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Chiron America Inc |10950 Withers Cove Park Drive | Charlotte, NC 28278

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Please note:
The machine will be prepared for electrical supply as described on item 1400 and will **not** have the spindle temperature sensor. [redacted]

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[redacted] [redacted]

Item	Qty	Description	Price
1000	1	**Vertical CNC-machining center with one spindle and swivel head Type MILL 3000 five axis**	
1040	1	**Column moving machining center** in accordance with the scope described below	
1060	1	**Machine base**	
		Splash guard cover with fully enclosed workspace workspace partition with stainless steel covers with loading door, electrically interlocked, suitable for crane loading Height 2,500 mm above floor, incl. LED-machine lamp	
		Electrical cabinet socket at the control panel, (Execution see "Power connection of the machine"), oil-free service unit with electrical main shut-off and automatic condensate separator	
		Fixed table with chip pan divided version for free chip fall prepared for installation of rotary table and counter bearing	
		Automatic central grease lubrication including automatic cleaning cycle in X- and Y- axis, the cleaning run must be taken into account, when designing the clamping device	
1080	1	**Travel:** X-axis 3000 mm Y-axis 895 mm Z-axis 715 mm	
1100	1	**Feed drive for X-, Y- and Z-axes** digital direct drive with direct measurement system, over pressurized Rapid speed 60 - 60 - 60 m/min Axis acceleration 0,5 - 0,5 - 0,5 g	
1120	1	**NC swivel head with torque drive and spindle head** for the integration of 1 motor spindle NC swivel axis swivel range ± 110 ° max. swivel speed 60 rpm with direct measurement system, lowest increment 0.001° repetition accuracy ± 5" driving torque 240 Nm at 100 % duty cycle max. torque 620 Nm max. torque with hydraulic clamping 2,350 Nm	
1140	1	**Main spindle drive with water-cooled motor spindle** and hydraulically actuated tool clamper 14.5 kW at 100 % duty cycle 34 kW at 10 % duty cycle spindle speed range up to 12,000 min-¹ torque max. 140 Nm	

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Cutting performance in steel E355
Drilling capacity Ø 42 mm
Tapping capacity M30
Milling capacity 600 cm³/min

1160 1 **Automatic tool changer**
No. of tools 60
Tool shaft HSK A 63 DIN 69893
Max. tool dia. 75 mm - if all magazine pos. are occupied
Max. tool dia. 160 mm - if adjacent places are free
Max. tool length 370 mm
Max. tool weight max. 8 kg (max. magazine loading 180 kg)
Tool change time approx. 1.5 s (depends on CNC)
The acceleration of the X-axis reduces by 0.1 g
resp. 0.2 g with linear motor.
Chip to chip time approx. 4,0 s (depends on CNC)

1180 1 **SIEMENS CNC-control 840D solution line**
incl. **10.4" TFT color monitor**
standard keyboard / control panel OP010S
Execution control panel traversable

1200 1 (TCU / NCU 720.3), 1 channel
operator interface Operate
NC-memory 10 MB (min. 6 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)

1220 1 Power display, operating hour and piece counter on the screen,
display of the pending maintenance with confirmation,
dark switching of screen, access authorization via key-operated switch,
NC-diagnosis with help function, machine-diagnosis,
USB-interface at control panel.

Look ahead with dynamic pre-control,
oriented spindle stop, re-start into program,
subroutine technology in high-level language and parameter,
simultaneous programming, cycle support,
drilling cycles G81-G89, drilling and milling patterns,
measuring in JOG, M and T functions,
tool offsets for geometry, wear,
51 zero offsets G54-G57, G505-G551,
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.

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.

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1240 1 **User interface CNC-control**
Language NC control in English,
CHIRON specific texts in English,
and alarm texts in English.

1260 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.

1280 1 **Signal lamp for 3 signals**
Signal "red" = failure
Signal "white" = load machine
Signal "green" = machine is running

1300 1 **Electrical cabinet cooler mounted to the door**

1320 1 **Cooling unit**
for the cooling of machine components

1340 1 **Hydraulic unit**
for continuous operation
pressure: 200 bar

1360 1 **Machine installation / installation elements**
The machine is anchored to the floor and is not prepared for installation in an oil pan.

[redacted]

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When installing in an oil pan, the installation directly on the sheet steel is not permitted. [redacted]

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1400 1 **Main circuit / Environmental conditions**
pressure supply 6 bar +1 bar / -0.5 bar for all procedures
relative humidity: max. 75 % at 20 degrees Celsius
ambient temperature: 15 up to max 40 degrees Celsius
The machine has been designed to achieve the best positioning accuracy at an ambient temperature of 23 +/- 1 degrees Celsius.
The specified performance data are valid up to a height of 1,000 m above sea level.
A grounded WYE electrical connection from the plant is required.
An isolation transformer is not included and would not be required if the grounded WYE connection is available.
Power outlet voltage 110 volt ± 10%
Power outlet type NEMA 5-15
Supply voltage machine 3x460 volt ± 10% (3x480 ± 5%)
Neutral conductor without
Protective conductor existing
Frequency 60 Hz

1420 1 **Basic machine**

1440 1 **- Additional equipment for the machine -**

1480 1 **Coolant minimum quantity lubrication**

1500 1 **Chip conveyor without coolant tank and pump**
as scraper conveyor with reinforced base plate
chip conveyor discharge height 1,050 mm
chip conveyor discharge direction left

1520 2 **Blow gun**
placed outside of the splash guard cover,
with quick-seal coupling and 1 connection

1540 1 **- Additional equipment coolant -**

1560 1 **Machine preparation for minimum tool lubrication system through the main spindle**
With rotary feedthrough at the hollow shaft.

Note: at SK we recommend the use of a special head bolt form A respectively at HSK we recommend the use of a special coolant tub.

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1580 1 **Minimum tool lubrication system**
Chiron Micro-Mist
programmable in 15 stages for 0-10 bar, equipped with 1 independent aerosol supply: through the spindle(s), without machine preparation.
For every tool the selection of supply, oil- and aerosol pressure, additional pressurized air and bypass can be programmed.
including oil flow monitoring tank capacity 10 l with filling and storage tank fill level monitor and warning message that reserve has been used up

1600 1 **External coolant with minimal lubrication system**
Incl. nozzles and valves

1620 1 **Fixture blowing**
With 6 air nozzles
Incl. valves and assembly

1640 1 **Minimum lubrication system**
Execute with Festo pressure accumulator
(instead of using SMC pressure accumulator)
Maker: Lubrix for minimum lubrication system

1650 1 **Item 1520 Blow gun**
Including magnetic valve for air supply

1660 1 **- Additional equipment exhaust / fire extinguisher -**

1680 1 **2 x Suction unit Maker LTA**
Air filter, AC 3002R three-phase
Type Air-Champino, model 3000
Fault indication LED and volume flow monitoring

Incl. Hepa filter required as a downstream filter due to air pollution control

1700 1 **- Additional equipment rotary tables / basic fixtures -**

1720 1 **Rotary-table package**
Consisting of:

NC-rotary-table Fibro NC 1.03
Plug-in ready
Pneumatic supply regulated for sealing air
Hydraulic supply controlled for clamping

Technical description:
Face plate dia. 340 mm with centering
Center height 330 mm
Max. speed 22 min^{-1}
Repetition accuracy ± 7" with direct measurement system
Max. tangential forces at clamped face plate 3,800 Nm. Load moment of inertia (transmission- and acceleration dependent) 65 kgm^2

1740 1 **Hydraulic counter bearing**
Maker Peiseler
Hydraulic connection controlled for clamping with 200 bar
Cheek plates without connection coupling

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Face plate diameter 160 mm
Holding torque: 800 Nm at 200 bar
Structure center Y-travel (Y 895/447.5 mm)

Rotary table
mounted on the left side of the machine table
Structure center Y travel (Y 895/447.5 mm)

Data rotary table working area
AF bridge dimension / counter bearing 3000 mm
AF center height / approx. 350 mm (adapted to the clamping bridge)

Special cheeks plates for rotary table and counter bearing
to accommodate the clamping bridge

1750 1 **- Additional equipment pneumatics / hydraulics -**

1755 1 **Pneumatic supply**
without control and 1 connecting coupling

1760 1 **- Additional equipment measuring / tool breakage control -**

1780 1 **Renishaw - probe - package RLP40Q**
For part measuring and automatic machine compensation,
probe with radio module and tool taper suitable for machine spindle
tracing pin 58 mm with ruby ball dia. 4 mm, receiver RMI-Q with integrated
interface bracket for radio receiver, process oriented measuring
software for measuring cycles and strategy program

Remarks:
In order to carry out machine compensations with probe a suitable
reference surface at the machine or at the fixture or an optional gauge
block are necessary.

1800 1 **Brankamp System CMS XL Pro**
2 - channel for collision check of a Chiron machine
Consisting of:
- Material, wiring, circuit diagram as well software preparation for control
and evaluation of the interface Brankamp
- Visualization via a screen mask provided by Brankamp
- Installation and commissioning at Chiron thru MARPOSS Brankamp

1820 1 [redacted]

1840 1 **- Additional equipment machine operation -**

1860 1 **Automatic loading door of splash guard cover**
opening and closing with electrical drive

1880 1 **Two hand push buttons**
For turning the A-axis when the loading door is open.
(Rotation of the rotary table axis by 180 degree in approx. 15 sec.).

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1890 1 **Different paint finish of operator doors**
At the splash guard cover.
two-components structured paint
standard color: light grey acc. to NCS 51502-8
standard color: basalt grey acc. to RAL 7012
Color Operator door: light grey acc. to NCS S1502-8

1900 1 **- Additional equipment tooling -**

1920 1 **Pick-up station**
For tools up to max. ø 250 mm
Mounted on the rotary table
Pick-up of the tool under 90°

1930 1 **- Additional equipment electrical cabinet -**

1935 1 **24V cables with NEPA-79 compliance**
24V grounded cable to be white with blue stripe

1940 1 **- Additional equipment NC-control -**

1960 1 **Feed per revolution**
for rigid tapping

1980 1 **CHIRON Home Button Pro**
Safe retraction of the mold from any position after interruption of machining in the process by predefined retraction points by means of variables in the NC program. Retraction in home position from threads and after tool change tool change interruption. Start by one key.
Incl. control expansion stage and software.

2020 1 **- Additional options project -**

2040 1 **Bridge plate**
[redacted]
Approx. 3.000 mm x 450 mm x 250 mm
In "Sandwich" design
Material is steel with weight reduction
Top side 3 x two jaw chuck with mechanical actuation
Maker SCHUNK type KSC - F - 125 - 362
Incl. adapter plates with zero point clamping system on slides / linear guide
Two jaw chuck are above the linear guide mounted, adjustable and lockable distance block is needed to achieve the position for the tilt head and the reach for the end of the workpiece.
Positioning of the workpieces will be executed via hart stop at the machine main spindle. (a spindle probe will be used on demand)
Scale for the positioning of the clamping elements and hard stop
two reference bushing for temperature compensation

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Additional notes:
Loading will be manually.
Hydraulic, air sensoring and purge air is not included.