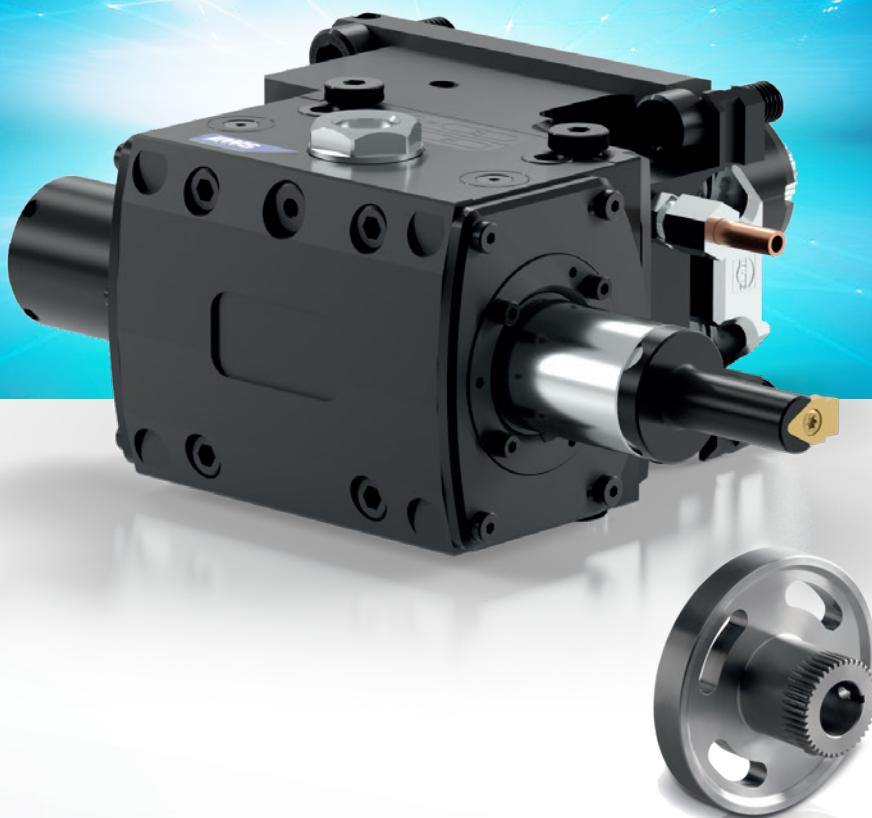


Precision meets Motion



Manual

EWS . Slot type P20

EWS
Tool Technologies

1. Identification

2. Product specifications

2.1. Functions and scope of application

2.2. Safe and correct use

2.3. Technical data

2.4. Machine requirements

2.5. Protecting people

2.6. Safe disposal

3. Manual

3.1. Set up

3.2. Changing tools

3.2.1. Clamping the tool

3.2.2. Removing the tool

3.3. Handling

3.4. Dimensioning the cutting tool (tool zero point)

4. Production examples

4.1. Additional alignment options

4.1.1. Correcting a YZ-plane angle error

4.1.2. Correcting centre offset y-axis

4.1.3. Correcting a XZ-plane angle error

4.2. Cleaning and maintenance

4.2.1. Cleaning

4.2.2. Upkeep

4.3. Maintenance

4.4. Repair

4.5. Guarantee and warranty

5. Annex

5.1. Drawing with connection dimensions for clamp holders

5.2. Paul Horn program: Tool holder and inserts

EWS . Slot

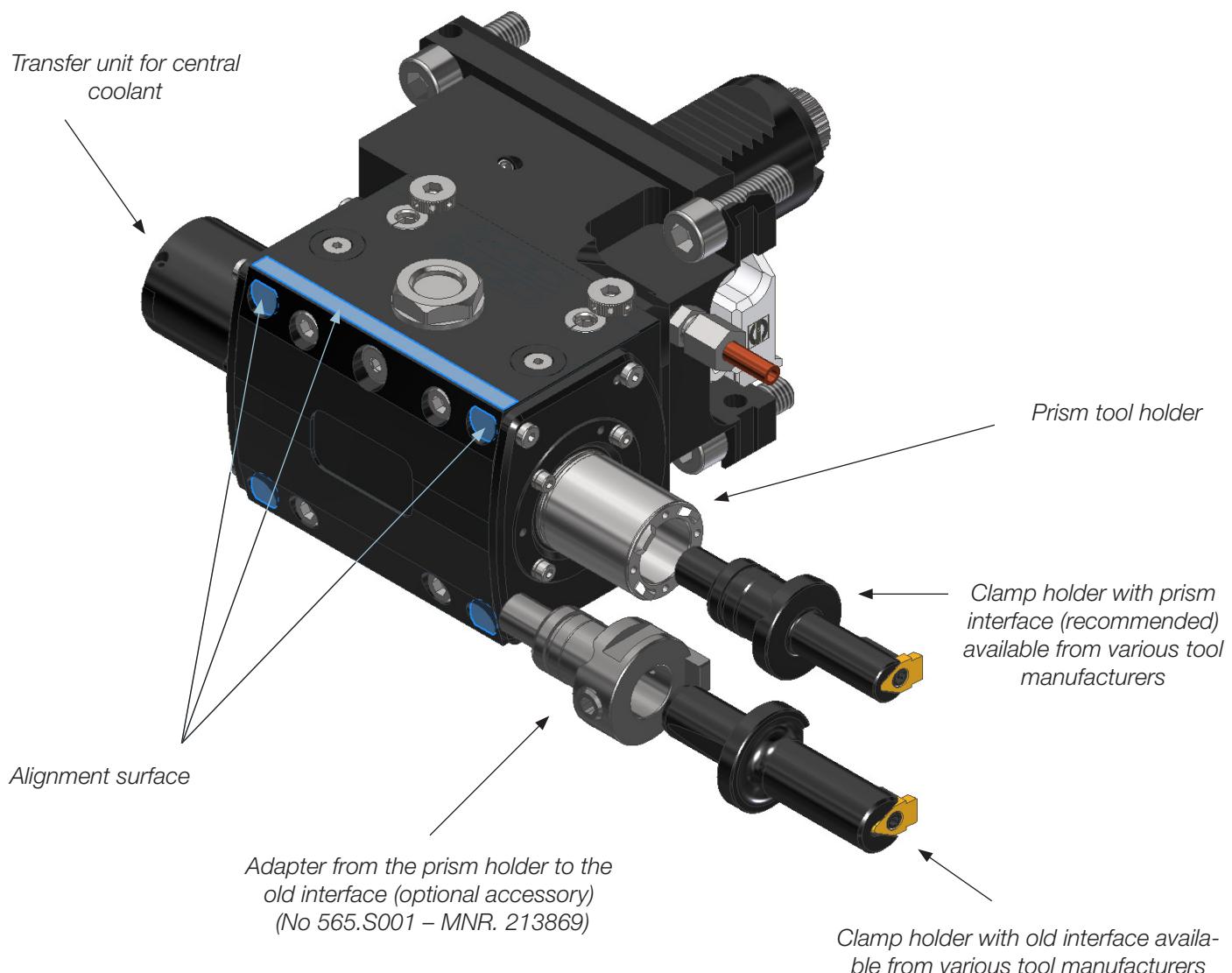
Manual

1. Identification

Type: **EWS . Slot - P20**

Designation: Broaching tool

Manufacturer: EWS Weigele GmbH & Co. KG
Maybachstr. 1
73066 Uhingen
Tel. +49 (0)7161 93040-100
www.ews-tools.de



2. Product specifications

2.1. Functions and scope of application

EWS . Slot is a driven tool for broaching on lathes within a complete machining process adding a new dimension to the economic production of internal profiles (e.g. key slots or internal gears).

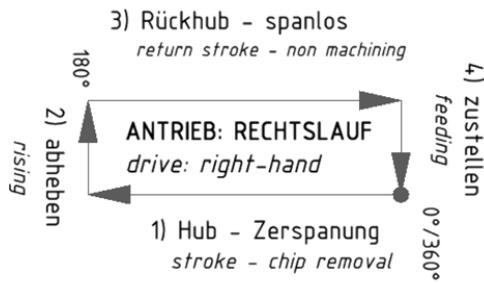
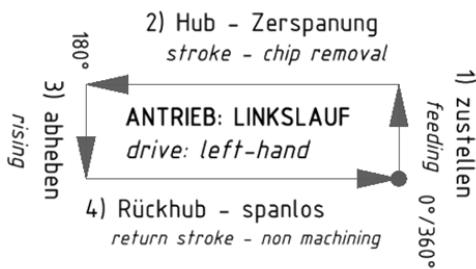
2.2. Safe and correct use

The driving direction of the **EWS . Slot** differs according to the application and gear design.

Please note the information the tool and drawing.

2.3. Technical data

	Type: P20 - Stroke 32	Type: P20 - Stroke 51
Dimensions	See drawing	See drawing
Max. number of strokes	1500 rpm (one revolution = 1 stroke)	1000 rpm (two revolutions = 1 stroke)
Stroke length	34 mm	53 mm
Working length	32 mm	51 mm
Max. torque at the drive	15 Nm	23 Nm
Transmission	1:1 (1 stroke/rotation.)	2:1 (1 stroke/2 rev.)
Max. feed	0.1 mm/stroke (depending on material)	0.1 mm/stroke (depending on material)
Lift-off dimensions on return stroke	0.14 mm	0.14 mm
Direction of drive rotation	See tool label	See tool label
Max. cutting force - Fc	1700 N	1700 N
Max. coolant pressure	50 bar	50 bar



Movement sequence with 1 revolution of the drive spindle (sequence dependent on the turret type)

(Movement sequence with 2 revolutions of the drive spindle with reduced gears: 2:1)

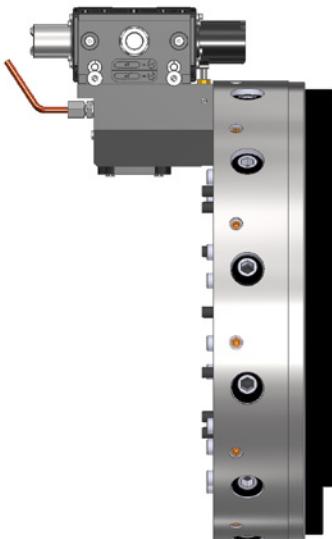
EWS . Slot

Manual

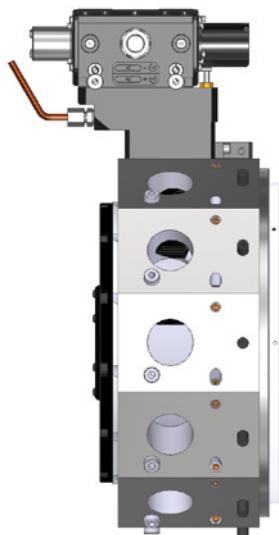
2.4. Machine requirements

- Work area: Sufficient space must be available when swinging out the turret with the **EWS . Slot** to avoid colliding with the turret socket or the housing.
- Drive torque: See 2.3 Technical data
- Starting torque: at least 15 Nm
- Turret type: Slot variants for disc and star turrets both with VDI and BMT shank holders are available.

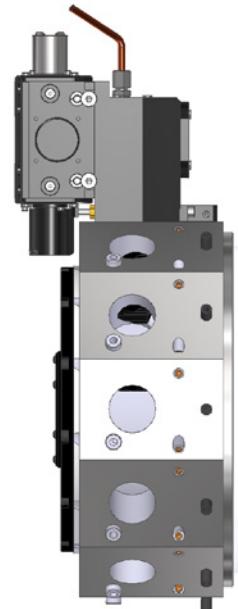
*Disc turret
Axial version*



*Star turret
Radial version*



*Star turret
Axial version for vertical
machines*



2.5. Protecting of persons

The operator of the **EWS . Slot** has to comply with the provisions of the applicable industrial safety regulations.

2.6. Safe disposal

The operator has to comply with the provisions of the applicable environment protection regulations.

3. Manual

3.1. Set up

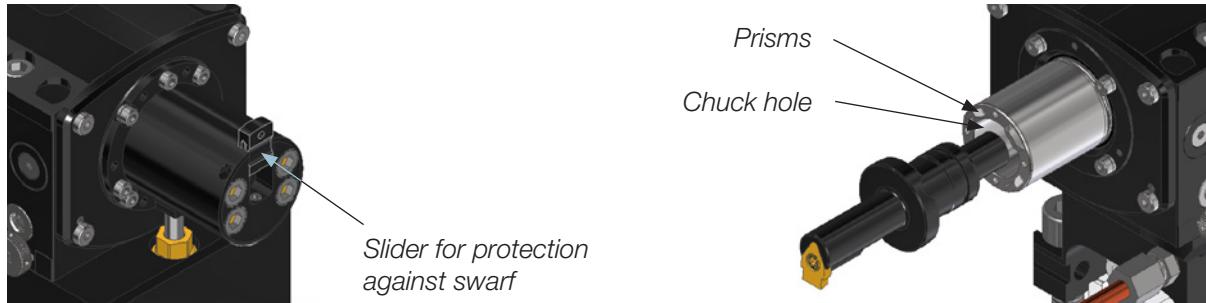
When mounting the **EWS . Slot** on the turret, the straight shank must be inserted into the turret chuck hole. Care must be taken when doing so to ensure that the position of the double flat drive on the tool head matches the groove of the drive on the machine side.

Care must also be taken to ensure that the O-ring on the shaft is not damaged.

3.2. Tool change

3.2.1. Clamping the tool

- The chuck hole and contact surface on the broaching tool must be cleaned when they are changed
- Push the swarf guard to the side on the back of the broaching tool



- Insert a T-key with size 5 spanner into the resulting opening
- Insert the cutting die holder into the chuck hole
- At the same time, turn the central clamping screw using the T-key until the prisms engage in the grooves
- Note the direction of the cutting die!
- Tighten the clamping screw to approx. 10 Nm, if possible using a torque wrench
- Push the slider back into the centre so that the opening is closed

3.2.2. Removing the tool

- Push the swarf guard to the side on the back of the broaching tool
- Insert the T-key into the opening and loosen the clamping screw
- The cutting die can be removed
- Push the slider back into the centre so that the opening is closed

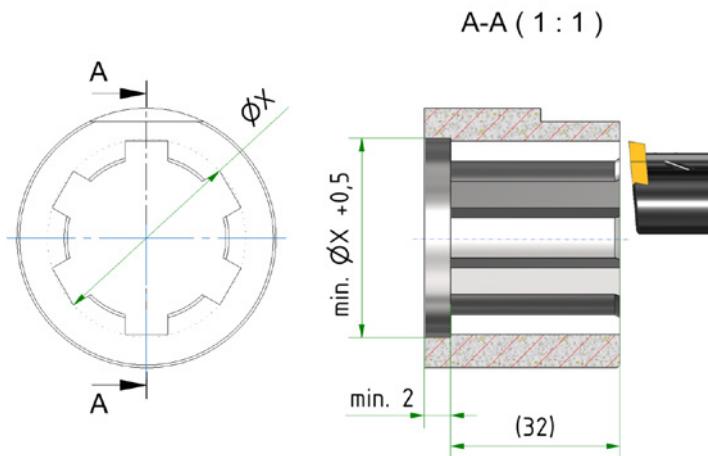
EWS . Slot

Manual

3.3. Handling

Before machining with the **EWS . Slot**, the following conditions must be established on the workpiece.

When working on the inside and outside, an outlet undercut of at least 2 mm in width must be present. The size of the undercut diameter must be determined so that a cutter outlet is possible throughout the machining process.



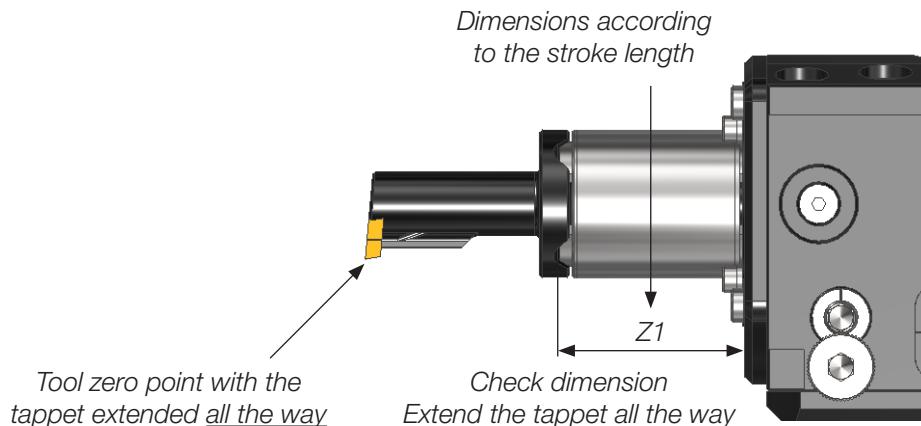
With internal machining (keyway slot or internal gearing), pre-drilling or pre-turning must also be carried out accordingly.
(See also: 4. Production examples)

The programming parameters for slotting are identical to those for milling. Machining takes place during the forward stroke. The feed movement takes place continuously during the forward and return stroke thanks to the feed drive on the X-axis. The cutting die is lifted by the integrated lift-off unit.

For safety, the correct direction of rotation should be checked as follows:

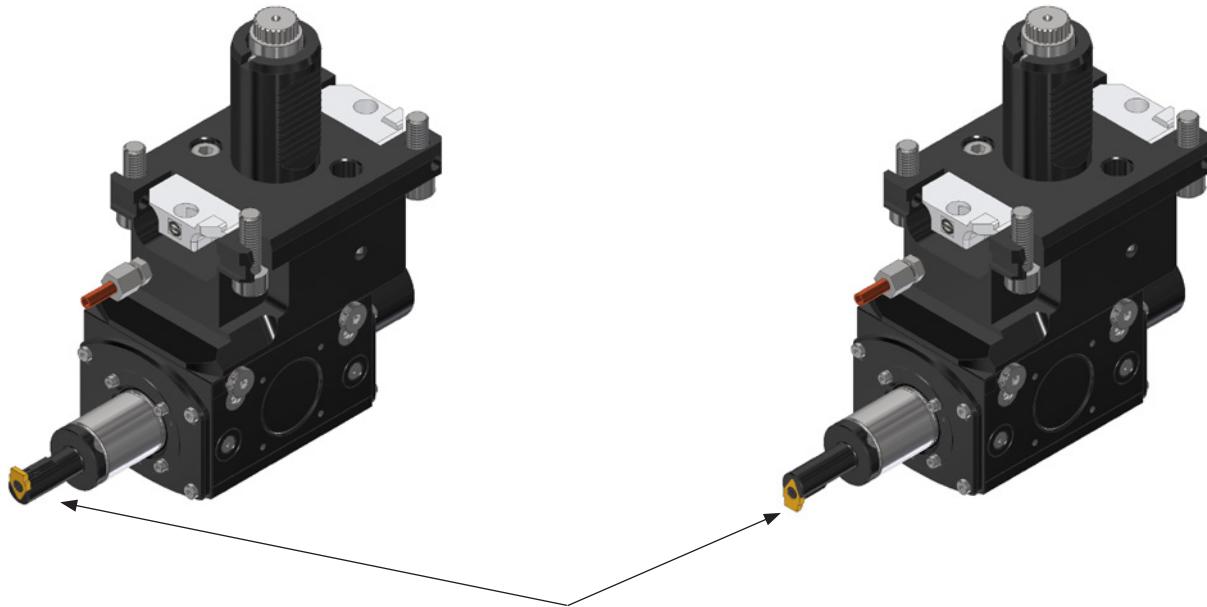
In manual mode at a very low speed, check the lift-off direction for tappets using a dial gauge.

3.4. Dimensioning the cutting tool (tool zero point)



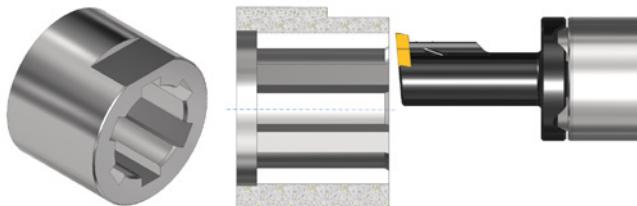
$$Z1 = \text{stroke } 32 - 37\text{mm} \\ \text{Stroke } 51 - 56\text{mm}$$

4. Production examples

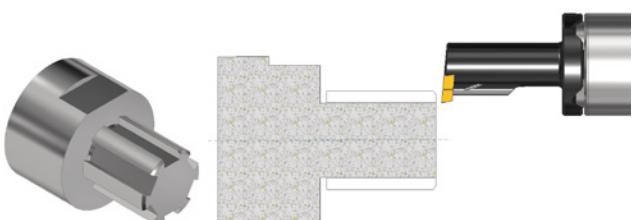


Note the cutting die position relative to the tool's contact surface!

Internal keyway



External keyway



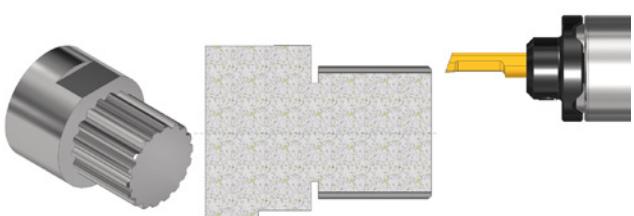
The max. keyway width must be calculated.

The max. keyway width must be calculated.

Gear hub profile



Splined shaft profile



The max. profile size must be calculated.

The max. profile size must be calculated.

EWS . Slot

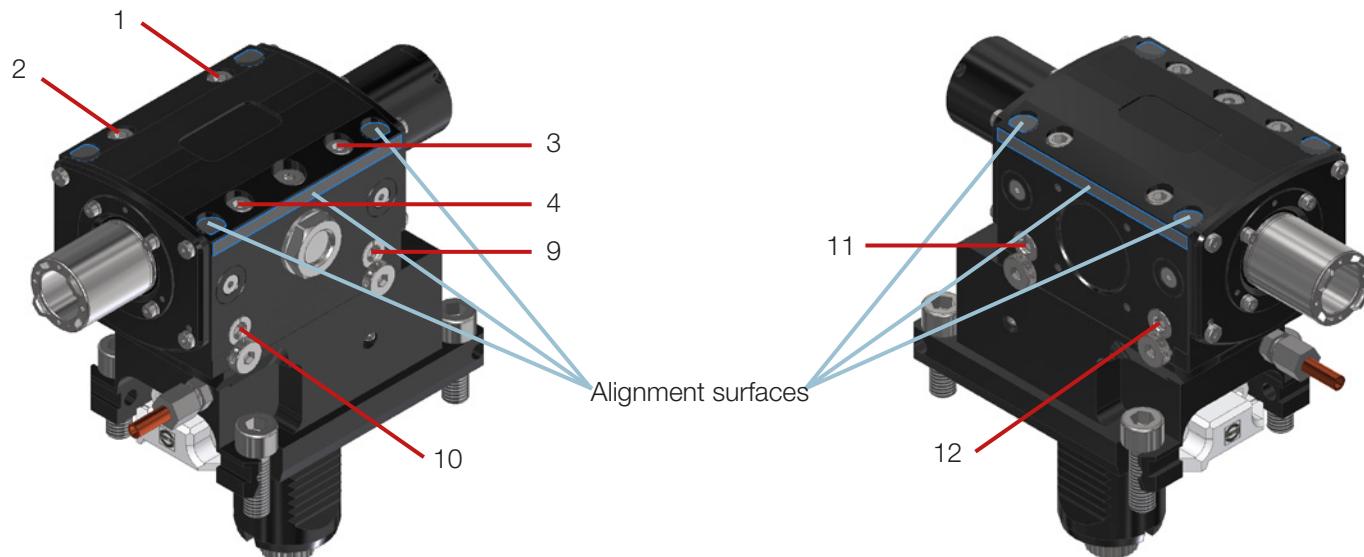
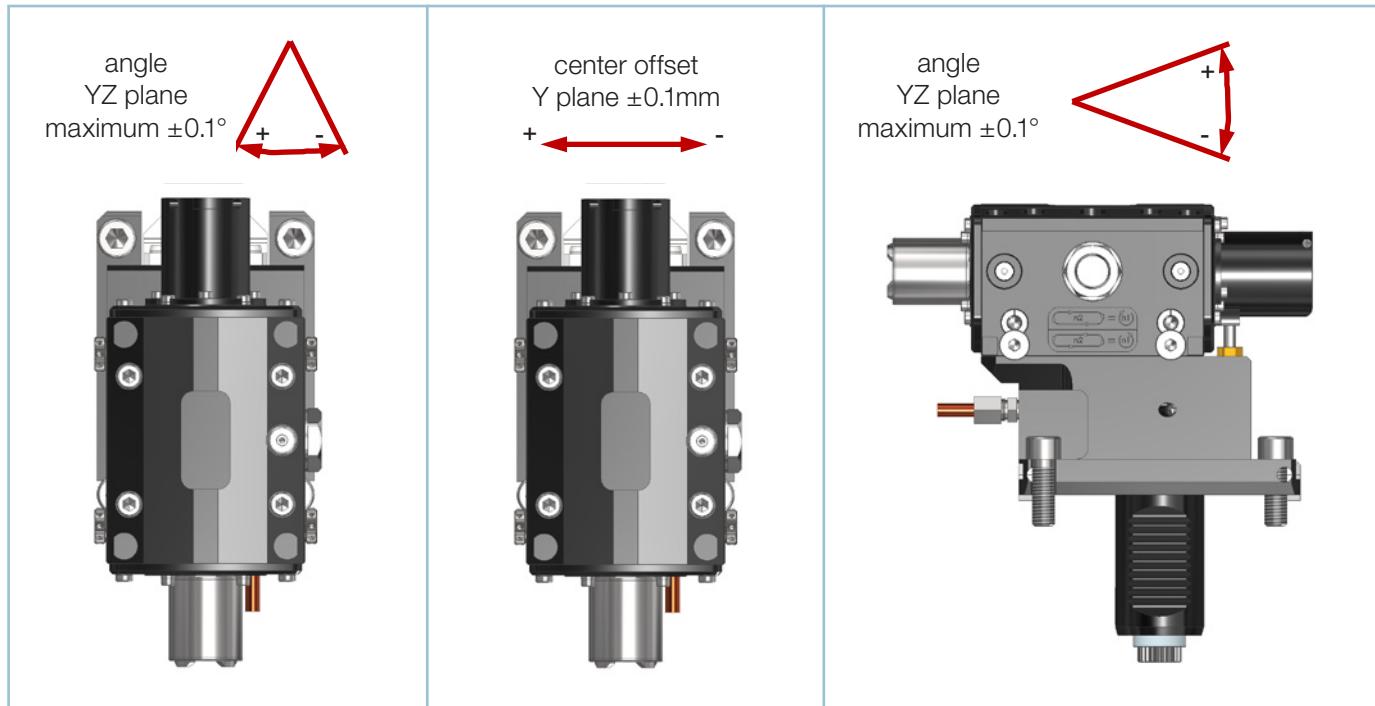
Manual

4.1. Additional alignment options

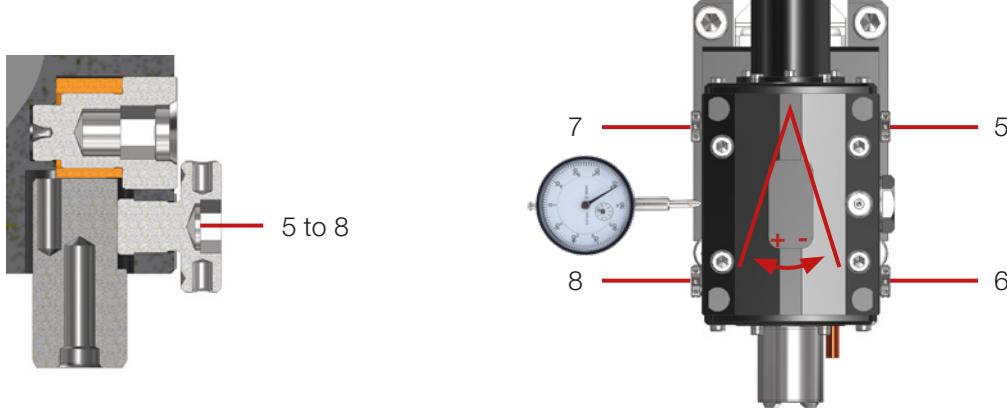
Additional alignment options are attached to the slot broaching tool's actuator head.

These should only be used if the pre-set accuracy is insufficient and correction of the base holder's alignment system or through the machine control unit is not possible.

The following corrections are possible.

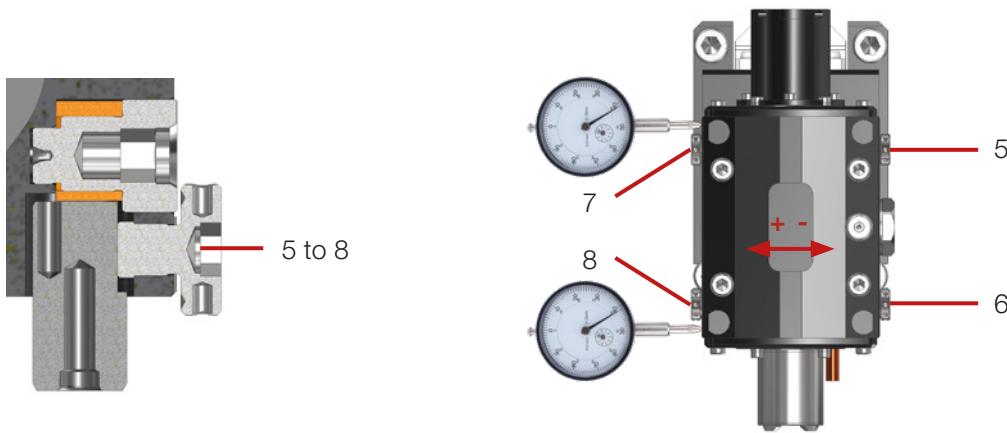


4.1.1. Correcting a YZ-plane angle error



- Contact the alignment surface with the dial gauge and determine the deviation.
- Loosen screws 1 to 4 and put them back on lightly.
- Correct the deviation in the parallelism using screws 5 to 8.
 - Example: Loosen screw 6 and tighten screw 8.
→ The actuator head drifts downwards to the left, so it turns clockwise.
- Tighten screws 1 to 4 and check the parallelism again.

4.1.2. Correcting centre offset y-axis

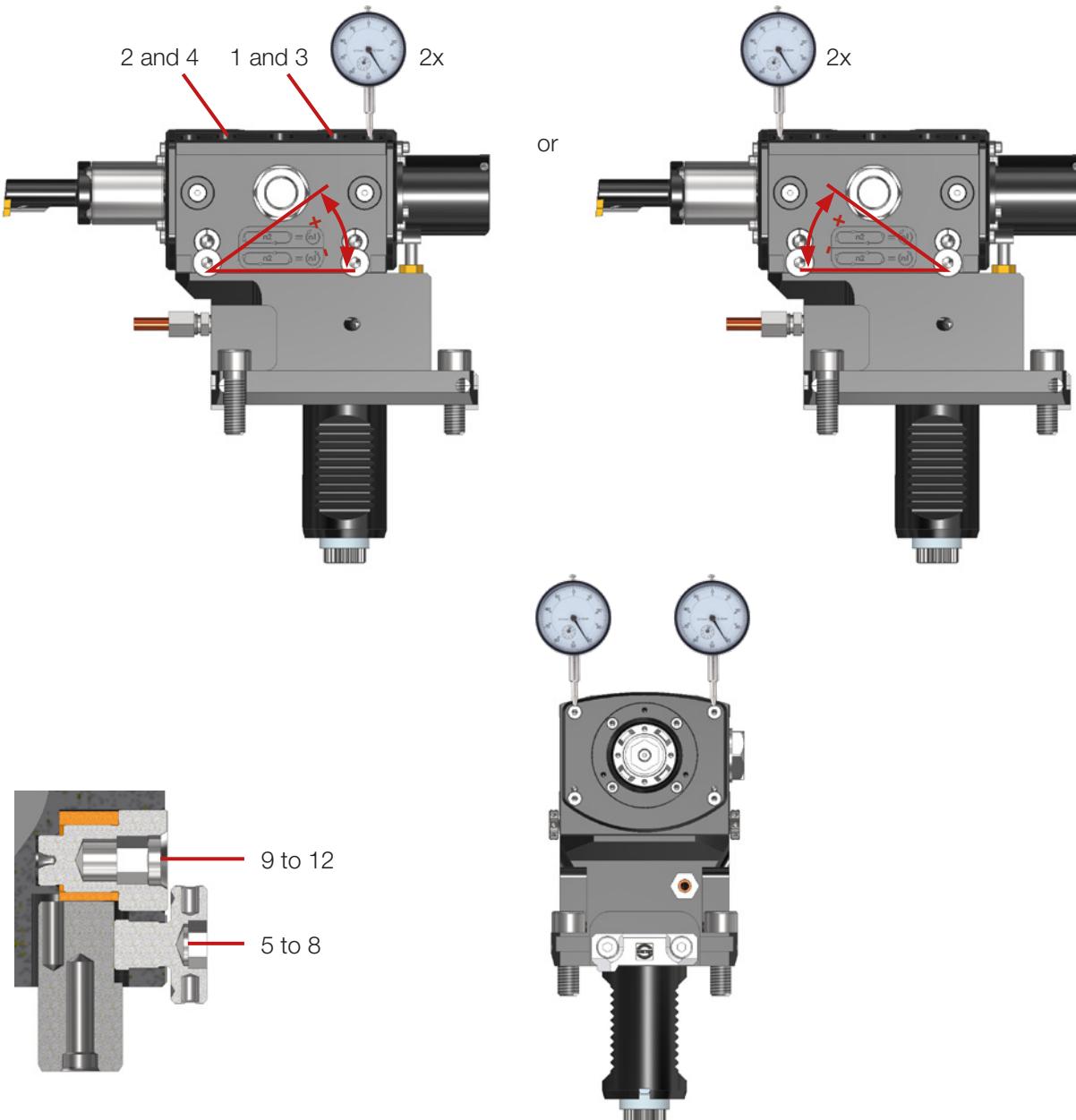


- Determine the centre offset by impacting a test groove.
- On one side, attach two dial gauges (front and back) on the alignment surface and zero them.
- Loosen screws 1 to 4 and put them back on lightly.
- Correct the centre offset using screws 5 to 8.
 - E.g. loosen screws 7 and 8 and tighten screws 5 and 6.
→ The actuator head moves parallel to the right.
- Tighten screws 1 to 4.
- Check the adjusted value again on the two dial gauges.

EWS . Slot

Manual

4.1.3. Correcting XZ-plane angle error



- Determine the deviation by impacting a test groove.
- Check that screws 5 to 8 are tight and cannot move.
- Either at the front or back, depending on which side the actuator head needs to be corrected upwards, two dial gauges are attached and set to zero.
- Loosen screws 1 to 4 and place them back on lightly on the side where no adjustment is taking place.
- Eccentrics 9 and 11 are used to lift the rear section, while 10 and 12 are used to lift the front section.
- Only one side may be lifted!
- Use the dial gauges to check that the lifting is even!
- Tighten screws 1 to 4 and check the dial gauges.

4.2. Cleaning and maintenance

4.2.1. Cleaning

Cleaning with a cloth or brush is sufficient. Compressed air may only be used to clean the chuck hole. Cleaning of the entire broaching tool with compressed air is not permitted since this can push particles into the inside of the tool and cause damage. **Do not use cleaning benzine or industrial cleaning machines for cleaning!**

4.2.2. Upkeep

When the broaching tool is not being used, protect the shiny part of the tappet against corrosion by lubricating it with oil.

4.3. Maintenance

The broaching tool from EWS Weigle GmbH & Co. KG are oil bath-lubricated.

To begin with, check the oil level daily in order to exclude any leaks that may have occurred since the inspection by EWS Weigle GmbH & Co. KG.

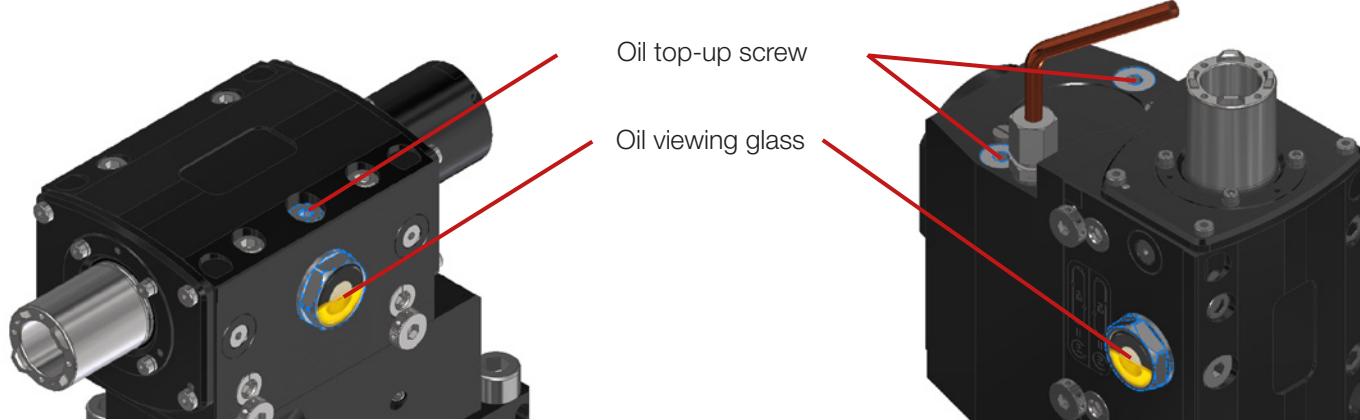
After this, the oil level should be checked on a regular basis, depending on the duration of use. A little oil loss is normal.

The oil lost must be topped up.

- To do this, position the unit vertically or horizontally, as shown in the diagram, or swivel the turret in the respective direction
- The oil level in the viewing glass must reach at least halfway
- Remove the oil top-up screw
- Top up the oil up to the maximum upper edge of the oil viewing glass
- Close again with the oil top-up screw

A bottle of oil is included in the scope of delivery.

Oil type: HLP32 DIN 51524 (or equivalent)



Horizontal installation

Vertical installation

EWS . Slot

Manual

Depending on the conditions of use, the broaching tool should be

- After one year of operation or
- After 750 hours of operation or
- After 25,000,000 double strokes

returned to EWS Weigle GmbH & Co. KG for preventative maintenance at the latest every

As the stress on the broaching tool increases, the period between maintenance intervals reduces. Under the following conditions, we recommend having preventive maintenance carried out even after a reduced period of use:

- Materials with a strength greater than 900 N/mm²
- Materials with a hardness greater than 270 HB or 28 HRC
- Machining of cast materials

4.4. Repair

The bearing, gear and sealing elements of the impact unit can be worn down faster or damaged if exposed to excessive stress.

Increased wear can occur due to:

- Long switch-on times
- Materials that attack the seals
- Hard particles in the cooling lubricant
- Severe mechanical stress
 - High forward stroke
 - High speed
 - Poor suitability of materials for machining
 - Blunt cutting dies

Damage can occur due to:

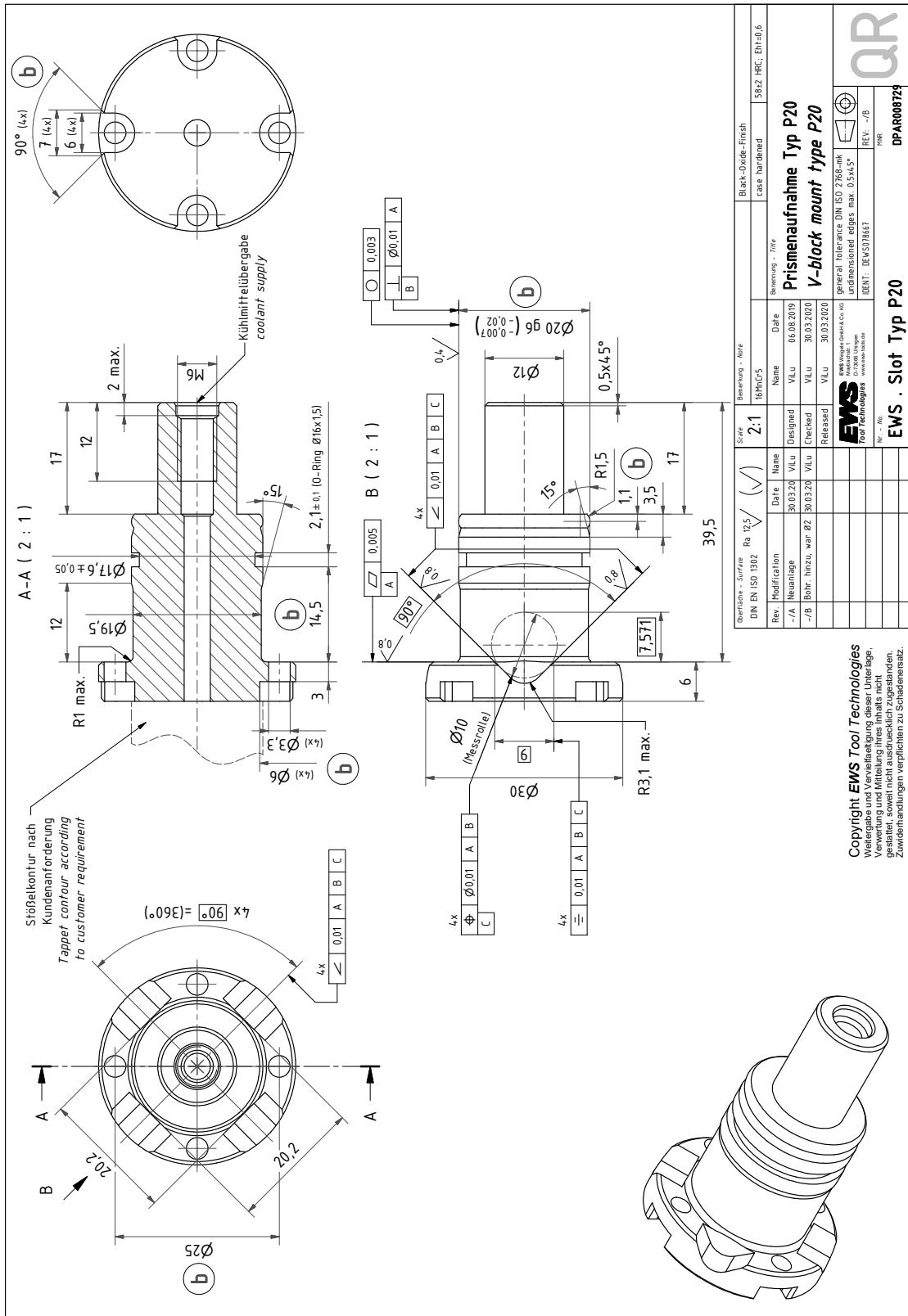
- Failure to comply with the recommended maintenance intervals
- Excessive mechanical stress
 - Tool breakage
 - Tool crash
 - Excessively high feed
 - Excessively high speed
 - Materials that are not suitable for machining

4.5. Guarantee and warranty

The manufacturer's standard conditions of sale and delivery apply (see www.ews-tolds.de).

5. Annex

5.1. Drawing with connection dimensions for clamp holders



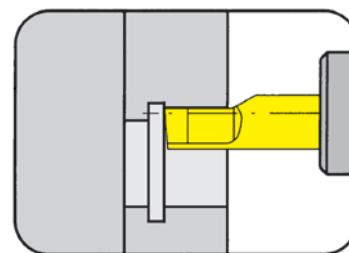
EWS . Slot

Manual

5.2. Paul Horn program: Tool holder and inserts

Klemmhalter
Toolholder

SB105/SB110

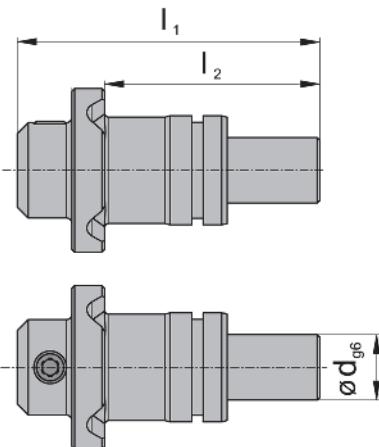


Bohrungs-Ø ab

Bore Ø from

6 mm

nur für Nutstoßgeräte EWSP20, BENZ LinA 4.0 mit IK
only usable for broaching devices EWSP20, BENZ LinA 4.0 with IK



für Schneidplatte
for Insert

Typ N105
Type N110

Abbildung = System SB105
Picture = System SB105

Einspannlänge der Platten
Clamping length of inserts
Typ/Type 105 = 12 mm
Typ/Type 110 = 26 mm

Bestellnummer Part number	d	I ₁	I ₂	D _{min}
SB105.0020.E5.01.IK	20	55,5	39,5	6
SB110.0020.E5.02.IK	20	70,0	39,5	9

Ausführungen für weitere Geräteschnittstellen auf Anfrage
Further sizes for other device interfaces upon request

Abmessungen in mm
Dimensions in mm

Das Anzugsdrehmoment der Schrauben finden Sie in den Technischen Hinweisen.
For torque specification of the screw, please see Technical Instructions.

Ersatzteile
Spare Parts

Klemmhalter Toolholder	Spannschraube Clamping Screw	TORX PLUS®-Schlüssel TORX PLUS® Wrench
SB105/SB110...	6.075T15P	T15PQ

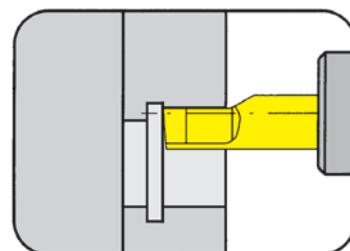
Schneidplatte
Insert

N105/N110

Toleranzklasse C11
Tolerance grade C11

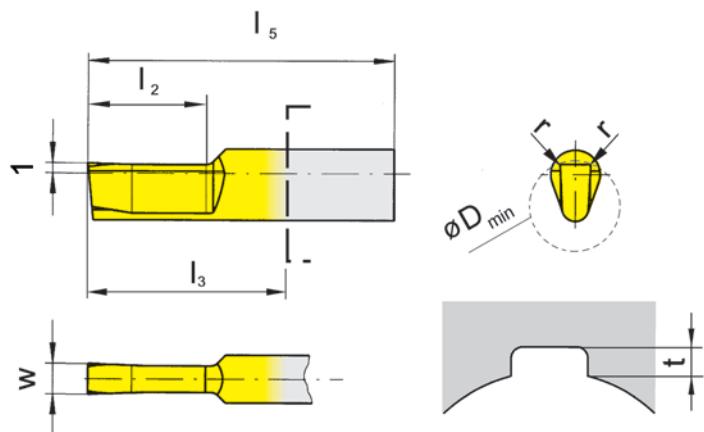
Bohrungs-Ø ab	Bore Ø from	6 mm
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Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Längsnuten nach DIN138
Keyways according to DIN138

Bestellnummer Part number	w	l ₅	l ₂	l ₃	r	Einsetzbar ab Ø Applicable from Ø	AN25
N105.0210.2.08.A2	2,11	30	12	18	0,35	6,0	▲
N105.0310.2.10.A2	3,11	30	12	18	0,35	6,5	▲
N105.0310.2.13.A2	3,11	30	12	18	0,50	6,5	▲
N105.0410.2.16.A2	4,13	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	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

P	•
M	○
K	-
N	-
S	-
H	-

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm
Dimensions in mm

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

HM-Sorten
Carbide grades

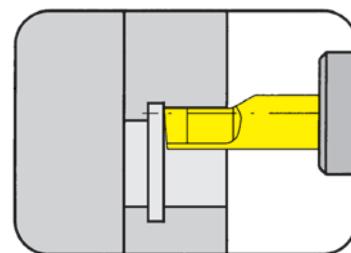
Schneidplatte
Insert

N105/N110

Toleranzklasse D10
Tolerance grade D10

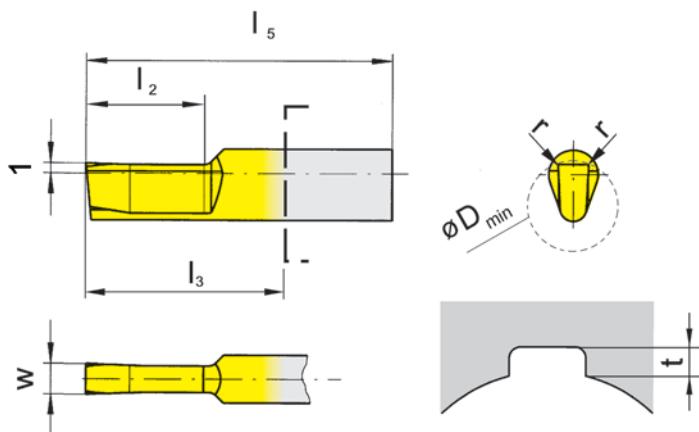
Bohrungs-Ø ab	Bore Ø from	6 mm
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Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	w	l ₅	l ₂	l ₃	r	Einsetzbar ab Ø Applicable from Ø	AN25
N105.0205.01.01.A2	2,055	30	12	18	0,12	6,0	▲
N105.0305.01.01.A2	3,055	30	12	18	0,12	6,5	▲
N105.0407.01.01.A2	4,073	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	60	40	34	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	60	40	34	0,20	9,0	▲

▲ ab Lager / on stock Δ 4 Wochen / 4 weeks x auf Anfrage / upon request

P	•
M	○
K	-
N	-
S	-
H	-

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

HM-Sorten
Carbide grades

X

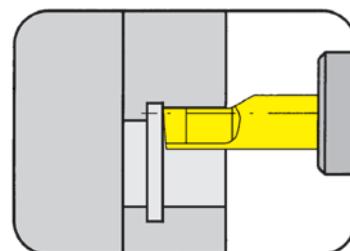
Schneidplatte
Insert

N105/N110

Toleranzklasse H9
Tolerance grade H9

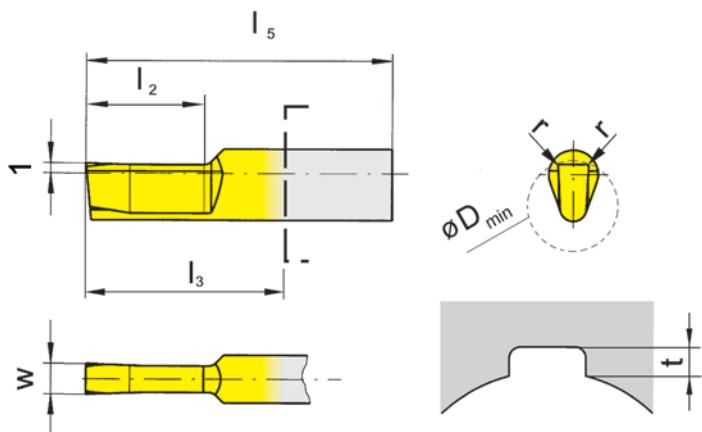
Bohrungs-Ø ab	Bore Ø from	6 mm
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Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	w	l ₅	l ₂	l ₃	r	Einsetzbar ab Ø Applicable from Ø	AN25
N105.0202.01.01.A2	2,020	30	12	18	0,1	6,0	▲
N105.0302.01.01.A2	3,020	30	12	18	0,1	6,5	▲
N105.0402.01.01.A2	4,025	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	▲

▲ ab Lager / on stock Δ 4 Wochen / 4 weeks x auf Anfrage / upon request

P	•
M	○
K	-
N	-
S	-
H	-

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

HM-Sorten
Carbide grades

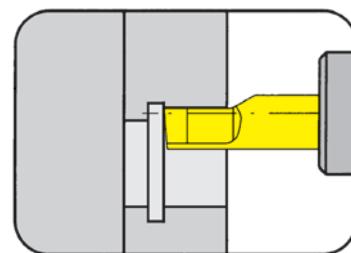
Schneidplatte
Insert

N105/N110

Toleranzklasse P9
Tolerance grade P9

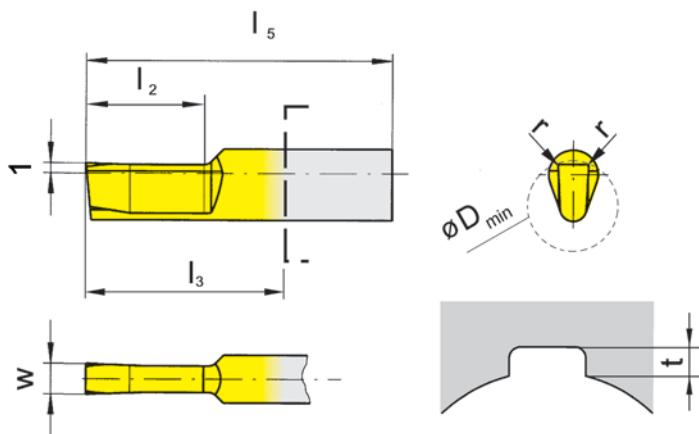
Bohrungs-Ø ab	Bore Ø from	6 mm
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Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	w	l ₅	l ₂	l ₃	r	Einsetzbar ab Ø Applicable from Ø	AN25
N105.0198.01.01.A2	1,982	30	12	18	0,1	6,0	▲
N105.0298.01.01.A2	2,982	30	12	18	0,1	6,5	▲
N105.0397.01.01.A2	3,973	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	▲

▲ ab Lager / on stock Δ 4 Wochen / 4 weeks x auf Anfrage / upon request

P •

● empfohlen / recommended

M o

○ bedingt einsetzbar / alternative recommendation

K -

- nicht geeignet / not suitable

N -

■ unbeschichtete HM-Sorten / uncoated grades

S -

■ beschichtete HM-Sorten / coated grades

H -

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

HM-Sorten
Carbide grades

Dimensions in mm

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

X

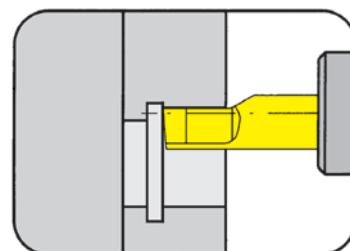
Schneidplatte
Insert

N105/N110

Toleranzklasse JS9
Tolerance grade JS9

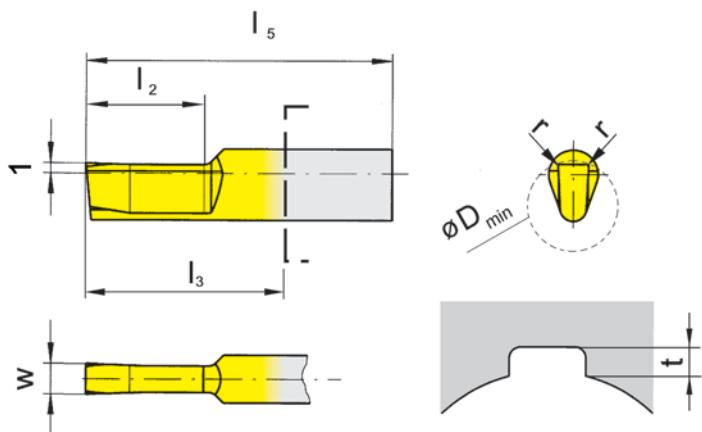
Bohrungs-Ø ab	Bore Ø from	6 mm
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Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	W	I ₅	I ₂	I ₃	r	Einsetzbar ab Ø Applicable from Ø	AN25
N105.0200.01.01.A2	2	30	12	18	0,1	6,0	▲
N105.0300.01.01.A2	3	30	12	18	0,1	6,5	▲
N105.0400.01.01.A2	4	35	15	23	0,1	6,5	▲
N105.0400.02.01.A2	4	35	15	23	0,2	6,5	▲
N110.0400.02.04.A2	4	60	25	34	0,2	9,0	▲
N110.0400.02.07.A2	4	75	40	49	0,2	9,0	▲
N110.0500.02.04.A2	5	60	25	34	0,2	9,0	▲
N110.0500.02.07.A2	5	75	40	49	0,2	9,0	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

P	•
M	○
K	-
N	-
S	-
H	-

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm
Dimensions in mm

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

HM-Sorten
Carbide grades

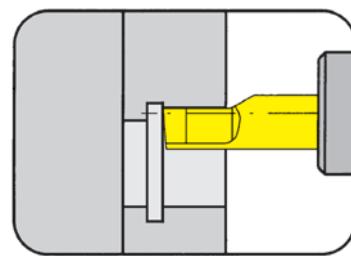
Schneidplatte Insert

N105/N110

Bohrungs-Ø ab Bore Ø from

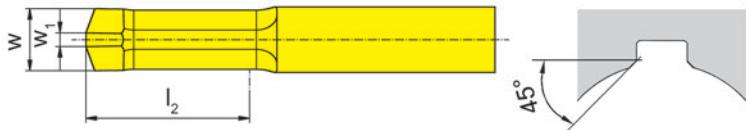
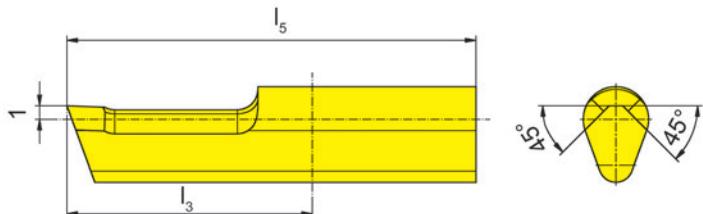
6 mm

Empfehlung für: Nutstoßaggregate Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Fasen Chamfering

Bestellnummer Part number	w	w ₁	l ₅	l ₂	l ₃	D _{min}	Einsetzbar ab Ø Applicable from Ø	AN25
N105.4545.2.6.A1	4,5	1	30	12	18	6	6	▲
N105.4545.3.6.A1	4,5	1	35	20	23	6	6	▲
N110.4545.4.9.A1	6,3	2	60	25	34	9	9	▲
N110.4545.7.9.A1	6,3	2	75	40	49	9	9	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

- empfohlen / recommended

o bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

HM-Sorten
Carbide grades

X

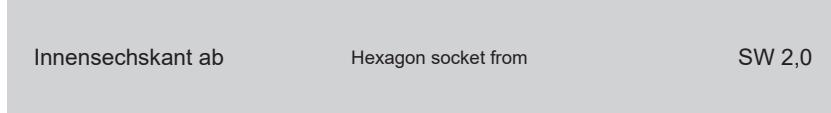
Nutstoßen - Innensechskant

Broaching - Hexagon Socket

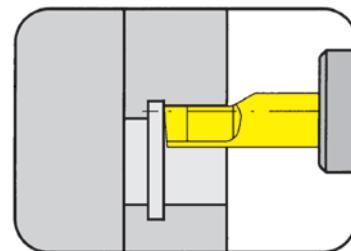
ph HORN ph

Schneidplatte
Insert

N105/N110

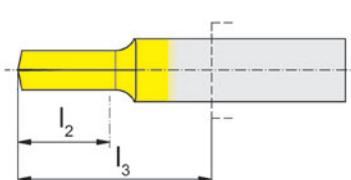
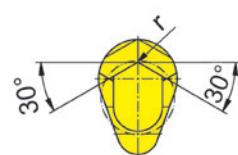
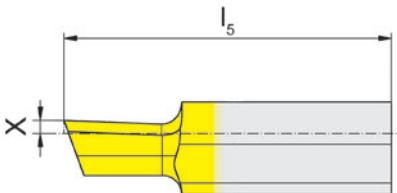


Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SB105
Type B105
SB110



Innensechskant
Hexagon socket

Bestellnummer Part number	I ₅	I ₂	I ₃	r	X	SW	Grundbohrung Pilot ø	AN25
N105.SW20.20.01.A1	25	4,0	13	0,05	1,0	2,0	SW	▲
N105.SW25.25.01.A1	25	4,0	13	0,05	1,0	2,5 - 2,9	SW	▲
N105.SW30.30.01.A1	25	4,5	13	0,05	1,0	2,9 - 3,5	SW	▲
N105.SW35.35.01.A1	25	5,5	13	0,05	1,0	3,5 - 4,0	SW	▲
N105.SW40.40.01.A1	25	6,0	13	0,10	1,0	4,0 - 4,5	SW	▲
N105.SW45.45.01.A1	25	7,0	13	0,10	1,0	4,5 - 5,0	SW	▲
N105.SW56.56.01.A1	25	9,0	13	0,10	1,0	5,0 - 8,0	SW	▲
N105.SW80.80.01.A1	30	12,0	18	0,10	1,0	8,0 - 10,0	SW+,01	▲
N110.SW14.14.03.A1	55	20,0	29	0,20	1,5	10,0 - 14,0	SW+,01	▲
N110.SW16.16.04.A1	55	25,0	29	0,20	2,0	14,0-16,5/ 16,8 - 18,0	SW+,01/ SW+,0,2	▲

▲ ab Lager / ab Lager △ 4 Wochen / 4 Weeks x auf Anfrage / on Request

● empfohlen / recommended

○ bedingt einsetzbar / limitedly applicable

- nicht geeignet / not applicable

■ unbeschichtete HM-Sorten / uncoated HM grades

■ beschichtete HM-Sorten / coated HM grades

■ bestückt/Cermet / carbide grade

P	•
M	○
K	•
N	•
S	○
H	-

Abmessungen in mm

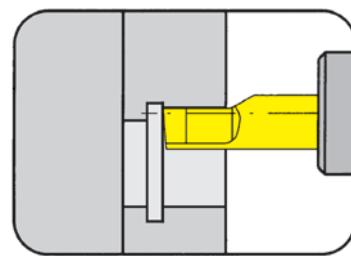
Dimensions in mm

HM-Sorten
Carbide grades

X

Schneidplatte
Insert

N105



Torx ab

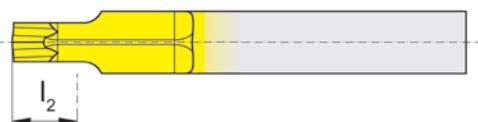
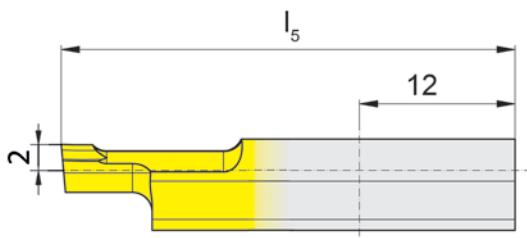
Torx from

T15

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units

für Klemmhalter
for Toolholder

Typ SB105
Type B105



Torx

Bestellnummer Part number	Torx	l_5	l_2	AN25
N105.TX15.24.03.A1	T15	35	4	▲
N105.TX20.28.03.A1	T20	35	4	▲
N105.TX25.32.03.A1	T25	35	5	▲
N105.TX30.40.03.A1	T30	35	5	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

P	•
M	○
K	-
N	-
S	-
H	-

HM-Sorten
Carbide grades

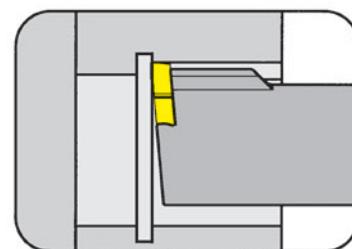
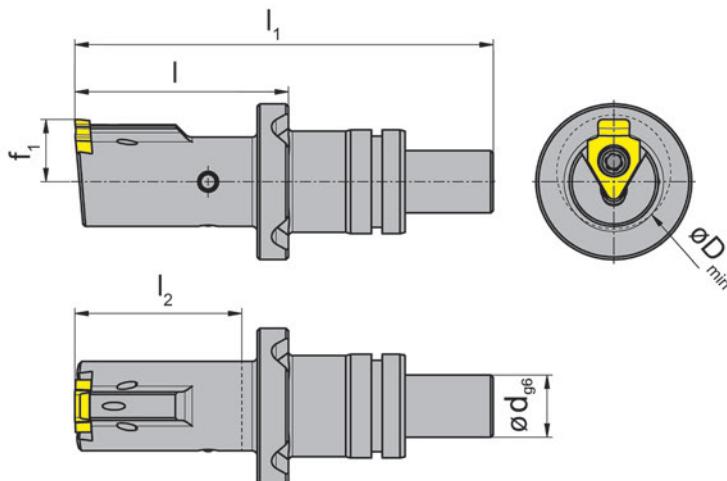
X

Klemmhalter
Toolholder

SH117

Bohrungs-Ø ab	Bore Ø from	14 mm
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nur für Nutstoßgeräte EWSP20, BENZ LinA 4.0 mit IK
only usable for broaching devices EWSP20, BENZ LinA 4.0 with IK



für Schneidplatte
for Insert

Typ S117
Type

Bestellnummer Part number	d	I	I ₁	I ₂	D _{min}	f ₁	Form Form
SH117.1420.E5.08.IK	20	42,5	82,0	32	14	9,6	F
SH117.1720.E5.10.IK	20	41,0	80,5	32	17	9,5	A
SH117.1720.E6.10.IK	20	60,0	99,5	51	17	9,5	A
SH117.2220.E5.10.IK	20	41,0	80,5	32	22	12,0	B
SH117.2220.E6.10.IK	20	60,0	99,5	51	22	12,0	B

Ausführungen für weitere Geräteschnittstellen auf Anfrage

Further sizes for other device interfaces upon request

Das Anzugsdrehmoment der Schrauben finden Sie in den Technischen Hinweisen.

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

Abmessungen in mm
Dimensions in mm

X

Ersatzteile
Spare Parts

Klemmhalter Toolholder	Spannschraube Clamping Screw	TORX PLUS®-Schlüssel TORX PLUS® Wrench
SH117.1420.E5.08.IK	030.3509.T15P	T15PQ
SH117...	4.09T15P	T15PQ

Schneidplatte
Insert

S117

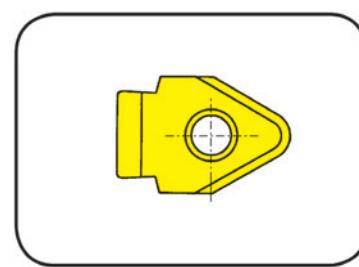
Toleranzklasse C11
Tolerance grade C11

Bohrungs-Ø ab
Nuttiefe bis

Bore Ø from
Depth of groove up to

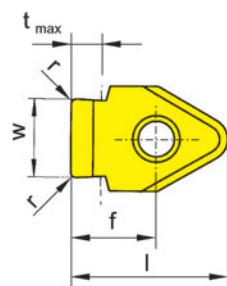
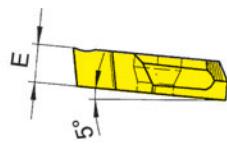
14 mm
8,5 mm

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117



Längsnuten nach DIN138
Keyways according to DIN138

Bestellnummer Part number	Nw	w	I	r	E	D _{min}	t _{max}	f	Form Form	AN45
S117.0310.04.08.A1	3	3,10	13	0,35	4	14	2,0	6,0	G	▲
S117.0412.05.08.A1	4	4,12	13	0,50	4	14	2,1	6,0	F	▲
S117.0612.09.10.A1	6	6,12	16	0,85	3	22	2,6	8,0	B	▲
S117.0713.11.10.A1	7	7,13	16	0,85	3	22	3,3	8,0	B	▲
S117.0813.11.10.A1	8	8,13	16	1,05	3	22	3,4	8,0	B	▲
S117.1013.11.14.A1	10	10,13	21	1,05	6	30	4,2	11,2	C	▲
S117.1215.14.14.A1	12	12,15	21	1,35	6	38	5,1	11,2	D	▲
S117.1215.18.14.A1	16	12,15	21	1,75	6	38	6,6	11,2	D	▲
S117.1215.23.14.A1	24	12,15	21	2,25	6	38	8,5	11,2	D	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

Hinweis:

Die Form der Schneidplatte muss der Halterform entsprechen. Bsp.: Klemmhalter Form A = Schneidplatte Form A

Note:

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

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

P	•
M	○
K	•
N	•
S	○
H	-

HM-Sorten
Carbide grades

X

Schneidplatte
Insert

S117

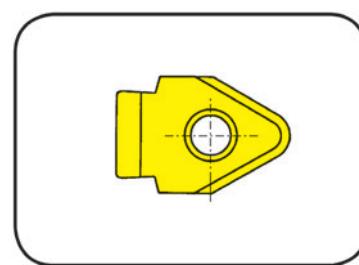
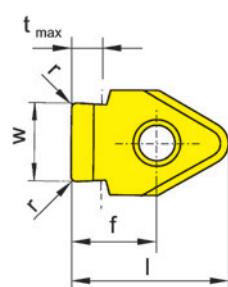
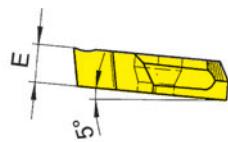
Toleranzklasse D10
Tolerance grade D10

Bohrungs-Ø ab
Nuttiefe bis

Bore Ø from
Depth of groove up to

14 mm
6,8 mm

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117

Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	Nw	w	l	r	E	D _{min}	t _{max}	f	Form Form	AN45
S117.0305.01.08.A1	3	3,100	13,0	0,12	4	14	2,0	6,0	G	▲
S117.0407.01.08.A1	4	4,070	13,0	0,12	4	14	2,1	6,0	F	▲
S117.0507.02.08.A1	5	5,070	13,0	0,20	4	14	2,7	6,0	F	▲
S117.0507.02.10.A1	5	5,070	14,5	0,20	3	14	2,7	6,5	A	▲
S117.0607.02.10.A1	6	6,070	14,5	0,20	3	17	3,4	6,5	A	▲
S117.0808.02.10.A1	8	8,080	16,0	0,20	3	22	4,1	8,0	B	▲
S117.1008.03.14.A1	10	10,087	21,0	0,30	6	30	4,2	11,2	C	▲
S117.1210.03.14.A1	12	12,110	21,0	0,30	6	38	5,7	11,2	D	▲
S117.1410.03.16.A1	14	14,110	21,0	0,30	6	40	6,8	11,2	E	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

P	•
M	○
K	•
N	•
S	○
H	-

Abmessungen in mm

Dimensions in mm

Hinweis:

Die Form der Schneidplatte muss der Halterform entsprechen. Bsp.: Klemmhalter Form A = Schneidplatte Form A

Note:

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

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

HM-Sorten
Carbide grades

Schneidplatte
Insert

S117

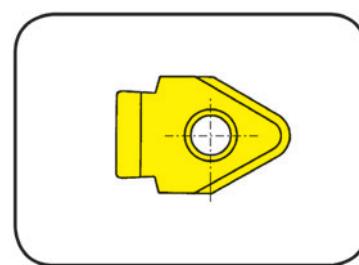
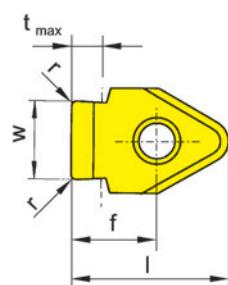
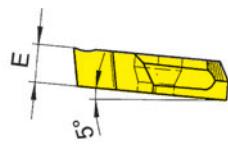
Toleranzklasse H9
Tolerance grade H9

Bohrungs-Ø ab
Nuttiefe bis

Bore Ø from
Depth of groove up to

14 mm
6,8 mm

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117

Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	Nw	w	l	r	E	D _{min}	t _{max}	f	Form Form	AN45
S117.0302.01.08.A1	3	3,018	13,0	0,12	4	14	2,0	6,0	G	▲
S117.0402.01.08.A1	4	4,022	13,0	0,12	4	14	2,1	6,0	F	▲
S117.0502.02.08.A1	5	5,022	13,0	0,20	4	14	2,7	6,0	F	▲
S117.0502.02.10.A1	5	5,022	14,5	0,20	3	17	2,7	6,5	A	▲
S117.0602.02.10.A1	6	6,022	14,5	0,20	3	17	3,4	6,5	A	▲
S117.0803.02.10.A1	8	8,028	16,0	0,20	3	22	4,1	8,0	B	▲
S117.1003.03.14.A1	10	10,028	21,0	0,30	6	30	4,2	11,2	C	▲
S117.1203.03.14.A1	12	12,036	21,0	0,30	6	38	5,7	11,2	D	▲
S117.1403.03.16.A1	14	14,036	21,0	0,30	6	40	6,8	11,2	E	▲

▲ ab Lager / on stock Δ 4 Wochen / 4 weeks x auf Anfrage / upon request

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

Hinweis:

Die Form der Schneidplatte muss der Halterform entsprechen. Bsp.: Klemmhalter Form A = Schneidplatte Form A

Note:

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

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

P	•
M	◦
K	•
N	•
S	◦
H	-

HM-Sorten
Carbide grades

X

Schneidplatte
Insert

S117

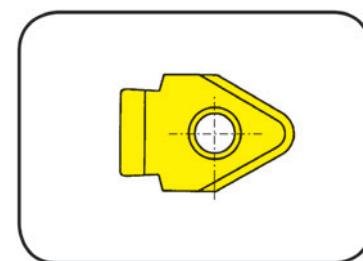
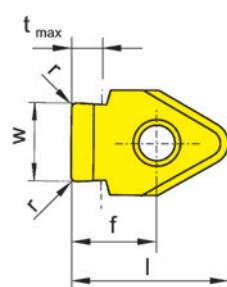
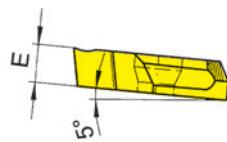
Toleranzklasse P9
Tolerance grade P9

Bohrungs-Ø ab
Nuttiefe bis

Bore Ø from
Depth of groove up to

14 mm
6,8 mm

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117

Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	Nw	w	l	r	E	D _{min}	t _{max}	f	Form Form	AN45
S117.0298.01.08.A1	3	2,99	13,0	0,12	4	14	2,0	6,0	G	▲
S117.0397.01.08.A1	4	3,98	13,0	0,12	4	14	2,1	6,0	F	▲
S117.0497.02.08.A1	5	4,98	13,0	0,20	4	14	2,7	6,0	F	▲
S117.0497.02.10.A1	5	4,98	14,5	0,20	3	17	2,7	6,5	A	▲
S117.0597.02.10.A1	6	5,98	14,5	0,20	3	17	3,4	6,5	A	▲
S117.0796.02.10.A1	8	7,98	16,0	0,20	3	22	4,1	8,0	B	▲
S117.0996.03.14.A1	10	9,98	21,0	0,30	6	30	4,2	11,2	C	▲
S117.1196.03.14.A1	12	11,97	21,0	0,30	6	38	5,7	11,2	D	▲
S117.1396.03.16.A1	14	13,97	21,0	0,30	6	40	6,8	11,2	E	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

P	•
M	○
K	•
N	•
S	○
H	-

Abmessungen in mm

Dimensions in mm

Hinweis:

Die Form der Schneidplatte muss der Halterform entsprechen. Bsp.: Klemmhalter Form A = Schneidplatte Form A

Note:

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

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

HM-Sorten
Carbide grades

Schneidplatte
Insert

S117

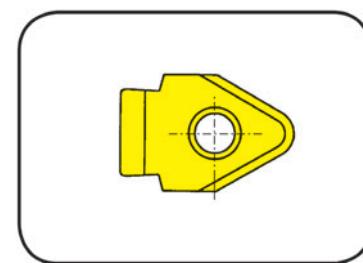
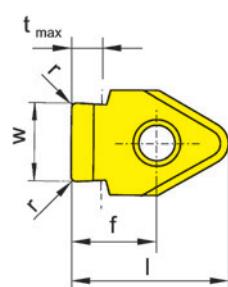
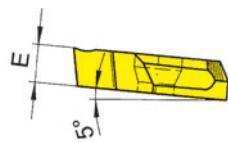
Toleranzklasse JS9
Tolerance grade JS9

Bohrungs-Ø ab
Nuttiefe bis

Bore Ø from
Depth of groove up to

14 mm
8,5 mm

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117

Längsnuten nach DIN6885
Keyways according to
DIN6885

Bestellnummer Part number	Nw	w	I	r	E	D _{min}	t _{max}	f	Form Form	AN45
S117.0300.01.08.A1	3	3,01	13,0	0,12	4	14	2,0	6,0	G	▲
S117.0400.01.08.A1	4	4,01	13,0	0,12	4	14	2,1	6,0	F	▲
S117.0500.02.08.A1	5	5,01	13,0	0,20	4	14	2,7	6,0	F	▲
S117.0500.02.10.A1	5	5,01	14,5	0,20	3	17	2,7	6,5	A	▲
S117.0600.02.10.A1	6	6,01	14,5	0,20	3	17	3,4	6,5	A	▲
S117.0800.02.10.A1	8	8,01	16,0	0,20	3	22	4,1	8,0	B	▲
S117.1000.03.14.A1	10	10,01	21,0	0,30	6	30	4,2	11,2	C	▲
S117.1200.03.14.A1	12	12,01	21,0	0,30	6	38	5,7	11,2	D	▲
S117.1200.05.14.A1	12	12,00	21,0	0,50	6	38	8,5	11,2	D	▲
S117.1400.03.16.A1	14	14,01	21,0	0,30	6	40	6,8	11,2	E	▲

▲ ab Lager / on stock Δ 4 Wochen / 4 weeks x auf Anfrage / upon request

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

Hinweis:

Schneidplatte S117.1200.05.14 ist Nw **ab** 12 mm!

Note:

Insert S117.1200.05.14 = Nw **from** 12 mm!

Bestellhinweis:

Die Nutabmessungen nach DIN finden Sie in den Technischen Hinweisen.

Ordering note:

For Dimensions of Groove DIN please see Technical Instructions.

P	•
M	◦
K	•
N	•
S	◦
H	-

HM-Sorten
Carbide grades

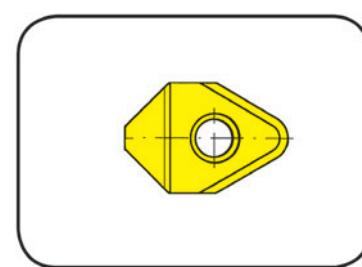
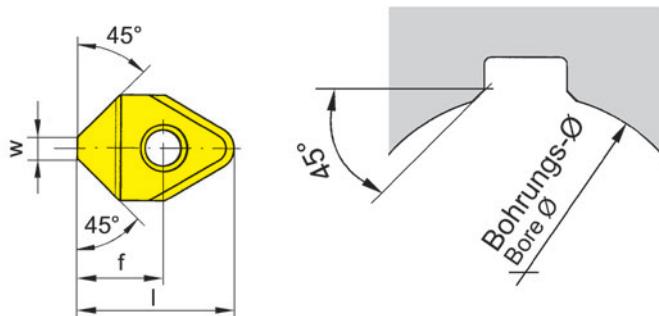
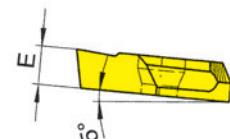
X

Schneidplatte
Insert

S117

Bohrungs-Ø ab	Bore Ø from	14 mm
---------------	-------------	-------

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units



für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117

Fasen
Chamfering

Bestellnummer Part number	w	I	E	D _{min}	f	Form Form	AN45
S117.1545.10.A1	1,5	16	3	17	8,0	A	▲
S117.2445.08.A1	2,4	13	4	14	6,0	F	▲
S117.3045.10.A1	3,0	16	3	22	8,0	B	▲
S117.6045.14.A1	6,0	21	6	30	11,2	C/D	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

• empfohlen / recommended

o bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

P	•
M	○
K	•
N	•
S	○
H	-

Abmessungen in mm

Dimensions in mm

Hinweis:

Die Form der Schneidplatte muss der Halterform entsprechen. Bsp.: Klemmhalter Form A = Schneidplatte Form A

Note:

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

HM-Sorten
Carbide grades

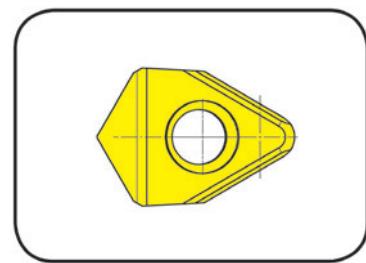
Nutstoßen - Innensechskant

Broaching - Hexagon Socket

ph HORN ph

Schneidplatte
Insert

S117



Innensechskant

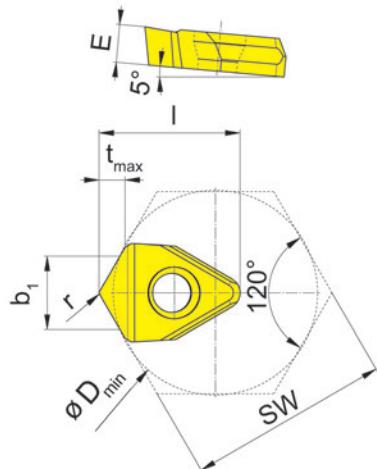
Hexagon socket

SW14 - SW36

Empfehlung für: Nutstoßaggregate
Recommended for: Broaching units

für Klemmhalter
for Toolholder

Typ SH117
Type SHM117
H117



Innensechskant
Hexagon socket

Bestellnummer Part number	SW	b ₁	I	r	E	D _{min}	t _{max}	Klemmhalter Toolholder	AN45
S117.SW14.08.A1	14-16	4,94-5,80	13,0	0,2	4,0	14,2-16,2	1,9	SH117.1425.30.1.08	▲
S117.SW16.10.A1	16-22	5,80-8,43	14,0	0,2	3,0	16,2-22,2	2,5	SH117.1625.30.1.10	▲
S117.SW24.12.A1	24-27	8,70-10,00	17,0	0,3	4,5	24,3-27,3	3,0	SH117.2432.30.1.12	▲
S117.SW30.16.A1	30-36	11,32-13,97	20,7	0,3	6,0	30,3-36,3	4,2	SH117.3032.30.1.16	▲

▲ ab Lager / on stock △ 4 Wochen / 4 weeks x auf Anfrage / upon request

P	•
M	○
K	•
N	•
S	○
H	-

● empfohlen / recommended

○ bedingt einsetzbar / alternative recommendation

- nicht geeignet / not suitable

■ unbeschichtete HM-Sorten / uncoated grades

■ beschichtete HM-Sorten / coated grades

■ bestückt/Cermet / brazed/Cermet

Abmessungen in mm

Dimensions in mm

HM-Sorten
Carbide grades

X

Tipps und Tricks

- Am Nutende einer Sackbohrung muss eine Stoßauslaufnut oder ein Freistich vorhanden sein.
- Heben Sie das Werkzeug beim Rückhub an.
- Eine Kühlmittelzufuhr von Emulsionen oder Öl in der Bohrung, ist von entscheidendem Vorteil. Hierdurch werden die Späne aus der Bohrung gespült. Auch der Schmiereffekt des Kühlmediums hat sich bei fast allen Anwendungen positiv auf die Oberflächenbeschaffenheit der Nut und die Standzeit ausgewirkt.
- Wenn möglich sollte oben (Position 12 Uhr) gestoßen werden, damit der Stoßzyklus nicht durch anfallende Späne beeinträchtigt wird.
- Vorsicht bei beengten Bohrungen! Kollisionsgefahr am Rücken!
- Messen Sie das Werkzeug korrekt aus. Beachten Sie das Anstellmaß beim Programmieren des ersten Hubes.

Application Tips:

- It is important to use a machine with mechanical spindle lock.
- The use of proper coolant is key to a good surface finish, long tool life as well as chip evacuation.
- A relief groove or the possibility for a "ramp down" exit out of the cut is necessary at the end of the broached groove.
- Setting of the tool is very important. Double check the component diameter before taking the first pass.
- The tool should be set at the 12 o'clock position to ensure that chips fall away from the groove.
- 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.

Bearbeitungsbeispiel:

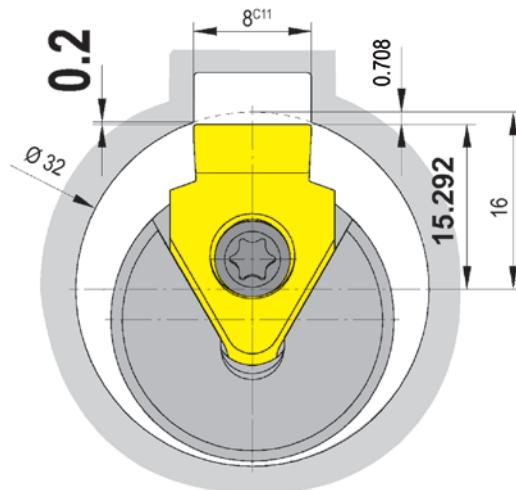
Bohrungs-Ø 32 mm, Nutbreite 8 mm:

Bei einem Bohrungsradius von 16 mm und einer Sicherheit von 0,2 mm an den Eckradien der Schneidplatte muss das Werkzeug in der X-Achse auf Anstellmaß 15,292 mm (bzw. X 30,584) eingestellt werden, um einen kollisionsfreien Hub zu gewährleisten.

Machining example:

Bore diameter 32 mm, groove width 8 mm:

At a radius of 16 mm and with a clearance of 0,2 mm for safety at the r 0,2 mm corner radii, the tool has to be set at 15,292 mm in X-axis to avoid any collision at the beginning of the process.



Berechnung Anstellmaß b_1 :

Calculation of the start position b_1 :

$$c^2 = a^2 + b^2$$

$$b^2 = c^2 - a^2$$

$$b = \sqrt{c^2 - a^2}$$

$$b = \sqrt{16^2 - 4^2}$$

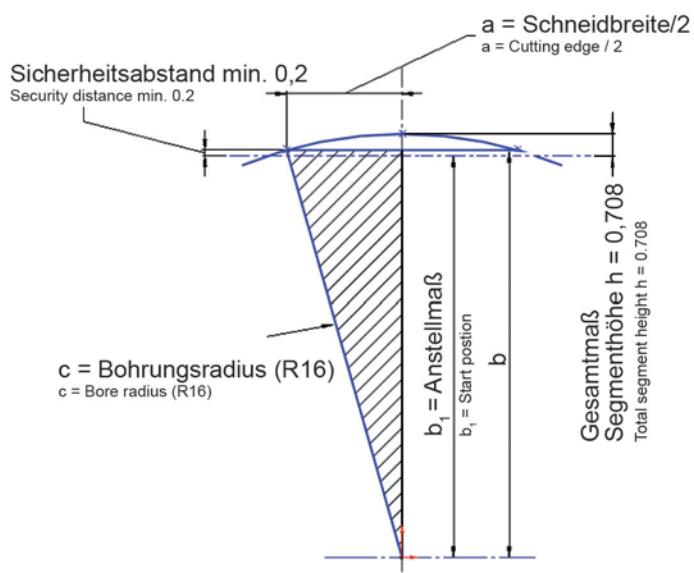
$$b = 15,491933$$

$b_1 = b - \text{Sicherheitsabstand}$
Clearance distance

$$b_1 = 15,492 - 0,2 = 15,292 \text{ mm}$$

→ ergibt einen Anstell-Ø von 30,584 mm

→ equals as a start position at Ø 30.584 mm



Anzugsmomente

Torque of Screws

Typ type	Schraube Screw	M _d Nm	Schlüssel Clamping wrench	Klinge Blade
SB105	6.075T15P	5,0	T15PQ	DT15PQ
SB110	6.075T15P	5,0	T15PQ	DT15PQ
SH117...08	030.3509.T15P	3,5	T15PQ	DT15PK
SH117...10/...12	4.09T15P	4,5 - 5,0	T15PQ	DT15PK
SH117...16	5.12T20P	6,0 - 6,5	T20PQ	DT20PK/DT20PQ
SHM117...08	030.3509.T15P	3,5	T15PQ	DT15PK

Übersicht SB105/SB110 - Halter zur Direktaufnahme in Revolver oder Spindel

Summary SB105/SB110 - Holder can be located directly in the turret or m/c spindle

Abmessungen DIN Dimensions DIN				Nutstoßen Broaching	Fasen Chamfering			
Breite Width	Toleranz Tolerance	D _{min}	t	Schneidplatten Inserts N105...A2/...B1	I ₂	Klemmhalter Toolholder	Schneidplatten Inserts N105...A1.../B1	Klemmhalter Toolholder
2	C11	8	1,0	N105.0210.2.08	12	SB105.0020.1.01	N105.4545.2.6	SB105.0020.1.01
3	C11	10	1,8	N105.0310.2.10	12	SB105.0025.1.01		SB105.0025.1.01
3	C11	13	1,8	N105.0310.2.13	12			
4	C11	16	2,0	N105.0410.2.16	12			
4	C11	16	2,0	N110.0202.05.04	25	SB110.0025.1.02	N110.4545.4.9	SB110.0025.1.02
4	C11	16	2,0	N110.0410.05.07	40	SB110.0032.1.02	N110.4545.7.9	SB110.0032.1.02
5	C11	-	-	N110.0510.05.04	25	SB110.0025.1.02	N110.4545.4.9	SB110.0025.1.02
5	C11	-	-	N110.0510.05.07	40	SB110.0032.1.02	N110.4545.7.9	SB110.0032.1.02
2	H9	6	1,1	N105.0202.01.01	12		N105.4545.2.6	SB105.0020.1.01
3	H9	8	1,5	N105.0302.01.01	12	SB105.0020.1.01		
4	H9	10	1,9	N105.0402.01.01	15	SB105.0025.1.01	N105.4545.3.6	SB105.0025.1.01
4	H9	10	1,9	N110.0402.02.04	25		N110.4545.4.9	
4	H9	10	1,9	N110.0402.02.07	40	SB110.0025.1.02	N110.4545.7.9	SB110.0025.1.02
5	H9	12	2,4	N110.0502.02.04	25	SB110.0032.1.02	N110.4545.4.9	SB110.0032.1.02
5	H9	12	2,4	N110.0502.02.07	40		N110.4545.7.9	
2	P9	6	1,1	N105.0198.01.01	12		N105.4545.2.6	SB105.0020.1.01
3	P9	8	1,5	N105.0298.01.01	12	SB105.0020.1.01		
4	P9	10	1,9	N105.0397.01.01	15	SB105.0025.1.01	N105.4545.3.6	SB105.0025.1.01
4	P9	10	1,9	N110.0397.02.04	25		N110.4545.4.9	
4	P9	10	1,9	N110.0397.02.07	40	SB110.0025.1.02	N110.4545.7.9	SB110.0025.1.02
5	P9	12	2,4	N110.0497.02.04	25	SB110.0032.1.02	N110.4545.4.9	SB110.0032.1.02
5	P9	12	2,4	N110.0497.02.07	40		N110.4545.7.9	
2	JS9	6	1,1	N105.0200.01.01	12			
3	JS9	8	1,5	N105.0300.01.01	12	SB105.0020.1.01	N105.4545.2.6	SB105.0020.1.01
4	JS9	10	1,9	N105.0400.01.01	15	SB105.0025.1.01		SB105.0025.1.01
4	JS9	10	1,9	N105.0400.02.01	15		N105.4545.3.6	
4	JS9	10	1,9	N110.0400.02.04	25		N110.4545.4.9	
4	JS9	10	1,9	N110.0400.02.07	40	SB110.0025.1.02	N110.4545.7.9	SB110.0025.1.02
5	JS9	12	2,4	N110.0500.02.04	25	SB110.0032.1.02	N110.4545.4.9	SB110.0032.1.02
5	JS9	12	2,4	N110.0500.02.07	40		N110.4545.7.9	

X

Übersicht SH117/SHM117 - Halter zur Direktaufnahme in Revolver oder Spindel

Summary SH117 / SHM177 - Holder can be located directly in the turret or m/c spindle

Abmessungen DIN Dimensions DIN			Nutstoßen Broaching			Fasen Chamfering					
Breite Width	Toleranz Tolerance	D _{min}	t	Schneidplatten Inserts S117...A1/...B1	w	Klemmhalter Toolholder	Werkzeuglänge l ₂ Tool length l ₂	Schneidplatten Inserts S117...A1/...B1	Klemmhalter Toolholder	Werkzeuglänge l ₂ Tool length l ₂	
3		14	2,0	S117.0310.04.08	3,1	SH117.1425.1.3.08	20	S117.2445.08	SH/SHM117...08	20/30	40
4		14	2,1	S117.0412.05.08	4,12	SH/SHM117...08	30	S117.2445.08	SH/SHM117...08	20/30	40
6		22	2,6	S117.0612.09.10	6,12	SH117.0025...10	50	S117.3045.10	SH117.0025...10	50	70
7		27	3,3	S117.0713.11.10	7,13	SH117.0025...10	50	S117.3045.10	SH117.0025...10	50	70
8	C11	32	3,4	S117.0813.11.10	8,13	SH117.0025...10	50	S117.3045.10	SH117.0025...10	50	70
10		40	4,2	S117.1013.11.14	10,13	SH117.0032...16	50	S117.6045.14	SH117.0032...16	50	75
12		50	5,1	S117.1215.14.14	12,15	SH117.0032...16	50	S117.6045.14	SH117.0032...16	50	75
16		70	6,6	S117.1215.18.14	12,15	SH117.0032...16	50	S117.6045.14	SH117.0032...16	50	100
24		100	8,5	S117.1215.23.14	12,15	SH117.0032...16	50	S117.6045.14	SH117.0032...16	50	75
3		14	2,0	S117.0302.01.08	3,018	SH117.1425.1.3.08	20	S117.2445.08	SH/SHM117...08	20/30	
4		14	2,1	S117.0402.01.08	4,022	SH/SHM117...08	30	S117.2445.08	SH/SHM117...08	20/30	
5		14	2,7	S117.0502.02.08	5,022	SH/SHM117...08	30	S117.2445.08	SH/SHM117...08	20/30	
5		17	2,7	S117.0502.02.10	5,022	SH117.1725...10	40	S117.1545.10	SH117.1725...10	40	55
6	H9	17	3,4	S117.0602.02.10	6,022	SH117.1725...10	40	S117.1545.10	SH117.1725...10	40	55
8		22	4,1	S117.0803.02.10	8,028	SH117.0025...10	50	S117.3045.10	SH117.0025...10	50	70
10		30	4,2	S117.1003.03.14	10,028	SH117.3032...16	50	S117.6045.14	SH117.3032...16	50	75
12		38	5,7	S117.1203.03.14	12,036	SH117.0032...16	50	S117.6045.14	SH117.0032...16	50	100
14		40	6,8	S117.1403.03.16	14,036	SH117.4032...16	50	S117.6045.14	SH117.0032...16	50	75
3		14	2,0	S117.0298.01.08	2,99	SH117.1425.1.3.08	20	S117.2445.08	SH/SHM117...08	20/30	
4		14	2,1	S117.0397.01.08	3,98	SH/SHM117...08	30	S117.2445.08	SH/SHM117...08	20/30	
5		14	2,7	S117.0497.02.08	4,98	SH/SHM117...08	30	S117.2445.08	SH/SHM117...08	20/30	
5		17	2,7	S117.0497.02.10	4,98	SH117.1725...10	40	S117.1545.10	SH117.1725...10	40	55
6	P9	17	3,4	S117.0597.02.10	5,98	SH117.1725...10	40	S117.1545.10	SH117.1725...10	40	55
8		22	4,1	S117.0796.02.10	7,98	SH117.0025...10	50	S117.3045.10	SH117.0025...10	50	70
10		30	4,2	S117.0996.03.14	9,98	SH117.3032...16	50	S117.6045.14	SH117.3032...16	50	75
12		38	5,7	S117.1196.03.14	11,97	SH117.0032...16	50	S117.6045.14	SH117.0032...16	50	100
14		40	6,8	S117.1396.03.16	13,97	SH117.4032...16	50	S117.6045.14	SH117.0032...16	50	75
							75			75	100

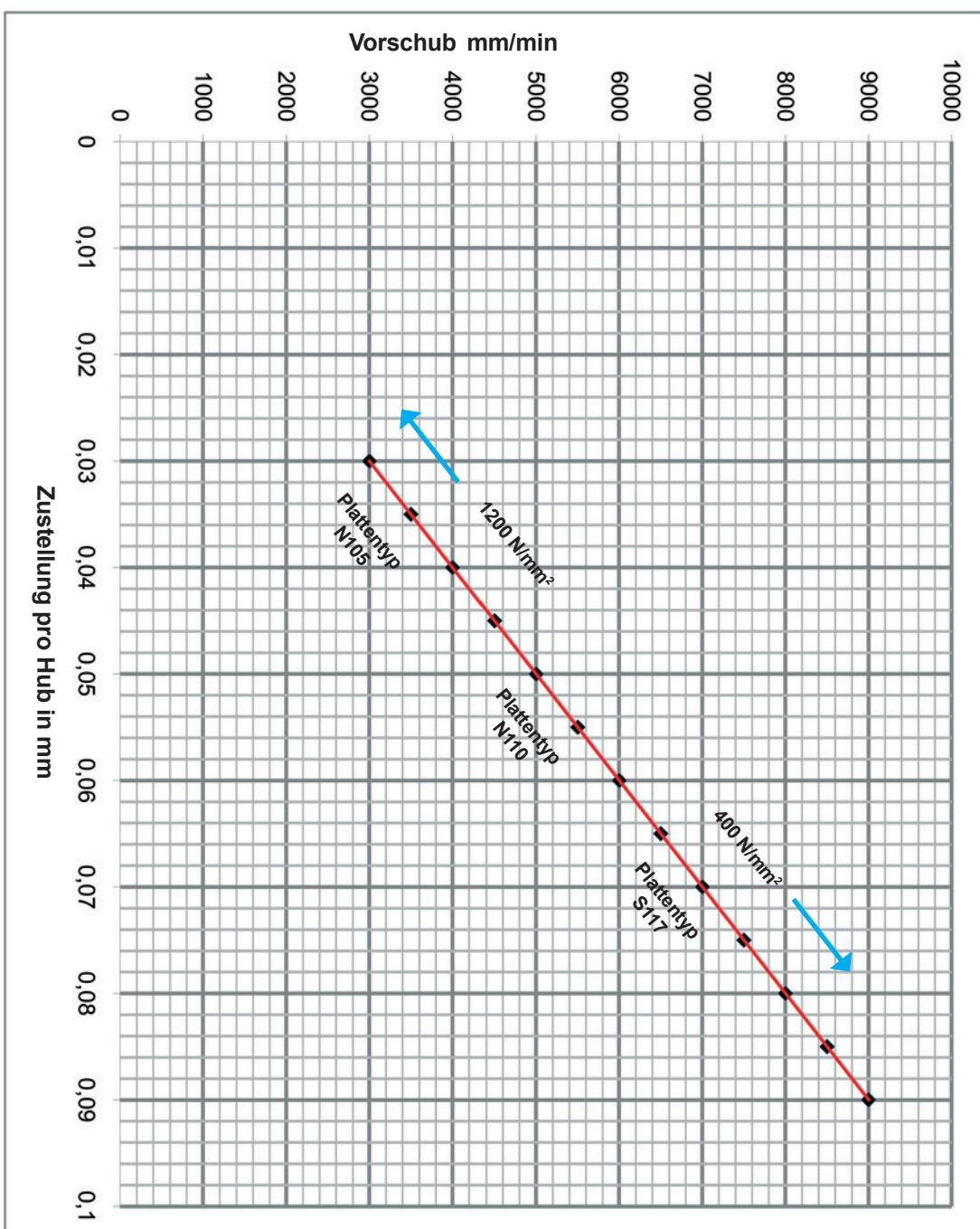
Technische Hinweise

Technical Instructions

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Übersicht SH117/SHM117 - Halter zur Direktaufnahme in Revolver oder Spindel
 Summary SH117 / SHM177 - Holder can be located directly in the turret or m/c spindle

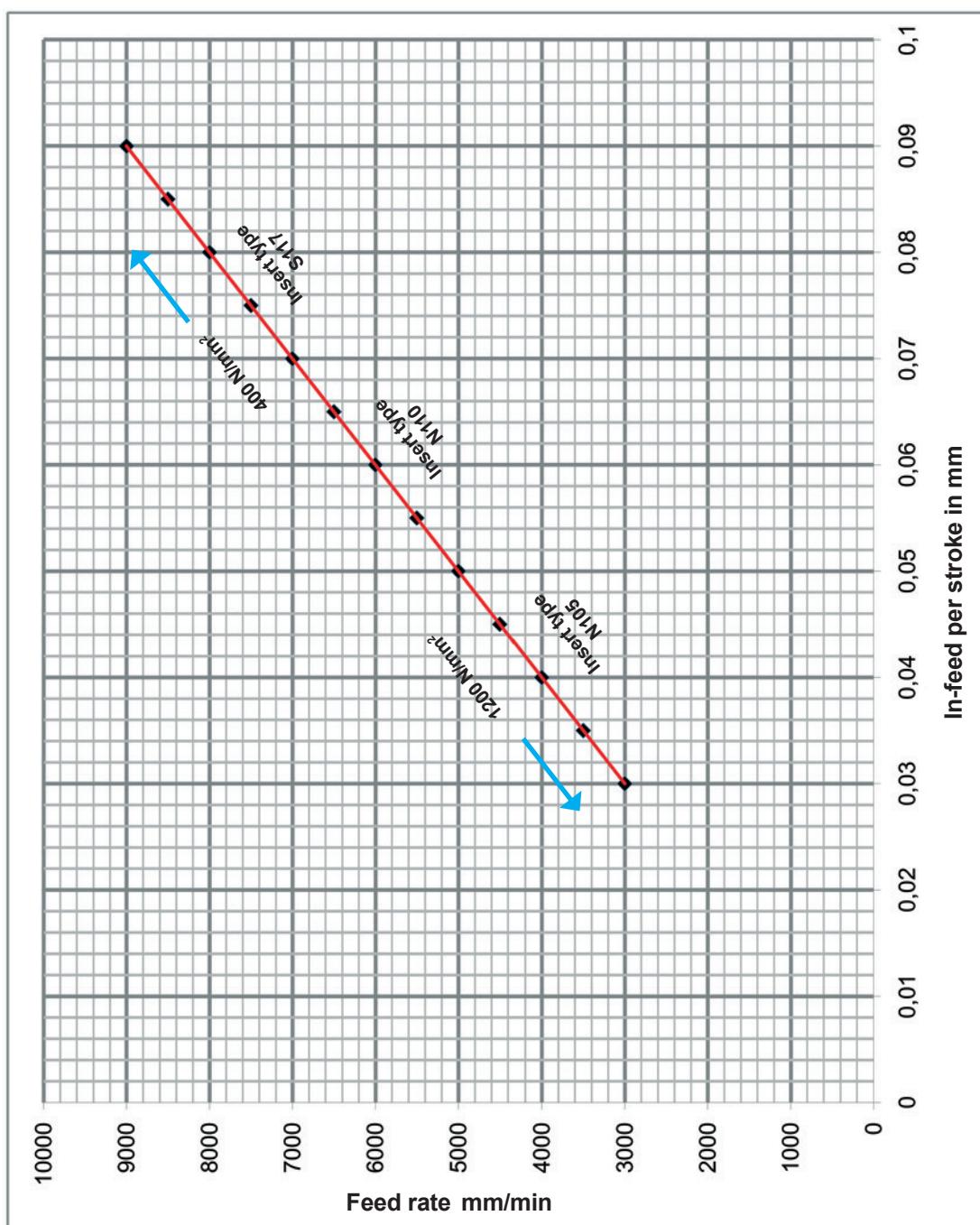
Abmessungen DIN Dimensions DIN	Breite Width	Toleranz DIN	D _{min}	t	Nutstoßen Broaching			Fasen Chamfering			Werkzeuglänge l ₂ Tool length l ₂			Werkzeuglänge l ₂ Tool length l ₂			
					Schneidplatten Inserts	S117...A1/...B1	w	Klemmhalter Toolholder	.1.	.2.	.3.	Schneidplatten Inserts	S117...A1/...B1	Klemmhalter Toolholder	.1.	.2.	.3.
3	14	2,0	S117.0300.01.08	3,01	SH117.1425.1.3.08	20			20	40	55	S117.2445.08	SH/SHM117...08	SH/SHM117...08	20/30		
4	14	2,1	S117.0400.01.08	4,01	SH/SHM117...08	30			30	40	55	S117.2445.08	SH/SHM117...08	SH/SHM117...08	20/30		
5	14	2,7	S117.0500.02.08	5,01	SH/SHM117...08	30			30	40	55	S117.1545.10	SH117.1725...10	SH117.1725...10	40	55	
5	17	2,7	S117.0500.02.10	5,01	SH117.1725...10	40			40	55		S117.1545.10	SH117.1725...10	SH117.1725...10	40	55	
6	17	3,4	S117.0600.02.10	6,01	SH117.1725...10	40			40	55		S117.3045.10	SH117.0025...10	SH117.0025...10	50	70	
8	22	4,1	S117.0800.02.10	8,01	SH117.0025...10	50			50	70		S117.6045.14	SH117.3032...16	SH117.3032...16	50	75	
10	30	4,2	S117.1000.03.14	10,01	SH117.3032...16	50			50	75	100	S117.6045.14	SH117.0032...16	SH117.0032...16	50	75	100
12	38	5,7	S117.1200.03.14	12,01	SH117.0032...16	50			50	75	100	S117.6045.14	SH117.0032...16	SH117.0032...16	50	75	100
12	38	8,5	S117.1200.05.14	12,00	SH117.0032...16	50			50	75	100	S117.6045.14	SH117.0032...16	SH117.0032...16	50	75	100
14	40	6,8	S117.1400.03.16	14,01	SH117.4032...16	50			50	75	100	S117.6045.14	SH117.0032...16	SH117.0032...16	50	75	100



Diese Werte stellen nur Richtwerte dar, da die physikalischen Eigenschaften der Maschine, des Bauteils, die Spannsituation und der Werkstoff großen Einfluss auf die Schnittwerte und Zustellungen pro Hub nehmen.

Anwendertipps:

- Am Nutende einer Sacklochbohrung muss eine Auslaufnut oder ein Freistich vorhanden sein.
- Das Werkzeug muss vor dem Rückzug vollständig aus dem Nutenbereich gefahren werden.
- Messen Sie das Werkzeug korrekt aus, und übernehmen diese Werte in Ihren Werkzeugspeicher.
- Fahren Sie den ersten Anstellpunkt der Maschine im Einzelsatz an und überprüfen Sie durch einen Programmstopp, - visuell -, ob die Anstellposition für den ersten Hub kollisionsfrei für den Werkzeughalter und die Schneide ist.
- Der Einsatz eines Kühl - u. Schmiermedium ist entscheidend für die Oberflächenbeschaffenheit, der Standzeit und der Ausspülung der Späne aus der Sacklochbohrung.



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.



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