

OUR EXPERIENCE, YOUR RESULTS



ALL CORPORATE ISSUES & NEWS



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01

ABOUT US

ROLLWASCH ITALIANA SPA

Rollwasch® activity was born in 1950 in via Argelati, in Milan, by its founder Giuseppe Redaelli.

Rollwasch® is the first Italian company in the “barelling” field to be born in a period when the main machines were rotary barrels and the abrasives used were quarry or river stones conveniently selected.

We have always been a cutting-edge company thanks to a constant and passionate research activity that has led **Rollwasch®** to keep up with the most modern technologies for metal and non-metal surfaces mass finishing. We have developed interesting records such as the first-ever high frequency vibrations machines for ball burnishing processes and the creation of an innovative products and machines series inspired to carbon footprint containment and environmental sustainability.

Rollwasch® Italiana aims to a sustainable growth and in June 2015 it was certified in the new Innovative SME register – the first company in Milan and among the first in Italy.

Rollwasch® has also been part of the eminent Lombardia Aerospace Cluster since 2015, it is a founding partner of PoliEFUN (Politecnico di Milano) and it actively cooperates with Polimi (Politecnico di Milano).



Our company has always been managed since its origins by the same family, now at the third generation, with an experience and know-how heritage of great prestige at international level.

In other respects, we are unique for the level of inventiveness and creativity, with about ten patent applications filed in the last ten years.

We are located north of Milan and our headquarters are served by the three main airports of the area, Malpensa, Linate and Orio al Serio (Bergamo). At **Rollwasch®** there is the right mix of experienced veterans and promising youngsters, motivated to face the challenges of the future.



1950

In 1950 Giuseppe Redaelli established **Rollwasch®** - name inspired to the operating dynamic of rotary barrels that, with river stones, water and continuous and gentle rolling, allowed mass finishing of an endless variety of metal parts. The logo with an “eight” shape is inspired by the ancient Chinese interpretation of numbers according to which “eight” means “better”. During this first year the company was located in Milan, in via Argelati, with only one co-worker – Mario Giani – who has spent his entire working life until retirement at **Rollwasch®**.

1961

In 1961 was born the eldest son Paolo who currently manages **Rollwasch®** together with his siblings Roberto, Raffaele and Ambra. In the same year the SPECIAL series machines for ball burnishing with high frequency engines were designed and created - **Rollwasch®** was the first in the world to debut with this technology. For some years the company has already moved to the bigger and more functional plant in Carate Brianza, while offices are located in a modern skyscraper in Milan, in Piazza della Repubblica 32.

1966

In 1966 the sons Paolo and Roberto were with their parents at **Rollwasch®** stand at Fiera di Milano – really important event at national level at the time, where industrial products were displayed together with other endless categories, therefore with great acclaim. **Rollwasch®** has taken part to almost all Fiera di Milano exhibitions up to the birth of the first sector specialized fairs.

1974

In 1974 the sons Paolo, Roberto and Raffaele were with their grandfather Gigi and their uncle Luigi at **Rollwasch®** stand at the 52nd edition of Fiera di Milano - event born in Porta Venezia, Milan, in 1920 and then moved in 1923 between Piazza Giulio Cesare and Largo Domodossola until 1990, year of last exhibition. In the same year in Albiate Brianza began the first activities for the acquisition of the land on which the current headquarters would have risen, then developed and expanded in several phases over the years.

02

OUR STORY

1961





1977

1983

1985

1991

In 1977 Paolo and Roberto started working in **Rollwasch®** - they both attended the night school at a technical institute in Monza too. These were years of intense activity for both of them, aware that they had undertaken the out-and-out education, hard as the steel forge – this course of studies was by no means unusual in the seventies. On February 1st of the same year in Italy the first RAI colour television broadcasts officially began.

In 1983, at the peak of a major economic crisis, Giuseppe and Paolo decided to face the first important **Rollwasch®** reorganisation – in that year took place the transition from manufacturing everything in-house to having the metal structures of the machines produced by external carpenters according to design. A net of trusted and resilient subcontractor arose, then developed and perfected until today. In 1984 Paolo introduced in the technical office the first CAD combined with a plotter with «rapidograph rotring» ink pens.

In 1985 the **Rollwasch®** Rollturbo rotating disc centrifugal machines range strengthened. The commitment, born with the first and biggest RT-1 model (photo on the side), highlighted the need to optimise at most the polyurethane anti-abrasive coatings' quality. In those years the first sequential PLC were used.

It dates back to 1991 the photo which shows the whole **Rollwasch®** management at BIMU - Biennale della macchina utensile in Milan, with the founder Giuseppe and his children Paolo, Roberto, Raffaele and Ambra. At the bottom right the little Michela, Paolo's daughter. In the same year at Trattamenti e Finiture exhibition in Parma Paolo disclosed the new chemical compounds series EUROPA, environmentally-friendly and easy to purify – thus anticipating by fifteen years the REACH European Directive entered into force on December 18th 2006.



1997

2000

2022

MISSION
& VISION

In 1997 Giuseppe died, leaving the reins of the company to his four children. The grandchildren Giorgio and Michela (on the right) have already been working for some time in the technical office and in the management secretariat respectively, cooperating with their father Paolo and their aunt and uncles in the everyday life of an increasingly modern and efficient company, inclined to environmental sustainability and circular economy.

In 2000 **Rollwasch®** turned 50 years and the anniversary was celebrated inviting local authorities. The event took place soon after the enlargement of the plant in Albiate, with new headquarters of offices, warehouses and laboratories reaching a covered surface of more than 9000 sq.m. On that occasion the artist Giancarlo Bulli donated the bronze sculpture representing the connection between the two generations of the company.

2022 corresponds with a new project to expand the **Rollwasch®** site in Albiate, which includes new covered structures nearby the production facilities. The coverings will be suitable to mount latest generation photovoltaic panels to contribute to the company's energy needs in a sustainable way.

Rollwasch® MISSION is to grant client's satisfaction with its own services, products and technological solutions. To offer to the client products with the right quality/price ratio and machines that meet not only their expectations, but also operative reliability and efficiency criteria. To have transparent discussions, giving coherent and rapid feedbacks.

Rollwasch® VISION is to propose alternative solutions to conventional techniques, offering innovation, projects' multi-disciplinary vision, high degree specialisation, affordable solutions and technologies, as much eco-friendly as possible and aiming to reduce carbon footprint.





SPECIALISATION TECHNOLOGICAL MACRO-AREAS

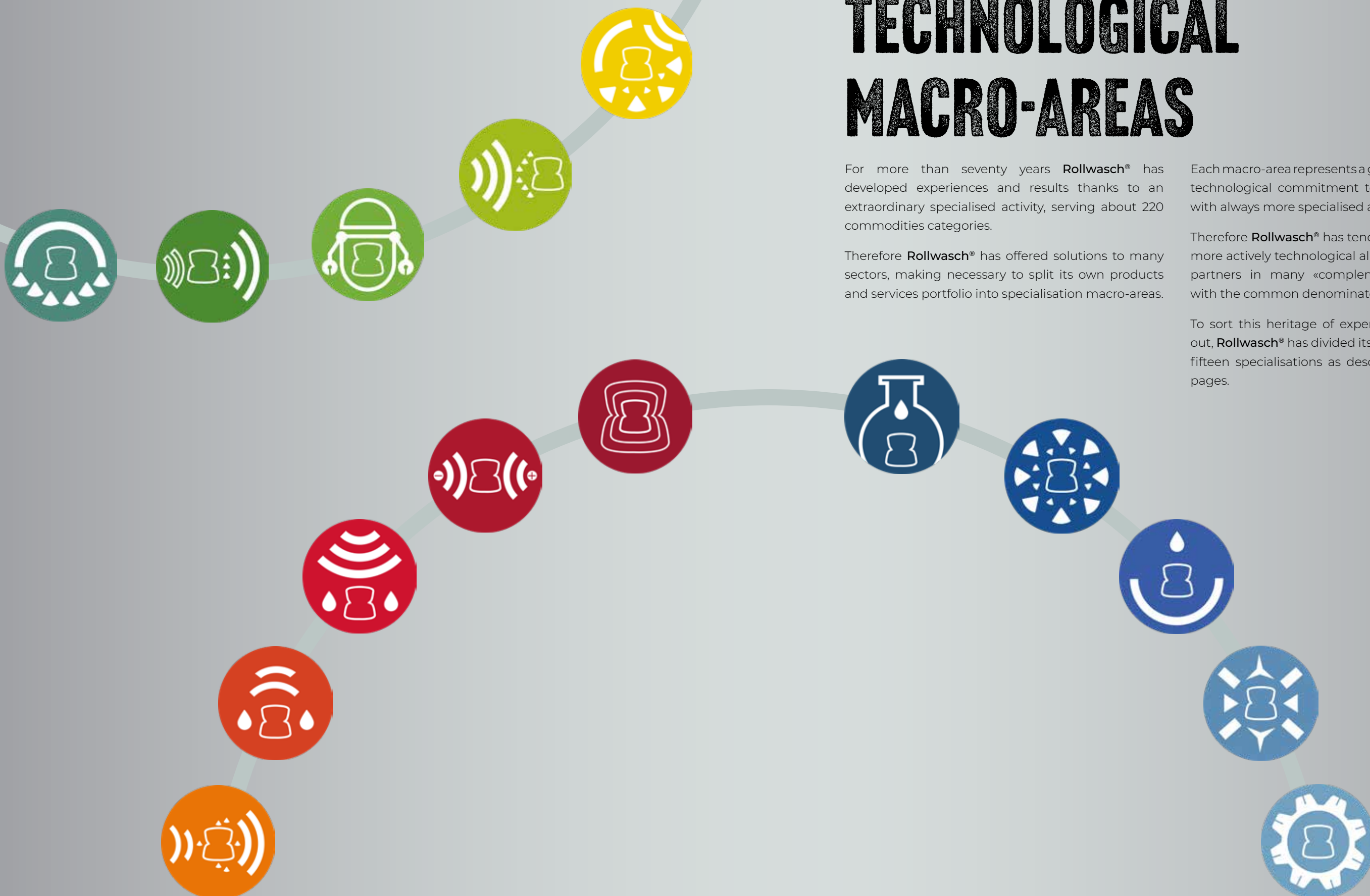
For more than seventy years **Rollwasch®** has developed experiences and results thanks to an extraordinary specialised activity, serving about 220 commodities categories.

Therefore **Rollwasch®** has offered solutions to many sectors, making necessary to split its own products and services portfolio into specialisation macro-areas.

Each macro-area represents a gradual and exceptional technological commitment to meet specific needs with always more specialised and focused solutions.

Therefore **Rollwasch®** has tended to create more and more actively technological alliances with specialised partners in many «complementary» technologies, with the common denominator of surface finishing.

To sort this heritage of experiences and know-how out, **Rollwasch®** has divided its macro-areas in at least fifteen specialisations as described in the following pages.





MSF - MASS SURFACE FINISHING

The international definition that has marked **Rollwasch®** core-business for the main part of last century is «MASS METAL FINISHING». This term, coined by the Americans and then imported to Europe by the English in the 1950s-1960s, has been used for long time despite the implicit reference to metals.

Beginning from the third millennium, at **Rollwasch®** we have started looking for more correct and updated terminologies, which can turn out to be more coherent with the real carried-out activities and involved technologies.

MASS SURFACE FINISHING

Hence the definition of «MASS SURFACE FINISHING», which better fits to the evolution of processes that today pertain to a myriad of surfaces other than metals such as: elastomer polymers or plastic, composite materials, wood, ceramic, stony materials, glass, biomaterials, biopolymers, conglomerates, etc.

Within this macro-area, **Rollwasch®** offers a plants and machines range among the most complete and consolidated worldwide.

There are machines as rotary barrels, rotating disc centrifugal machines, circular or rectangular vibrofinishing machines, linear machines with continuous cycle, in the most diverse configurations.

An absolutely significant trait to highlight about these «hardware» solutions is the importance to define – before choosing a type of machine or another – which «PROCESS TECHNOLOGY» suits the most to obtain the demanded surface finishing.

By definition the «PROCESS TECHNOLOGY» is the whole of techniques and elements involved in a finishing process, so the machine with the possible use of:

finishing media, water, chemical compounds, other coadjuvant factors or energies (dry saturated steam, compressed air, high pressure water spurts, etc.) or even machine's accessories such as:

splitters (E), finishing areas dynamic separators, cryogenic or vacuum creation units, dosing and supplying stations (D), sieves, separation plans, magnetic extractors, aspirators, etc.

Some typical examples of the so-called «WET» processes can be: deburring and/or smoothing with plastic or ceramic media (B); deburring and/or smoothing and/or polishing with porcelain media (C); self-tumbling (piece against piece).

Some typical examples of the so-called «DRY» processes can be: deburring and/or smoothing in self-tumbling - piece against piece (A); deburring and/or smoothing with specific media for dry cycles such as QF or HPM (F); fine smoothing and/or dry polishing with granules impregnated with suitable cremes or pastes (G).

In order to coordinate different possible solutions with project's needs we almost always propose to carry out some finishing tests in our labs.





PMRF - PRECISION MATERIAL REMOVING FINISHING



PMRF is the acronym for Precision Material Removal Finishing. An example which is present on the market since soon before the beginning of the third millennium is the IPERMATIC TEP machines series – machines known on the market with the international definition of Drag Finishing.

Following **Rollwasch®** vision of the dynamics that rule this kind of precision finishing with pieces usually held by specific frames, ECCENTRIC FINISHING and CARVING FINISH technologies were born. These have completed the overview of this type of extremely efficient, silent and productive machines.

The only **Rollwasch®** preference associated to this technology is to favour dry processes instead of classic and traditional wet processes.

Indeed, the use of water in these processes considerably complicates the principal convenience and efficiency factors and makes some problems arise such as:

- greater energy demand in wet processes;
- greater wear, consumptions and wastes (muds);
- need to treat or recycle or filter wastes;
- greater noisiness.

On the other hand, when processes can be dry there are huge advantages such as:

- lesser energy needs;
- lower noisiness (excellent acoustic comfort);
- absence of corrosion origins.



An over-twenty-year constructive experience with this kind of machines has led us to design highly reliable rotary heads with satellite movement.

Examining dry processes and their possible dustiness, in some applications we have opted for an overpressure in the kinematic area of the rotary head. This is generated by air blowers with suitable filters particularly efficient in assuring mechanics high reliability over the time and extremely little maintenance.

Each machine model has its own satellite rotary head, usually with three, four, six or eight satellites. These can, in turn, be single (to hold frames of remarkable dimensions) or multiple.

Multiple satellites are mainly of MultiSIX type (six satellite spindles for each satellite).

This solution is ideal for long and tight components such as cutting tools, mills, drills.

Thanks to extremely performing media and over-the-time perfected processes, Ipermatic TEP machines are able to effect pre and post PVD finishing on tools.

ECCENTRIC FINISHING series technologies (Patent pending - I) allow to treat blades and very thin objects thanks to particular operating dynamics that permit to the media inside the tank to be centrifuged on the walls. This consents to the (central) rotating shaft to go down into a sort of central volcanic crater and then to move towards the peripheric area in counter-rotation, thus generating exceptional finishings in really short times.

Finally, CARVING FINISH technology (Patent pending - I) allows to the entire Ipermatic machine's head to swing exposing the parts fixed on the rotary frames to different finishing angles.

In some cases, the previously described technologies may cooperate to the finishing of particularly complex or delicate objects; this is the example of MULTIDRAG systems (Patent pending - I).





LERFIT - LEADING EDGE ROBOTIC FINISHING TECH



For some years it has been more and more difficult to inform about the progresses accomplished in the finishing of high value-added components, such as components for aircraft engines, automotives components, parts for the medical or biotechnological field, etc. Indeed, it is always more frequent to undersign non-disclosure agreements that bind parts to secrecy.

For the fine-tuning of some system solutions, like for example for the finishing of Bladed-disks for the aerospace field, we have forced ourselves to build some «dummies» or «fake components» in whole similar for dimensions to the original ones, but made of rough metallic carpentries templates in our production workshop.

As a matter of fact, the value of some Blisk can easily exceed Euro 50.000,00 and, even if they are defined «samples for finishing test», in many cases it is necessary to pay the utmost attention in conducting finishing tests and tests of coordination of the managing dynamics of data by the robots used.

Rollwasch® activities ascribable to LERFIT technologies are mainly of four types:

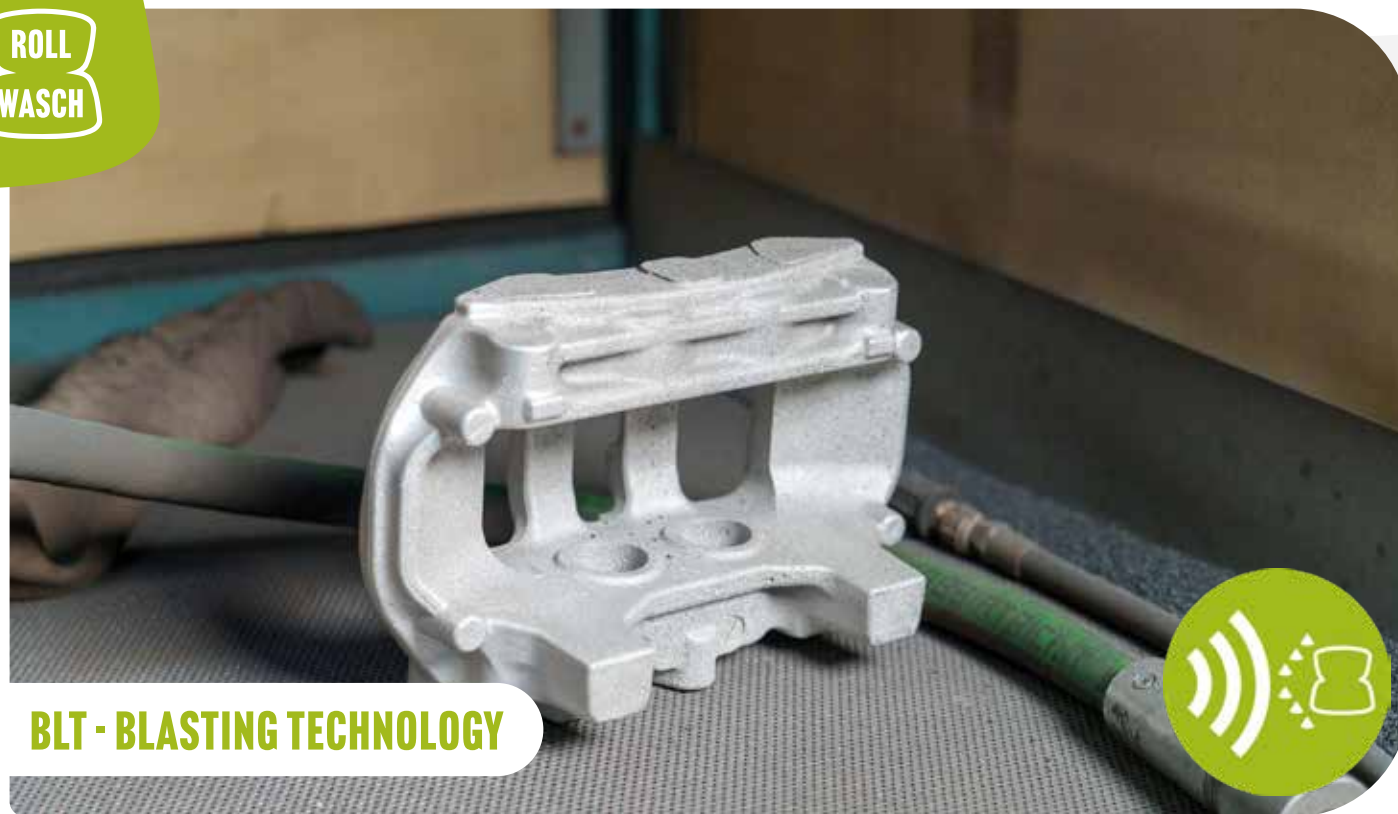
1. MULTICHANNEL WAVE FINISHING systems (Patent pending - I) where a robot exposes one component at a time to a special grit or finishing media subjected to centrifugal force in concentric tanks that can handle different types of media at different peripheric speeds;

2. Vibrofinishing systems combined to ROBOTS – there are different typologies and dimensions according to the kind of components to treat;
3. Robotic grinding islands, in some cases combined with complementary processes too such as laser marking, washing, protection;
4. Deburring systems with high pressure water spurt and/or oriented washing – such systems can have remarkable dimensions and can develop on more action areas until accomplishing the series of demanded processes for each component.

In consideration of the complexity of **Rollwasch®** solutions program with robotic integration, of the variety of filed patents and of particular types of treatable components, a large variety of dedicated catalogues and specific presentations is available.

Finally, at **Rollwasch®** headquarters we have a robotic island aimed to carry out tests and focused demonstrations, available upon order and with possible participation to the costs.





BLT - BLASTING TECHNOLOGY

Sandblasting, shot peening, shot blasting and similar technologies have always been a milestone of the surface preparation phases of different kinds of pieces, both metal and made of other materials.

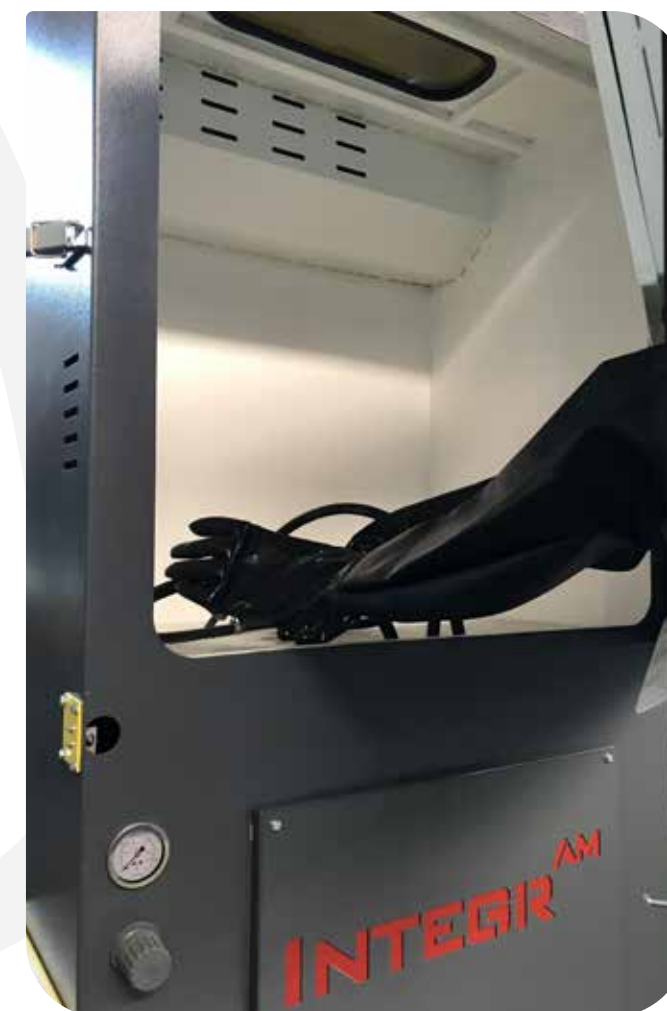
Rollwasch® has always offered to its clients sandblasting and shot peening systems, even though the offers have been circumscribed to a limited range of systems. However, starting from 2015 the study of new solutions in this context has more and more expanded for one simple reason: our research & development programs envisaged the multidisciplinary VibroBLAST program (described later) with the cooperation of specialist in the field.

Starting from 2019, thanks to this intense activity, **Rollwasch®** has begun giving birth to more and more

«personal» projects in directions of the following technologies: depression (or venturi) sandblasting, pressure sandblasting, wet sandblasting, classic Shot Peening, ultrasonic Shot Peening, cryogenic shot blasting, and the parallel implications in VibroBLAST solutions combined with specific vibrating units.

Finally, starting from 2019 **Rollwasch®** has developed a series of improvements and enhancements on components and accessory systems such as the aspirators/filters compatible with ATEX norms for inner zone 22.

A specific machines line has been developed in collaboration with the IntegrAM companies' network, exclusively dedicated to 3D printing or Additive Manufacturing field – both for polymers and metals.





VBT - VIBROBLAST TECHNOLOGY

A good example of sustainable and innovative technology at the same time. VibroBLAST technology is the point of union and a sort of revolution in the way to carry out vibrofinishing and sand-blasting simultaneously.

Rollwasch® has invented this technology that was introduced to the public for the first time in June 2019 at the 3D PRINT international fair in Lyon, then to the FORMNEXT international exhibition in Frankfurt in November 2019.

This technology today is covered by three international patents: one related to the type of elastic «vectorial» vibrofinishing media, called QF, used to move components in a three-dimensional and delicate way inside the vibrating finishing tank; another patent for the vibro-blasting technology; the last one for the surface contamination containment method for parts addressed to medical or food sector.

To vibro-blast means to join a kinetic energy, the one of blasting, to the spiky and three-dimensional movement typical of vibrofinishing, thus obtaining finishing cycles without manpower except that for pieces' loading and unloading. It should be noted that the big part of VibroBLAST machines sold up to date works totally dry.

To replace man hands, who in a classic sandblasting machine takes parts to be sandblasted one at a time – even the most delicate and complicated – may look simple, but it is not at all like that. The Technology developed by Rollwasch® has truly revolutionised the way to obtain results with moderate costs and little manpower,

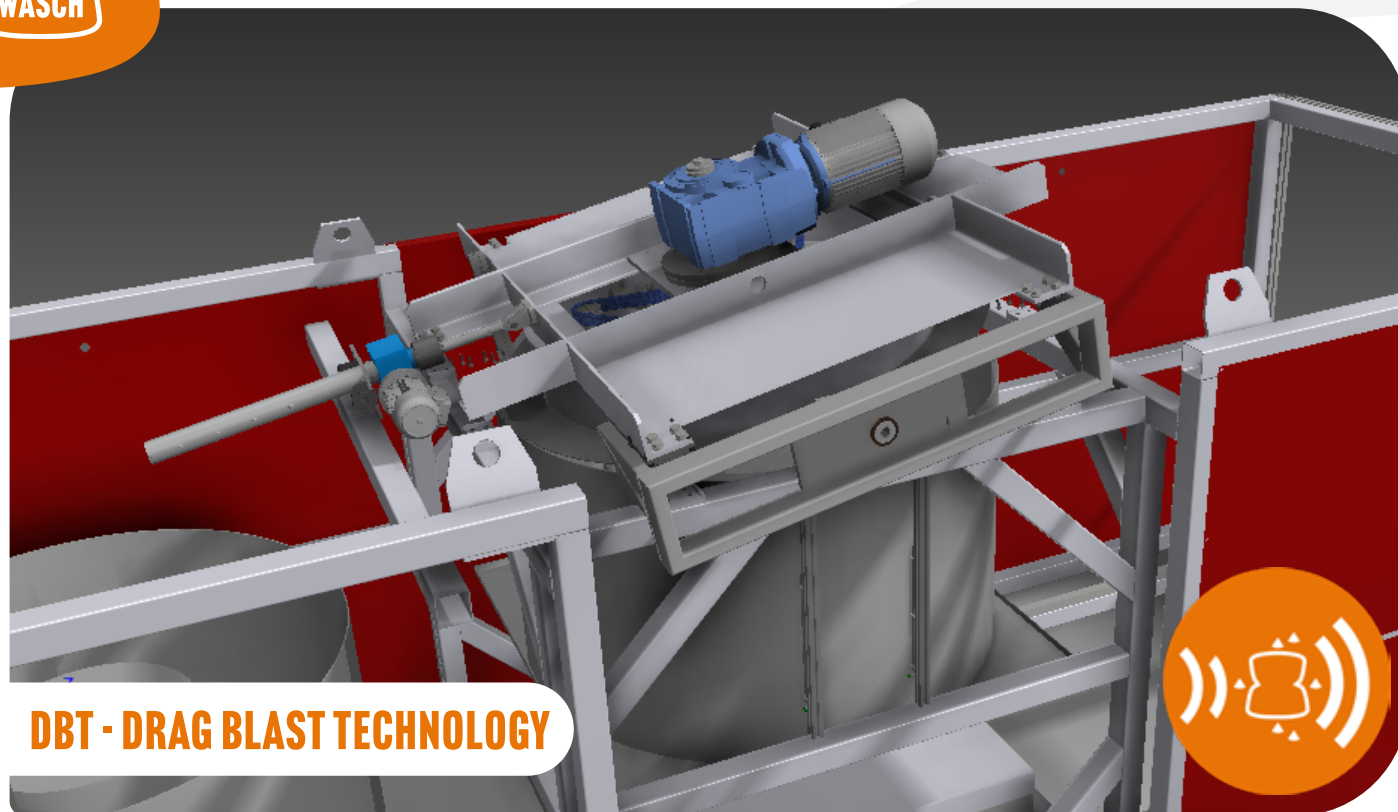


insofar it has become an independent technology. Its potentials range from depression (or venturi) sand-blasting processes to pressure ones (with medium-large machines), from turbine processes (with quite big or very large machines) to wet technologies, for interesting applications in medical, food and aerospace field.

One of the most involved sectors, at least in one first phase after debut, is represented by Additive Manufacturing. In this field, the VibroBLAST technology is used both for polymers and metals.

Other preferential sectors are cold and hot forming, but even the treatment of fusion bodies, MIM (Metal Injection Moulding) or CIM (Ceramic Injection Moulding) components, forged parts and many other kinds of pieces. Many VibroBLAST units are present at competence centres, technological poles or universities because of their high level of innovation and practicality.





DBT - DRAG BLAST TECHNOLOGY

DragBLAST technology is the result of the combination between Drag Finishing machines (or variants covered by international patent such as Eccentric Finishing or Carving Finish) and sandblasting, shot peening or shot blasting systems expressly designed.

This revolutionary vision of possible operating dynamics and combinations of state-of-the-art technologies has opened very interesting and different perspectives.

The potentials of this technology range from depression (or venturi) sand-blasting processes to pressure ones (with medium-large machines), from turbine processes (with quite big or very large machines) to wet technologies for interesting applications in medical, food and aerospace field.

The managing of more axis such as the inclination angle of a rotary head or of a spindle, the satellite rotation or counter-rotation speed, the up and down vertical axis and the suitable managing of sandblasting nozzles with relevant movements and strokes, allows infinite combinations among the operating variables.

On one hand, DragBLAST technology is part of PMRF (Precision Material Removal Finishing) processes family. Indeed, components to treat can be fixed to suitable frames and involved where needed and for the time needed.

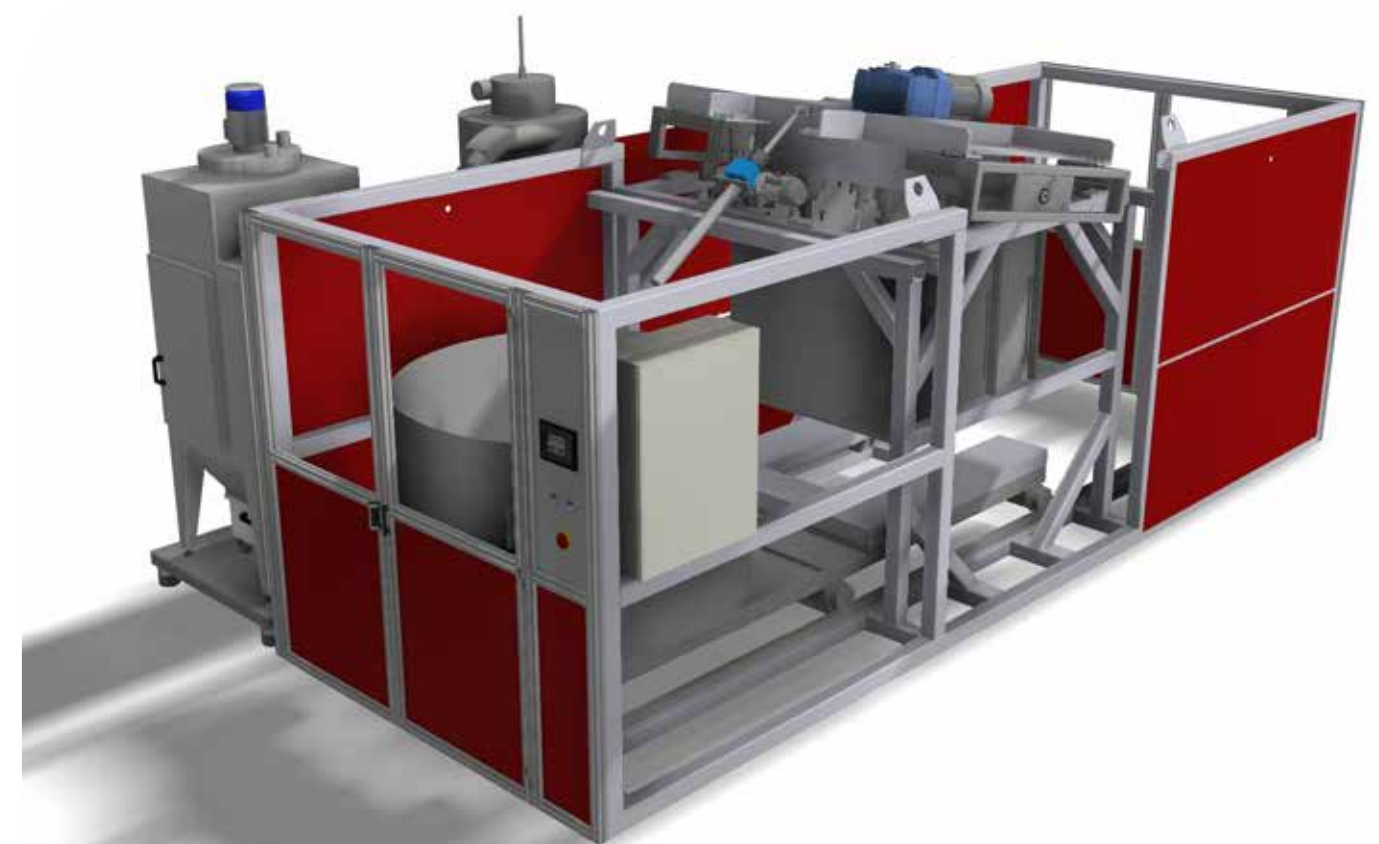
On the other hand, in relation to sandblasting technologies that are implemented, it is a separate technology.

In this brief and general presentation there are two different types of systems which differ in dimensions but are similar to allow holding-pieces frames to be involved by sandblasting kinetic energy in a first tank.

This phase permits to involve the components' parts that require to be hit by localised sandblasting or shot peening jets in order to remove burrs or to lessen particularly accentuated roughness.

By moving the frame from the sandblasting tank to the drag finishing one, components can be more easily involved in a results' improvement and enhancement process, with homogenisation of surface aspect and fine smoothing of the whole surface. In this way, the synergy between two distinct areas of DragBLAST systems allow – in a totally automatic way and in only one plant – to offer very accurate finishing levels and high levels of quality, repeatability, automation and sustainability.

Many of these DragBLAST process technologies can be assisted by robots (for example in the phases of preparation, assembly and disassembly of pieces from frames). DragBLAST technology is perfectly compatible with Industry 4.0 solutions, hence can be configured in highly technological and coordinated contexts.





IWT - INDUSTRIAL WASHING TECHNOLOGY



In the Industrial Washing Technology macro-area, **Rollwasch®** has perfected its own plant vision made of belt conveyor tunnels, water screws or special bi-directional screw drums (RotoROLL).

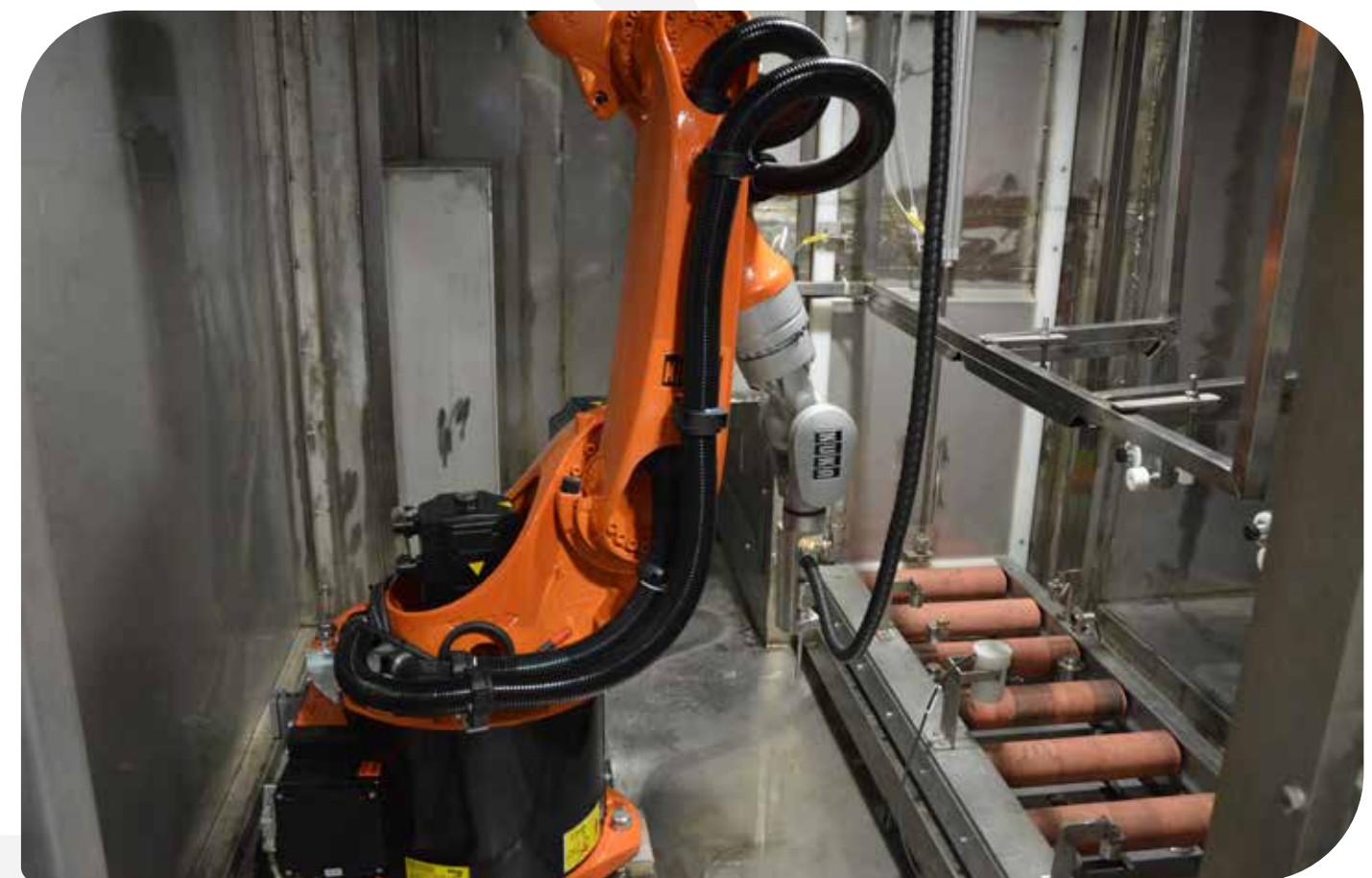
Our IWT systems can be configured for washing processes, rinsing, blowing, hot air drying, or only blowing and drying or, in some case, only drying.

In each application solution our systems are assembled only using high quality and reliability materials such as fine metal mesh conveyor belts, tested by over-40-years of thermal dilatations, load resistance, operating flexibility, etc.



Among the different solutions, we are able to offer systems with high pressure deburring or washing areas, even with Robot.

The combination of drying tunnels with conveyor belts equipped with immersion rinsing tank (UNIVAR series) allows to face passivation and drying phases in automatic way and in continuous cycle.





ECS - ECOSONIC CLEANING

ECOSONIC technology is the demonstration of how multi-disciplinary **Rollwasch®** vision is able to be. A vision that has combined in this important project the best available resources at European level.

First of all, ECOSONIC technology permits to accomplish complete systems of washing, rinsing and drying, in automatic and with investments on average more moderate than classic automatic systems available on the market.

This result is due to the particular multitasking operating dynamic enabled by the combination of several factors as follows:

1. A circular vibrofinishing tank imposes to pieces that have to be washed a three-dimensional motion conveyed by special vectorial «media» called QF, with elastic and damping action – this thanks to a 1500 rpm motor-vibrator commanded by inverter;
2. A titanium sonotrode – conveniently placed few millimetres up the «media/pieces» mass and some centimetres down water level – produces an ultrasonic frequency equal to 20 Khz (twenty thousand times / second) and this engenders cavitation and deep cleaning in the involved components;
3. A hydraulic system made of tanks, pumps, filters and pneumatic discharging valves allows process liquids to effect separate and thermo-controlled washing and rinsing cycle phases, while a hot air insufflation system permits the final «dripping out» and drying phases of the washed parts.

In the ECOSONIC basic range are available machines with capacity of 25, 50 and 120 litres.

The constructive variables envisage for all machines the washing and rinsing phases, with the option to add the drying phase too.

About power, every machine can be equipped with a sonotrode and relevant Titako 3® generator, but it can be expanded till two or three sonotrodes with bi or tri-valent generators.

New ultrasonic generators Titako 3® - more and more powerful and technologically evolved, developed to control and maximize transducers efficiency - meet the utmost expectations in all applications where quality, reliability and precision are fundamental.

Rollwasch® has chosen the maximum quality of components and the utmost construction precision combining high level specialists such as:
UNITECH Srl – specialised in research, development and production of solutions in ultrasonic technologies sector.

TECHNO SURFACE Sas – company whose Mission is the Research & Development and that has registered international patents in the surface treatment fields, such as the one related to ECOSONIC technology.

This technological team has given birth to an interesting technology considering the high degree of automation and competitiveness offered. ECOSONIC, the next step for the ultrasonic washing of your components!





E-LYTE - ELECTRO CHEMICAL TECHNOLOGY

E-LYTE is the acronym of «Electro-Lyte» or electrolyte, the liquid chemical environment within which an electro chemical process such as the electro chemical polishing can be developed:

electrical current and electrolyte applied to a surface with adequate preparation.

On these apparently simple variables depend the result of an electro chemical polishing process.

The Hardware component, that is the system, does all the rest.

Rollwasch® cooperates with Delmet Srl that, thanks to its expertise and high specialisation, has been dedicated only to electro chemical technologies since 1949.

Two parallel stories which testify a «made in Italy» of absolute quality, professionalism and passion and which today merge into a multidisciplinary scenario able to accept the most extreme challenges.

In symbiosis (like many living beings in nature are) **Rollwasch®** and Delmet offer an important synergy originating from the consideration that a good substratum can be undergone to an electro chemical process with the utmost quality expectations possible.

Finally, **Rollwasch®** consolidated experience in robotic integration allows the two technological partners to write a new story.

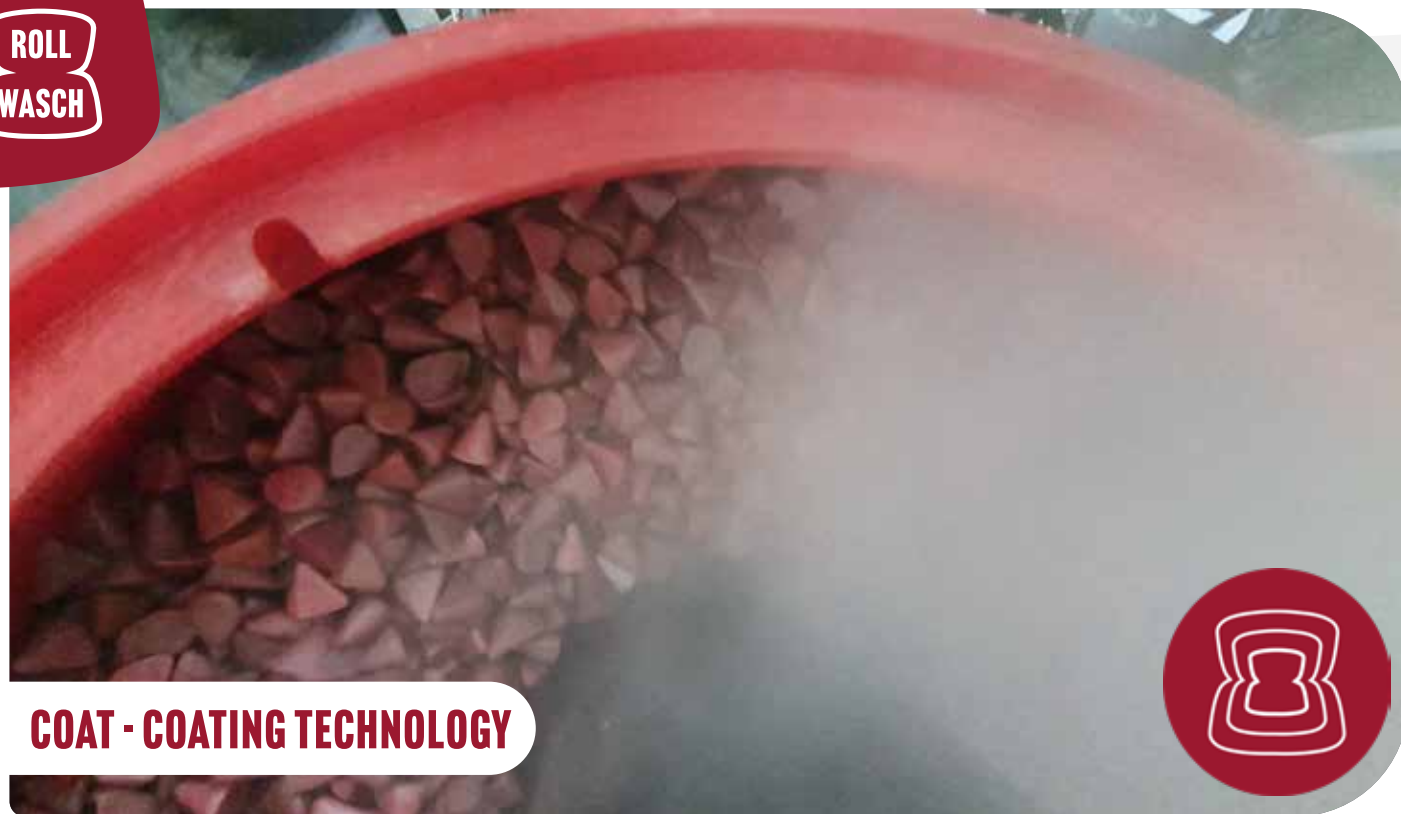
A story about custom-made systems for very demanding clients for both the excellent surface obtained from processes and the automation level.

Robots or controlled axis systems can meet productive exigences of extreme capacity, quality and automation level.

As a consolidated practice in the field of surface treatment, **Rollwasch®** and Delmet are always ready to offer finishing tests that leave no room for doubt:

Our experience, your results!





COAT - COATING TECHNOLOGY



Rollwasch® has developed extremely interesting, innovative, automatic and safe coating solutions. On one hand, Steam DYEING technology allows to steam dye components in plastic materials or in composite materials with polymers base.

On the other hand, RotoPAINT technology permits the painting or the coating with various composites (for example lubricating or waterproofing) through rotary barrels of special conception.

The two technologies differ in the type of affixed substances and in the way the colour is applied to the surface.

Indeed, Steam DYEING technology uses water soluble colourants to dye polymers preheated with dry saturated steam, then undergone to steam jets mixed with colourant of Smart DYEING range and finally dried.

To give a practical example, today a classic dyeing process envisages the immersion of polymers in a heated liquid made of 1 part of concentrated dye and 9 parts of hot water (e.g. 90°C) – therefore using a medium-small 30-litre tank, you will use 3 kg of concentrated colourant. The same Steam dyeing process in a 36-litre tank involves the use of pre-diluted dye in water (e.g. 1 part of dye and two of water), then added for the dyeing phase in quantities that normally do not exceed 600 gr (hence only 200 gr of concentrated colourant) – this reduces the dye consumption from 3000 to 200 gr, hence of about 15 times. We can state that variables can reach extremes between 10 and 20 times if compared to traditional processes.

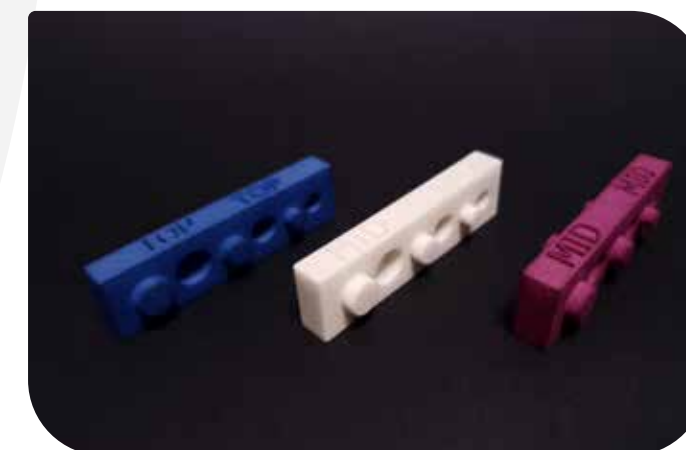
RotoPAINT technology is altogether a painting process with large use of solvent base paints. It can be applied to metal, plastic, wood and composite materials components; RotoPAINT rotary barrels are extremely flexible, efficient and, mainly, safe machines.

They are designed according to ATEX directives and manufactured with components and sensors with the aim to reach automation and managing levels typical of Industry 4.0. Finally, the planning concept of the rotary barrel is really accurate and allows to replace four stainless steel sectors periodically with clean ones, at every colour change or after «X» production hours, in few minutes time.

A peculiarity of RoboPAINT systems is to heat the barrel's walls through an external crawlspace and not insufflating air inside the barrel, since this could negatively affect the paints nebulisation process.

The development of Steam DYEING technology is based on a Techno Surface's patent, while the manufacturing of systems and machines with this technology is entirely up to **Rollwasch®**.

RotoPAINT technology for 3D and Additive Manufacturing field has been developed together with Imel Spa, company leader in the realisation of painting systems and manufacturer, from decades, of this type of rotary barrels which were completely updated between 2019 and 2021 benefiting the most modern technologies available and a MES (Manufacturing Execution System) dedicated to I-4.0.





WTF - WATER TREATMENT & FILTERING TECHNOLOGY

Starting from the beginning of the 1990s **Rollwasch®** began designing and manufacturing with excellent results systems to treat waste water coming from vibratory finishing processes. The success in this difficult challenge has been possible thanks to an extraordinary reformulation work (started in 1991) of the most important finishing compounds, by removing "difficult" substances. In parallel, the first complex flocculants of WWTC series (Waste Water Treatment Compound) have been formulated and perfected – still today they are among the top ten best-selling products among the chemical specialties made by **Rollwasch®**.

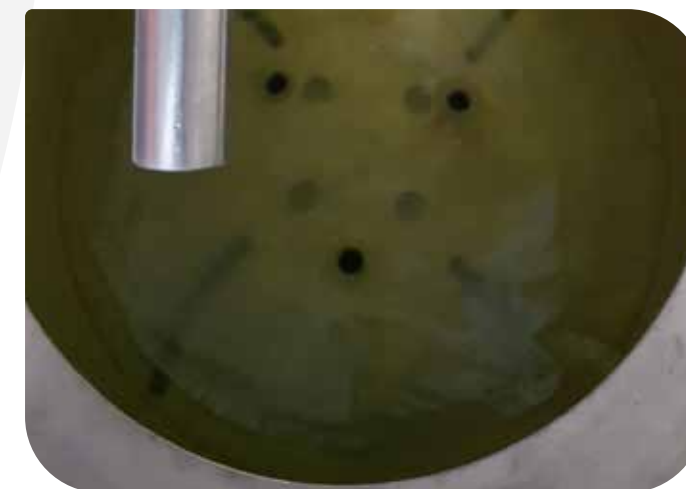
In the portfolio of solutions for water treatment many traditional chemical-physical plants are manufactured, both "batch" type and in "continuous cycle", with muds filtration of classic (filter presses) or innovative type (vacuum rotary filters).

In cases with simple vibratory finishing processes, namely ascribable to only one finishing compound reusable in a closed circuit, **Rollwasch®** has developed muds centrifugal filtration plants of RFC-20 series. At the beginning of 2000s, the first RFC-20-A machines were born, with automatic muds' cleaning without the intervention of the operator to replace the dirty basket with the clean one every «X» hours. The variety of RFC-20 and RFC-20-A systems has been gradually developed with attention to particulars, to allow processes of suspended solids' filtration excellent both for quality and operating efficiency.



In the last ten years, many steps forwards were made in terms both of quality of centrifugal force's electronic control by mean of latest generation inverters and optimisation of management through PLC combined with touch screen HMI, whose software is developed and perfected by **Rollwasch®** technicians.

Last but not least improvement, the formulation of polyurethane used for muds baskets - more and more compatible with "difficult" products such as some cutting fluids used by primary clients - which have demanded extremely complex studies to obtain chemical compatibility and mechanical resistance over the time.





QFM - QUATTROFINISH SPECIAL MEDIA

Rollwasch® has come up with a new range of finishing media with extraordinary quality and performances – QUATTROFINISH series.

This denomination means FOUR (as the number) and FINISH, since it assures the finishing in not less than four ways:

1. wet, to replace plastic or ceramic abrasive chips in classic or MicroFLUID processes;
2. wet, as vectorial media in coating processes (look at the specific macro-area);
3. dry, as finishing media for VibroDRY processes or joint to HPM media to balance the consumptions of media used;
4. dry or wet in VibroBLAST processes. QUATTROFINISH series media are the result of an international patent and, after a long procedure of study and improvement, they had a “mature” introduction on the market starting from 2015. In that year, the sale of a certain series of machines VibroDRY doubled as a consequence of the substantial cost reduction ascribable to these special media.

QUATTROFINISH series media are formulated by **Rollwasch®** labs with polymeric binders to which aggregates, abrasives and additives aimed at increasing their density can be added or not, where required.

QUATTROFINISH series media are produced by **Rollwasch®** with injections presses and very special moulds, whose implementation has demanded years of perfecting in order to contain deterioration generated, obviously, by the use of abrasives.

So, an extraordinary work on all fronts has allowed us to optimise a range of products that today differs from any other type of classic plastic or ceramic abrasive chip for a longer duration in time (from 10 to 20 times) and, consequently, for a drastic reduction in muds production and relevant disposal and transport costs.

The diffusion of these media - produced in several formulations and for different uses and with an average consumption in weight variable between 0,5% minimum and 1% maximum every 24 hours - is growing and has determined the birth of new variants obtained with alternative techniques, to realise higher and higher shapes and performances.





KEM - ROLLKEMIK COMPOUNDS

Rollwasch® has always produced finishing chemical compounds and today the production program is enriched by a formulations' series which goes beyond the one originally linked to vibrofinishing, like for example:

- Specific compounds for waste water treatment, flocculants, pH adjusters;
- Chemical compounds and preparations for elastomers' coating, such as lubricants or waterproofing compounds;
- Compounds for polymers' Steam SURFACING;
- ELY-TECH additives for electro chemical polishing;
- Compounds for industrial washing, phosphodegreasing, degreasing and protective compounds.

About the specialised products of original **Rollwasch®** program that has always been offered for surface finishing, ROLLKEMIK range offers chemical compound for:

- Degreasing
- Deburring / Smoothing
- Anti-corrosion protection
- Polishing and polished smoothing
- Burnishing
- Pastes and gels for DiaFINISH processes
- Pastes and gels for DiaGRIT processes
- Gels for AbraGEL – MicroFLUID processes
- Protective smoothers
- Coagulants
- Anti-foam
- Smoothing cremes, pre-polishing
- Polishing and super polishing cremes
- Burnishing cremes

One of main **Rollwasch®** advantages consists in the chance to combine, since production, media prepared with suitable Rollkemik chemical compounds.

An example are grits prepared for dry finishing processes where grits or granulates are pre-mixed with cremes for dry finishing before their use, in order to be ready to be loaded in the destination machine without any additional waste of time.



On the left an example of flocculant compound's action, mixed in the correct dose with waste liquid heavily polluted.

In few minutes, a liquid polluted by black ink in contact with WWTC-2003 powder flocculant is insolubilized and the ink is adsorbed and transformed into small scattered flakes.

At the end of the process, all flakes are precipitated on the bottom releasing a large quantity of water from pollutants.

Many **Rollwasch®** specialties are powder compounds, always packed in paper bags with internal plastic bags.

At the beginning, **Rollwasch®** bags were all identical, today they can be of different colours for standard and ADR products (subject to dangerous transport).

Our paper bags with plastic interior are sewn one by one by hand and offer excellent guarantees of long preservation with adequate storage.



In the same production area of chemical compounds, **Rollwasch®** has dedicated specific machines to quality tests (for each production batch) of plastic and ceramic abrasives.

Throughout over 70 years of internal or by a third-party formulation and production of abrasive media, **Rollwasch®** has stressed outbound quality controls optimising its own quality system ISO 9001 (starting from 1994) and generating a comparative database with a really long history of comparisons about parameters and variables such as consumptions rate diagrams, dimensional checks, finishing tests, foaminess controls (plastics), etc.

Rollwasch® quality is always under discussion, never left to chance, subject to continuous and scrupulous controls.





ROLLMEDIA - MEDIA FOR SURFACE FINISHING

During its history **Rollwasch®** has produced almost all types of media currently in its catalogue. Over the time, thanks to its experience as producer, it has been able to organise different lines external to its site, managed by subcontractors, in order to increase available volumes for its growing clientele.

Basic elements have always been controls of formulation, of raw materials used, quantity (weight) and quality tests such as consumption rate diagrams (wear, for almost all abrasive and non-abrasive media), chipping rate (ceramics and porcelains), foam generation (plastics), corrosion resistance and hardness (stainless steel balls), residual dustiness and fluidity (vegetal granulates), possible residual radioactivity (porcelain), as well as dimensions, colours and smells when demanded.

A quality system that does not spare anything to anyone, with strict checks for every production batch and ample traceability of batches.

ROLLMEDIA has always been a synonymous of constant quality over the time, reliability and competitiveness in selling prices.

Media selling service is extremely accurate too and it takes care of granting the right level of quality according to the sector which products are supplied to.

An example of this accuracy is media "conditioning" that, in some sectors, takes on a marginal if not null importance (hence it is not requested), while in other fields it cannot absolutely be a secondary element. This is why some clients use to carry out this process with their own machines, while the large part of clientele asking for it prefers **Rollwasch®** to take care of it.

The range of available media within ROLLMEDIA program is in continuous growth and, in the last years, it enriched in important varieties in the "Sandblasting media" context where there are media such as glass, ceramic, corundum and silicon carbide micro balls, special plastic granulates, metal grits for every kind and degree of shot blasting.





ENG - ENGINEERING & INDUSTRY 4.0

In **Rollwasch®** culture, engineering activity is developed in two separate and complementary phases: TRAINING of new resources for the future, starting from sensibilisation of student groups up to the realisation of internships and well-defined training plans, in order to do our best to ensure new minds, new passionate and responsible figures, as it was done in the past.

COORDINATION of the team of technicians, specialists, technical sales executives, representatives of production, labs, software, logistics, purchases, so that all the orchestra's instruments play a symphony as more perfect as possible.

Our aim is customer satisfaction, goal of a lot of work in order to coordinate a tried and tested team consisting of experts and professional figures ready to contribute with their own skills and constructive critics so that clients, when testing a system, are satisfied beyond their expectations.

A precious component of success of our Industry 4.0 systems is always more often to LISTEN and PAY ATTENTION to the client's needs. Our customers are more and more oriented in investing in high-level automation solutions and, more and more frequently, final quality and productive efficiency needs are the result of specific and deep knowledges of people who have been manufacturing similar systems for decades.

In this case, the listening allows us to interact at the maximum level with our clients, building a collaboration relationship which is essential to the good outcome of a tailor-made finishing system.

In the context of engineering and I-4.0 systems' realisation, **Rollwasch®** has the chance to implement exclusive and patented solutions, such as the Wear sensor which, drown in the polyurethane coating, permits to inform in advance when the wear is at a danger level. In this way, it is possible to arrange a programmed maintenance intervention instead of having the machine breaking down unexpectedly.

We have also implemented the WIFI management of HMI(s) of machine(s) involved in the I-4.0 managing, through tablet. Usually, if there are more machines of the same type, one uses the WIFI antennas (Master unit) while the others can be wired with LAN cable (Slave units) and be detected as unit 1, 2, N...

In our plant solutions' archive there are hundreds of realisations examples, some even with robotic integrations or advanced logistics' enslavements (RFID and similar).





PRE- & POST-SALES SERVICES



Rollwasch® makes available to potential customers a free finishing preliminary test.

Calculating the productivity of a mass surface finishing machine is not difficult, providing that you know the process data related to timing and to the quantities that can be treated per unit time.

The preliminary test has the aim to identify as more accurately as possible these parameters, as well as to show the achievable quality.

To request a test, it is enough to send a few raw samples, specifying the quality to reach (with a reference sample or data like roughness Ra), the quantity to be treated and the number of hours worked per day.

For any doubt, just call or send us an e-mail.



PRE-SALES: OUR FINISHING TESTS



PRE-SALES: OUR PILOT PRODUCTION SERVICES

The market is becoming always more complex and to deal with it the best resources are needed, such as the «pilot project», a new form of «responsible advice».

Among the services offered by Rollwasch®, the «pilot project» is a modern and advanced form of «responsible advice» which runs through three main stages:

1. «Finishing Flow Check-up»: an all-round analysis of the methods and costs related to the flow of finishing processes, with all the logistical, administrative, managerial, safety, quality and normative implications.
2. «Pilot project»: the representation of a complete project to achieve an optimized management in order to maintain quality and to improve costs, or to enhance the quality with definite costs in safety and regulatory compliance.
3. «Pilot production»: the verification phase of the requirements envisaged by the project.



OUR RESPONSIBLE PROJECT ANALYSIS



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Rollwasch® makes available to its clientele a top-quality tanks' lining service.

Rollwasch® has been offering its coating service for decades with professionalism and competence, through three main phases:

1. **Rollwasch®** receives the disassembled tank and it carries out a check-in control to verify that the tank has been dispatched under the conditions agreed during the quotation phase (with accessories such as filters, doors, flaps, grids - mounted or disassembled).
2. The tank is subjected to hot removal of the worn lining which is regularly disposed of. Only after this step it is possible to identify if there are problems on the metallic structure of the tank such as to lead to a possible repair of the metal tank, which is always excluded from the offer. If necessary, the customer is informed with a proper estimation about the cost for the repair. Alternatively, the quality control gives the green light to proceed with the new coating.
3. The tank is subjected to internal sandblasting, and then the new lining is applied. If there are reusable accessories such as nets, grids, etc., they are mounted. If the quotation envisages the installation of new filters (**Rollwasch®** type), they are applied. Finally, the external carpentry of tank is painted in the demanded or in the original colour. After quality check-out, the tank is ready for delivery.



OUR POST-SALES SERVICES



OUR SERVICES OF TANKS' LINING

Rollwasch® has reached and overcome 70 years of experience, with an activity rewarded by great results and with large satisfaction from the big part of our clients. This report of an activity developed in an extreme specialised field, even if embracing more than 220 different commodities categories, may inspire optimism.

However, at **Rollwasch®** we are inclined to a positive realism. Indeed, we offer a whole series of objective protections for our clients' projects, that space from finishing tests to pilot production, from the responsible project analysis to, in some cases, the «pre-delivery» of systems at our own headquarters.

In this case, the more demanding customers can ask to use their own systems before delivery, for a limited period of time, in order to tune given recipes, processes and experiences which are preparatory to the best production start-up possible at destination site, during the final delivery.

Rollwasch® makes available to its clients a top-quality tanks' lining service.

Among the various coatings offered by **Rollwasch®** service it is possible to choose:

- CPU - Casted PU;
- RPU - Reported PU;
- SPU - Sprayed PU;
- VUR - Vulcanized Rubber.

The service is multi-brand (not limited to **Rollwasch®** tanks).

All linings, with the exception of RPU, envisage the hot removal of the worn lining, the sandblasting of the internal part of the tank, the application of the new coating and the external painting.



OUR EXPERIENCE, YOUR RESULTS



ACKNOWLEDGEMENTS

Since its origins, **Rollwasch®** has created avantgarde technologies, always dedicating extraordinary energies to research and development activities.

Rollwasch® has always based its own Mission on assuring customer satisfaction with its own services, products and technological solutions.

To offer to the client products with the right quality/price ratio and machines that meet not only their expectations, but also operative reliability and efficiency criteria. To have transparent discussions, giving coherent and rapid feedbacks.

Rollwasch® has always based its own Vision on proposing alternative solutions to conventional techniques, offering innovation, projects' multi-disciplinary vision, high degree specialisation, affordable solutions and technologies, as much eco-friendly as possible and aiming to reduce carbon footprint.

To achieve all this, the Redaelli Family first of all thanks their founder Giuseppe who, with his own foresight and perseverance, was able to believe and instil trust in the future of this activity in many people, including two generations of his own children and grandchildren.

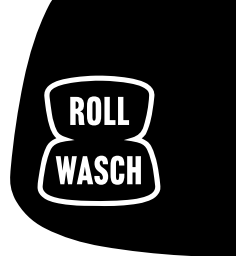
The Redaelli Family thanks all company's co-workers who have dedicated their physical, intellectual and moral energies to the growth and the development of **Rollwasch®** brand all over the world.

The Redaelli Family thanks clients, consultants and suppliers, everyone who has believed in **Rollwasch®** honesty and reliability not only as a company (with a financial report, an economic and financial trend), but also as a whole of quality people, trustworthy and cooperative, balanced and passionate, attentive and present, always.

We will continue to be grateful to our future customers, suppliers, co-workers and consultants for the loyal and honest support they will be able to grant to grow together with them and with **Rollwasch®** brand!



A large, faint, light gray stylized letter 'L' watermark is centered on a background of horizontal gray lines. The 'L' is composed of a thick vertical stroke and a horizontal stroke that curves slightly upwards at its end. The watermark is semi-transparent, allowing the lines of the background to be seen through it.



A large, light gray, stylized graphic element resembling a bracket or a large letter 'J' is positioned on the left side of the page. It is oriented vertically, with its top at the top of the page and its bottom extending towards the bottom. The shape is composed of a thick, curved line that starts at the top, curves to the right, then back to the left, and finally curves to the right again at the bottom. The overall effect is a minimalist, modern design element.

WWW.ROLLWASCH.COM



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