www.usovo.de
Peter Urban
Auf der Emst 15
D-58638 Iserlohn
Phone: 02371/150845
Fax: 02371/150846
info@usovo.de

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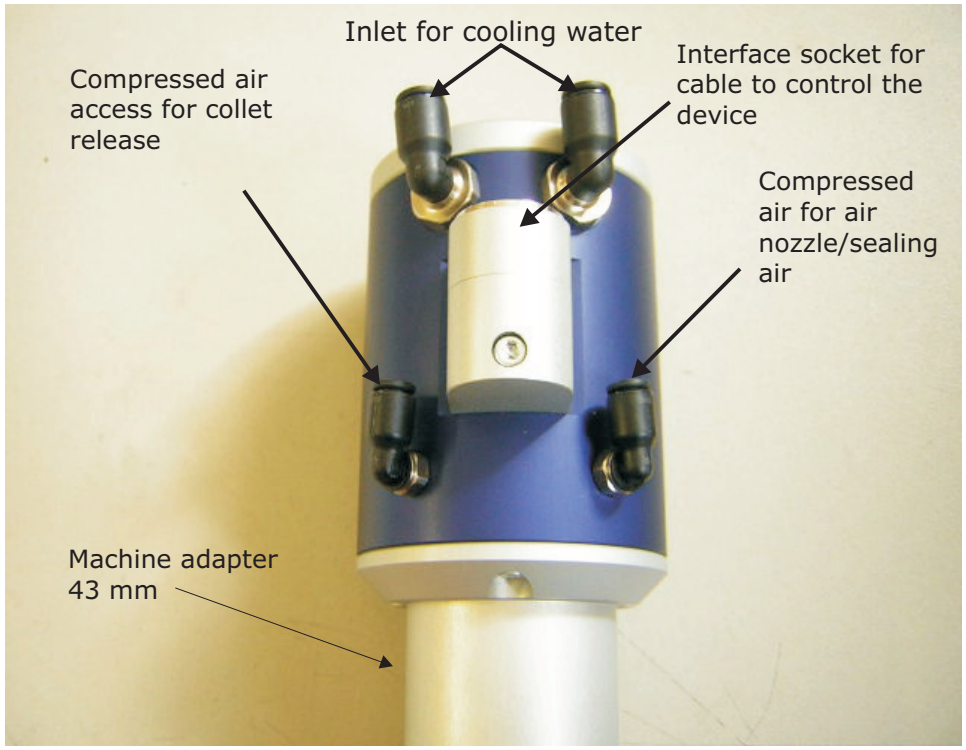
USOVO
URBAN SONDERMASCHINEN UND VORRICHTUNGSBAU

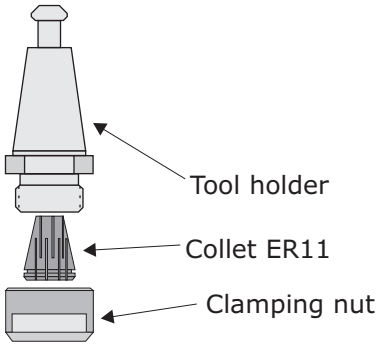
Operating instructions

Tool changer WZW105
+
Control unit STG104

Dear customer,

When purchasing the WZW105 made by USOVO you have chosen a precise, high-quality product. The WZW105 is appropriate to perform milling and engraving works in metal, plastic material and wood. **Please thoroughly read these operating instructions before use in order to be able to safely and professionally operate the spindle and the accessories included in the delivery.**





Optional accessories for WZW105:

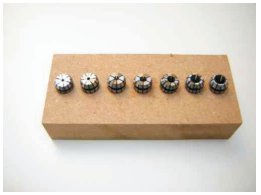
Spare tool nut incl. clamping nut:
Made of stainless steel for ER11 collet chucks

Spare clamping nut:

Made of stainless steel fitting for tool nut

Collet chuck kit ER11, 1 mm - 7 mm:

In 1.0 mm steps, 7 pcs. in a wooden board



Connecting cable from WZW105 to STG104:

Including high-quality plug-in connections, appropriate to be used with trailing chains

Please find other accessories and current prices under www.usovo.de

Pin assignment 15-pole Sub-D:

Pin 1: 0V, GND
Pin 2: Spindle speed 0V-10V
Pin 3: not assigned
Pin 4: 24V coupler tension
Pin 5: 24V coupler tension
Pin 6: 24V coupler tension
Pin 7: 0V, GND
Pin 8: not assigned
Pin 9: Signal for Spindle ON/OFF *
Pin 10: Signal for Magazine/Blowing off*
Pin 11: not assigned
Pin 12: not assigned
Pin 13: Signal for Collet chucks Opened/Closed*
Pin 14: not assigned
Pin 15: not assigned

*= Input signals may amount from 5V to 24V

Optional accessories for WZW105:

Tool holder 5-fold, 1-row:

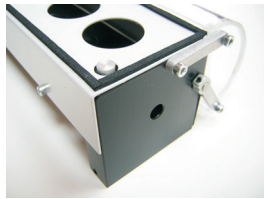
Made of aluminum, black anodized including fixing screws

Dust-proof, pneumatic 6-fold tool magazine:

When using this magazine it is guaranteed that your tool seats remain dust-free. In this way, a precise seat and precise concentricity are ensured. This is easily controlled via the pneumatic valve integrated in the STG104.

Technical data:

- For 6 tools
- Pneumatically opening
- Operating pressure 8 bars
- Including integrated tool length sensor
- Dimensions: 235 mm x 62 mm x 99 mm
- Housing made of aluminum
- Lid made of 2 mm Plexiglas



Description of the spindle:

The tool changer WZW105 made by USOVO is the ideal spindle for your milling machine. Due to the high speed it is even possible to work with smallest milling diameters. Due to the tool change system manual tool changes are not required. In this way, it is possible to produce even complex workpieces in a simple fully automated way. The precise concentricity and the largely dimensioned bearing of the spindle ensure exact milling results on high-quality surfaces.

Technical data:

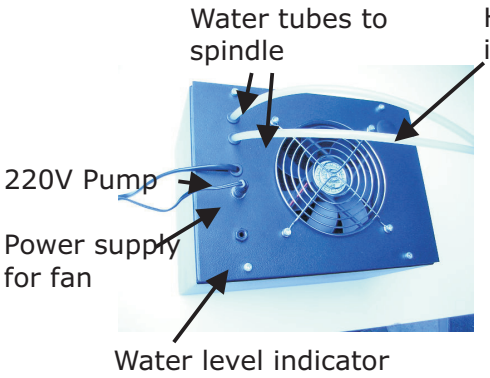
Tension: 24V, 30A max.
Motor: brushless, 3 phases
Power: 600 watts
Spindle speed: 5'000 - 16'000/8'000 - 28'000
Bearing: 3x ball bearing
Collet chuck system: electro-pneumatic/spring-clamping
Collet chucks: ER11 1 - 8 mm
Clamping collar: 43 mm
Total length: 146 mm
Diameter: 62 mm
Weight: 0.92 kg
Material: Stainless steel, aluminum hard-anodized

Assembly of the spindle on the machine:

Fix the spindle in your 43 mm Euro-adapter. The adapter should not be thicker than 20 mm. If it is thicker, refer to page 4 for more information. Connect the tubes of the cooling system with the spindle. Then connect the two air tubes of the controlling system with the spindle too. Affiliate the spindle with the controlling system with the help of the connection cable. **Thoroughly lay the cable and the hose in order that they are not jammed or damaged when your machine is moving.**

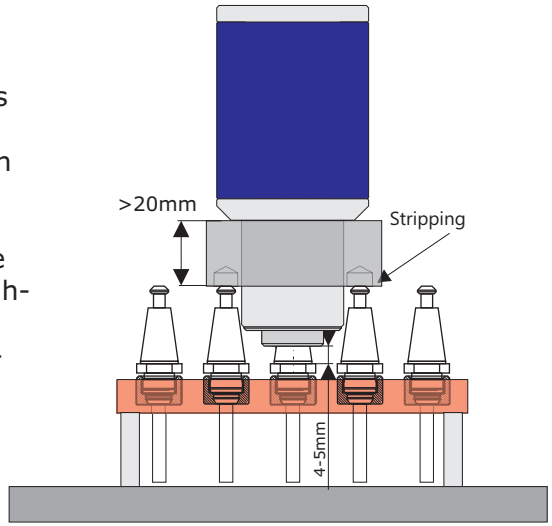
Water cooler:

Fill distilled water into the cooler (ca. 3,5 l). Check, if the water level is correct (In that case, the blue area of the flush type fluid indicator emerges out of the tube - see picture on page 4.). **Remeber to check the water level from time to time!** The cooler should be placed on the same level as the milling machine.



Machining the spindle holder (Only if it is thicker than 20 mm):

Since the distance of the tool in the tool holder only amounts to 30 mm it is necessary to provide 2 strippings on the milling spindle seat of 43 mm (depending on the assembly direction of the magazine in X or Y direction). This is necessary since the spindle travels down very far and the spindle holder might touch down on the neighboring tools (refer to the exemplary drawing). Please measure the necessary depth of the holes on your machine. The distance of the holes amounts to 60 mm from one hole to another (30 mm from the center).



Functional description of the tool change:

Getting the tool:

Travel to the position of the desired tool and lower the spindle with the open collet chuck. The ideal getting point is about 5 mm before the spindle touches the tool. Stop the travel and close the clamping collet. The tool is firmly seated in the spindle. Then you can travel the spindle upward again.

Putting down the tool works equally in the opposite order.

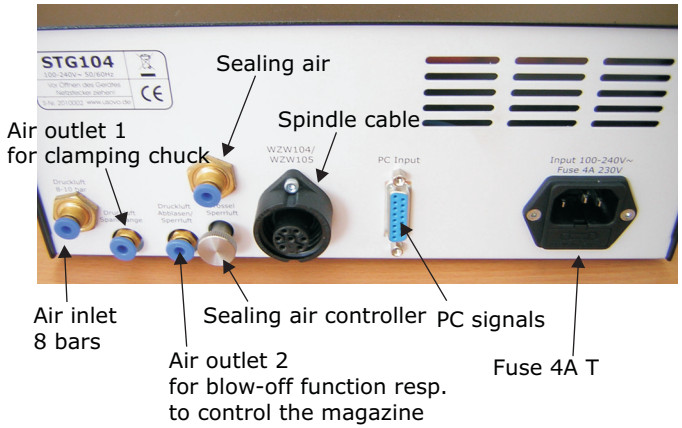
Tool changer control STG104:

All functions can be manually switched or switched via the 15-pole Sub-D cable.

Functional description:

Key 1:	Opens the clamping chucks for the tool change
Key 2:	Opens the magazine resp. applies air on the blow-off nozzle
Key 3:	Switches the spindle motor on and off
Controller:	Speed selection

By simultaneously pressing the keys 2 and 3 you may access the programming mode for the maximum speed at 99% resp. 10V.



*When using the 5-fold tool holder, please connect the air outlet 2 and the sealing air outlet by means of the Y adapter with the sealing air inlet of the spindle.

When using the closed 6-fold magazine, please connect the sealing air outlet to the spindle and the air outlet 2 to the magazine.

Sealing air:

The sealing air avoids penetration of foreign objects into the ball bearing. It should be set in a way that a slight waft of air escapes from the nozzle. This increases the service life of the ball bearing. If the sealed air is too strong it might cause an increased use of the air seals.