

DALI 70

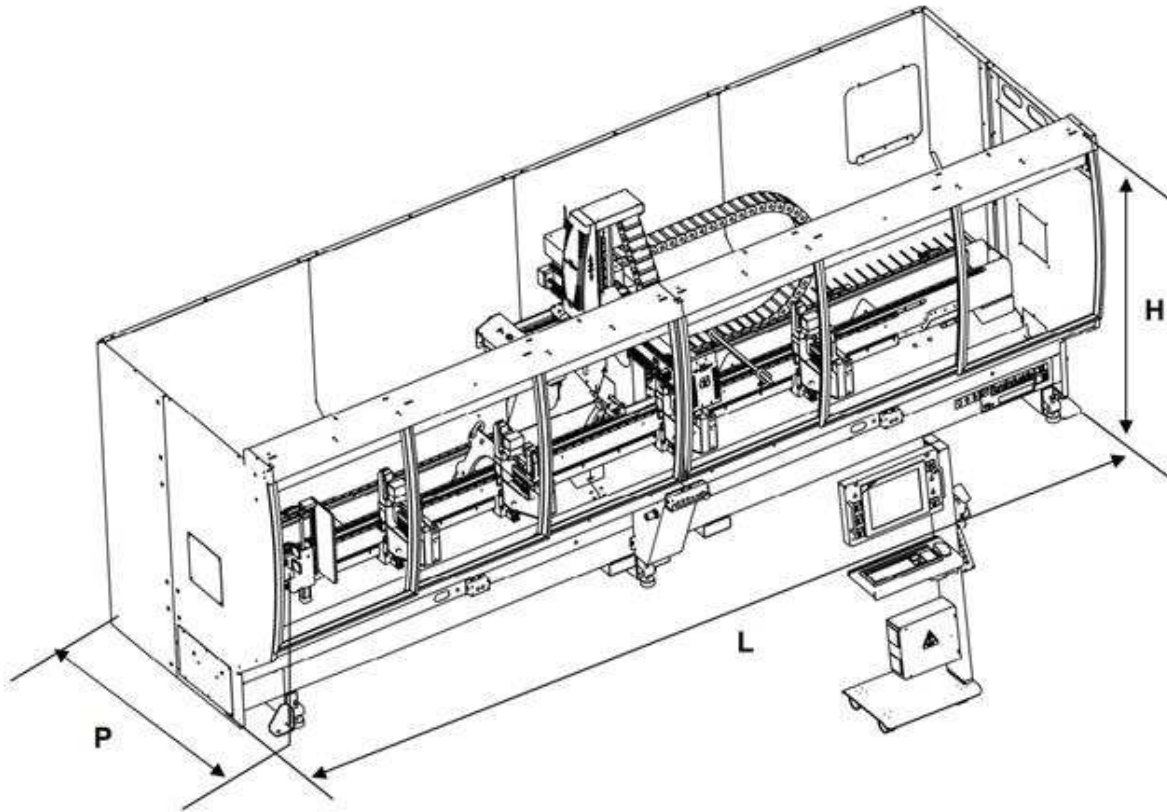
CNC Machining Centre with 4 controlled axes



CE

The DALI 70 machining centre has been designed to perform boring and milling work on aluminium and steel profiles. The mechanical specifications of this modern machining centre and of its control system provide economical use in the production of single pieces.

Overall dimensions and weight



Version	L (mm)	P (mm)	H (mm)	Kg
DALI 70	8600	2051	2214	3900
DALI 70 CZ	8600	2051	2320	4100

Power supply	Total power installed	Air consumption for work cycle	Working pressure
3F - 400 V AC - 50 Hz	8 kW	90 NL/cycle	7 bar



Technical characteristics

Structure

The structure consists of a machine bed with a beam that slides across the top of it. Both parts are made of steel and are duly stabilised after each work phase to ensure that there is no interior tension. They are of sufficient size to guarantee stability and precision during machining operations.

Axes sliding

The axes slide along high precision, robust and reliable linear guideways with recirculating ball blocks that have four points of contact equipped with oil scrapers and with medium/high preloading.

Axes movement

The independent axis are controlled by brushless servomotors by means of:

- Pinion, rack and mechanical system for backlash recovery for X axis (longitudinal)
- High precision ground recirculating ball screw and preloaded lead for Y (transversal) and Z (vertical) axis. The Z axis drive is equipped with an electro-magnetic brake which is enabled if mains power is cut-off.

The digital servomotors not only allow for short, optimal positioning and adjustment times, but also high head positioning speed. The position of the axis is detected by means of a rotating transducer.

Centralised lubrication manual system

At predefined time intervals, a message is displayed warning of the need to lubricate the sliding and drive elements. Using the supplied pump connected to a distributor, it is possible to manually lubricate:

X axis: 4 slides of the linear guides and rack.

Y axis: 4 slides of the linear guides and recirculating ball screw nut

Z axis: 4 slides of the linear guides recirculating ball screw nut

A system is available, on request, that delivers the lubricant automatically without stopping the machine, and displays a message indicating that the minimum level has been reached in the tank.

Electrospindle

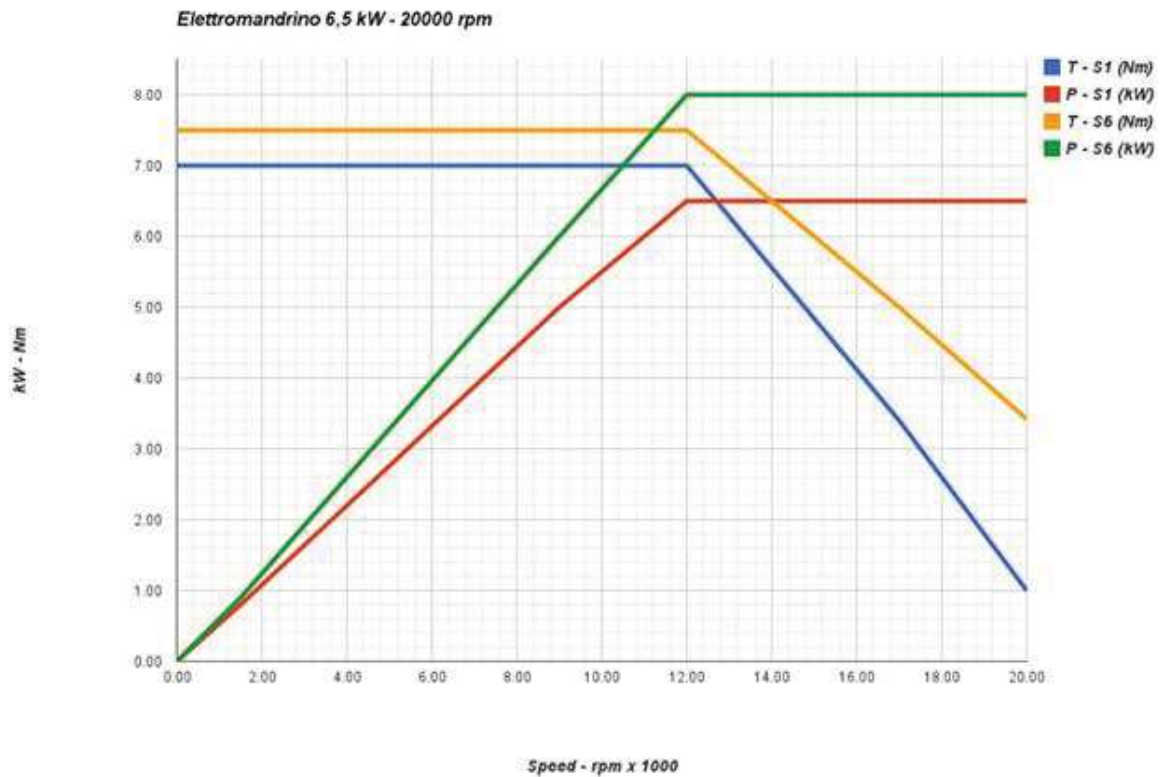
Designed by Fom Industrie, this electrospindle ensures excellent performance, both at low revolutions as well as at high speed, to satisfy the increasing demands made on the machines in terms of flexibility. It is equipped with 6,5 kW (S1) constant torque and is fitted with an A axis in order to work on three sides and if necessary at intermediate positions on a profile, rotation speed of up to 19.000 rpm, adjustable, forced air cooling, ISO 30 tool coupling and relative presence detecting micro-switch. Front and rear high speed precision bearings ensure strict control of the electrospindle axial and radial stress during the work phases. The electrospindle rotation speed is managed by a static frequency changer (inverter), complete with:

Display for visualization of diagnostics in case of anomalies

Protection from voltage and current overloads

Automatically controlled tool rotation braking action

Resistor for braking power dissipation



Tools lubrication

It is carried out with pure oil using a sprayer with over-pressure device (minimum quantity lubrication) and, on request, also with emulsified oil with recovery of the liquid through a system of chips settling.



Tool magazine

Located on the carriage in an area protected by a door, it has 7 slots in a tool holder ISO 30. On demand: Tool magazine for 3 tools ISO 30 with angular heads and milling cutters up to a diameter of 200 mm.

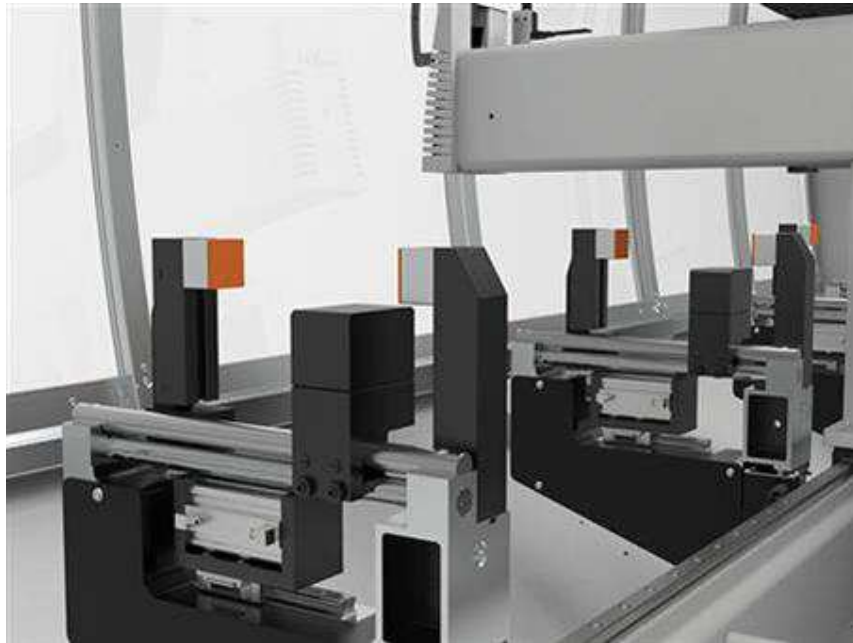


Working area

Situated on the machine bed and made up of:

4 pneumatic vices (expandable) for locking the profiles. They slide on ground round-section bars with ball couplings and pneumatic locking. Movement/positioning is managed by the numeric control through a proper algorithm. Clamping jaws are positioned using a patented pushbutton system. Patented pivoting clamping system ensures optimum adhesion to the profile.

1 pneumatic stop on the left of the working area



On request are available pneumatic vices with independent movement/positioning. On request, the working area can be equipped with the "pendular machining" function to allow the operator to load/unload profiles in masked time. The option requires the installation of a second pneumatic retractable stop on the right of the working area. The motorized chip conveyor is installed in the base.

Protection and safety devices

The CNC machining centre bears the CE symbol in compliance with the content of Directive 2006/42/CE (Machine Directive). The design and construction of the machining centre complies with the safety regulations in force in the European Union and in the main industrialised countries (USA, Canada, etc). In particular, for the European Union market the following legal provisions are complied with: Directive 2006/42/CE (Machine Directive), Directive 2006/95/CE (LVD) and Directive 2004/108/CE (EMC). The machining centre is also equipped with special safety devices designed to comply with the relevant product standards and the regulations on health and safety in the workplace:

CNC machining center complete guard equipped with central closure moving doors

Protective strips on mullion that hosts the electrospindle (only for CNC machining center with "pendular machining" operating mode)

Frontal protection bench for granting the security distance between the operator and the mullion



The electrical system has been engineered in compliance with the provisions contained in European Union directives 2006/95/CE (LVD), 2004/108/CE (EMC) and conforming to the applicable standards governing the safety of electrical systems (EN 60204-1, EN 61000-6-2 and EN 61000-6-4). Special care has been given to the provision of emergency cables and to the system for activating and resetting them. If any faults occur, the operator is alerted by light signals and messages on the monitor. In the event of faults or breakdown, The protection devices inside the panel are designed to prevent injury to persons and/or damage to the machining centre itself.

If for any reason the interaction between the CNC machining centre and the environment in which it is installed contravenes any of the above mentioned conditions, it will be essential to agree with the purchaser a comprehensive solution for achieving the necessary safety conditions so that the purchaser can make the area designated for installing the machining centre suitable and safe.

CONTROL CONSOLE

Compact control console mounted on wheels for executing programs.



Technical specifications:

Mobile control console
21,5" Display
Touch screen monitor
Standard mouse and keyboard
CN box Power-Family

PC comprising of:

Solid state hard disk
2 Net interfaces
USB ports
3-year international "on site" warranty for commercial PC

Software installed:

Windows 10 operative system
FOMCAM
FST MI for managing the working lists and blocks of manual control and service on line – assistance.

Some of the main functions of the software:

Parametric programming
Machining optimizations
Dynamic display of the machining operations
Graphic display of the working area

FOMCAM graphic interface 4-axes version

Graphic interface based on the Windows operating system for planning the machining operations and the pieces which automatically generates the CNC program that can be executed by the machining centre.



Program features:

Profile cross-section display in DXF format
Graphic display of the machining operations
Simplified management of machining process sequence
Simulation of the machining operations
Display of technical features of pieces and tools
Graphic user interface
Parametric machining management
Creation of repeated machining operations
Automatic calculation of optimal vice positioning
Machining lists management
Graphic interface for numeric control management
2D simulation of parts, tools and machining operations (3D on demand)
Module for rigid tapping and chase tapping (on request)
Flow drilling management (on request)
Import of geometries in DXF format (on request)
Bar code reader (on request). Reads the bar code and starts the machining operations on the selected piece

Remote Assistance

Used to check the machine data, the user programmes, the input/output signals and system variables in real time, providing a rapid solution to problems and a drastic reduction in machine stoppage. Thanks to remote assistance it is also possible to install updated software versions. The machining centre is enabled for this type of service. The duration of the service is limited to the machining centre warranty period.

Maintenance equipment

The following are supplied with the machining centre:

Tool holder locking device for insertion/removal of tools

Set of wrenches

Turnkey System

FOM INDUSTRIE not only offers its Clients a machine tool, but also a "turnkey" productive system to solve all of the problems involved in production. The company's experience is at the client's disposition to optimise the relationship between machining centre performance and the technological machining requirements, the service relies on:

A CAD-CAM system for creating a project which provides for piece design, automatic creation of the program and simulation of the machining operations

A vast archive of projects created for companies operating in important industrial sectors (automotive, railways, naval, furniture, transport, aeronautic, textile)

Facilitated contacts with the most important and qualified suppliers of tools and equipment

Documentation

Every machining centre comes with a printed copy of the following documentation: User and maintenance manual, complete with electric and pneumatic diagrams; Control unit user's manual. The manuals are available in Italian and English

Standard configuration:

- Electrospindle FOM 6,5 kW (S1) 19.000 rpm (ISO 30)
- 7 position tool magazine. (ISO 30)

Note: No housing of single/double tool angular unit and blade-holder cone

- No. 2 pairs of pneumatic vices with positioning through the travelling column
- Left sliding pneumatic stop
- Minimum quantity lubrication (MQL) with pure oil
- Chip bin
- Guard with receding frontal doors with automatic opening
- Set up for fumes extraction
- Control equipment: POWER-M
- Mobile control console with PC, 17" touch screen monitor, mouse and keyboard
- Software licence for FOMCAM program
- FOMCAM training course (FOM premises)

Technical specifications:

Axes travel			
X axis	Longitudinal travel	mm	7320
Y axis	Transversal travel	mm	1040
Z axis	Vertical travel	mm	435
A axis	Electrospindle rotation		-15°/195°
Working capacity (with 100 mm tool length from spindle end projection)			
X axis	Longitudinal travel	mm	7000
Y axis	Transversal travel	mm	220 / 290 (with low pad)
Z axis	Vertical travel	mm	250
Axes movement			
X axis		m/min	100
Y axis		m./1'	33
Z axis		m./1'	13
A axis		°/s	180
Electrospindle			
Toolholder coupling		Type	ISO 30
Max rotation speed		rpm	19000
Tool magazine			
Tool replacement time		s	14
Possible number of tools (possibility of optional storage)		No. tools	7 (+ 3 for optional storage)
Maximum tool weight		Kg.	6
Maximum tool length		mm	150
Maximum tool diameter		mm	20
Max tool diameter blade		mm	200

Optionals:

- Additional charge for special power supply with transformer
- Additional charge for electrical version UL-CSA
- Additional charge for electric cabinet cooling
- Additional charge for EAC (Eurasian Conformity) certification
- Additional tool magazine with 3 positionings for housing: single/double tool angular unit, vertical blade tool angular and blade-holder cone (ISO 30) + Minimum quantity lubrication (MQL) with pure oil
- Additional clamps with positioning through carriage (No.2)
- Additional charge for transforming the standard clamps into motorized clamps with independent positioning
- Additional clamps with independent positioning (No.2)
- Pendular machining on two working areas
- RH profile stop kit for long pieces machining or for two pieces without pendular machining
- Flowdrilling kit (steel flowdrilling, not suitable if the profiles are already galvanised)
- Lubrocooling with recycling of cooling liquid in tank (advisable for iron materials) including containment plates
- Chip conveyor belt
- Forced/timed lubrication for guideways and recirculating ball screw movement
- Machine handling by container
- Software licence for office FOMCAM program
- Supplementary office licence for "FOMCAM" program
- Software licence FST MI program for office, for the machining lists management
- FST SOLID 3/4 axes – Machining recognition module starting from a step tridimensional file
- FST SOLID additional software licence (3/4 axis CNC machining center)
- Module for the insertion of geometries 'defined by the user' and import of drawings in DXF format for FOM CAM
- Module for the graphic designing in 3D for FOMCAM
- Wireless bar-code reader + data import software for data in accordance to FOM protocol (ZP712762)
- Data import SW for data in accordance to FOM protocol (included in PR-29529)
- Data conversion driver
- Software licence for tapping cycle
- Software licence for "Clock", module for times calculation for FOM CAM
- Software licence for "Wizard", module for FOMCAM
- TOOL SET TYPE A1/ISO 30:
 - N° 1 single flute milling cutter \varnothing 5 L=50 mm (HZ-43794)
 - N° 1 single flute milling cutter \varnothing 8 L=63 mm (HZ-43796)
 - N° 1 single flute milling cutter \varnothing 10 L=72 mm (HZ-43795)
 - N° 3 collet holder H=67 (DR-24635)
 - N° 1 collet \varnothing 9/10 ER 32 (DR-75901)
 - N° 1 collet \varnothing 7/8 ER 32 (DR-75899)
 - N° 1 collet \varnothing 4/5 ER 32 (DR-75896)
- TOOL SET TYPE A2/ISO 30:
 - N° 1 single flute milling cutter \varnothing 8 L=63 mm (HZ-43796)
 - N° 1 single flute milling cutter \varnothing 10 L=90 mm (HZ325308)
 - N° 1 single flute drill bit hss cutter \varnothing 3 L=61 mm (HZ-76292)
 - N° 1 single flute milling cutter \varnothing 6 L=60 mm (HZ-43792)
 - N° 1 double flute milling cutter \varnothing 10 L=110 mm (HZ302415)
 - N° 1 double diam. drill bit hss \varnothing 12/6 L=83 mm (HZ-39024)
 - N° 4 collet holder H=67 (DR-24635)
 - N° 2 collet holder H=50 (DR-24634)
 - N° 1 collet \varnothing 3/4 ER 32 (DR-75895)
 - N° 1 collet \varnothing 5/6 ER 32 (DR-75897)
 - N° 1 collet \varnothing 7/8 ER 32 (DR-75899)
 - N° 3 collet \varnothing 9/10 ER 32 (DR-75901)

- TOOL SET TYPE A3/ISO 30:
- N° 1 single flute drill bit HSS \varnothing 3,2 L=57 mm (HZ-78782)
- N° 1 single flute milling cutter \varnothing 5 L=50 mm (HZ-43794)
- N° 1 single flute milling cutter \varnothing 6 L=60 mm (HZ-43792)
- N° 1 single flute milling cutter \varnothing 8 L=63 mm (HZ-43796)
- N° 1 single flute milling cutter \varnothing 10 L=72 mm (HZ-43795)
- N° 1 double flute milling cutter \varnothing 10 L=110 mm (HZ302415)
- N° 1 double diam. milling cutter \varnothing 12/6 L=83 mm (HZ-39024)
- N° 1 single flute milling cutter \varnothing 14 L=100 mm (HZ-45257)
- N° 6 collet holder H=67 (DR-24635)
- N° 2 collet holder H=50 (DR-24634)
- N° 1 collet \varnothing 3/4 ER 32 (DR-75895)
- N° 1 collet \varnothing 4/5 ER 32 (DR-75896)
- N° 1 collet \varnothing 5/6 ER 32 (DR-75897)
- N° 1 collet \varnothing 7/8 ER 32 (DR-75899)
- N° 3 collet \varnothing 9/10 ER 32 (DR-75901)
- N° 1 collet \varnothing 13/14 ER 32 (DR-76047)
- N° 1 disk milling cutter 114X6X32 (GR-71957)
- N° 1 set cone \varnothing 32 x blade (DR-26446)
- N° 1 spacer thickness 26,5 (OP301086)
- Double tool angular unit
- ISO 30 cone with blade \varnothing 200 thickness 4 mm
- ISO 30 ER 32 H 50 collet holder
- ISO 30 ER 32 H 67 collet holder
- Collet \varnothing 2/3 ER 32
- Collet \varnothing 4/5 ER 32
- Collet \varnothing 5/6 ER 32
- Collet \varnothing 7/8 ER 32
- Collet \varnothing 9/10 ER 32
- Collet \varnothing 13/14 ER 32