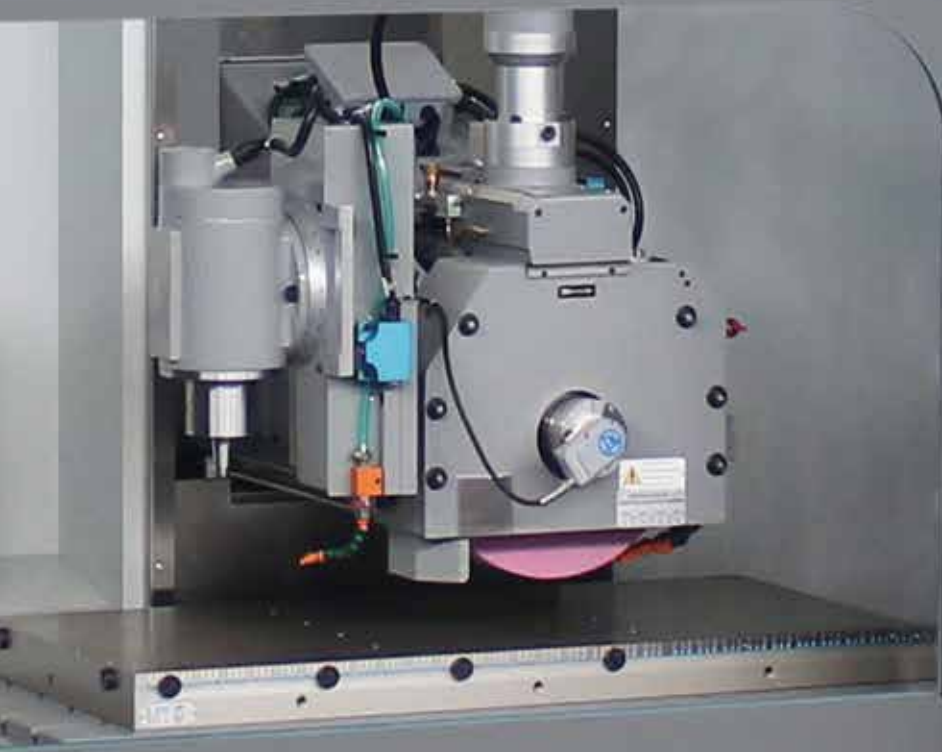




— Storytelling —

MAXI
DELTA



DELTA DELTA
THE POWER OF GRINDING

Grinding machines since 1955

Since 1955 DELTA has based its success on the design and construction of high-tech flat surface grinding machines that have allowed the company to establish itself on the Italian and international markets.

Founded by Oreste Marchesi and Pietro Ceri, DELTA was established in Pavia in 1955 as a precision metalworking shop, an activity soon abandoned to make way for the production of surface grinders. Even today DELTA produces about 200 surface grinders a year for a total of over 20,000 units sold worldwide, delivering the widest offer on the market. However, it was at the end of the 1960s that DELTA took a fundamental step for its further development when the first flat surface grinding machines were designed and built featuring high performance, reliability but also excellent value for money. These machines already included the "Mackensen" hydrodynamic spindle as a standard feature, a technology that combines high accuracy and durability, in



MAXI 3000/1100 CNC

addition to fully hydrostatic axes which – it is worth underscoring – guarantee zero wear and the elimination of sliding friction. DELTA machines proved so successful on the Italian and international markets that at the end of the 1970s, in order to face the strong market demand

appropriately, the company decided to move to modern and larger headquarters (3,000 sq.m) in Cura Carpignano, near Pavia. The transfer of operations to the new headquarters also offered the opportunity to innovate the company, for example with the adoption of computers for the

management of warehousing, production and accounting tasks, while the purchase of new NC machine tools and the use of modern equipment allowed the optimization of production cycles. In those years, the engineering department of DELTA also started the first research activities aimed at product evolution and innovation thanks to the introduction of electronics and the first control units.

Here comes the travelling column

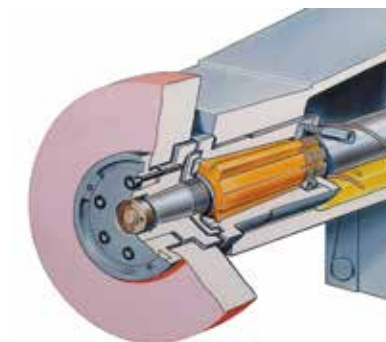
In the first half of the 1980s, DELTA's range of flat surface grinding machines was enriched with new large-size models featuring high production capacity: the Maxi family with travelling column. "In those years – recalls Adriano Ceri, President of DELTA – increasingly hard materials began to be used for moulds. Therefore, in order to meet this need, we decided to equip our grinding machines with a travelling column, a solution which until then could be seen only on milling and boring machines."

Today, the travelling column is characterized by a structure entirely made of stabilized Meehanite cast iron which eliminates – right from the start – all stability problems related to the crosswise travel of the head that normally occur in grinding machines with moving head, where the flexion increases along with the outreach of the head, as well as the related compensation problems.

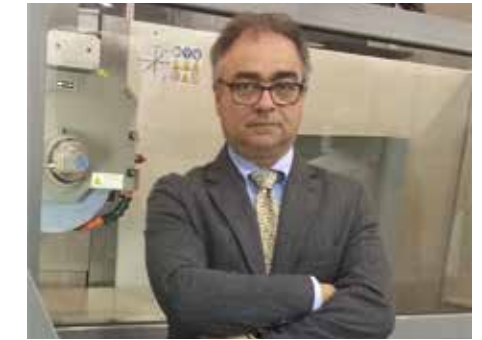
In those years, this product innovation led

to a major growth of the company business, so that in 1991 DELTA obtained the quality mark of the Association of Italian Manufacturers of Machine Tools (UCIMU) for the organizational level reached and for the quality of its constantly improved and modernized products. Numerous and important deliveries to many industrial sectors testify to the quality of the DELTA brand, that over the years had become a real benchmark in terms of seriousness and reliability both at a technological and at a financial level. The company is in fact classified Rating 1, the maximum level of reliability, by Dun & Bradstreet.

The 1990s marked a great growth period for DELTA also thanks to a profitable research activity aimed at product innovation and the development of new projects with the application of modern CAD systems. Of great importance in 1995, 1996 and 1998 were the studies for the optimization of mechanical structures, based on the finite element method, conducted in



The Mackensen hydrodynamic spindle



Ing. Adriano Ceri, President of DELTA

collaboration with the department of mechanical engineering of the Politecnico di Milano, a method that DELTA was among the first to introduce. At the same time, the increasingly massive use of electronics and automation solutions led to the creation of a section inside the DELTA engineering department dedicated to electrical and electronic design and software development. An all-round innovation effort whose significance and effectiveness was recognized in 1995, when DELTA obtained the "Award for Innovation and High Technology" from the Lombardy Region in recognition of the uniqueness of its technological offer to the market. The high technological level of DELTA solutions also led a significant growth of sales in those years. All this thanks also to a consolidated sales network which allowed the company to play a decisive role on the Italian and international markets. DELTA has always exported a significant share (on average 40%) of its production, an achievement

1955

Start of production of the first surface grinders



1968

Start of production of the first flat surface grinding machines



1983

Choice of the travelling column design and launch of the MAXI line



2004

The production of the new highly automated ELLE line begins, equipped with integral enclosure on request



2005

The MINI machine is launched: the travelling column becomes available on small surface grinding machines



2009

DELTA completes its offer with Rotax, a new family of surface grinding machines with rotary table



TODAY

DELTA is a leader in the production of grinding machines with travelling column, offered in the widest range available on the market





DELTA's headquarters in Cura Carpignano, near Pavia.

vement which was also recognized with a number of awards by the Chamber of Commerce, Industry and Agriculture of Pavia: the "Gold Medal for Export" in 1966, 1982, 1985 and 1988; the "Gold Medal for Economic Progress" in 1999 and in 2003 and the "Gold Medal - a Life for ..." for the prestige given to the sector over the years. "A goal that fills us with pride", confirms Adriano Ceri showing the certificates. Among the most important awards received by DELTA there is also the registration in the "Roll of Honor of the City of Pavia", at the beginning of 2000.

Expanding the range

In late 1999, the growing success of large-size machines with travelling column on

the market led DELTA to open a new production site of 1,500 sq.m adjacent to the existing plant. It is in this modern structure that the entire "Maxi" range of grinding machines is now made.

In 2002 DELTA was among the first Italian machine tool manufacturers to obtain the certification of its quality system according to UNI EN ISO 9001 standards from ICIM extension – "International Certification Network." This certificate crowned 50 years of applied research, studies, innovation, investments and organizational developments aimed at maximum customer satisfaction. In 2009 the company also obtained the new UNI EN ISO 9001:2008 certificate. During those years also the

surface grinders were revamped: in 2004, the ELLE surface grinders produced in five different models with fixed, rotary and oscillating table, were joined by new automated models, such as L11E, which can be equipped with an effective and safe integral enclosure with an innovative design. 2005 saw the launch of the MINI family of travelling column machines with a smaller capacity range than the Maxi, ensuring however the same accuracy and reliability. The Rotax range of surface grinding machines with rotary table, successfully introduced in 2009, confirmed the distinctive elements of DELTA machines: the travelling column, the Mackensen spindle and the hydrostatic axes.

The significant market results achieved with these machine models have led the company from Pavia to choose to manufacture surface grinding machines exclusively equipped with travelling column, a segment in which today the DELTA brand has become the market leader. "Today DELTA – concludes Adriano Ceri – offers the largest range of grinding machines with travelling column, with the Maxi and Mini machines currently available in 12 models with grinding surfaces from 800x550 mm to 3,000x1,100 mm and the three Rotax models with grinding diameters from 500 mm up to 1,200 mm." ■

Complex machines, simple use

Thanks to its software department, DELTA has been able to equip its grinding machines with a **control software** designed and developed in-house, guaranteeing maximum customization and assistance

by Giancarlo Giannangeli

A specialist in the production of high-tech flat surface grinding machines, DELTA offers its products in standard versions, even though customers almost always ask for special designs – especially today, when it is increasingly essential to interface machines with planning systems with a view to Industry 4.0. Modifications, adjustments, non-standard machining cycles: nothing could be easier for DELTA, since the machine control software is totally designed and developed in-house. The company from Pavia stands out in the panorama of machine tool manufacturers thanks to its software department established over twenty years ago, as Paolo Marchesi, Software Development Manager, underlines: "We have become experts in mechatronics, mixing our skills in IT, electronic engineering, mechanical engineering, and of course in the processes that our machine can perform. The goal that we have always aimed at is to offer customers easy-to-use software, really very simple, even if this means for us to write extremely complex control codes:

the software must "hide" any complexity of the machine to the operator. We want to absolutely avoid that the user can make mistakes due to a complicated or cumbersome interface, not intuitive." This exclusive aspect of Delta, that is the availability of IT engineers within the company, makes the software extraordinary flexible for customers, who are then able to immediately implement every correction, every operating change that they may need. The intimate knowledge of the machines also from the IT point of view is very useful to identify issues rapidly, to quickly find a solution whenever needed.



A Siemens CNC system installed on a MAXI 2000/750 grinding machine










Ing. Paolo Marchesi, Software Development Manager at DELTA

Ready for the future... and also for the past

The future gives a glimpse of an increasingly advanced automation level: "The suppliers of components – explains Marchesi – are already making our work easier, offering new interfaces in which the use of the touch screen will be predominant, as well as new sensors capable of collecting a greater number of data and information, increasingly controlled by electronics, but at the same time easier to use."

The other side of every workshop are old machines: "We still provide assistance for machines that we produced 40 years ago. We have seen how electronics moves on rapidly, how components quickly become obsolete: some controls have already disappeared from the market today. As we think ahead and know the reluctance of workshops in modernizing their equipment, maybe after 'only' 15 or 20 years, we keep large stocks of every type of electronic component. We can also introduce changes to ensure the compatibility of new products – an aspect unknown to large manufacturers which only an internal software house can guarantee. Our motto has always been: never let down a customer!" ■

<p>1968-82-85-88 Gold Medal for Export" of the Chamber of Commerce, Industry and Agriculture of Pavia</p> 	<p>1991 Quality mark of the Association of Italian Manufacturers of Machine Tools (UCIMU)</p> 	<p>1995 Award for Innovation and High Technology" of the Lombardy Region for the uniqueness of technological proposal</p> 	<p>1999 "Gold Medal for Economic Progress" of the Chamber of Commerce, Industry and Agriculture of Pavia</p> 
<p>2000 DELTA is registered in the "Roll of Honor of the City of Pavia"</p> 	<p>2002 Certification of the quality system according to UNI EN ISO 9001 from ICIM with worldwide IQNet extension, subsequently aligned with the new UNI EN ISO 9001:2008 standards</p> 	<p>2003 "Gold Medal - a Life for ..." for the prestige given to the sector over the years</p> 	<p>TODAY DELTA is synonymous with seriousness and reliability, even at a financial level. In fact it is classified Rating 1 / Prime Company by Dun & Bradstreet</p> 

Quality and service

Steady technological innovation and high quality advice and after-sale services allow Delta to offer an advanced range of machines that are able to satisfy even the most demanding customers.

by Ernesto Imperio

Accounting for a 60-70% share of total sales, Italy is the most important market for DELTA, a company certified UNI EN ISO 9001 since 2002 and with a worldwide IQNet extension. "The company's success on the market – explains Maurizio Ceri, Sales Manager Italy – has its roots in the high technological content of our machines, the result of a project started several years ago, based on innovative technical solutions. In the face of this undisputable value, the challenge for our technical sales network is that of offering high qua-

lity advice and after-sale services with the support of an adequate technical presentation of products. There are several important technical aspects that, before price, we want to highlight to our customers because they are the distinctive elements of our products. Like the travelling column of the early 1980s that has never ceased to be at the forefront and that we carry on with conviction. And then there is the choice of fully hydrostatic axes, which completely eliminate sliding friction and allow maximum exploita-



Maurizio Ceri, Sales Manager Italy

tion of the installed power, together with extremely regular movements in the total absence of wear or stick-slip issues. Another important technical solution consists of the spindle, with the Mackensen hydrodynamic bearing for zero wear, ensuring precise machining and very accurate surface finishing over time."

These elements explain the widespread presence of DELTA in some major manufacturing industries, from moulds to precision mechanics, automotive, aeronautics and white goods, boasting prestigious customers such as FCA, AvioAreo, Immergas, De Longhi, Fondital, Cembre, Dana, TP Tooling. "Our customer service – Maurizio Ceri concludes – is managed by our internal staff who are able to react with professionalism and timeliness to all customer requests, also through remote assistance. Our NC machines are Industry4.0-ready, and we adopt for them first class hardware and software developed by us in order to offer a user-friendly interface and to customize grinding cycles more effectively." Delta's ability to meet all customer needs in terms of maintenance, repairs and retrofits for its grinding machines is also highly appreciated by the market. ■



MINI 12 CN with touch screen



Ing. Giovanni Marchesi, International Sales Manager

A consolidated sales network allows DELTA to play a decisive role on the Italian and international markets. The Lombard company has always exported a significant share of its production, which may even reach 50%, depending on the year. The Chamber of Commerce of Pavia has repeatedly awarded the company with prizes and awards for its presence all over the world. The main outlet market is Europe, while the application sectors range from pneumatics to hydraulics, manufacturers of machine parts, cars, aircraft, naval engines, without forgetting mould makers. Giovanni Marchesi, International Sales Manager, explains: "Many of our customers are multinational companies that – as they operate in different countries – support our exports. Then there are non-European countries that alternate in our portfolio depending on the years, such as Saudi Arabia, to which we have recently exported three machines: these are generally customers who are ready to buy machines from European manufacturers, although negotiations can take years with various reviews of the specifications. Being able to win a contract of this kind gives a lot of satisfaction: the product, the technology of the machines, but also the financial standing and creditworthiness of the supplier are evaluated. Each company is subjected to in-depth scrutiny and competitors are numerous and fierce. We are generally appreciated for our

World-wide coverage

Today, DELTA offers high-performance solutions, high customization and great reliability to European and non-European markets.

by Giancarlo Giannangeli

attractive value for money and for the reputation of reliability and accuracy that our machines enjoy, whatever size they are."

Close to the customer

Over the decades, Delta has always stood out for its willingness to listen to customers' suggestions and to develop solutions to the problems faced by the users; this ability to examine and intervene on the configuration of a machine, perhaps to make substantial changes, is not so widespread among large manufacturers, and is therefore particularly appreciated on international markets. The dialogue with customers is often revealing: "The users themselves – Giovanni Marchesi says – show us the particular features of our machines that at the beginning we didn't consider, highlighting, for example, an excellent flexibility that is not easy to find on the market. Listening to the operators has allowed us to make huge leaps in innovation. I remember a Dutch customer intere-

sted in a process that required the availability of a very rigid machine. After some trials, he found that our grinding machine was the ideal tool to work on ceramics, a material that requires total absence of vibrations, as they could affect such a fragile material." As for customer assistance and training, given the temporary ban on international travels, DELTA has been able to maintain its relationship with customers using alternative means and smart communication systems in place of traditional trips. ■



ROTAX 12 NC grinding machine

ELLE LINE		
5 Models		Max grinding surface
With fixed table	LB300	330x140 mm
	LF350	360x155 mm
With rotating table	LC400	Ø 300 ÷ Ø 400 mm
	LC500	Ø 500 mm
With oscillating table	LP500/200	500x200 mm



ROTAX	
Cn Plus Touch Screen / Cnc	
3 Models	Max grinding surface
Rotax 7 Rotax 9 Rotax 12	Ø 400 ÷ Ø 1200 mm

MINI	
Diastep / Cn Plus Touch Screen / Cnc	
3 Models	Max grinding surface
Mini 7 Mini 12 Mini 15	800x500 (550) ÷ 1500x600 (650) mm



MAXI	
Cn Plus Touch Screen / Cnc	
9 Models	Max grinding surface
1200/750 - 1500/750 2000/750 - 2000/1000 2500/1000 - 3000/1000 2000/1100 - 2500/1100 3000/1100	1200x750 (775) ÷ 3000x1100 mm



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