

?

Name / trademark of the manufacturer / supplier

**Betriebs-Anleitung
Instruction Handbook
Notice d'utilisation**

Real picture of the tool(s) described in the instruction manual.

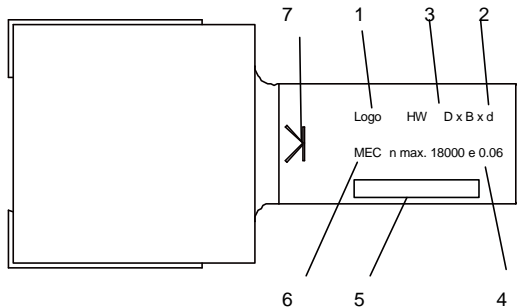


**Verbund-Schaftfräs Werkzeug
Composite Shank-type Milling Tool
Outil de fraisage avec queue**

1 Common part

The shank-type milling tool conforms to the requirements set out in EN 847-1 and EN 847-2

Principle sketch:



- 1 Manufacturer or supplier
- 2 Dimensions
- 3 Cutting material (Option on cutterheads)
- 4 Max. RPM - Eccentricity
- 5 Type of feed rate
- 6 Other marking of the manufacturer
- 7 Minimum clamping length

1.1 Cutting material and ordering details

1.1.1 Cutting material

SP = Alloyed tool steel	HL = High alloyed tool steel
HS = High speed steel	ST = Cast cobalt-based alloys, e.g. stellite
HW = Uncoated hardmetal	HC = Coated hardmetal
DP = Polycrystalline diamond	DM = Monocrystalline diamond

1.1.2 Ordering details

Art.-No.	Order No.
Ordering details:	D x B x d Number of cutting parts, RPM, Type of feed

1.2 Conventional application

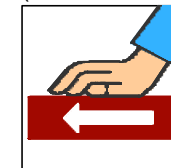
1.2.1 RPM

n max. The RPM range marked on the tool has to be kept, i.e. the stated max. RPM "n max." is not allowed to be exceeded!

1.2.2 Type of application and working method

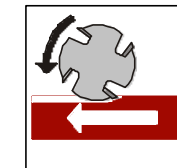
For use on woodworking machines only. This tool shall be used in accordance with the feed marking shown on the tool body.

MAN
(manual feed)

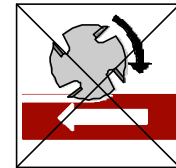


Tools marked "MAN" may also be used on machines with mechanical feed.

Cutting against the feed

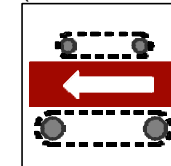


Climb cutting



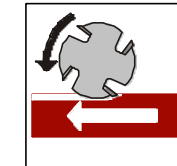
Forbidden due to danger of kick back

MEC
(mechanical feed)

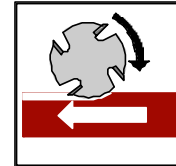


Tools marked "MEC" are only allowed to be used on machines with mechanical feed!

Cutting against the feed

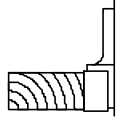
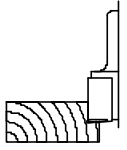
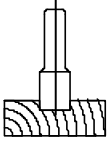
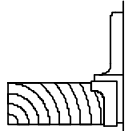
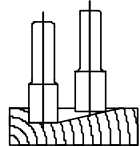
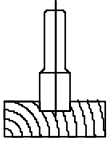


Climb cutting



The instructions of the machine manufacturer referring the suitability of the tool have to be followed.

1.2.3 Working method

Working method	Art.-No.
	xx.yyy.zz
	xx.yyy.zz
	xx.yyy.zz
	xx.yyy.zz
	xx.yyy.zz
	xx.yyy.zz

1.2.4 Material to be worked on

Wood, wood-based material, as well as material with comparable cutting properties as per section "Field of Application" respective catalogue details. Consult the tool manufacturer if in doubt.

1.3 Safe handling

1.3.1 Application



NOTICE

All European and national safety regulations shall be adhered to including the safety requirements as set out in EN 847-1 and EN 847-2. The tool shall only be used as described in section "1.2 Conventional Application".

1.3.2 Transport



CAUTION

Transport only in suitable packaging. Danger of damaging the cutting parts. Be very careful with packing!



NOTICE

Caution: Danger of injuring by sharp cutting parts! Wear safety gloves.

1.3.3 Assembling the tool and mounting in the machine



DANGER

The tool has to be mounted, locked and activated as per the instructions of the machine manufacturer. Check the machine data and the direction of rotation! Danger that the tool is coming off.



NOTICE

Starting the machine during the tool change is not allowed (see handling instruction of the machine). Danger of injuring!



DANGER

While mounting, it shall be ensured, that the tool is clamped on the special clamping area. All clamping areas shall be free of pollution, grease, oil and water.

Tighten clamping screws and -nuts by using appropriate spanners and the recommended torque value. Danger of injuring by parts coming off.



DANGER

Inspect the tool body and cutting parts for damage before mounting in the machine.

Damaged tools are to be checked by an expert.

Do not use a deformed tool.

Damaged tools are to be checked by an expert.



CAUTION

When using stacked tooling ensure that the cutting parts do not foul each other.

Clamping screws shall be tightened in accordance with the instructions.

Check the cutting parts and basic bodies for damages.



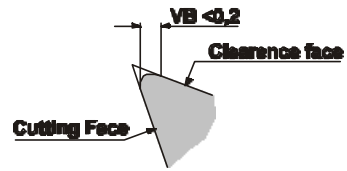
NOTICE

Tools with cracked bodies have to be taken out of service. Repairing such tools is not allowed!

2 Tool-specific part

2.1 Maintenance

For reasons of working safety, the cutting parts at the latest have to be serviced when ...



... the wear mark VB on the cutting parts has become more than 0,2 mm - especially observe the main wear zones. (see section „ Servicing, modifying, sharpening“)

... break outs of the cutting part are visible



NOTICE

Woodworking tools are to be protected against humidity in order to avoid corrosion. The cutting parts have to be regularly cleaned from resin and glue (Built-up edges) - this increases the performance time and the operational safety.



CAUTION

Detergents can irritate skin and eyes and damage the tool. Protect hands and eyes while cleaning. Only use appropriate detergents (see section "2.3 Detergents / Cleaning agents"). Follow the instructions of the detergent producer.

2.2 Servicing, modifying, sharpening

2.2.1 Common instructions



NOTICE

Only experienced specialists are allowed to sharpen the tools as per the instructions of the manufacturer.



DANGER

Service and modification shall only be done by the manufacturer or by specialised workshops. Risk of tool-breakage.



DANGER

Only those spare parts are allowed to be used, which match the requirements of the original spare parts of the tool manufacturer. Tolerances, that guarantee a precise clamping, have to be kept.



NOTICE

Markings of the tool, which have been affected by modification / re-tipping, have to be updated. Name and logo of the modifying / re-tipping company have to be added.

Specialists/specialized workshops shall be experienced in the relevant :

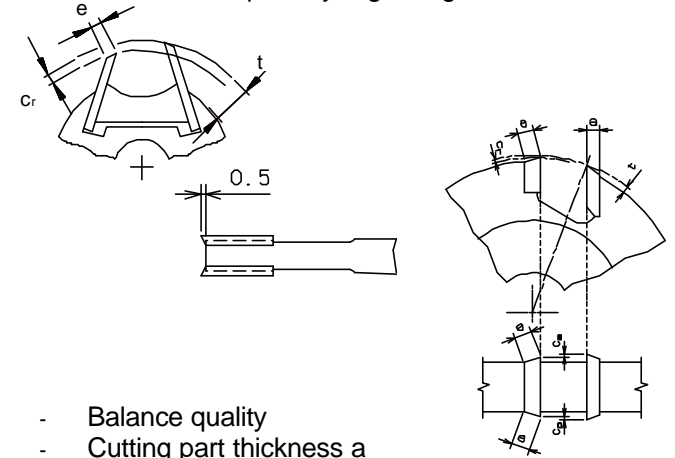
- Up-to-date engineering referring construction and design,
- National regulations
- Appropriate safety regulations and -standards

They shall have

- the standard equipment and
- the capability of doing these operations.

After any sharpening-, servicing- or modification process, it shall be ensured, that the tool meets the

requirements of the European Standard EN 847-1 and EN 847-2, especially regarding :



- Balance quality
- Cutting part thickness a
- Cutting edge projection c_r , c_a , t
- Deflector width e
- Projection of the spurs

- Re-tipping of cutting plates is only allowed by specialists who are experienced in brazing and who can assess the influence of the brazing process referring tensions in the body and the cutting material.
- When debrazing damaged cutting plates and afterwards brazing new cutting plates, it shall be ensured, that the cutting elements are correctly fastened and that there will not be created any critical tensions in the body due to the brazing process.
- The design of composite tools (e.g. tools with brazed cutting plates) is not allowed to be changed.

2.2.2 Sharpening instruction

Ask the tool manufacturer for the sharpening instructions.

2.3 Detergents / Cleaning agents

The appropriate detergent can be obtained from the tool manufacturer.

ALTERNATIVELY

“Name of the detergent”

2.4 Changing of the mounting parts



NOTICE

Observe section „1.3 Safe handling“.

2.4.1 Tool set (if applicable)



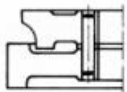
NOTICE

A tool set consists of several individual tools.

For a form-fitted mounted tool set, the form-fitting has to be maintained.

For modifying the tool (e. g. cutting width) only means (e. g. spacers) are allowed to be used which are in accordance with the specification of the original parts provided by the manufacturer (see section: „Mounting the tool set“).

Single tools of a tool set are not allowed to be used individually unless it is expressly permitted by the manufacturer.



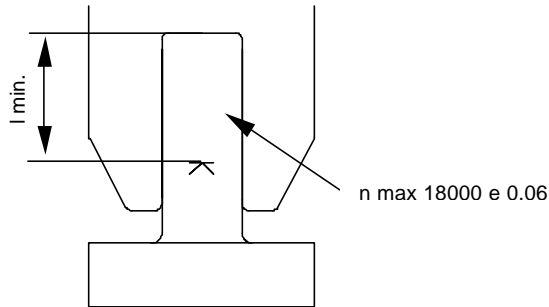
2.5 Field of Application

2.6 Spare parts

Information about spare parts can be taken from the sales documents.

2.7 Clamping length, maximum RPM and eccentricity

2.7.1 Clamping length and maximum RPM



Minimum clamping length l_{min} .

On the tool's shank the minimum clamping length is marked. The shank has to be clamped as far as possible, but at least up to the marking of the minimum clamping length (l_{min}). Danger of shank breakage!

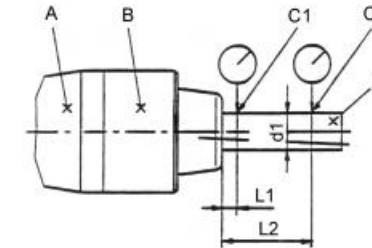
Maximum RPM permitted

The tooling is marked with the permitted maximum RPM n_{max} (min^{-1}) and the clamping eccentricity e (mm). Example n_{max} 18000 e 0,06. Shank tools are only allowed to be used up to the eccentricity stated on the tool. Danger of tool breakage.

2.7.2 Determination of the eccentricity

Fix the check arbour (D) into the clamping device. Diameter of the check arbour (d_1) = Nominal diameter of the clamping device. Install the clamping device in the machine. Determine the run-out as per sketch.

A	Shank of the clamping device	l_g	Tool-shank length
B	Clamping device	l_1	Tool-height
C1	Check point 1	l_e	Tool-clamping length
C2	Check point 2	L_1	= 10 mm
D	Checking arbour	L_2	= $(l_g + l_1) - l_e$
d_1	Diameter of checking arbour	r_1	Run-out on check point 1
		r_2	Run-out on check point 2



measured eccentricity e

$$e = \frac{r_1 + r_2}{4} \leq e_{sp}$$

max. eccentricity e_{sp} as designated

If this condition is not fulfilled, the system (clamping device - tool) has to be checked. Danger of tool breakage.

Address

Name and address of the manufacturer or supplier

Amendments reserved. Manufacturer-No. / Date of release

Symbols

	Consult Service Manual
	Insert Safety Lock Before Getting In Hazardous Area
	General Mandatory Action
	Wear Safety Gloves
	General Prohibition
	Do Not Operate With Damaged Blade
	General Danger
	Cutting of Fingers or Hand / Rotating Blade
	Corrosive Material

Source:
ISO 3864-1: 2002-05 Safety Signs and Colours