

Pos.	Qty.	Article Description	Price / €
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Complete machine description

- 1 1 Partly refurbished vertical CNC-machining centre model FZ 15 FX M**
Year of construction: 2016, weight: 10.500 kg

Machine-No. 308-66

Scope of delivery:

- 1040 1 **Column moving machining center**
 in accordance with the scope described below

- 1060 1 **Machine base** in mineral casting technology

Splash guard cover with fully enclosed workspace with loading doors, electrically interlocked, including interchangeable safety windows, workspace partition with stainless steel covers, Height 2,140 mm above floor, including machine lamp
Pivoting control panel with additional side window, electrically interlocked for good visibility of the working area during setup

Fixed table with chip pan
 divided version for free chip fall
 prepared for installation of a 2 axis swivelling mechanism

Minimum distance spindle nose - face plate: 200 mm

Travel:
 X-axis 730 mm
 Y-axis 400 mm
 Z-axis 425 mm

- 1080 1 **Bed flushing system**

- 1100 1 **Spindle head single-spindle**
 for the integration of 1 spindle motor with main spindle



Pos.	Qty.	Article Description	Price / €
1120	1	<p>Main drive with AC-motor pressurized with sealing air and monitoring of the tool clamping 17.0 kW at 100 % duty cycle 37.0 kW at 10% duty cycle spindle speed range up to 12,000 min⁻¹ torque max. 180 Nm</p> <p>Drilling capacity dia. 42 mm Tapping capacity M30 Milling capacity 500 cm³/min made from steel E355</p>	
1140	1	<p>Automatic tool changer, chip-proof No. of tools 20 Tool shaft HSK-A 63 DIN 69893 Max. tool dia. 65 mm if all magazine pos. are occupied Max. tool dia. 175 mm if adjacent places are free Max. tool weight 2.5 kg (5.0kg at 4 places) Tool change time approx. 0.9 s (depends on CNC) Chip to chip time approx. 1,9 s (depends on CNC)</p>	
1160	1	<p>Feed drive for X-, Y- and Z-axes digital direct drive with indirect absolute measurement system Rapid speed 75 - 75 - 75 m/min Acceleration 1,0 - 1,0 - 1,0 g</p>	
1180	1	<p>Direct measurement system X-axis overpressured</p>	
1200	1	<p>Direct measurement system Y-axis overpressured</p>	
1220	1	<p>Direct measurement system Z-axis overpressured</p>	
1240	1	<p>Automatic central oil lubrication</p>	
1260	1	<p>SIEMENS CNC-control 840D solution line (TCU / NCU 720.3), 1 channel incl. 10.4" TFT color monitor standard keyboard / control panel OP010S operator interface Operate NC-memory 3 MB (max. 1 MB freely available) (max. 200 programs storage capacity) for executing part programs according to DIN 66025 CF-card with storage capacity 8 GB (max. 3 GB freely available) power display, operating hour and piece counter on the screen dark switching of screen look ahead with dynamic pre-control</p>	



Pos.	Qty.	Article Description	Price / €
		<p>Software limit switch access authorization via key-operated switch for tool compensations, NC-program changes and machine parameters</p> <p>oriented spindle stop re-start into program subroutine technology in high-level language and parameter simultaneous programming</p> <p>cycle support drilling cycles G81-G89 drilling and milling patterns measuring in JOG</p> <p>M and T functions tool offsets for geometry, wear 4 programmable zero offsets G54-G57 30 zero shifts programmable via G-functions tool radius correction with intersection computing insert chamfers and radii crossing radii contour programming scaling function mirror function polar coordinates circular interpolation (360 degrees) 3D and helical interpolation</p> <p>USB-interface at control panel,</p> <p>sending and receiving CNC-programs in networked operating by the connection with logical drives, for example a network, the wiring to the network is not included,</p> <p>NC-diagnosis with help function machine-diagnosis</p>	
1280	1	<p>CHIRON Powersafe Software package for selective shutdown of installed consumers like axis motors, drives, spindles, seal air, airsensing and ancillary equipment in production breaks or during programmable points in time using a shift calendar. Definable point in time at which the machine starts demand-oriented automatically with a variable warmup program to recovery the production readiness.</p>	



Pos.	Qty.	Article Description	Price / €
1300	1	<p>Remote diagnosis and teleservice Optimization of the maintenance process and shortening of troubleshooting through faster diagnosis: Detailed information about the machine status is available to support both, internal and also optionally external experts, independent from time and location. This way a faster and more qualified support is possible. Possibility of remote control of the NC-control for the analysis of operation sequences and support with programming problems. Access to PLC for diagnosis, troubleshooting and programming. Notification service by text / email, e.g. at end of job or in the case of breakdown. Simple backup through use of the existing infrastructure in the internet. Safe access through defined user rights, access control and encryption of data. Access through Ethernet connection RJ45.</p> <p>For this option, you have to enter into a contract with CHIRON.</p> <p>Pre-requisite: The connection of the machine to the internet through in-house network has to be provided by customer.</p>	
1320	1	<p>CHIRON maintenance management on the screen display of the pending maintenance: advance warning = "prepare maintenance" warning = "carry out maintenance" machine stop = "catch up on maintenance"</p> <p>Brief instructions for the pending maintenance with graphic illustration on USB data-carrier. Password protected confirmation of the maintenance work carried out by the maintenance staff.</p>	



Pos.	Qty.	Article Description	Price / €
1340	1	<p>5-axes-milling package for the machining of three-dimensional curved or tilted surfaces with 3 linear and 2 additional axes (TRAORI & CYCLE 800), incl. compressor CompCAD. 5-axes-transformation with tool tracking. The machining task is programmed completely in Cartesian coordinates with Cartesian position and orientation. The resulting movements of all 5 axes are calculated internally with the 5-axes-transformation. 5-axes-tool-length compensation The length of the tool is automatically computed and compensated in the movements of the axes.</p>	
1360	1	<p>2 axis rotary table CHIRON CASD 280 consisting of:</p> <p>Interface for 4th and 5th axis smallest increment 0.0001° pneumatic supply regulated for sealing air pneumatic supply controlled for clamping</p> <p>Technical description: bridge size 950 mm NC-swivel axis as A-axis tilting angle: ± 120° repetition accuracy ± 5" with absolute, direct measurement system ECN 225 driven by backlash-free, pre-loaded precision gear very high overload capacity max. transmittable torque 1.500 Nm spindle speed 50 min⁻¹</p> <p>NC-rotary table as C-axis faceplate dia. 280 mm with thread and locating hole grid M 16 x dia. 15H7 x 50 mm repetition accuracy ± 5" with absolute, direct measurement system ECN 225 digital direct drive via torque motor max. transmittable torque 470 Nm with pneumatic clamping system max. torque if the table is clamped 1,700 Nm max. transport load (workpiece weight): 320 kg spindle speed 200 min⁻¹</p> <p>Clamping surfaces to the right and left of the rotary table faceplate with thread and locating hole grid M 16 x dia. 15H7 x 50 mm</p>	



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		Counter bearing without drive total torque of tilting axis and counter bearing via clamping system 2,000 Nm	
		Central rotary feedthrough for pneumatic or hydraulic supply 6-fold, integrated into A- and C-axis with 6 O-ring connections in the center of the face plate Remarks: power-actuated clamping fixtures on the faceplate require additional connections and clamping circuits.	
1380	1	Stationary 3D Probe System type TS 27 R, make RENISHAW with adapter plate and air blow for the measuring stylus for tool breakage control (in one working area) for automatic tool length measurement (at FZ) for automatic machine compensation including process-oriented measuring software for measuring cycles strategy program and tool holder with ball dia. 12 mm	
1400	1	Operating hours and piece counter on the screen	
1420	1	Socket at control panel (for description see "main circuit")	
1430	1	Socket for portable mini-hand wheel without EMERGENCY-STOP button, at control panel	
1440	1	Electrical cabinet cooler mounted to the door	
1460	1	Signal lamp for 3 signals Signal "red" = failure Signal "white" = load machine Signal "green" = machine is running	
1480	1	Wash gun	
1500	1	Oil-free air service unit with electric main switching-off and automatic condensate separator, pressure control of the air supply and micro filter 0.01 µm for sealing air	



Pos.	Qty.	Article Description	Price / €
1540	1	- Extra equipment -	
1560	1	- Coolant Package -	
1580	1	Chip conveyor (scratch band) 600K-1/320-XAR400 Discharge height 1050 mm Discharge behind	
1600	1	Coolant equipment KF 150 / FKA 500 (also for sludge generating materials, e.g. grey cast iron, GGG, Al with Si \geq 12%) tank capacity 500 l low pressure pump capacity from 40 l/min. at 3.2 bar up to 120 l/min at 3.2 bar high pressure pump capacity 28 l/min at 30bar full stream purification via compact paper bond filter KF 150, with coolant purification 50 μ m nominal twin filter in the high pressure circuit for the protection of the machine	
1620	1	Machine preparation for coolant flowing through spindle with rotary feedthrough at the hollow shaft and high pressure piping with flow control switch. Note: At SK version in form A. At HSK we recommend the use of the patented coolant tube with sieve for the tool holders. Advantage: Decrease the risk of clogging in the internal coolant bores.	
1640	1	Fixture washing incl. coolant supply	
1650	1	- Further additional equipment coolant -	
1655	1	Flow control switch for external cooling	
1658	1	Flow control switch for fixture washing	
1659	1	Recooling unit with absolute control of coolant temperature prepared for mounting on the coolant equipment	



Pos.	Qty.	Article Description	Price / €
1660	1	- Options exhaust / extinguishing -	
1690	1	<p>Suction point for extracting the working area to be installed by customer, required exhaust capacity at least 450 m³/h, dia. 175 mm on top of the splash guard cover incl. preparation for the installation of a pressure relief valve and a shut-off valve, as well as electrical preparation in the electrical cabinet</p>	
1700	1	- Options measuring / tool breakage control -	
1720	1	<p>Probe for automatic measuring in the machine Blum - probe - package TC 52 for part measuring and automatic machine compensation probe with optical contact module and tool taper suitable for machine spindle tracing pin 50 mm with ruby ball dia. 4 mm infrared-receiver and interface process oriented measuring software for measuring cycles and strategy program</p> <p>Remarks: In order to carry out machine compensations with probe a suitable reference surface is necessary on the machine or on the fixture, or an optional gauge block.</p>	
1740	1	- Options electrical cabinet -	
1760	1	<p>Undervoltage relay in case of inadmissible deviation of the power supply the machine will be defined shutdown.</p>	
1780	1	- Options NC- control -	
1790	1	<p>SIEMENS Tool lifetime monitoring with: tool place organization sister tool organization</p>	



Pos.	Qty.	Article Description	Price / €
1800	1	<p>CHIRON DataLine The machine cross-functional application and service platform for every end device with a standard web browser allows to collect, calculate and save data. The data can be used, visualized and communicated. Including an industrial PC in the electric cabinet and following apps:</p> <p>Production Overview Display of the machine status as overview or in detail over a freely definable period.</p> <p>OEE key figures (Overall Equipment Effectiveness) Display of the productivity or operating time (by day, week, month or year) of the machine over a freely definable period and the causes of shut downs as registered at the machine.</p> <p>Parts Overview Display of the quantities produced per NC program, per period and monitoring of the production times.</p> <p>Machine Live Display of the current processes on the machine with the current program, status of the machine with the active tool, NC block, NC block number, operation mode and feed override.</p> <p>NC Logger Logging of NC program changes with backup function.</p> <p>Alarm Assistant Display of the current pending error messages with cause, effect and suggestions for troubleshooting.</p> <p>Maintenance Assistant Display of the pending maintenance tasks and running time or running performance.</p> <p>Alarm Monitor Display of the top 10 list of alarms, sorted by frequency and duration.</p> <p>Spindle Monitor Display of the utilization of the main spindle with speed ranges.</p>	
1810	1	<p>CHIRON Home Button Pro Safe tool release from any position after interruption of machining process through predefined points of return by means of variables in the NC-program. Return to home position from threads and after tool change interruption. Start with one button. Incl. NC-control expansion and software.</p>	



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1815	1	<p>CHIRON Reentry Re-entry into the program after interruption of machining process through predefined re-entry points by means of variables in the NC-program. After interruption of the NC-program and release of the machine it is possible to either restart the program or to automatically re-enter the program section at the point of interruption.</p>	
1820	1	<p>Feed per revolution for rigid tapping</p>	
1850	1	<p>Key switch with function "setup" restrict the feed drive speed to 30 %</p>	
1920	1	<p>- Execution other -</p>	
1940	1	<p>Installation elements Installation of an oil pan directly on the sheet steel is not allowed. We will not assume liability for any resulting problems. The machine documents for approval contain a proposal for the appropriate design of the oil pan.</p>	
1950	1	<p>Filtervlies IPF-80 / 540 mm x 80 mm</p>	
2000	1	<p>Work space washing with nozzles installed inside the Machine enclosure</p>	
2100	1	<p>- Additional equipment rotary tables / basic devices -</p>	
2200	1	<p>Converting the 2-axes-swivel device CHIRON CASD 280 to spindle speed 1000 min-1 incl. rotary transmission, rotary cycles and water cooling</p>	
2300	1	<p>Pressure accumulators for clamping in C-axis</p>	
2319	1	<p>- Additional equipment pneumatics / hydraulics -</p>	
2339	1	<p>Parts location air sensing for fine sensing with energy-efficient pressure control by using 1 pressure switch including pneumatic and electric installation, Remarks: Maximum 3 nozzles per switch. Pre-requisite: Processed faces or aluminium die casting (not on partition or ejector flags), no grey cast iron. Additional rotary feedthroughs may be necessary at rotary table and at standard fixture for rotary table</p>	



Pos.	Qty.	Article Description	Price / €
2359	3	Hydraulic connection for 200 bar with 1 connecting coupling and hydraulic installation up to outside of machine bed, incl. valve to control 1 single acting clamping circuit with pressure switch for electrical clamping control and electrical control for clamping OPEN-CLOSED	
2379	1	Hydraulic connection for 200 bar with 2 connecting couplings A+B and hydraulic installation up to outside of machine bed, incl. valve to control 1 double acting clamping circuit with pressure switch for electrical clamping control and electrical control for clamping OPEN-CLOSED	
2399	1	Connection for controlled blocking air in the working area e.g. for clamping elements	
2419	1	Hydraulic unit for continuous operation pressure: 200 bar	
2439	1	CHIRON Variable Clamping Logic For the definition of different clamping and releasing sequences, for a maximum of 10 functions with a maximum of 8 steps. Considering of time delay and monitoring of clamping circuits e.g. through pressure switches or airsensing. The storing of the configuration and reloading, allows fast changeover.	

Machine color

two-component structured paint - 3 colors
light grey acc. to NCS S1502-B
blue acc. to NCS S2050-R80B
grey basalt acc. to RAL 7012

Main circuit

pressure supply 6 bar +1 bar / -0.5 bar for all procedures
room temperature: 15 up to max 40 degrees Celsius
Neutral conductor resistant
Protective conductor existing
Frequency 50 Hz
Power outlet type VDE-SCHUKO
Supply voltage machine 3x400 volt ± 10%
Power outlet voltage 230 volt ± 10%

