



Automatic buffing, polishing
and grinding machines

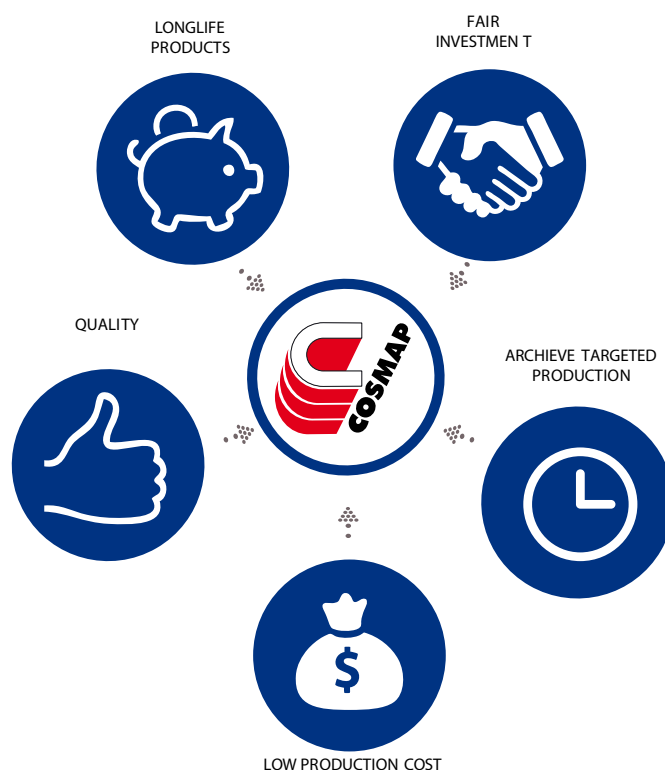


Automatic buffing, polishing and grinding machines

Born in Padua in the late 70s, **C.O.S.M.A.P. s.r.l.** creates automatic finishing, buffing and polishing machines for metallic surfaces.

Developed on a solid business concept, **C.O.S.M.A.P.** is the result of over 35 years of experience in the metal surfaces treatment field. The technologic know-how acquired, and the constant research for the best solutions for and with the client grant us a worldwide-acknowledged leadership. This led **C.O.S.M.A.P.** to become the main -or even only- reference even for Customers from distant markets.

We can boast long lasting and strong partnerships, carried on through the years and counting large supplies (even more than 30 machines) with Customers from all over the world.



C.O.S.M.A.P. srl

Developed on a solid business concept, C.O.S.M.A.P. is the result of over 35 years of experience in the metal surfaces treatment field. The technologic know-how acquired, and the constant research for the best solutions for and with the client grant us a worldwide-acknowledged leadership.



Mission

To create, thanks to cutting edge technology, machines capable of granting high quality and repeatable standard, even where only an operator could get at the cost of great waste of time and effort.

Vision















To get as soon as possible to be a worldwide reference for polishing and grinding systems, keeping up with the growing exigencies of our customers. For us, **to automatize the process thanks to the latest technologies** means to boost the confidence of the operators, making them become skilled professionals always able to manage high-end machinery.

Our competitive advantage

The implementation of technologic innovation on the revolutionary solutions offered by C.O.S.M.A.P. to the clients is vital for us. An eye open onto the future, leads us to achieve every day the highest quality standards for our products. The exclusivity granted by C.O.S.M.A.P. when taking care of the client's needs, goes way past finding a simple solution to the situation, which makes us a reliable partner.

New customers see us as trustworthy friends, and are always reassured by the positive feedback from returning customers, constantly acknowledging our efforts and results concerning the process and the great efficiency of our products.



APPLICATION		GRINDING	POLISHING	COMBINED
	Taps and sanitary fittings	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPDO TR+CPL TR+CNCR BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Handles and complements	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPDO TR+CPL TR+CNCR BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Pots and houseware	TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPL	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Automotive	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Eyewear	IR	TR+CNC TR+CNC2 TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Fashion accessories, cosmetics, pens	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPDO TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Watchmaking	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Medical implants and toolware	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Sinks and tubs	IR TR+CNCS TR+CNC-RAD TR+CNC-REC	TR+CNCL	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Heaters	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Furniture, lighting supports and design articles	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPL BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Precision mechanics, valves	IR	TR+CNC BM	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Home appliances, TV, mobile	IR TR+CNCS TR+CSL	TR+CNC TR+CNC2 TR+CPDO TR+CPL	TR + CNC + CNCS TR+CPL+CSL IR+TR
	Metal sheets, pipes/tubes and profiles	TR+CSL BM	TR+CNC TR+CNC2 TR+CNCR BM	TR + CNC + CNCS TR+CPL+CSL IR+TR

Polishing

To create automatic machines for buffing, polishing and satin finishing metals and more, is from the very beginning of our story the most important field of application.

Basically composed of indexed rotary tables or continuous motion tables, they may be equipped with a vast selection of buffing units featuring different degrees of complexity, flexibility, and process management.

Within this section, you will find some of our solutions, divided by distinguishing features that are needed to cope with any kind of processing need, in a very innovating and competitive way.





C.N.C. polishing unit

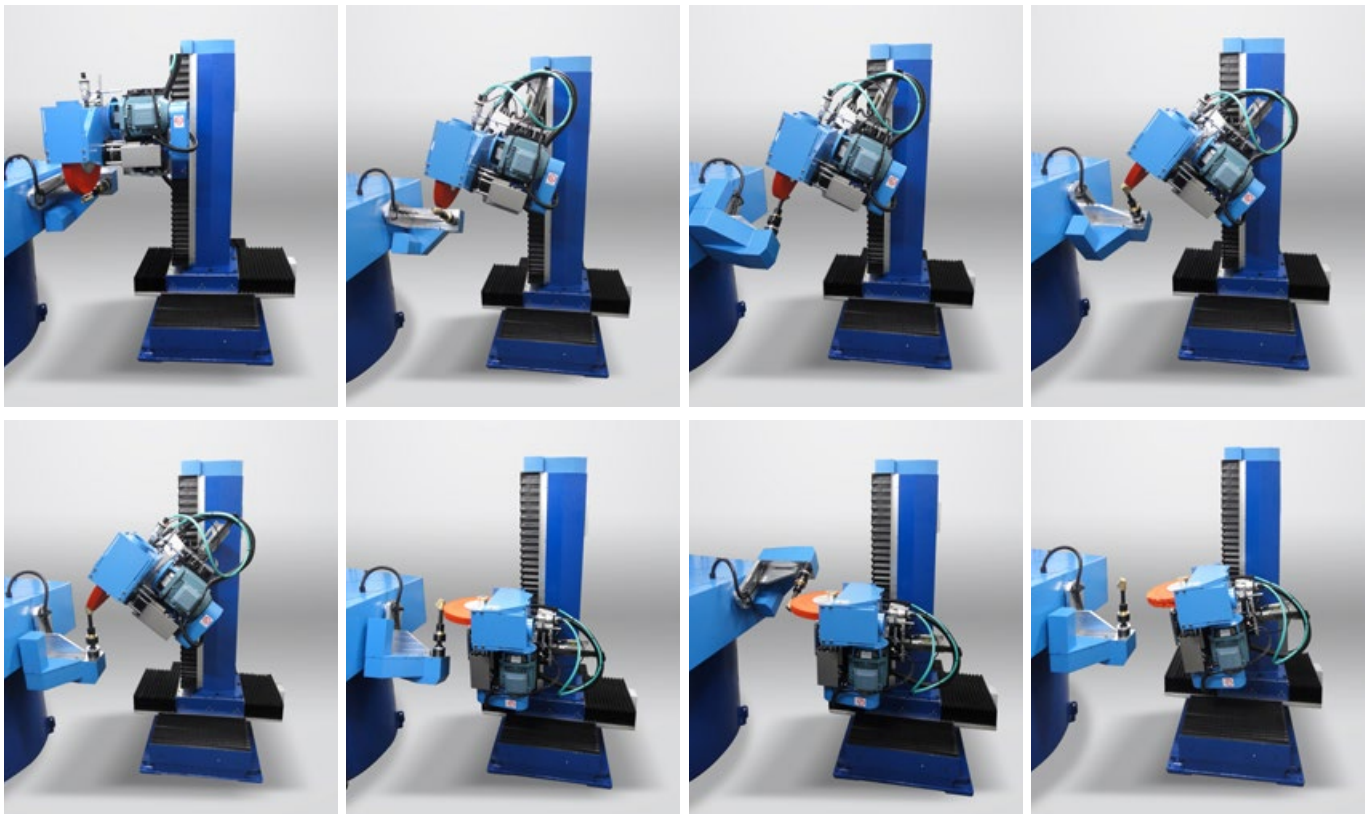
A technological evolution in the field of automatic metal polishing with rotary table systems.



Our C.N.C. type polishing units represent a technological evolution-entirely carried on and developed by C.O.S.M.A.P.- in the world of the automatic metal polishing on a rotary table.

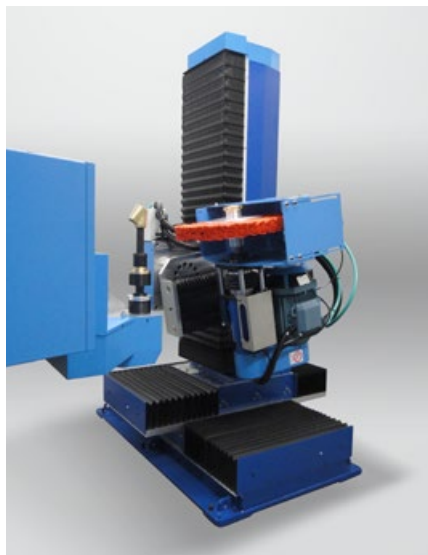
Featuring 5 electronic axes (linear and rotary) combined with the 2 on the rotary table, the C.N.C.s are capable of a high number of movements.

this allows the buff to approach any kind of workpiece, even ones with complex geometries.





A technological evolution that combines the advantages of the Indexed Rotary Table with the innovative and flexible multi-axis CNC polishing units.



The goal of this new solution is to reach and polish those surfaces that a common unit may find difficult to get to. The completeness and the great number of operations that may be performed by this kind of unit make it very likely to recall the movement capability of a robot.

The piece-holding spindle unit may integrate rotation movements and overturning movements that may be interpolated with polishing movements. Each unit's movements are managed by five controlled axes. Therefore, each station has seven controlled and interpolated axes, considering the two on the table and the other five from the units.

Our CNC unit has dramatically changed the way we think about the polishing process involving rotary tables.

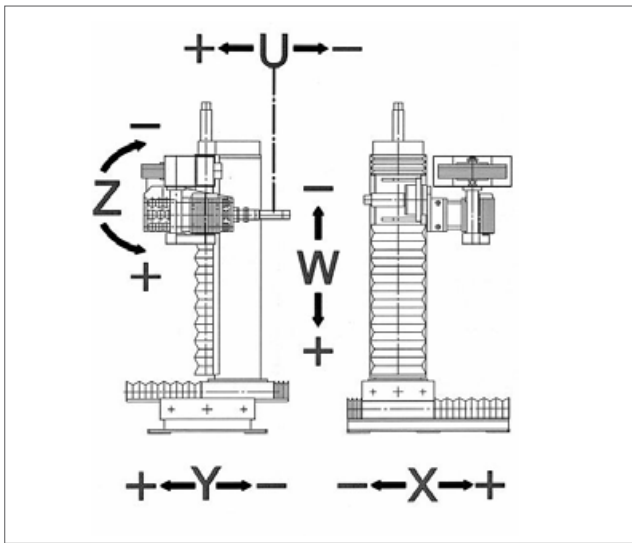
With the CNC, there is no longer the need to add a number of units equal to the phases of the process around the rotary table.

Thanks to the interpolation of the axes, the CNC unit can do multiple movement sequences at high speed; therefore, it can perform a complex cycle

with no interruptions or manual adjustments.



Tavola rotante a n°5 stazioni e dotata di N°4 unità CNC.



Comparable to an anthropomorphic robot

Thanks to the complexity and the great number of operations that can be performed by the CNC polishing unit, it can easily be compared to a robot; the substantial difference is related to the cost and productivity of the two different systems.

The cycle time of a rotary table machine corresponds to the process time of the slowest unit, and the loading/unloading time is “hidden” within the cycle time – while the cycle time when using a robot is the sum of all the operations combined, including loading and unloading.

User-friendly programming thanks to the self-learning system.

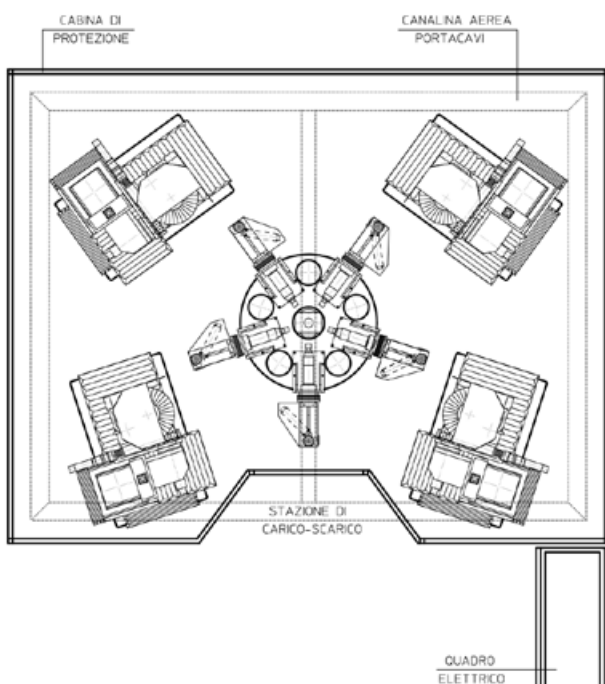
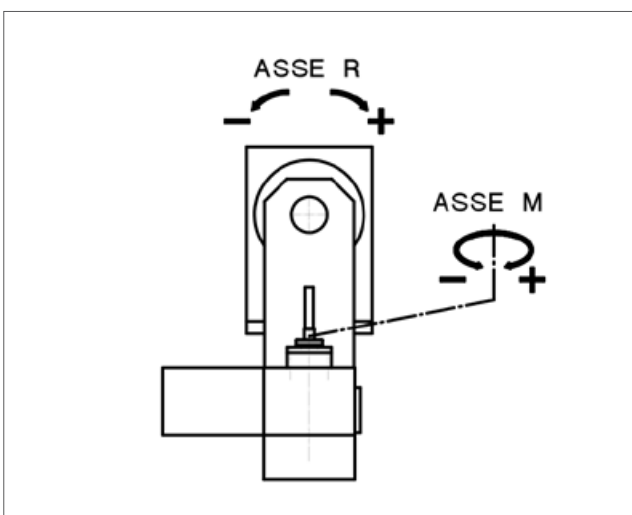
Another outstanding feature is the programming system for our CNC unit.

Thanks to our custom self-learning system, setting up the entire working cycle for each unit is extremely simple and fast. The operator does not need to learn any specific programming language: the only thing to do is to select a sequence of pre-set commands in the programming tab of the unit, then set position and values manually or using the “memo” button.

Fast machine positioning

Machine positioning is extremely fast thanks to the auto-positioning of the unit, taking place each time a new program is loaded.

The industrial grade computer used to interface the operator and the PLC can store a considerable number of programs. To change the production, it is simply required to load an existing program and the units will simultaneously reach the working position in a matter of seconds.





Technical data

C.N.C units are available in three different sizes, each maintaining the same movement capabilities, but with a different sizing of tools and axes.

The characteristics differentiating the three versions are approximately as it follows:

CONSTRUCTIVE FEATURES	LIGHT CNC UNIT	MEDIUM CNC UNIT	HEAVY CNC UNIT
Vertical rail (W axis)	750 mm stroke	950 mm stroke	1100 mm stroke
Longitudinal base rail (X axis)	400 mm stroke	550 mm stroke	750 mm stroke
Longitudinal base rail (Y axis)	400 mm stroke	500 mm stroke	600 mm stroke
Compensation rail (U axis)	130 mm stroke	220 mm stroke	280 mm stroke
Vertical plane tilting angle (Z axis)	140°	140°	140°
Buff motor power	HP 5,5 / HP 7,5 (max)	HP 7,5 / HP 10 (max)	HP 10 / HP 12,5 (max)
Buff rotation speed	500 to 2400 RPM	500 to 2200 RPM	500 to 2000 RPM
Max. buff size	Ø max 400 x 80 mm	Ø max 500/600 x 100 mm	Ø max 600 x 150 mm

The values mentioned above are to be considered representative

- High production rates thanks to the Rotary Table and hidden loading/unloading times;
- CNC polishing unit flexibility, allowing polishing on any kind of object, even complex-shaped ones.
- Quick and certified machine set-up, thus immediate production change;
- Programming easiness with self-learning system, with no need to learn any machine-programming language;
- CNC unit sizing variable according to the client's needs (from mini CNC to heavy CNC).

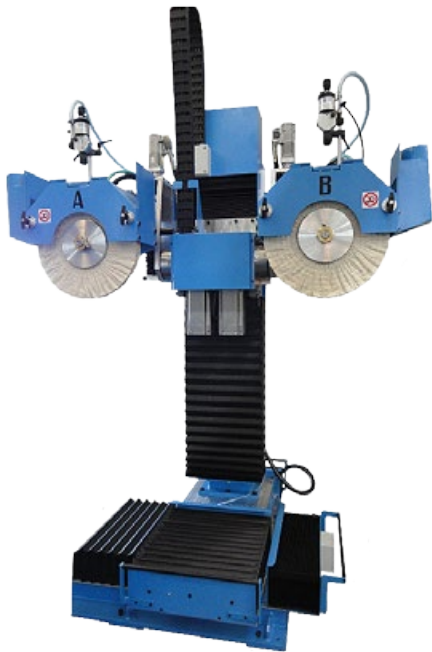
Applications





Indexed rotary table with C.N.C.2 type polishing unit

The ideal solution to automatize a multi-phase polishing process with a single unit.



This double-buff CNC2 polishing unit is a further step towards the innovation and development of the already consolidated and renowned CNC polishing unit.

The combination of the characteristics of the Indexed Rotary Table with the innovative and flexible multi-axis polishing units called CNC2 allows to reduce dramatically the size and cost employing a single unit for multiple processing steps. Great for processing small batches, the double-buff CNC2 units distinguish themselves for their great flexibility and their reduced cost compared to the task performed.

The movements of each polishing unit are controlled by seven different controlled axes that can manage two different polishing heads.

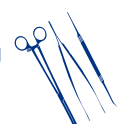
The fixture, placed on the spindle can perform rotation movements as well as overturning movements that may be interpolated with those of the polishing unit. Therefore, each station has nine controlled and interpolated axes, considering the two on the table, and the seven on the unit.

Limited expense

The price is reduced as a single unit, possessing the capabilities of two, can be bought. The unit can perform complex operations for a wide range of products with no performance limitations and with a smaller quantity of fixtures on the table, hence speeding up the set-up time of the machine.

- Great flexibility, even when managing a process that implies multiple phases;
- Contained price compared to the task performed;
- Rotary Table accessories and tool rack contained costs;
- The great flexibility of the CNC unit allows to polish any kind of object – even complex-shaped ones;
- Quick and certified machine set-up;
- Programming easiness with self-learning system, with no need to learn any machine programming language;
- CNC2 unit sizing variable according to the client's needs.

Applications





Indexed rotary table with C.P.L. type polishing unit

The starting point to automatize the polishing process with an indexed rotary table.



This type of machine is to consider as the first level of automation of the polishing process thanks to the Rotary Table.

Operating units set around the Rotary Table are essential to complete each step of the polishing process and, depending on the product nature and the cycle time duration, possess different characteristics.

The characteristics that distinguish these machines are: reliability, utilization easiness and processing speed.

COSMAP, as a Rotary Table automatic metal polishing unit designer and builder, can respond to any kind of request, granting the client the ideal quantity of perfect-sized units needed for the intended use.



These simple, yet highly effective, polishing units may be equipped with multiple simple electric or servo-controlled axes, in order to increase the processing performance.

To speed up the production change these working units are pre-set for the auto-positioning function - the auto-positioning is a function that allows the automatic working unit positioning thanks to motorized electric axes.

- User friendly;
- High production rates thanks to the Rotary Table and hidden loading/unloading times;
- Highly efficient and fast processing cycle thanks to the employing of a different unit for each processing step;
- Fast and easy production change thanks to the auto-positioning;
- Steady production capability;
- Machine long-term lasting, thanks to the quality parts composing the working units;
- Easy maintenance.

Applications



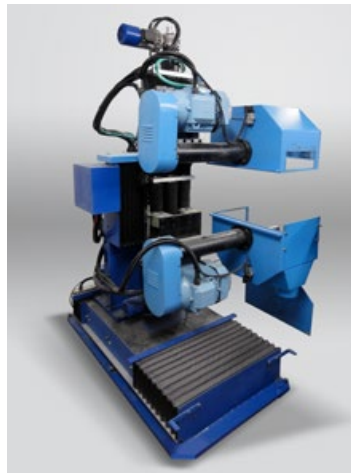


Indexed rotary table with C.P.D.O. type polishing unit

A solution that allows to achieve high productivity combining a rotary table and C.P.D.O. type polishing units featuring counterposed buffs



This solution combines characteristics of the rotary table with the possibility to add polishing units equipped with two buffs. The buffs can perform straight and oscillating movements controlled by two controlled axes, with programmable speed and motion. The fixtures are mounted on this table, and possess features that allow the complete polishing of each piece. Therefore, this specific kind of machine is particularly suited to buff and polish round pipes, whether straight or bent, often used for taps, kitchen pipes, or similar applications.



- High production rates thanks to the Rotary Table and hidden loading/unloading times;
- Fast and highly efficient processing cycle thanks to the simultaneous use of two buffs;
- Fast and easy production change thanks to the auto-positioning;
- Production change is even faster, thanks to the reduced number of fixtures;
- Programming easiness with self-learning system, with no need to learn any machine programming language;
- CNC unit sizing variable according to the client's needs.

Applications





Indexed rotary table with C.N.C.L. type polishing unit for sinks and tubs

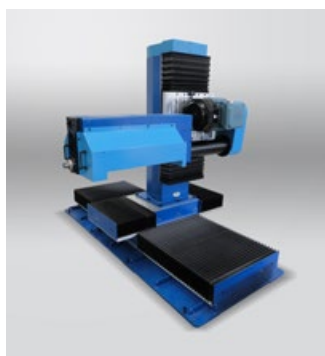
The ideal solution for the buffing and polishing treatment of sinks and similar products.

Maintaining the polishing flexibility of the CNC unit, the CNCL buffing unit is equipped with a single or double arm with a program software-operating pneumatic working pressure controller.

These special units can operate on their own or combined with a bench or rotary table.

The fixture on the spindle can be static or moved by one or two controlled axes, interpolated with the axes of the polishing unit.

Possibility to substitute the polishing unit column with a special equipment that allows to polish tanks with radiant angle of twenty-five to fifteen mm. There is also the possibility to polish non-linear and complex shaped tanks.



- Possibility to polish tanks/tubs with a radiant angle between twenty-five and fifteen millimeters;
- High production rate thanks to the Rotary Table and the hidden loading/unloading times;
- The great flexibility of the CNC unit allows to polish any kind of sink – even complex-shaped ones;
- Possibility to interpolate the axes of the fixture and those of the unit;
- Fast and certified machine set-up, hence immediate production change;
- Programming easiness with self-learning system, with no need to learn any machine programming language;
- Working unit sizing variable according to the client's needs (from mini CNC to heavy CNC).

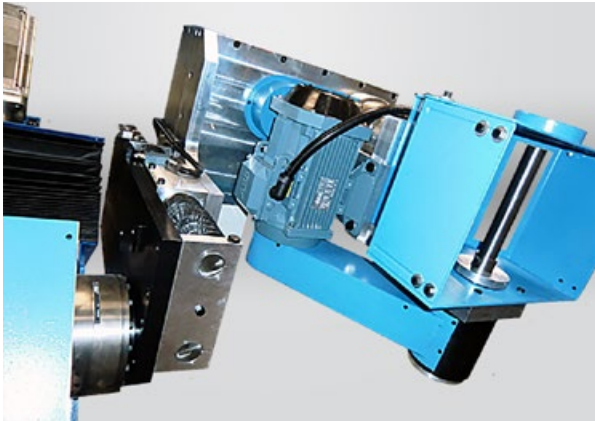
Applications





Indexed rotary table with C.N.C.R. type polishing unit

A technological evolution of our C.N.C. type unit that allows to treat any kind of surface, especially flat ones, without the risk of stretching the imperfections of the raw material.

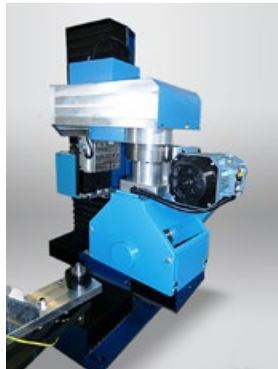


The CNCR polishing unit was born from a further technological development of the well consolidated CNC polishing unit.

The idea that led to the development of this new technology is the improving of the polishing process on flat surfaces, while maintaining the flexibility of the servo-controlled, multi-axis CNC units.

After the brushing process on flat surfaces, defects ("pinholes") are easily noticeable. To avoid stretching these defects, making them even more noticeable, an additional rotating axis was added in order to give the polishing unit the ability to move around the surface being polished. This way the defects will be concealed, as they will be smoothened and blended with the rest of the surface.

Thanks to this technology, even larger flat surfaces can be processed by a Rotary Table.



- Possibility to brush multiple flat surfaces on the same object, maintaining the same high quality standard and with no need of flatbed machines;
- High production rate thanks to the Rotary Table and the hidden loading/unloading times;
- The great flexibility of the CNC unit, allows to polish any kind of surface – even complex-shaped ones;
- Fast and certified machine set-up, hence immediate production change;
- Programming easiness with self-learning system, with no need to learn any machine programming language;

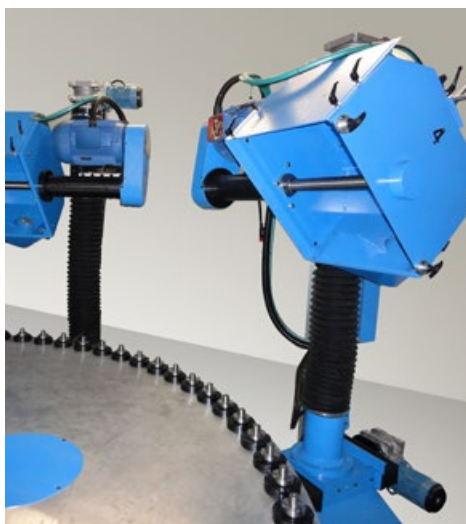
Applications





Continuous rotation table with C.P.L. type polishing unit

The most widespread –and most productive– product when it comes to polishing, constantly updated to keep up with the new demands of this field and with the new technologies.



A traditional polishing machine that gets its high productivity on the continuous rotation of the rotary table and its fixtures. Featuring a large number of spindles, this machine is highly productive especially when working with workpieces that possess regular and even geometric shapes.

The polishing units to be positioned around the rotary table may vary in complexity and capability, according to the production needs: adding more simple or servo-controlled axes that will grant different degrees of movement. To allow a faster production change, all the units are pre-set to be equipped with the auto-positioning function. (pop-up auto posizionamento, come per le altre sezioni)

To perform special polishing and mirror finishing processes, special manual-adjustable, working position-bound counter locks can be added.

An additional, lightweight polishing unit can be positioned at the center of the Rotary Table.



- User friendly;
- High productivity, thanks to the continuously turning table and the large number of spindles/fixtures;
- Fast and efficient working cycle, thanks to dedicated working units for each step of the process;
- Fast and easy production change thanks to the auto-positioning function;
- Constant productivity;
- Long machine life, thanks to the high quality of the precision parts used to build the machine;
- Easy maintenance.

Applications





Mobile/static flatbed with polishing unit (BM)

The simplest and most efficient solution for the polishing of metal surfaces, still proposed as the cutting edge in this field becoming more and more performing.



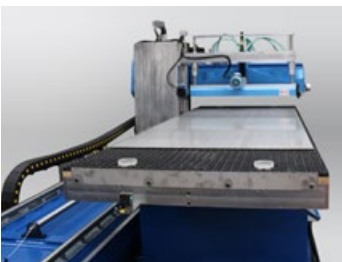
The mobile bench or static bench solutions can be associated with any kind of polishing unit, from the basic ones needed to operate on a linear surface to the most complex CNC ones.



The necessity to find a way to perform the loading/unloading task within hidden times, meaning during the simultaneous processing of the same amount of pieces, is very important for these units, too.

The static bench is to intend with the possibility to get a gripper to remain steady and static while the piece moves to a different working station, or the opposite.

The polishing unit may either be equipped with a simple axis that pneumatically checks the working pressure, therefore setting the adequate contact wheel position according to the position of the currently processed piece (thanks to controlled servo-axes), or with up to nine axes that can be interpolated between the axes of the unit and those of the fixture.



An automatic tool rack may be attached to multi-axis units, allowing the utilization of a single unit capable of switching between up to ten tools, allowing going through an entire process without the need to shift between different units or increasing their number.

- User friendly;
- Hidden loading/unloading times;
- Possibility to have a single, multi-axis polishing unit with attached tool rack to complete an entire process;
- Fast and easy production change thanks to the auto-positioning;
- Easy maintenance;
- Possibility to buff multiple flat surfaces on a single piece, maintaining a high quality standard;
- CNC polishing unit flexibility;
- Quick and certified machine set-up, thus immediate production change;
- Programming easiness with self-learning system, with no need to learn any machine programming language;

Applications



Grinding

The various technological solution offered by C.O.S.M.A.P. for the automatization of the grinding, deburring and satin finishing processes, are based on the employment of the rotary table and its great efficiency when interfaced with our various models of working unit, or when integrated into a robotic isle. Employing these types of processing system, alone or coupled, can be the right solution to create a high-performing, flexible, and user-friendly machine.

Within this section, you will find our solutions sorted by type of application and customizable distinctive traits, to be employed in each field of application in the most efficient, innovating and competitive way.





Robotic Cell (IR)

The most flexible solution to face delicate and complex grinding/finishing operations; the aim is to make them more and more performing and productive.

Robotic cells distinguish themselves thanks to their versatility in facing the grinding process.

Thanks to special grinding units, it is possible to shift the tool needed in the process from, for example, simple grinding disks to flap wheels, to scotch-brite buffs, etc.

Furthermore, each unit is equipped with a controlled axis that allows the rotation of the entire grinding head on a 0 to 180 degrees angle, with the intent to ease and speed up the grinding process, helping the robot as it needs to reach uneven surfaces or when its own arm stands in the way.

Each unit is also mounted on a linear, controlled-axis ball screw to manage the operating pressure and to compensate the consumption of the buff, and/or to reposition the unit if required.

This way, the robot settings do not need any further modifications, as the robot itself is capable to move back and forth easing and speeding up the product processing, hence improving the productivity of the machine and its versatility.

Each robotic cell can be designed and developed with a loading/unloading automatic system according to the nature of the specific product to process: double pallet, belt conveyor system, vertical/drum loader system, just to mention a few.

Our robotic cells may be single, double or triple according to the client's processing needs.



- High production rates thanks to the combination of multiple robot units on the same working cell;
- Enhanced flexibility thanks to grinding units that may be equipped with grinding belts, flap wheels, or scotch-brite buffs ;
- Great flexibility and movement speed thanks to the two axes each grinding unit is equipped with;
- Multiple loading/unloading system options;
- Programming easiness with self-learning system.

Applications





Indexed rotary table with C.S.L. type grinding/finishing unit

The starting point to automatize the polishing process with an indexed rotary table



This type of machine is to consider as the first level of automation of the grinding process thanks to the Rotary Table.

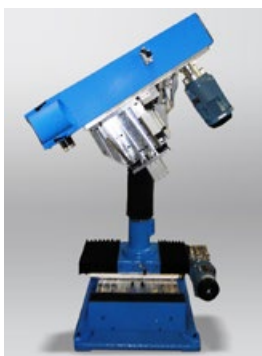
The operating units set around the Rotary Table are essential to complete each step of the grinding process and, depending on the product nature and the cycle time duration, possess different characteristics.

The characteristics that distinguish these machines are: reliability, easiness of use and processing speed.

COSMAP, as a Rotary Table automatic metal grinding and polishing unit designer and builder, can respond to any kind of request, granting the client the ideal quantity of perfect-sized units needed for the intended use.

These simple, yet highly effective grinding units can be equipped with multiple simple electric or servo-controlled axes, in order to increase the processing performance.

To speed up the production change these working units are pre-set for the auto-positioning - the auto-positioning is a function that allows the automatic working unit positioning thanks to motorized electric axes.



- Ease of use;
- High production rates thanks to the Rotary Table and hidden loading/unloading times;
- Highly efficient and fast processing cycle, using a different unit for each processing step;
- Fast and easy production change thanks to the auto-positioning;
- Steady production capability;
- Machine long-term lasting, thanks to the quality parts composing the working units;
- Easy maintenance.

Applications





Indexed rotary table with C.N.C.S. type grinding/finishing unit

The ideal solution to automatize a multi-phase polishing process with a single unit.

A technological evolution that combines the advantages of the Indexed Rotary Table with the innovative features and the flexibility of the multi-axis CNCS grinding units.

This solution allows to improve the grinding process using the Indexed Rotary Table, with the advantage of being able to perform it with hidden cycle times. This new solution's goal is to reach and grind some surfaces that a common unit may find difficult to get to. The completeness and the great number of operations that may be performed by this kind of unit make it very likely to recall a robot's movement capability.

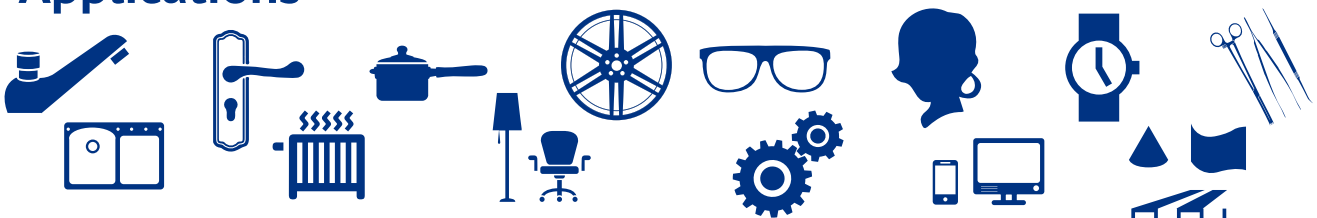
The fixture on the spindle unit can perform rotation movements as well as turning movements that can be interpolated with polishing movements.

The movements of each polishing unit are performed thanks to five controlled axes with an additional pneumatic spring action controlled by the contact wheel. Therefore, each station has seven controlled and interpolated axes, considering the two on the table and the other five on the units.



- High production rates thanks to the Rotary Table and hidden loading/unloading times;
- The flexibility of the CNC polishing unit allows to polish any kind of object, even complex-shaped ones.
- Quick and certified machine set-up, thus immediate production change;
- Programming easiness with self-learning system, with no need to learn any machine programming language;
- CNC unit sizing variable according to the client's needs (from CNC mini to heavy CNC).

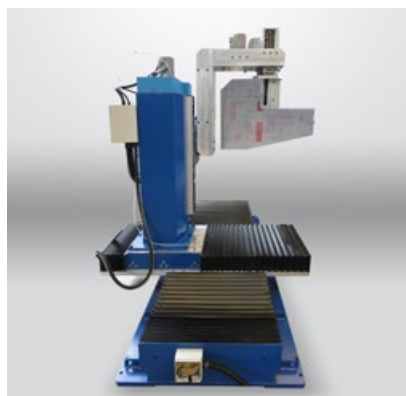
Applications





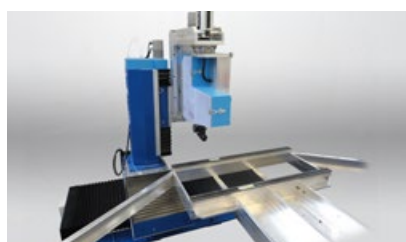
Indexed rotary table with C.N.C.-RAD/REC type grinding/finishing unit for sinks and bowls/tubs

The ideal solution for the grinding/finishing and satin finishing treatment of sinks and similar products.



The ultimate technological development in sink grinding units.

While maintaining the same operational flexibility as the CNC working unit, the CNC-RAD or CNC-REC can operate with single or double heads, equipped with: Pneumatic, software-operated working pressure control; Automatic wheel centering, to define the grinding angle; Possibility to add another rotary axis to the CNC-REC, in order to tilt the grinding unit. These special units may operate on their own or combined with a working bench or to a rotary table. The fixture on the spindle can be steady or moved by one or two controlled axes, which are interposable with the grinding unit's axles. Possibility to add a scotch-brite buff on the contact wheel supporting arm. Possibility to grind tanks with an internal radiant angle ranging from 8 to 10 millimeters thanks to a special belt-tensioning equipment.



- Possibility to grind tanks/tubs with a radiant angle over 20 millimeters (CNC-RAD)
- Possibility to grind tanks/tubs with a 90 degrees angle (CNC-REC)
- Possibility to grind the inner surface of tanks/tubs with a 8 to 10 millimeters radiant angle
- High production rate thanks to the Rotary Table and the hidden loading/unloading times;
- The great flexibility of the CNC unit allows to grind any kind of sink – even complex-shaped ones;
- Possibility to interpolate the axes of the working unit and those of the spindle;
- Fast and certified machine set-up, hence immediate production change;
- Programming easiness with self-learning system, with no need to learn any machine-programming language;
- Working unit sizing variable according to the client's needs (from mini CNC to heavy CNC).

Applications



Combined



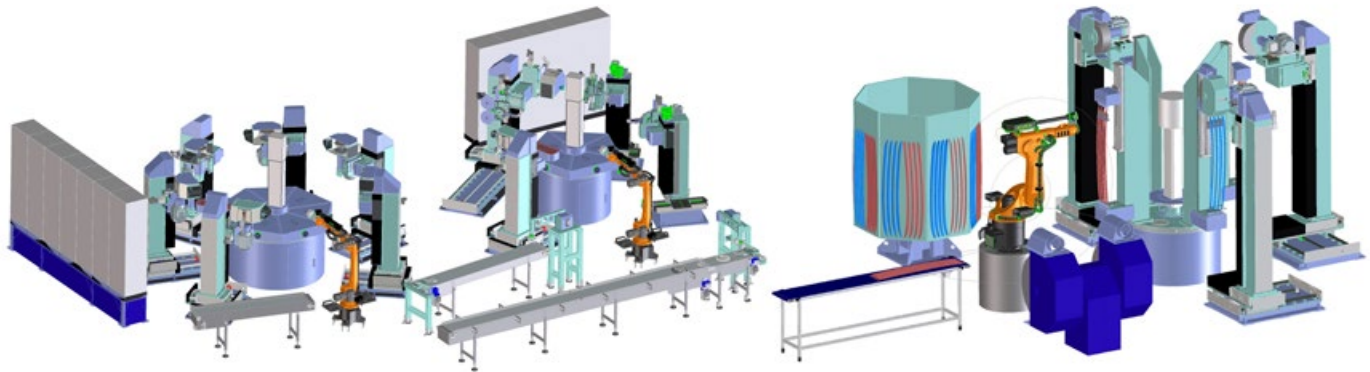
C.O.S.M.A.P.'s most distinctive feature throughout the years, along with the great reliability, is the possibility to combine our polishing and grinding process know-how into more and more innovating and performing solutions. This section is about those machines that are capable of performing the entire grinding and buffing processes without the need to stop between the two, nor the need for manual processing in between.

Basically composed of indexed rotary tables or robotized systems, during the last few years the solutions employing both the systems are becoming more and more popular.



Robotic Cell and Rotary Table

The most complete and performing solution for flexibility, process and productive capacity.



A spreading solution reassuming the concept of Lean Manufacturing and processing efficiency, plus the robot-equipped with a grinding isle and the rotary table for polishing.

Two dramatically different concepts bound by one characteristic: the cycle time management.

This solution is based on the idea of hiding any processing step within the same cycle time.

The aim is to synchronize the fast grinding process with the slower polishing process.

Each turn will deliver a grinded, polished, and therefore finished piece.

The automated isle's grinding flexibility and the rotary table's polishing efficiency make the processing isle the best, synergic solution to optimize the production process.

Each isle can be designed with an automatic loading/unloading system accordingly to the product nature:

Double pallet system, belt, vertical/drum loader, just to mention some.

The automated isles can be single, double or triple according to the client's productive necessities.

- High productivity rate thanks to the multiple robot/rotary table combination on the same processing isle;
- High process flexibility thanks to grinding units equipped with abrasive belts, flap wheels, or scotch-brite buffs and to the rotary table's CNC polishing units
- Total autonomy for a long operational period;
- Multiple loading/unloading systems;
- Programming easiness with self-learning system.

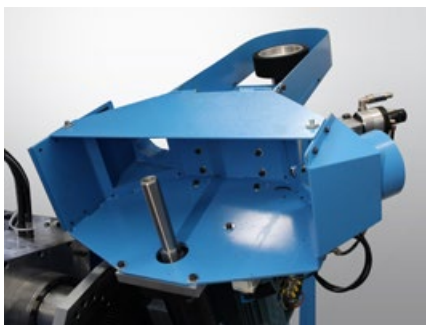
Applications





Indexed rotary table with C.N.C.S. type grinding/linishing unit and C.N.C. type polishing unit

A highly productive combination, with a great flexibility in process management and complex surface treatment



A technological evolution that combines the indexed rotary table characteristics with the innovative and flexible CNCS grinding and CNC polishing units

This solution is to consider as the first step to Lean Manufacturing.

The combination of two distinct processes, with opposed characteristics and, most importantly, the possibility to hide the loading cycle time makes this kind of machine the ultimate expression of flexibility and productive capability.

Thanks to this solution, it is possible to go through the grinding and polishing process using the indexed rotary table with the advantage of executing an entire process with hidden cycle times.

- Lean Manufacturing solution;
- High productivity rate thanks to the rotary table and hidden loading/unloading cycle times;
- CNC and CNCS polishing units flexibility, capability of grinding and polishing any kind of object, even complex-structured ones;
- Quick and certified machine set-up, granting an immediate production change;
- Programming ease thanks to a self- learning system with no need to learn any kind of machine-programming language;
- CNC and CNCS units sizing variable according to the client's choice (from light to heavy CNC).

Applications





Indexed rotary table with C.S.L. type grinding/linishing unit and C.P.L. type polishing unit

The entire grinding/linishing and polishing process is managed on a single rotary table.

This type of machine is to consider as the first level of automation of the grinding and polishing process thanks to the rotary table.

Working units to set around the table to complete each step of grinding and polishing possess different characteristics, to match to the product nature and the cycle duration.

The distinctive characteristics of these machines are reliability, easiness of use, and processing speed.

COSMAP, as a designer and builder of rotary table-based automated metal grinding and polishing systems, can deal with any kind of request, granting the client the right sizing and a proper number of grinding and polishing units needed for specific use.

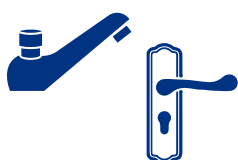
These simple, yet highly efficient, grinding and polishing units may be provided with multiple simple electric or servo-controlled axes, in order to increase the processing performance.

To speed up the production change these working units are pre-set for the auto-positioning function - the auto-positioning is a function that allows the automatic working unit positioning thanks to motorized electric axes.



- Ease of use;
- High production rates thanks to the Rotary Table and the hidden loading/unloading times;
- Fast and efficient processing cycle thanks to the utilization of a different working unit for each processing step;
- Thanks to the auto-positioning the production change will be fast and simple;
- Steady processing capability;
- Long-term lasting, thanks to the high-quality precision machines the system is equipped with;
- Easy maintenance.

Applications





Listen to the needs of our Customer and answer with all our experience and with the most advanced technologies.



COSMAP has always been distinguished by the flexibility and accuracy when facing every challenge involving the processing of metal and non-metal products.

The intensive study of the grinding and polishing process whether manual or automated, and a strong inclination to a better technological, mechanical and electronic research gave birth to great developments and solutions. During the past thirty years of this company's history, we tried to treasure every single experience regarding the process and the technological solutions, trying more and more often to improve and combine these two factors.

- The research for the most economical and functional solution for the client; the cost/efficiency relationship is the first factor to take in consideration;
- Open minded to any kind of application (processing metals, plastics, wood...) and process (adding drilling units, other special units, etc.);
- Great willingness to help the client finding an ideal solution;
- Never ending studies, tests and checks to learn as much as possible on the process.

Applications



Important building features

C.O.S.M.A.P. as a designer, manufacturer and commissioning specialist has developed during the years a vast range of complementary technical solution for its machines, to cope with the growing demands and necessities in this field.

The know-how gained through years of experience and a never-ending research in the mechanical and automations fields, have led C.O.S.M.A.P. to develop new construction techniques, such as:

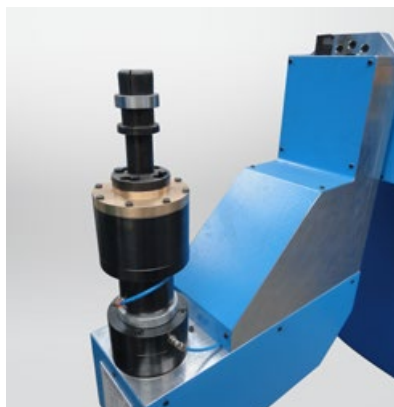
- The absence of welding on the main frames. All the mechanical couplings are done with screws, and the premium materials ensure strength and sturdiness.
- The table movement is performed thanks to a high precision, zero-backlash motorized indexing device.
- The linear axes feature premium bushings and protective devices to prevent any dirt from depositing on the mechanical components.
- The movements of the spindles are independent, and are controlled individually by the program.
- A premium brand is at the base of all the automation, as all the electric and electronic components.

EC-compliant soundproofing enclosures



Our machines are supplied with soundproofing safety enclosures, fitted with: Safety sensors on all doors and loading/unloading port; Soundproofing panels, flame resistant/flame retardant -according to the necessities; Inspection doors/windows featuring safety glass of polycarbonate glasses; Predisposition for the dust extraction system.

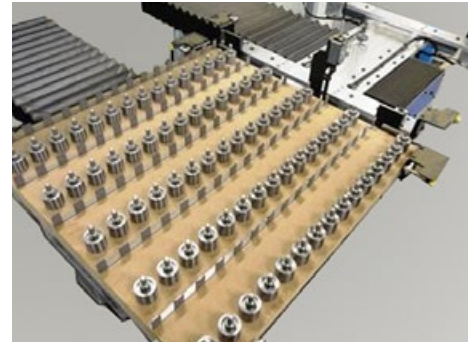
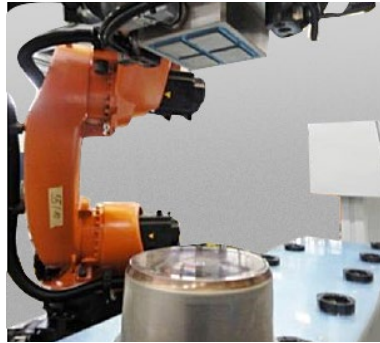
Fixture design and supply



A precision retention system is designed and manufactured for each product. The piece retention can be obtained thanks to parallel, elastic or sectioned fixtures, vacuum, and magnetic chuck.

Important building features

Automatic loading/unloading system



Machine predisposition, design and supply of automatic loading and unloading systems for rotary table machines and robotic cells.

Programming software

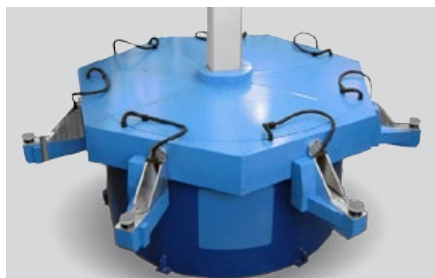


Proprietary programming software for our grinding and polishing machines.

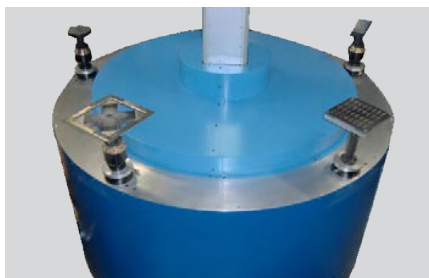
Friendly and prepared programming and assistance teams, available for training in machine programming and maintenance.

Rotary table base assembly – indexed rotary table

C.O.S.M.A.P.'s aim as a designer, developer and manufacturer of its own machines, is to study solutions to satisfy the client's needs. For this reason, the design of the rotary table itself is adapted to the specific process necessities. The main frame is made of steel, properly welded and reinforced. The base supports and contains the moving mechanisms, such as the indexing device and the spindles. The rotary table on the main frame is mounted on a high performance, high speed and precision indexing device. The indexing is performed thanks to a gearmotor, and a mechanical clutch prevents overcharging from external factors.



Indexed rotary table with double controlled axis for each station



Indexed rotary table with vertical spindle capable of continuous rotation or program-set positioning.



Indexed rotary table with horizontal spindle, with variable continuous rotation. Piece retention with vacuum system fixtures.

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