

| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

- | | | | |
|---|---|--|--|
| 1 | 1 | <p>Partly refurbished vertical CNC-machining centre model CHIRON FZ 18 FX M Year of construction: 2017, weight: 11.500 kg</p> | |
|---|---|--|--|

Machine-No. 361-04



Machine image similar.
The equipment of the sample photo isn't binding.

GB | Data sheet | ref 361-04.docx

CMS-GmbH
take-off Gewerbepark 125
D-78579 Neuhausen ob Eck
Amtsgericht Stuttgart HRB 451099

Tel.: +49 (0)7461 / 940 3700
Fax: +49 (0) 7461 / 940 53700
cms@chiron.de
www.cms-retrofit.de

page 1 of 14

Geschäftsführer:
Rui Böniger

05.05.2020

Deutsche Bank Tuttingen
BLZ 653 700 75, Kto.-Nr.: 2208 148
Steuer-Nr. 21101/01726, Ust.-Id.-Nr. DE 812948040
IBAN : DE42653700750220814800
SWIFT : DEUTDESS653



| Pos. | Qty. | Article Description | Price / € |
|---|------|--|-----------|
| Complete machine description FZ 18 FX M no. 361-04 | | | |
| Scope of delivery: | | | |
| 1000 | 1 | Vertical CNC-machining center with 5 axis and 2 axis rotary table | |
| 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 2,340 mm above floor, including machine lamp pivoting control panel with additional side window , electrically interlocked for high visibility into the working area during setup Fixed table with chip pan divided version for free chip fall prepared for installation of a 2 axis rotary table Minimum distance spindle nose - face plate 240 mm Travel: X-axis 830 mm Y-axis 530 mm Z-axis 450 mm | |
| 1080 | 1 | Bed flushing system | |
| 1100 | 1 | Spindle head single-spindle for the integration of 1 spindle motor with main spindle | |
| 1120 | 1 | Main drive with AC-motor pressurized with sealing air and monitoring of the tool clamping 11.0 kW at 100 % duty cycle 25.3 kW at 15 % duty cycle spindle speed range up to 15,000 min ⁻¹ > 15,000 min ⁻¹ at 20 % duty cycle torque max. 140 Nm Drilling capacity dia. 42 mm Tapping capacity M 30 Milling capacity 500 cm ³ /min made from steel E355 | |



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

| | | | |
|------|---|--|--|
| 1140 | 1 | <p>Automatic tool changer, chip-proof robust, fully enclosed pick-up tool changer, No. of tools 70 Tool shaft HSK-A 63 DIN 69893 Max. tool dia. 78 mm if all magazine pos. Are occupied Max. tool dia. 140 mm if adjacent places are free Max. tool length 380 mm Max. tool weight 8,0 kg (max. magazine loading 240 kg) Tool change time approx. 0.9 s (depends on CNC) Chip to chip time approx. 2,2 s (depends on CNC)</p> | |
| 1160 | 1 | <p>Feed drive for X-, Y- and Z-axes digital drive with indirect absolute measurement system Rapid speed 75 - 75 - 75 m/min Acceleration 1,0 - 1,4 - 1,8 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 grease 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 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> | |



| Pos. | Qty. | Article Description | Price / € |
|---|------|---|-----------|
| Complete machine description FZ 18 FX M no. 361-04 | | | |
| | | <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>User interface CNC-control language NC control in German, CHIRON specific texts in German</p> | |
| 1290 | 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 programm to recovery the production readiness.</p> | |
| 1300 | 1 | <p>CHIRON RemoteLine for remote diagnosis and teleservice for 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</p> | |



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

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.

For this option you have to get into a contract with CHIRON-Werke GmbH & Co. KG in Tuttlingen.

Pre-requisite:
 The connection of the machine to the internet through in-house network has to be provided by customer.

1320 1 **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"

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.

1340 1 **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.



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

1360 1 **2 axis rotary table CHIRON CASD 280 / 1,000**
consisting of:

Interface for 4th and 5th axis
smallest increment 0.0001°
pneumatic supply regulated for sealing air
pneumatic supply controlled for clamping

Technical description:
bridge size 1130 mm

NC-swivel axis as A-axis
tilting angle: $\pm 120^\circ$
repetition accuracy $\pm 5''$ 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

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 $\pm 5''$ with
absolute, direct measurement system ECN 225
digital direct drive via torque motor
max. transmittable torque 170 Nm
with pneumatic clamping system
max. torque if the table is clamped 410 Nm
max. transport load (workpiece weight): 100 kg per faceplate
spindle speed 1,000 min⁻¹
with spindle speed > 200 min⁻¹ max. 20% duty cycle
1 minute at 1,000 min⁻¹
warmup cycle necessary
including machining cycles for turning and water cooling
required balancing quality of rotating masses
on the face plate is G2.5
warranty: 4,000 hours

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:



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

power-actuated clamping fixtures on the faceplate require additional connections and clamping circuits. For hydraulic workpiece clamping and spindle speed > 200 min-1 the clamping pressure is monitored by a pressure switch and limited to max. 50 bar.

| | | | |
|------|---|--|--|
| 1380 | 1 | Operating hours and piece counter on the screen | |
| 1400 | 1 | Socket at control panel (for description see "main circuit") | |
| 1420 | 2 | Electrical cabinet cooler | |
| 1440 | 1 | Signal lamp for 3 signals Signal "red" = failure Signal "white" = load machine Signal "green" = machine is running | |
| 1460 | 1 | CHIRON Fluid Tower in open design, for space-saving accommodation of ancillary equipment. | |
| 1480 | 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 | |
| 1520 | 1 | - Additional equipment for the machine - | |
| 1540 | 1 | - Additional Equipment Coolant Package - | |
| 1560 | 1 | Chip conveyor (scraper belt) tank capacity 320 l pump capacity 250 l/min at 1.4 bar coolant purification through slotted filter box Chip conveyor discharge height 1050 mm Chip conveyor discharge to rear | |



| Pos. | Qty. | Article Description | Price / € |
|---|------|---|-----------|
| Complete machine description FZ 18 FX M no. 361-04 | | | |
| 1580 | 1 | <p>Coolant equipment KF 400 / FKA 900 (also for sludge generating materials, e.g. grey cast iron, GGG, Al with Si >/= 12%) tank capacity 900 l</p> <p>low pressure pump capacity from 100 l/min. at 2.5 bar up to 250 l/min at 2.3 bar high pressure pump capacity 28 l/min at 30 bar</p> <p>full stream purification via compact paper bond filter KF 400, with coolant purification 50 µm nominal twin filter in the high pressure circuit for the protection of the machine</p> | |
| 1600 | 1 | <p>Traverse for cables and hoses between machine and coolant equipment</p> | |
| 1620 | 1 | <p>Machine preparation for coolant flowing through spindle with rotary feedthrough at the hollow shaft and high pressure piping with flow control switch.</p> <p>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.</p> | |
| 1640 | 1 | <p>Fixture washing incl. coolant supply</p> | |
| 1660 | 1 | <p>- Further additional equipment coolant -</p> | |
| 1680 | 1 | <p>Wash gun placed outside of the splash guard cover, incl. solenoid valve for coolant supply</p> | |
| 1700 | 1 | <p>Work space washing with nozzles installed inside the splash guard cover</p> | |



| Pos. | Qty. | Article Description | Price / € |
|---|------|--|-----------|
| Complete machine description FZ 18 FX M no. 361-04 | | | |
| 1720 | 1 | - Additional equipment exhaust / fire extinguisher - | |
| 1740 | 1 | Suction point for extraction of the working area to be installed by customer dia. 175 mm on top of the splash guard cover and electrical preparation in the electrical cabinet | |
| 1750 | 1 | Counter bearing hydraulic clamped | |
| 1760 | 1 | - Additional equipment pneumatics / hydraulics - | |
| 1780 | 1 | 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 | |
| 1800 | 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 | |
| 1820 | 1 | Hydraulic unit for continuous operation pressure: 200 bar | |
| 1840 | 1 | 2 additional hydraulic lines laid until hydraulic unit | |



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

1860 1 - Additional equipment measuring / tool breakage control -

1880 1 **CHIRON Lasercontrol 40 NT**
 min. tool dia 0.1 mm,
 max. tool dia 40 mm,
 for tool breakage control (in one working area),
 for automatic tool measurement,
 for automatic machine compensation in 2 axes,
 including process-oriented measuring,
 software for measuring cycles
 and strategy program,
 incl. air jet for tool cleaning
 and test mandrel with tool holder

1900 1 **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

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.



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

- | | | | |
|------|---|---|--|
| 1940 | 1 | - Additional equipment machine operation - | |
| 1960 | 1 | Automatic loading door of splash guard cover opening and closing, actuation via push button at control panel | |
| 1980 | 1 | Workpiece clamping/unclamping with open loading door Special operating mode including push button and key-operated switch. | |

Remarks: This operating mode may only be executed if there is no risk of injury from clamping fixtures used. The clamping and unclamping movement of the clamping fixtures must be smaller than 4 mm. This operating mode may be activated with a key-operated switch by authorized and specifically instructed staff only.

- | | | | |
|------|---|--|--|
| 2020 | 1 | - Additional equipment NC-control - | |
|------|---|--|--|

- | | | | |
|------|---|--|--|
| 2060 | 1 | 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: | |
|------|---|--|--|

Dashboard

Presentation of the self-updating overview of all machines, combined in a composite, with elementary information, as the current machine status, the time line over the last 2 hours, the active machining program and via iConfirm confirmed machine downtime reasons.

iConfirm

Choice between max. 13 defined downtime reasons (organizational / technical) for confirmation by the operator on the HMI of the control. The evaluation of the confirmed downtime reasons takes place under OEE indices / losses of availability.

Production Overview

Display of the machine status as overview or in detail over a freely definable period.

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.



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

Parts Overview

Display of the quantities produced per NC program, per period and monitoring of the production times.

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.

NC Logger

Logging of NC program changes with backup function.

Alarm Assistant

Display of the current pending error messages with cause, effect and suggestions for troubleshooting.

Maintenance Assistant

Display of the pending maintenance tasks and running time or running performance.

Alarm Monitor

Display of the top 10 list of alarms, sorted by frequency and duration.

Spindle Monitor

Display of the utilization of the main spindle with speed ranges.

2080 1 **SIEMENS Tool lifetime monitoring with:**

tool place organization
sister tool organization

2100 1 **Feed per revolution
for rigid tapping**

2120 1 **CHIRON Kinematics Fit with measuring ball**

To ensure best milling results 5-axis-machines require calibration at regular intervals. This option provides for automatic measuring of the machine kinematics by sampling a measuring ball in the working area and subsequent adjustment of the machine-transformation parameters for rotating and tilting axes.

For machines with 2 axis rotary table or swivel head with rotary table.

Incl. option for NC control and calibrated measuring ball with holder.

Pre-requisite: spindle probe and 5-axes-machining on machines with Siemens or Fanuc control



| Pos. | Qty. | Article Description | Price / € |
|---|------|---|-----------|
| Complete machine description FZ 18 FX M no. 361-04 | | | |
| 2160 | 1 | - Additional equipment automation - | |
| 2185 | 1 | <p>Electric interface for loader with ProfiNet for automatic loading system, with DP/DP-coupler (slave) in the electrical cabinet, according to documentation of CHIRON loader interface, consisting of: circuit diagram, signal description and functional diagram, interface tested according to Chiron-description, incl. key-operated switch and indicator lamp in the control panel "with loader",</p> <p>Deviation from the standard interface and set up will be charged according to time and material used. Waiting periods during set up will also be charged.</p> <p>Note: The machine has to be anchored for robot loading or linkage. Anchoring the machine to the floor can be carried out by Chiron and will be invoiced according to the extent of the work involved.</p> <p>Loader interface for loading from the front.</p> | |
| 2198 | 1 | <p>Direct switch in position 'door open'</p> | |
| 2360 | 1 | - Execution of documentation - | |
| 2380 | 1 | <p>Documentation 1 x safety regulations in a folder 1 x complete documentation on a USB as PDF Language of the operating manuals and safety</p> | |
| 2480 | 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> <p>Machine colour 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</p> | |



| Pos. | Qty. | Article Description | Price / € |
|------|------|---------------------|-----------|
|------|------|---------------------|-----------|

Complete machine description | FZ 18 FX M no. 361-04

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%

Information Export

We point out that the CNC-machining centres are subject to controls. For the export from the European Union an export license is necessary.

Information Machine safety

The machine is designed and built in accordance with the European machine guideline, according placing the product on the first time onto the market.
 Other safety features due to special company rules and specifications can be considered. The actual cost will be invoiced.

Information Coolant lubrication

The machine is designed for standard water soluble coolant and fully enclosed at the standard version.
 The machine must be equipped with fume extraction.

The machine contents different plastics, varnish, resin and glue, which are selected carefully for using coolant and cutting oil.
 The use of aggressive coolant and additive could cause major damages and machine stops.
 Contact in any case your coolant supplier before machine set-up and installation.

