



SAPORITI

www.saporiti.it

machines for valves, screws & barrels

since 1946





www.saporiti.it



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SAPORITI



professionals



Ricevuta definitiva

UFFICIO PROVINCIALE DEL COMMERCIO E INDUSTRIA DI VARESE

Il giorno 20 OTT 1946 194 è pervenuta a quest'Ufficio la denuncia Mod. A
in data 20 OTT 1946 194 relativa alla Ditta Saporiti Saverio
Saverio Saporiti a firma el S. Saporiti
Agli effetti dell'art. 28 della legge 18 aprile 1926, n. 371, alla ditta stessa è stato assegnato
il seguente numero d'ordine d'iscrizione del registro delle ditte.

Varese, li

20 OTT 1946



N. 43438

d'ordine del Direttore

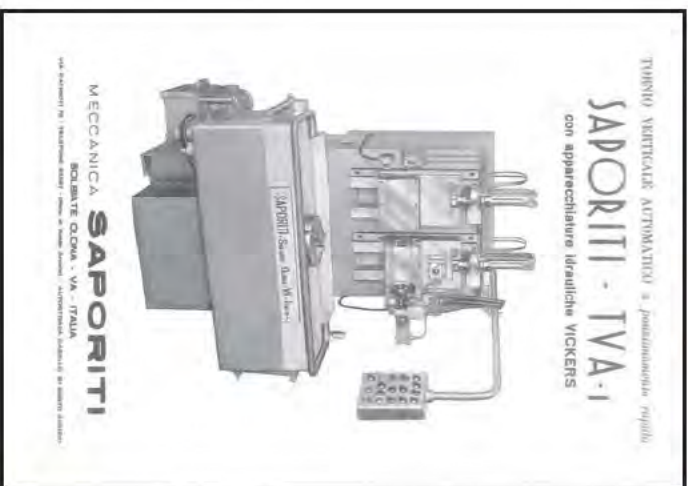
*Saporiti has designed and built machine tools
with the same passion since 1946.*

1946



Our history

Our history



TORNIO VERTICALE AUTOMATICO a postazione singola
SAPORITI - TVA-1
con apparecchiature idrauliche VICKERS

M E C C A N I C A **SAPORITI**
SOCIETÀ S.p.A. - VA - ITALIA
Prodotto e distribuito in Italia e all'estero. Per informazioni rivolgersi al proprio distributore.

SAPORITI was founded in 1946 as a manufacturer of traditional lathes and milling machines.

The post war era was full of opportunities and the company's founder Mr. Carmelo Saporiti was able to seize them by producing lathes that enjoyed great success both in Italy and in Europe. Models like the Vampire, the Super Vampire, the Comet, the Razzo and the D1000 established Saporiti as a producer of high quality and easy to use machines.

Below we list the milestones that over the years have brought us to become a world leader in the manufacturing of screw milling machines, pump auger milling machines, drilling and lapping machines for twin screw cylinders and ball valve grinding machines.



It has always been our company policy to offer advanced solutions to the customer and for this reason we were amongst the first to apply roller guideways to lathes and to use the first CNC machines.

Today we keep this attitude using: locking roller guideways, hydraulic bushings on the axes, zero backlash planetary reducers, motors with forced liquid cooling and Torque spindle motors.



Торног машини/Латина
SUPER VAMPIRE

280/320/360



D 1000



SAPORITI
SPT 2 975 CNC



Our history

- 1946 - *The company is founded and the first lathe is manufactured*
- 1957 - *Moves re-locates factory to current location*
- 1958 - *the first modular milling machine is built*
- 1963 - *SAPORITI TVA, the first vertical lathe is manufactured*
- 1973 - *SAPORITI L560, the first thread milling machine is manufactured*
- 1975 - *SAPORITI SPT, the first CNC lathe is manufactured*
- 1977 - *FL450, the first drilling and lapping machine is manufactured*
- 1983 - *L560 NC, the first CNC thread milling machine is manufactured*
- 1985 - *SAPORITI PLUS, the first slant bed CNC thread milling machine is manufactured*
- 1987 - *SAPORITI DUPLEX, the first CNC lathe with opposing mobile spindles is manufactured*
- 1988 - *SAPORITI TWIN, the first twin spindle thread milling machine is manufactured*
- 1989 - *FL450, the first CNC drilling and lapping machine is manufactured*
- 1992 - *SAPORITI PV, the first ball valve grinding machine is manufactured*
- 1995 - *SAPOVITE, software for easy screw programming is developed*
- 2000 - *PV500, the first inclined bed CNC ball valve grinding machine is built*
- 2008 - *SAR 500, the first pump and compressor screw thread milling machine with up to Dia. 500mm capability*
- 2010 - *PV2000, the new series of ball valve grinding machines is released*
- 2010 - *Ing. Saporiti is awarded the UCIMU Master of Mechanical Engineering prize by the Presidency of the Republic - Lombardy region.*

Who we are today

SAPORITI

SAPORITI is an international leader in the manufacture of CNC machine tools for:

- Grinding ball valves
- Milling screws and twin screws for plastification, rubber and foodstuffs, for pumps and compressors, and for conveyors
- Drilling and lapping single & twin screw cylinders (with internal profiling "Bottle Boring" capability)





SAPORITI machines are always up to date, taking the market needs and the technological developments of components and tools into account in order to offer our customers a high quality latest generation product.

We use quality components that guarantee the highest performance, the lowest environmental impact and that comply with all the EC standards. We constantly focus on reducing energy consumption and environmental and noise pollution.

We normally employ:

- Precision roller guideways to reduce friction and increase the machine's accuracy, increasing the lifetime while maintaining the highest performance, and to obtain excellent machined surface finishes.*
- Sealed motors with forced circulation liquid cooling to reduce the environmental noise and ensure reduced energy consumption and maintenance*
- Torque spindle motors to guarantee the lower possible consumption and the highest efficiency*
- latest generation coolant and grinding mist filters*



VALVE BALL GRINDING MACHINES

In the past SAPORITI has supplied all the main Italian valve manufacturers. Thanks to their collaboration the first ball grinding machine was made in the 90's. At first these machines were more for cleaning than for precision grinding, but they have become increasingly important as ball valves have evolved, winning a growing portion of the market. In the past the valves had elastic seals that did not require perfectly spherical balls, but today the seals are metal to metal, often with very hard coatings to be able to work at the highest pressures, temperatures and with any fluid. This is why today the ball must be ground with the highest spherical accuracy and the best surface finish. The SAPORITI PV line of valve grinding machines can accurately grind steel balls or balls coated with coated with carbide, stellite, ceramics and other materials. These machines have been specifically designed for grinding valves with metal to metal seals and are made for various operating ranges to grind balls from 1" to 72"



SAPORITI machines in customers factory

GRINDING MACHINES

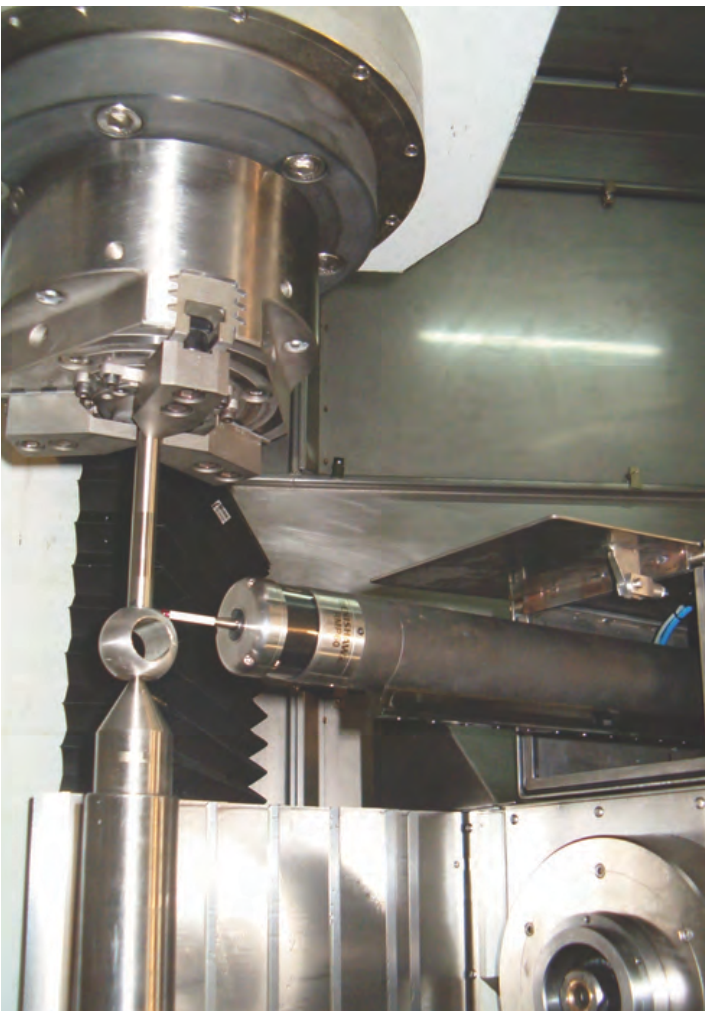
SAPORITI PV

The machines have a strong structure giving extreme spherical accuracy (better than 0.01 mm) and excellent surface finishes (better than Ra 0.1) as the movement is performed by roller guideways even on the grinding head vertical Y axis (± 2 mm) for the ball-grinder centring micro-movement.

Among the other technical solutions there are: motors cooled by liquid circulation to drastically reduce the noise and faults caused by the large amounts of coolants and powders involved in this kind of machining; precision anodized roller guideways for resistance to aggressive atmospheres, ensuring the highest accuracy and best finish; Renishaw probe with customised software for easier centring of the axes. The electronics is Siemens and includes liquid cooled torque motors and the 840D CNC. The grinding machines are equipped with a large filter and coolant cooling system to keep the workpiece at an almost constant temperature, and mist filters. Customised screens on the CNC allow the operator to program grinding cycles easily.

The machine housing is entirely made of stainless steel to greatly reduce corrosion and ensuring a clean internal environment





Machine PV 1000 Auto

Channel interrupt: Stop: No Mode Group Ready

VMF-DIR
GRIND.MPF
Program aborted
RDV

General Settings

Y roughing position	0.000	X	0.000	Y	0.000	Z	-617.056
Y finishing position	0.000	X-axis position for rough grinding ball					
Roughing ball RPM	15						
Roughing wheel RPM	700						
Roughing feed	0.060						
Finishing ball RPM	15						
Finishing wheel RPM	700						
Finishing feed	0.030						
Ball direction	CW						
Wheel direction	CCW						
Wear compensation mode	Percent						
Wheel wear value	0.000						
Calculated wheel wear	0.000						

Grinding Measuring Centering

Calculate Speeds

Current Spindle Position 0.000





SAPORITI PV250

The SAPORITI PV250 is suitable for grinding balls with external diameters up to 250 mm (working range: ½" to 6" balls).

The grinding head is angled at 60° to allow the coolant and grinding powder to flow easily. This layout also gives the operator a better view.

The machine can be installed on any good floor with suitable anti-vibration supports.

The SAPORITI PV250 weighs 13000 kg.

SAPORITI PV500

The SAPORITI PV500 ball grinding machine can grind steel or coated balls with external diameters up to 500mm with a spherical accuracy better than 0.01mm and roughness of Ra 0.1. This machine is available also in the PV500XD version for machining balls with external diameters up to 595mm.

The build layout consists of a strong arc welded bed structure and a 60° angled grinding head to give the operator a better view and allow the coolant to flow more easily, keeping the machine as clean as possible while grinding.

A chiller is used to regulate the coolant and ball temperatures avoiding any deformation for the best machining results.

The SAPORITI PV500 weighs 15000 kg.



SAPORITI PV1000

This is a ball grinding machine capable of machining external diameters up to 1100mm. It is therefore suitable for machining balls with passage bores from 10" up to 30".

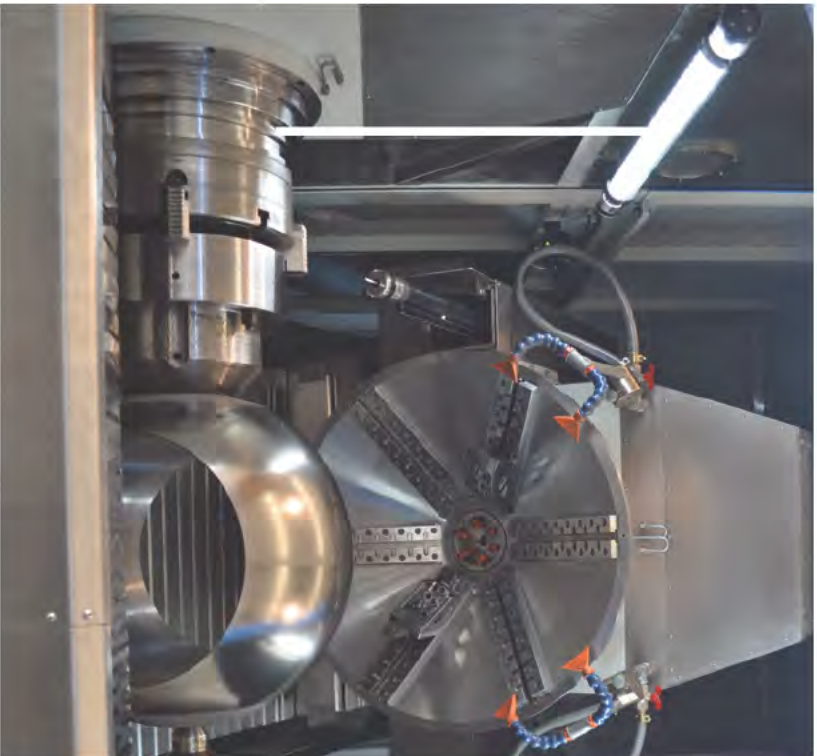
Some important feature are:

Very rigid and stable machine allowing spherical accuracy down to 10 μ .

Grinding head angled at 30°

The grinding wheel can cover a range of diameters and can be fitted with either stone or diamond pads.

The SAPORITI PV1000 weighs 35000 kg.



SAPORITI PV2000 BALL VALVE GRINDING MACHINES

This line of machines includes models that can grind balls up to 1600mm, 1800mm and 2500mm (68") (PV 1600, PV1800, PV2400 respectively).

This series of machines have a strong arc welded steel structure composed of two parallel beds. One supports the workpiece and can be equipped with auxiliary rests to assist in accommodating the ball, the grinding head carriage slides on the other one with the aid of a Renishaw probe. The grinding heads are angled at 10°

The machine covers which protect the operator are made in stainless steel, this cover encapsulates the grinding mist which is evacuated via atmospheric filters and allows visibility thanks to the glass windows. The workpiece and the grinding head are loaded through wide sliding doors.

The same grinding wheel can be used for different diameters.

The SAPORITI PV2000 LINE weigh from 40000 to 65000 kg.





Screw Thread Milling

SAPORITI has produced screw thread milling machines for over forty years. Our milling machines can mill screws and co-rotating and counter-rotating twin screws, even with very complex profiles, with mixers, cams and variable pitches (for working plastic, rubber, foodstuffs, for conveyors, for pumps and compressors)..

Our milling machines are made according to the main specifications agreed with the customer for screw diameters from 15 to 500mm and lengths even greater than 8 metres.

SCREW THREAD MILLING MACHINES

We have machines with horizontal or slant beds with numerous controlled axes (from 3 to 9 or more) with end mill, disc cutter heads (with a SAPORITI international patent) or Whirling heads.

End Mills, (with a horizontal bed there is the SAPORITI F50NC with three controlled axes and the SAPORITI F85NC with four controlled axes; with a slant bed the SAPORITI PLUS 400 (for screw up to 220mm in diameter) with 5 controlled axes and the SAPORITI PLUS C GX600 (for screws up to 400mm in diameter) with 6 controlled axes and auxiliary disc or whirling head for medium large screws)

Coupled face cutters and a slant bed the SAPORITI TWIN is specifically designed for machining series of large screws for presses. This machine has 9 controlled axes and uses two simultaneous cutters to machine both sides of the thread or to perform the rough and finishing passes, as they can work as a pair or in copy mode.

Disc cutters: with a slant bed the PLUS CD is suitable for medium small co rotating screws (max. diameter 200mm and lengths up to 5000mm) with lobes, and for screws for pumps and compressors, the PLUS DK for screws for pumps and compressors with lengths up to 8500 mm and diameters up to 240mm; the SAR 500 designed especially for machining screws for pumps and compressors up to 500mm in diameter and 1000mm in length). The disc cutter heads are equipped with a SAPORITI patented device to reduce the induced vibrations.

Whirling type heads the GRM models for screws with lengths up to 8000mm and diameters up to 250mm.



SCREW THREAD MILLING MACHINES

The milling machines can be integrated with the SAPOVITE software, designed and developed over the years by Saporiti, thanks also to the constant collaboration of customers who continually offer updates on new issues caused by increasingly complex and innovative screw profiles. It offers the user fast and easy programming of even the most complicated screws and twin screws, with mixers or variable pitches. SAPOVITE is installed on an external PC to allow programming to be done during machining. The parameterisation of the CNC machine allows the seamless integration of the two units in reading the program. This software also allows the operator to choose the tools, both customised and commercial, allowing even a single screw to be made quickly and economically.





- Available options include:
- internal cutter coolant,
 - synchronised spindle for using hobs,
 - possibility to control the rest position thanks to an optional controlled axis.

The **SAPORTTI PLUS 400** is the most suitable machine for machining small and medium sized screws and twin screws with lengths from 2000 to 7000mm and diameters up to 220mm at an attractive and competitive cost.

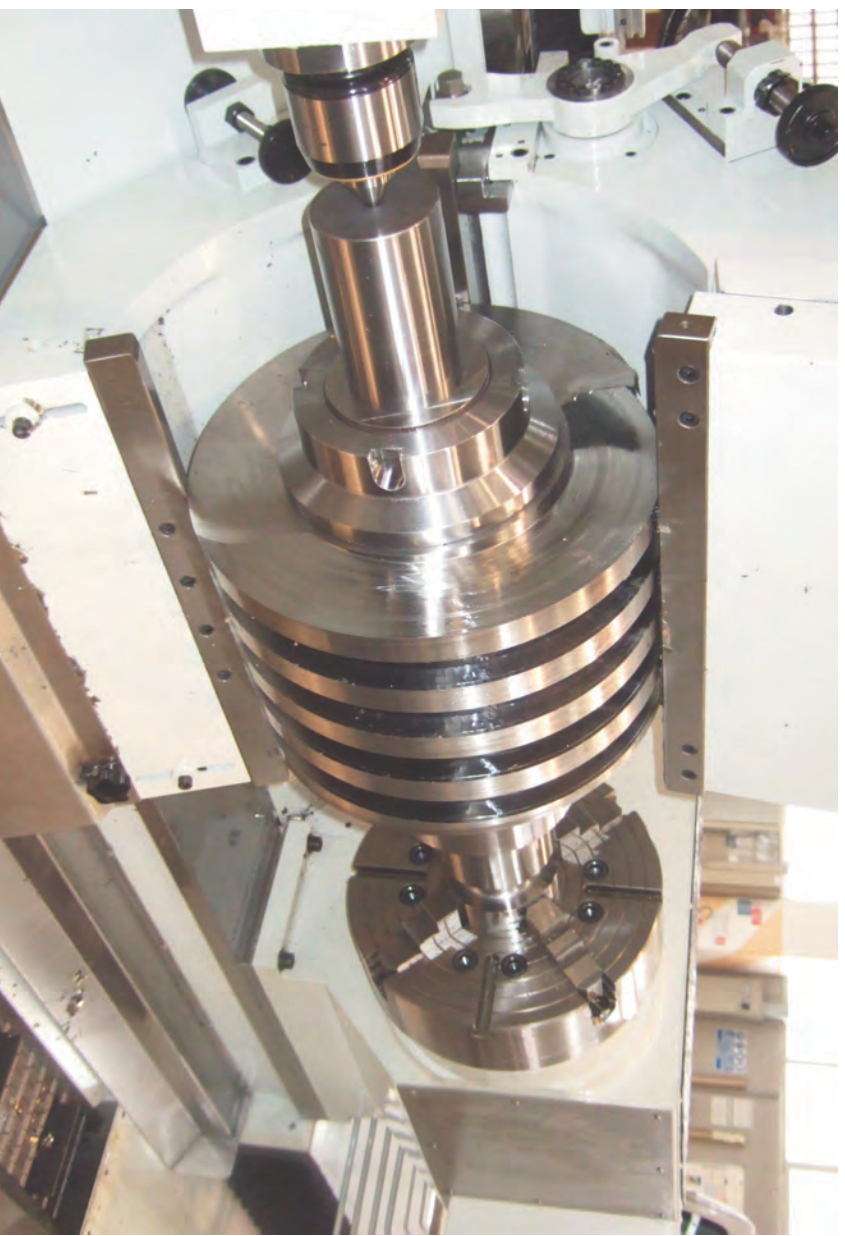
This threader has a 45° slant bed and can be equipped with an ISO 50 or HSK 100 spindle allowing the face cutters to be changed quickly, and can be equipped with a 12 position tool changer.

The milling machines can reach a maximum speed of 5000 rpm, with a motor power of up to 24 kW. All the electronics is Siemens, the CNC is the latest generation 840D and the milling motor has forced cooling with an independent chiller.

A hydraulic self-centring rest allows a considerable range of diameters to be machined. Standard rest from 30mm to 220mm. Rests are available for other diameter ranges starting from a minimum of 20mm. Versions with tilting blades for machining conical screws are available.



The SAPORITI SAR 500 is a milling machine with a robust T bed and a high removal rate disc cutter head, designed especially for machining screws for pumps up to 500mm in diameter and with a maximum thread length of one metre. This machine can use disc cutters of up to a diameter of 440mm diameter with HSS or carbide inserts. It is equipped with SAPORITI patented anti-vibration device. The machine has the latest generation Siemens CNC that controls 4 axes (X, Z, A, C) and one spindle (S). All the axial movement run on precision roller guideways and the movement is made by large diameter tempered and ground recirculating ball screws connected directly to the Siemens motors. Optical scales on the main axes (X and Z) ensure the precision of the axes.





The pass depth can reach 80mm with an advancement speed of 100 mm/min even with very hard materials (330 HB) such as steel AISI 630ASTM - 17-4PH.



DRILLING

DRILLING-BORING-LAPPING MACHINES

SAPORITI DRILLING-BORING-LAPPING MACHINES

The SAPORITI drilling-boring-lapping machines have unique and innovative technical characteristics allowing them to accurately machine barrels and twin-screw barrels.

The robust beds, the use of precision roller guideways on the axes and the powerful pump and filtering system give these machines the best performance and excellent finishes.

The possibility to lap the barrel on the same machine means getting finished barrels with a single workpiece placement.

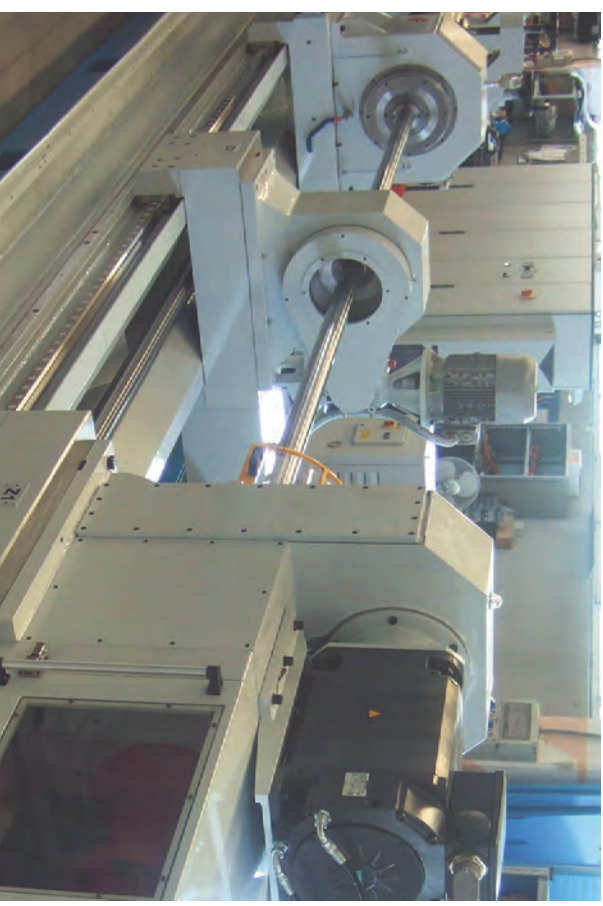


drilling boring lapping machines


The SAPORITI FL fixel workpiece model (suitable for machining twin screw barrels with a single workpiece placement)

The SAPORITI FL drilling-boring-lapping machine was specifically designed with these features and is the only one of its kind. The main feature of this machine is that the workpiece is fixed onto two carriages with a simultaneous controlled transversal movement capability. After the first bore has been completed, the second bore can be machined by translating the axes and thereby automatically repositioning the barrel. The advancements are done by roller guideways that allow accurate machining and long machine life. The Siemens 840D CNC controls 5 axes for drilling, push and pull boring and lapping operations.

This machine is available in various sizes up to a maximum bore length of 4500mm and a maximum external workpiece diameter of 500mm.



Boring Program		Drilled Item: X zero for TWIN Barrel	
Boring Diameter	175.000	Current Z1 pos.	0.000
Starting position for Tool	0.000	Current Z2 pos.	77.000
Ending position for Tool	2000.000		
Cutting Speed	150.000		
Selected Feed Rate	LDW		
Feed per Revolution	0.130		
Drilled in X			
Wall time for all	30		
Storage Start Position	0.000		
Storage End Position	1000.000		
Calculated RPM	301		
Calculated MM/Min	57.15		
Estimated Time in minutes	34		



Current X1 pos. 60.000

Current X2 pos. 60.000

drilling boring lapping

machines

The SAPORITI PR rotary workpiece model (with BOTTLE BORING option).

The SAPORITI PR drilling-boring-lapping machine has rotary tools and a rotary workpiece. Advancements are done by roller guideways that allow accurate machining and long machine life. On top of the drilling, push and pull boring and lapping operations, the Siemens 840D CNC used also allows internal profiling (Bottle Boring) thanks to an optional auxiliary "X axis" for an expanding tool. This machine is available in various sizes up to a maximum bore length of 5000 mm and a maximum workpiece diameter of 500 mm.





A life dedicated to machines

SAPORITI is a typical Italian family business in which the customers and suppliers collaborate directly with the owners and employees.

We directly design, test, ship and install our machines, which are made to order with the main features defined together with the buyer.

We pride ourselves on cooperating with customers and with tool makers and specialised strategic component technicians to find the most reliable, accurate and modern solutions in a continuing effort to offer the most economical and innovative machines, giving our users a competitive advantage in the global market.



Test

Before delivery the SAPORITI technical staff can further customise the machine with programming screens (even in the customer's own language) to make it easy to use by operators all over the world.

Machining tests and preliminary training are carried out with the customer's personnel at our site before shipping the machine. These tests can also be performed by third party companies accredited for the certification of machine tools or the measurement of machined parts. Our personnel take care of the shipment and of the installation, training and test at the customer's site.



test in Saporiti

Test workpiece at checking





Valve World Germany



IMTS Chicago



JIMTOF Korea

The passion that we put into our work, the experience gained in many years on the market, the expertise in the machine tool sector continually updated and supported by the pursuit of a better product, together with the capacity to listen to our customers, to evolve and meet their needs and those of their products always putting our close-knit team at the customer's service to offer innovative customised machines able to meet each one's specific needs, has allowed us to be present in many foreign markets for tens of years.

For many years we have participated at the major international machine tool exhibitions as well as those for the plastics and valve sectors.

We have machines in: Italy, Saudi Arabia, Australia, Belgium, Brazil, Canada, Chile, China, Croatia, Germany, Finland, France, England, India, Malaysia, Poland, Czech Republic, Spain, South Korea, the United States, Switzerland, Turkey, Venezuela, Vietnam.

An Italian factory



Where are we going

The trust shown to us by our customers over the years, the constant innovation and continual pursuit of technologically advanced solutions applied with the expertise and passion of a company that has produced machine tools since 1946 gives us the best foundations to meet the challenges that the future will propose. In addition to maintaining the standards of reliability, high quality and precision that we have established in our machines, the objectives that we set for ourselves are: energy saving, noise reduction, waste and scrap reduction to optimise production costs in order to offer increasingly advanced machine tools that can bring qualitative advantages to our customers and help them to afford front production in increasingly competitive and demanding markets. It is also for this reason that SAPORITI designs and manufactures its machines entirely in Italy using Italian and European components and has gained Authorised Exporter status from the Italian authorities. We have been selected for the DirectIndustry i - NOVO Awards in the TECH category.
Into the future and beyond...



SAPORITI
MACHINES VALVES SCREWS & BARRELS

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Grinding machines
for valve balls

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