SELSA MAKİNA

SL

SERIES

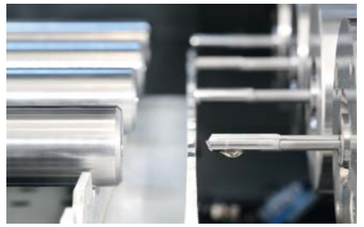
DEEP HOLE DRILLING MACHINES

HIGH PRECISION AND WIDE PRODUCTION CAPACITY

The SL Series Deep Hole Drilling machines enable you to perform deep hole drilling operations ranging from Ø1.5 mm to Ø75 mm and from 250 mm to 2000 mm.

PERFORMANCE AND RELIABLE AUTOMATION TOGETHER

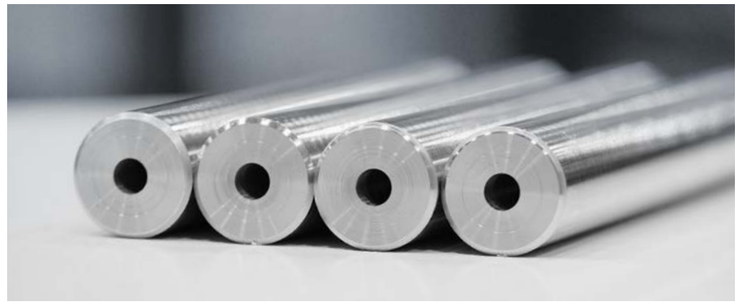
Designed with extensive experience and superior technology by SELSA MAKINA, the system is reliable, high-performance, and built to withstand harsh production conditions.



USAGE IN DIFFERENT SECTORS AND PURPOSES

With different model options in the series, our machines have application areas in various sectors.

They can be used in the **Defense Industry** for light or medium-caliber barrels and anti-aircraft gun barrels, in the **Automotive** Sector for precision operations such as camshafts and common rails. Additionally, they are used in the **Hydraulic** Sector for manufacturing hydraulic cylinders, valves, and connection elements, in the **Aviation Industry** for producing aircraft engines, propellers, wings, and other aircraft components, in the **Medical** field for surgical implants, bone biopsies, spinal surgery, arthroscopy, and trauma surgery, and in the **Mold Industry** for producing plastic injection molds and mold accessories.



Customer Satisfaction with Superior Technology

MACHINE
COMPONENTS

SL

SERIES

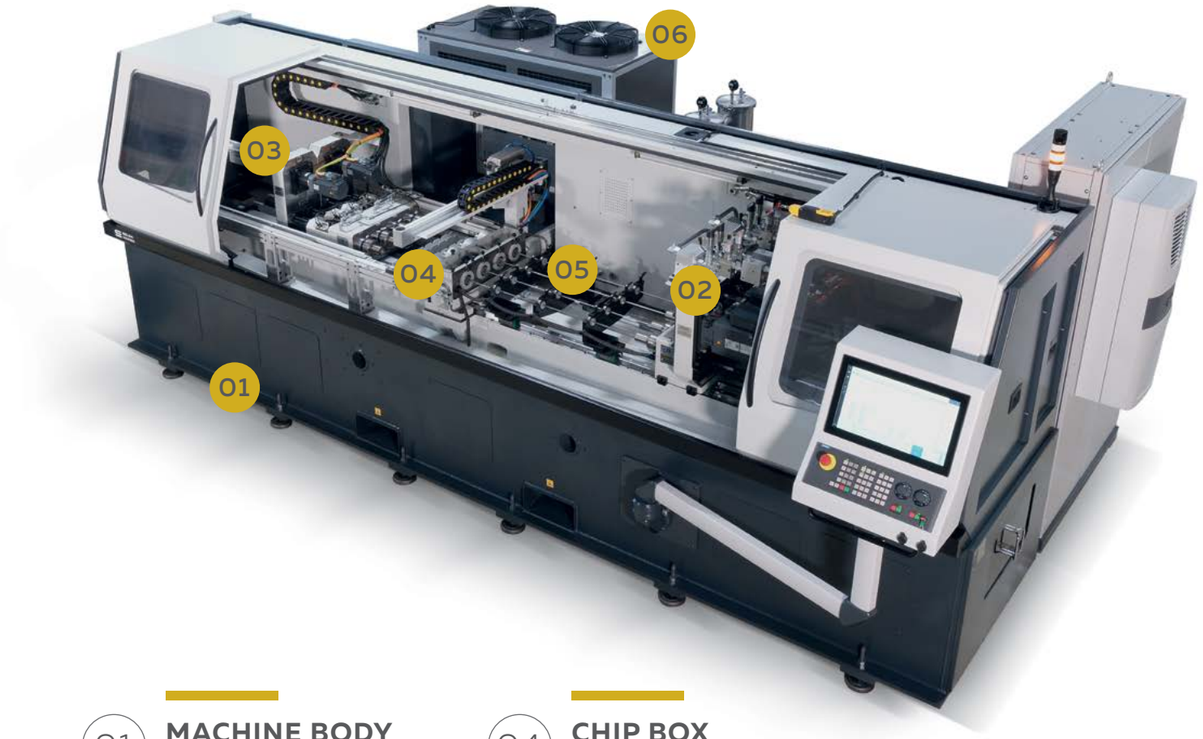
DEEP HOLE DRILLING MACHINES

SL series hole drilling machines are designed to meet the high production and precision levels demanded.

Focusing on high precision and quality standards, the machine ensures fast and efficient production with its high speed operating capacity.

Designed with solid structure and long-lasting materials, our machine stands out with its durability.

It offers a perfect solution in drilling processes with its user-friendly interface, energy efficiency and wide application areas.



01 **MACHINE BODY**
PROCESSED IN A SINGLE STEP

02 **DRILLING UNIT**
HIGH STABILITY, MINIMUM VIBRATION

03 **WORKPIECE CLAMPING GROUP**

04 **CHIP BOX**

05 **DRILL AND WORKPIECE FIXTURE**
RIGID STRUCTURE

06 **COOLING UNIT**
HIGH CAPACITY WITH SPECIAL DESIGN

MACHINE COMPONENTS

STANDARD FEATURES

01

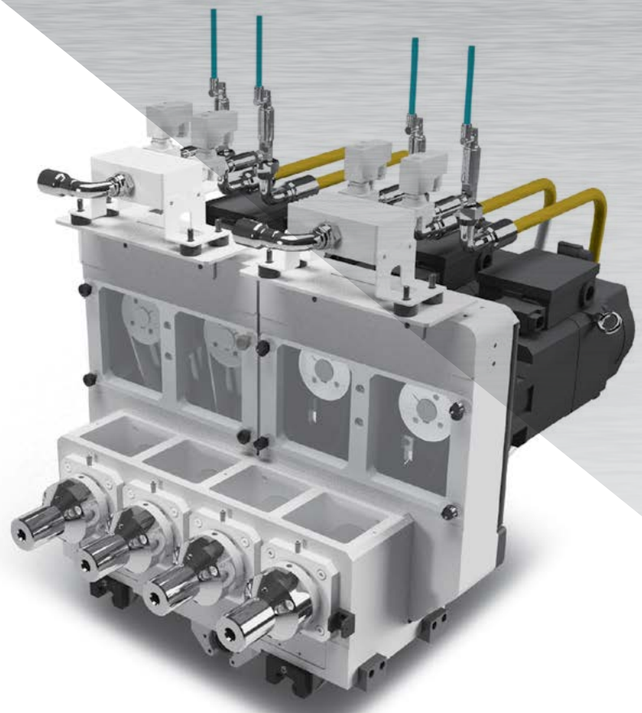
MACHINE BODY

PROCESS IN A SINGLE STEP

The machine body is carefully selected from high-quality ST-37 material and welded with metal inert gas (MIG) welding method, ensuring a robust structure for long-lasting use.

After welding process the body undergoes special processes such as stress relief and sandblasting to achieve a perfect surface and robust structure, ensuring the machine's durability and performance are maintained at the highest level.

Finally, the body is precisely machined in a single step and painted, providing an aesthetic appearance and a protective layer, ensuring the machine's long-life durability.



02

DRILLING UNIT

HIGH STABILITY, MINIMUM VIBRATION

The cast spindle body is meticulously designed and enables precise and high-quality results on the workpiece with minimal vibration during processing. Within the 5-axis CNC technology reduces the risk of defective parts by processing parts in a single step. The spindle nose standards AT series connection allows for easy attachment of various tool holders, providing flexibility for different machining needs.

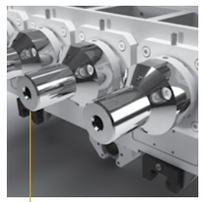
The rotary oil distributor system helps extend the lifespan of the spindle and tools by ensuring homogeneous oil transfer at high pressure and speed.

The ability to work with an on/off spindle structure makes it easy to set up the machine for flexible production.

The special spindle design includes an air sealing for high protection, protecting the spindle from external factors and ensuring long-term use.

Within special design it ensures the transfer of oil to each unit at equal flow and pressure. The pneumatic system effectively drains the oil accumulated inside the workpiece after drilling.

Cartridge spindle design provides ease of maintenance and troubleshooting. The spindle nose run-out is lower than ≤5 micron.



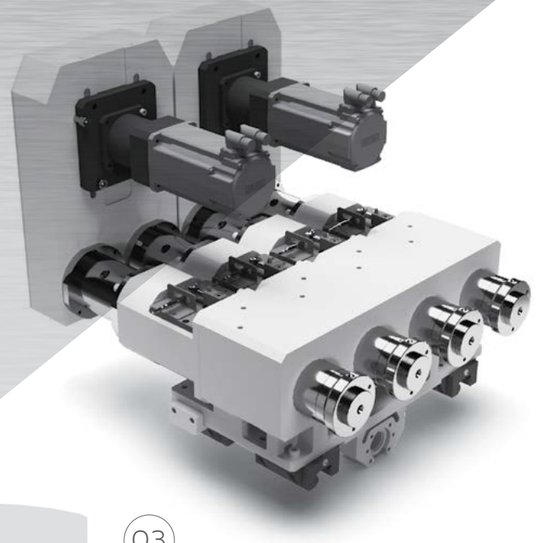
OIL EXHAUST

AIR EXHAUST

AIR INLET

MACHINE COMPONENTS

STANDARD FEATURES



03

WORKPIECE CLAMPING GROUP

The independent clamping system allows for the processing of precise workpieces by providing ±2 mm length compensation.

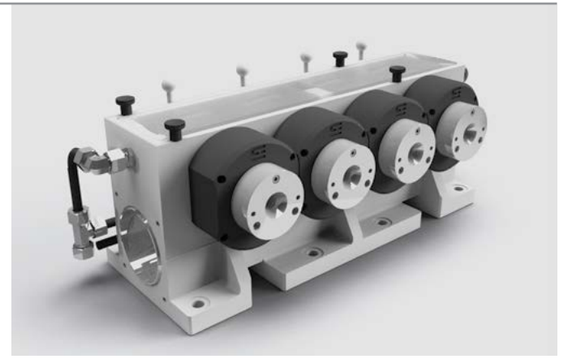
The cast spindle body ensures minimal vibration during machining, while the 5-axis CNC technology processes workpieces in a single step, resulting in higher quality and more precise outcomes. Precisely machined clamping cone fixing workpieces, providing high accuracy and performance during machining.

Thanks to Poka Yoke switches, part clamping process is guaranteed.

04

CHIP BOX

Enhanced chip evacuation is achieved with a specially designed chip box and integrated scraper attachment, ensuring maximum efficiency with oil entry points that prevent chip buildup.



05

DRILL AND WORKPIECE FIXTURE

Fast-connecting V-beds save time during type changes and enhance operational efficiency. Bushings (drill bushes) and drill beds ensure maximum concentricity, guaranteeing precise processing of workpieces.

V-beds can be loaded manually or integrated with an automatic loading system. Additionally, a dual-axis V-bed structure doubles processing capability.

• Heavy-duty, series pre-loaded rail and carriage

RIGID STRUCTURE

06

COOLING UNIT

HIGH CAPACITY WITH SPECIAL DESIGN

With its specially designed oil tank, dirty and clean tanks are separated from each other.
Integrated with a double bag filtration system (20-25µ) and a high-pressure filter (10µ), along with a high-capacity chiller and heat exchanger unit, it ensures maximum oil quality and cleanliness.

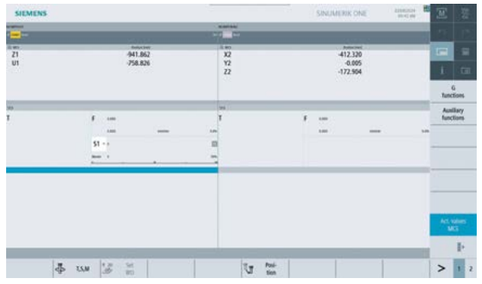
Water cooled heat exchanger to ready for chiller cooling system.
For sound isolation, high-pressure pumps enclosed within a cabin provide quiet and comfortable operation, enhancing operator efficiency and creating a more comfortable working environment.

MACHINE COMPONENTS

CONTROL PANEL

USER-FRIENDLY DESIGN

- **User-friendly, easy-to-use movable control panel (17” PC Panel)**
- **Programmable drilling and clamping unit positions**
- **Programmable speed/feed values**
- **Programmable pressure and flow rate settings**



OPTIONAL FEATURES AND ADDITIONS

Optional Features

- Pneumatic or hydraulic chuck
- Scraper belt conveyor
- Magnetic chip conveyor
- Deep-bedded paper filter
- Water cooled chiller
- Double precision pressure filter (Filter change without stopping)
- Siemens PLC / Siemens Sinumerik One / Fanuc 31i-BPlus
- Water chilled cooling system with plate exchanger

Automation Addings

- In-machine automatic loading (Cartesian Axis)
- Workpiece loading conveyor
- Workpiece unloading conveyor
- Step feeder part loading
- Automatic part feeding conveyor
- Robot loading interface

TECHNICAL SPECIFICATIONS

For special requests, please contact us.

FEATURE	SL SERIES				
	SL-08	SL-13	SL-20	SL-45	SL-75
CAPACITY					
Min. Drilling Diameter (mm)	ø1,5	ø4	ø7	ø18	ø37
Max. Drilling Diameter (mm)	ø8	ø13	ø20	ø44	ø75
Max. Hole Depth (mm)	250	500 / 1000 / 1500	500 / 1000 / 1500	1000* / 2000	1000* / 2000
DRILLING UNIT					
Number of Spindles	1 / 2 / 4			1 / 2	
Process Type	Gundrill / Insert Type Gundrill			Insert Type Gundrill	
Spindle Speed (rpm)	10000	6000	3000	300 / 1500	250 / 1000
Spindle Power (kW) / (For each work spindle)	1,5	4,8	5	15	30
Power Transmission	High-Strength Timing Belt				
Spindle Holder	DIN55026				
WORKPIECE AND ROTATION EQUIPMENT					
Workpiece Speed (rpm)	0-2000	0-500	0-150		
Workpiece Clamping (Optional)	Hydraulic or Spring With Cone			Hyrlaulic or Pneumatic Chuck	
Power Transmisson	High-Strength Timing Belt				
Workpiece Loading	Manual (Including Autoloading Infrastructure)				
Rapid Traverse (mm / min)	5000			3000	
COOLING UNIT					
Cooling Unit Max. Pressure (Bar)	200	120	90	40	25
Tank Capacity (L)	500	1500	1500	2000	4500
Filtration	Chip Basket / Double Bag Filtration / Single High Pressure Filter				
Flow and Pressure Control	Automatically Adjustable Pressure and Monitored Flow Rate Via Panel				
COOLING UNIT					
Control Program (Optional)	Siemens PLC / Siemens Sinumerik One / Fanuc 31i-BPlus				
Certification	CE				

***Changeable upon customer request.**

AUTOMATION SYSTEMS AND SOFTWARE SOLUTIONS

USER-CENTRIC DESIGN AND ENRICHED FEATURES WITH VARIOUS OPTIONS

With our extensive experience at SELSA MAKINA, we provide excellent service with competitive, original, and customized solutions using modular components for deep hole drilling systems.

V-BED STRUCTURE

Double drilling capacity with integrated body and two-axis special pneumatic V-bed structure

Seamless production with automatic loading

WORKPIECE FEEDING UNIT

Continuous feeding to the workpiece loading conveyor for uninterrupted production

Workpieces ready to go to the processing area after loading

LOADING AND UNLOADING CONVEYOR

Advanced part handling conveyor for automatic operation machines

Conveying workpieces with conveyors placed inside the machine for space saving and mass production

AUTOMATIC PART LOADING ROBOT

Automatic loading to the processing area with electric cylinders and precision jaws

Automatic unloading of finished workpieces

ROBOT LOADING INTERFACE

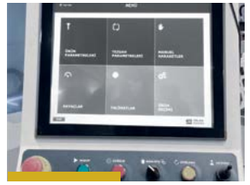
Machines designed and built with infrastructure capable of working with a 6-axis robot

Capability to transition to fully automatic system with additional requirements

CONTROL SYSTEM

Monitoring of instantaneous pressure and flow changes at the drill bit during drilling operations

Part presence detection systems



MACHINE CONTROL SYSTEM

Control via PLC software (Optional CNC control)

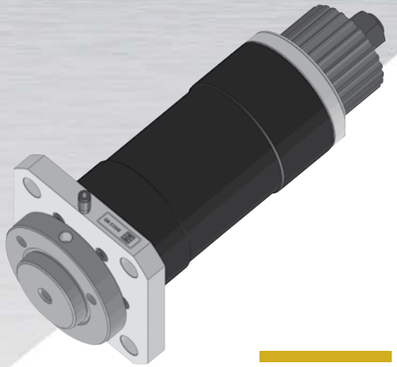
Easy machine setup with SELSA MAKINA's custom design

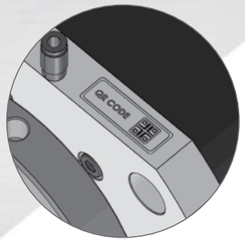
Recipe creation for new parts

Real-time monitoring and control of parameters on the main screen during operation

FROM THE OUR PRODUCTION CELLS

SERVICE





Our solution team is always ready to provide the following services upon your request:

- Conducting machine analysis
- Remote access capability for quick monitoring of PLC signals and statuses
- Viewing current values and making adjustments remotely

2 Years Warranty
Mechanical parts are covered under a two-year warranty.

Each spindle is assigned a unique QR code containing detailed spare part lists for components inside the spindle, bearing dimensions, cover adjustment tolerance measurements, depth information of the spindle sleeve, and the serial number of the machine used. This allows for easy monitoring and tracking of parts that need replacement, streamlining maintenance and service processes for increased efficiency.

Advantages of Spindle Groups

Numbered spindle groups provide advantages such as ease of remote intervention, quick and practical spare part replacement, and ease of revision to enhance maintenance processes.
This reduces maintenance downtime, minimizes machine idle times, and enhances operational efficiency.

WE KNOW OUR RESPONSIBILITIES FOR A GREEN WORLD

As SELSA MAKİNA, our sentiment, attitude, and goal regarding 'sustainability' are to conduct our productions in a way that preserves the lives of all beings on Earth. We prioritize ensuring that all our commercial activities contribute added value to the economic sustainability of the world. We value our communication with our employees and their families, as well as all our social stakeholders, and we emphasize the importance of our social projects supporting the societal sustainability of the world.

Our parent Company 'Selsa Otomotiv A.Ş.' has a CDP Score 'B' for the year 2023.

Since 2022 we've also had CDP Submission and SBTi commitment since 2023.

We provide information with updates on our website at regular intervals.

You can follow the developments in this direction from www.selsa.com

SELSA MAKİNA

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