

CMX 50 U
TECHNICAL PROPOSAL - 3-axis CNC milling - CPV -
42630000-1

DMG MORI CMX 50 U

Highlights:

3D control technology with the new DMG MORI SLIMline® multi-touch control (19" / SIEMENS 840D SL)

Swivelling rotary table with digital units; machining of the workpiece on five sides in a single clamping

Standard inline spindle

30-position tool magazine

Rigidity and stability of the machine bed - mineral cast bed; small space requirement thanks to compact design

DMG MORI IoTconnector included as standard!

DMG MORI - Model - CMX 50 U

Base machine and options

Base machine

1. Universal milling center CMX 50 U C-A3390F* Qty: 1

Axis travels: X / Y / Z - 500 / 450 / 400 mm

Standard equipment:

1. Table, diameter 630 mm x 500 mm. Swivelling rotary table driven by B/C axes. B rotation (-5°/+110°) / C (360°).

2. Rapid traverse 30 m/min.

3. Spindle speed range from 20 to 12,000 rpm.

4. Spindle: 13/9 kW (40/100% DC).

5. Tool taper SK40 DIN 69871. Tool clamping in accordance with DIN 69872.

6. 30-position tool magazine, pocket chain and double gripper.

7. Direct measuring system X, Y, Z; air purge also for the measuring system.

8. Coolant or air, switchable through M functions.

9. Chip tank.

10. DMG MORI IoTconnector.

Numerical control

2. DMG MORI SLIMline® Multi-Touch numerical control (19" / SIEMENS) C-B3097F* Qty: 1

Options

3. 20-bar production package with chip conveyor C-K3661F* Qty: 1

The option includes:

- Internal coolant supply at 20 bar.
- Chip conveyor (scraper type) with tank capacity of 250 l (left).
- Flushing of the bed and ATC arm by M function.
- Coolant spray gun for chip removal.
- External electronic handwheel.
- Cabin roof.
- Four-color signal lamp.
- Dual-cartridge coolant filter.

Note: When a filter is blocked, the operator can manually switch the coolant flow to the second line and can clean or replace the clogged filter without stopping the machine.

Measurement / Monitoring

4. Renishaw measuring kit for SIEMENS numerical control C-K4222F Qty: 1

The option includes:

- PP40 probe with optical signal transmission.
- TS27R probe for tool measurement.
- Measuring cycles with tool-breakage monitoring.
- Calibration tool.
- Calibration ring.
- Housing.

5. 3D QuickSET for CMX U C-K2530F Qty: 1

Tool kit for checking and compensating the kinematic accuracy of 5-axis machines; preparation included.

Software options for SIEMENS

6. Software option - DXF Import C-G3067F Qty: 1

Ability to open DXF files directly on the controller to extract contours and import them into the program. For SIEMENS numerical control.

Documentation

7. Documentation - 1 Romanian-language set C-R01 Qty: 1

Screen text language

8. Screen text - Romanian C-D-RO Qty: 1

Digital products

DMG MORI connectivity

9. Digital production package D-CO200* Qty: 1

(1) IoTconnector. Enables use of DMG MORI online services.

(2) Machine Data Connector (MDC). Standardized interface for machine data. Protocols: OPC UA, MTConnect, MQTT.

(3) NETservice. Qualified assistance over the internet; remote diagnosis.

DMG MORI monitoring

10. Messenger V4 D-MO002* Qty: 1

Clear display of the machine status in real time.

DMG MORI maintenance

11. DMG MORI Service Agent D-MT003* Qty: 1

Advance warning - timely service.

General options

12. 3D machine model in STEP format C-R3010F Qty: 1

For integration into the customer's CAD/CAM system and for machine simulation.

(Delivered upon signing a confidentiality agreement.)

Note:

1. Warranty for the CMX 50 U universal milling center: 24 months from the date of installation and commissioning.

2. Delivery period: maximum 8 months from signing the contract, but no later than 30.11.2022.

3. On delivery, the equipment will be accompanied by an EC certificate or declaration of conformity and a warranty certificate.

4. Payment method: 100% advance payment of the contract value; the beneficiary will make payment through the payment-request mechanism.

5. Service is provided both during and after the warranty period.

Technical description

1 C-A3390F

Technical data for the CMX 50 U 3-axis universal milling center

CMX 50 U universal 3-axis machining center

Working area

Axis travels:	X = 500 mm; Y = 450 mm; Z = 400 mm
Rotary-axis travel range:	B = -5°/+110°; C = n x 360°
Distance from spindle to table:	150 - 550 mm
Clamping area:	Ø 630 mm, reduced to 500 mm; 7 T-slots (14 H7), slot spacing 63 mm
Table load:	200 kg

Spindle

Main spindle:	inline spindle
Drive type:	Digital alternating-current motor
Speed range:	20 to 12,000 rpm
Main motor power:	13 kW (40% DC); 9 kW (100% DC)
Torque:	83 Nm (40% DC); 57 Nm (100% DC)
Tool clamping force:	SK40, BT40: 10 kN (+2/-1 kN); CAT40: 9 kN (±1 kN)
Tool taper:	SK40 DIN 69871; pull-stud clamping in accordance with DIN 69872, with hydraulic control

30-position tool magazine

Description:	Tool magazine with double gripper. Tool change is programmed and controlled via the control panel.
Tool pockets:	Capacity of 30 positions, SK40 as standard
Maximum tool diameter:	80 mm (130 mm with adjacent pockets free)
Maximum tool length:	300 mm (from the spindle face)
Maximum tool weight:	8 kg
Maximum magazine load:	120 kg

Tool changing time:	2.7 s (for tools with a diameter under 80 mm without an ATC shutter)
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Axis drive motors

AC motors:	Motion is transmitted by ball screws
Feed (X; Y; Z):	max. 30 m/min
Rapid traverse (X; Y; Z):	30 m/min
Maximum force (40% DC) (X; Y; Z):	4.5 kN
Guides:	Roller guides on all linear axes

Measuring system

Standard / option: direct measuring system	
Bidirectional positioning accuracy - X, Y, Z:	A = 6 μ m (according to ISO 10791-4)
Bidirectional positioning accuracy - B and C:	A = 16 arcsec (according to ISO 10791-4)
Bidirectional positioning repeatability - X, Y, Z:	R = 5 μ m (according to ISO 10791-4)
Bidirectional positioning repeatability - B and C:	R = 12 arcsec (according to ISO 10791-4)
Cabinet cooling:	With fan
Machine lighting:	24 V / 33 W
Required air pressure:	6-8 bar
Average air consumption:	Approx. 30 m ³ /h
Cabin, chip tray:	Cabin with sliding door

Swivelling rotary table driven by B/C axes:

Swivel range:	-5° to +110°
Clamping table:	630 x 500 mm
Number of slots:	7
Slot spacing:	63 mm
T-slot width:	14 H7
Center bore:	Ø 30 H6
Table rotation range:	360°
Permissible table load:	200 kg
Bidirectional positioning accuracy:	A = 16 arcsec (according to ISO 10791-4)
Bidirectional positioning repeatability:	R = 12 arcsec (according to ISO 10791-4)

*Connected-load values for the 12,000 rpm spindle

Standard: Input power: 30 kVA; maximum current: 47 A; fuse: 50 A at 400 V.

20 / 40 / 80 bar: Input power: 32 kVA; maximum current: 50 A; fuse: 63 A at 400 V.

Supply voltage: L1-L2-L3 / N / PE / 400 V / 230 V 50/60 Hz; maximum permissible deviation: +/- 10%

2 C-B3097F

Siemens SINUMERIK 840D SL numerical control

Control console: with TCU30.3 (Thin Client Unit).

Numerical control unit: NCU720.3B PN.

Memory system: 1 GB DRAM, 1 MB NVM.

PLC: PLC317-3 DP/PN.

PLC memory: 1 GB DRAM, 1 MB SRAM.

Increased dynamics and efficiency through the new Sinamics S120 Combi unit.

Safety functions included in the control - SAFETY INTEGRATED.

NC software: NC4.8

Control console: DMG SLIMline HMI: SINUMERIK

Screen: 19" multi-touch Resolution of 1024 x 1280 pixels

Keyboard: ASCII (on touch screen)

Block processing time: 1.5 ms

No. of axes: 3 linear - digital interpolation; 2 circular interpolation, helical interpolation

User memory: 16 Mbyte

Program memory expansion: 4 GB (on C/F card) with the new EES function (execution from external storage)