Forest-Liné Minumac
High Speed Vertical Machining center

The Forest-Liné Minumac - the smart solution for roughing and finishing medium to large parts with rapid precise production throughput.

- Capacity to process soft and hard materials
- Large choice of Milling Heads (In-house Designed and manufactured)
- Linear motors on X, Y and Z-axis for reduced noise, no wear over time, and high finish quality
- Direct measuring system
- High removal rate of chips
The Forest-Liné Minumac is designed to mill and drill composites, plastic resins or soft metals parts for aerospace, automotive and mechanical industries and also for semi-finishing and finishing operations on titanium and hard metal (full scale die models...).

The rigid construction, the high feed rates and the fast accelerations guarantee accuracy and good surface finish of the machined parts with high throughput.

The Forest-Liné Minumac can be equipped with a range of versatile peripheral equipments and spindles that permit to efficient machining of a wide kind of materials on the same machine tool.

### OPTIONS & SERVICES

#### Ergonomic & Automation
- Multiple working zones
- Forest-Liné FLEXITOOL
- Pallet system

#### Parts & chip management
- Spindle-mounted probe
- Chip conveyor
- Coolant systems

#### Head & Tool Management
- Automatic Tool Changer
- Tool management
- Integrated tool calibration laser
- Tools ID
- Right angle heads

#### Secure process
- Geometry Fives Axis Check System (GFACS)
- Collision detection device
- 3D-model for simulation software

### FOREST-LINÉ MINUMAC SPECIFICATIONS

#### X Axis (Longitudinal)
- Travel: 2.9 to 40 m
- Feed rate: 80 m / min
- Acceleration: up to 5 m/s²

#### Y Axis (Horizontal)
- Travel: 2 to 6.5 m
- Feed rate: 60 m / min
- Acceleration: Up to 5 m/s²

#### Z Axis (Vertical)
- Travel: 1.5 to 2.5 m
- Feed rate: 60 m / min
- Acceleration: up to 5 m/s²

#### C Axis (Rotary)
- Travel: +/- 400 deg; n x 360°
- Feed rate: Up to 40 rpm

#### A Axis (Rotary)
- Travel: +/- 110 deg
- Feed rate: Up to 40 rpm

#### Milling Head
- Power: Up to 125 kW
- Torque: Up to 163 Nm
- RPM: Up to 30,000 rpm

### FEATURES
- CNC: SIEMENS 840D sl (other system on request)
- User-friendly integrated HMI: FL Vision
- Linear motors on X, Y and Z-axis
- Direct measuring system
- Eco design

Customized project on request.

### SOME REFERENCES
Audi — Bertrandt — Boeing — Figeac Aero — Fokker — Koller — MBtech — Patria — Saab — Siebenwurst