GREMOTOOL

PRECISION ENGINEERING

Turbo Chip Fan

Gremotool TCF ø68, ø117, ø166

swiss made

GREMOTOOL
Präzisionsspannsysteme

Wilerstrasse 3
CH-9200 Gossau

info@gremotool.ch
www.gremotool.ch

Telefon +41 (0)71 930 03 90

Overview

Turbo Chip Fan (TCF)

Overview 2

Product presentation 3
- Turbo Chip Fan ø68, ø117, ø166 3
- Applications Areas ø68, ø117, ø166 4

Advantages 5

Overview of size options 6

Applications Data 7

Dimensions 8
- Turbo Chip Fan ø68 8
- Turbo Chip Fan ø117 9
- Turbo Chip Fan ø166 10

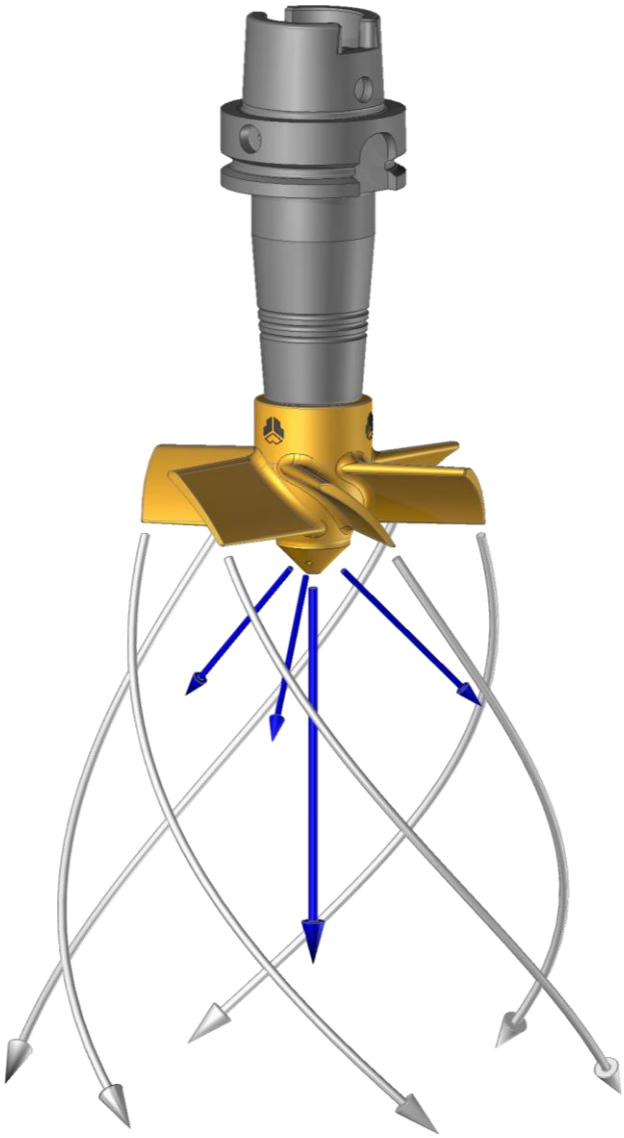
Cleaning Process 11

Imprint 12

Product presentation

Turbo Chip Fan ø68, ø117, ø166

Remove chips and coolant automatically from workpiece, clamping device and machining table after the production process with the Turbo Chip Fan of Gremotool. This allows the operator, no matter whether human or robot, to remove a cleaned workpiece from the machining area of the machine tool without having to wash it in advance using an air or water jet. This cleaning of chips is essential when robots are being used, as chips have a negative impact on process stability. The risk of chips becoming trapped during reloading is significantly reduced.



Product presentation

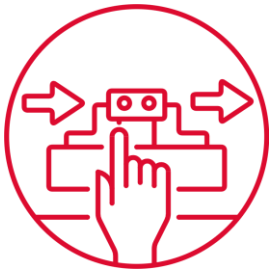
Applications Areas ø68, ø117, ø166

Workpiece measurement in the machine

Modern machining processes are designed to be able to remove finished workpieces from the machine tool. During this process, in addition to automatically checking the dimensions, all relevant edges are chamfered. If chips are still present on the workpiece during these two process steps, this has an impact on the quality of the workpieces.

Machine operation by staff

If the workpieces are removed from the processing machine by the operator without cleaning, the operator has to remove all chips and cooling lubricants in order to remove a cleaned workpiece. If there are pockets, the chips and cooling lubricant residues are thrown around and some of them don't remain in the machining area. Uncontrollable flying chips caused by manual cleaning when the machining area is open can cause minor to moderate accidents. Cleaning the components when the processing machine is closed has a positive effect on the cleanliness of the working area.



Machine operation by automation

If robots are used to change clamping devices or workpieces, cleaning is a mandatory requirement. The robot cannot recognise whether if there are chips on the workpiece or the clamping device. The chips can be pressed into the workpiece by the gripper or pressed onto the exact surfaces of the zero-point clamping system. This has an impact on workpiece quality and process stability.

Advantages

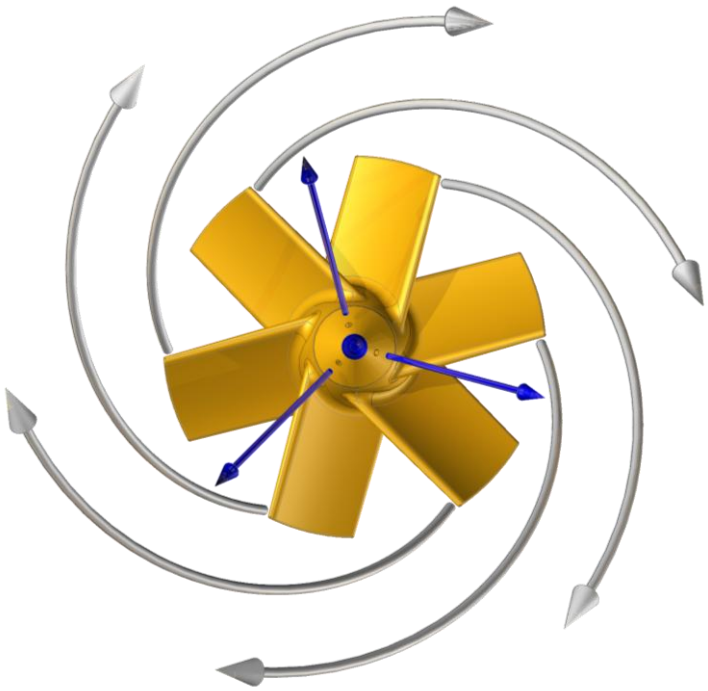
Turbo Chip Fan

No movable parts

Due to balanced integral design the Gremotool Chip Fan generates a constant air flow.

Chanell in the centre

With the channel in the centre of the propeller, the workpiece can be washed at the beginning of processing with the internal spindle cooling, cooling lubricant by low speed. Afterwards the spindle can be accelerated to the nominal speed and the fan generates a powerful flow of air, which removes all chips and coolant residues on the machining table. If smaller pockets are available, the centre channel can also be used to apply a precise air jet.



Lightweight and robust

The Turbo Chip Fan is easy for the operator to handle and yet powerful in its action. Flying chips leave no noticeable marks or damage to the propeller.

Balanced to G2.5

To ensure that the spindle of the processing machine is not damaged by the propeller, it is balanced in advance to a quality of G2.5 at 12000^{-1}. This allows it to run incredibly smoothly, which protects the motor spindle bearings and minimises noise emissions.

No carry-over of cooling lubricant

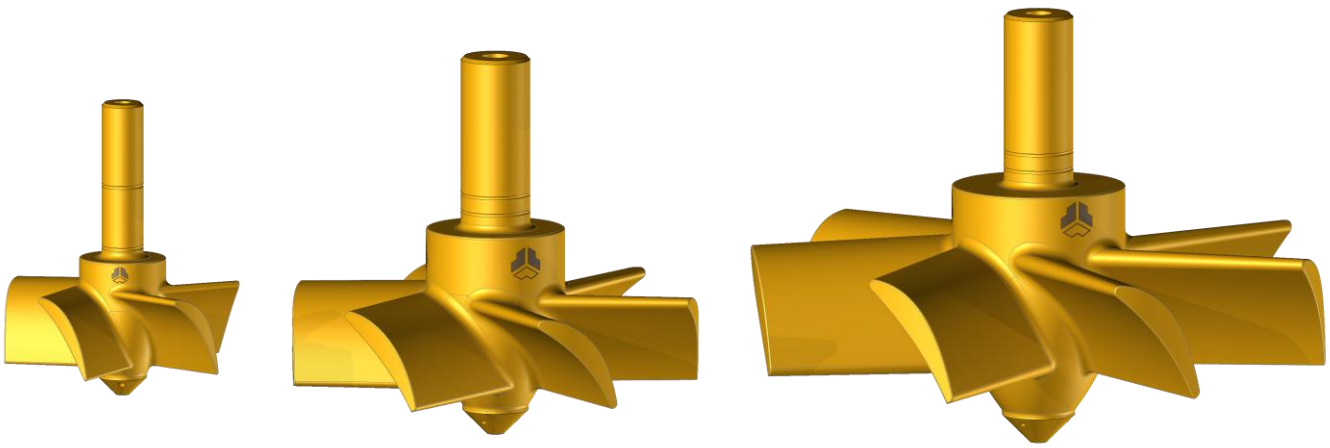
The Turbo Chip Fan ensures that the cooling lubricant remains in the machining area of the machine. By removing the cooling lubricant from the workpiece and the clamping device before emptying, the cooling lubricant is not carried out of the machining area.

Quiet running

The rigid body of the TCF ensures pleasantly quiet running. The fixed rotor blades of the TCF do not produce any beating propeller noises, which makes it very quiet to use and still enables the full cleaning effect.

Overview of size options

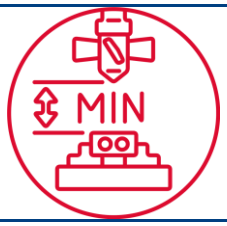
Turbo Chip Fan ø68, ø117, ø166



Applications Data

Turbo Chip Fan ø68, ø117, ø166

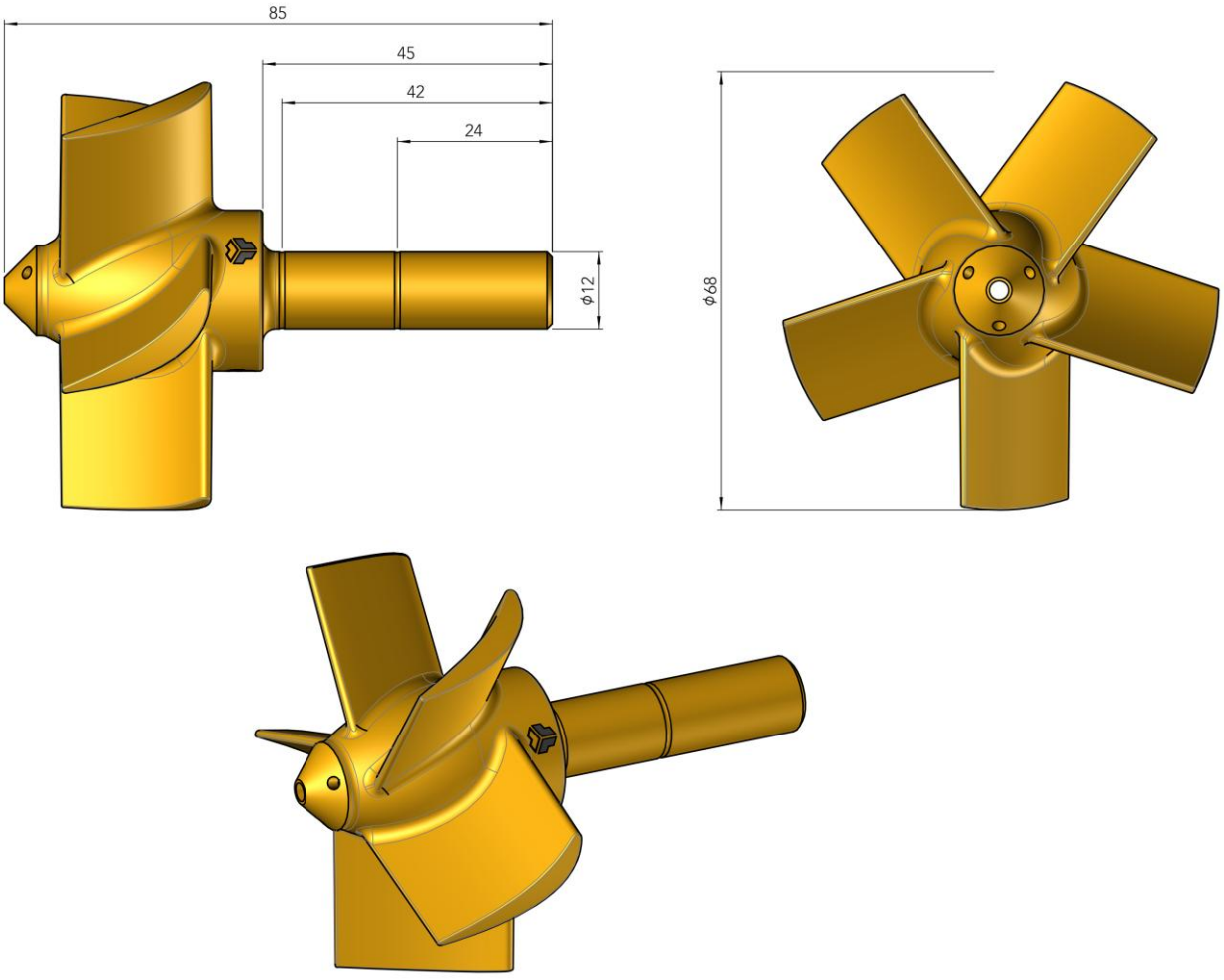
	TCF ø68	TCF ø117	TCF ø166
Recommended Speeds:	**[U/min]**	**[U/min]**	**[U/min]**
Cleaning with external coolant supply	From 20000	1000	1000
Cleaning with internal coolant supply	From 20000	2000	2000
Cleaning with internal compressed air supply	From 20000	4000	4000
Cleaning without coolant or compressed air supply	From 20000	12000	6000
Maximum speed	24000	12000	8000



	TCF ø68	TCF ø117	TCF ø166
Recommended distance to workpiece, clamping device and table	Ca. 50 bis 100 mm	Ca. 100 bis 150 mm	Ca. 100 bis 150 mm
Recommended tool holders HSK-	HSK-25 HSK-32 HSK-40 HSK-50	HSK-50 HSK-63 HSK-80 HSK-100	HSK-63 HSK-80 HSK-100 HSK-125
Recommended tool holders SK-, BT-, CAT-, NT-	SK-25 SK-30 SK-35	SK-40 SK-45 SK-50	SK-50

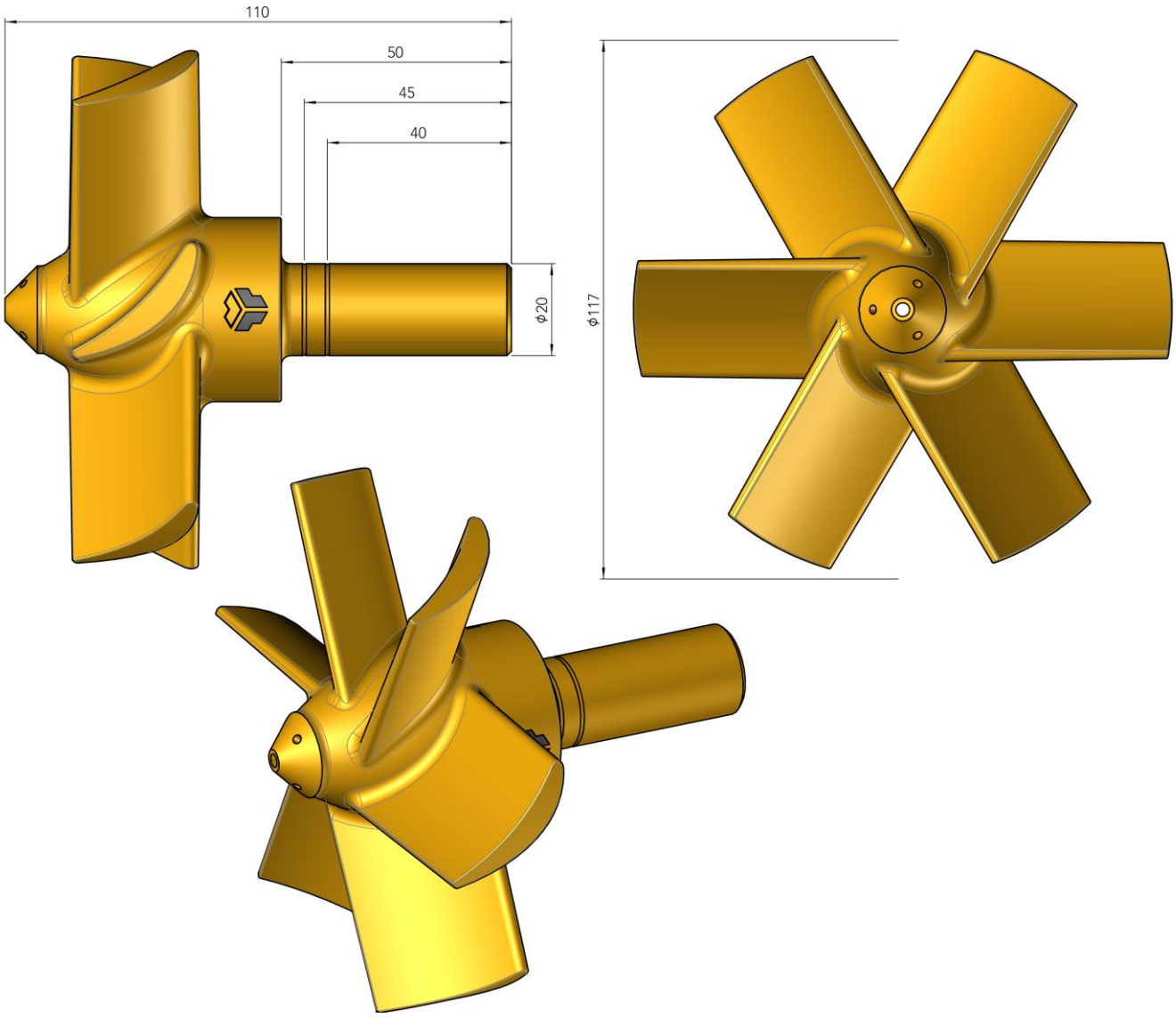
Dimensions

Turbo Chip Fan ø68



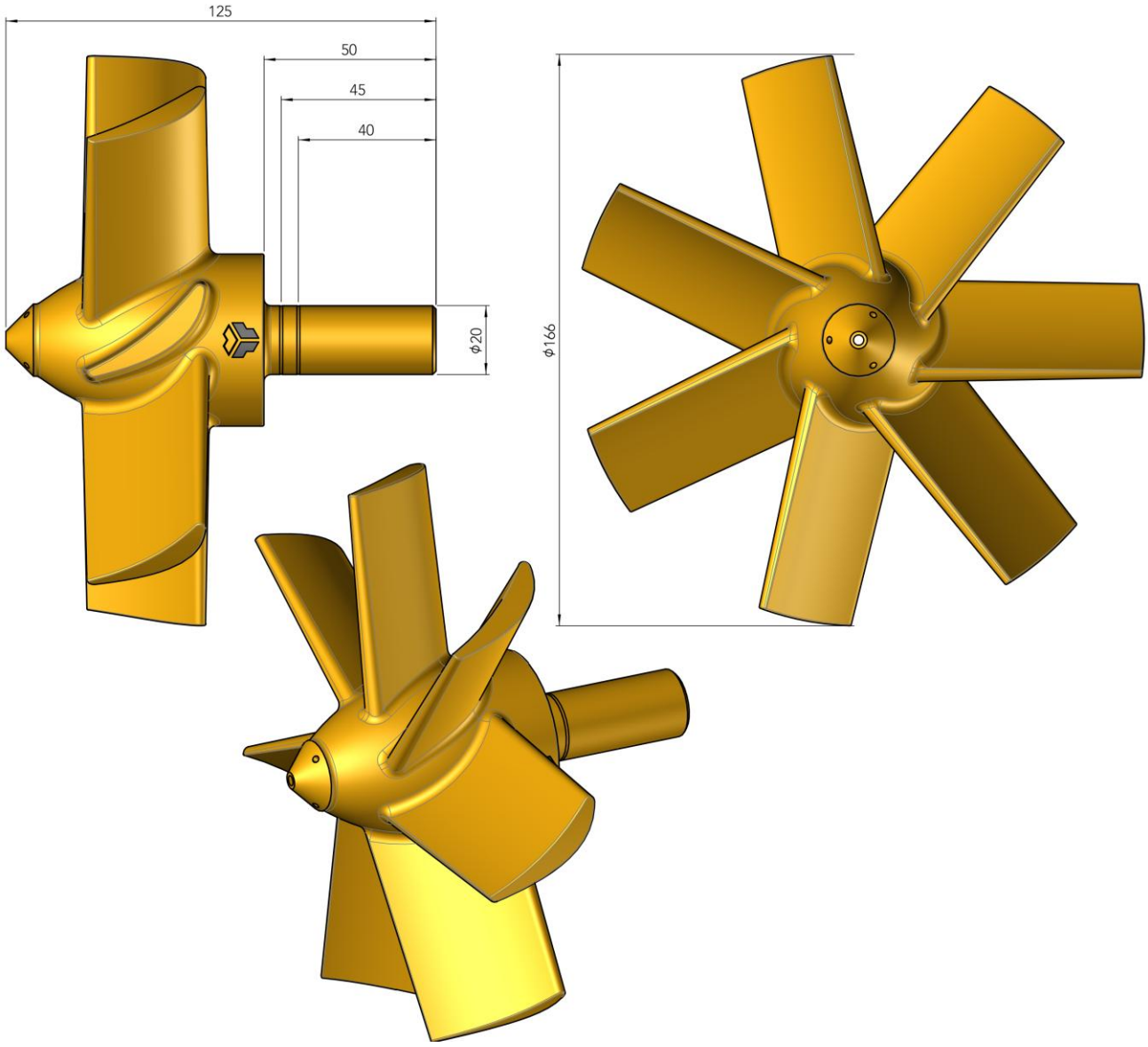
Dimensions

Turbo Chip Fan ø117



Dimensions

Turbo Chip Fan ø166



Cleaning Process

Turbo Chip Fan ø68, ø117, ø166

Pre-Flushing

The aim of pre-flushing is to remove the coarsest accumulations of chips on the table. These should be flushed out of the pockets of the workpiece and clamping devices by a light blast of air at 1000 rpm and cooling water from the internal spindle cooling system. To do this, the spindle moves over the places to be cleaned at a distance of approx. 100-150 mm and, if possible, the table is tilted slightly.

Rough Cleaning

During rough cleaning, the internal cooling is then switched off, the air cooling through the spindle is switched on and the spindle is accelerated to 4000 rpm with the Turbo Chip Fan. This creates a blast of air that removes the remaining chips and coolant from the workpiece and clamping device. It is recommended to tilt the table slightly and run a path with the same distance over the most important points.

Final-Cleaning

During final cleaning, the last chips and coolant residues are removed from the workpiece. The internal cooling is completely switched off and the spindle is accelerated to the maximum speed or 12000 rpm. The strong air flow removes the last drops of coolant from the workpiece. It is recommended to move from the centre to the outside with a slightly tilted table.

Imprint

Gremotool GmbH
Wilerstrasse 3
CH-9200 Gossau
Schweiz

www.gremotool.ch
info@gremotool.ch
+41 (0)71 930 03 90

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