

# POCLAIN MAG

## #21

April 2024

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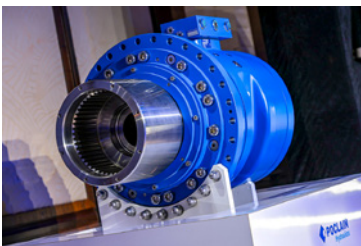
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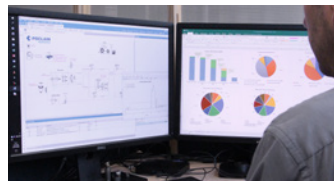
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# Editorial



Éric VIVES  
Group Solution &  
Technology Director

**By integrating hydraulic, electrohydraulic, and electric technologies, Poclain is setting a new standard for efficiency and environmental responsibility.**

In an era where energy efficiency and environmental sustainability are paramount, Poclain, a pioneer in hydraulic radial motor technology, is leading a transformative shift with its HEVO program. This bold initiative, aimed at optimizing transmission systems for better energy use, marks a departure from traditional «power-sized» transmissions towards «energy-sized» ones, underscoring our strategic pivot to reduce CO<sub>2</sub> emissions across the industry.

The essence of this transition lies in addressing the inefficiencies inherent in conventional hydraulic systems, which, though designed for peak torque or power requirements, seldom operate at these extremes. Traditional systems prioritize maximum performance for rare, high-demand scenarios, resulting in suboptimal efficiency during the majority of their operation. Our approach, embodied in the HEVO program, challenges this paradigm by focusing on the optimization of energy use during the typical operating range, ensuring that machines are as efficient as possible during their most common usage patterns.

But HEVO is just the tip of the iceberg. We are taking a «techno-agnostic» approach, offering customers a spectrum of solutions from fully hydraulic to electrohydraulic and fully electric systems. This flexibility is pivotal in a landscape where the choice of transmission technology significantly impacts both cost-effectiveness and efficiency, depending on the specific application.

Electrohydraulic systems, combining the robust power of hydraulics with the precision of electric control, present an optimal solution for applications with less energy-intensive duty cycles, offering necessary power without the substantial investment required for a full electric set-up. Conversely, for high energy demand applications, the efficiency improvement will allow for battery sizing optimization and global long-term usage cost savings, making fully electric systems the preferred choice.

Our commitment to innovation and efficiency is also underscored by strategic investments in SAMSYS and EMSISO, enhancing our capabilities in digital services and electromobility solutions. Building on this momentum, we made a significant move at the end of 2023 by acquiring MOTEG, a German electric motor designer and manufacturer. This acquisition complements Poclain's technological spectrum, ensuring access to cutting-edge electric motor technologies and reinforcing our ability to offer comprehensive, efficient transmission solutions. With MOTEG's expertise, we now possess a more robust portfolio to support the shift towards more efficient, sustainable transmission systems.

In conclusion, our strategic acquisitions and the shift from «power-sized» to «energy-sized» transmissions represent a forward-thinking approach in the quest for sustainable off-road machines. By integrating hydraulic, electrohydraulic, and electric technologies, Poclain is setting a new standard for efficiency and environmental responsibility in our industry, paving the way for a more sustainable future.



# A STRONG ENVIRONMENTAL STRATEGY ALIGNED WITH POCLAIN'S VALUES

**LAURENT DAHMANI**  
GROUP COMPANY SECRETARY

The fruit of over a year's work, Poclain's sustainable development policy has been designed to reflect the culture and values of the Group as well as the expectations of the Family Council and all stakeholders, including our shareholders, investors, customers, and employees. To define the policy and its roadmap, Poclain has measured the environmental impacts of a product, identified their origin, and prioritized areas for improvement.



Poclain has set an environmental plan for 2030, focusing on four priority areas:

## Fighting climate change

This is a major issue impacting populations, the environment, business context, and regulations.

- To contribute to limiting the extent of climate change, Poclain is committed to reducing carbon emissions and those of our suppliers by 2030 in line with the recommendations of the Paris Agreement (COP 21). The exact calibration of efforts and detailed targets are being finalized and will be validated by a third party (SBTi\*). The Group will publicly communicate these plans and the progress achieved.
- The company also confirms its strategy to offer our markets the most efficient transmissions, whether 100% hydraulic, 100% electric, or electro-hydraulic, thus helping its customers and end-users to achieve their own carbon reduction commitments.

Two major projects were undertaken to define our sustainability policy: the life cycle analysis of Poclain's best-selling motor, and the measurement of the company's carbon footprint. Studies concluded that the analyzed motor, from mineral extraction to end-of-life, generates 2,4 tons of CO<sub>2</sub> Poclain's direct activities, on the other hand, generated 32,000 tons of carbon in 2022, combining greenhouse gas emissions generated in-house and

those generated at the energy source. Our suppliers generated an additional 150,000 tons.

Furthermore, a mapping of sustainable development challenges, according to the stakeholders' expectations and Poclain's business sector, has been defined. Our Corporate Social Responsibility (CSR) policy results from the conclusions of these studies and aims to integrate these challenges into the Group's daily operations.

## Preserving water resources

Concerned about the growing and widespread difficulty of access to drinking water, Poclain aims to reduce its water consumption on all sites and to reduce or eliminate any risk of water pollution associated with its activities.

## Promoting a circular economy

A powerful lever to reduce carbon emissions, circularity aims to reduce the consumption of non-renewable resources. Poclain confirms its intention to increase the use of recycled material, improve the recyclability of its products, and develop the reuse of its packaging. Regarding remanufacturing (refurbishment of used motors, pumps, and valves), the Group supports the emergence of a viable economic model, which can only happen with the collaboration of key customers.

To contribute to this emergence, Poclain actively promotes its remanufacturing offer.

## Avoiding all types of pollution

Environmental respect being a long-standing issue, Poclain has always complied with current regulations. Our Group will scrupulously ensure compliance with future regulations to prevent all forms of pollution (air, water, soil) as well as those related to substances that are recognized as dangerous to the environment and human beings.

We have already begun implementing our sustainability policy. A Director of the CSR Program is in place to lead its implementation and promote our ambitions. A dedicated team is being

formed, encompassing a network of contacts based in Poclain's locations. They will contribute to driving projects and the sustainable development policy promoted by Poclain. In every department our employees are mobilized to support and implement the projects and actions.

\*Science Base Target Initiative



## April 2024 : EcoVadis awards Poclain the silver medal

Poclain achieved an excellent overall score in the recent ECOVADIS evaluation, placing us among the top 15% of companies assessed over the past twelve months who achieved a similar level of performance.

Ecovadis is a company founded in 2007 which independently evaluates companies' CSR practices and performance. The Ecovadis evaluation covers environmental, social & human rights, ethics and responsible purchasing themes.

*Ecovadis has grown to become the world's largest and most trusted provider of business sustainability ratings, creating a global network of more than 130,000+ rated companies.*



# Poclain expands its axial pump capabilities



**Paolo GALAVOTTI**  
Pump Design, Industrialization,  
Project & Product Manager

Poclain inaugurated a factory in Spilamberto, Italy, at the end of January 2024, dedicated to manufacturing axial piston pumps.

Spanning over 7,500 square meters, the site will cater to the growing demand for axial piston pumps while also providing components for pump sister plants in North America and China thanks to its 40% additional capacity in machining and assembly. The site features a cutting-edge assembly line, upgraded and new machining centers, an oil analysis laboratory, and an optimized layout primed for future expansion. It also integrates research and development capabilities, along with dedicated test benches for new product development and product qualification.

## A model for sustainability

In line with Poclain's commitment to sustainability, the facility is equipped with solar panels on its roof, covering up to 20% of the plant's energy needs.

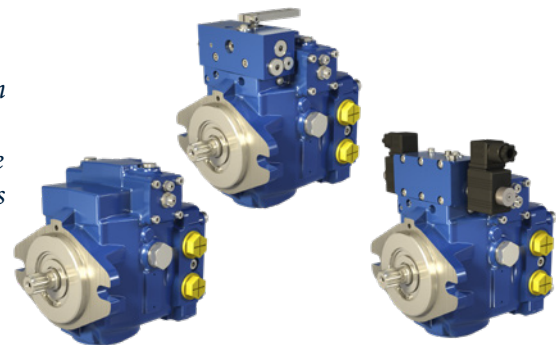
The new factory, a center of excellence for axial piston pumps, embodies Poclain's vision to be a leader in designing and manufacturing hydrostatic and electrohydraulic transmissions, perpetually embracing state-of-the-art products and processes.

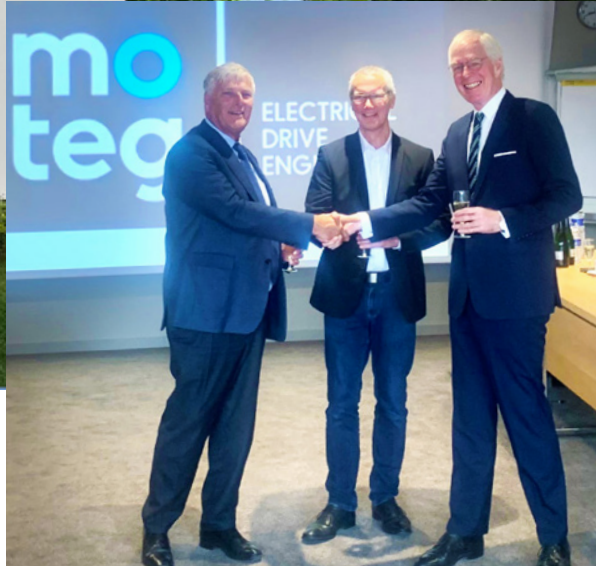
Pascal Magueur, Group Industrial Director, says *«we are thrilled to open this facility to support our customers' growing demand for pumps. We are committed to partnering with our customers, driving operational excellence and providing supply reliability and outstanding quality.»*

Vincenzo Tomei, new factory project manager, adds *«the project spanned a year and a half and we are proud to have succeeded in meeting the target completion date. This could not have been accomplished without the collaboration of Marzio Leone, the Italian Maintenance Manager, who played a pivotal role in this challenging project.»*



With a total of eight plants in three continents, Poclain's investment in the Spilamberto facilities gives the group additional flexibility and resources to cater to the wide array of needs in hydraulic transmissions.





# Poclain acquires a controlling stake in MOTEG

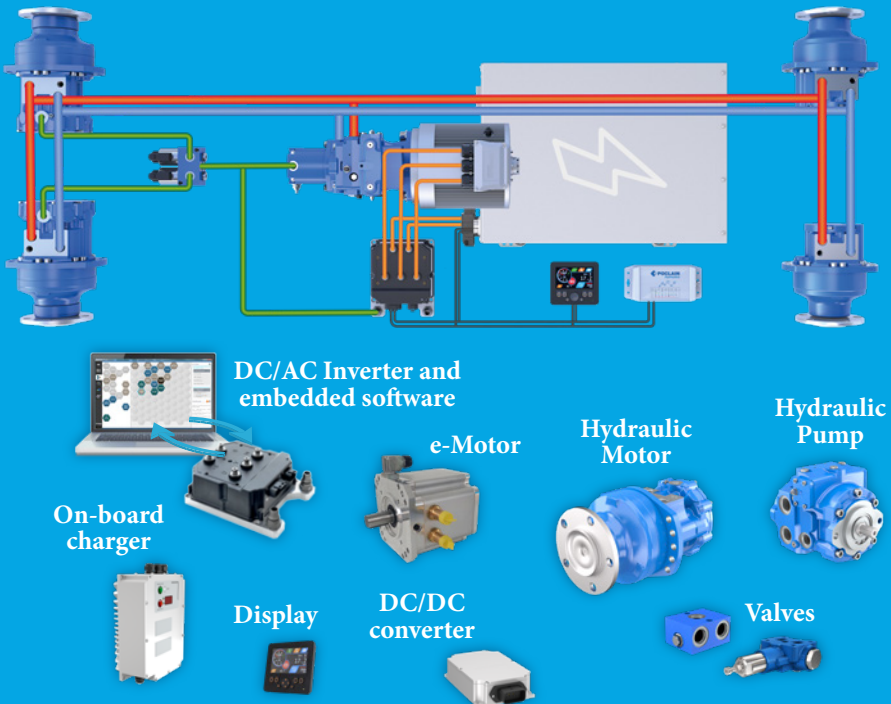
MOTEG, founded in 2014 in Flensburg, Germany, is recognised as a leading company in electric motors and high-performance products designed for use in buses, trucks and off-road applications. Poclain is delighted to have concluded the financing round alongside the family-owned German industrial group HN Holding and MOTEG's founder, Dr Siegfried Götz. In joining Poclain, MOTEG will have access to the group's international, commercial and industrial network, enabling it

to grow its activities and fast-track its development. With MOTEG now embedded in our ecosystem, with the 2022 acquisition of EMSISO, a specialist in inverters (electric motor controllers) based in Slovenia, and with a strong Electromobility System & Application Engineering group based at our Headquarters in Verberie, France, Poclain can now rely on over 100 people located in our three cutting-edge centers of expertise dedicated to e-mobility.

We are now working on updating our electro-hydraulic transmission solutions with a complete propel system that includes parts coming exclusively from the various entities of our group: electric motors from MOTEG, inverters from Emsiso (that also include the sytem control electronics), closed-loop pumps from our Italian plant, valves from Slovenia and of course radial wheel motors from one of our five plants dedicated to this technology, as illustrated in the synopsis below.

## Some of our unique features include:

- Electrification engineering services
- Validated transmission software functions
- Qualified FuSa software functions and hardware architectures to meet off-road requirements
- Best-in-class power and torque densities
- Rugged designs for off-road conditions
- Low and high voltage architectures
- Power ranging from 5 up to 100 kW
- Strong R&D competences and agile development process to customize products for mid to high volume production



# New compact service brake for small on and off-road vehicles



Poclair's recent enhancements of the MS brake range have led to the creation of a patented multidisc brake system capable of both service and parking braking. Known as the combined brake, this innovation is now available for the MS(E)02 motor and branded C03, marking a significant advancement for small on and off-road equipment.

## The C03 brake, a breakthrough design for small off-road equipment

Poclair's engineering team made a breakthrough by associating its multidisc brake with two actuators: a spring for the negative parking brake and a piston for service braking, thus creating the Poclair C combined brake. In 2024 engineering enhances the C combined brake further. Originally actuated by a dedicated pump or valve, today's C03 only requires a master cylinder or a power brake system.

**Antti SEPPÄNEN**  
Sales Engineer



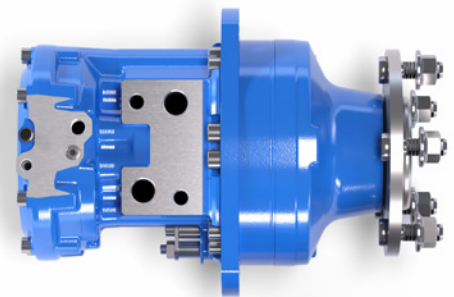
## More compact and cost-effective than a drum brake

Delivering 2,250 Nm for parking and 1,580 Nm for service braking torque, the C03 carries out the same functions as a drum brake, enabling vehicles to comply with road regulations. Moreover, it boasts superior cost-effectiveness and compactness compared to its drum brake counterpart.

Unlike drum brakes which are vulnerable to harsh environments, the C03 with its robust cover can operate in muddy, saline, flammable or corrosive environments. It does not generate polluting brake dust. Located at the rear of the motor, the C03 reduces the offset and enables the OEM to design a single frame for braked and non-braked vehicles. Its bleed ports can be located on top or at the bottom of the housing, giving OEMs extra integration flexibility. As for logistics, the C03 is manufactured by Poclair and will come with shorter lead times than the outsourced drum brakes.

Poclair's C03 combined brake is the perfect solution for forklift trucks, street sweepers and tool carriers that operate both on and off road in all weather conditions. Its effectiveness has been proven through successful testing conducted in-house on a municipal implement carrier, meeting all requirements with complete satisfaction.

Comparison of a MS02 with a C03 brake and a MS02 with a drum brake



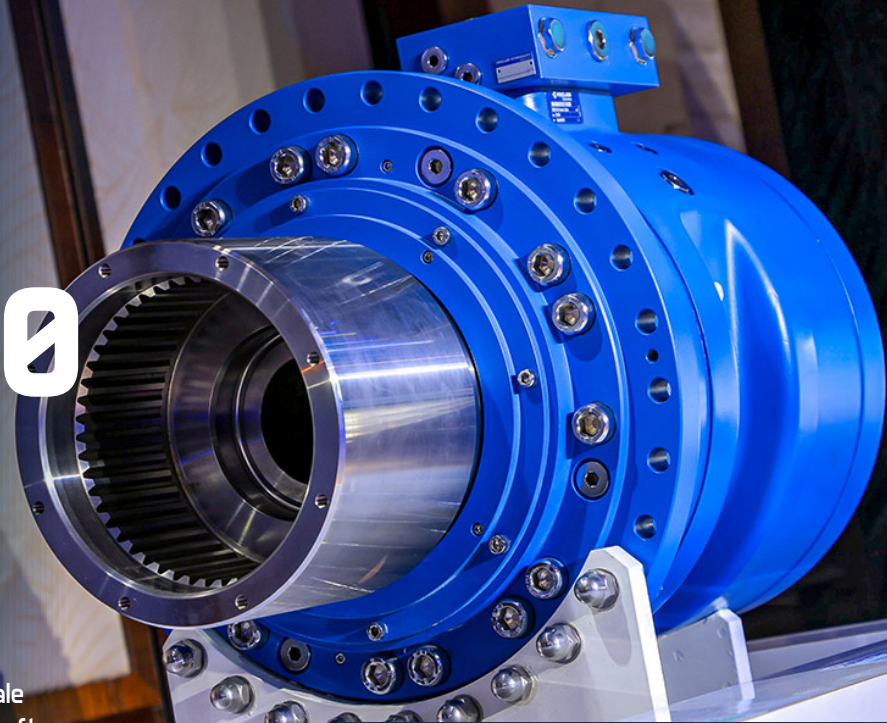


# Poclain launches its largest motor, THE MI330



**Thierry DELAGE**  
Asia-Pacific  
Market Manager

**MI330**  
with female  
splined shaft



Initiated ten years ago with the MI250, Poclain has expanded its high-power industrial motor offering with the introduction of the 40 Liter model. This unit offers one of the highest power densities in the market, providing 30% more displacement within the same envelope and weight as its smaller counterpart, the MI250, weighing less than one ton and measuring less than one meter.

As a torque motor, the MI330 is designed primarily for large industrial applications, suitable for both first mount and replacement. It can be set up with a torque arm or directly, with a spline shaft or shrink disc coupling. The motor is tailored to address the demands of large to very large infrastructure projects, including energy recycling plants, offshore wind farms, mining sites, and tunnel boring machines.

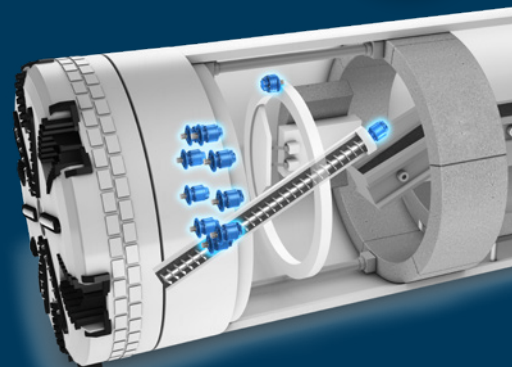
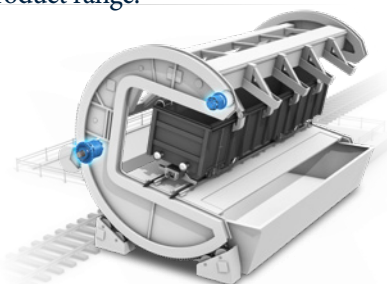
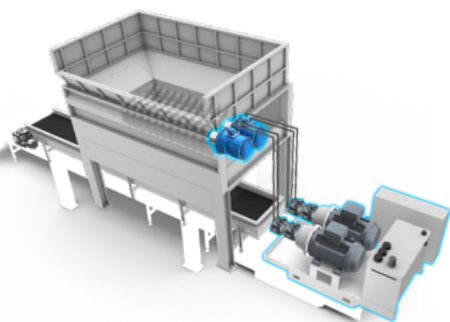
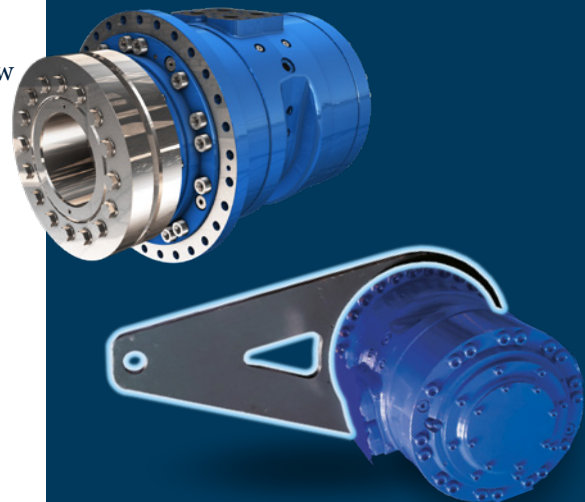
The design of the MI330 has been heavily influenced by the feedback garnered from the MI250, ensuring optimum performance within the same motor frame. Significant effort was dedicated to optimizing the motor torque module, resulting in the design of the largest piston in our range. With input from experts in hydraulics and structure, the design team spent two years validating the product in-house. The MI330 is now available from 2024.

Benefiting from recent research and development efforts, this new design offers extended lifetime and a more robust architecture capable of reaching 600 kW.

The MI330 also features a new torque transmission shaft designed for a maximum output torque of 200,000 Nm. Several units are already deployed worldwide, and we are excited about the possibilities this motor brings to our product range.

## Key Characteristics:

- Maximum Output Torque: 200,000 Nm
- Speed: 130 rpm
- Power: 600 kW
- Weight: 1 T
- Dimensions: 1,000 mm x 700 mm



# A Poclain solution at the 2024 Dakar



**Bruno LACHETEAU**  
AddiDrive Program Manager

Jean Luc Ceccaldi, a French rally driver, took the gamble of using Poclain's AddiDrive solution on his Dakar race Assistance truck. The system, which provides on-demand hydraulic four-wheel drive, has a proven track record on construction machines and is for the first time used in a race. Take a daring and experienced driver, cutting-edge technologies, sand, and rocks. You have all the ingredients for success on the ruthless Dakar Rally!

## A 2024 Dakar finisher with a unique assistance truck

In 2024, Jean-Luc Ceccaldi embarks on the Dakar adventure for the fourth time. For this new edition, he is accompanied by his co-driver, Thomas Gaidella and two mechanics driving his team's assistance vehicle. Behind the wheel of his 4x2 prototype car, he finished the race in Yanbu (Saudi Arabia) on January 19th, in the 13th position in the premier two-wheel drive category.

Jean-Luc Ceccaldi developed a passion for mechanics and racing alongside his father. He was trained as a vehicle bodybuilder\* with the Compagnons du Devoir, a highly-recognized French guild of craftsmen. At the head of the car and truck repair company that he created in 1994, he chose to pursue his dream of car racing in 2018. This passion eventually led him to the Dakar in 2021



Assistance truck equipped with the AddiDrive solution

## Poclain AddiDrive approved for the 2024 Dakar

For the 2024 edition of the Dakar, Jean-Luc Ceccaldi is accompanied by a unique assistance vehicle equipped with Poclain's AddiDrive system.

The AddiDrive solution complies with the Dakar regulations which require 6x6 all-wheel drive assistance trucks. Many competitors dream of a mechanical front axle that can be disengaged to eliminate some of the disadvantages of permanent all-wheel drive. Jean-Luc Ceccaldi, thanks to his technical skills, made a bold bet and ventured with a Mercedes Benz 6x6 truck equipped with the HAD, Hydraulic Assist Drive option, the Mercedes name for AddiDrive, installed by the manufacturer.



**Jean-Luc CECCALDI**  
He finished the race at the 13th place in the premier category in two-wheel drive



## Performance and efficiency in extreme environments

Jean-Luc Ceccaldi's assistance truck performed very well and maintained its traction on sand, the most demanding terrain, thanks to the Poclairn motors on the front axle. Compared to trucks equipped with permanent all-wheel drive, the Poclairn system enabled him to increase its payload, minimize his fuel consumption and reduce his turning radius.

Skeptical at first, the other competitors measured the advantages of Poclairn technology. Jean-Luc Ceccaldi adds "It is likely that several teams will be using the same type of assistance truck for the next edition!"

AddiDrive solution offers the optimal combination for construction professionals: the exact level of traction they need, a reduced carbon footprint, lower cost of ownership and the use of standard trailers as the fifth-wheel height remains unchanged. This is why the AddiDrive option is fitted as standard by most manufacturers or their bodybuilders\*.

A big thank you to Jean-Luc Ceccaldi, manager of Alsace Dépannage, for sharing his experience!

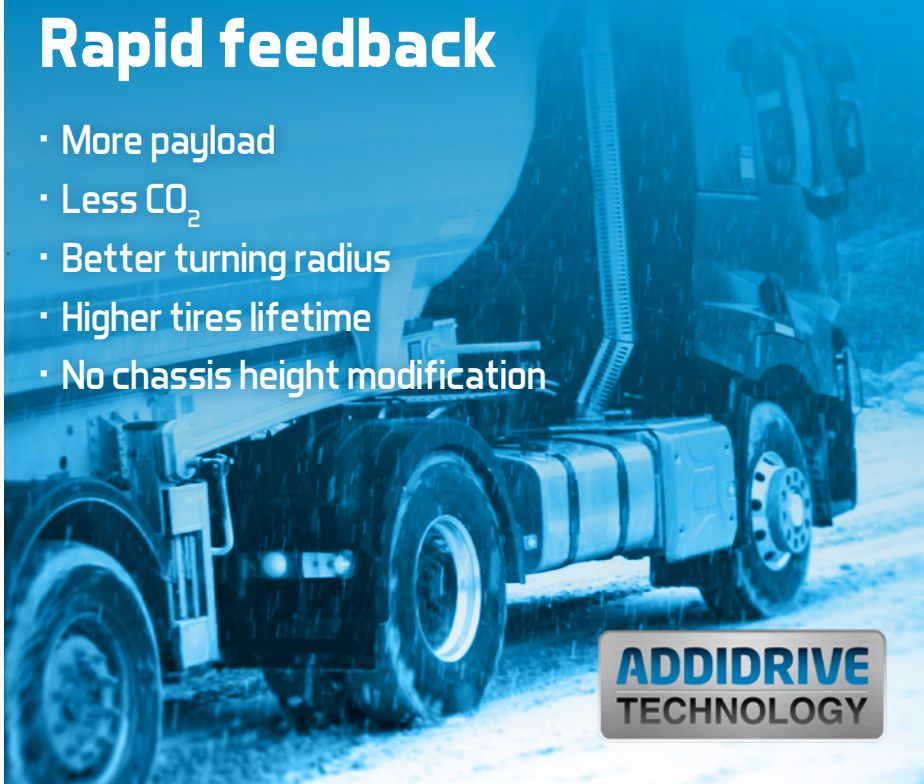
\* Bodybuilders install custom bodies or equipment onto the chassis of a variety of heavy vehicles

# NEVER GET STUCK!

## Most efficient AWD solution

### Rapid feedback

- More payload
- Less CO<sub>2</sub>
- Better turning radius
- Higher tires lifetime
- No chassis height modification



**ADDIDRIVE**  
TECHNOLOGY

# Poclain and Interfluid, a strong partnership

Interfluid Hidraulica is a leading distributor of hydraulic components in Spain. Based in Barcelona, it is also a Certified Poclain Repair Center in the country for all hydraulic components, including motors, pumps, and valves. Interfluid generates a turnover of 3.3 million euros, with close to 40% coming from the maintenance of motors and pumps. The company primarily serves manufacturers of agricultural machinery, airport vehicles, industrial shredders, and fishing boats.



## Poclain and Interfluid: A strong team

The Interfluid teams are often called upon to advise their clients during the design of new solutions for their machinery. These are privileged moments during which it is not uncommon for them to be accompanied by Poclain experts in the field.

«We have a very good relationship with the Poclain office in Spain. We work together. We also make joint visits to our OEM customers... Poclain and its distributor form a team,» says Lara Esteban, Managing Director of Interfluid Hidraulica.

Since its inception in 1997, the Spanish distributor, now known as Interfluid, has maintained very strong relationships with the Poclain group.

## From agriculture to fishing

Mobile machinery accounts for 70% of Interfluid's activity, compared to 30% dedicated to stationary applications. The largest market concerns agricultural and forestry machinery. In addition to Spain, the company generates 10% of its turnover in North Africa through fishing, providing all hydraulic system components for boats.

The distributor also supports around 30 Spanish OEMs in the design of new solutions, up to the assembly and commissioning of machines, mainly for manufacturers of agricultural machinery, rice harvesters, and beet harvesters, for example. «It's not mass production because these OEMs produce about ten machines per year,» adds Lara Esteban.

## Shorter leadtimes

Interfluid is a team of 16 people, including 9 technicians dedicated to the workshop, the store, and the commissioning of machines. They travel throughout Spain, including weekends and nights if necessary. The speed of interventions and deliveries is the company's strength and pride.

The recipe for this success is not only the result of being close to customers but also the outcome of a stock management policy to respond to their needs as quickly as possible. Indeed, between 2021 and 2022, Lara Esteban made the decision to double her stock to the tune of one million euros. It now covers an area of 1,200 sqm. This allows for 24/7 emergency repair responses. For the agricultural market, interventions are spread throughout the year. As for the recycling industry, maintenance and repair activities are subject to strong seasonality and concentrate in July and August.

## An aerospace engineer

## leading Interfluid

It's not common to encounter women in the field of hydraulics, including internationally. Lara Esteban is one of those exceptional leaders who commands respect in this highly specialized field of hydraulic engineering. She didn't arrive there entirely by chance. Even though she was trained «in-house,» she had solid skills to understand the profession.

Lara Esteban is an aerospace engineer. She graduated from the prestigious UPC, Universitat Politècnica de Catalunya. Before joining Hydrel\*, she completed her training with a course in aeromechanics in England (University of Wales). She also devoted the end of her studies to naval engineering. At the time, the family business specialized in hydraulic equipment for fishing boats.

For over 10 years under her leadership, Interfluid has significantly diversified and grown by increasing its storage capacity, strengthening its availability to customers, reducing intervention and delivery times, and doubling its staff.



**Lara ESTEBAN**  
Managing Director of  
Interfluid Hidraulica

**«We have a very good relationship with the Poclain office in Spain. We work together. We also make joint visits to our OEM customers... Poclain and its distributor form a team.»**

In a company, there are projects that can leave a more lasting impression than others. This is the case at Interfluid with a seaweed harvester project born in Spain. The customer was supported by Interfluid's engineers and technicians to design an amphibious vehicle that moves both on water and on the beach to harvest seaweed.

*«Customers consult us a lot. Our engineering activity is important to establish this relationship of trust with them,»* explains Lara Esteban.



The seaweed harvester

Interfluid's teams traveled to Tangier, Morocco, to assemble the hydraulic system of the prototype. Then, the technicians and engineers commissioned the seaweed harvester at one of Mexico's famous tourist spots affected by sargassum algae invasions. They are now developing a new version to be launched in 2025.



Interfluid technicians  
with Poclain motors

\*The family business Hydrel became Interfluid in 2012. It then grew from 6 to 16 people and joined the German group Triadon, managed by Mr. Franz Hajek.

# POCLAIN'S VB220 SECURES BRAKING ON TAKEUCHI WHEELED EXCAVATORS

Established in 1963 in Japan, Takeuchi Manufacturing Co manufactures track and wheeled excavators, track loaders, and crawler dumpers. Predominantly catering to markets overseas, they are a leader in the North American and European markets. Their models are known for their performance, serviceability, operator comfort and durability. Since 2009 Takeuchi has been integrating Poclairn's brake valves into their wheeled excavators. The VB220, Poclairn's double circuit service brake with an accumulator charging function, has been a fixture across four generations of machines, equipping the TB295W throughout its three redesigns, and today's TB395W.

## Poclairn's VB220 controls braking on the TB395W wheeled excavator

Takeuchi boasts a lineup of 23 excavators ranging from 1 to 15 tons, renowned for their compact size and small turning radius, making them ideal for urban civil engineering and small-scale construction sites. Among them, the TB395W stands out as the largest of two wheeled excavators, and it is chosen by contractors requiring rapid transit between job sites without a trailer. The TB395W complies with road regulations, and Poclairn's VB220 powers the brakes and provides the safety that the application calls for. The VB220 controls the front and rear wheel brakes independently via a dual line. In case one of lines fails, the remaining line will provide the braking torque required. The VB220 also features an accumulator charging function to enable consecutive service brake actuations.



**Mr. Takahiko WATANABE**  
Takeuchi's Production Control & Purchasing Director



**VB220**  
Service brake and accumulator charging valve for dual circuit

## VB220 significantly enhances the reliability of our excavators

*"We opted for Poclairn's VB220 due to its outstanding performance, smooth operation and reliability. The braking functionality is crucial for road safety, and the impeccable operability and performance of your brake valve significantly enhances the reliability of our excavators,"* says Mr. Takahiko Watanabe, Takeuchi's Production Control & Purchasing Director based in Japan.

Since 2009 Takeuchi's VB220 has gone through several design changes to seamlessly match the excavator's transmission and application requirements. In 2023 Poclairn's teams in Japan and Slovenia, where the valves are manufactured, worked hand in hand with Takeuchi to refine its design for the new TB395W and an additional excavator model. *"We greatly value the cooperation of Poclairn's teams. They have contributed to continuously improving the performance of our excavators"* adds Mr. Watanabe.

The 2024 Intermat tradeshow held in Paris, France, will showcase 20 of Takeuchi's models, including the new wheel excavator equipped with Poclairn's VB220.

**MASAHIKO SUZUKI**  
Key Account Manager



# Two decades of Poclain-driven Mazzotti sprayers



**FRANCESCO FERRARINI**  
Technical Sales Engineer

**M**azzotti, an Italian self-propelled sprayer manufacturer, has been using Poclain drive solutions for over 20 years. In 2017 Mazzotti joined the John Deere group and has been integrating more within the Green Giant, for instance using Deere engines. Poclain has remained a key partner in this integration phase.

A quick look in the range of Mazzotti shows that there are two types of machines and that Poclain is a major supplier for both ranges.

The first range, Ibis, is dedicated to small specialty crops like vegetables, horticulture or salads. This range has been a traditional business for Mazzotti. It includes machines in the range of 2,000 to 3,500 L. On this range Mazzotti uses the MS motors, which are multipurpose motors capable of providing both torque and speed to cover the whole spectrum of sprayer propel requirements.

More recently Mazzotti has been developing a series of sprayers targeting large crops. The range features machines that cover the full spectrum with tanks from 2,500 to 6,500 L. Among the key benefits of this range, their compact design, light weight and short turning radius (3.8 m on the 4,000 L model) stand out.

These large machines need to reach a speed of 40 kph and rely on Poclain wheel motors equipped with three-gear

transmission ratios. They also benefit from Poclain's multidisc brakes providing service brakes on the front wheels and usually parking brakes on the rear. These brakes are enclosed, protected from external pollution and integrated in the front part of the motor bearing supports. The largest machine uses combined brakes in all four wheels, whereby the same internal wet disks are used for service and parking braking, using two different brake pistons.



On Mazzotti's larger machines Poclain does not only power the four wheels but also supplies the electronics with the SmartDrive CT300 electronic control unit and its software. They control the propel drive and provide the following functions:

- Basic propel: forward, reverse, acceleration and deceleration ramps, and gear shifting
- Self-calibration of both propel pumps so that their respective flows are perfectly synchronized for identical input electric currents
- Management of work and road modes
- Eco-drive to adjust the engine speed to actual power needs. The system reduces fuel consumption by managing engine speed, pump stroke and motor ratio shifting
- Combined hydrostatic and friction braking, relying on Poclain proportional brake valves and multidisc service brakes.

# Poclain Expert Report secures your next-gen transmission

Assessing the duty cycle and energy requirements of a machine is crucial when designing or shifting to a new transmission technology, like electrification. You need to collect extensive field data to qualify and time each duty cycle mode. Once the raw data is collected, intricate modelling is necessary to establish a foundation for sizing components. Leveraging more than 50 years' experience in a wide array of off-road transmissions, Poclain introduces the Expert Report service. It models a machine's duty cycle data and helps OEMs design or optimize their next-generation transmission.



**Serge NICOLOFF**  
Services Program  
Marketing Specialist

## What are your machine's requirements in continuous versus peak usage?

Poclain's data scientist team can analyse your own data, or propose a solution to collect duty cycle data on your machine in order to accumulate the data volumes that will allow in-depth analysis of machine performance. Central to the analysis is understanding your machine's characteristics during continuous versus peak usage, ensuring that component sizing prioritizes the former, while also withstanding the latter.

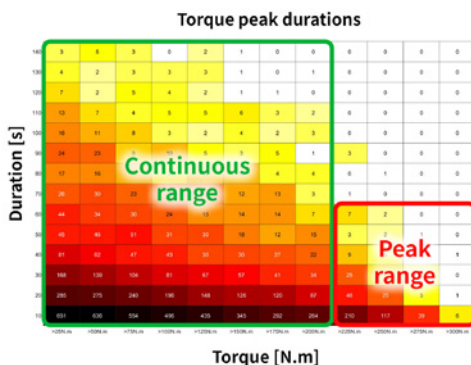
The duty cycle data feeds charts that measure the time spent in operation based, for example, on slope angle, speed, circuit pressure, engine speed and power, tractive versus resistive motion, or braking. Crucially, analyzing each dataset against the others is pivotal to appropriately size transmission components, focusing on meeting the requirements for end-user usage.

## Electric motor sizing

Poclain's data scientist team focuses on measuring transmission and auxiliary power consumption and segmenting continuous versus peak modes.

Essentially, this involves determining the power range used for the longest duration.

The next-gen transmission is sized to optimize performance within the continuous range while still having the capacity to deliver additional power during peak periods.



The chart above displays the time spent according to the torque level. The most frequent torque levels are grouped in the continuous range, while the exceptional torque levels are grouped in the peak range.

## Energy profile and battery sizing

Based on the mission and the energy profiles, simulations are carried out with different charger sizes to ensure that all operating and energy consumption profiles can be covered.

Battery size recommendations are made based on the actual operating modes of the machine.

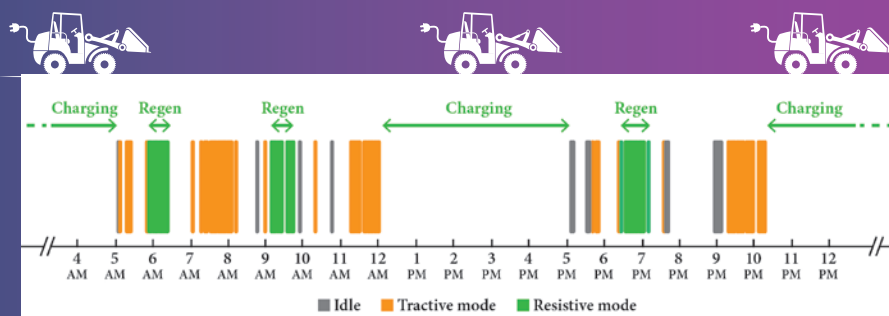
Besides the fundamental calculations, unforeseen vehicle data can emerge, such as excess heat in the circuit and oversized transmission components. They will be integrated into the vehicle recommendations.

Forestry harvesting heads, sprayers, mini-loaders, mining trucks, railway equipment and shredders are some of the applications that OEMs have analyzed using Poclain's Expert Report service. Partner with Poclain for your next transmission design and gain a new insight into your vehicle's usage and performance, empowering you to streamline your components or transition to new transmission technologies.

## Mission profile

The team analyzes time spent in tractive and resistive modes, in other words driving uphill, downhill or braking, as well as periods when the machine is idle or parked, like during the lunch break or shift change.

The good understanding of the mission profile and power consumption makes it possible to determine the appropriate battery size for the application.



The chart above details the time spent in one day in tractive, resistive, idle, and parked modes to define the charging pattern and battery size.





Poclain team at 2024 World Ag Expo



Poclain demo machine equipped with e+h solution

# Innovation takes root in Tulare: A recap of the 2024 World Ag Expo



**Warren ANDERSON**  
North America  
Marketing Manager

The 2024 World Ag Expo at the International Agri-Center in Tulare, California may be over, but its impact on innovation and progress in the agricultural industry continues to be felt, especially in the realm of specialty agriculture markets. Held from February 13-15th, this massive event brought together over 1,400 exhibitors and an estimated 110,000 attendees. Notably, the expo honed in on the specialty agriculture sector, spotlighting advancements tailored to the production of fruits, nuts, and forage crops. Sustainability, automation, and data-driven solutions were the buzzwords of the show. Exhibitors presented a plethora of innovations, from AI-powered irrigation systems optimizing water usage to autonomous tractors promising increased efficiency and reduced labor costs. Vertical farming solutions, indoor growing systems maximizing yield in urban areas, were also prominent, reflecting the growing trend towards localized and sustainable food production.

Poclain Hydraulics truly stood out by hosting our own booth to directly engage with attendees and showcase some of our recent innovations such as electro hydraulic solutions, steerable motors and compact 3/4 duty hydrostatic pumps. The Poclain booth attracted considerable attention, with numerous attendees stopping by to explore our offering, particularly showing keen interest in our showcased e+h (electro-hydraulic) products. Visitors had the chance to gain comprehensive insights into Poclain's full offering, which encompassed a wide array of hydraulic components, including motors, pumps, and valves. This comprehensive showcase ensured that all visitors could fully grasp the scope and capabilities of Poclain's product range. Our booth generated over three dozen new sales leads.



The Flory M700 Monoboom Shaker

## Some of these solutions were also visible on some of the OEMs' machines displayed around the show.

In agriculture, innovation drives productivity and efficiency. The Flory M700 Monoboom Shaker, featuring the Poclain drive system, exemplifies this progress. This system, with its direct drive technology, enables smooth operation at varying speeds, enhancing productivity. Advanced hydraulic technology allows precise tree shaking, minimizing damage, and maximizing yield.

Poclain's MG size 05 series represents a leap in vehicle integration, simplifying the installation of steering and brake functions. The Bankout Pistachio Shuttle machine from Oxbo exemplifies this advancement, with four-wheel steering enhancing maneuverability and providing agile positioning to load and discharge the crops.

Pistachio Shuttle machine from Oxbo





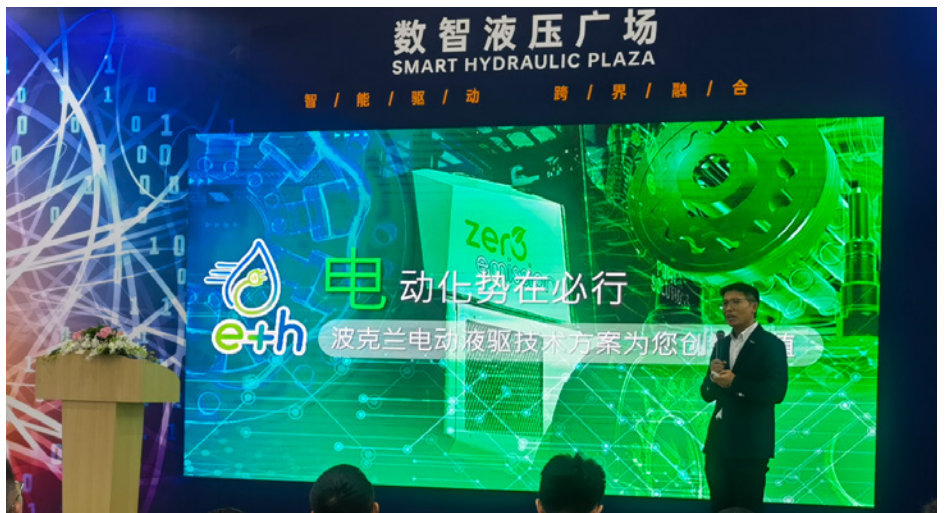
**Thierry DELAGE**  
Asia-Pacific  
Market Manager



## Poclain increases its visibility in China with key industry events

2023 was an exceptionally dynamic year for Poclain in China, where we showcased our solutions at six major industry events. Our primary focus was on efficiency and next-generation transmissions, promoting our developments in transmission electrification and introducing new solutions for the trenchless and mining markets. Our journey began with a month-long roadshow, followed by our participation in the Non-Road Mobile Machinery Summit, Trenchless ITTC, Construction BICES, Power Transmission PTC, and Mining CCME events. From March to November we covered a large territory spanning from Shanghai to Beijing, including Jiangsu, Shandong, Henan, Hubei, Hunan, and Zhejiang provinces.

These events enabled us to observe China's progress in electrification, particularly in the automotive industry. It was also one of the main topics of the Non-Road Mobile Machinery Summit (NRMM Summit), while many new electrified machines, namely horizontal directional drills (HDD) and suspended locomotives, could also be seen at the Trenchless and Mining show.





During 2023 we also spoke at three technical conferences, providing insights into our new electrification offering and our transmission enhancements towards higher efficiency.

At the Trenchless show, Poclairn components took center stage, with more than 50% of HDD machines on display featuring our motors. Three OEMs promoted the Poclairn brand on their designs, highlighting the acknowledgment of our products' exceptional performance and durability on this market.

Other highlights included our new dynamic braking solution for mining vehicles and the introduction of the MI330, the largest motor in our range. At each event, our team shared their expertise and provided guidance to design optimal transmission solutions for future machine developments. Additionally, our partners facilitated our presence at two exhibitions in the agriculture and industrial markets.

Overall, it was a highly successful year, marked by significant interactions and engagement, leading to a 30% increase in our WeChat followers. Looking ahead at 2024, we plan to maintain this momentum by introducing our new products at upcoming exhibitions such as WTC World Tunnelling Congress, Trenchless ITTC, Agriculture CIAME, and Construction BAUMA China. We hope you have a great time at Interamat this week and look forward to seeing you at our next events!



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[www.poclain-hydraulics.com](http://www.poclain-hydraulics.com)

