

— LINEA^{SPINDLE}



THE FIRST PATENTED **CNC LINEAR**
MULTISPINDLE



Linea Spindle is the first **linear multi-spindle CNC machine built in series**; a **patented, standard** product that guarantees an optimized price and delivery.

The key concept behind the **Linea Spindle** design is **LEAN PRODUCTION**, the Japanese philosophy that is the cornerstone of the **Toyota Production System**, for which flexibility, ergonomics, quick setup and waste reduction are essential values.

LINEA SPINDLE is

1 EFFICIENT

Go from manufacturing large volume batches to the production of **many different lots** and **small volumes**



MANUFACTURE ONLY WHAT YOU SELL!

AND THUS AVOID:

- Wasted materials
- Storage costs
- Space problems



MINIMIZE PRODUCTION COSTS!

2 FLEXIBLE

- Work with **various types of raw material** (bar, forging, sintered, cast)
- **Simultaneously** produce two **identical** pieces or two **different** pieces



PRODUCE MORE AND FASTER!

MACHINE RE-TOOLING IN JUST **12** minutes
WITHOUT INTERRUPTING THE PRODUCTION CYCLE



**CHANGEOVER
WHILE STILL IN PRODUCTION!**

3 ERGONOMICS

The machine features an **ergonomic and compact design**.

Rigid mono-block structure incorporates ease of use, speed and rigidity.



FORGET ABOUT CLEARANCE ISSUES!

AND TAKE ADVANTAGE OF:

- Easy and safe access to the tooling area
- An intuitive interface specifically developed by Sala



**NO NEED FOR
HIGHLY TRAINED WORKERS!**

THE **LINEA SPINDLE**'S EXTREME RIGIDITY IS ENSURED BY:

A TOTAL GROSS WEIGHT OF

20.000 Kg



TOOL HOLDERS THAT ARE RIGIDLY FIXED TO THE STRUCTURE, GUARANTEEING:

INCREASED AVERAGE TOOL LIFE
BY **50%** COMPARED TO A STANDARD MULTISPINDLE

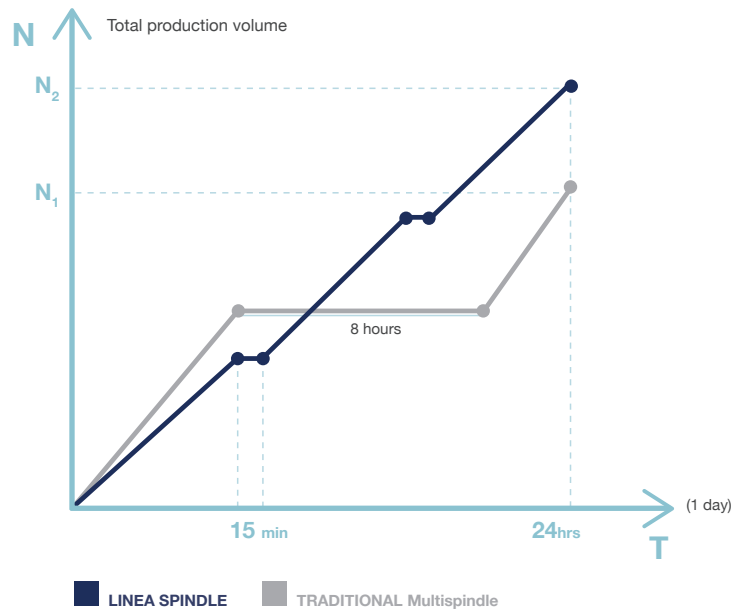
DIMENSIONAL TOLERANCES AND DIFFICULT FINISHES
TO **1 µm** IN **LINEARITY** AND **5 µm** IN **REPEATABILITY**



WITH LINEA SPINDLE, BAR MACHINING ISN'T ABANDONED BUT RATHER PERFECTED.

The secret lies in starting not from a full bar but from a **single bar piece** or **slug** that enters the machine pre-cut, providing the following benefits:

- Greater **safety** in the machine workshop, avoiding frequent handling of large bar bundles
- **Less wasted raw material**, as the entire bar is processed, including the last piece, or remnant, which a traditional multispindle is unable to process
- **Maximum precision**, guaranteed even for the machining of very small diameter pieces, thanks to the elimination of vibrations normally caused by the rotating bars
- Possibility of machining bars from **5 mm** to **50 mm** in diameter, using the same machine
- **Reduced machine changeover times** significantly



	LINEA SPINDLE	TRADITIONAL Multispindle
PRODUCE FROM BARS	✓	✓
CHANGEOVER WHILE CONTINUING PRODUCTION	✓	✗
NO BAR WASTE	✓	✗
PRODUCE 2 DIFFERENT PIECES SIMULTANEOUSLY	✓	✗
PRODUCE FROM CAST, SINTERED, FORGED MATERIAL	✓	✗
HIGH PRECISION FOR SMALL DIAMETER WORKPIECES	✓	✗
NO VIBRATIONS DUE TO BAR ROTATION	✓	✗
MINIMAL SETUP TIMES	✓	✗
NO DOWN TIME	✓	✗

GENERAL SPECIFICATIONS

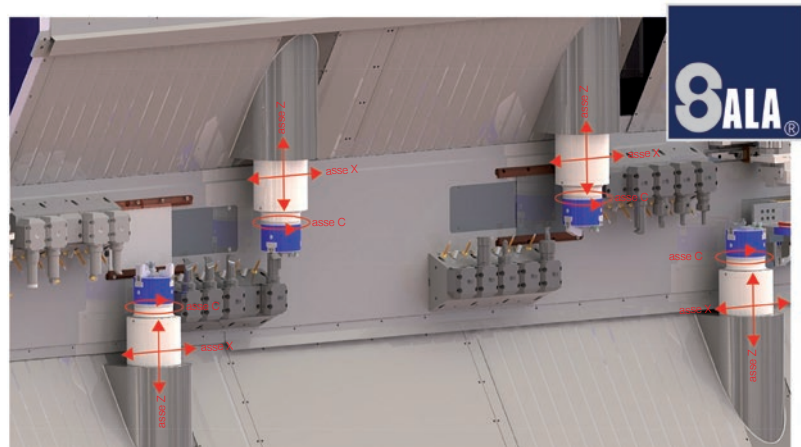
The basic machine consists of **4 electrospindle modules** mirrored across a vertical axis (2 per independent side of the machine), providing an X movement driven by **4 linear motors**. Each set of 2 spindles opposes each other for live hand offs allowing complete front and back working of the piece.

The synchronous C axis spindle allows for fixed workpiece machining or interpolation with the X and Z axis.

Linea Spindle is capable of executing a complete piece, including accessory machining, using live tools on additional CNC Y-axes.

Standard configuration with **24 tool holders** (6 for each spindle unit) and **4 Y-axes** for rotary tools.

Fully automated loading/unloading through the use of pick-up type electrospindles.



COMPONENTS		QUANTITY	SPECIFICATIONS	
LINEA SPINDLE (basic machine configuration)			Occupied Area	10 m²
			Total machine weight	197 KN
			Rated power	130 KW
CNC FANUC model 31 i-B iHMI			CNC axes	16 (12 + 4 optional)
SYNCHRONOUS ELECTRO-SPINDLE	4		Spindle nose	ASA 4 ASA 5
			Power in S1	18 KW 26 KW
			Torque in S1	27 Nm 38 KW
			Maximum Speed	8.000 rpm 8.000 rpm
			Clamping Force	70 KN 70 KN
SPINDLE-HOLDER MODULE (X axis)	4		Stroke	800 mm
			Linear motor	4.500 N
			Maximum Rapid	90 m/min
			Acceleration	1 g
SPINDLE-HOLDER MODULE (Z axis)	4		Stroke	120 mm;
			Torque	8 Nm
			Maximum Rapid	40 m/min
			Acceleration	1 g
DRILLING/MILLING UNIT optional (Y axis)	4		Spindle nose	HSK50
			Power	7.5 KW
			Torque	12 Nm
			Maximum Speed	6.000 rpm
TOOL HOLDERS	24		Y axis stroke	85 mm;
			Type	CAPTO C4



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