

POCLAIN MAG

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NEW GENERATION**
Of brake valves
hits the market

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**POCLAIN HYDRAULICS
AND THEIR
DISTRIBUTORS**
Celebrate their shared
successes

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EDITORIAL



JAMES JT ZHANG
COUNTRY GENERAL MANAGER - CHINA

“ The BAUMA show in Shanghai is a major event where we meet our business partners as well as give visibility to our brand and technology. ”

For our readers who are tracing China's development, I hope that this Poclairn MAG issue will shed a new light on our country. Outside of the cheap Made in China commodities that fill our everyday life, a more noble China is surfacing, and it results from our tireless work and dedication to serving our customers.

Heading Poclairn Hydraulics China is a wonderful adventure, as we mature alongside our customers and continue to localize more skills and products. Our number one challenge is flexibility, as machines are developed and bids are won in short timeframes. Cost and quality come next, and our motors are often up against a slew of affordable interchangeable units.

The world's largest market, China is a manufacturing hub which supplies machinery to tier III as well as tier IV markets, a place where global brands compete against local ones. Benchmarking is strongly rooted in the Chinese business culture, and it has been a strong asset to convert local OEMs to Poclairn Hydraulics: our global image of quality, performance and service often precedes us when we visit prospects.

The BAUMA show in Shanghai is a major event where we meet our business partners as well as give visibility to our brand and technology. Our booth addresses the Chinese Market as well as the ASEAN. The highly international dimension of this show allows our subsidiaries in the area to reaffirm their rapid and solid development in countries such as Japan, Singapore, Thailand, Vietnam, South Korea. The testimony of Mr. Thomas Liput (see page 16) is an indisputable demonstration of the ability of Poclairn Hydraulics to be closer to its customers by providing them with quality products and high expertise.

So for those who are in Shanghai this week, come and visit us at our BAUMA booth # N1 - 251 !

MANUFACTURING IN the Middle Kingdom

China is yours for the taking, and hydraulics is no exception. The Poclain Hydraulics sales people uncover exciting new OEM applications every month, and these OEMs show a genuine interest in Poclain Hydraulics' offering. It is then up to Manufacturing to make magic happen: Deliver the desired part number in record time, with parts shipped from France, Italy, India and the Czech Republic.



2012 was the year Poclain Hydraulics' Shanghai plant was inaugurated. The lines first assembled valves and rapidly expanded to include PMV0 pumps, as well as MS motors sizes 2 and 5. They replicate those operating in Brno (the Czech Republic) and Pondicherry (India) for motors and Gaggio (Italy) for the pumps. Like other plants in the group, the Shanghai location is certified ISO 9001 but it is also certified ISO 14001 and OHSAS 18001 – every aspect of assembly has thus been validated, from processes to health, safety and protection of the environment. Beyond China, the lines are dedicated to providing products to Japan, Korea, Singapore, Thailand, Vietnam, Indonesia, the Philippines, New Zealand and Australia.

Poclain is a strong brand in China

Unlike Europe and North America, the Chinese hydraulics market bears the traits of an immature market: dozens of small OEMs generating erratic sales, short decision loops, and price outweighing innovation. Thanks to Poclain Hydraulics' strong global brand and its high-performing local team, the subsidiary has succeeded in winning a substantial market share, among historic global brands which provide limited support and lower quality local products. Direct competition may also come from high quality Japanese hydraulic manufacturers, yet it is not systematic or truly threatening.

Poclain Hydraulics or an imitation?

Lead times in an immature market such as China challenge Poclain Hydraulics' Shanghai manufacturing team daily. Chinese OEMs, unlike their Western counterparts, have difficulty providing reliable forecasts. Their orders come in spurts rather than regular batches, as they are triggered by government subsidies or may change to bids, which they win or lose at the drop of a hat. When they win they need several hundreds of Poclain Hydraulics units within tight and non-negotiable lead times, of one to two months. As long as the parts are in the Shanghai inventory, Poclain Hydraulics can deliver. If not, the customer will resort to using a local manufacturer of Poclain Hydraulics imitations, who can meet the deadline with lower quality components. From hydraulic parts to clothing,

imitations are more readily accepted in China than in the Western culture, and the end user of the machine will likely not discover the difference. So although the OEM prefers integrating quality-proven Poclain Hydraulics products, they will not hesitate to resort to using imitations rather than lose a large order.

Agile is key

Every stone that a Poclain Hydraulics Shanghai salesperson lifts uncovers a new opportunity; every week brings a new lead that wasn't on the radar. The flip side is that a market can be won one day and vanish the next. As a result, agility is key in the manufacturing process to convert each opportunity into actual sales, and it's an approach that the Shanghai subsidiary is optimizing, working in particular on inventory levels and faster part number validation. Alongside more agile processes, the assembly lines will extend part numbers for local assembly.



POCLAIN HYDRAULICS AND COMPACTION: two inseparable partners

When Poclain Hydraulics became independent in 1985, its global production stood at 16,000 motors per year. The future was still uncertain. High speed motors fitted with a gearbox dominated mobile applications. The compactor market was the first to be won over by the benefits of radial piston and camlobe technology, which is extremely compact and in direct drive with the compactor drum. The founder of BOMAG Karl-Heinz Schwamborn was behind the Poclain Hydraulics growth plan, and expressed his confidence in the new technology. Since then, production levels have risen fifteen-fold, and over two hundred applications have taken the technology on board. However, of all markets, compaction has recorded the largest increase with an average two-digit growth over the past ten years, thanks to win-win partnerships with major Western manufacturers including Bomag, Hamm, Dynapac, Ammann, Volvo, JCB and Caterpillar.

Over ten years ago, Poclain Hydraulics entered the Asian compaction market. Boosted by a 95% market share in Europe for small tandem drum compactors, it is no surprise that Poclain Hydraulics would choose this particular market segment for its Chinese and Japanese launch with its MK04 and MS02/MS05 product ranges. Now linked to all Japanese manufacturers and over twenty Chinese manufacturers including leading companies XCMG, Sany, Liugong Wuxi Powerment, Lonking and Shandong Roadway Construction Machinery, the Asian compaction market now holds increasing growth potential for direct drive solutions on 8 to 14 tonne (8.8 to 15 US ton) machines.

What are the specific functional needs of these machines?

The compactor drum operates through vibration, which can be controlled to achieve the best quality compaction. In certain environments, oscillating movements can be applied, which increases the versatility of the machines. In both cases, the drum must comply with certain design rules to ensure that the machine delivers its best performance, as well as being both cost-efficient and robust. Poclain Hydraulics uses radial piston technology in its motors to meet these requirements.

In addition, manufacturers now need more space inside the drum to incorporate increasingly

complex vibration systems. The compactness of Poclain's direct drive motors frees up considerable space inside the drum.

Moreover, given the increased stress caused by vibrations and working conditions, solutions must be robust and able to withstand high acceleration levels.

Performance is also an ongoing concern for our customers, in an increasingly stringent regulatory framework to address pollution. It is essential to reduce energy loss as much as possible while boosting performance.

Finally, the Asian markets require good logistic responsiveness at a very competitive market price.

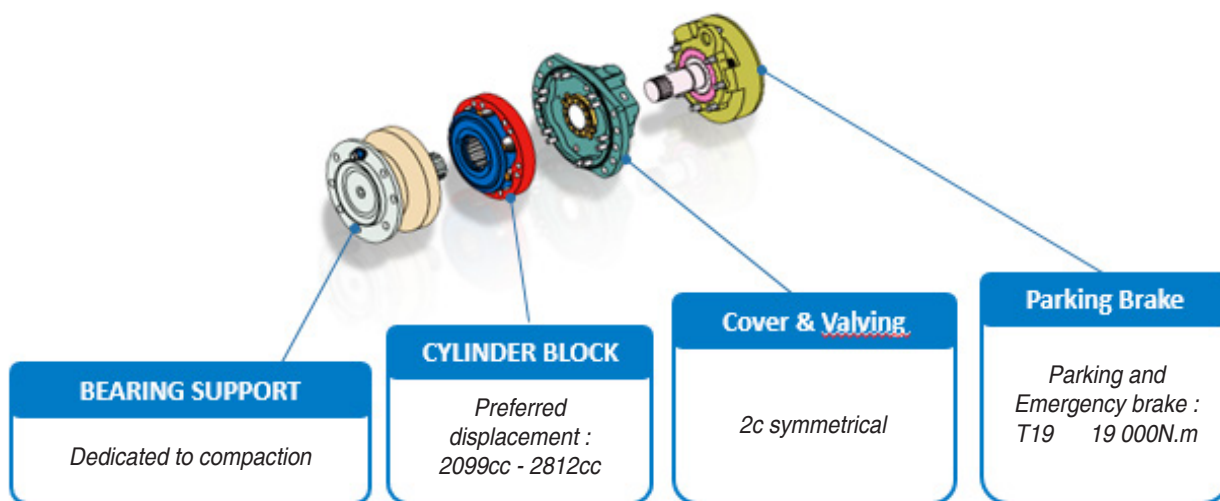
Boosted by its 50% European market share in mid-sized single- and tandem-drum rollers, Poclain Hydraulics has developed a very attractive solution for Asian markets over the past two years.

The MS18/MSE18 version developed especially for compaction not only fulfils these requirements, but is gaining the trust and satisfaction of our Asian customers, particularly in China.

The compact and reinforced bearing support enables the machine to withstand an acceleration of twenty g-force, while the direct drive improves efficiency, prevents backlash and provides greater

flexibility for use at low speed than machines using high speed motors and gearbox assemblies. Poclain Hydraulics motors came out on top in terms of performance in a series of comparative laboratory tests, due to the use of radial pistons and direct drive, which restricts the number of moving parts and therefore friction. In fact, the MS18/MSE18 starting performance is 15% greater than a high speed motor and gearbox combination and 12% higher overall.

With a displacement range of 1 to 2.8 liters and a parking brake of up to 19,000 Nm, a wide range of 8 to 14 tonne (8.8 to 15 US tons) compactors are covered to enable seamless machine integration. In terms of machine architecture, silentbloc shock absorbers can be placed either between the drum and the motor, or between the motor and the chassis. This provides greater flexibility for the manufacturer's architecture than high speed motors, which require complete isolation from the drum.



Mass production of the MS18/MSE18 compaction motors is now fully underway in our Indian plant, which is achieving the highest quality standards within the Group. This cost-efficient operation also provides an optimal logistics and distribution solution, given the short distance between the facilities and their customers.



Soil Compactor

- 1 MS motor for wheel drive
- 2 MS motor for drum drive
- 3 PM tandem pumps for drive
- 4 Traction control valve

Double drum roller under 4T

- 1 MS or MK motor for drum drive
- 2 PM pump for drum drive
- 3 Traction control valve

Double drum roller over 4T

- 1 MS motor for drum drive
- 2 M motor for drum vibration
- 3 PM triple pumps for drive and vibration
- 4 Traction control valve

Walk Behind Roller

- 1 MS or MK motor for drum drive
- 2 PMV0 pump with through shaft for drum drive

TOKAWA AND POCLAIN HYDRAULICS

how two experts shake up plastic injection molding machines

Plastic injection molding is a booming industry in China. Packaging, cars, computers, home appliances, cell phones and toothbrushes are in part or entirely made by injection molding machines. Not only is demand for plastic molded parts increasing as lower incomes rise, but also manufacturers keep improving the properties and capabilities of their end products, leading plastic to oust other materials. Visionary businesspeople, including S. C. Kwan, sensed the bull market and founded Tokawa in 2002, a Hong-Kong based hydraulic component distributor dedicated to plastic injection machines.



Tokawa integrates Poclain Hydraulics' offering in 2016

Tokawa's niche strategy has paid off over the years. Today they equip Haitian, the world leader in injection molding machinery, along with six of the top ten Chinese manufacturers, for an annual sales turnover of 120 Million Hong-Kong Dollars (15 Million US dollars). Their catalog offers heavy and medium duty hydraulic components from Kawasaki Precision Machinery, Tokyo Keiki and Settima. The latest addition to their catalog is Poclain Hydraulics, an expert like them, but in radial piston hydraulic motors. Tokawa's extensive

knowledge of the application, combined with Poclain Hydraulics' technology expertise, enables the two of them to bring superior value-add to the OEM.

The first project that brought Tokawa and Poclain Hydraulics together consisted in a large MI250 (25,000 cc) motor for Kaiming's injection molding machine featuring a 3600 tonne clamping force. It was first and foremost the level of professionalism and expertise of their new counterparts that convinced them to switch to Tokawa and Poclain Hydraulics. Yizumi came next; the OEM used to integrate



Chinese motors, which came with affordable prices and average service. They were impressed by Poclain Hydraulics' commitment to the project, from the first meeting to commissioning, and have since become a repeat customer.

Price, durability and quality are the primary requirements

The requirements for the application are first price, second durability. Unlike mobile machinery, the machines operate round the clock and the warranty time can go as far as three years, given that it can take up to three months to fine-tune the machine after delivery. Quality comes next, as the hydraulic system is key to ensuring that the screw turns at a constant speed and smoothly injects the molten plastic pellets into the mold. Leadtimes

often add frustration to a project, as six months can go by between the time the end user orders a machine and the machine starts molding parts. The collaboration will ex

Aftersales in the near future

There are four Tokawa locations to cover the Chinese territory. The Quandong office is moving to larger premises to integrate a Poclain Hydraulics Certified Repair Center, which will start operating at the beginning of 2019 and carry out Aftersales for the Southern part of China.

“What I like about Poclain Hydraulics is their culture. Their staff from China and France are very professional, with a good level of English. They respond to my calls and emails very promptly, where other suppliers take a longer time. When we go out on a customer call together, they go straight back to the office to work. As I attend the meetings and have witnessed this summer at the worldwide Distributor Meeting, I see how Senior Management respects every level of employee. At Tokawa we are very impressed by Poclain Hydraulics, and we’re learning from them” concludes S. C. Kwan, Tokawa's General Manager.



POCLAIN'S NEW GENERATION of brake valves hits the market

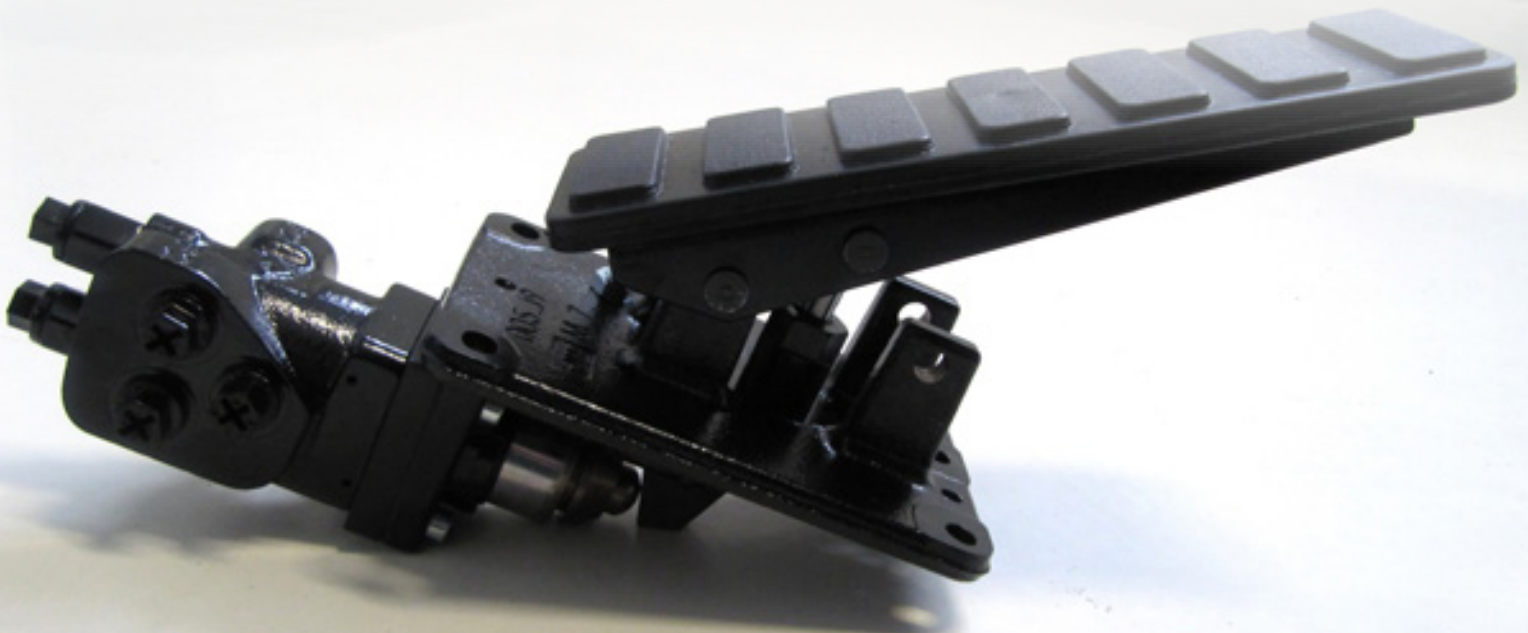


Brake valves were added to Poclain Hydraulics' offering in 2005. With the acquisition of Kladivar, a Slovene valve manufacturer, in 2007 and the creation of a Valve Competency Center, the goal was to adopt a systems approach that brings higher value-add to the OEM, using advanced components that work in synergy. The VB brake valve range was integrated in its original state and remained roughly the same until 2016. In order to appeal to new applications the product needed a redesign. Ten thousand development hours and forty customer visits later, the VB3 is ready to hit the road.

Braking is simple and complex at the same time

Technically advanced, standardized, more efficient and in line with current and future machine requirements: those were the objectives Primož Pangeršič, Poclain Hydraulics' Valve Product Line Manager, along with his team, challenged themselves to meet with the new generation of brake valves. The new design had to be smart and robust to ensure an optimal customer

experience. Geographical and OEM-specific braking regulations added complexity to the project. Where some countries allow drive-by-wire and a forestry machine can literally operate without a driver in the cabin, some countries still enforce mechanical coupling. *"It took me four years and visiting over forty OEMs around the world, in a wide range of industries, to be able to design a valve that had just the right amount of innovation and satisfied the bulk of their needs"* Primož explains.



The new generation VB3 stands above the competition

The new valve range addresses single and dual brake circuits:

- VB3-010 and 012 single circuit service brake
- VB3-002 parking brake
- VB3-00E park lock brake
- VB3-020 double circuit service brake
- VB3-0D0 and VB3-0B0 assist brake valve, which complies with the latest EU tractor regulation.

They provide the following features:

The most compact range on the market. The line doesn't compromise on efficiency either. Moulded castings have replaced the machined blocks, thus reducing weight. For instance, the VB3-020 weighs 43% less than its predecessor, and it is the shortest dual circuit valve on the market.

Enhanced performance, This is due to the combined effects of a lower pressure drop (7.5 bar for the VB3-020) and pressure tolerances (+/- 3 bar), a higher flow rate (30 l per minute) and maximum inlet pressure (250 b)

Increased security. The VB3 is an upgrade of an already proven Poclain Hydraulics design, and it houses parallel-mounted spools. If one spool gets stuck, because of contamination oil for example, the remaining spool will still actuate the braking.

Larger ports. These are also available for large & heavy machine applications.

The VB3 range is interchangeable with the previous VB; it bears the same mounting points and connects to the same actuators. The old VB series is scheduled to be phased out in 2020. The VB3 range targets a wide array of machines, among which loaders, excavators, site dumpers, mining equipment, forklift trucks, telehandlers, forestry machines, mowers, airport equipment and cranes.

“The sales of the new VB3 series are off to a very promising start. We have already sold over 50.000 units and expect to sell twice as much as the old generation by 2020. At the same time we see new opportunities arising, and plan on extending our product range.”
concludes
Primož.



THE MHP MOTOR MAKES UNPRECEDENTED HEADWAY on the Chinese directional drill market

In the past, Chinese directional drill manufacturers swore by high speed motors and gearboxes. The solution was affordable and did the job well enough, even if the severe working conditions meant replacing the sensitive parts regularly.



Poclain Hydraulics first entered the Chinese directional drill market with the MS series, whose performance levels satisfied the OEMs; however, the package turned out to be above an acceptable market price because two units were necessary to match the horsepower, pressure and speed requirements.

Then the MHP series was launched. Designed for industrial, ag and drilling applications, it surpassed the MS series, with outstanding performance levels: 500 rpm max speed, 500 bar (7,200 psi) max pressure and 280 kW (375 HP) horsepower. It also solved the price dilemma of the MS design on directional drills as one MHP does the work of two MS motors.

Dilong bets on Poclain Hydraulics

Dilong is, if not the number one on the Chinese directional drill market, the player with the most advanced and high-performance machines. In 2009 they designed the Tomahawk machine range, thus named to embody power, reliability and ruggedness. They naturally turned to Poclain Hydraulics because they knew only a direct drive high torque motor could match their high requirements. The first Tomahawk model, DL1300, was born, offering up to 200 tonnes of push-pull force and integrating two MS35 and four MS11 motors. Then the smaller DL450C followed, a bestseller integrating two MS08 motors. “Poclain Hydraulics’ S range provides higher efficiency, which means higher torque. As it works without a gearbox, there is no need to add oil on a regular basis; its low inertia

means it reverses easily and is less subject to cavitation and failure” explains JIANG Zhiguang (姜志广), Dilong’s General Manager.

Is the MHP fit for the purpose?

In 2017, Dilong made a significant leap forward. For its upcoming DL880 the Design team chose to integrate Poclain Hydraulics’ brand new MHP20, a breakthrough in a country whose culture is to benchmark machines designed in the US or Europe. Strong teamwork between Dilong and Poclain Hydraulics brought the machine’s drive solution to life: in the design stage, the supplier’s engineers provided technical proposals and lifetime calculations. When the machine was being commissioned, they advised on improvements to enhance performance and reduce cost. At the Tomahawk launch event, Poclain Hydraulics’ sales team was also there. They presented the motor’s features and how it contributes to the performance of the machine.

“Poclain Hydraulics has an image of high quality and high performance on the HDD market, and the end-users acknowledge it as such. Integrating their motors definitely helps improve Dilong’s position on the very competitive Chinese market. Poclain Hydraulics’ added value attracts high-end customers who focus on high quality and high performance, as well as differentiates us from low-tech machine manufacturers” concludes JIANG Zhiguang (姜志广).





POCLAIN HYDRAULICS TRANSMISSIONS SET SAIL with Bopp winches

Bopp, a winch, capstan and windlass manufacturer headquartered at the tip of Brittany, France, is Poclain's oldest non-construction customer. Their collaboration goes back to around 1966, a time when Poclain's technology had a proven track-record on excavators. There were however no references in the marine industry, known for operating 24/7 in a highly corrosive environment.

To date thousands of motors have been sold to Bopp, and most of their hydraulically powered winches, capstans and windlasses are powered by Poclain Hydraulics. Bopp takes pride in acquiring an in-depth understanding of the components they integrate and their engineers know as much about the technology and behaviour of the Poclain Hydraulics motors as the engineers who designed them in the first place.

David Thépaut has been with Bopp since 2006. Currently their Global Sales Manager, he spent four years in China to set up the local office and seize opportunities in the buoyant Asian fishing industry, as well as in offshore oil assistance vessels. Now he manages sales across the globe, sharing his time between Europe, North Africa, Asia and Canada.

What is Bopp's position on the market ?

David Thépaut: Bopp was founded in 1945 and is the leader on the French hydraulic deck equipment market. Innovation, premium quality and international business development have led us to where we are today, with over three thousand vessels equipped worldwide.

What is unique about your applications ?

DT: Eighty percent of our orders are custom, because each boat has specific cable dimensions, pull force and rotation speed requirements. So we have a large Development Team, who customizes each piece of equipment, based on a common platform. In addition exposure to salt and strong waves – North Sea fishermen are known to work



in extreme weather – has led us to develop rugged equipment that resists the saline environment and wave thrashing.

What are the advantages of using Poclair Hydraulics components ?

DT: The first one is obvious to the naked eye; the motors are compact. Unlike a high speed motor and gearbox combination, the Poclair Hydraulics motor drives the winch directly and adds minimal width to the overall package; in some instances the motor even fits into the drum axis. The second advantage is its low inertia, which minimizes tension peaks in the wire and reduces the risk of damage if the trawl snags on the seabed. Last the motors are rugged and require no gearbox, so maintenance is reduced and the lifetime of the components is extended. To give you an idea a fishing boat is used for roughly thirty years, over ten hours a day and three hundred days a year. The equipment requires daily maintenance to maximize its lifetime and is replaced several times within the lifetime of the vessel.

You won a big project to equip Chinese trawlers. Can you tell us about it?

DT: It's an order from a Chinese fishing shipowner, who owns a fleet of over three hundred boats worldwide. They have ordered eighteen sets of equipment for 38-meter trawlers to fish in the waters West of Africa.

Each set integrates Poclair Hydraulics motors (MS05, MS35, MS50) and a 6H14 PL pump.

You also use Poclair's twelve litre MS125 motor, to drive winches. What kind of application is it?

DT: Actually we just delivered four winches integrating four MS125 each for the French navy. Each winch is capable of pulling a hundred and fifty tonnes, and weighing sixty eight tons.

Poclair Hydraulics' supply to Bopp since the 1960's is a solid proof of the ruggedness and resistance of our components, as well as our close partnership with OEMs to meet the specific needs of their applications.



SOWING SEEDS OF GROWTH in South-East Asia

Owing to its sheer size and political power, China is the most visible nation in Asia. Standing right next to it, with its ecosystem, is South-East Asia. Composed of Thailand, Vietnam, Cambodia, Singapore, Indonesia, Malaysia, and the Philippines, it is geographically challenging: it groups dozens of islands, ten official languages, diverse cultures and religions. It is also growing at a healthy pace, is populated by a young and increasingly skilled workforce and generates a GDP of 2500 billion dollars, level with France. South-East Asia is expected to become the fourth economic power by 2050.

Thomas Liput, Poclain Hydraulics' ASEAN-Pacific General Manager and his team split between Singapore, Bangkok and Ho Chi Minh City, are making headway in equipping new applications, gaining ten percent in sales turnover every year. Singapore has a lot to offer to companies like Poclain Hydraulics; it is strategically positioned within the area, it provides incentives to investors and is a high-tech hub which fosters innovation in fields such as IoT.

In contrast with China, where OEMs turn to Europe and North America to benchmark

their hydraulic components, OEMs in South-East Asia know little about Poclain Hydraulics and rely on building a strong personal relationship before adopting a new supplier. Because of this, Poclain Hydraulics works with twelve distributors dotted across the region, which account for eighty percent of the subsidiary's sales. Geographically close, and sharing the customer's language and culture, they are an invaluable asset for Poclain Hydraulics' growth in South-East Asia. Two Certified Repair Centers cater to maintenance and servicing: one in Kuala Lumpur (Malaysia) and the other in Hanoi (Vietnam).

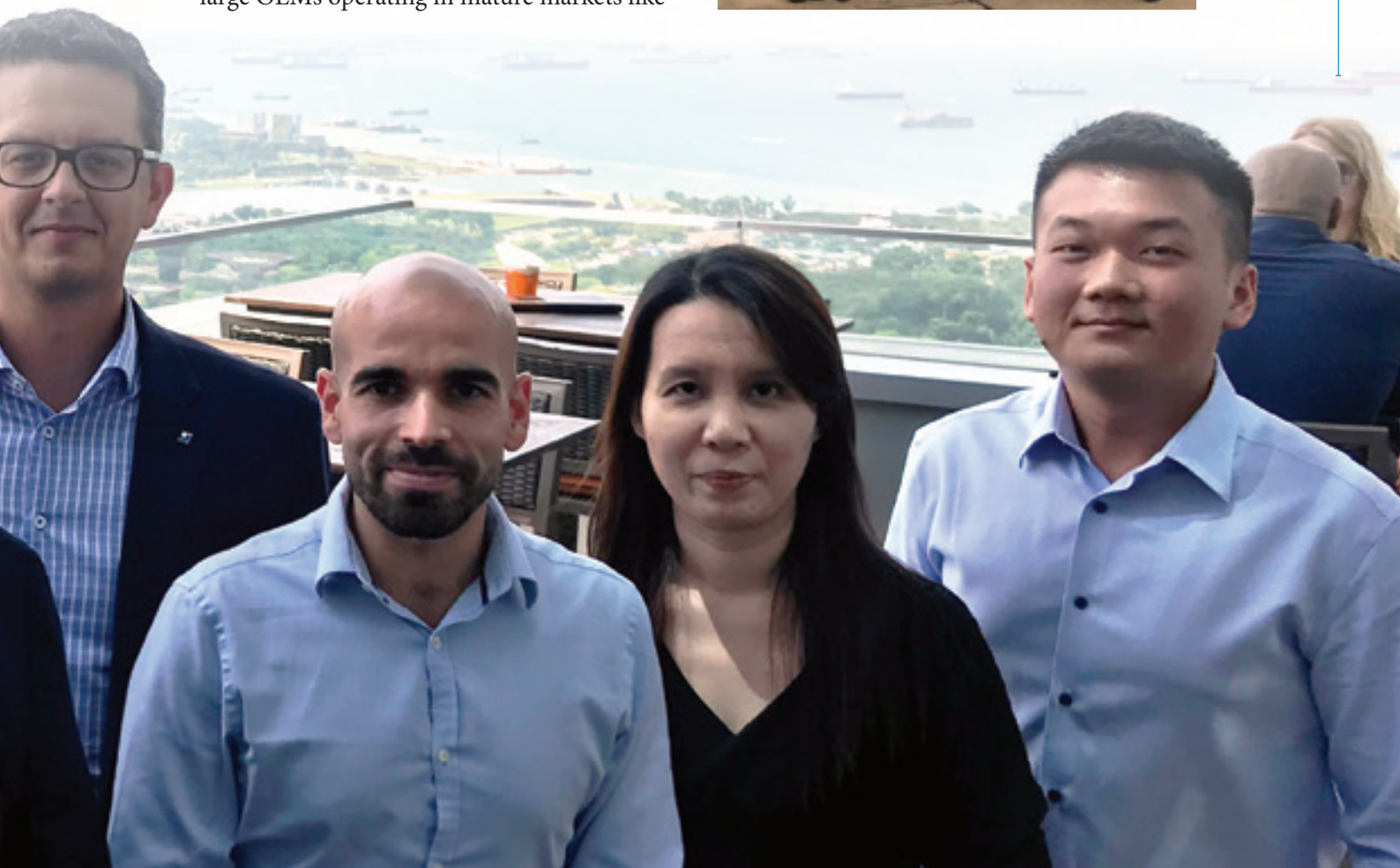




Europe and North America, Southeastern Asian OEMs favor purchasing complete systems, such as four MS05 motors, one PM50 pump and a VB03 brake valve for a small harvester. It allows them to leverage Poclairn Hydraulics' transmission expertise from sizing to commissioning and servicing.

More fragmented and culturally diverse, South East Asia remains a fertile land where Poclairn Hydraulics' presence is progressing fast with the support of dynamic distributor network. 2019 will bring them together in the Singapore subsidiary, for the third Asia Distributor Meeting, which for the first time will include China, Japan and South Korea.

Rice is one of the lifelines of South-East Asia, with Indonesia, Thailand and Vietnam ranking among the top six rice producing countries based on area harvested in 2016/17. The same is true of sugar cane, with Thailand ranked the sixth producer worldwide in 2018. As a result, both rice and sugarcane harvesters are primary opportunities for Poclairn Hydraulics' offering. The oil and gas, as well as the airport industry, come next in the subsidiary's activity. Unlike large OEMs operating in mature markets like



POCLAIN HYDRAULICS AND THEIR DISTRIBUTORS celebrate their shared successes

A strong distribution network is a key part of ensuring that our customers have a knowledgeable and capable local support system. In June, leaders from our distribution network across the globe spent the week at Poclain headquarters in Verberie, France, learning about the latest product technology and realigning to our strategic goals. This week also provided the perfect platform to foster strong relationships between Poclain Hydraulics distributors and our experts across the globe.

The meetings launched that Monday night with welcoming speeches from both Laurent and Guillaume Bataille. The theme “Growing Together” was present throughout the various activities, along with a strong emphasis on innovation and partnership. This venue continued with many opportunities for both networking and alignment for the future. The meeting allowed for productive discussions around new technologies and concepts as well as constructive workshops and team building activities designed to further develop partnerships.

With a full day dedicated to innovation mid-week, our guests toured Poclain headquarters. They were able to see our innovative solutions in action on

the test track, as well as our newest manufacturing improvements. The week concluded with a gala dinner as a way for Poclain Hydraulics to show our appreciation of the dedication of our distributors, and their commitment to our shared future success.

Leaders from Poclain Hydraulics distribution network attending the event represented over 20 different countries. As a growing region for our distribution network, China was represented by three distributors at the meeting: Shanghai Jellix Hydraulics, Symbridge Machinery Co. Ltd., and Tokawa Precision Company Ltd.

In order to take a deeper look at Poclain Hydraulics’ distribution strategy in China, we interviewed



Xiaohui SUN, Poclairn Hydraulics' Sales Manager who manages distribution business in China.

How does Poclairn Hydraulics incorporate distribution in China?

Xiaohui: Since 2017, distribution has brought additional salesforce and sales channels into China. They helped us to cover more customers and industrial segments, such as the plastic injection machinery segment, in which our distributor Tokawa took an integral part in developing.

How does distribution help the customer's experience in China?

Xiaohui: Distribution helps us to deliver a full range of professional services to OEMs. Incorporating the use of distributors into our sales process allows for more individual customer support throughout the sales process, from pre-sales communication, developing the offer during the sale and the after-sales support process. They helped to win dozens of new prototypes and take them into production.

Who is Jellix – what are their main activities and what do they do for Poclairn Hydraulics?

Xiaohui: Jellix is one of the most important general line distributors in China; they support us on two primary industries, namely drills (horizontal and directional) and shredders. Jellix was also the first distributor in the region to undergo the strict qualification process to become a Certified Repair Center (CRC) in Shanghai, China.

Symbridge Machinery Co. Ltd. also attended our VIP Distributor event. Can you elaborate on their history with Poclairn Hydraulics?

Xiaohui: Symbridge Machinery Co. Ltd has over 20 years' experience selling Poclairn Hydraulics and other European brands. Specialized in ag and shredders, they provide integrated solutions to Chinese OEMs.

We go more in depth with Tokawa Precision on page 8 of this issue, but they also participated in our VIP Distribution meeting– what are their main activities, and can you explain their relationship with Poclairn Hydraulics as a distributor?

Xiaohui: Tokawa Precision is a successful industrial line distributor. They are a Poclairn Hydraulics partner that specializes in plastic injection machinery. They have become a trusted supplier for the principal plastic injection machine OEMs. They excel in integrating MS83/MS125/MI250 motors into screw drive applications, with a potential for up to one hundred units. Beyond this, Tokawa has undergone the process of qualifying as a CRC, and will launch a Poclairn Hydraulics certified repair center in Foshan city (Guandong province). The domestic Chinese market continues to grow, and because of that, Poclairn Hydraulics continues to evolve. Part of this evolution is ensuring we have the necessary resources and expertise to support our customers' unique needs locally, and the infrastructure to deliver global solutions. A highly capable distribution network is a key to implementing this plan and supporting future growth in the region.



A VIEW OF THE CHINESE COMPACTOR MARKET, as seen by Bomag's Tom Song

When Tom Song was hired as Bomag Shanghai's General Manager in 2005, the location employed twenty-three people and was housed in a 2500 square meter workshop. Thirteen years later the facilities produce for the Chinese market as well as overseas, and generate a sales turnover of 1.3 billion CNY (162 million Euros). We talked to Tom Song about the company's development and prospects.





What are the trends in road construction?

The market demand in 2018, like 2017, remains at a very high level. We were expecting a downturn in 2018 but it doesn't seem to be going that direction. It's

very difficult to predict how numbers are going to evolve in China, because they are very much linked to the government's development program, and not only from macroeconomic drivers. The government has announced programs like the new Xiong'an industrial district South-West of Beijing and the One Belt-One Road project, and we keep a close eye on their deployment.

How did Bomag's business grow in China?

Bomag created their registered company in 2002. To begin with, we handed the sales activity over to the independent Boma dealer network, which had several offices throughout China. Eventually in 2008 Bomag acquired Boma and integrated it into Bomag. Today we have twenty-five independent dealers across China, and the majority sell exclusively Bomag machines.

Currently we sell ten thousand units annually, forty percent of which are light equipment. In value, we export forty-five percent of our machines and fifty-five percent are for the domestic market, but this ratio may vary as the strategy and market situation change.

What made Bomag's success in China?

There are three factors that contribute to our success: first, we offer the right products the Chinese market needs. When we started, we only had two or three types of heavy equipment, like 19 tonne (20.9 US ton) single drum roller and 13 tonne (14.3 US ton) tandem drum roller. Every year we launch two to three new models, which are genuine new designs, not just emission upgrades. We have also diversified our offering with pavers and milling machines, the latter being specific to the Chinese market. In every line, we start with the large models and gradually add lighter machines.

The second factor is localization. China is a very price-sensitive market and our cost structure, which integrates European design and manufacturing, needs to be adapted to be level with our Chinese competitors. From the very beginning, we started localizing the frame and the steel parts. We are gradually localizing more and more and touching the heart of the machines, extending to plastic parts, the muffler and the radiator.

The third factor is quality control. The slogan we use internally as well as with our suppliers is that "Made in China" should be 120% better than Germany, and I am proud to say we have achieved it. It enables us to export our machines to North America, Europe, Russia, and Brazil. As a result, suppliers admire our company, not just for the business we give them, but for what we teach them about quality. For instance, we ask our suppliers "Is painting easy?" and they all reply "Yes." We then explain Bomag's painting process, and this changes their philosophy. I believe that painting to our standards is even harder than machining.

Overall we have more written procedures than in Boppard, our German Head Office. We have for instance written a manual called "Supplier Guidelines" to teach them how to read a Purchase Order and deliver the goods with all the detailed requirements.

There is a fourth, more confidential factor which explains our success: we have a very loyal team. I have been the General Manager for thirteen years, and many employees have been with us since the very beginning in 2002. We are two hundred right now, with additions to our headcount every year as we launch new models and increase sales.

Given your high supplier requirements, do you have a high supplier turnover rate?

We prefer long-term collaboration. We are very serious about selecting new suppliers, and we put them through a far reaching auditing process which involves Engineering, Sourcing, Logistics, and Quality. For the core components, we even include the Boppard team. We rate them, give them corrective actions, they provide samples which we qualify. It isn't easy to take a new supplier on board, and it isn't easy to let one go either.

Do you have a local R&D team?

Yes, we have a team of sixteen people. Initially, the Chinese team's role was limited to transferring the roller designs for the Chinese market; now the scope of their activity has extended to include the pavers developed in Alfonsine, Italy. They also take part in new developments at the group level, and some will work in Boppard for several months to design the future models.

Are the Chinese models specific or the same as the ones marketed in Europe and the United States?

Our catalog is identical to the rest of the world. In some cases, customers ask for unique options, and not every option requirement is reasonable. Take the case of your rubber tire roller; some people use diesel to lubricate the tires, which we advise against because it destroys the tire surface. Our catalog features an option for rubber tire lubrication, but in association with a specific chemical. Just as we do with our suppliers, we also need to educate our customers on how to use their equipment.

What are the most popular models in China?

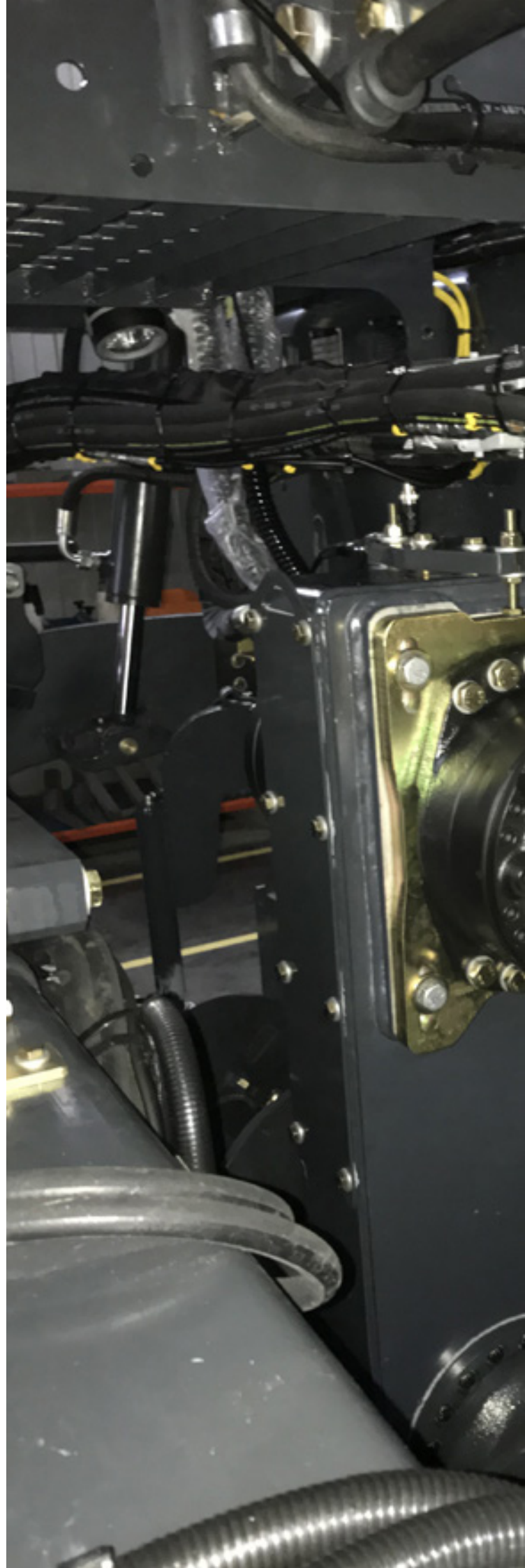
For most of the soil and asphalt compaction applications, the 20 tonne (22 US ton) roller is the most popular. In tandem drums the popular size is 13 tonne (14.3 US ton), and for the rubber tire models, it is the 27 tonne (29.8 US ton). These sizes are also the popular ones in Europe and the United States, but for soil applications Chinese customers are in favor of more massive machines, which are not always necessary. This illustrates once more our need to educate them.

Who do you compete against in China?

There are a lot of brands in the Chinese market with some big local players such as XCMG and Sany, alongside the German brand Wirtgen. We are leaders in the asphalt roller segment, because our machines meet higher technical requirements. Besides price, another competitive criterion that may give the competition the lead is payment terms. Local customers offer to pay in installments, while we are always cautious and measure the risks.

Do the Chinese models integrate the same level of electronics as elsewhere?

Just like quality, we offer the same technology,





and it is one or two steps ahead of the competition. We are strong in electronic controls, especially GPS monitoring and the electronic control of the hydraulic system.

Do Bomag rollers work harder in China?

Yes, they work long hours to respect project deadlines; they regularly work in two shifts. The tough working conditions, with mud, dust and stones, put the components to the test. Having said that, our rollers remain very durable and next to our Shanghai office we have a Road and Bridge Bureau, and they are still using our twenty-year-old -2 machines! Today we're at -5.

Which opportunities and threats do you see in the next five to ten years for Bomag China?

Thirteen years after opening our offices, Bomag's reputation is well established and it keeps gaining ground. Chinese regulations are getting tougher and are more in line with Europe regarding quality, environmental protection, and compaction effectiveness. Bomag is well positioned as we already fulfill these new regulations. As far as threats are concerned, the Chinese financial situation is quite different from Europe. This is what we need to handle in a careful way.

Is imitation a problem for Bomag China?

Yes, we have found copies, but it is dwindling, and we seldom take legal action. You can copy the yellow color and the shape, but you cannot copy our performance or the heart of our technology. Our philosophy is to market best-in-class products, and we don't think imitations can provide the real benefits in the long term. The buyer is not stupid; he knows when he chooses an imitation and when he chooses a genuine Bomag machine.

Bomag and Poclair have worked together for a long time in China. How can we help you grow in the Chinese compaction industry?

Poclair leaves me with a very good impression. The team is very reasonable and friendly. The product quality and level of service are excellent, and they are reactive; when we have difficulties they maintain very close communication. We'll likely have an even tighter collaboration in the future if Poclair further localizes part of their motors; it would improve logistics and delivery, as well as increase Poclair's profitability.

POCLAIN HYDRAULICS WORKS with China's construction equipment champion

Founded in 1958, LiuGong is a company of many firsts, including the producer of China's first modernized wheel loader. The company has been integral in China's modernization and infrastructure development, and ranks as the twenty-fifth largest construction equipment manufacturer worldwide, with a total of nineteen product lines.



Collaboration starts on graders

When Poclain Hydraulics first got the opportunity to work with LiuGong, it was to drive the front assistance of their grader dedicated to the Russian market. At the time they wanted to replace the front mechanical axle by an auxiliary drive, and they chose Poclain Hydraulics for their transmission expertise, as well as their reputation. Jianxin BAI, Hydraulics System Manager at the grader division of LiuGong, explains that *“the brand effect of Poclain Hydraulics first came to my mind. As a provider of auxiliary drive motors, Poclain is recognized by the majority of end users. By selecting them for the auxiliary drive, I knew their motors would contribute to marketing the graders at the early stage”*. The second generation of graders is currently in the prototype phase and combines Poclain Hydraulics motors and a brake valve, which was customized to match the grader requirements.

From rollers to skid steer loaders

Four years later, in 2009, the roller division of LiuGong, ranked second on the Chinese market, turned to Poclain for their 3 tonne (3.3 US ton) tandem roller. The motor, with its proven record on similar models overseas, seemed to be the obvious match. The machine ramped up rapidly, and it turned out that the working conditions in China are much tougher than in Europe and North America. The drums roll the road sub-base and work in mud, dust, and sand, whereas their Western counterparts compact freshly laid asphalt and aren't subject to contamination. So while the MKD04 motors have an excellent track record worldwide, LiuGong has replaced them with higher displacement MS05 motors on the 3 tonne (3.3 US ton) model. Poclain's professionalism in resolving the issue impressed LiuGong; so when they sat down to design the next transmission for their 10 tonne (11 US ton) tandem roller, they chose



the MS18 motor in its compactor-specific configuration.

LiuGong Skid Steer Division was next in adopting a Poclain Hydraulics motor. They were impressed by the smooth speed change between single and twin displacement, so when the time came to redesign their 3 tonne (3.3 US ton) to 5 tonne (5.5 US ton) model, they chose the high-flow MSE02. It replaced a gerotor motor, which had proved to be too light for the application, and ended up curbing the machine performance. *“After switching to the Poclain motor, the effect is significantly improved, and the quality is reliable. At present, we have six hundred motors installed without any quality problems”* adds Jianjun CHEN, Chief Hydraulics Engineer in LiuGong’s Skid Steer division.

Brake valves for LiuGong’s wheel loaders

LiuGong leads the wheel loader market in China. In 2010, Poclain Hydraulics Shanghai visited the division, this time with their brake valve offering. The Design Team wanted a Western brake valve supplier for their 3 to 5

tonne (3.3 to 5.5 US ton) H Series models, which target the export markets. The project needed a custom brake pressure curve and installation angle, so Poclain cooperated with LiuGong for three years to develop and optimize the brake valve. The outcome is a breakthrough for Poclain Hydraulics, as it is the first time their brake valves equip wheel loaders.

Converting market leaders like LiuGong is a challenging battle for Poclain Hydraulics Shanghai, as their niche positioning is weaker than well established, large portfolio players such as Bosch Rexroth and Danfoss. With every new application, Poclain has to prove that the quality, service, and dependability are up to the OEM’s standards. Time and time again, LiuGong has been impressed by the team’s support: *“Poclain’s sales team maintains good communication to ensure the effective supply of the product and meet the requirements of the complete machine manufacturer for the delivery cycle.”* Says Xiaofeng ZHAO, Senior Purchasing Engineer at the LiuGong Roller division.

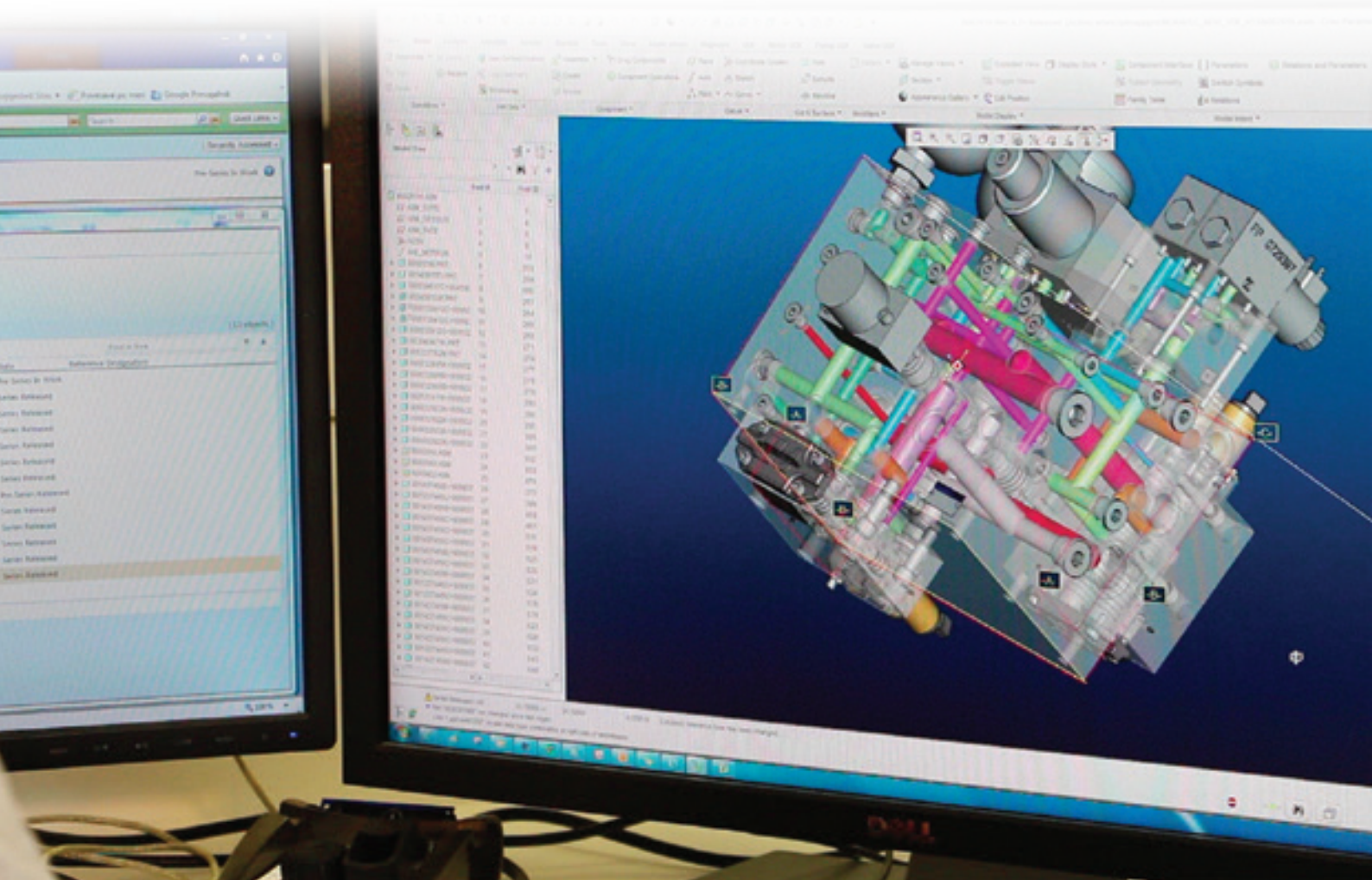




POCLAIN EXPERTISE PATH FOSTERS tomorrow's technical breakthroughs



The global leader in radial piston hydraulic motors and a specialist in hydrostatic transmissions, Poclain strives to continuously innovate and find new value-add for the customers' applications. To that end, the Expertise Path was created in 2016. Nicolas Weber, Group Knowledge Manager, answers our questions about the Expertise Path and its primary targets.



How was the Expertise Path created?

Nicolas Weber: The Expertise Path is part of Poclairn's Knowledge Management (KM) plan. KM aims at capitalizing, sharing and reusing knowledge acquired through experience and projects. Four fields were identified after analyzing Poclairn's main design and manufacturing steps:

- Skills and training
- Expertise
- Tools and methods
- Documents

Expertise is a result of critical skills identification, that is to say skills that combine three criteria: competitive benefits, scope of the skill (meaning the number of people affected by it), and the level of difficulty in acquiring the knowledge. Once we identify a need for expertise, we search for the relevant person the who can take on the role as an expert.

What's the role of a Poclairn Expert?

N.W. A Poclairn Expert has three principal roles: First to acquire new knowledge. Experts can do that internally, by leading advanced studies to improve our understanding of our components, or they can also study new concepts or new ways of manufacturing products. Moreover, they can expand our knowledge by participating in seminars or group studies outside of Poclairn, with other companies and universities.

Second Poclairn Experts need to **share this new knowledge** using documents, presentations, training, as well as contributing to projects.

Last Poclairn Experts need to **build networks**: an internal network to support the expert locally, with highlighting and escalating problems, and an external network enabling them to enrich their knowledge.

Who can become an Expert at Poclairn?

N.W. We have defined two levels of experts. The first one is essentially technical and accessible to anyone with over a year experience in the company. To be eligible you need to show you are motivated and that you have a plan. You hand in a document and a presentation summarizing your skills, your experience in the given field, your vision of the Expert role and the studies and developments you want to lead in your field of expertise. You then present these elements to a nomination committee, who selects the experts

for a three year period. The aim is to ensure that the applicant possesses the right personal traits: an eagerness to discover new techniques, excellent communication skills, and the desire to share the knowledge with his or her colleagues.

The second one, called a Senior Expert, combines technical and management skills and requires at least ten years experience at Poclairn. Their role is to coach a group of experts who are working together on a given topic.

What do you gain by becoming a Poclairn Expert?

N.W. Experts are supported by Poclairn as they undertake their assignment: they have access to external training and seminars related to their field of expertise. They also have time set aside to focus on their expertise (for example training, support and advanced studies). Specific awards and incentives are also dedicated to experts.

In a way this is an opportunity to further your career, am I right?

N.W. Yes, Expertise is one of our progress paths, exactly like becoming a manager. However one doesn't exclude the other: being a manager doesn't exclude one from being an Expert, and vice versa. We currently have experts who are also managers.

Where are the experts in Poclairn today?

N.W. The «Expertise Path» was first introduced within the Design Team because that's where the Knowledge Management plan was instigated. Nevertheless, Poclairn's Expertise is broad and also rooted in our manufacturing processes. In fact, we have already nominated four Experts in Manufacturing. Expertise is finally group-wide, and we have Poclairn Experts in Slovenia and the Czech Republic.

How do you imagine the future for the Expertise Path?

N.W. It's looking bright! This is a relatively new approach and as Knowledge Management is deployed, the Expertise Path will continue to run its course. It enables us to empower talents as well as foster and share knowledge.

The Expertise Path aligns perfectly with Poclairn values that encompass people, independence, global presence and innovation.



POCLAIN HYDRAULICS in Yorkville sponsors the St. Thomas University team

Across the globe, Poclain Hydraulics makes a point of promoting interest in the fluid power industry and fostering young talent. As part of this goal, Poclain has worked with students at many different levels from grade school to university. Earlier this year, Poclain Hydraulics in Yorkville joined forces with Power Systems in Minnesota (USA) to sponsor the St. Thomas University team at this year's Basic Utility Vehicle competition.

What was the goal of the competition?

The annual national BUV competition gives teams the opportunity to design low-cost, high-performance utility vehicles for use in the developing world.

The St. Thomas engineers presented a novel four-wheel drive design based on a two motor hydraulic drive train, and won the Most Innovative Design award. The team competed against a number of other strong teams from Purdue University, Baylor University, SUNY, among others.

*Don Weinkauff,
Dean of Engineering, University St. Thomas*

How did the students come to work with Power Systems?

The students sent us an email through our general sales address. I sent a note back to get more details, and after some correspondence,

it was clear that we needed to sit down and go over their requirements.

They came to our facility in Chanhassen mid-December and we talked over the competition and their idea for a machine. We discussed their objectives and machine concepts. The requirements were to transport a 3,000 lb GVW machine around a track to simulate difficult terrain seen in less-developed countries. The test terrain was mainly flat with dry and muddy conditions. The competition was an endurance test. Oh, and the prime mover was a 10 HP gasoline engine. So efficient power use was a critical component.

We discussed multiple options for performing traction control: series, flow dividers, Twin Lock. Based on the horsepower and need for the traction control, a flow divider with bypass seemed to be the best option. From there we could size the motors. Another aspect of the competition was to make as many laps

(transport as much water) as possible in a given time. To make up time when we didn't need the torque we used two-speed MS02 motors. This allowed the students to create three "speeds/gears" on the machine and help keep the pump size small to utilize the HP the best they could. A mechanical axle powered by a Poclairn motor drove both front and rear drive. The machine used a front axle driven by a two-speed motor and a rear axle driven by a two-speed motor in which:

- Gear 1 = front motor in full displacement and rear motor in full displacement;
- Gear 2 = front motor in full displacement and rear motor in half displacement
- Gear 3 = front motor in half displacement and rear motor in half displacement. We chose a 16cc closed loop PMV0 pump with integral charge pump. They were able to use the charge pressure to shift the motors. The installed system was designed to get up to 5 MPH and have enough torque to climb a 30% grade.

Kevin Meierhofer, Power Systems.

How did Poclairn Hydraulics get involved?

Jeff Thuemmler, our local sales representative, and I connected at the beginning of this year to work through the excess inventory lists to find something that might work. By the second week in January, we had the part numbers picked out and parts coming over from Japan that were in stock there. Together, we supplied drawings and models of the products to the team. Power Systems worked with other key suppliers to procure the filter, cooler, and fluid conveyance.

By mid-March, all of the main products were in. The students mounted all the components and then brought the machine to our facility to plumb on site. They started the engine early April, did some light testing, and then went off to the competition.

Kevin Meierhofer, Power Systems.

How did the vehicle perform?

The vehicle performance throughout the competition was amazing. We were the only team who did not have a breakdown and/or get stuck, which is in itself a huge victory. Also, we

had the pleasure of pulling two teams out of the mud during testing and removing an obstacle from the course, which actually broke another team's vehicle. On top of that, we finished second and took home the Most Innovative Design Award, which is probably the most proud accomplishment for us.

*Tukker Willson,
St. Thomas University BUW teammate.*

Do you have anything else to say about the experience?

"On behalf of the team I would like to thank each of you for all of your help and donations to this project. I know that your advice and recommendations set us up to succeed; not to mention, giving us some amazing hydraulic components that were leaps and bounds more powerful and efficient than our competitors."

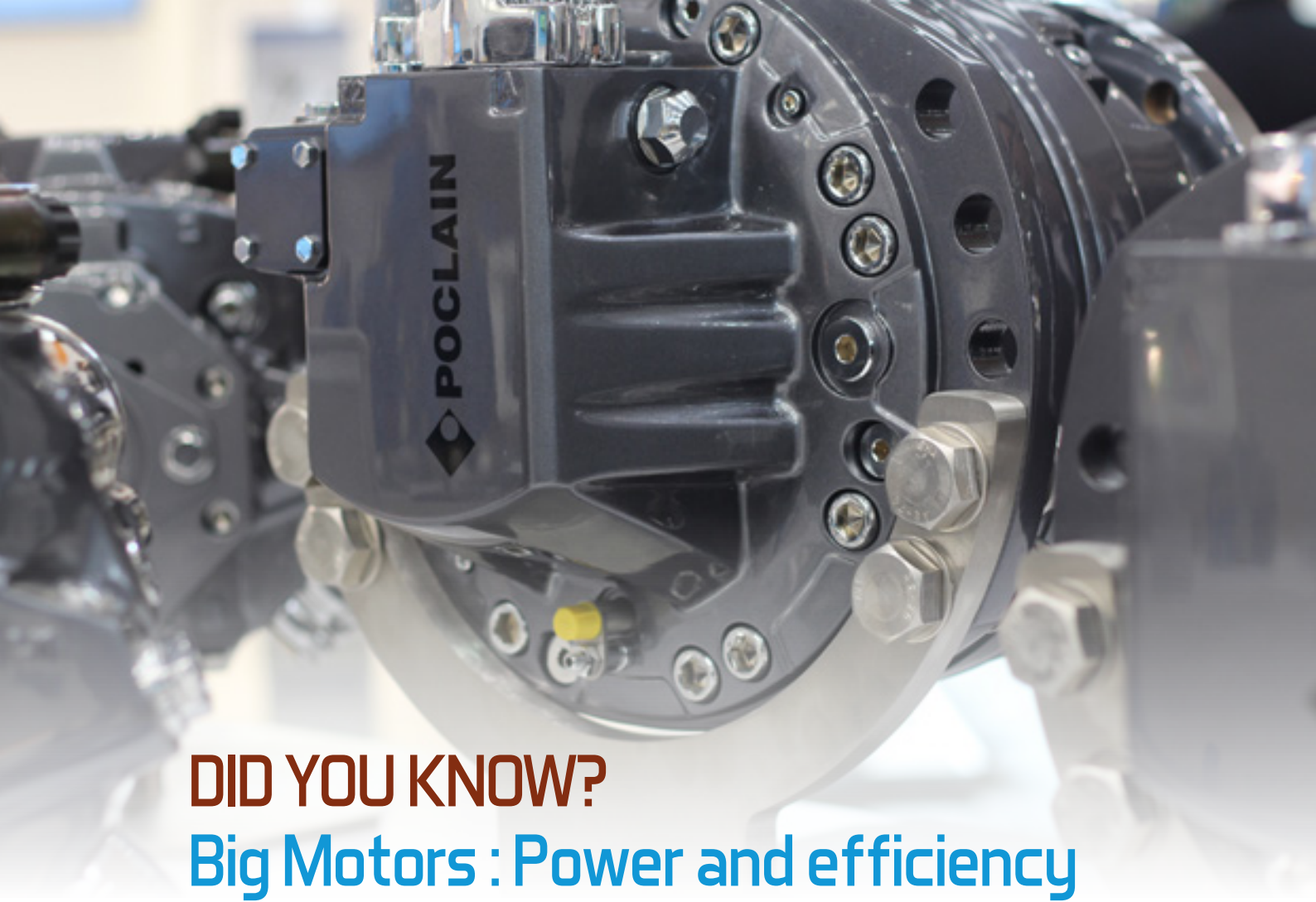
Tukker Willson, St. Thomas University BUW teammate.

Among competitors, the St. Thomas design excelled in the most difficult muddy terrain. In addition to the Most Innovative Design Award, the team took Second Place in the overall performance competition.

*Don Weinkauff,
Dean of Engineering, University St. Thomas*

Great work St Thomas Engineers!





DID YOU KNOW?

Big Motors : Power and efficiency



1) The MHP series transfers up to three times more power than the standard MS range. This feature addresses applications that require high rotation speeds coupled to high torque, such as plastic injection molding and drilling. On mobile applications, the MHP's unique features enable it to reach a higher travelling speed. It is perfectly adapted to the new generation of sprayers, which travel up to sixty kilometers an hour on the road.

2) MS motors sizes 83 and 125 can now rotate 50% faster with the new HighFlow™ valving, performance that meets the requirements of the injection molding machines, among others. HighFlow™ valving reduces the pressure drop, which in turn improves the efficiency of the machine. OEMs can thus reduce the size and cost of the systems they integrate.



DID YOU KNOW?

PM closed loop pump range, a point of reference in modularity

While the engine is the heart of the application, the pump is its lungs, so choosing the right match is paramount in reaching the expected performance level. Poclain Hydraulics' medium duty PM series can withstand a maximum pressure of 5800 PSI (400 bar) and is available in five distinct sizes, from 0.43 to 3.97 cu.in/rev. (7 to 65 cm³/rev).

Many control types

Light and simple machines work well with a direct mechanical control, and it is available on PM pumps up to 28 cm³/rev. Machines with slightly higher performance levels may require a mechanical control with feedback, available on PM pumps from size PM10 upwards (7 cm³/rev - 0.43 cu.in/rev)

The hydraulic control is ideal for applications integrating a brake system and its various components: emergency / parking brake valve, service brake valve, steering assist brake valve, accumulator charging valve, full power brake valve, as well as its associated options. The PM pump with its hydraulic control can be part of a complete braking system integrating VB brake valves.

The automotive control is available on PM10, PM30, PM50 and provides optimal drivability.

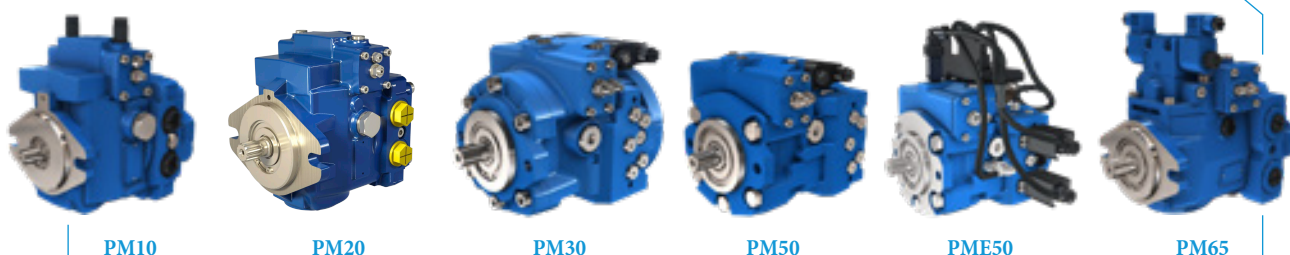
Flanging capabilities

Besides the wide range of controls, each PM pump features a flange at the rear, which renders a clean machine layout, as well as reduces assembly time and hosing for the OEM. The PM pump can thus be flanged with:

- A flow divider /valve
- An auxiliary pump for supplementary attachments for instance:
 - For instance recycling, lifting equipment, milling tools for a telescopic application
 - A bucket or fan drive actuator for backhoes or excavators

In general, compact applications such as piggyback forklift trucks, with space constraints between the wheels or below the cab, can gain invaluable space with the flange configuration.

Gear pumps from 1,6 to 26 cm³/rev» (0.10 to 1.59 cu.in/rev) can be added to the solution, either flanged or completely integrated within the PM housing.



PM10

PM20

PM30

PM50

PME50

PM65



IN 2019, VISIT US AT :



SIMA
24 February to 28 February 2019
Porte de Villepinte - FRANCE



IE EXPO
15 to 17 April 2019
SHANGHAI - CHINA



BAUMA
08 April to 14 April 2019
MUNICH - GERMANY



AGRISHOW
29th APRIL to 3rd MAY 2019
RIBEIRÃO PRETO - BRAZIL



CIAME
October 2019
Guangzhou - CHINA



CTT
June 2019
MOSCOW - RUSSIA



AGRITECHNICA
10 November to 16 November 2019
Hanover- GERMANY



HYDRAULICS & PNEUMATICS
October 2019
HELSINKI - FINLAND



EXCON
10 December to 14 December 2019
Bengalore - INDIA



...AND MANY OTHERS

on www.poclain-hydraulics.com/en/about-us/news/next-event/



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