



# Egget Info







15 million CHF is spent annually on the purchase and supply of components, raw materials and various services used in the manufacture of pumps at Cressier. At Group level, this amounts to more than 23 million CHF.

#### Dear Readers,

Today all over the world the manufacturing industry is facing a stagnant or worse, even a market recession. Fortunately for Egger, there are still many markets where there is still growth and at a healthy rate too. India is one of those markets and Egger India, established in 2005, has been actively marketing the whole range of our products since 2013, increasing our customer base in India on different applications such as Chemical, Automotive, Waste Water and General Industry.

The vision for Egger India is to develop our sales with our own range of Products with the sole focus of becoming a trusted partner for Engineered Pumping Solutions and provide high-end quality, performance and best services. Due to the Make in India initiative by the Government, many global companies are now manufacturing in India in order to fully utilize the local and worldwide potential.

For Egger India, in spite of being a late entrant in the market, our core team has remained strong together as a family for more than a decade now, which helps us to overcome these challenges from within India and in support of the group by using our infrastructure, team skills and resources to the maximum and thus truly represent the group vision of being "Everything Beyond Standard".

R. Ramakrishnan\*



\*Head of the affiliate India, which celebrated its 15th anniversary.

#### What role does Procurement play?

Our role is to purchase technical components and raw materials at the right time and in the quantities needed to cover our production and sales requirements. And with that, the best price and delivery conditions, from service providers whom assure to meet our delivery times. We also ensure the permanent availability of technical components and supplies (machine elements) that we keep in stock. They are replenished in predefined batch sizes and on terms negotiated with the suppliers. The AX system allows us to plan and manage these requirements precisely and thus avoid understocking or overstocking. The volumes purchased depend directly on production and assembly requirements, and therefore indirectly on the number of pumps sold.

#### What are the main areas for purchasing?

They are divided strategically into several categories, allocated to technical buyers: foundry raw materials, rod raw materials, rotating components (motors, mechanical seals and drives) and finally the subcontracting of Pressure Vessels in welding construction.

#### Who are our main suppliers?

The largest proportion of our purchases involve mechanical seals and barrier systems. EagleBurgmann and John Crane, world leaders in the field, are top of the list, but we sometimes call on other partners such as DEPAC in special cases.

Among the most critical suppliers are the foundries for castings. We work closely with foundries in Switzerland, Spain, Italy, Germany and even China. For electric motors which are also critical components, we are supplied by ABB, SIEMENS and VEM, but other manufacturers are also in demand. Cressier's other suppliers are 2 subsidiaries of the group, namely Egger India on the one hand and without question Turo Italia on the other. In 2019, we ordered 6650 different items via 3967 orders from 429 suppliers.

#### Where do our competencies and synergies lie?

While ensuring a diversity of qualified partners for certain products, we decide on the allocation and placement of orders with suppliers that meet our requirements and specific needs, and on the basis of price-performance ratio, deadlines and compliance with our rules of ethical and social responsibility. Sometimes we evaluate together with Work Scheduling (AVOR) whether to manufacture in-house or buy the components (commonly known as «make or buy»). We also ensure the collection and computer management of supplier data, the monitoring of deadlines and the control of products and invoicing.

S. Zürcher

#### **IMPRESSUM**

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BRIEF

#### Did you know this?

We dispose of 100 % of our industrial waste through specialized companies. 85 % of this waste is recycled, a third of it which is recovered by reselling for reuse after treatment or refinement. Each year, that measure brings us around 35'000 CHF. Such a process is only possible through a careful separation and sorting of the waste materials at their source.

S. Zürcher



### Egger pumps India inaugurated its new block and celebrated its 15th anniversary

The Year 2020 marks the 15 Year Anniversary of our Subsidiary in Coimbatore, India.

Since inception it has evolved steadily from a part manufacturing company supplying fully machined castings to Egger Cressier with just a team of 5 to a fullfledged Pump Manufacturing setup with 102 employees today & our own Indigenous Range of Pumps to cater to the demands of our customers and market in India. The Pump Sales team formed in the year 2013 to develop the domestic market can now pride itself of being able to work independently providing pumping solutions for our customers in India with support from Cressier mainly for products manufactured in Switzerland. 2019 marked our first aggressive push to increase our market share with Investments on Infrastructure and Capability enhancements. Egger India has plans and ambitions of further growth, where it



will keep looking at the future but not forget its past, by utilizing its strengths and capabilities to the maximum to push the business to new heights. The success has been built on trust, pride, passion and commitment to offer a Swiss Quality product for the market.

The 15 Year Celebrations were held in January this year with first a Hindu custom Pooja in the morning followed by



inauguration of our new factory building by key customers. A spectacular event was held later in the evening with presence of 400+ people along with its employees and their family members and



also consisting of a Team of Delegates from Egger Cressier and Turo Italia. The theme of the event was based on the culture of the local region (Tamil Nadu) with various events & activities followed by a special feast of local vegetarian cuisine.

Integration and inclusion of the family is very important in a country like India, where socio-cultural ties and the family system is very strong. This day not only integrated the families of employees with the company, but ensured a sense of belongingness amongst co-workers as they celebrated this day as one big family.

R. Ramakrishnan











### When pumping gas becomes possible!

Back in February 2019, Eastman contacted Egger with regards to one of its pumps at the company's largest site in Kingsport, Tennessee, USA. The pump has plagued them for years because it is in a high temperature (240 °C) / low pressure (<1 bar or ~10 psig) service that contains water, which in turn, produces over 10% entrained gas by volume as water vapor. Fortunately, one of the rotating equipment specialists from Eastman was aware of Egger's capabilities with multiphase liquids (liquids, solids and gas) from an existing service in its Sauget plant in Illinois.

The first pump installed on this service many years ago was a horizontal ANSI type and was very problematic with various mechanical seal issues and excessive thermal growth causing misalignment.

It was then replaced by an API vertical inline style pump, which also had several initial design issues. Most of these issues had been worked through during the warranty period with the original vendor. However, the last remaining issue with erratic, periodic vapor locking was proving to be a challenge to solve. The gas load was simply too high for the closed style impeller and casing to handle.

Egger and Eastman worked together to optimize the system's overall design, including suction pressure, flow, head, gas concentration, gas composition, and piping sections / arrangement.

The final solution from Egger was an API OH2 style pump, using Egger's



special semi-open impeller, suitable for three-phase liquids' services (liquid, solids, and gas). This special pump hydraulic design allows, in certain working conditions, up to 25 % entrained gas by volume in the liquid without any impact on the pump's performance.

The complete case study and engineering were managed within a month, and the pump delivered from Switzerland to the US job site within three months.

Since its installation in the plant, the pump is performing flawlessly for ten months already with no off/class, lost production or maintenance costs. The long-term costs after operating the pump for one-to-two more years will be analyzed by Eastman, but the initial indications are very positive. It is interesting to note that the return on investment, excluding installation cost, for the customer (1 pump + spare pump + spare parts set) was 17 days.

J. Zilio

### EASTMAN



One more thing that we would like to say is that we have been extremely impressed with Egger's depth of knowledge, ability, and willingness to work with us throughout the design phase. They are an absolute pleasure to deal with.

Jaime Maginnis – Reliability Engineer Eastman Chemical Company – Kingsport – TN







### A successful international cooperation

A new success is to be credited to the Egger subsidiaries in Belgium and Italy who collaborated on an international project. Thanks to the good relationship with the engineering company, CMI, Egger Belgium received an invitation to participate in a tender for the supply of 60 horizontal and 4 vertical pumps. These pumps are planned for an HF gas scrubbing plant to be built on the OCP site in Safi, Morocco, as part of a large-scale project to improve the air quality of the entire region (due to the wind that pollutes the whole city of Safi with sometimes fatal consequences for the health of its inhabitants).

The technical specifications envisaged for the centrifugal pumps prompted Egger Belgium to turn to Turo Italy, suspecting that an end customer in Morocco would certainly be of interest to us.

That saw the start of an intense intersubsidiary collaboration aimed at convincing the engineering company of the relevance of our technical and commercial proposal. The final customer, faced with a full technical approval and a competitive offer, however, placed the order only for the vertical pumps with Turo Italy / Egger Belgium, because the list of suppliers and the number of horizontal pump manufacturers present on the site excluded any other possibility for the Egger Group.

The final decision to place the order for the vertical pumps with us was taken during a joint visit to Morocco with CMI, during which the «cantilever» version was presented and explained in detail to the customer. That was the moment when OCP, the end customer, was convinced and the order was placed with us!

C. Antongiovanni



### **Spotlight on Egger France**

Egger France has been established in the department of Isère almost 31 years ago. Our subsidiary, which is made up of a small team, stands out for its loyalty and stable mode of operation. A stability that is ensured by highly committed employees with recognized skills and years of service that command admiration.

Mrs. Emilie Gourieux, who joined in 1992, has been in charge of the spare parts department and the administrative pole for more than 27 years and Mr. Jérôme Lopez joined in 2008 as a technical salesman, then in 2012 became the subsidiary manager.

This continuity has enabled us to integrate and train new employees quickly: Mrs. Cynthia Suard, who joined in 2014, is in charge of the back office; Mr. Christophe Blanchard joined in 2015 as

sales manager for the chemical-petrochemical market, and Mr. Cyrille Villemin joined the team in 2018 as manager of the general Industry/Automotive market.

Our organization in market lines and the conservation of knowledge allow us to specialize and to increase our efficiency with our customers. Evidence of this is that, over the months, we have developed our presence in the sugar market and are considered as privileged partners of many production sites.

The efficient commitment in the field, ensured by Mr. Villemin (knowledge of the market and its opportunities) and a team work, coordinated from France with our two European production centres (Switzerland and Italy), have enabled us to develop a new pump and to win a nice order:

5 x vortex TV 83-200 H4 LB4B Vortex pumps in chrome cast iron ASTM A532 IIIA (new in the program)

1 x Axial pump RPG 402 LB5.1

1 x Cantilever vortex pump TV 41-80 SO4 LB3B-2

This is another fine example of specialization and teamwork, which are always vectors for success.

J. Lopez







# Precise and repeatable quantity control with Iris® diaphragm control valves

In wastewater treatment plants with activated sludge processes, up to 60 % of the total required energy is consumed for the input of atmospheric oxygen into the aeration basins. This offers huge potential for energy savings and process optimisation in many plants.

### The benchmark for precise and reproducible quantity control for over 60 years

Over the past few decades, the Iris® diaphragm control valve has proved its worth in hundreds of wastewater treatment plants, where it is used primarily as a flow-control valve to ensure economical input of air into the aeration basins. In 1958, the Iris® diaphragm valve was developed by the company's founder, Emile Egger, and launched on the market, where it was used primarily for paper pulp control in paper factories. At the beginning of the 1980s, Egger introduced an updated version. Iris® diaphragm control valves have been used mainly in aeration basins in wastewater treatment plants ever since. Thanks to its unique design, air quantities can be regulated precisely and reproducibly. This enables the operation of stable biological processes and the implementation of, and precise adherence to, extremely low oxygen input values. This in turn results in high energy efficiency and the high stability of the entire activated sludge process.

We are driven by a desire to make the tried-and-tested increasingly better. Thanks to systematic further development, Egger is proud to launch a completely redesigned and technically revised Iris® diaphragm control valve onto the market; we name the new model generation "IBS".

#### The new IBS

The modern industrial design and the compact structure with shorter installation lengths are immediately visible. The visual position indicator has been completely revised and is visible from three sides even from a long distance; this is in addition to the electronic feedback of the actuator position to the SCADA system.









As an all-rounder, the new IBS can be used in a number of industrial applications; its gas-tight design without spindle feedthrough opens up many new possible applications. The Iris® valve is also prepared for monitoring systems and can be pressurised and equipped with gas or liquid flushing. Leak tightness monitoring and flushing systems can be connected. Due to its robust design and self-cleaning segments, Iris® diaphragm control valves are therefore used to control raw sewage, process water, primary and aerated sludge, and also for the task of loading centrifuges with digesting sludge.

The three buffer liquid and flushing connections of the new IBS are offset by 90° and can also be used for drainage and emptying condensate, which is a major advantage for plants that are shut down periodically.

The self-locking spindle nut design of the IBS enables maintenance-free and cost-extensive operation, thus simplifying the use of the control valve in inaccessible locations. An additional advantage for the operator is the ability to replace the drive support or parts thereof without having to remove the Iris® valve from the pipe line.

### Economical and precise regulation of aeration air at Upper Blackstone Waste Water Treatment Plant

Iris® diaphragm control valves enable the stable and repeatable regulation of media over the entire valve stroke. For gases and aeration air, the control valves are designed so that the quantity to be regulated can be operated within a high control-accuracy range without hysteresis. Its unique design with six centrally opening segments which can be retracted completely into the casing results in an equal-percentage valve characteristic for the Iris® valve. This leads to a virtually linear operating characteristic curve with a large control range, enabling the operation of economical control loops. The differences in the operation of control valves and Iris® diaphragm control valves can be briefly explained using the example of the Upper Blackstone wastewater treatment plant in the Federal State of Massachusetts (USA).

Complete renewal of the wastewater treatment plant's biology took place in 2018, including replacement of the existing butterfly control valves, blower technology and diaphragm aerators. Besides process optimisation, the objectives of this major conversion project included energy savings when ventilating the aeration basins. With an average throughput of 30 mega gallons/day, hydraulically corresponding to a 670,000 population equivalent, the plant consists of 4 aeration lines with 7 control valves each. During the conversion measures, the manually operated butterfly control valves were replaced with Iris® diaphragm control valves in order to enable precise oxygen input into the basins with the aid of a most open valve strategy and thus reduce energy costs. Upstream of the control valve, each aeration zone was equipped with an ABB Sensyflow type mass flow meter in order to control the Iris® valves using the actual flow volume and operate them in the most open position possible.

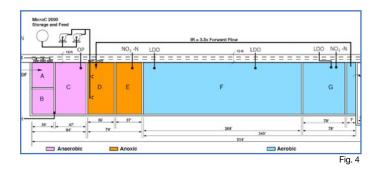


Figure 4 shows the process diagram for the aeration basins. Basin zones F and G are each operated with different oxygen setpoint values of between 0.5 and 3 mg/l  $O_2$ .



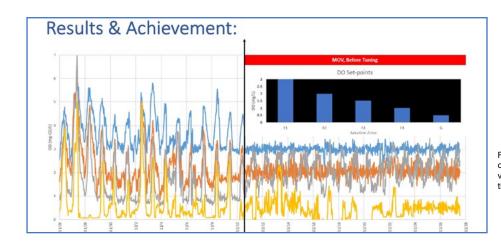


Fig. 5: Left half of the diagram: actual oxygen values with control valves (before conversion) Right half: actual oxygen values with Iris® diaphragm control valves before ,tuning'of the sliding pressure control

At the beginning of 2019, the - most open valve strategy - was further optimised using Iris® valves; the results are self-explanatory:

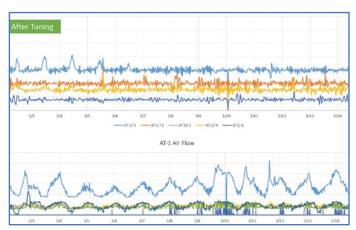


Fig. 6: Actual oxygen values at the Upper Blackstone wastewater treatment plant with Iris® diaphragm control valves and optimised sliding pressure control.

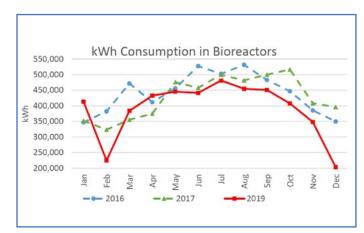


Fig. 7: Energy requirements at the Upper Blackstone wastewater treatment plant before and after optimisation of the biology

Figure 6 clearly shows the high control accuracy of the Iris® diaphragm control valves; the actually achieved O₂ values only fluctuate slightly around the set point value with a constantly changing air volume input depending on the current dirt load at the wastewater treatment plant. The air volumes are shown in the lower half of the diagram in SCFM.

This highly precise control philosophy and the new machine technology enabled significant amounts of energy to be saved, as a comparison of the plant's daily energy requirements between 2016, 2017 and 2019 shown in figure 7. The energy consumption could be reduced by 10 % on average (fig. 7). The discharge values were also significantly improved and the use of additional chemicals such as carbon was extensively reduced.





Fig. 8: Iris® diaphragm control valve with mass flow measurement at the Upper Blackstone wastewater treatment plant





### Fire extinguishing water pumps in a coking plant

Around 1.65 tons of iron ore, 0.5 tons of coke and 1200 m<sup>3</sup> of hot air are required to produce one ton of pig iron in a blast furnace.

Coke, the second most important raw material, is produced from hard coal in the nearby coking plant. For this, the hard coal is heated in successive chambers to more than 1000 °C in the absence



The burning coke in the extinguishing tower on passing under the extinguishing tower (Wikipedia)

of atmospheric oxygen. The containers are then emptied in turn at fixed intervals (roughly every 10 to 20 minutes) and then immediately recharged with fresh hard

The hot coke is finished and loaded onto a trolley. It has to be extinguished quickly so that it does not burn with the oxygen in the air. To do this, an extinguishing vehicle goes to a special tower where about 2 tonnes of water are poured over the coke within a few seconds. Part of the water evaporates, the rest is collected, treated and recycled.

EO-SG/SR well pumps (= fire-fighting pumps) are generally used for filling the

In order to comply with the limit values for fine dust, the ascending vapours in the tower are sprayed with high-pressure water nozzles. For this purpose, EO-H pumps are switched on during each extinguishing cycle.



Booster pump, EO 10-150 H4 LB4B

The requirements of this application are: Use of our HG25.3-A532IIIA hard iron in some areas, to handle the

hard coal particles.

Reliability of the pumps is esb) sential; because the blast furnace and the coking plant are in continuous operation 24 hours a day, 7 days a week. In the steel industry, our pumps are known to meet both of these requirements.





The extinguishing tower. The extreme formation of steam for about one minute is symbolic and is repeated every







### Modernisation of the test stand

The test stand, located between production and assembly, has been the subject of much thought about its development in recent years. A redesigned layout, technical modifications and new infrastructure will enable stand operators to carry out their main tasks more efficiently and ergonomically.

The first task of the stand is to test the correct functioning of our pumps in a «running test», which takes place between assembly and painting. In order to optimise the logistics flow, the waiting area for the pumps will be relocated to the assembly side of the stand. A new test bench is under preparation to replace obsolete equipment and increase the testing capacity in case of production peaks.

The second task is to measure pump performance (flow rate, pressure, efficiency, noise, vibration and bearing temperature, etc.). Most measurements today are manual and require a large number of instruments. In the future, an online instrumentation and control system will make it possible to control the stand and acquire the necessary values

from a single computer workstation. The DN 300 and DN 500 flowmeters have been replaced for this purpose. The power supply for the test motors will also be re-designed to dispense with the current oil-fired generators.



Finally, the design of the reception area for visitors coming to review the ordered equipment will be more pleasant since an office space has been provided. In addition, the R&D area is partitioned off by walls. The rationalisation of the assembly equipment, which began last year, is continuing along with the changes made to the building. Painting work and the installation of other elements (visuals, logos, educational pump model, etc.) will complete the aesthetics of the test stand.

N. Pidancet

### Management of non-conformities

A product is considered to be non-conforming when it does not meet the specifications and the expectations of the users. The causes of non-conformity vary widely, are rarely obvious, and the consequences are potentially severe.

In order to reduce their frequency and severity, best practices and specific work processes are in place at Egger. Nevertheless, the diversity of materials, constructions and applications requires a high degree of flexibility, which sometimes leads to differences in quality. Thorough analysis, relevant actions make it possible to close these loopholes, and to continuously and sustainably improve our products, as the following example illustrates.

A Swiss saline plant operator reports to After-Sales Service due to leaks in a pump housing which appeared less than 2 years after commissioning of the pump, at the level of the bolts of the wear-plate bolts. The solution for getting the plant back into operation as quickly as possible is immediately identified. The pump casing is returned to the factory for diagnosis: corrosion is discovered that has attacked i.e. the seats of the seals ensuring tightness at the wear plate. It can be repaired. Nevertheless, the alloy

used should be resistant to corrosion under the given operating conditions. The pump housing is repaired and returned



to the customer, while the case is shared with the housing supplier, who will have to deliver a new, stronger version. After investigation, it appears that the material is of poor castability, the multi-purpose mould used is not particularly suitable and the heat treatment after casting is not performed under optimum conditions. These factors cause localised micro-cracks into which the pickling solu-

tion infiltrates, stagnates and weakens the material. Corrosion starts in these cavities and eventually eats away at the material until it leaks. These points will be corrected by the supplier to enable a defect-free replacement pump housing to be delivered.

This type of approach has made it possible, for example, to halve in one year the number of cases of non-conformity from the main foundry delivering stainless steel and duplex raw materials. Of course, the source of non-conformities does not always lie with our suppliers. It is sometimes the result of errors within the company, and every effort is being made to avoid their recurrence.

N. Pidancet



### UK Office re-locates

In December Egger Pumps UK office relocated to a more suitable building. The relocation followed a reduction of our tasks. The spare parts sales function, which had been performed in the office since it opened in 1985, was successfully transferred to Cressier 2 years ago. This does allow us to concentrate on pumps sales, developing new markets, customers and applications.

Before 1985 Egger Pumps had been represented in the UK by Moffat and Bell, a well-respected waste water contractor and the office was originally established in Leatherhead close to the Moffat and Bell office with some staff transferring to the new company. The increased presence brought success in new markets beside municipal water. Within 10 years Egger Pumps UK were a major supplier to the automotive, chemical and building materials industries. We moved to Barnsley, a more central location, in 2010 when the lease of the Leatherhead office expired.

The UK is a challenging market as it moves from manufacturing to a more service based economy however our market line structure, quality products and good customer relationships will ensure we continue to compete. Brexit is clearly a concern due to its unpredictability however early signs are positive.

T. Burrows





## New pumps – new technologies

About 2 years ago, Egger was asked by Azelio to develop a pumping solution, allowing to transport difficult fluids at 600 degrees.

Azelio is a Swedish company, specialized in thermal energy storage, who developed a unique pump system for heat transfer in an energy storage system producing cost-effective sustainable electricity on demand around the clock.

The key to the system's effectiveness is the ability to pump liquid sodium at a high temperature (600 °C), which is why Azelio has collaborated with Egger to find an efficient solution.

Egger developed a solution that meets Azelio's stringent power and performance requirements. In practice, the system drives



heat through two pumps: one that heats the thermal storage unit, and another one transferring heat from the storage unit to the Stirling engine (motor converting thermal energy into electrical energy).

The pump system has been tested and works well in a controlled environment. The system is now being checked by running a long time test during 4000 hours in real-life conditions.

This collaboration is highly positive. Egger is proud of being



able to offer its expertise and contribute to create a unique and innovative system helping more people having access to a reliable and effective power supply.

G. Tripard



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#### Labour market in Switzerland, unemployed over 50 years of age - TSR News broadcast on 10.01.2020

Egger in Cressier has hired seniors over the age of 50 for 4 of the 20 positions open in 2019 and another in January 2020.

According to our colleagues, Claire Rosset (project engineer, with us for 3 years), and Cosimo Pepe (draftsman, design engineer, 43 years with the company), intergenerational mixing is important for the passing on of knowhow. According to the TSR survey, this is far from being the case in all the companies consulted.

For Mr. Francis Krähenbühl,

seniors bring their experience, reliability and loyalty to the company, often right to the end of their professional careers.

According to him, junior employees will bring in and share their knowledge of new developments in the business,

with an increased risk of them leaving the company at the end of their training period, i.e. 3–5 years. The latter scenario is fortunately not often the case at Egger.

C. Vuille



### Welcome...





Damien Alcon



Michael Bourquin



Bryan Baptista Reamer, Miller



Danilo Camborata



Jorge Cardeiras



Carvalho Bonito



**Raymond Dobler** 



Gwladys Mulot Quality Assistant



Grégory Fromaget



**Executive Secretary** 







Dinesh Kumar S



Jophina Johnson



Logesh Sampath



Malliga Dharmaraj



Mohanraj M



Ponnusamy



Prabhu R SCM Assistant



Prabhu Thirumoorthy



Rajkumar J



Ranjithkumar



Ruhakkumar S IT & Systems Office

**TURO** Italia



Sarathkumar Murugesan Logistics Office



Sathish Kumar Maruthachalam SCM Manager





Sukumaran Rajasekaran



Vignesh S



Hayden Reid Callaghan



Andrea Capraro Testing Operato Quality Control



10 years - Turo Bronze Linda Dyson UK Johan Kempeneer BE



Alessandro Cavedon



Simone Pietrobelli Technical Off Employee



Davide Pilotto



Marco Rezzan

**Egger** 

**Iberica** 



Andrea Zanella



20 years - Turo Silver Werner Raffel Jorge De Oliveira Jörn Scharnweber DE



Roberto Zarantonello



Josh Thomley







Sven Schluer

(North West GER)



30 years - Turo Gold José Antonio Alonso Gloria De Oliveira Carlos Menino

35 years - Turo Gold Jacques Matthey





Alfred Hertel Sales Engineer (Central / East GER)



