

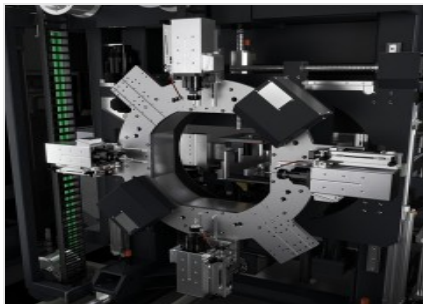


+ Quadra

CNC machining centres

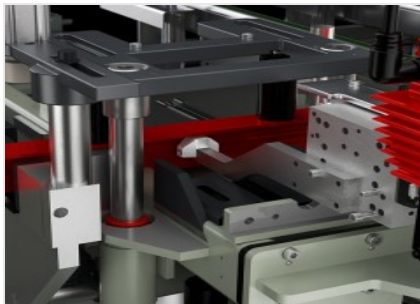


Machining centre with up to 20 CNC axes, designed to perform cutting, milling and drilling operations, including head and tail, on aluminum and light alloy profiles. + Quadra is a configurable line with modular solutions and custom packages that allow to satisfy the most common applications in window and doors, architecture and industry sectors. The structure of the line includes an automatic feeding magazine from which the profile is picked up and transferred to the operating section. It contains the units for cutting and machining; then an extraction system deposits the finished pieces on an accumulation magazine. The three main modules include a number of variants that modify the vocation of the line in terms of flexibility, automation and productivity. A cabin encloses all the work units, ensuring a high standard of soundproofing and total operator protection. The equipment of the machining centre is completed by the ALM automatic labelling module with 2-axis positioner, to identify the machined pieces, and a tool integrity control system. Both optional devices, combined with capacious storage magazines and the reliability of Emmegi systems, allow the machine to be exploited over extended machining cycles in fully automatic mode.



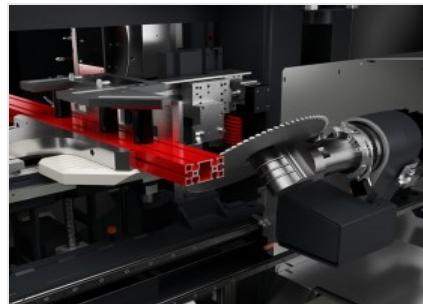
Milling unit

The core and value of the +QUADRA lies in its rotary base machining section, complete with 4 machining units for +Quadra L0 and 6, or 8 machining units for +Quadra L1 and +Quadra L2, that are controlled and can be interpolated on 4 axes: X, Y, Z, A (360° slewing around the axis of the bar). The work units are fitted with air-cooled high-frequency electrospindles, ER 32 tool connector with power up to 5.6 kW in S1.



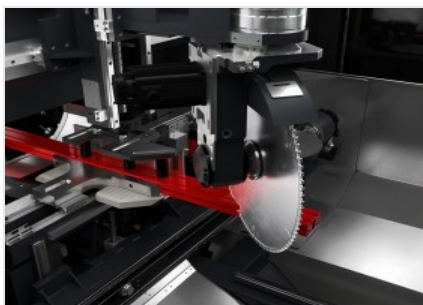
Vices with PROFIX dynamic counterblocks (Optional)

The vices are equipped with elements that are positioned through CNC to allow perfect bar clamping. Thanks to the possibility of programming specific settings for a range of profiles, the machine recognises the selection and, according to the geometry, sets the vices and their pressure in optimal way, by limiting the need for specific counterblocks. This solution allows to significantly reduce setting times and increases productivity. The new multichannel management logic of the machine allows the optimisation of machining cycles by increasing



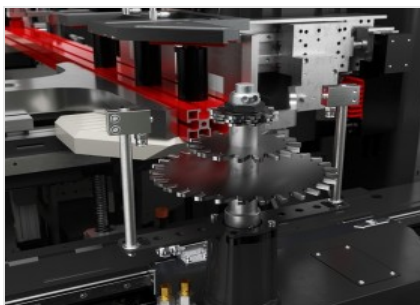
Horizontal cutting module

Cutting unit with numerically controlled horizontal feed, with 350 mm blade and a wide cutting range: -45° to +45°. The cutting angle setting is fully automatic; the unit movement is controlled by a 3-axis CNC.



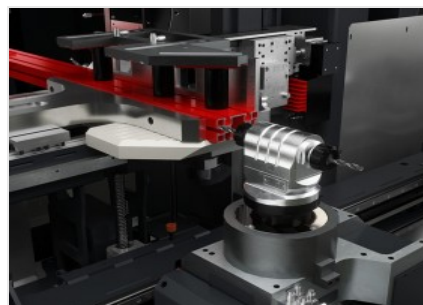
Vertical cutting module

Down-stroking cutting unit on CNC axis equipped with 600 mm blade and a wide cutting range: 0 to 360°. The setting of any cutting angle is fully automatic and CNC controlled. The clamping and handling of the segments are done by means of two motorised vice units on CNC axes.



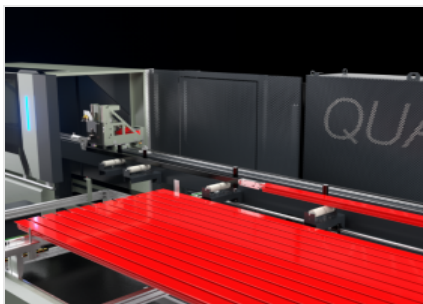
End milling module (Optional)

End milling unit with cutter unit with variable rotation speed up to 8,000 rpm. With quick cutter unit tool change with pneumatic control. Interacts with the horizontal cutting unit, with which it shares the support beam. The three cutting and end milling modules are used to unload rejects into an opening, which can be fitted optionally with a steel evacuation belt.

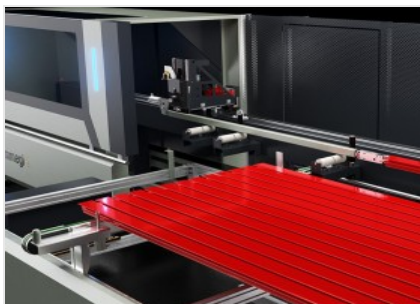


Drilling, milling and tapping module at the head and tail ends (Optional)

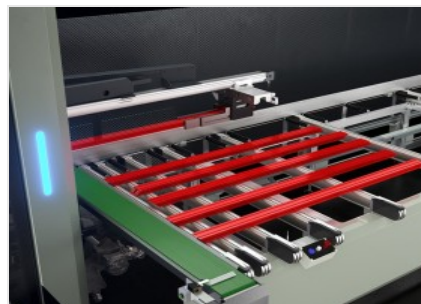
Drilling unit on 4-axis CNC designed for machining at head and end of profile at any angle. Interacts with the horizontal cutting unit, with which it shares the support beam.

**Bar feed system**

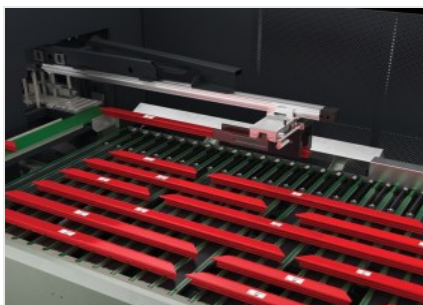
Numerically controlled, high precision and high speed bar positioning system. The system is complete with a gripper to block and transport the profile with automatic horizontal and vertical position adjustment and, optionally, the rotation on two CNC axes. A profile lifting system during feeding allows loading in concurrent operation time, with significant reduction of the cycle time. The belt loading magazine is used for loading profiles with length of up to 7.5 m (9.5 m as optional) and weight up to 120 kg.

**FLW high flexibility loading magazine (Optional)**

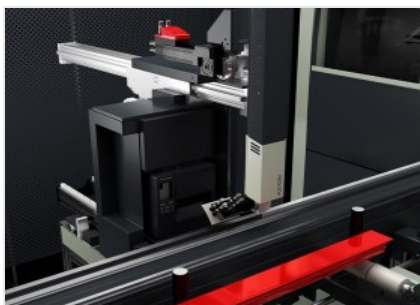
As an alternative to the belt loading magazine, which allows the loading of 8 profiles (standard), a high-capacity solution is available which, through transport shuttles, allows full occupation of the loading surface, maximising the number of profiles.

**Unloading magazine**

Belt magazine for unloading and storage of finished workpieces with large capacity, and configurable on two-zone version. Available in three versions: for processed workpieces up to 4.0 m and, as an alternative, up to 7.5 or 9.5 m. The unloading magazine is preceded by a chip and short cut extraction system which can be optionally equipped with a conveyor belt and a lifting belt to the collection bag.

**HCS high-capacity unloading magazine (Optional)**

The high-capacity magazine is the highly automated solution that, through a motorised roller lane, aligns the machined workpieces before unloading them on the belt magazine, repositioning all parts of the initial bar on a single line. This system allows to accumulate, without any operator's intervention, the entire volume of profiles contained on the loading magazine.

**Industrial printer with ALM automatic positioning (Optional)**

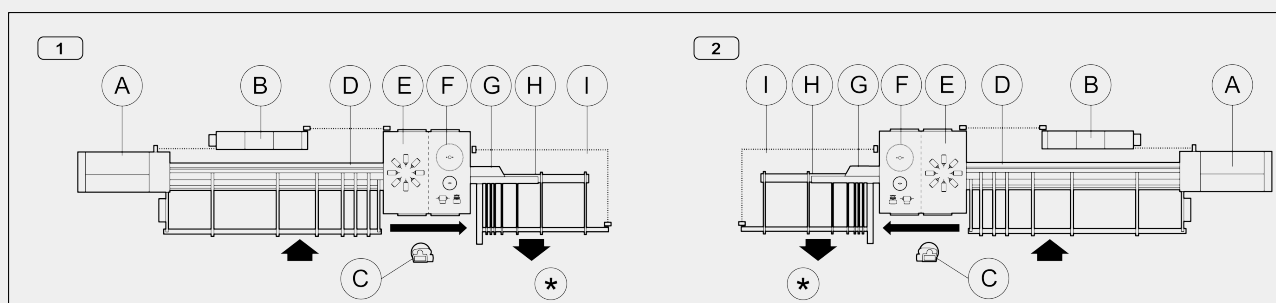
Industrial printer alternative to traditional manual printers for labelling machined workpieces. Thanks to a two-axis Cartesian system, it can automatically position the label on 3 sides of the profile.

**High-performance industrial human-machine interface PC (Optional)**

The high-performance industrial PC significantly improves the computing power of the operating system and the speed of the application software installed. This device allows to achieve a reduction in machine set-up time and manage the most complex cycles without slowdowns.



LAYOUT



1 - Left feed

2 - Right feed

- A - bar feeder gripper
- B - electrical cabinet
- C - control panel
- D - automatic magazine with thrust feed system L 7500 m
- E - milling unit on rotary base or drilling module for head and end of profil
- F - cutting and head/tail drilling unit
- G - extractor of machined pieces
- H - standard unloading unit L 4000 mm
- I - safety enclosure guard
- * - finished workpieces

AXIS STROKES

X1 AXIS (longitudinal) (mm)	320
Y1 AXIS (cross) (mm)	402
Z1 AXIS (vertical) (mm)	395
A1 AXIS (rotary base)	0 ÷ 360°
U0 AXIS (bar positioning) (mm)	9.660
V0 AXIS (cross gripper positioning) (mm)	138
W0 AXIS (vertical gripper positioning) (mm)	138
C0 AXIS (gripper rotation)	0° ÷ 180°
B1 AXIS (motor-driven clamp movement) (mm)	790
H1 AXIS (cutting unit vertical movement) (mm)	627
P1 AXIS (cutting unit cross movement) (mm)	880
Q1 AXIS (cutting unit rotation)	0° ÷ 360°
Z3 AXIS (horizontal cutting unit, vertical movement) (mm)	190
Y3 AXIS (horizontal cutting unit, cross movement) (mm)	1.200
A3 AXIS (horizontal cutting unit rotation)	-45° ÷ +45°
V3 AXIS (drilling unit cross movement) (mm)	1.200
P3 AXIS (drilling unit longitudinal movement) (mm)	100


POSITIONING SPEED

X1 AXIS (longitudinal) (m/min)	30
Y1 AXIS (cross) (m/min)	30
Z1 AXIS (vertical) (m/min)	30
A1 AXIS (rotary base) (°/min)	6.000
U0 AXIS (bar positioning) (m/min)	120
V0 AXIS (cross gripper positioning) (m/min)	9
W0 AXIS (vertical gripper positioning) (m/min)	9
B1 AXIS (motor-driven clamp movement) (m/min)	60
H1 AXIS (cutting unit vertical movement) (m/min)	24
P1 AXIS (cutting unit cross movement) (m/min)	30
Q1 AXIS (cutting unit rotation) (°/min)	6.600
Z3 AXIS (horizontal cutting unit, vertical movement) (m/min)	30
Y3 AXIS (horizontal cutting unit, cross movement) (m/min)	60
A3 AXIS (horizontal cutting unit rotation) (°/min)	7.000
V3 AXIS (drilling unit cross movement) (m/min)	60
Q3 AXIS (drilling unit rotation) (°/min)	7.000
P3 AXIS (drilling unit longitudinal movement) (m/min)	25

AXIS ACCELERATION

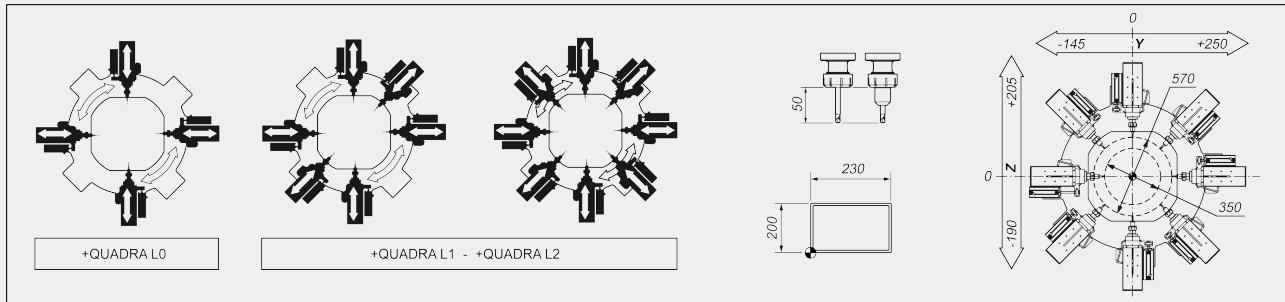
X1 AXIS (longitudinal) (m/s ²)	1,5
Y1 AXIS (cross) (m/s ²)	5
Z1 AXIS (vertical) (m/s ²)	5
U0 AXIS (bar positioning) (m/s ²)	7,5
V0 AXIS (cross gripper positioning) (m/s ²)	0,36
W0 AXIS (vertical gripper positioning) (m/s ²)	0,36
B1 AXIS (motor-driven clamp movement) (m/s ²)	5

MILLING UNIT

Electrospindle rotary unit on rotary base	0° ÷ 360°
Standard electrospindle, maximum power in S1 (kW)	5,6
Heavy duty electrospindle, maximum power in S1 (kW)	7
Maximum speed (rpm)	24.000
Disengagement from machining unit work area by means of recirculating ball slides (110 mm stroke)	●
Toolholder	ER 32
Standard number of machining units(+QUADRA L0)	4



MACHINING AREA OF THE MILLING UNIT



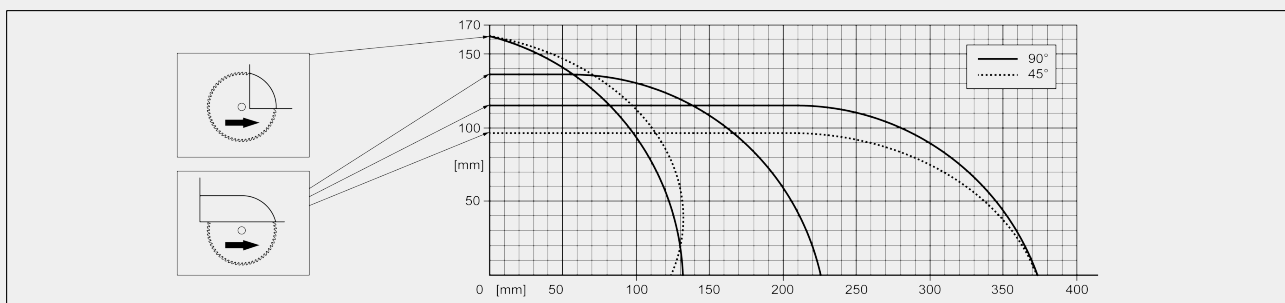
VERTICAL CUTTING UNIT (+QUADRA L1 - +QUADRA L2)

Blade diameter at carbide-tipped (mm)	600
NC blade positioning	$0^\circ \div 360^\circ$
Blade motor power (kW)	3
Maximum machinable profile height (mm)	266
Maximum machinable profile width (mm)	300

HORIZONTAL CUTTING UNIT (+QUADRA L0 - +QUADRA L2)

Blade diameter at carbide-tipped (mm)	350
NC blade positioning	$-45^\circ \div +45^\circ$
Blade motor power (kW)	0,85
Maximum rotation speed (rpm)	3.500
Maximum machinable profile height (mm)	160
Maximum machinable profile width (mm)	300

CUTTING DIAGRAM



**END MILLING UNIT (OPTIONAL ON +QUADRA L0 - L2)**

Maximum mill diameter (mm)	200
Maximum mill pack height (mm)	128,5
Blade motor power (kW)	0,85
Maximum rotation speed (rpm)	8.000
Cutting head sleeve diameter (mm)	32

DRILLING UNIT AT THE HEAD AND TAIL END (OPTIONAL ON +QUADRA L2)

Maximum tool diameter (mm)	16
Maximum tool length (mm)	50
Toolholder	ER 25
Number of tools for drilling unit	2
Drilling unit motor power (kW)	0,85
Maximum rotation speed (rpm)	7.500
Encoder for rigid tapping	●
Tapping capacity	M12

FUNCTIONS

Workpiece milling, drilling and cutting directly from the entire profile	●
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ALM - AUTOMATIC LABEL PRINTER MODULE

Industrial printer with peeling device	●
Two-axis NC positioning device	●
Positioning on three sides of the profile (front, back or top)	●
Printing labels in customised format	○

WORKABLE SIDES

Number of faces (top, side, bottom, heads)	6
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LOADING MAGAZINE

Belt loading magazine	●
Maximum number of profiles	8
Max. loadable profile weight (kg)	120
Workpiece tilting device to 90° during loading	○

**FLW - FLEXIBLE LOADING WAREHOUSE**

Belt loading magazine with NC transport shuttles	●
Loading surface width (mm)	2.150
Maximum number of profiles with 30 mm width	32
Maximum number of profiles with 300 mm width	6
Max. profile weight (kg)	60
Maximum magazine load capacity (kg)	500
Workpiece tilting device to 90° during loading	●
Variable pitch NC feed	●
Shuttle system on Y and Z axes for profile positioning on the machining surface	●

UNLOADING UNIT:

Belt unloading magazine for up to 4000 mm workpieces	●
Belt unloading magazine for up to 7500 mm workpieces	○
Depth of the unloading surface of the belt magazine (mm)	2.150

HCS - HIGH-CAPACITY UNLOADING UNIT (OPTIONAL)

Belt unloading magazine for up to 7500 mm workpieces	●
Unloading surface width (mm)	2.150
Maximum number of profiles with 300 mm width	6
Maximum number of profiles with 30 mm width	32
Number of transport belts	72
Distance between transport belts (mm)	120
Minimum workpiece length that can be unloaded on high-capacity surface (mm)	250

Included ● Available ○