SWISS JET Spindle | Quick Start

Box Content

ITEM	Quantity
SWISS JET Spindle	1
High Precision ER8 Nut	1
ER8 Wrench	1
9mm Spanner	1
M5x30 Screws (only included with 97-000-310)	4

Note: ER8 Collet is not provided by Colibri

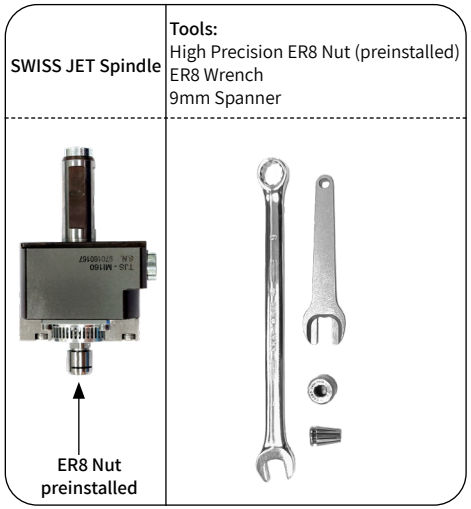

Fig. 1: Content of the box

Operating Parameters:

JET SPINDLE OPERATING PARAMETERS						SWISS JET	
HIGH PRESSURE COOLANT (BAR)	15 BAR	20 BAR	25 BAR	35 BAR	45 BAR	Terms of Use	
Min Coolant Supply Diameter [mm]	4.0					**Collet**	ER8 AA/UP
Min flow rate (L/min)	12	14	16	18	20	**Runout**	3 Microns
Rotational spindle speed [RPM]*	30,000	36,000	38,000	46,000	56,000	**Warranty**	1 Year

*** Notes:**

- Rotational spindle speed is based on coolant pressure and flow rate.
- Coolant pressure is measured at the spindle inlet.

Max. Tool Diameter [mm]	Application	P	M	N [Al]	N [Cu]	S [Ti]
	Drilling	2.0		3.0	2.0	
	Profile Milling	3.0	4.0			
	Slot Milling	3.0	4.0		3.0	
	Shoulder Milling	3.0	4.0		6.0	
	Chamfering	6.0				
	Deburring					
	Engraving					

JET SPINDLE OPERATING PARAMETERS

MILLING
Slotting - up to D=4.0mm, ap= 0.05D
Shouldering - up to D=6.0mm,
ae=0.1D & ap=0.1D

THREAD MILLING
Max. M3 thread

DRILLING
Max drill dia. 3.00mm

DEBURRING
Max tool dia. 6.00mm
Can use 45 to 60 degree end-mill

ENGRAVING
Max tool dia. 6.00mm
Max Ap 0.25mm

Prerequisites to Qualify Use:

1. Coolant flows through the main CNC machine spindle
2. Min. coolant pressure, of main spindle outlet: 15 bar
3. Max. coolant pressure, of main spindle outlet: 45 bar
4. Minimum flow rate: 10 l/min
5. Max. viscosity 15 mPa*s
6. Filter element: Max. 100 µm
7. Active mist collector
8. When using emulsion coolant, use an anti-foaming agent additive suitable for emulsion
9. When using oil-based coolant, high-pressure increases the oil fumes:
   a. Use appropriate means of fire protection
   b. Use anti-dissolution additive suitable for oil

Selecting Cutting Parameters:

It is important to use the Jet Spindle correctly at all times.

This means determining the appropriate Ae, Ap and Fz, based on:

1. Metal workpiece materials - P/M (Stainless Steel & Steel), N (Aluminum), S (Ti)
2. High Pressure Coolant (BAR) of the CNC machine
3. Process - Drilling, Profile Milling, Slot Milling & Shoulder Milling
4. Cutting tool type and size

You can find these details in the “Cutting Parameters Table” within the manual.

97-000-160 - 97-000-310 01.07.25

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Clamping the Cutting Tool

1. Insert collet and screw on the nut by hand.
2. Align flat sides of the shaft with the positioning slot on the spindle cover.
3. Position 9mm Spanner over the nut. (Raised buttons should fit into the positioning slot underneath.)
4. Slide 9mm Spanner to secure it in place.
5. Insert ER8 Wrench into the slots on the Nut.
6. Turn ER8 Wrench **clockwise** to tighten. (Note: max. 6Nm tightening torque!)

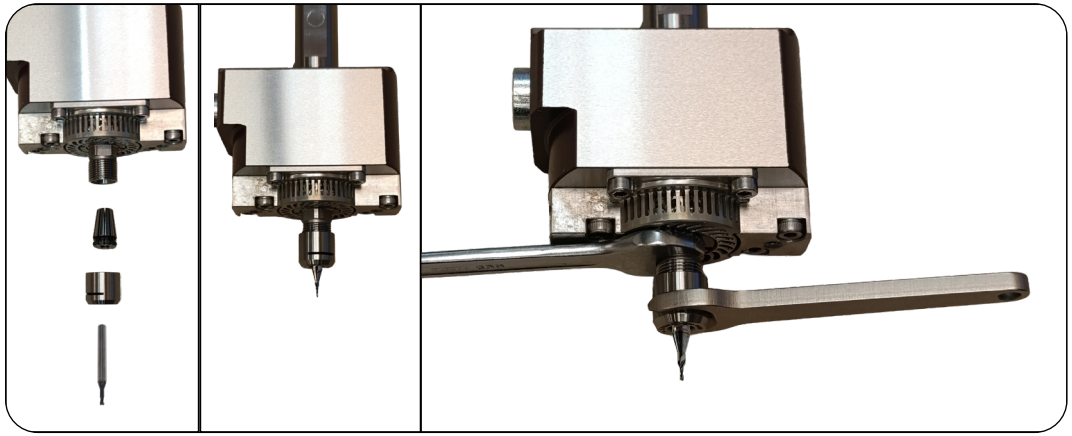

Fig. 2: Steps of tool clamping

Remove the Cutting Tool

1. Slide the 9mm Spanner to unlock.
2. Insert the ER8 Wrench and turn **counterclockwise** to loosen the nut (this may take a few turns).
3. Keep the shaft lock in the secure position, if you wish to insert a new tool.

Fig. 3: Insert wrench into slots off the nut – turn **counterclockwise**

Runout Check

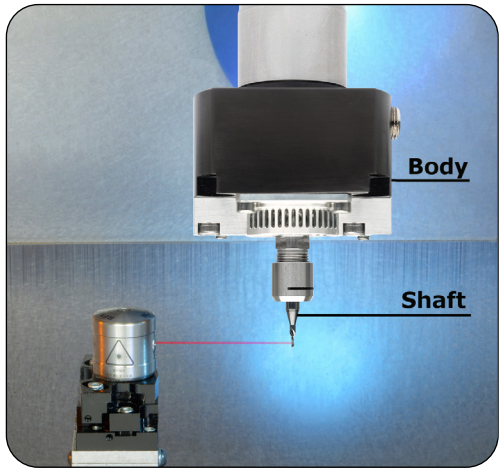

Fig. 4: Optical runout testing

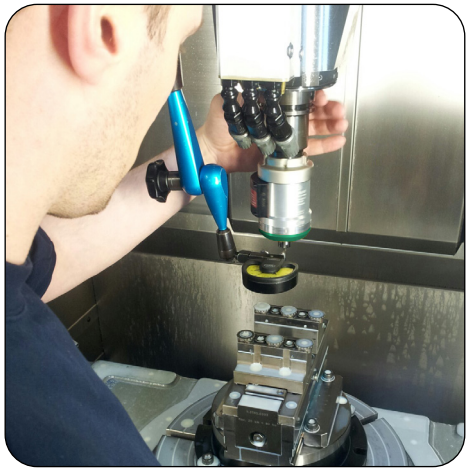

Fig. 5: Manual runout testing

- High-Speed Spindle body must remain static.
- Runout is measured by rotating the shaft manually, or running an air supply through the machine spindle.

Replacement of SWISS JET Cartridge

Before disassembly remove ER8 Nut and Collet!

1. Losen all the marked screws.
2. Take everything apart. (Pay attention to the O-rings!)
3. Change the Cartridge.
4. When assemble everything back together make sure:
   - To use Loctite 242 screw locking adhesive.
   - To use the 2 O-rings you got from disassembly.

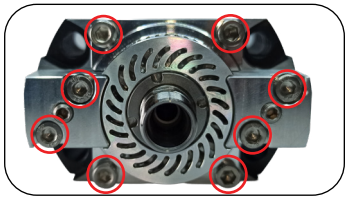

Fig. 6: Marked screws for disassembly

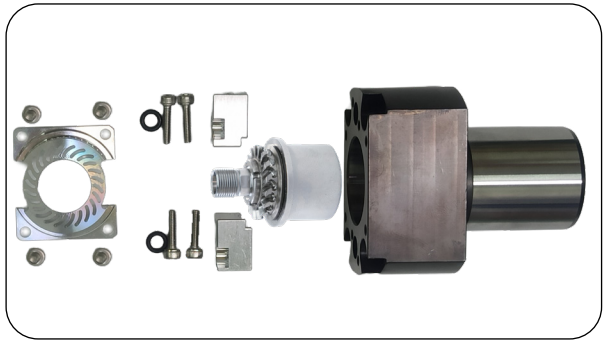

Fig. 7: SWISS JET Spindle taken apart for Cartridge replacement

Fig. 8: SWISS JET Spindle Cartridge