



SINGLE POINT CNC VALVE SEAT MACHINES



PROFILE XL



Machining process
Single Point
CNC



Centering technology
Triple air
cushion



Seat to seat move
Manual



Valve seat capacity
14 to 120 mm -
0.55" to 4.72"



Production
Small or
medium
volume



Live pilot technology



Automotive



Motorcycle



Racing



Heavy duty



Marine



Stationary engine



The latest single point CNC Machine from SERDI. More than 10 years of experience in single point technology condensed into the most advanced machine on the market. Ease of use, speed and accuracy brought to a whole new level, leaving all competition behind. Extremely versatile machine appropriate for machining any kinds of cylinder heads. Enhanced cylinder head capacity.

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**YEARS AND MORE
OF EXPERTISE**



**ADVICE &
SERVICE**

WORLD CLASS TECHNOLOGY

EQUIPMENT

GANTRY DESIGN

The whole spindle and centering system assembly moves up and down along rigid preloaded guideways. Manual vertical movement guarantees the ease of pilot insertion. The sturdy design coupled with a short spindle travel greatly increase global rigidity. Safe "normally closed" clamping system for increased safety : The gantry is clamped when no pressure is applied. Perfectly balanced spindle whatever the working height.



TRIPLE AIR CUSHION CENTERING

SERDI's proven triple air float and the built-in motor combination results in an unequaled centering accuracy, 30% floating mass reduction (all floating parts when centering) compared to the previous single point generation. New machine architecture greatly reduce the lever arm between the pilot and the floating system. Pilot flexion due to the floating mass is thus kept to a minimum.



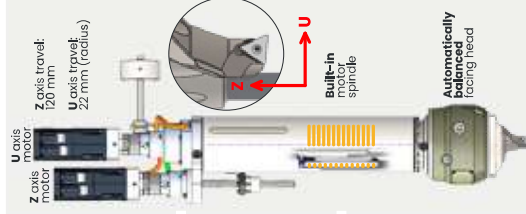
CONVERSATIONAL CNC

Siemens Sinumerik ONE CNC / Sinamics S120 Drives / Simotics S Servo motors for a perfectly coherent and integrated solution. Multi-touch HMI screen. Sinumerik OS with custom designed interfaces. Very easy conversational programming. Sinumerik Openness allows for continuous software improvement and custom features development. Connectivity and network integration : USB and Ethernet. Ethernet connection allows for remote monitoring, data transfer and teleservice. Software customizable in any languages. Easy and intuitive profile editor - fully conversational, no CNC programming knowledge needed.



BUILT-IN MOTORSPINDLE

Built-in motor-spindle with maximum torque from 0 to 3000 rpm. Very high power density Swiss made synchronous spindle motor. High precision life lubricated spindle bearings. High dynamic Siemens servomotors with absolute encoders on both Z and U axis. Preloaded precision ball screws on both Z and U axis. CNC controlled spindle speed, allowing a constant cutting speed at any point of the cutting profile. The lack of mechanical transmission components such as belts or U-joints is a game changer for the centering accuracy.



FACING HEAD

Facing head with automatic balancing system. An internal balancing system compensates the carriage mass travel to avoid any vibration when the spindle rotates, even at the highest speeds. LVDT gauge to guarantee the same accurate machining depth on all the seats, regardless of the cylinder head inclination. Hydraulic expansion pilot holder, combining high clamping force with the highest concentricity level. Fits all standard SERDI Pilots.

U AND Z AXIS INTERPOLATION MACHINING

Interpolation of U and Z axis by numerical control allows shaping any valve seat profiles, compound of any segments or radii. Large U-axis travel of 22 mm (0.86 in) reduces the need for tool change/adjustment. Concave shapes to increase the exhaust gas speeds (Venturi) are also possible. This high geometry flexibility combined with the little cutting forces generated by the single point cutting makes this machine ideal for prototyping engines as well as medium volume production.

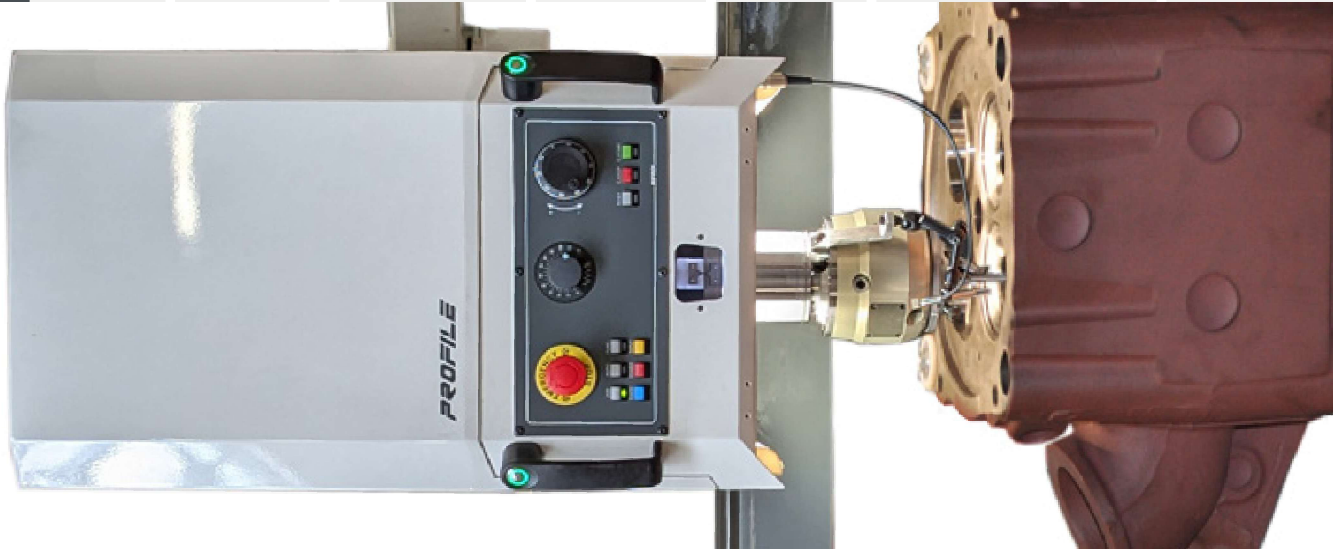
CAST IRON BASE

Redesigned and FEA optimized cast iron machine base for improved rigidity. Honeycomb design.



LOWERED FRAME

The table of the machine is lowered down by 150 mm (5.90 in) compared to our standard machine range, in order to allow mounting of heavy duty cylinder heads. The parallels can also be raised to a more convenient working area thanks to two parallel supports supplied with the machine.



Wide working profile from combustion chamber to lower part of the seat for a perfect match with poring of the bowl.



Seat counterboring



Cam bucket bore machining



Venturi



OPTIONAL ACCESSORIES



COMPLETE RANGE OF TOOLING

The machine uses standard Ø9,52 mm (3/8") pilot shanks. A complete range of cutting bit-holders is available, allowing machining at various depth, from Ø14 to 120 mm (0.55" to 4.72").



SERDIGITAL

Direct diameter reading digital micrometer. The tool diameter can be easily read and set into the machine control. Values displayed in metric or imperial.

TECHNICAL SPECIFICATIONS

SPACE REQUIREMENT

Width: 3300 mm - 130"
Depth: 1400 mm - 55"
Height: 2400 mm - 98.5"
Net weight approx.: 2000 Kg - 4409 lbs

HEAD TRAVEL

Lengthwise: 1525 mm - 60"
Crosswise: 50 mm - 1.96"
Vertical: 330 mm - 13"
Centering plane air cushion travel: 14 mm - 0.55"

MAXIMUM CYLINDER HEAD SIZE on parallels with standard CL 190 mm pilot

Length: unlimited
Width: 500 mm - 19.7"
Height: 550 mm - 21.6"

SPINDLE

Spindle speed: 0 to 3000 rpm
Cutting speed: 0 to 300 m/min
Spindle travel: 120 mm - 4.73"
Spindle feed (Z axis): 0 to 3000 mm/min
U axis travel (radius): 22 mm - 0.86"
Carriage feed (U axis): 0 to 2000 mm/min

MACHINING CAPACITY

Valve seat capacity: 14 to 120 mm - 0.55" to 4.72"

CONNECTIONS

Electric supply: 6.3kVA-3x400V+PE-50/60 Hz
Pneumatic air supply: 6 bars
Max. air flow: 120 L/mn - 4 CFM

FIXTURE TABLE TRAVEL

Lengthwise: 320 mm - 12.6"

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