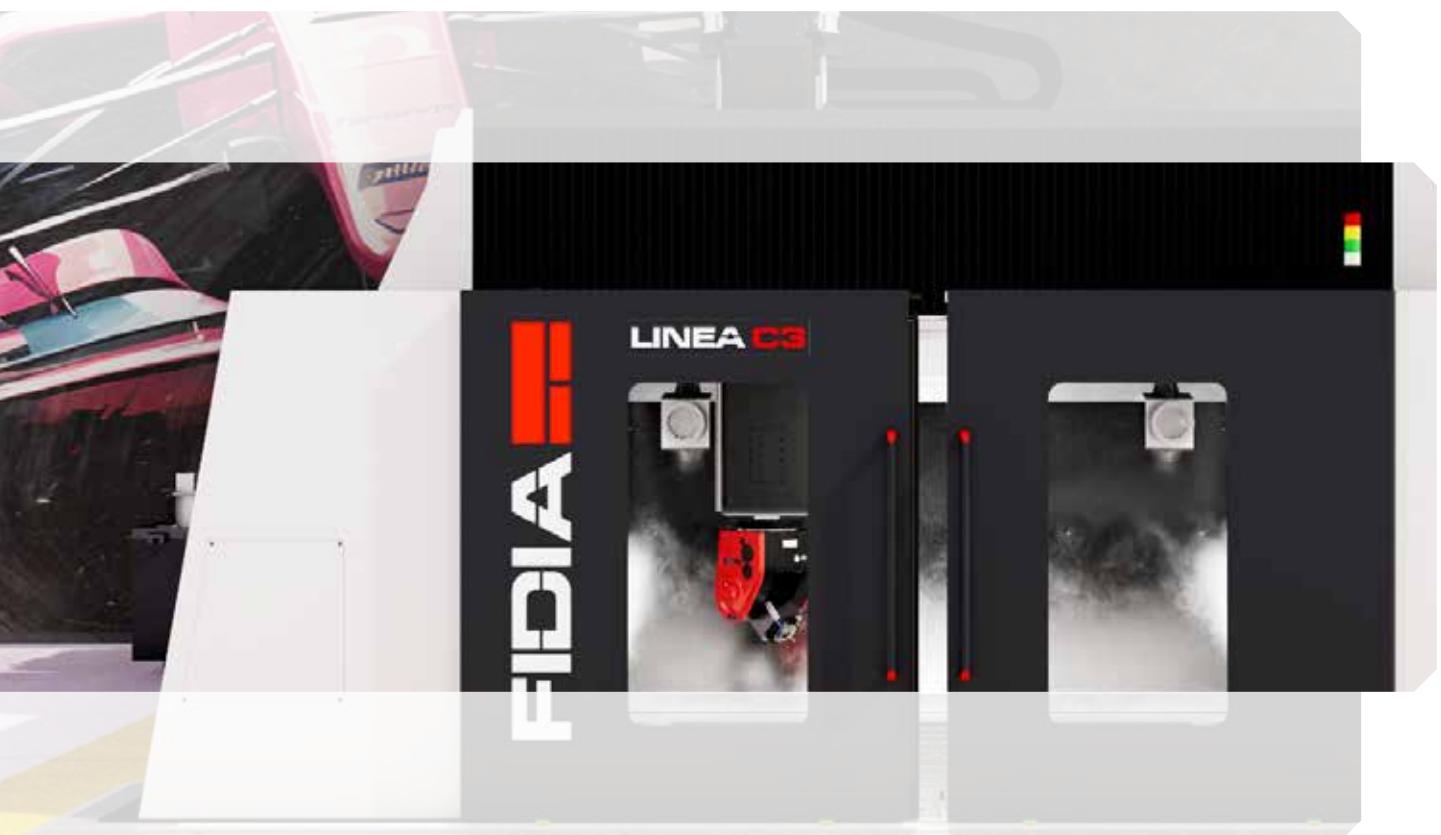


LINEA C

The Gantry for Composites



FIDIA



Numerical Control

Available with

FIDIA o SIEMENS

Cnc

LINEA C

COMPOSITES

LINEA C was created to meet the increasing demand in the machining of composite materials, such as CFRC, multi-layer composites, honeycomb, and CMC (Ceramic Matrix Composites).

The structural solidity, comparable to that of milling machines for aluminum and steel, allows for stable positioning and contouring precision with 5 continuous axes. Linear motors guarantee maximum speed and acceleration.

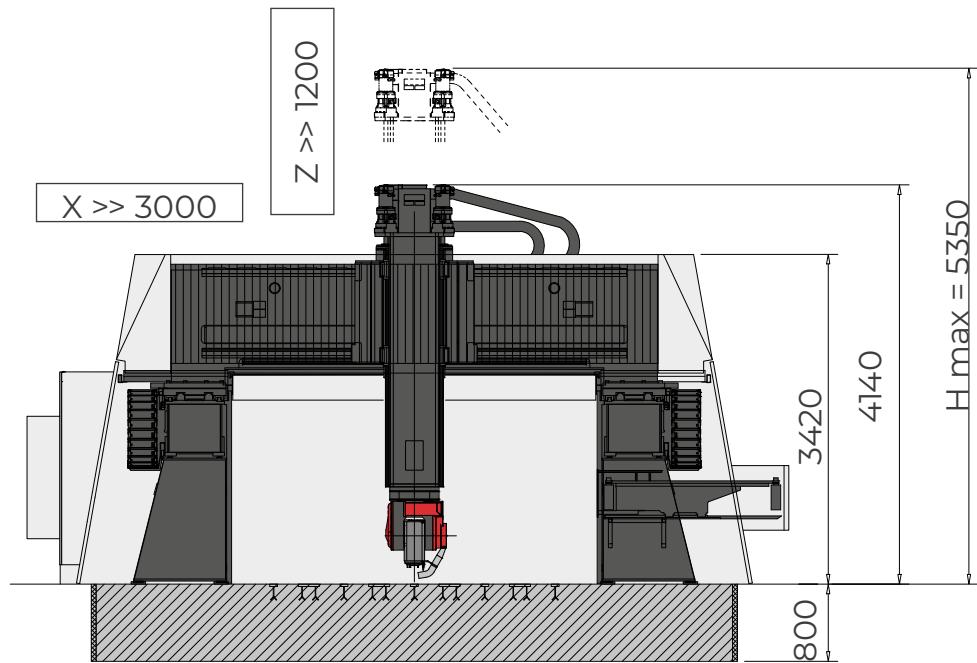
The heads are equipped with spindles and dust extraction systems specifically designed to process the hardest and most abrasive materials.

In the operating area, different configurations are combined with the clamping equipment typically used for composite materials.



Layout

Fidia offers **LINEA C3, C4, C6**



| Axis Strokes | Linea C3 | Linea C4 | Linea C6 |
|----------------------------|--------------|--------------|--------------|
| X (mm) | 2.200 (86") | 4.500 (177") | 6.200 (244") |
| Y (mm) | 3.000 (118") | 3.000 (118") | 3.000 (118") |
| Z (mm) | 1.200 (47") | 1.200 (47") | 1.200 (47") |
| X, Y, Z Axis speed (m/min) | | 60/60/30 | |

Axis acceleration: 4 m/s²

Features

- Upper Gantry structure with welded steel thermally stress-relieved elements.
- Sliding on roller guides and direct drives with linear motors on the X and Y axes.
- Z axis driven by double recirculating ball screws and synchronous brushless motors.
- Active thermal compensation system through temperature-controlled fluid.
- “Sky Wave” telescopic covers with front and rear bellows for complete isolation of the work area.

Available Heads

M5* - 5-axis continuous heads

+95/-110°; $\pm 360^\circ$



The M5A-M5C Fidia bi-rotary heads with asymmetric design ensure dynamics, precision, and total control during machining.

- **M5C** are equipped with an aluminum body
- **M5A** are equipped with a cast iron body

Both heads can be equipped with various spindles, with permanent grease or air/oil lubrication:

| Spindle | Max. Speed | Max. Power | Toolholder |
|--------------|--------------|------------|------------|
| 35-20G | 20.000 1/min | 35 kW | HSK63A |
| 35-24 | 24.000 1/min | 35 kW | HSK63A |
| 30L-20G | 20.000 1/min | 30 kW | HSK63A |
| 30L-24 | 24.000 1/min | 30 kW | HSK63A |
| Only for M5A | | | |
| 55-20G | 20.000 1/min | 55 kW | HSK63A |
| 55-24 | 24.000 1/min | 55 kW | HSK63A |

Linea C offers various modular dust extraction systems, designed for machining composite materials, graphite, and ceramics. Extraction in the tool area and environmental extraction in the operating volume.

Dust Extraction Systems

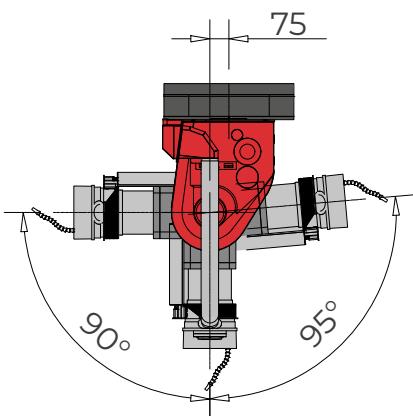
LINEA C introduces an innovative modular dust extraction system, designed for composite materials, graphite, and ceramics milling.

DRP/M5*-T – Collector in the tool area

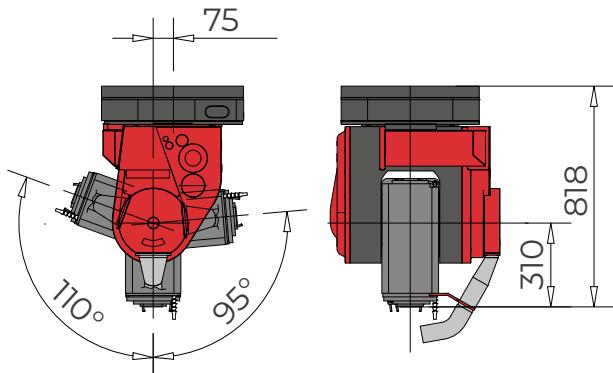
A flexible hose is integrated to the movement of the C-axis and easily removable. The internal pipelines run along the Z-axis and in the dedicated chains up to the connection point with the external filtration system.



DRP/M5*-R*



DRP/M5*-T



LINER C is equipped with pressurization circuits in critical areas where motors and kinematic chains are located, protecting them from fine dust infiltration.

DRP/M5*-R1 – Extraction by means of a hood around the spindle

Available for M5*/3OL versions, it uses a pneumatic retractable hood around the spindle nose. An extendable bellow and a replaceable rubber seal ensure maximum extraction efficiency, adjusting to the tool length.

DRP/M5*-R2 – Programmable Extraction

Extraction by means of a hood controlled directly by the CNC program, allowing the position to be adjusted based on the part's geometry or tool length, maximizing operational flexibility.

DRS/M5*-AX – ATEX Zone 22 filtration unit for spindle area extraction

Extraction and filtration system of 750 m³/h compliant with ATEX standards for potentially explosive dusts classified ST1 (graphite, CFC, ceramics, honeycomb). Equipped with a rotary valve, safety vent, and reinforced metallic structure, the system generates the necessary vacuum to convey the dust near the spindle area.

Environmental Extraction:

Dust extraction and filtration system through controlled airflow and push-pull effect.

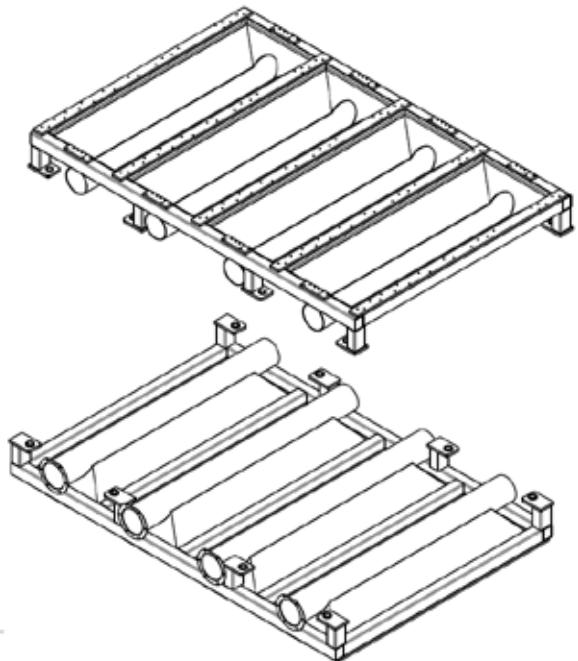
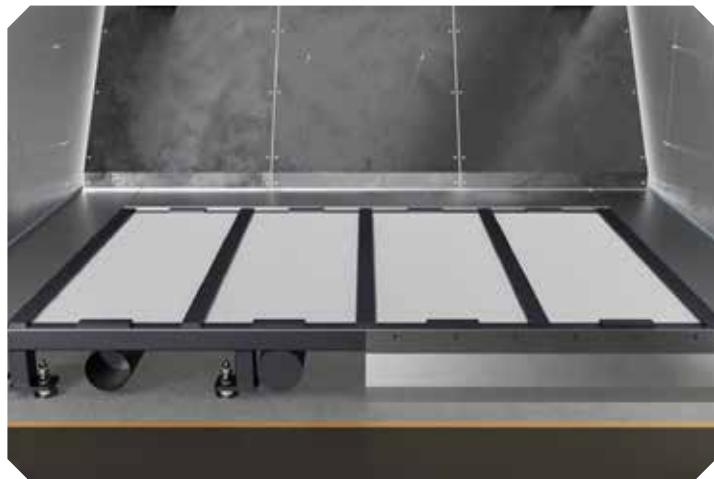
A large panel placed in the rear of the machine collects the air pushed by two blowing columns positioned at the corners of the doors on the operator side.

DRS/PP-AX – ATEX Zone 22 filtration unit from 3300 to 6600 m³/h

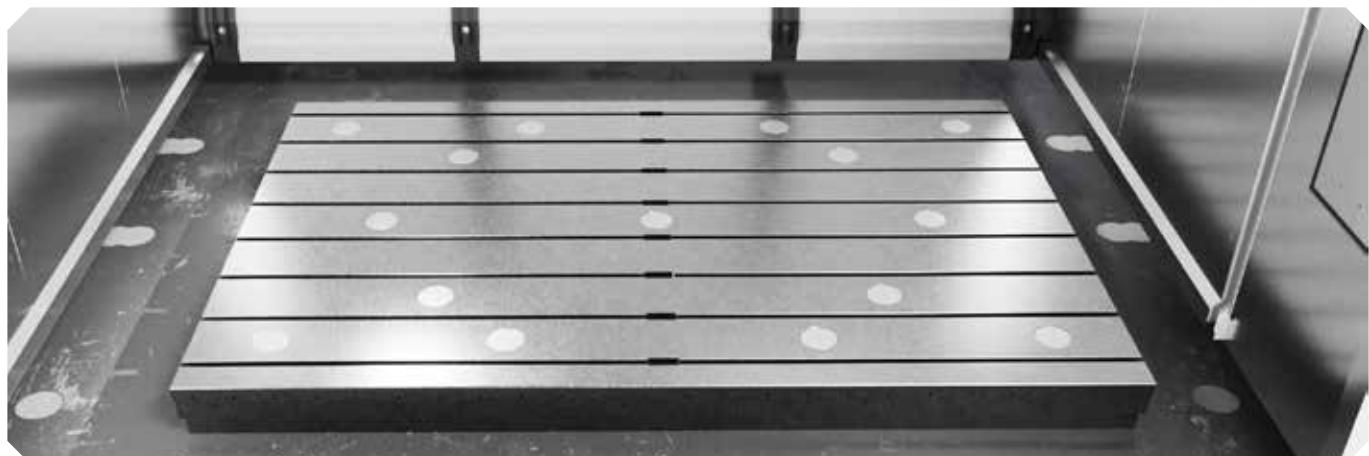
Are connected to the extraction panel.

Available Tables

Vacuum Table



Standard Table with T-slots



Flexible Clamping System

The Flexible Clamping System with vacuum technology

is a cutting-edge modular solution for industry, designed to ensure rapid retooling and positioning with extreme precision.



Versatile Structure

The system consists of modular work surface segments on a solid steel base.

- Extended Modularity: the base provides a configurable matrix of pockets to house the necessary actuators.

Each pocket is equipped with electrical, vacuum, and air connections for maximum flexibility.

- High-Performance Actuators.

The actuators are the main components that ensure fast and precise positioning of the workpiece. Each actuator has a nominal stroke of 750 mm, with a positioning accuracy (XYZ) of less than 0.2 mm and a repeatability (XYZ) of less than 0.1 mm.

End Effector: Reliable and Interchangeable Grip

Each actuator is equipped with an End Effector with independent vacuum control and maximum adaptability.

- **Movement:** $\pm 45^\circ$ rotation and screw-threaded connection for a quick change
- **Suction Power:** 80 mm suction cups with suction power up to 45 kg (other sizes available)



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