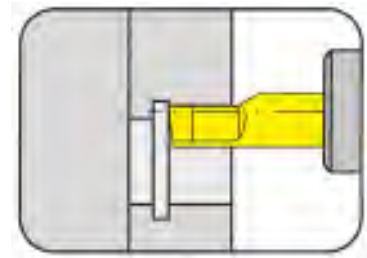
插削 Broaching



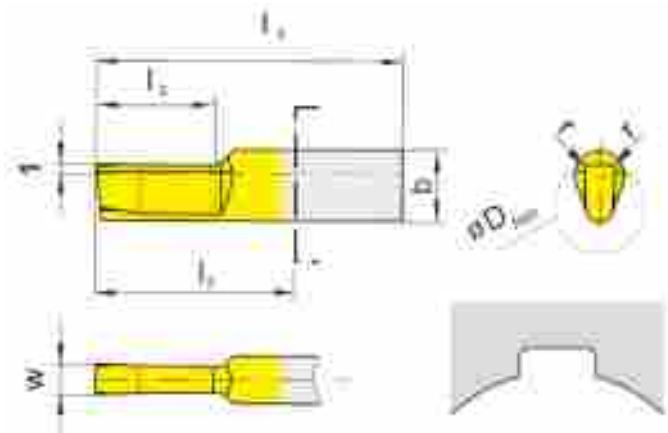
刀片 Insert

N105/N110

公差等级 D10
Tolerance grade D10



孔径Ø 自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0205.01.01.B1	2.055	7	30	12	18	0.12	6.0	▲
N105.0305.01.01.B1	3.055	7	30	12	18	0.12	6.5	▲
N105.0407.01.01.B1	4.073	7	35	15	23	0.12	6.5	▲
N110.0407.02.04.B1	4.073	-	60	25	34	0.20	9.0	▲
N110.0407.02.07.B1	4.073	-	75	40	49	0.20	9.0	▲
N110.0507.02.04.B1	5.073	-	60	25	34	0.20	9.0	▲
N110.0507.02.07.B1	5.073	-	75	40	49	0.20	9.0	▲
N110.0607.02.04.B1	6.073	-	60	25	34	0.20	10.0	x
N110.0607.02.07.B1	6.073	-	75	40	49	0.20	10.0	x

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

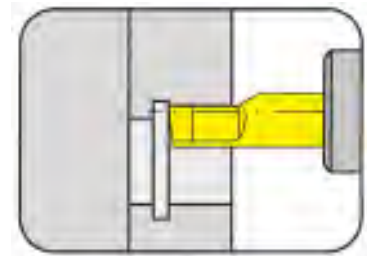
插削 Broaching



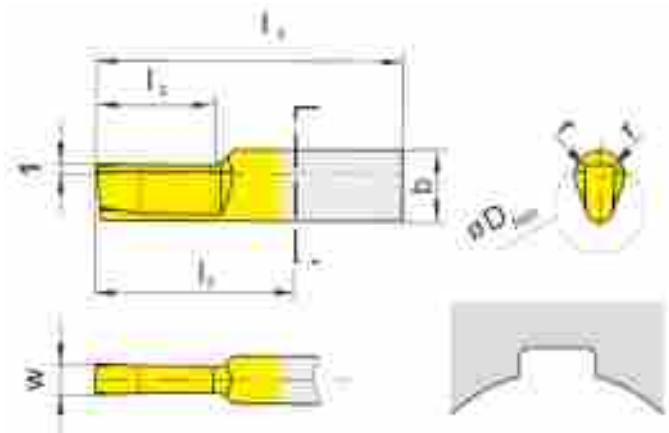
刀片 Insert

N105/N110

公差等级 H9
Tolerance grade H9



孔径Ø 自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0202.01.01.B1	2.020	7	30	12	18	0.1	6.0	▲
N105.0302.01.01.B1	3.020	7	30	12	18	0.1	6.5	▲
N105.0402.01.01.B1	4.025	7	35	15	23	0.1	6.5	▲
N110.0402.02.04.B1	4.025	-	60	25	34	0.2	9.0	▲
N110.0402.02.07.B1	4.025	-	75	40	49	0.2	9.0	▲
N110.0502.02.04.B1	5.025	-	60	25	34	0.2	9.0	▲
N110.0502.02.07.B1	5.025	-	75	40	49	0.2	9.0	▲
N110.0602.02.04.B1	6.025	-	60	25	34	0.2	10.0	△
N110.0602.02.07.B1	6.025	-	75	40	49	0.2	10.0	△

▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

插削 Broaching

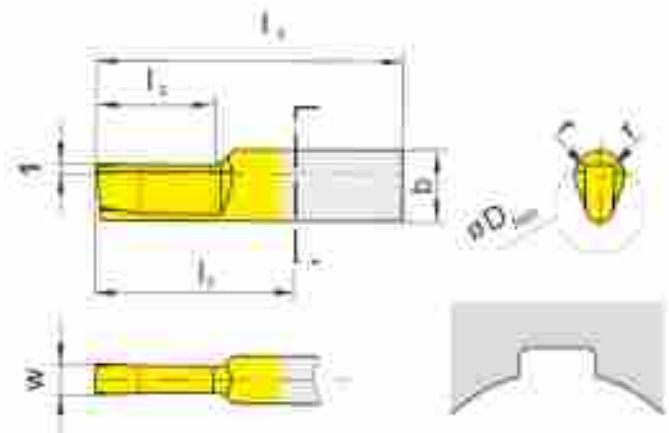
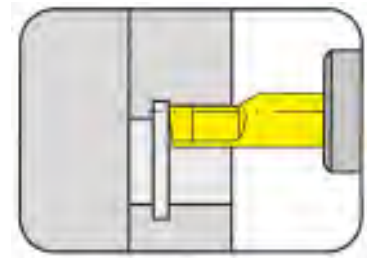


刀片 Insert

N105/N110

公差等级 P9
Tolerance grade P9

孔径Ø自 Bore Ø from 6 mm



配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

键槽 (DIN6885)
Keyways according to
DIN6885

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0198.01.01.B1	1.982	7	30	12	18	0.1	6.0	▲
N105.0298.01.01.B1	2.982	7	30	12	18	0.1	6.5	▲
N105.0397.01.01.B1	3.973	7	35	15	23	0.1	6.5	▲
N110.0397.02.04.B1	3.976	-	60	25	34	0.2	9.0	▲
N110.0397.02.07.B1	3.976	-	75	40	49	0.2	9.0	▲
N110.0497.02.04.B1	4.976	-	60	25	34	0.2	9.0	▲
N110.0497.02.07.B1	4.976	-	75	40	49	0.2	9.0	▲
N110.0597.02.04.B1	5.983	-	60	25	34	0.2	10.0	△
N110.0597.02.07.B1	5.983	-	75	40	49	0.2	10.0	△

▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

非涂层 / uncoated grades

涂层 / coated grades

钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

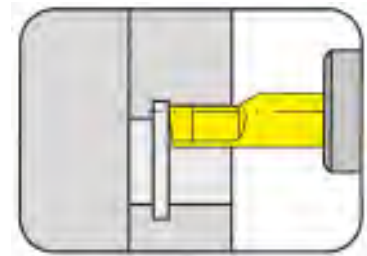
插削 Broaching



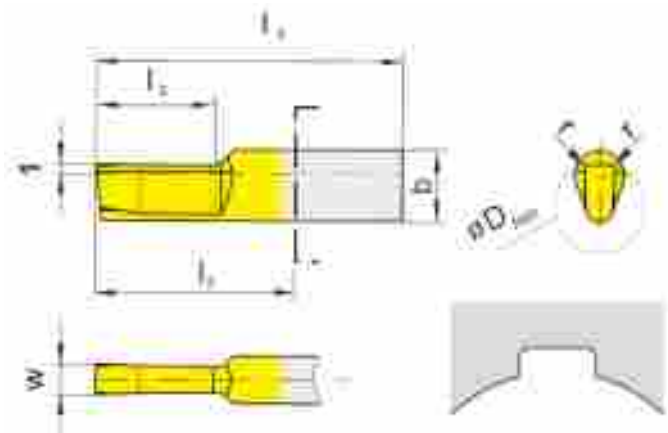
刀片 Insert

N105/N110

公差等级 P9
Tolerance grade JS9



孔径Ø 自	Bore Ø from	6 mm
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

键槽 (DIN6885)
Keyways according to
DIN6885

产品型号 Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	AN25
N105.0200.01.01.B1	2.00	7	30	12	18	0.1	6.0	▲
N105.0300.01.01.B1	3.00	7	30	12	18	0.1	6.5	▲
N105.0400.01.01.B1	4.00	7	35	15	23	0.1	6.5	▲
N105.0400.02.01.B1	4.00	7	35	15	23	0.2	6.5	▲
N110.0400.02.04.B1	4.00	-	60	25	34	0.2	9.0	▲
N110.0400.02.07.B1	4.00	-	75	40	49	0.2	9.0	▲
N110.0500.02.04.B1	5.00	-	60	25	34	0.2	9.0	▲
N110.0500.02.07.B1	5.00	-	75	40	49	0.2	9.0	▲
N110.0600.02.04.B1	6.01	-	60	25	34	0.2	10.0	△
N110.0600.02.07.B1	6.01	-	75	40	49	0.2	10.0	△

▲ 库存 / on stock △ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

插方

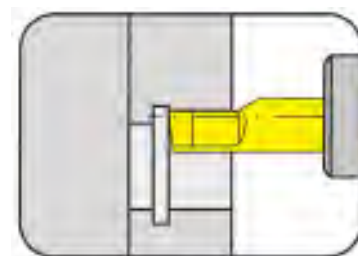
Square Broaching



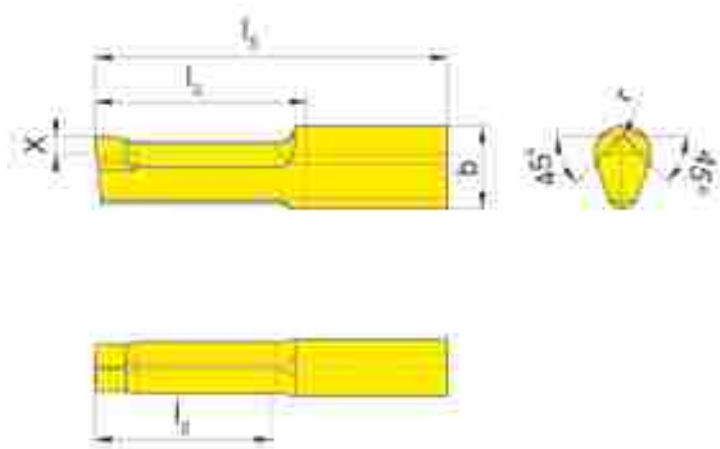
刀片

Insert

N105/N110



插方从	Square Broaching from	SW 4
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

产品型号 Part number	SW	b	l_5	l_2	l_3	r	X	D_{min}	AN25
N105.SQ.0405.1.A1	4-5	7	25	10	13	0.2	1.5	4.1	▲
N105.SQ.0506.1.A1	5-6	7	30	12	18	0.2	1.5	5.1	▲
N105.SQ.0608.2.A1	6-8	7	30	15	18	0.2	1.5	6.1	▲
N110.SQ.0810.2.A1	8-10	-	45	15	19	0.2	2.5	8.1	▲
N110.SQ.1013.2.A1	10-13	-	45	15	19	0.2	2.5	10.2	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P	●
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

插方

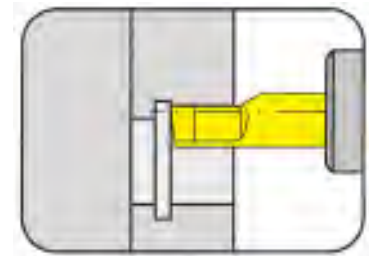
Square Broaching



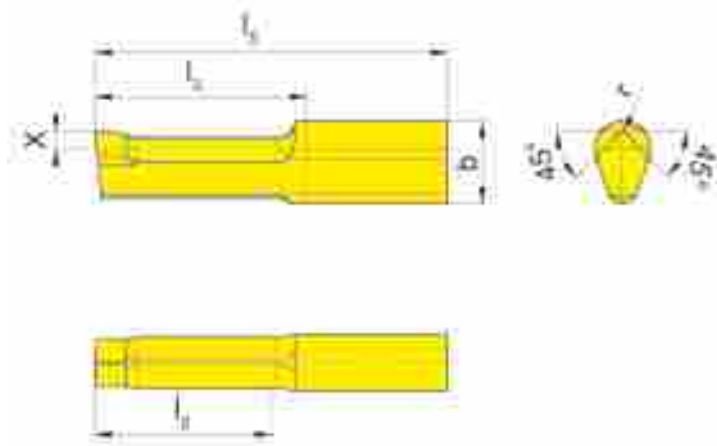
刀片

Insert

N105/N110



插方从	Square Broaching from	SW 4
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配合刀杆
for Toolholder

型号 SB105
Type B105
SB110

产品型号 Part number	SW	b	l_5	l_2	l_3	r	X	D_{min}	AN25
N105.SQ.0405.1.B1	4-5	7	25	10	13	0.2	1.5	4.1	▲
N105.SQ.0506.1.B1	5-6	7	30	12	18	0.2	1.5	5.1	▲
N105.SQ.0608.2.B1	6-8	7	30	15	18	0.2	1.5	6.1	▲
N110.SQ.0810.2.B1	8-10	-	45	15	19	0.2	2.5	8.1	▲
N110.SQ.1013.2.B1	10-13	-	45	15	19	0.2	2.5	10.2	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P	●
M	○
K	-
N	-
S	-
H	-

硬质合金牌号
Carbide grades

插方

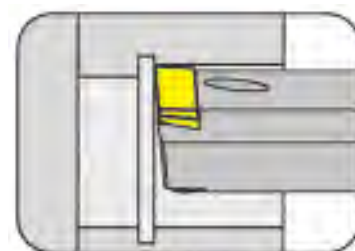
Square Broaching



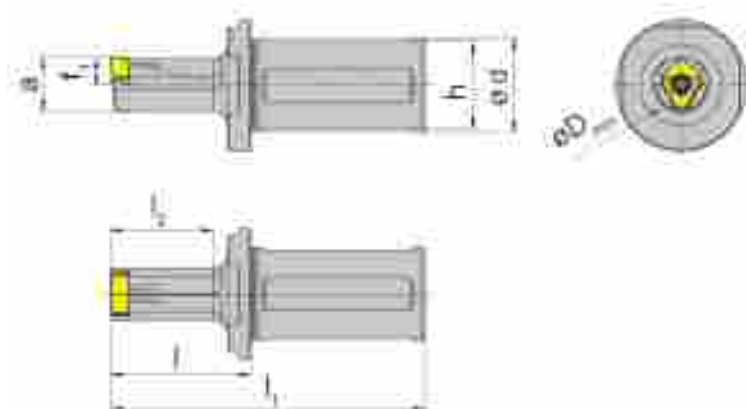
刀杆

Toolholder

SH117



孔径Ø自 Bore Ø from 13.5 mm



配合刀片
for Insert

型号 S117
Type

产品型号 Part number	d	h	l	l ₁	l ₂	D _{min}	f ₁	a
SH117.1325.SQ.1.08.IK	25	23	38	88	25	13.5	6.5	12.80
SH117.1525.SQ.1.10.IK	25	23	38	88	25	15.5	7.5	14.65
SH117.1732.SQ.1.12.IK	32	30	43	103	30	17.5	8.5	16.50
SH117.1932.SQ.1.16.IK	32	30	48	108	35	19.5	9.7	18.70

按需提供更多尺寸
Further sizes upon request

螺丝的扭矩规格，详见技术说明。

For torque specification of the screw, please see Technical Instructions.

尺寸单位：mm
Dimensions in mm

配件

Spare Parts

刀杆 Toolholder	锁紧螺钉 Clamping Screw	TORX PLUS®扳手 TORX PLUS® Wrench
SH117.1325.SQ.1.08.IK	030.3509.T15P	T15PQ
SH117....10.IK/...12.IK	4.09T15P	T15PQ
SH117.1932.SQ.1.16.IK	5.12T20P	T20PQ

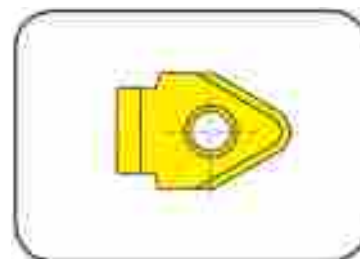
插削 Broaching



刀片 Insert

S117

公差等级 C11
Tolerance grade C11



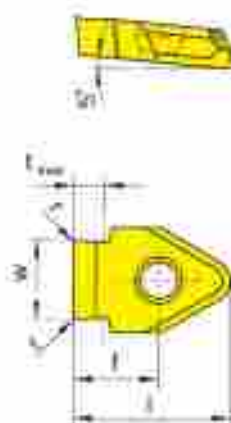
孔径 \varnothing 自
切槽深度可达

Bore \varnothing from
Depth of groove up to

14 mm
8.5 mm

推荐:常规插销

Recommended for: conventional broaching



配合刀杆
for Toolholder

型号 SH117
Type SHM117
H117

键槽 (DIN138)
Keyways according to
DIN138

产品型号 Part number	Nw	w	l	r	D _{min}	t _{max}	f	形式 Form	AN45
S117.0310.04.08.B1	3	3.10	13.0	0.35	14	2.0	6.0	G	▲
S117.0412.05.08.B1	4	4.12	13.0	0.50	14	2.1	6.0	F	▲
S117.0612.09.10.B1	6	6.12	16.0	0.85	22	2.6	8.0	B	▲
S117.0713.11.10.B1	7	7.13	16.0	0.85	22	3.3	8.0	B	▲
S117.0813.11.10.B1	8	8.13	16.0	1.05	22	3.4	8.0	B	▲
S117.1013.11.14.B1	10	10.13	20.7	1.05	30	4.2	11.2	C	▲
S117.1215.14.14.B1	12	12.15	20.7	1.35	38	5.1	11.2	D	▲
S117.1215.18.14.B1	16	12.15	20.7	1.75	38	6.6	11.2	D	▲
S117.1215.23.14.B1	24	12.15	20.7	2.25	38	8.5	11.2	D	▲
S117.1417.14.16.B1	14	14.17	20.7	1.35	40	6.8	11.2	E	▲
S117.1617.18.18.B1	16	16.17	28.6	1.75	40	6.8	15.6	H	▲
S117.1817.18.20.B1	18	18.17	28.6	1.75	50	7.8	15.6	I	▲
S117.2020.20.20.B1	20	20.20	28.6	1.95	50	7.8	15.6	I	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位: mm

Dimensions in mm

注意事项:

刀片类型应与刀杆类型相对应。 例如: A型刀杆配A型刀片

Note:

The insert form must correspond to the holder form. E.g.: Form A Toolholder = Form A Insert

P	•
M	○
K	•
N	•
S	○
H	-

硬质合金牌号
Carbide grades

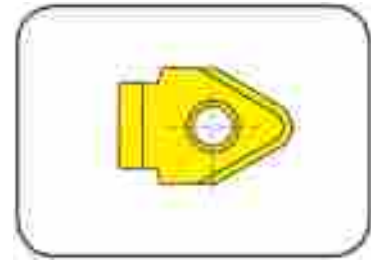
插削 Broaching



刀片 Insert

S117

公差等级 H9
Tolerance grade H9



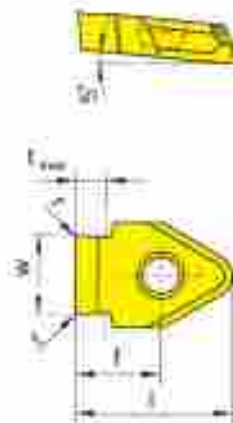
孔径Ø自
切槽深度可达

Bore Ø from
Depth of groove up to

14 mm
8.5 mm

推荐:常规插销

Recommended for: conventional broaching



配合刀杆

for Toolholder

型号 SH117
Type SHM117
H117

产品型号 Part number	Nw	w	l	r	D _{min}	t _{max}	f	形式 Form	AN45
S117.0302.01.08.B1	3	3.02	13.0	0.12	14	2.0	6.0	G	▲
S117.0402.01.08.B1	4	4.02	13.0	0.12	14	2.2	6.0	F	▲
S117.0502.02.08.B1	5	5.02	13.0	0.20	14	2.9	6.0	F	▲
S117.0502.02.10.B1	5	5.02	14.5	0.20	17	2.8	6.5	A	▲
S117.0602.02.10.B1	6	6.02	14.5	0.20	17	3.5	6.5	A	▲
S117.0803.02.10.B1	8	8.03	16.0	0.20	22	4.3	8.0	B	▲
S117.1003.03.14.B1	10	10.03	20.7	0.30	30	4.4	11.2	C	▲
S117.1203.03.14.B1	12	12.04	20.7	0.30	38	5.9	11.2	D	▲
S117.1403.03.16.B1	14	14.04	20.7	0.30	40	6.8	11.2	E	▲
S117.1603.03.18.B1	16	16.04	28.6	0.30	40	6.8	15.6	H	▲
S117.1803.03.20.B1	18	18.04	28.6	0.30	50	7.8	15.6	I	▲
S117.2004.05.20.B1	20	20.04	28.6	0.50	50	8.5	15.6	I	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位: mm

Dimensions in mm

注意事项:

刀片类型应与刀杆类型相对应。 例如: A型刀杆配A型刀片

Note:

The insert form must correspond to the holder form. E.g.: Form A Toolholder = Form A Insert

P	●
M	○
K	●
N	●
S	○
H	-

硬质合金牌号
Carbide grades

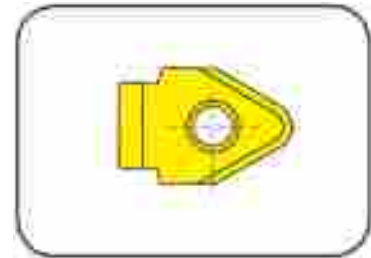
插削 Broaching



刀片 Insert

S117

公差等级 P9
Tolerance grade P9



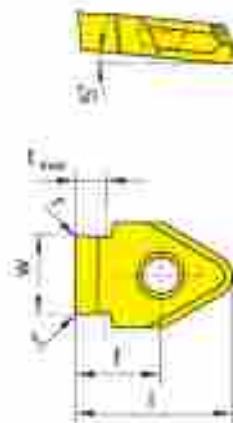
孔径Ø自
切槽深度可达

Bore Ø from
Depth of groove up to

14 mm
8.5 mm

推荐: 常规插销

Recommended for: conventional broaching



配合刀杆
for Toolholder

型号 SH117
Type SHM117
H117

键槽 (DIN6885)
Keyways according to
DIN6885

产品型号 Part number	Nw	w	l	r	D _{min}	t _{max}	f	形式 Form	AN45
S117.0298.01.08.B1	3	2.99	13.0	0.12	14	2.0	6.0	G	▲
S117.0397.01.08.B1	4	3.98	13.0	0.12	14	2.2	6.0	F	▲
S117.0497.02.08.B1	5	4.98	13.0	0.20	14	2.9	6.0	F	▲
S117.0497.02.10.B1	5	4.98	14.5	0.20	17	2.8	6.5	A	▲
S117.0597.02.10.B1	6	5.98	14.5	0.20	17	3.5	6.5	A	▲
S117.0796.02.10.B1	8	7.98	16.0	0.20	22	4.3	8.0	B	▲
S117.0996.03.14.B1	10	9.98	20.7	0.30	30	4.4	11.2	C	▲
S117.1196.03.14.B1	12	11.97	20.7	0.30	38	5.9	11.2	D	▲
S117.1396.03.16.B1	14	13.97	20.7	0.30	40	6.8	11.2	E	▲
S117.1597.03.18.B1	16	15.97	28.6	0.30	40	6.8	15.6	H	▲
S117.1797.03.20.B1	18	17.97	28.6	0.30	50	7.8	15.6	I	▲
S117.1997.05.20.B1	20	19.97	28.6	0.50	50	8.5	15.6	I	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

注意事项 :

刀片类型应与刀杆类型相对应。 例如 : A型刀杆配A型刀片

Note:

The insert form must correspond to the holder form. E.g.: Form A Toolholder = Form A Insert

P	•
M	○
K	•
N	•
S	○
H	-

硬质合金牌号
Carbide grades

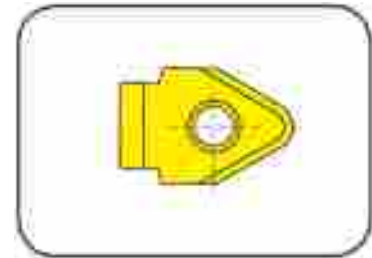
插削 Broaching



刀片 Insert

S117

公差等级 JS9
Tolerance grade JS9



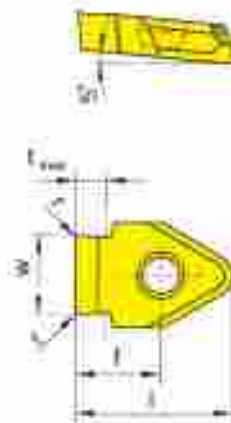
孔径 \varnothing 自
切槽深度可达

Bore \varnothing from
Depth of groove up to

14 mm
8.5 mm

推荐: 常规插销

Recommended for: conventional broaching



配合刀杆
for Toolholder

型号 SH117
Type SHM117
H117

键槽 (DIN6885)
Keyways according to
DIN6885

产品型号 Part number	Nw	w	l	r	D _{min}	t _{max}	f	形式 Form	AN45
S117.0300.01.08.B1	3	3.01	13.0	0.12	14	2.0	6.0	G	▲
S117.0400.01.08.B1	4	4.01	13.0	0.12	14	2.2	6.0	F	▲
S117.0500.02.08.B1	5	5.01	13.0	0.20	14	2.9	6.0	F	▲
S117.0500.02.10.B1	5	5.01	14.5	0.20	17	2.8	6.5	A	▲
S117.0600.02.10.B1	6	6.01	14.5	0.20	17	3.5	6.5	A	▲
S117.0800.02.10.B1	8	8.01	16.0	0.20	22	4.3	8.0	B	▲
S117.1000.03.14.B1	10	10.01	20.7	0.30	30	4.4	11.2	C	▲
S117.1200.03.14.B1	12	12.01	20.7	0.30	38	5.9	11.2	D	▲
S117.1200.05.14.B1	12	12.00	20.7	0.50	38	8.5	11.2	D	▲
S117.1400.03.16.B1	14	14.01	20.7	0.30	40	6.8	11.2	E	▲
S117.1601.03.18.B1	16	16.01	28.6	0.30	40	6.8	15.6	H	▲
S117.1801.03.20.B1	18	18.01	28.6	0.30	50	7.8	15.6	I	▲
S117.2002.05.20.B1	20	20.02	28.6	0.50	50	8.5	15.6	I	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位: mm

Dimensions in mm

注意事项:

刀片类型应与刀杆类型相对应。 例如: A型刀杆配A型刀片

Note:

The insert form must correspond to the holder form. E.g.: Form A Toolholder = Form A Insert

P	•
M	○
K	•
N	•
S	○
H	-

硬质合金牌号
Carbide grades

插方

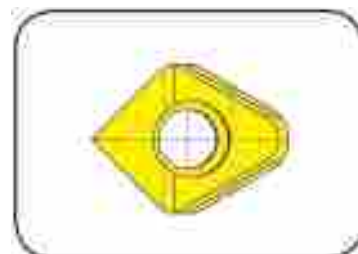
Square Broaching



刀片

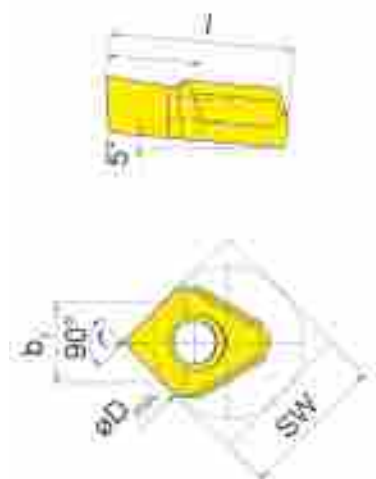
Insert

S117



Innenvierkant ab	Square Broaching from	SW 13
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推荐:使用动力刀座
Recommended for: Broaching units



配合刀杆
for Toolholder

型号 SH117....SQ...
Type

插方
Square Broaching

产品型号 Part number	SW	SW	b ₁	b ₁	l	r	D _{min}	AN45
S117.SQ.1315.08.A1	13-15	15	6.61-7.84	7.84	13.0	0.2	13.5	▲
S117.SQ.1517.10.A1	15-17	17	7.84-9.08	9.08	14.8	0.2	15.5	▲
S117.SQ.1719.12.A1	17-19	19	9.08-10.33	10.33	16.7	0.2	17.5	▲
S117.SQ.1922.16.A1	19-22	22	10.33-12.22	12.22	19.0	0.2	19.5	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	●
M	○
K	●
N	●
S	○
H	-

硬质合金牌号
Carbide grades

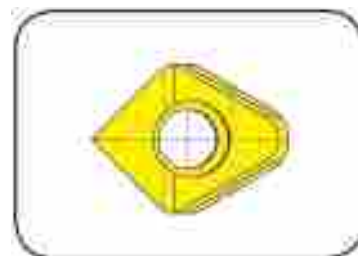
插方

Square Broaching



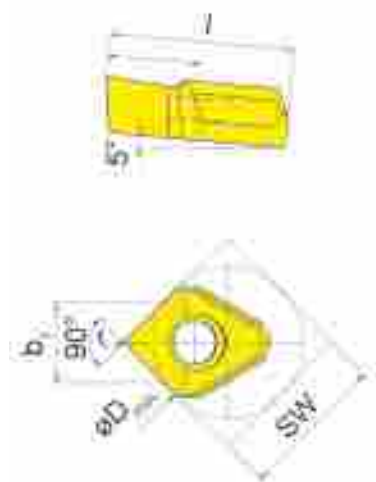
刀片
Insert

S117



Innenvierkant ab	Square Broaching from	SW 13
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推荐: 常规插销
Recommended for: conventional broaching



配合刀杆
for Toolholder

型号 SH117....SQ...
Type

插方
Square Broaching

产品型号 Part number	SW	SW	b ₁	b ₁	l	r	D _{min}	AN45
S117.SQ.1315.08.B2	13-15	15	6.61-7.84	7.84	13.0	0.2	13.5	▲
S117.SQ.1517.10.B2	15-17	17	7.84-9.08	9.08	14.8	0.2	15.5	▲
S117.SQ.1719.12.B2	17-19	19	9.08-10.33	10.33	16.7	0.2	17.5	▲
S117.SQ.1922.16.B2	19-22	22	10.33-12.22	12.22	19.0	0.2	19.5	▲

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

□ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位: mm

Dimensions in mm

P	●
M	○
K	●
N	●
S	○
H	-

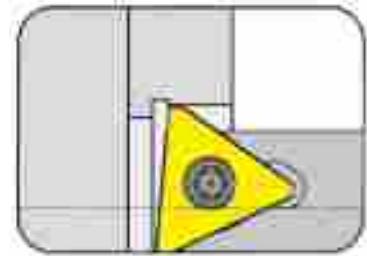
硬质合金牌号
Carbide grades

插削 Broaching



刀杆 Toolholder

356

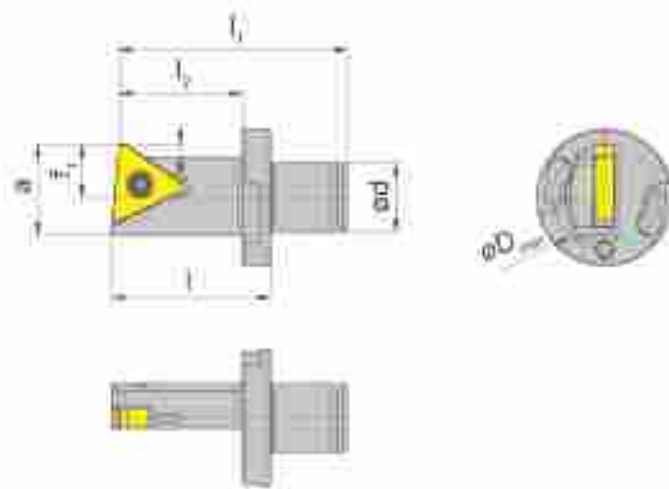


孔径Ø 自	Bore Ø from	27.5 mm
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用于插削设备AP2R/AP3R
for broaching device AP2R/AP3R

配合可转位刀片
for Indexable Insert

型号 315 根据要求
Type upon request



产品型号 Part number	d	l	l ₁	l ₂	D _{min}	f ₁	a
356.3018.A.05	18	42	62	34	27.5	14	24

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specification of the screw, please see Technical Instructions.

配件 Spare Parts

刀杆 Toolholder	锁紧螺钉 Clamping Screw	TORX PLUS®扳手 TORX PLUS® Wrench
356.3018.A.05	030.500P.0232	T20PQ

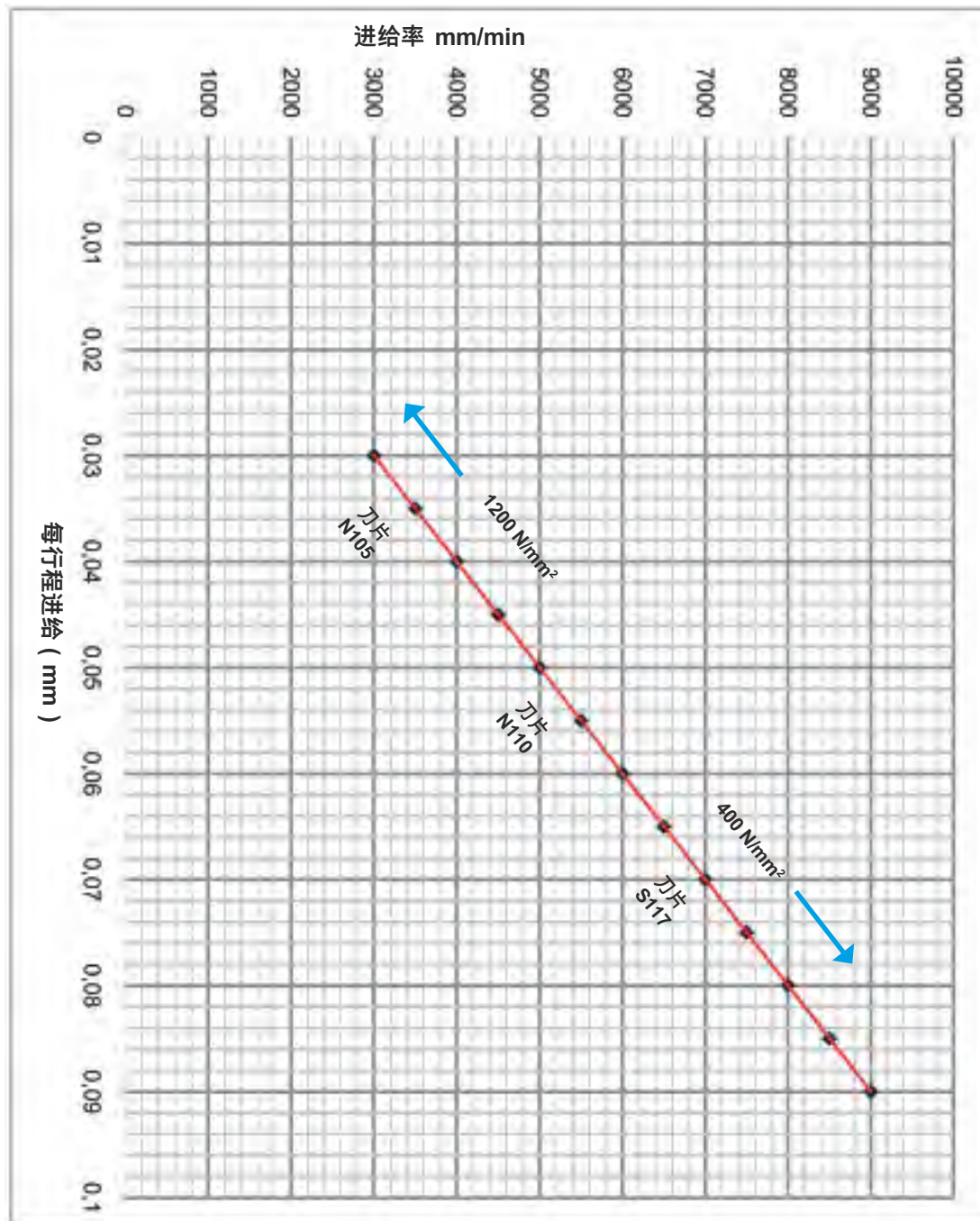
螺钉扭矩

Torque of Screws

型号 type	螺钉 Screw	M_0 Nm	夹紧扳手 Clamping wrench	刀板 Blade
SH117...08	030.3509.T15P	3,5	T15PQ	DT15PK
SH117...10/...12	4.09T15P	5,0	T15PQ	DT15PK
SH117...16	5.12T20P	6,5	T20PQ	DT20PK/DT20PQ
356	030.500P.0232	6,0	T20PQ	DT20PK/DT20PQ

您可以从槽加工样本中,找到所有插削刀具。
You will find the complete broaching program in our catalogue „GROOVING“, chapter broaching.

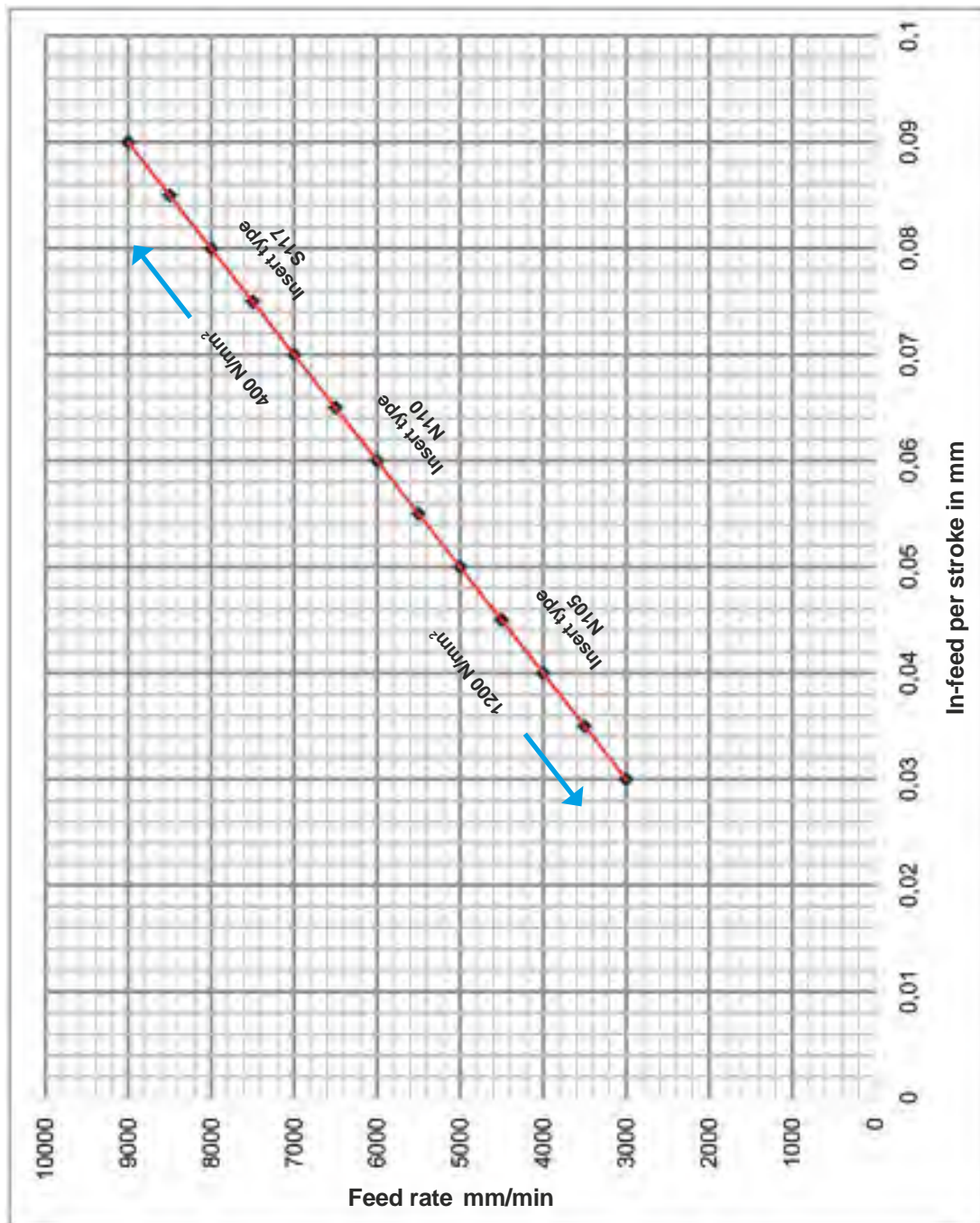




上述值仅供参考，机床情况、工件轮廓、夹紧方式以及工件材质都影响切深和进给率。

应用细节：

- 插槽时需要退刀槽或者底部的斜面以便退刀。
- 退刀之前切削刃必须在槽外设定正确的位置。
- 精确测量刀片并将尺寸编程进入刀具参数内。
- 在第一冲程中定位刀具的初始位置，并在程序中编入停止项，以便去目测是否存在碰撞。
- 使用合适的冷却液是提高表面光洁度、刀具寿命和将切屑排出盲孔的关键



The above values are guidelines only. The physical condition of the machine, the work piece profile and clamping, as well as the type of material have great influence on the depth of cut and feed rate.

Application Tips:

- A relief groove or the possibility for a 'ramp down' exit out of the groove is necessary at the end of the broached groove.
- The insert cutting edge has to be positioned outside the groove before retracting the tool.
- Take an accurate measurement of the insert and program the dimension into the machine tool parameter.
- Position the tool at the start position of the first stroke and program a stop to perform a visual check to assure a collision free first pass of the tool.
- The use of proper coolant is key to a good surface finish, long tool life as well as chip evacuation out of a blind hole.

TRAUB TNA 400 (含C轴) 上的插削实例

NC - 程序

N.....(插削)	编号及应用
G97 T.....	M5 恒定转速，刀具调出，主轴停止
M17	开启C轴
G94	进给率 mm/min
L1 = 30.584	选择初始参数 \emptyset
M8 M19	冷却开，主轴暂停开
N100 开始	重复START
G0 XL1 Z5	零件前面X和Z轴方向上的起始位置
G1 Z-25 F8000	Z方向直线进给速率8000 mm/min
G0 X30.584	X方向快速移动至起始 \emptyset i.e. 停止位置
G0 Z5	Z方向快速移动至起始位置
L1 = L1+0.16	编程中 \emptyset 增加两倍切深
N200	重复END编号
G22 P100 Q200 H45	重复循环自START到END

例如：

- 按照表格孔径 \emptyset 32mm内的槽
- 槽宽8^{C11}
- 进给0.08mm
- 行程数是完整的槽深，即自起始位置到槽底，除以每行程切深。
- 这个数值必须是2的倍数（因为 \emptyset 编程需要），它将被在NC程序中设定为行程数。

计算：

- 起始位置=安全距离+距离自 \emptyset 切削刃起32mm（见P25页实例）
拱高0.508 mm +0.20 mm安全距离共0.708 mm
- 起始位置=30.584 mm (32 - [0.708 x 2]) = 30.584 mm.
槽深2.90 mm加上 0.708 mm = 3.608 mm。
- 这是在 \emptyset 编程使用的尺寸：自起始位置到槽底的距离
- 3.608是起始位置到槽底的尺寸，编程过程中3.608需乘以2等于7.216mm
- 7.216除以每行程（2*0.08mm）0.16得出行程数45

用于精加工的最后尺寸的0.1行程必须精确计算然后编入程序内

注意：刀片的真实切深为0.08mm

Example for broaching on a TRAUB TNA 400 with C-Axis

NC - Programme

N.....(BROACHING)	Sequence Number and Application
G97 T..... M5	constant RPM, Tool callout, Spindle Stop
M17	C - axis ON
G94	Feed Rate in mm/min
L1 = 30.584	choose Parameter for start Ø
M8 M19	Coolant ON, Spindle Break ON
N100	Sequence Number for repetition START
G0 XL1 Z5	Start position in X and Z in front of part
G1 Z-25 F8000	Linear move in Z at feed rate of 8000 mm/min
G0 X30.584	Rapid move in X to start Ø i.e. drop down position
G0 Z5	Rapid move in Z to start position.
L1 = L1+0.16	As Ø programming is in effect the depth of cut must be doubled (Depth of Cut is 0.08 mm)
N200	Sequence Number of repetition END.
G22 P100 Q200 H45	Repetition Cycle with Sequence Number from START to END and Number of repetitions

Example:

- Groove according to table in bore **Ø 32 mm**
- Groove width **8^{C11}**
- Depth of Cut per Stroke 0.08 mm
- The **Number of Strokes** resulted out of complete cutting depth from start position to the bottom of the groove divided by depth of cut per stroke
- This Value must then be multiplied by 2 (because Ø Programming) and Value is programmed as the Number of Strokes in the NC-Programme.

Calculation:

- Starting Position = Security Distance + Distance from Ø 32 mm to Cutting Edge (see Example on Page V37) equals a segment height of **0.508 mm** + Security Distance of **0.20 mm** to a total of **0.708 mm**.
- Starting Position = **30.584 mm** ($32 - [0.708 \times 2] = 30.584$ mm).
- The groove depth of **2.90 mm** added to the **0.708 mm = 3.608 mm**.
- This is the dimension from the starting position to the bottom of the groove and in order to program this on the Ø, the **3.608 mm** dimension must be **multiplied by 2** which will equal the sum of **7.216 mm**.
- When the **7.216 mm** is divided by (**2 x 0.08 mm**) = **0.16 mm** depth per stroke the Result will be **45.1 Strokes** and therefore **45 total Strokes** are programmed.

The remainder of 0.1 Strokes to achieve the finish dimension must be programmed using the fine correction.

Attention: The true depth of cut for the insert will be 0.08 mm.

可锁定主轴的机床上 (西门子程序) 的加工实例

NC - 程序

N.....(插削)	编号及应用
T..... M5 LF	刀具调出, 主轴停止
M..... LF	暂停开
G94 LF	进给率 in mm/min
R1 = 30.584 LF	选择初始参数 \emptyset
M8 LF	冷却开
N100 LF START	编号
G0 X=R1 Z5 LF	X和Z方向起始位置
G1 Z-25 F8000 LF	Z方向直线进给速率8000 mm/min
G0 X30.584	X方向快速复位
G0 Z5	Z方向快速移动至起始位置
R1 = R1+0.16	编程中 \emptyset 增加两倍切深
N200	重复END编号
.....LF	重复循环自START到END

例如：

- 按照表格孔径 \emptyset 32mm内的槽
- 槽宽8^{C11}
- 进给0.08mm
- 行程数是完整的槽深，即自起始位置到槽底，除以每行程切深。
- 这个数值必须是2的倍数（因为 \emptyset 编程需要），它将被在NC程序中设定为行程数。

计算：

- 起始位置=安全距离+距离自 \emptyset 切削刃起32mm（见P25页实例）
拱高0.508 mm +0.20 mm安全距离共0.708 mm
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- 这是在 \emptyset 编程使用的尺寸：自起始位置到槽底的距离
- 3.608是起始位置到槽底的尺寸，编程过程中3.608需乘以2等于7.216mm
- 7.216除以每行程（2*0.08mm）0.16得出行程数45

用于精加工的最后尺寸的0.1行程必须精确计算然后编入程序内

Example for broaching on SIEMENS Control Machines with lockable Spindle

NC - Programme

N.....(BROACHING)	Sequence Number and Application
T..... M5 LF	Tool callout, Spindle Stop
M..... LF	Brake ON
G94 LF	Feed Rate in mm/min
R1 = 30.584 LF	choose Parameter for start Ø
M8 LF	Coolant ON
N100 LF	Sequence Number for repetition START
G0 X=R1 Z5 LF	Start position in X and Z in front of part
G1 Z-25 F8000 LF	Linear move in Z at feed rate of 8000 mm/min
G0 X30.584	Rapid move in X to start Ø i.e. drop down position
G0 Z5	Rapid move in Z to start position.
R1 = R1+0.16	As Ø programming is in effect the depth of cut must be doubled (Depth of Cut is 0.08 mm)
N200	Sequence Number of repetition END.
.....LF	Repetition Cycle with Sequence Number from START to END and Number of repetitions

Example:

- Groove according to table in bore **Ø 32 mm**
- Groove width **8^{C11}**
- Depth of Cut per Stroke 0.08 mm
- The **Number of Strokes** resulted out of complete cutting depth from start position to the bottom of the groove divided by depth of cut per stroke
- This Value must then be multiplied by 2 (because Ø Programming) and Value is programmed as the Number of Strokes in the NC-Programme.

Calculation:

- Starting Position = Security Distance + Distance from Ø 32 mm to Cutting Edge (see Example on Page V37) equals a segment height of **0.508 mm** + Security Distance of **0.20 mm** to a total of **0.708 mm**.
- Starting Position = **30.584 mm** ($32 - [0.708 \times 2] = 30.584$ mm).
- The groove depth of **2.90 mm** added to the **0.708 mm = 3.608 mm**.
- This is the dimension from the starting position to the bottom of the groove and in order to program this on the Ø, the **3.608 mm** dimension must be **multiplied by 2** which will equal the sum of **7.216 mm**.
- When the **7.216 mm** is divided by (**2 x 0.08 mm**) = **0.16 mm** depth per stroke the Result will be **45.1 Strokes** and therefore **45 total Strokes** are programmed.

The remainder of 0.1 Strokes to achieve the finish dimension must be programmed using the fine correction.