

Ordrebekræftelse 0749-13

til

Møllers Værktøjsfremstilling

DMC 635 V ecoline



Highlights

- _ **User-friendly Heidenhain TNC 620 with ASCII keyboard or Siemens 840D SL**
- _ **Simple programming** – 15" TFT Slim/line Panel, direct DMG SMARTkey for individual use
- _ **Comprehensive tool management** with visual representation
- _ **Visual support** for setup and diagnosis, data transfer: USB, Ethernet
- _ **Powerful spindle** (8.000 rpm or 12.000 rpm / 83 Nm / 13 kW [40% ED])
- _ **Tool magazine for 20 tools** with fast double gripper
- _ **Best rigidity, precision** and minimum space requirements due to C-frame design
- _ **Reduced idle times:** 30 m/min rapid traverse 1.6 sec tool exchange

DMG ECOLINE GmbH - DMC 635 V ecoline

Basic machine

C-A3260* Vertical-Machining centre
DMC 635 V *ecoline* New Design
with *Slimline* Panel
X = 635 mm, Y = 510 mm, Z = 460 mm
X = 25 inch, Y = 20,07 inch, Z = 18,11 inch
30 m/min / 98 ft/min Rapid feed
Speed range 20 bis 8.000 r.p.m
AC-Main drive with 13/9 kW / 17,43/12,06 hp
3D-Control
Tool taper ISO40/SK40 DIN69871
Tool clamping according to DIN69872
Toolchanger 20 places SK40 (Disk with
pockets and Double gripper equipment)
Table dimension 790 x 560 mm / 31,1 x 22,04 inch

Control

C-B3096* 3D-control Heidenhain TNC 620
with ASCII keyboard

C-B3016 PROGRESSline & Planonlight
Digital Cycle-time
Graphic rest time
Product counter

Options main drive / spindle taper

C-XX0705 Options for the Main Drive: WZA SK40 DIN69871

Tool magazine

C-D3030* Tool Magazine 30 Places SK40
Chain with pockets and
with double gripper

Cooling media / chip removal

C-K3314 Chip Removal Package contents:
Chip conveyor (scraper type)
discharge height: 950 mm / 37,40 inch
Tank capacity: 185 l / 48,87 US gallons
Coolant spray gun for swarf removal
Signal lamp 4-colour standard

Documentation

C-DK1 Documentation-1 danish

Screen text language

C-D-DK Screen text german/danish

DMG Powertools

D-NT401* **DMG Netservice - client**
Green light for your machine
Will be installed on an external PC!

Price powertools

General options services

C-Z0130* Tool package Sandvik-Toolkit
for DMC 635V/1035V *ecoline*
with tool clamping SK40

Services

C-P3341 Packing wooden base/foil DMC 635V *ecoline*
with chip conveyor for road transport

C-O3138 Stand-by flatrate for delivery
FCA Works

Sales company services

DK001 Levering Deres adresse, på anvist plads,
forudsat frie tilkørselsforhold over plant
betongulv

DK002 Opstilling og igangsætning af maskinen

Bilag - Teknisk beskrivelse

C-A3260

Vertical-Machining center

DMC 635 V *ecoline* with C-Frame-construction

Traverse range:

Range:

X = 635 mm / 25 inch
Y = 510 mm / 20,07 inch
Z = 460 mm / 18,11 inch

Distance Spindle nose to Table:

120 up to 580 mm / 4,72 inch up to 22,83 inch

Clamping area:

560 x 790 mm with 5 T-slots, T-slot-pitch 100 mm
(middle T-slot 14H7 and 4 T-slot 14H12)
22,04 x 31,1 inch with 5 T-slots , T-slot-pitch 3,937 inch
(middle T-slot 0,5511inch H7 and 4 T-slot 0,5511 H12)

Maximal Table load:

600 kg / 1322,77 lbs

Main Drive:

Type of Drive:

digital controlled AC-Motor direct on main spindle

Speed range standard:

20 bis 8.000 r.p.m

Speed range for

Motor spindle - option:

20 bis 12.000 r.p.m

Drive capacity:

13 kW (40% ED) / 17,43 hp
9 kW (100% ED) / 12,06 hp

Max.Spindle torque:

83 Nm (40% ED) / 61,21 ft lbs
57 Nm (100% ED) / 40,04 ft lbs

Tool clamping force:

8 kN / 1798 lbs

Tool taper:

SK40 DIN69871
Pneumatical unclamping unit for Pull-studs form DIN69872

Tool magazine:

Version:

Disk with pockets for tool tapers and Double gripper unit
(arm type ATC)
Program- and cam-controlled tool change to main spindle
Tool changer and memory integrated inside cabin of machine

No. of magazin pockets:

20 places for SK40

No. of magazin pockets

option:

30 places for SK40

Permissible Tool diameter:

Diameter 80 mm / 3,14 inch (130 mm / 5,11 inch with free
neighbouring pockets)

Permissible Tool length:

300 mm / 11,81 inch (from spindle nose)

Permissible Tool weight:

6 kg / 13,22 lbs

Permissible Load Magazine:

80 kg / 176 lbs

Tool change time:

1,6 s

Chip-to-Chip-time:

5 s (at tools with Diameter smaller than 80 mm / 3,14 inch)

Feed drives:

Type of drive:

digital controlled AC-Motor on Ball srew
X,Y-Axis d 40x15 mm ; Z-Axis d 32x15 mm

Maximum feed rate:

X-,Y-, and Z-Axes maximal 24 m/min

Rapid move:

X-,Y-, and Z-Axes 30 m/min

Max.Feed-power (40% ED):

X-,Y-, and Z-Axes 5 kN

Guideways:	Roller guideways in all linear axis
Linear measuring system:	
Standard:	indirect
Positioning accuracy:	Pmax = 20 µm according to VDI/DGQ 3441
Option:	direct photo-electronic, absolut, resolution 0,001 mm / 0.000039 inch
Positioning accuracy:	Pmax = 8 µm / 0.00031 inch according to VDI/DGQ 3441
	Accuracy depends to a large extent upon thermal influences. The greatest accuracy is achieved in the temperature range of 20° centigrade +/-2° centigrade. Direct sunlight, strong draughts, vibrations from other machines and build-up of heat are to be avoid.
Coolant supply:	
Standard Chip tank:	3 Nozzles for external Coolant supply Coolant supply: approx. 22 l/min / 5,81 US gallons/min Pressure: 3,7 Bar / 53,66 psi Tank capacity: approx. 120 l / 31,7 US gallons At the option coolant or air blast at the spindle are 6 nozzles for the external Coolant supply and 4 nozzles for Air cooling.
	Note: Only use coolant according to the manufacturer's machine-specific recommendations! For an oil content > 15% in the emulsion there is a risk of evaporation or explosion; additional safety package is necessary on request. The ignition point of the coolant must be greater than 140 ° Centigrade.
with option production package:	Chip conveyor (scraper type) inclusive Coolant tank 3 Nozzles for external coolant supply Coolant supply: approx. 22 l/min / 5,81 US gallons/min Pressure: 3,7 Bar / 53,66 psi Tank capacity: approx. 185 l / 48,87 US gallons Spray gun, 4 coloured signallamp At the option coolant or air blast at the spindle are 6 nozzles for the external Coolant supply and 4 nozzles for Air cooling.
with option production package with Motor spindle:	– Motor spindle (12.000 min ⁻¹ / 83 Nm / 13 kW at 40% ED) – internal coolant supply 12 bar – chip conveyor with enlarged 360 l coolant tank – coolant ai-blast changeover – spray gun – closed cabin (folding top) – machine bed flushing – signal lamp 4 colours At the option coolant or air blast at the spindle are 6 nozzles for the external Coolant supply and 4 nozzles for Air cooling.
Information:	cooling-lubrican emulsion can be used only according to the chart given by the manufacturer!
Chip removal:	
Standard:	Coolant tank with sieves

Optional with production package:	Chip conveyor (scraper type)
Central lubrication:	automatic minimum lubrication for roller guideways and recirculating ballscrew
Cooling of Electrical cabinet:	active cooling unit (option)
Working hour recording:	on the electrical cabinet for "control voltage on" and "programme run-time"
Cabin: Standard	Half cabin with sliding doors
Machine lamp:	1 Lamp 230 V, 20 Watt
Protection and operator device:	covers for the longitudinal X guideway, inclined surfaces arranged to give optimal swarf removal.
Paint: Machine base: Casted parts: Back wall of cabin, Electrical cabinet, Media supply: Working space: Standing base: Outer covers of headstock: Machine table: Main door:	titan grey (DMG-specific special colour) titan grey calcit white (DMG-specific special colour) calcit white calcit white deep black titan grey calcit white
Installation dimensions and Weight:	
Base machine dimensions	
with Chip tank	W x D x H 2264 x 3038 x 2758 mm W x D x H 89,13 x 119,60 x 108,58 inch
with Chip conveyor	W x D x H 3388 x 3038 x 2758 mm W x D x H 133,38 x 119,60 x 108,58 inch
with production package and Motor spindle	W x D x H 3388 x 3038 x 2742 mm W x D x H 133,38 x 119,60 x 107,95 inch
Weight without accessories: Required space for machine (incl. space for maintenance and operation):	4200 kg / 9260 lbs (20 tools) W x D 4400 x 4500 mm (with chip tank) W x D 173,23 x 177,16 inch (with chip tank) W x D 5500 x 4500 mm (with chip conveyor) W x D 216,53 x 177,16 inch (with chip conveyor)
Connection values:	
Air consumption:	approx.15 m ³ /h approx.20 m ³ /h with option air blast
Air pressure:	6,5 ... 8 Bar
Operating voltage:	400 V / 50-60 Hz / 3 Phase / N / PE
maximum permissible deviation:	+10% / -10%
Power input:	17 kVA (8.000 min-1); 22kVA (12.000 min-1)

I_{nmax}: 28 A (8.000 min⁻¹); 30A (12.000 min⁻¹)
Pre-fuse: 35 A bei 400 V (8.000 min⁻¹); 36A (12.000 min⁻¹)

Note: Load-carrying neutral conductor N (zero conductor) or special transformer necessary (only for control Siemens)!

Electrical connection: For electrical installation please ensure that EN 60 204, part 1, point 6.3.3 "protection for automatic switch off of power supply" is adhered to.

See also IEC 364-4-41 (DIN 57 100, VDE 0100, part 410).

The machine must not be connected to a line circuit with FI protective switch. See EN 50 178, point 5.3.2.3 (old VDE 0160, extract 5.5.3.4.2)

Due to the measures for electromagnetic compatibility, the machine has leakage currents higher than 3.5 mA and must therefore be connected firmly. EN 50178, point 5.3.2.1 (old VDE 0160, extract 5.5.3.4.1 and 6.5.2.1)

Apart from that, one of the following measures has to be taken:

- a) Protective conductor profile at least 10 mm² Cu (copper)
- b) Control of the protective conductor by means of a device which makes sure that in case of an error the machine is switched off
- c) Laying of a second conductor, electrically parallel with the protective conductor, over separate clamps. This conductor alone must meet the requirements acc. part 543 of harmonisation documents (hd) 384.5.54 S1 (old DIN VDE 0558, part 540) for protective conductors.

Noise measuring: max. 78 dB (A) acc. to DIN 45635 - 16 Cl. 2

Machine transport: Crane (using lifting gear)

Machine installation: 3 Levelling pads (height adjustable)

Technical description:

Design of machine

This machine is based on a C-Frame-design in a well thought-out robust cast construction. The independent concept cares for a clear differentiation to the most used Cross-table design of our suppliers of machine tools.

The quality of the machine base, which is casted, allows over the whole lifetime permanent high quality and cutting capacity. Constant mass in Y-and Z-axis have a positive influence on the milling result. The wide 3-point-support of the vibration damping machine base, generous webbing and ribs in all main parts and the thermosymmetrical concept in connection with balanced construction are prerequisites for high rigidity and torsional strength, thermal stability and guideway accuracy. A special feature is the wide distance between the guideways. Especially the X-axis is outstanding through the used angular base for the machine table to extend the width for the guideways. Logically the machine table has a rigid table guidance, which guides the table over the whole traverse range inside the machine base and allows high table load.

The well thought-out concept is the basis for a compact machine with a small footprint, inherent rigidity, precision and life-time. Short installation and setup time are natural. A sufficient range of Option-packages and further options, which can be chosen by the applicant care for a best use in application.

Guideway system in the linear Axes

Recirculating ballscrews in the linear axes transmit the feed force via robust bearings and components. The roller guideways are especially known for low heat production, low friction, no stick-slip effect, permanent accuracy (low wear) and extremely low lubrication requirement.

The X-axis is protected with covers, which leads to a good chip flush.

Central lubrication

The lubrication system for the roller guideways and the recirculating ballscrews is based on a minimal lubrication supply.

Measuring systems

Standard is indirect measuring system. With the option Direct linear measuring system the machine has also air purge for additional protection.

Feed drives

Digital AC drives for high dynamics and less maintenance. Quick response times between Drives and Control ensure high acceleration and accuracy together with the Linear roller guideways resulting in high surface quality and contour accuracy of the work-piece.

Vertical spindle

Three-phase motor drives direct the Main spindle. The spindle is air-cooled. The solid working spindle is of a robust design and equipped with precision bearing which are permanently greased. The robust construction and the special bearing guarantee high cutting performance.

Temperature compensation Z-Axis

With the option Direct linear measuring system an electronic temperature sensor (including evaluating unit) compensates for geometric changes occurring due to heat increase at the milling spindle. Permanent monitoring and control by machine control. The solid and intelligent construction of the machine elements helps to reduce heat build-up to a minimum and ensures that influence of heat is efficiently removed.

Tool clamping

Clamping by mechanical disc-spring assembly. Release cylinder is operated pneumatically.

Tool changer/ Tool memory

The 20-places tool changer (disk with pockets) is located inside working space, but well protected against cooling liquid and chips. The tool change procedure uses a double gripper for fast tool change time. The tools are held in position within the pockets by spring elements. The magazine is filled over the main spindle. During each tool change will clean the tool holder by air blast.

Coolant unit

Wet machining is possible with large amounts of coolant. The large sealed tank, an efficient pump, short supply pipes and the location of multiple jets guarantee a plentiful coolant supply. Inside the tank are sieves, which are easy to clean, for the share of chips and reflowing cooling media. Coolant/air blast via M-Function is offered as an option.

Machine enclosure/machining area

The machine is equipped with a compact half cabin with a sliding door. Optimum access to the machining area, easy cleaning and good access for the maintenance of machine assemblies are Outstanding features of this version.

Documentation

1 set of documentation are contained within the standard scope of supply

Documentation available in: German, English, French, Italian, Spanish, Dutch, Swedish, and Danish.

E-Plan only available in German, English, French, Italian

Delivery quality

During manufacture, the machine undergoes several intermediate tests and a stringent final examination. A test certificate for this final examination is given to the customer on delivery.

C-B3096

3D-control Heidenhain TNC 620 with ASCII keyboard

3D control Heidenhain	TNC620
Operator panel:	SLIMline
Hardware:	Processor: Intel Celeron, 1 GHz, 512 MB RAM
Screen:	15,1" TFT colour flat screen, resolution 1024 x 768 pixels vertical and horizontal softkeys
Keyboard:	softkeys for HEIDENHAIN plain text Optional usb - keyboard
DMG SMARTkey	personalized operator authorization with corresponding access rights for control and machine.
Block processing time:	>= 1.5 ms (standard)
Look Ahead Function:	direction changes are checked by the control at least 99 NC blocks in advance. Feed speed is adapted automatically to the dynamics of the machine.
Interpolation	
- Straight:	4 NC axes 5 NC axes (option 9)
- Circle:	2 NC axes circular interpolating, 3 NC axes with swiveled plane
- Helical	Overlapping of circle and straight line
NC data memory:	300 MB Compact Flash Card , total 1 GB
Operator guidance:	dialogue, cycle input with graphic support

Programming:	Heidenhain plain text dialogue, DIN/ISO 66025, Milling and drilling cycles, (option 19, standard by DM) contour calculator, (option 19, standard by DM) geometry calculations, parameter programming
Free contour programming FK :	Free contour programming FK in HEIDENHAIN conversational with graphical support for workpieces which are not dimensioned according to NC standards (software option 19, standard by DM)
Program structure:	sub-programs, conditional and unconditional program jumps
Co-ordinate system:	Cartesian, polar
Co-ordinate transformations:	linear shiftings, rotation in the machining plane, scaling (option 8)
Plane definition:	definition of a machining plane with any three-dimensional arrangement. automatic transformation of machining steps from X/Y plane to a newly defined plane in space.
TCPM:	Tool Centre Point Management . The displacement of the rotary-/swivel axis is compensated in a way that the position of the tool axis is maintained relative to the contour. Tool length is compensated in direction of the tool axis and the tool radius in direction of the normal vector. (option 9)
Contour control:	circular interpolation in any plane, helical interpolation, linear interpolation of up to 5 axes. (Option 9)
CollisionMonitoring:	Not available
Service support:	Display of memory function after 250 and 2000 operation hours. Optionally: DMG - ServiceAgent with the functions Notification, instruction and support for spare part ordering
Tool memory:	250 tools (optional 999 tools)
Simulation:	1-side display, 3D display, three-dimensional presentation (option 20, standard by DM)
Calculator functions:	basic operations, trigonometric functions with reverse functions, radical functions, rounding and smoothing functions
Data interfaces:	Ethernet interface: Fast Ethernet 10/100 BaseT (100 mBaud) USB- 1.1 (memory sticks, keyboard) Network protocol: TCP/IP Data transfer: The TNC 620 communicates with personal computers like windows networks(integrated SMB server). Network options see "Options for control TNC 620".

C-D3030
Tool magazine 30 places

Version:	Chain with pockets for tool tapers and Double gripper unit (arm type ATC) Program- and cam-controlled tool change to main spindle Tool changer and memory integrated inside cabin of machine
No. of magazin pockets:	30 places for SK40
Permissible Tool diameter:	Diameter 80 mm / 3,14 inch (130 mm / 5,11 inch with free neighbouring pockets)
Permissible Tool length:	300 mm / 11,81 inch (from spindle nose)
Permissible Tool weight:	6 kg / 13,22 lbs
Tool change time:	1,6 s
Chip-to-Chip-time:	8 s (at tools with Diameter smaller than 80 mm / 3,14 inch)

C-Z0130

Tool package Sandvik-Toolkit for spindle interface SK 40

		Pcs.
345-063Q22-13M	Face milling cutter dia. 63 mm	1
345R-1305M-PM1030	Milling inserts	10
A1B05 40 22 035	Holder	1
490 040 Q16 08M	Shoulder milling cutter dia. 40 mm	1
490R 08T308M PL 4240	Milling inserts	10
A1 B05 40 16 035	Holder	1
R 300 040 Q16 08M	Face milling cutter dia. 40 mm	1
R 300 0828 E PL 1030	Milling inserts	10
A1 B05-40 16 035	Holder	1
R216 34 16050 AK32P 1620	Solid carbide endmill dia 16 mm	1
A1 B14 40 25 070	Holder / Collet chuck	1
393 14 25 160	Collet chuck dia 16 mm	1
393 140-40 M16-75	Pull stud	4
5680 096-02	Wrench	1
3021 010-070	hexagonal wrench, 7 mm	1
91201	Kit case	1
91202	Kit foam	1

D-NT401

The DMG Netservice establishes a secure VPN connection to the DMG Service installed on an external Computer.

By the help of the online connection:

- an immediate and comprehensive problem analysis,
- direct troubleshooting on machine control or
- software adaption can be managed.

Note:

To guarantee a smooth installation, the checklist of the DMG Netservice has to be completed before setting-up the machine. After warranty, a monthly fee in the amount of 25€ (net) per machine will be incurred.

There will be no online-costs incurred during the connecting between machine and DMG Service.

The delivery and terms of use of the DMG Netservice is based on the scope of supply and services for the DMG Netservice.

This information and the checklist for the installation of the DMG Netservice will be sent with the order confirmation of our machine or even go to www.dmgnetSERVICE.com!

On request we glad to provide you this information, please feel to ask for it.