

KNO P P Göppingen

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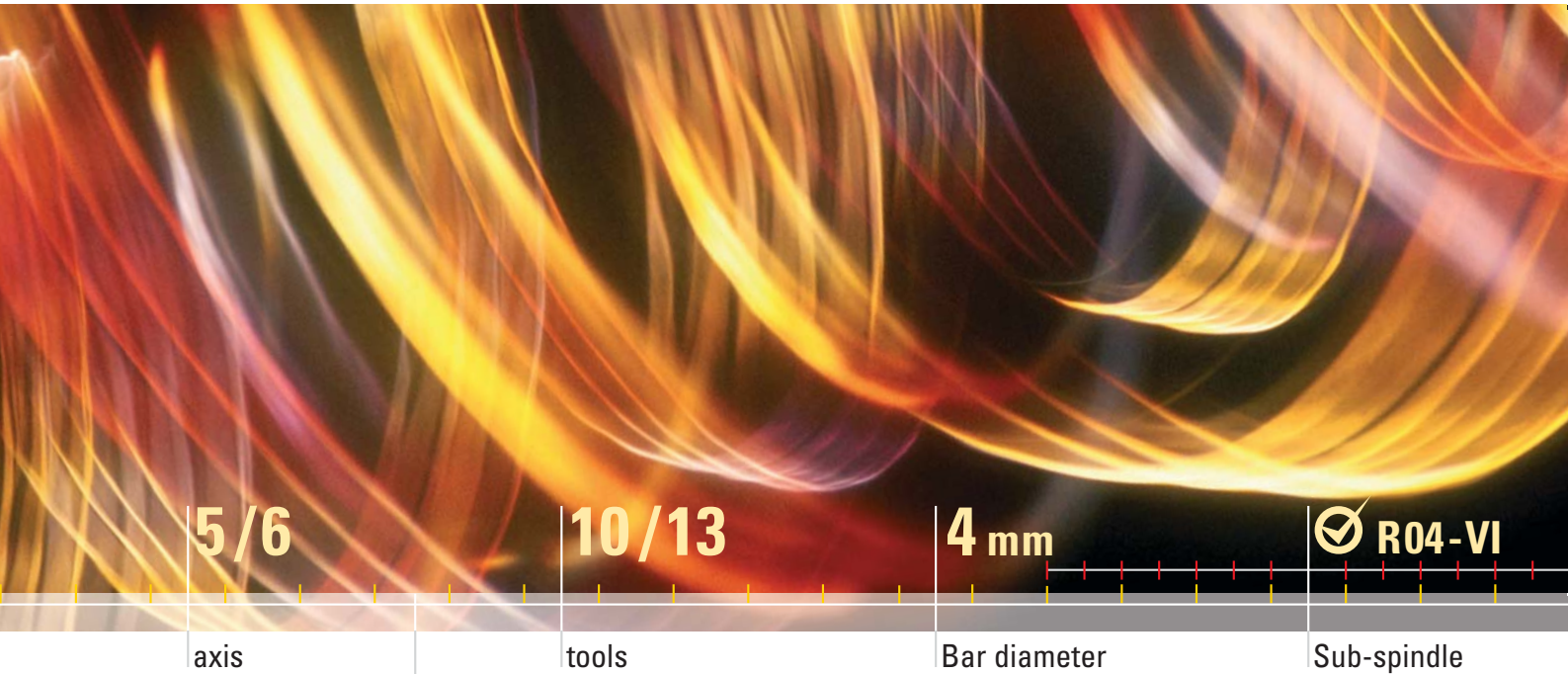
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Cincom **R04-I/R04-VI**
CNC Sliding Headstock Lathe

Extremely fast production of
small high-precision parts

CITIZEN

Cincom R04-I / R04-VI



Extremely fast production of small high-precision parts

The new Cincom sliding head lathe R04 defines its own category for ultra-precise production of small and tiny parts.

The machine is designed for maximum precision, extremely fast machining, short response times as well as long-time precision and smooth running. The sliding headstock lathe R04 is available in two versions:

R04-I: without sub-spindle and without rotary tools

R04-VI: with sub-spindle and two rotary tools

The Citizen sliding headstock lathe R04 – in a class of its own for high precision on tiny parts up to 4 mm diameter.

Special features:

- **Drives**

The main spindle features a built-in motor. Very fast acceleration and high positioning accuracy are obtained by the use of linearmotors in all X-, Y- and Z1-axes in combination with Heidenhain glass scales for precise feedback of position.

No ball screws are used, so variations of accuracy due to changing temperatures are eliminated. Best results in precision and repeat accuracy are achieved. High speed rapid feed rates up to 30m/min are possible. The elimination of mechanical components prone to the effects of wear, ensure long term accuracy to the highest level.

On type VI, digital AC servo motors are used for the tool spindle of the rotary tools, the drive of the sub-spindle and the Z3-axis.

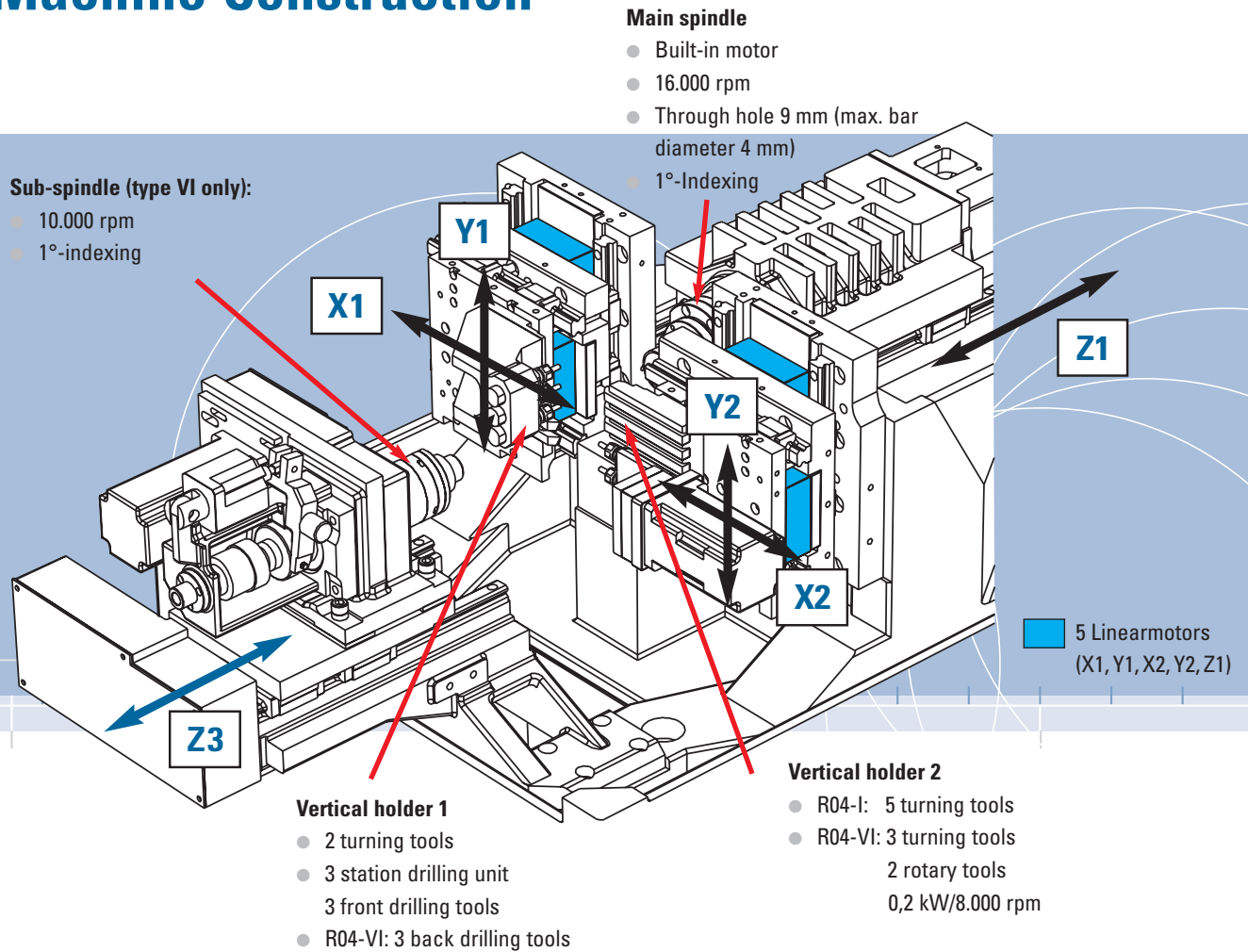
- **Main spindle**

High-speed spindle with precision ceramic bearings and built-in motor for a spindle speed up to 16.000 rpm. Opening and closing of the collet is possible even at highest speed due to a newly developed mechanism of the collet, using disk springs and a rotary cylinder system.

Cycle times are minimised by the reduction of acceleration/ deceleration times and by the elimination of idle times.

Spindle-through hole is 9 mm, maximum bar diameter is 4 mm. 1°-indexing is standard.

The maximum turning length is 50 mm (R04-I) and 30 mm (R04-VI).



- **Sub-spindle (R04-VI only)**

Newly developed, extremely compact unit for speeds up to 10.000 rpm and pip-free part-off surface. Opening and closing of the collets by pneumatic control.

- **Tooling system with 10/13 tools**

Two independent vertical holders are designed for extremely short response time and fast movement in x and y.

R04-I: 2 turning and 3 drilling tools on holder 1, 5 turning tools on holder 2.

R04-VI: 2 turning and 6 drilling tools (3 front/3 back) on holder 1, 3 turning tools and 3 rotary tools for cross drilling on holder 2.

- **Simultaneous machining**

Simultaneous control of up to 5 axes (R04-I) and 6 axes (R04-VI). Simultaneous working with up to 3 tools. Full synchronisation between main and sub-spindle (R04-VI only).

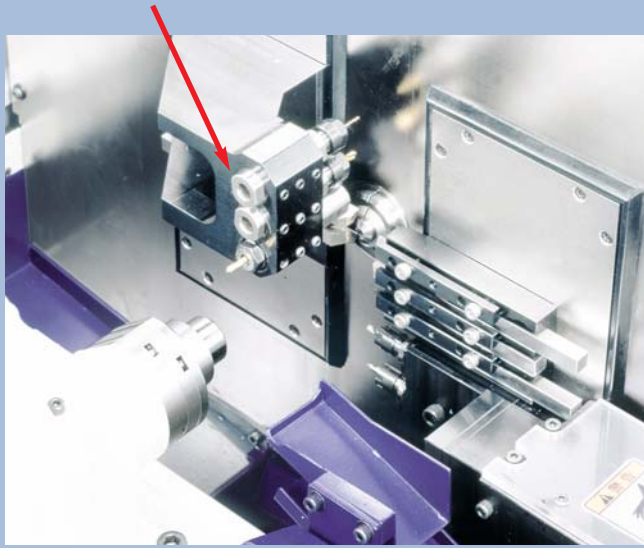
- **Control system Fanuc 18iB**

The machine is equipped with a control based on Fanuc 18i. The electronic handwheel for safe and easy program check is standard. The movable control panel is equipped with a 7,2" monochrome display. A PCMCIA-slot enables easy input/output and storage of program data. An integrated preselection function for tools reduces the selection time due to both vertical holders working independently from each other.

- **Space saving compact design**

The use of linear motors and micro technologies plus the integration of the control cabinet underneath the bar feeder makes the CNC sliding headstock lathe R04 an extremely compact machine. Using type VI with the new very small sub-spindle, the dimensions are no larger than those of a cam lathe. This means a significantly higher productivity in relation to the needed space.

Tooling System



Vertical holder 1

The vertical holder 1 is equipped with 2 turning tools and a triple holder for 3 front drilling tools (R04-I) and 3 additional back drilling tools (R04-VI).

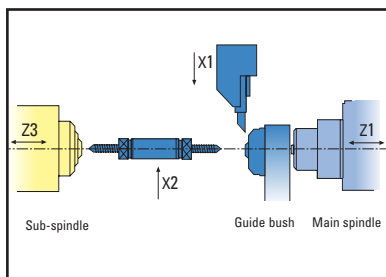
Vertical Holder 2

The vertical holder 2 has 5 turning tools (R04-I) or 3 turning and 2 rotary tools (R04-VI).
 Motor power: 0,2 kW
 Spindle speed: 8.000 rpm

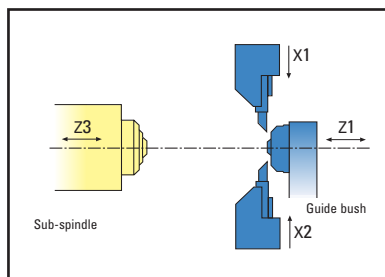


Simultaneous machining

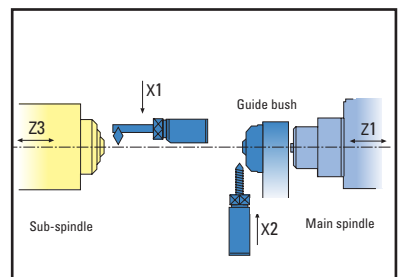
Up to three tools can be used simultaneously.
 Back machining is only possible on R04-VI.



Main spindle: turning and drilling
 Sub-spindle: drilling



Main spindle: turning with 2 tools



Main spindle: drilling/milling with rotary tool
 Sub-spindle: drilling and turning

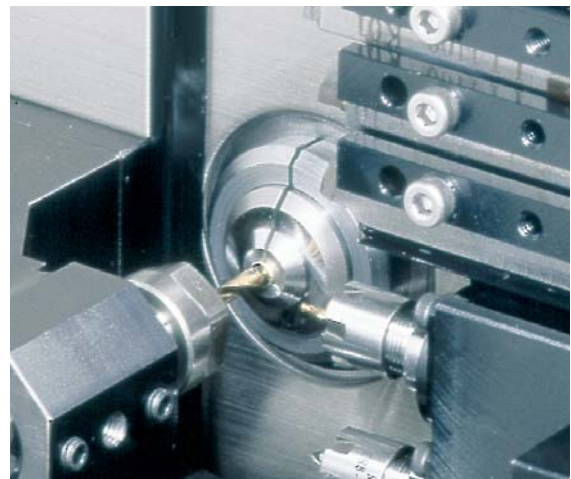


**4-division parts box for tiny parts
R04U32J (R04-I), R04U34J (R04-VI)**

Tiny parts are gathered with vacuum support and put into the box.

Flexible guide bush R04U4150Z

The flexible guide bush opens and closes automatically and is adjusted pneumatically.



Bar feeder LNS Tryton

A special bar feeder LNS Tryton 107 is useable with R04 only. The control cabinet of the R04 is mounted underneath the bar feeder. So machine and bar feeder form an extremely compact unit. The "footprint" is the same as that of a mechanical cam lathe. Each bar is fully supported in its individual bar feed guide tube.

Specifications Cincom R04-I / R04-VI

Technical data	Cincom R04-I	Cincom R04-VI
Main spindle		
Maximum bar diameter [mm]	4	4
Maximum turning length [mm]	50	30
Main spindle drive (built-in motor) [kW]	0,75 / 1,1	0,75 / 1,1
Main spindle speed, stepless [rpm]	16.000	16.000
Main spindle indexing [°]	-	1
Spindle through-hole [mm]	9	9
Sub spindle		
Maximum bar diameter [mm]	-	4
Maximum length inside collet [mm]	-	30
Sub-spindle drive (super-servo motor) [kW]	-	0,4
Sub-spindle speed, stepless [rpm]	-	200-10.000
Sub-spindle indexing [°]	-	1
Rotary tools on vertical holder 2		
Spindle speed, stepless [rpm]	-	200-8.000
Motor power (AC servo motor) [kW]	-	0,2
Number of rotary tools (cross drilling)	-	2
Tooling system		
Turning tools (8x8x120) [quantity]	7	5
Drilling tools (front) [quantity]	3	3
Drilling tools (back) [quantity]	-	3
Collet/guide bush		
Collets main/sub-spindle (Schaublin)	76-1079	76-1079
Guide bush (Neukomm)	51.001	51.001
Drill sleeves	ER8	ER8
Rapid feed rate		
All axes [m/min]	30	30
Machine dimensions		
Dimens. (without bar feeder) LxDxH [mm]	560 x 1265 x 1410	560 x 1265 x 1410
Spindle height [mm]	1.000	1.000
Weight [kg]	750	800
Input power capacity [kVA]	4	4

