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MANURHIN K'MX 916 CLEVER

Innovative technology



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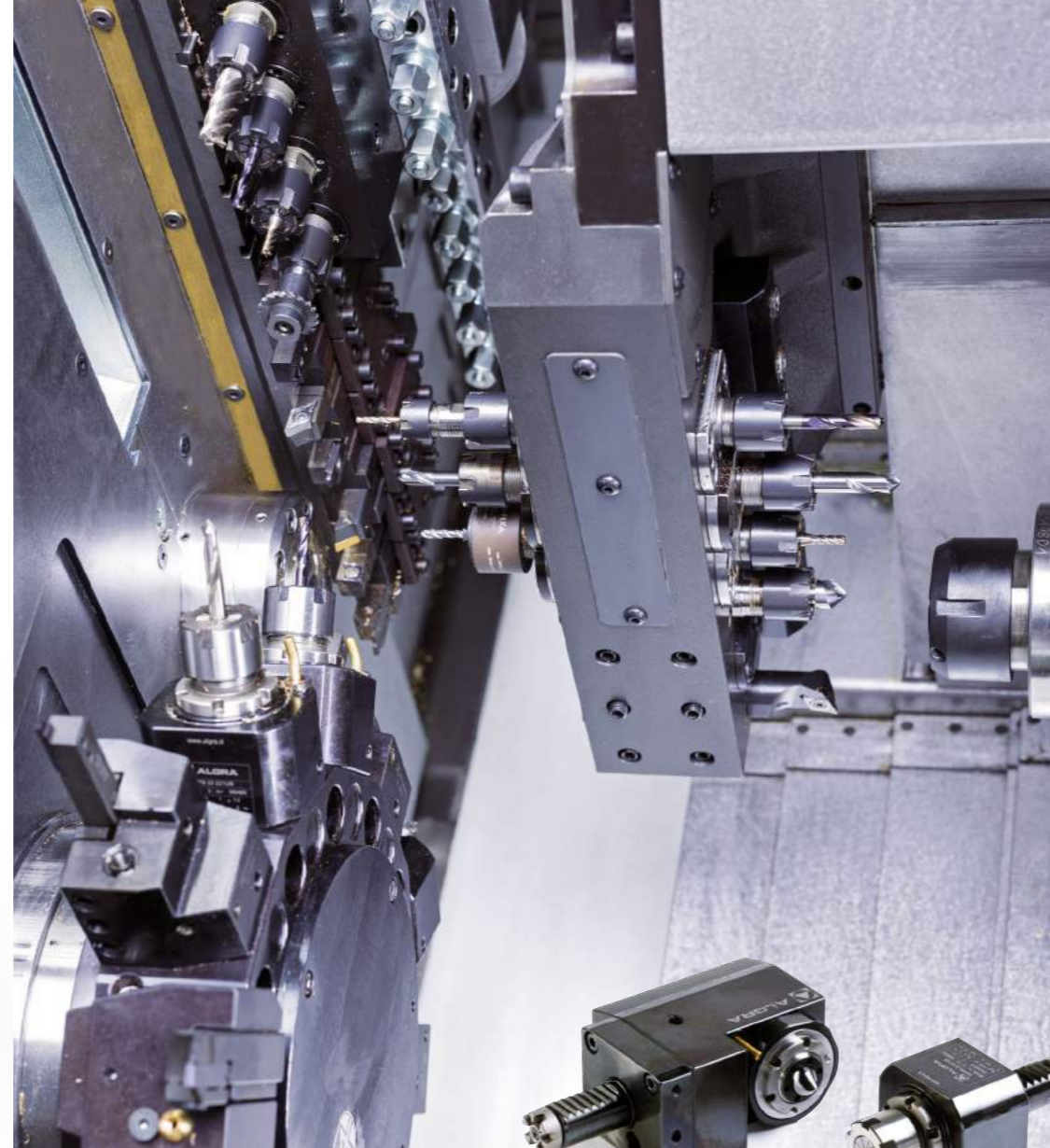
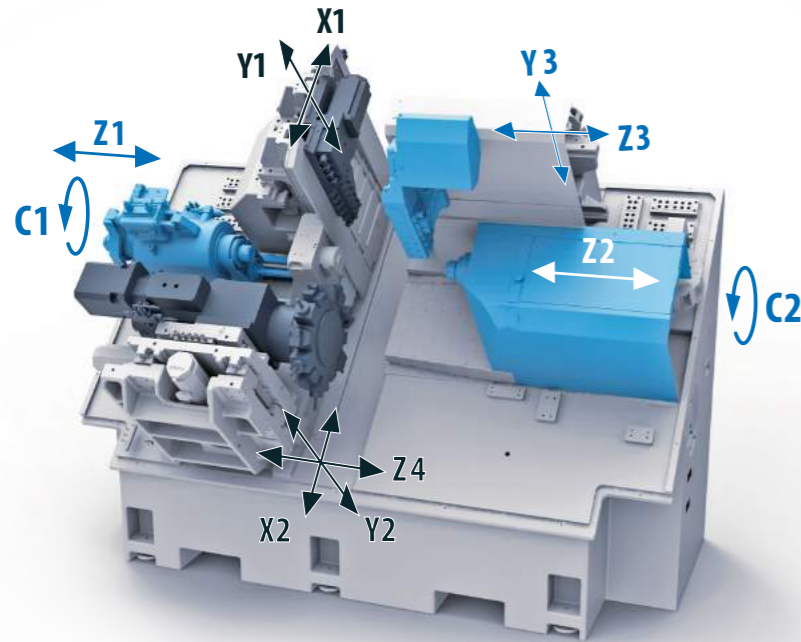
Innovative technology

Swiss automatic lathe MANURHIN K'MX 916 CLEVER is determined for productive machining of parts from bar material of diameter 16 mm (optionally up to 20 mm).

Machine is in standard equipped with two electrospindles with maximum spindle speed 12 000 rpm and rotary guide bush, synchronized with main spindle by pulleys and belts. Nine linear CNC axes (X1, X2, Y1, Y2, Y3, Z1, Z2, Z3, Z4) and two rotary CNC axes (C1, C2), enable to machine very productively also the complex parts.

Thanks to its design solution the machine can work with up to 4 tools in one time.

KINEMATICS

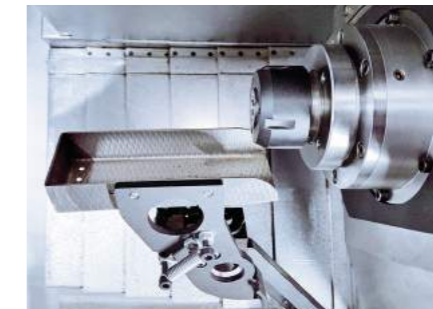


Machine is equipped by turret Baruffaldi with 12 position tool disc for VDI 20 tool holders. All 12 positions can be motorized. Thanks to Z4 axis can turret together with upper tool rack not only do rough turning and finishing in one time, but can do also two different turning operations or two different milling or drilling operations on main spindle.

Axial tool rack is also equipped with live tools for extra axial drilling. Stroke of main spindle enables to turn the parts up to 220 mm on one clamping. Optionally it is possible to eject the parts through the counter spindle. The length of part is limited literally by the length of the bar.

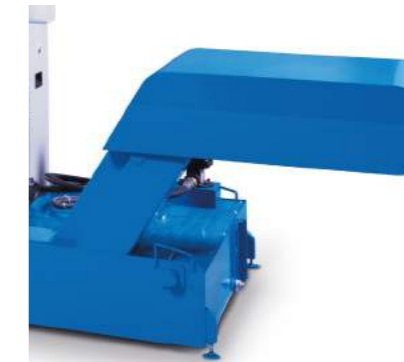
Together with the machine we deliver automatic bar feeder with encoder and magazine for 3 or eventually 4 m bars.

PARTS CATCHER



Pneumatic parts catcher is controlled by M-function. Arm is easy to set up and enables the part catching from both main and counter spindle. Parts catcher is used for parts up to 160 mm. The longer parts (also smaller ones) are possible to be ejected through the counter spindle. Parts catcher can be modified according to shape of part.

CHIP CONVEYOR



We offer universal belt conveyor for usual metallic chips (swarfs), eventually dredger type conveyor for small chips like brass. The proper choice of conveyor can remarkably simplify the operation and maintenance of the machine. Chip conveyor includes tank for coolant and pump.

FANUC 31i - MODEL B



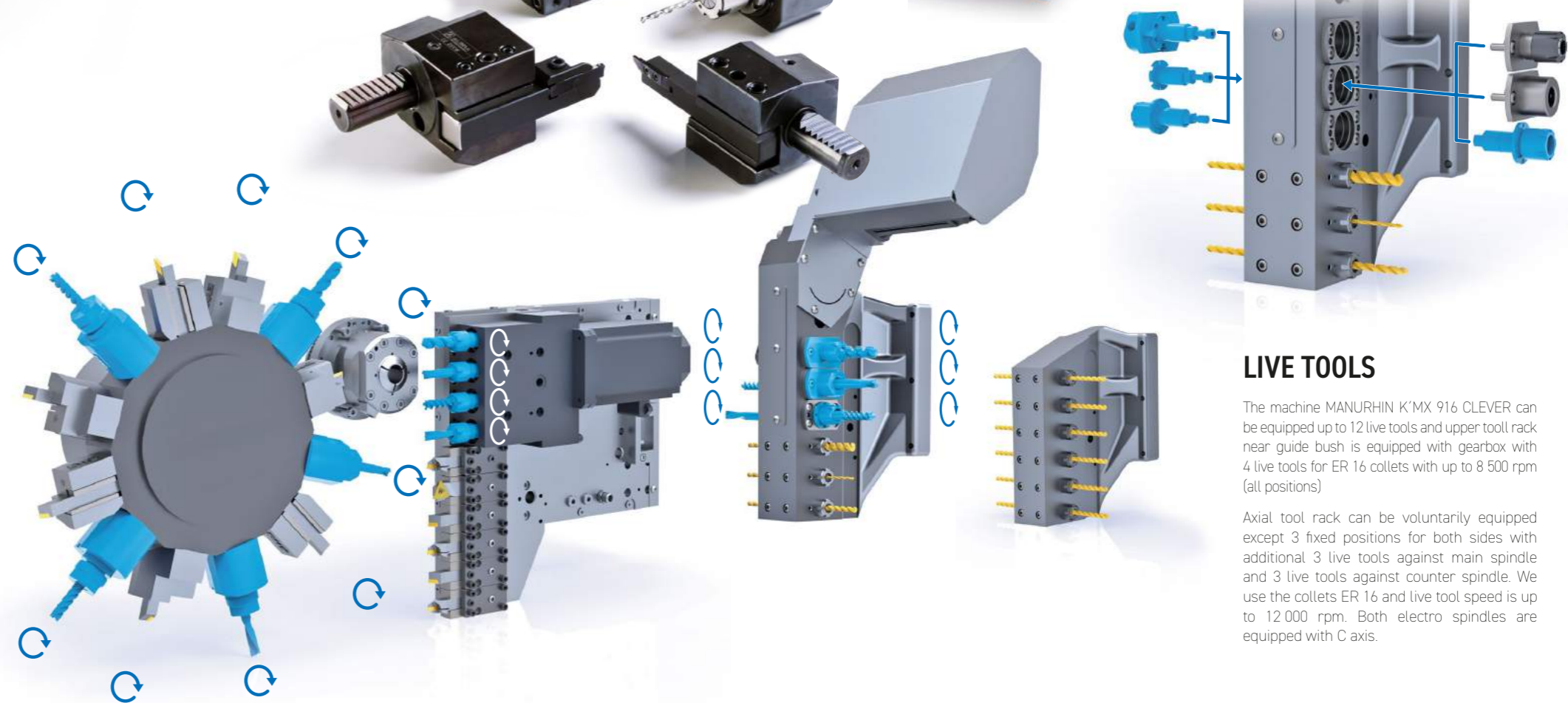
The latest CNC control system from Japanese manufacturer FANUC with color 10.4" screen enables to operator easy programming in ISO code. All operations are running in English (or other language if available). The transfer of programs is available comfortably via USB, PCMCIA card, RS 232 interface or Ethernet.

PNEUMATICS

The machine MANURHIN K'MX 916 CLEVER requires the pressure 6 bars and one time air flow of 350 l/min for function of air blasting of counter spindle collet. Pneumatically is controlled also clamping, parts catching and bar feeder.

LUBRICATION

Linear guideways are lubricated automatically by certain amount of oil by certain period of time. Easy maintenance is secured by easy access of lubrication tank in rear side of the machine.



LIVE TOOLS

The machine MANURHIN K'MX 916 CLEVER can be equipped up to 12 live tools and upper tool rack near guide bush is equipped with gearbox with 4 live tools for ER 16 collets with up to 8 500 rpm (all positions)

Axial tool rack can be voluntarily equipped except 3 fixed positions for both sides with additional 3 live tools against main spindle and 3 live tools against counter spindle. We use the collets ER 16 and live tool speed is up to 12 000 rpm. Both electro spindles are equipped with C axis.

MACHINE PARAMETERS

Maximum bar diameter – main spindle	Ø 16 (*Ø 20) mm	Counter spindle stroke	345 mm
Maximum length of machining on one stroke	220 mm	Rapid feed of counter spindle	30 m/min
Spindle bore	Ø 21 (*Ø 23) mm	Maximum bar diameter – counter spindle	Ø 16 (*Ø 20) mm
Power on main spindle motor (100% / 30min)	3,7 / 5,5 kW	Maximum length of part inside the counter spindle for frontal ejection	160 mm
Maximum speed of main spindle	12 000 rpm	Maximum length of part for frontal ejection	160 mm
Spindle indexing orientation	Left and right	Counter spindle bore	Ø 21 (*Ø 23) mm
Main spindle stroke Z1	220 mm	Maximum speed of counter spindle	12 000 rpm
Rapid feed of main spindle	30 m/min	Power of counter electro spindle (100% / 30 min)	3,7 / 5,5 kW
Tool rack main – horizontal stroke X1	90 mm	Evacuation of parts through the counter spindle	Optional
Rapid feed of horizontal stroke X1	30 m/min	Air pressure	6 bar
Tool rack main – vertical stroke Y1	319 mm	Tank capacity	250 l
Rapid feed of vertical stroke Y1	30 m/min	Flowrate	2 x 45 l/min
Turret – horizontal stroke X2	90 mm	Coolant pump pressure	2 x 3 bar
Rapid feed of horizontal stroke X2	30 m/min	Voltage	3 x 400 V – 50 Hz
Turret – vertical stroke Y2	50 mm	Power	31 kVA
Rapid feed of vertical stroke Y2	30 m/min	Wire section	16 mm ²
Turret stroke Z4	65 mm		
Rapid feed Z4	30 m/min		
Tool rack axial – horizontal stroke Z3	225 mm	MACHINE DIMENSIONS	2 000 x 1 280 x 1 740 mm
Rapid feed of axial tool rack – horizontal stroke Z3	30 m/min	MACHINE WEIGHT	3 500 kg
Tool rack axial – vertical stroke Y3	305 mm		
Rapid feed of axial tool rack – vertical stroke Y3	30 m/min		
Number of tools	(12 + 10) + (2 x 6)		
Tool shank size	12 x 12 mm		

* optional modification on request

COLLETS AND GUIDE BUSHES

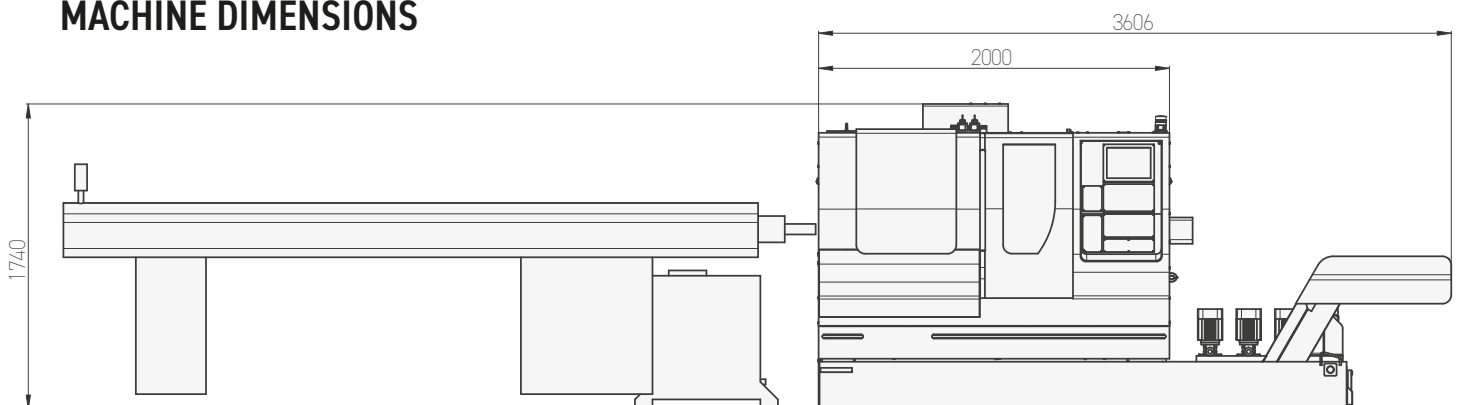


On MANURHIN K'MX 916 CLEVER we use for both main and counter spindle the collets of type 145E (F25) and we recommend steel ultra-precision collets from well-established collets manufacturers. Usually are used grooved collets or smooth collets or collets with longer nose (LN).



On MANURHIN K'MX 916 CLEVER we use the guide bushes of type B260 denomination. We recommend the guide bushes with hard metal insert from renowned manufacturers.

MACHINE DIMENSIONS



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Specifications and illustrations may not always correspond with the machine latest version.