

VANE

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COMPRESSED AIR SINCE 1919

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LEAN

MATTEI WELCOMES

Laying down the challenge to German compressors

PRODUCTS

A matter of running-in

PROCESS

Operation "Toyota"

NETWORK

Discover Mattei compressors in action



COMPRESSED AIR SINCE 1919



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In Mattei, “lean management” takes centre-stage



Andrea Pecorai,
Chief Operating Officer, Mattei

The concept of “lean management”, born in Japan after World War II and refined to perfection on the production lines of Toyota, is now becoming an essential organisational concept for companies who want to be competitive in market.

The so-called “lean management” is a philosophy that aims to minimise waste through a rational use of resources to produce more, in less time, whilst maintaining the highest quality standards, all to the benefit of the end customer. It is a very complex journey towards efficiency and one that is potentially without an end, because there are no limits to the objectives that can be earmarked for improvement.

Also in Mattei we have decided to undertake this cultural change, across all departments, from the top right down to production. In fact one of the fundamental aspects of this approach is working in synergy with common objectives in order to make workflows more rapid and streamlined.

As with all radical changes that impact on the way of acting and thinking, we need commitment, conviction and dedication. The same applies to how we are operating in Mattei, convinced that it is the right way to go. In fact, we only aim to become a more agile and more flexible company, ready to adapt to market changes and new customer demands.

LAYING DOWN THE CHALLENGE TO GERMAN COMPRESSORS

A face-to-face interview with Michael Clarkson, Commercial Director of Mattei Kompressoren GmbH since April 2018, conducted at the Waiblingen subsidiary, close to Stuttgart.

In this interview he describes his vision for the German market, and the opportunities he sees for Mattei rotary vane compressors, when competing against screw compressors that have traditionally been very strong in Germany.



characteristics at Mattei, a family-owned company, with almost a century of history behind it. The enthusiasm and the dedication of the Contaldi family, together with their company vision firmly focused on the future, are essential foundations on which to grow a presence in a difficult market like Germany.

I was also struck by the choice of Mattei to grow alone, investing in research and development to implement the company know-how and offer engineering solutions which over time are continually being perfected. Today, Mattei rotary vane technology truly represents an economically better alternative to screw compressors. As demonstrated by multiple independent third-party tests, Mattei compressors actually improve in efficiency over time, and for the entire duration of their life, typically reaching 100,000 operating hours.

Because of the dominance of the screw compressor manufacturers in Germany, the full potential of the Mattei machines is still to be realised, and, in some cases, the brand is not even known by the potential customers. This was one of the motivations that drove me to join the Mattei team and give my contribution towards consolidating our presence in Germany, and further grow our brand awareness.

You are a newcomer to the world of compressors, but not compressed air: can it be said that your career path to date has been a bit like a salmon swimming upstream?

In effect, it is exactly like that. My career started “downstream” where I spent more than a quarter of a century selling systems for the filtration and treatment of compressed air and gases. Now, with my arrival into the world of Mattei compressors it’s as if I have swum all the way back upstream to the source. Also, from a geographical point of view, I am coming back to my origins; most of my career was spent in Germany, before I transferred to Italy five years ago, running the hydraulic filtration division of a large Italian group, based in the province of Bergamo. Now I’ve come back to my homeland, whilst still maintaining a close relationship with my adopted country, Italy.

Why did you decide to join the Mattei team?

During my career I have been lucky enough to work for innovative companies where I saw the passion and efforts made to improve the ways we do business. I was happy to rediscover those





“As Charles Darwin said:
It is not the strongest of
the species that survives,
nor the most intelligent.
It is the one that is most
adaptable to change.
This is the challenge
that I’ve agreed to take
Mattei ahead on.”

Michael Clarkson,
Commercial Director,
Mattei Kompressoren GmbH

What are the particular challenges that Mattei will need to face up to in Germany?

Every market has its own peculiarities and the German market is very demanding. Here companies are looking for commercial partners able to demonstrate their “Leistungswettbewerb”, the ability to stand out with excellent quality of both product and service, whilst being able to react accordingly to meet the demands of the end customer. To do this it is important to be physically present on-territory. Mattei understood this very early on and opened up the subsidiary in 1999.

What are the aces up the sleeves for Mattei in terms of activity in the German market, and what are the company objectives in the medium/long term?

Mattei is the stand out among the compressor manufacturers. Whilst the main players in the sector have all been focusing on screw technology, since the 1950’s Mattei has believed in and followed the path of rotary vane technology. Owing to their characteristics, such as the absence of roller and thrust-bearings, which reduces the need for maintenance interruptions; or their low energy consumption which delivers impressive running cost savings, the Mattei compressors are perfectly suited to the needs of an export country like Germany that requires machines which are simple, compact and highly resilient and just become “fit & forget” systems. I consider Mattei to be one of the top contenders for OEM applications, and another string to our bow of late has certainly been the new range of machines for use on the railways, which were recently showcased at the Innotrans exhibition in Berlin.

Our first objective therefore is to further increase and strengthen the presence of Mattei in the German market, so that we can be even more competitive and be able to convert a higher number of sales opportunities.

One final question. Where do you see yourself in ten years’ time?

In ten years I will be nearing retirement and so I would be proud to be able to look back over this journey and to see that the well-deserved growth has been delivered for Mattei in the German market.



The more they work, the more efficient they become: this is the summary of the life of Mattei compressors which do not suffer a drop due to wear of the components, but on the contrary, significantly improve in performance over time. It's owing to a micro-polishing process of the blades at the start of their life as they glide in and out of their slots, allowing the compressors to obtain continuous improvement of their energy efficiency.

A MATTER OF RUNNING-IN

Rotary vane technology is the only one capable of an efficiency increase even after many hours of operation. This has been proven in tests carried out by Mattei as part of a programme to analyse the performance of rotary vane compressors, and is based on results that are certified by Intertek, the same independent certification laboratory, also used by the American institution CAGI (The Compressed Air & Gas Institute).

The results show that, unlike a screw compressor whose maximum efficiency is recorded at zero hours and then deteriorates due to component wear, the rotary vane compressors do not deteriorate over time and actually become more efficient with their operation. This is because at zero hours the vanes have not yet been run-in. During the first 1,000 hours, as they glide in and out of their slots, a micro-polishing process occurs to give a mirror-like finish, which initiates a microscopic material transfer process, that will last for the full life of

the compressor, and is renewed after every oil change.

Intertek tested a 60Hz Maxima 55 compressor at zero hours and again after 100, 200 and 500 hours of operation, confirming the presence of a running-in period where the blades take on an increasingly mirror-like finish, further reducing any friction. At the end of this period, the compressor is even more efficient because the production of compressed air increases, the power used decreases, and as a result, so do the operating costs. On the contrary, a screw compressor will undergo wear over time, with a corresponding deterioration in performance.

The industry standard tests, also performed by Intertek on behalf of CAGI, but only at zero hours are therefore giving a false picture. In effect they penalise Mattei in a direct comparison with screw compressors because they do not consider the improvements in energy efficiency during the life of the compressor.

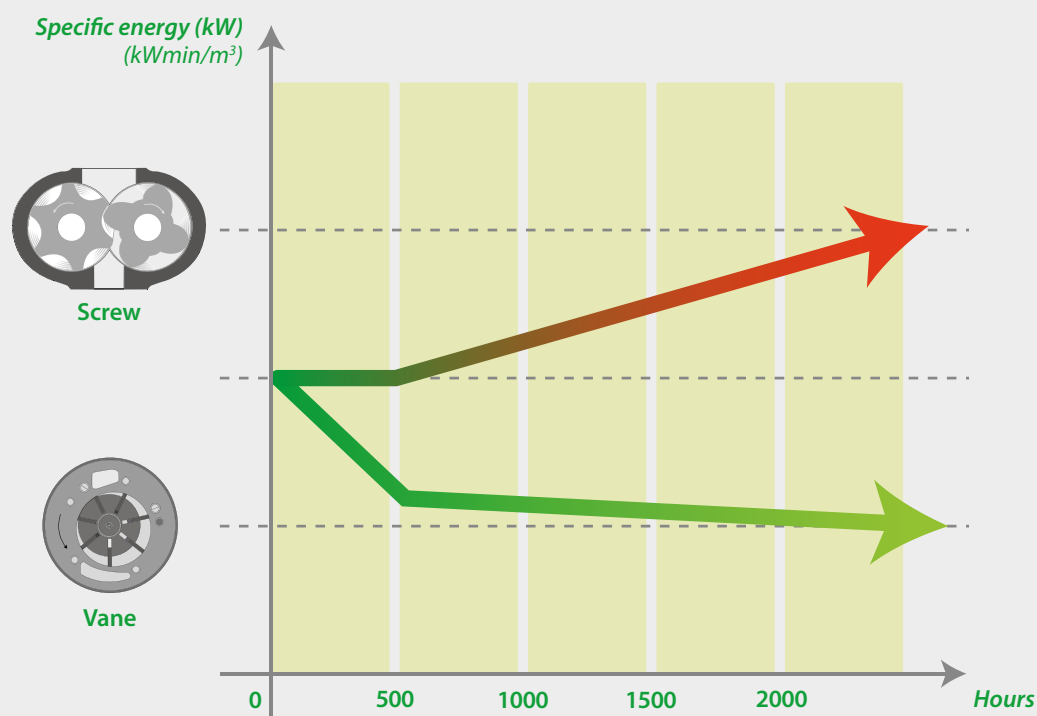
Mattei continues to conduct independent tests following the ISO standard 1217 - Annex C, and publishes the 500-hour test results online: *"Our rotary vane compressors have the best Life Cycle Cost on the market, because over the run-in period, and particularly during the micro-polishing process which occurs within the first 1,000 hours of operations, the performance figures continue to improve, a trend which lasts for the whole life of the compressor. This means you get a guaranteed supply of compressed air whilst lowering costs"* declares Giulio Contaldi, Chief Executive Officer of Mattei. *"The energy efficiency of our compressors is not only a feature in which we have always firmly believed in, but it is also a fact certified by independent testing"*.

Giulio Contaldi,
Chief Executive Officer, Mattei



The results of the performance tests of rotary vane compressors are clear: over the run-in period, their performance improves, winning hands down when compared to screw compressors.

The micro-polishing process starts a microscopic material transfer process which will last for the entire life of a rotary vane compressor, without causing any deterioration of the components.



After 500 hours of operation, testing proved that:

- Specific Power (kWmin/m³) improved by 3.78%
- Rated capacity at full load improved by more than 1%
- Input power at full flow decreased by over 2%
- Input power at zero flow decreased by over 2%



OPERATION “TOYOTA”

An agile and streamlined production is based on the actual product demand, minimises time-wasting and maximises the efficiencies of company resources. In the industrial world, excellence in these terms has been reached by the car manufacturer Toyota, now a model for all those companies, such as Mattei, that want to increase their productivity and be more responsive to market demands.

“The changes in management culture and production, triggered by the move to lean management, will be crucial for Mattei to become even more competitive and open to the challenges of the market. This process will never stop, because there is no limit to the objectives that can be set; it is simply a matter of grasping this and facing up to it with the right approach.”

Andrea Pecorai,
Chief Operating Officer, Mattei

increase the perceived value of the production by the end customer. Leading the company into the world of lean management is Andrea Pecorai, new Chief Operating Officer of the company since January 2018, who has a deep know-how in this field developed during different previous international experiences. *“Contrary to what one might think, the model proposed by lean management is not based on the introduction and use of new technologies, but on the reorganisation of industrial processes. All levels of the company are involved in setting a new organisational chart, new logistical workflows, and therefore a new way of producing. Currently we have completed the first phase of aligning the company to a common strategy, that is being continuously monitored”.* For some months in Mattei a purpose-built space was set up where the heads of each department could meet periodically to share about activities and projects, check progress, plan corrective actions, define new objectives and the actions needed to achieve them, setting standards of work to guarantee constant results

In technical terms it is called “lean management”, but others simply define it as the “Toyota Method”, taken from the name of the automotive giant who successfully applied it. It is a production philosophy, born in the East after World War II which then spread to the West in the 80s. The concept is based on “doing more with less waste”, placing itself in many ways, as an alternative to mass production. The results of its application are extraordinary for reducing both management time and costs, as well as improving the quality of products and services. Mattei, with the support of Eng. Matteo Consagra from the Lean Management Institute, undertook this important cultural change two years ago in the management of operational processes, in order to

The Obeya room, where all projects are analysed in a structured way thanks to the A3 method.



over time. *"The Mattei Obeya Room is literally covered with A3 sheets of paper, allowing us to analyse the projects in a structured way and measure the results".*

On an operational level, lean management focuses on the demand coming in from the market and no longer on the supply; producing quantities of products aligned with actual demand, avoiding waste in the movement of materials and improving flexibility. This approach leads to a drastic change in production flows, which must become faster and more agile, and for the workforce, who need to specialise and take on more responsibility. *"To respond faster to customer demand, we are favouring a one-piece flow approach, i.e. the production of one piece at a time avoiding the accumulation of material along the production line. The next step will be the transition from a system of "assembly islands" to one of production cells, optimising the use of both space and resources. It will no longer be the responsibility of one single worker taking care of the assembly of a complex product like a compressor, but a whole team, each of them focusing on a specific phase. With this logic*

In two years, all levels of Mattei have been aligning themselves with a new common strategy. Now there is a huge change in production flows that is in response to this approach and consistent with the needs of the SAP system.

it becomes indispensable to have checks in each production cell to reduce any errors to a minimum, stopping the production line in case of anomalies, without compromising the quality of the final product. In this way you reverse the direction of the process of value creation as



A moment of discussion in the Obeya room.

MATTEI IN 2010



MATTEI TODAY



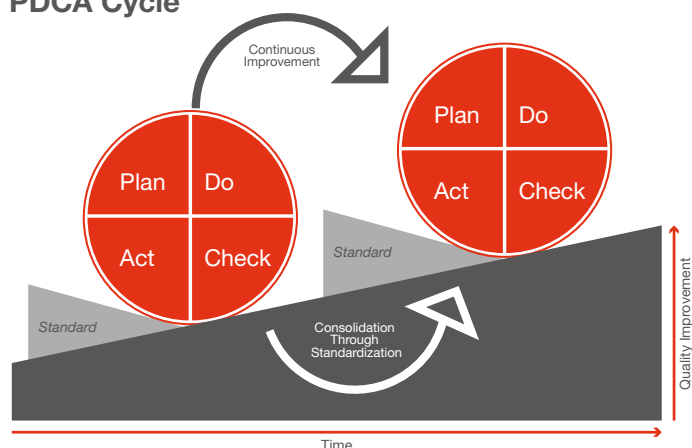
Reducing the amount of material on the line in comparison with Mattei in 2010 - the first step to lean-transformation.

it starts right from the customer who in effect pulls the company”.

The managerial approach dictated by lean management must be integrated with the new needs of the SAP software management system, recently introduced in Mattei. “Thanks to SAP we will be able to codify the standards set out by lean management and turn them into efficient and rigorous management processes. All departments across the company are impacted by these cultural and operational changes; from the handling of materials to purchasing process, and from administration through to accounts”.

The streamlining of workflows currently involves the Mattei headquarters in Vimodrone and the Zingonia plant, but it is a slow process with lots of steps towards continuous improvement, that in future will touch the entire Mattei group on a global scale. “The Japanese term for defining this approach of always looking for innovation and evolution is Kaizen. We are setting strict standards in place that can be applied across all plants, considering the specific needs of each market in which we operate. Mattei will strive

PDCA Cycle



The Deming cycle, for the control of continuous improvement processes (PDCA).

to involve the suppliers and the distributors in the new workflows, to develop a structured industrial business capable of accelerating time to market and guaranteeing its customers the levels of quality and efficiency that are the prerequisites of being really competitive” concludes Andrea Pecorai.



DISCOVER MATTEI COMPRESSORS IN ACTION

To better present rotary vane technology to the markets of Russia and western CIS countries, Mattei has successfully introduced a new format of relationship marketing. Thanks to direct contact between distributors and end users, getting across the technical details and the advantages of Mattei compressors has become even more effective.



“In the Eastern European markets, there are still some prejudices about rotary vane technology: these meetings are an effective opportunity to demonstrate the advantages that Mattei compressors can make in different industrial sectors, including OEM applications.”

Serghey Sokolov,
Russia and CSI Sales Representative, Mattei

In the last few months, Mattei has created two important occasions to meet with prospects clients from Belarus and Ukraine, where both the company is present along with some distributors. *“Thanks to the support of our local dealers we have already organised two meetings with some end customers, from different industrial sectors”,* says Serghey Sokolov, Head of the Mattei representative office in the Russian Confederation. *“In Minsk back in June, we brought together about 20 people for an educational focus on the technical characteristics of our compressors and the advantages of rotary vane technology. Whilst during the day in Poltava, 350km east of Kiev, we were guests of Poltava Medical Glass, an important customer specialising in the production of glass vials for medicinal use. During the factory visit, the 40 participants*

were able to see the live operation of our compressors for themselves”.

The success of these meetings has prompted Mattei to plan others in the future: *“The format of the events is very captivating. On one hand, Mattei can better illustrate the advantages of our products in the presence of selected audiences, driven by a real interest in product knowledge. But then on the other hand, the end customer also feels exclusive in how they are being handled; they are able to delve deeper into the technical aspects of the machines as a result of the direct contact with company staff, whilst in the case of Poltava, they can also test the real efficiencies of the compressors at work in the field. The advantages of this type of meeting compared to trade fairs is remarkable: participation costs are kept low, dispersion of the group is avoided as there are no competing brands present, and your attention can be focused on a series of really interested prospects”.*

In Eastern Europe, the market potential for Mattei is enormous because the exclusive technology is still relatively unknown, but it is at the forefront and constantly improving and evolving thanks to the huge investments in research and development. The added value of the one-to-one meetings lies in the possibility of being able to explain to a specific group of users, a product that is rich in technical specifications, giving them the possibility to have a much deeper understanding of the features and benefits. *“Since 2017, we have witnessed double-digit percentage sales growth in Russia and the western CIS, where the Made in Italy aspect has definitely played its role as Italy is synonymous with high quality. Another winning feature of Mattei compressors is their versatility, in fact they can be used in almost all industrial applications. During the meetings of the last few months we have targeted end users from very different industrial sectors, ranging from textiles to mechanics and food. Another area where Mattei compressors can hold their own is that of the OEM applications in the railway and public transport sectors, where the quietness and energy efficiency of rotary vane technology sets us apart when compared to the competition”.*



PERFECT BLEND OF QUALITY

Mattei compressors have landed at the extremes of the southern hemisphere and contribute to the quality of one of South Africa's best coffees, those of the TriBeCa Coffee brand. The most appreciated aspect of rotary vane technology is the great reliability, which guarantees quality compressed air during very intensive work cycles and in harsh environmental conditions, such as high temperatures, typical of the coffee roasting process.



The name comes from the famous district of New York, in the south part of Manhattan (the "Triangle Below Canal Street") but should not confuse the actual location of TriBeCa Coffee. In fact it is a South African company, whose core business is in the coffee production sector, flanked by other related activities in the catering sector, and has decided to make use of the rotary vane technology of Mattei compressors to keep the excellence of its products intact.

The history of this company started in 1996, when the American, Dale Mazon, opened the first TriBeCa coffee shop in Pretoria, with the idea of importing the New York coffee culture into South Africa, where it is possible to enjoy high quality products. His intuition proved successful and over time, the company expanded its business, also thanks to the entry of two very capable entrepreneurs, Martin Fitzgerald and Ernst Penzhorn, who were able to quickly grasp other opportunities. These included investments in Europe, with the opening of four cafes in Poland, and a partnership with the supermarket Woolworths, started back in the early 2000's that has expanded over time, but most of all, the decision to become a coffee producer with the opening of the first small plant in Pretoria.



Quality always at the highest levels and a business in continual expansion: TriBeCa is a successful industrial company that relies on Mattei compressors to guarantee the excellence of their coffee.

"Thanks to continuous research into the best raw materials and an innovative industrial policy based on careful stock management, we guarantee our customers high quality blends and high freshness standards" comments Surine Viljoen, Chief Operating Officer of TriBeCa. "Today the company produces both conventional coffee and capsules, utilising raw materials from small South African producers, thus stimulating the economic development of local communities, of which it also supports different primary education projects. Since 2013, a few restaurants under the TriBeCa brand have also opened which focus on supplying natural products".

Today the TriBeCa network employs around 2,000 employees and the brand is the leader in South Africa for retail sales of ground coffee and beans. *"According to the latest data from June 2018, TriBeCa holds 33% market share and continues to deliver constant growth; we produce on average around 120-130 tons of roasted coffee per month and we are about to double our production capacity again with the opening of a new plant",* says Viljoen.

There's also a touch of Made in Italy within TriBeCa coffee. *"In the coffee industry, and the food industry in general, the role of compressors is fundamental. Mattei enjoys an excellent reputation in this sector and that is*



why we rely on the technology to guarantee the high quality standards of our product”, says Geoffrey Theart, Production Manager of TriBeCa.

To cope with large amounts of compressed air required, TriBeCa roasting plant installed two variable speed compressors from the Optima Plus series (with integrated dryer) and two ERC series compressors. “90% of our systems are equipped with pneumatic systems that need a steady supply of air. If this were not the case, production rates would be irreparably slowed down, there would be a considerable expenditure on other costs, and of course considerable impacts on the end-quality of the product. Of the Mattei compressors we appreciate their great reliability, with only periodic ordinary maintenance operations, managed by the local distributor, Rotorvane, they withstand the frenetic pace of work without failures, and always provide quality compressed air”, explains Theart. “Furthermore, these compressors can work optimally even in extreme conditions, such as in the presence of

high temperatures which, during the roasting process of the coffee beans, can reach 230°C. It is also thanks to the performance stability of Mattei compressors that we can guarantee our customers the high standards of quality that are now associated with TriBeCa products”. TriBeCa is a business continually on the up and will soon open another new plant for roasting, for which Mattei has already been contracted to supply the compressed air. “The new plant will receive one of the latest machines, a

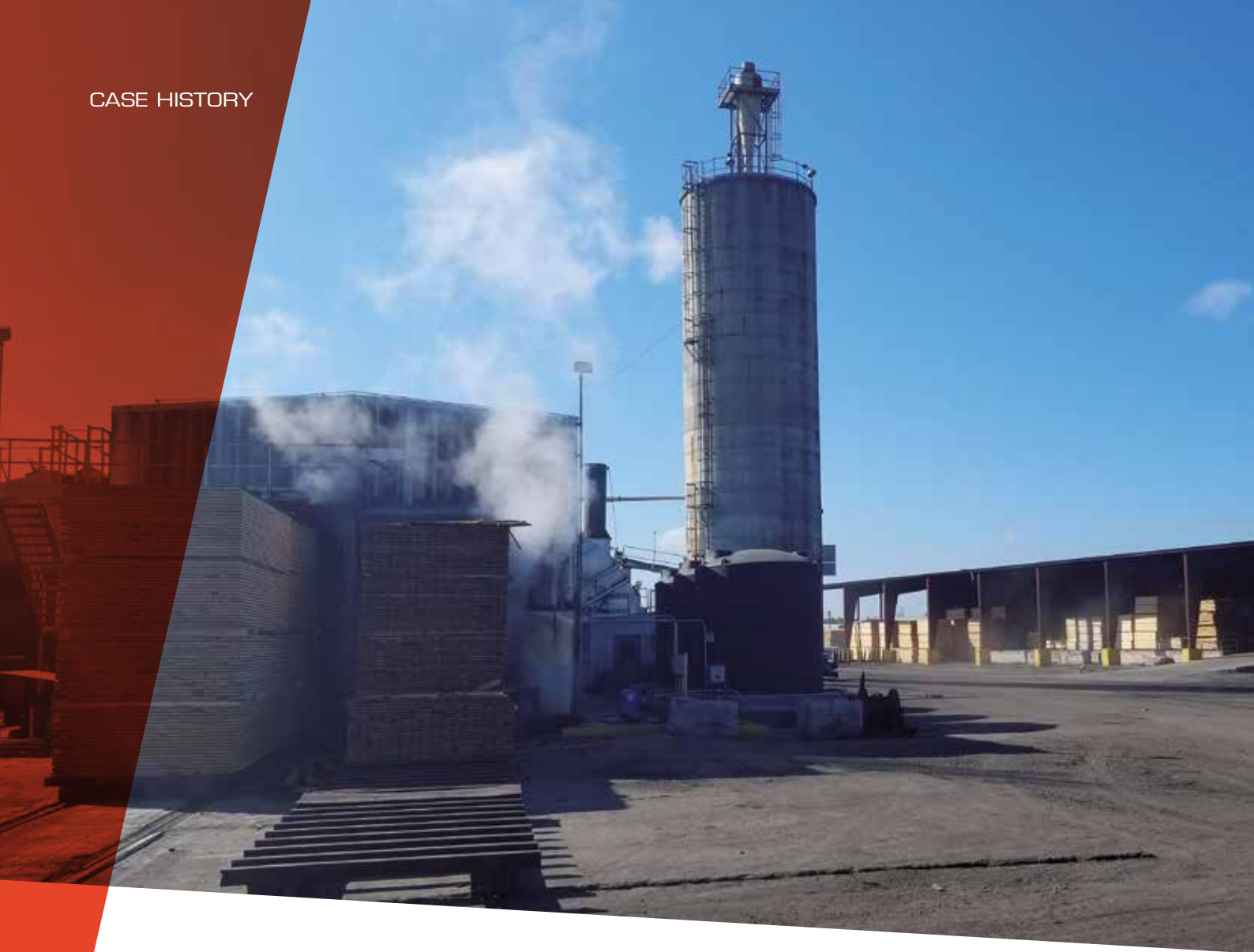


“What I value most from Mattei compressors, is their great reliability which delivers us a continuous and stable supply of compressed air that is always of an excellent quality; a fundamental aspect in the food industry as it is for TriBeCa.”

Geoffrey Theart,
Production Manager, TriBeCa Coffee

Blade 22i Plus”, explains Cindy van der Watt, Operations Manager of Rotorvane Compressor Sales, the official Mattei distributor for South Africa since 2011. “It will be equipped with an inverter and integrated dryer and this model has an excellent cost/performance ratio. Thanks to the direct-drive between the motor and the compressor, it ensures optimal operations even at low speeds, resulting in energy savings and quieter operations”.





Conifex Timber Inc., a leading next generation forestry company recently installed the Mattei rotary vane compressor technology at its Cross City, Florida location. This project has provided a number of benefits, at a reasonable cost, including reduced maintenance, superior performance and lower energy consumption.

ROTARY VANE PIONEERS

Conifex Timber Inc., a publically traded company, was founded in 2008 in Vancouver, British Columbia. Conifex and its subsidiaries' primary business includes value added lumber finishing and production in Canada and the US and distribution across North America and Asia. Conifex acquired the Cross City, Florida sawmill, known as Suwannee Lumber Company, in July



of 2018, where high-quality dimension lumber and decking products are produced. Mattei's rotary vane compressors were installed in 2017 to improve production efficiencies. The architect of the partnership between Mattei and Conifex was Don Parker, owner of DLP Compressors Inc., the local distributor for Mattei.

"The Cross City plant was facing downtime and shortfalls in the supply of compressed air during plant operations, because of repetitive failures of the existing screw compressors and the associated repair costs that resulted. DLP Compressors had encountered these types of problems at other companies across Alabama, Florida and Georgia. When I got to know the rotary vane technology of Mattei, I immediately noticed the undoubtable superiority in terms of both reliability and energy efficiency, it was the perfect solution for the problems at Conifex".

At the Cross City sawmill Conifex have now installed Maxima 55 and Maxima 110 compressors from the high-efficiency Maxima series.

"We were looking for a reliable and cost effective solution to supply our compressed air" said Chuck Morgan, General Manager at Conifex Cross City. He further noted, "DLP Compressors did a great job on the installation and we are very happy with the results and after sales service. Since we

"The rotary vane compressors perform brilliantly in demanding work environments such as those typical of sawmills, and offer superior performance when compared to screw compressors."

Chuck Morgan,
General Manager, Conifex Cross City

installed the two compressors, not only have the problems we had with the previous screw compressors ceased, but we have more air capacity, lower maintenance costs, and less energy use - all of which have contributed to the bottom line."

Mattei compressors have shown great performance even under the demanding environmental conditions of a sawmill, where dust and wood residues in the air could undermine the quality of the compressed air. Conifex Cross City is the first sawmill in the United States to use rotary vane technology; a choice that has so far proven to be successful for the company, not only in the increased production and reduced costs, but also for the environment in terms of the corresponding reduction in energy consumption.





Getting clients into shape to operate efficiently, as well as economically and environmentally, is one of the primary objectives of Mattei.

ALWAYS IMPROVING, FOR OUR CLIENTS AND FOR OUR PLANET

Energy efficiency is a “natural” characteristic of Mattei compressors, inherent in the linear geometry of their design and in the exclusive rotary vane technology. When compared to a screw compressor, a Mattei machine is more reliable; operating on average 100,000 hours without requiring maintenance, ensuring quality compressed air, and significantly reducing energy consumption, thanks to the low rotation speeds (up to 1,000 RPM) and a 1:1 ratio between the speed of the motor and the pumping unit.



CONTROL SYSTEMS AND HEAT RECOVERY SYSTEMS

Having been pioneers and innovators in this field, only led Mattei **to perfect itself** and create products with ever-increasing levels of performance in terms of their environmental-friendliness. Maximum operating efficiency with a significant return of investment is reflected in the **energy-saving compressors** of **variable-speeds within the Optima e Blade i ranges** and of the **high efficiency Maxima range**, of which **Maxima Xtreme** represents the most recent evolution. The efficiency objectives of Mattei compressors are also achieved through **control systems** that guarantee a reduction in energy consumption of up to 35%, whilst **recovery systems** can recover up to 80% of the dispersed heat during the compression process, which can then be applied for other industrial uses. The study into tailor-made solutions for **transit applications**, especially in the electric sector, represents one of the final frontiers for the design research of Mattei.

Mattei is synonymous with efficiency, not only in the products, but also in industrial processes, now organised according to the most advanced principles of **Lean Management**.

With Mattei, efficiency becomes a reality; today more than ever.



ENERGY-SAVING COMPRESSORS



RESEARCH AND DEVELOPMENT



LEAN MANAGEMENT

Protect your
investment with
MYCARE 6
Extended Warranty Plan



Free cover on Mattei air compressors for 6 years



No hidden costs or surprises



Performance guaranteed utilising
genuine Mattei spare parts



Guaranteed Mattei quality assured
assistance at all times



MyCare 6 Extended Warranty Plan.
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