HYDROLINE Poclain Hydraulics' Magazine

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Poclain Driving Values for the Future

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Beside the strong identity attached to a signature product, Poclain Hydraulics' success has always been based on proximity with customers. Attention to the needs of the end-users, to the service expected by our customers, and to the trends of each market we serve is what has been driving our sales force present in twenty countries as well as our marketing and R&D teams.

Poclain Hydraulics' first steps in Asia-Pacific date back to more than half a century ago, as reported further in this newsletter. With two production facilities, seven sales subsidiaries and offices, eight certified repair centers and a wide network of distributors, our structure in the region is now coming close to the ones established in Europe and America.

On the product side, our key-tenet remains to provide our customers all over the world with goods up to the same high standards. Downgrading, compromising on quality or durability are not part of our business model. Similarly, our plants in emerging countries such as China and India follow the same manufacturing and quality standards as the ones we run in Western regions. It is our mission of course to steadily improve the value of our offer, and to demonstrate that the best technical option is not necessarily the most expensive one!

On the service side, we strive to keep up with the famously dynamic and fast-moving Asian markets. More products will be assembled in Shanghai starting this year and continuing in 2015, which will allow to drastically reduce leadtimes; our local warehouses and workshops can also support short-delivery programs on items manufactured overseas. We provide sales, application and field assistance in the whole Asia-Pacific region, either directly or through our distributors. In Asia as well as elsewhere, we strive to be a company that is easy to do business with.

This year again, BAUMA Shanghai will show the vitality and mobility of the Chinese construction equipment market, even amid tougher economic conditions. As a company that has kept re-inventing itself over more than fifty years, we welcome the challenges set by the Asian development, and we wish they will make us younger, better and smarter!

CORPORATE

NEW FINNISH SUBSIDIARY

Poclain Hydraulics Oy

Poclain Hydraulics Oy was created in the beginning of 2014 and started to operate in July 2014. It is located in the Vantaa, capital area of Finland close to the Helsinki-Vantaa airport. Poclain Hydraulics Oy today has two employees and aims to hire three additional employees during 2014/2015.

With new resources Poclain Hydraulics Oy continues to follow strategy of finnish people to local markets.

In addition to the Vantaa location Poclain Hydraulics Oy has a remote office in the city of Tampere, approximately 170 km north from Helsinki.



These locations serve OEM customers in Finland and Estonia and support end users and traders through distributors.

Poclain Hydraulics Oy is especially strong in the areas of material handling, forestry and mining. Typical solutions in its market area are transmission with wheel motors, feeding with feed roller motors, swing drive solutions with direct drive and power brake technology.

With understanding of Finnish markets and with new coming resources Poclain Hydraulics Oy is ready to meet demands of future growth which is estimated to be significant by 2017.







"Productivity, reduction of fuel consumption, comfort, precision, compactness: with the new range of MZ motors, Poclain Hydraulics offers a «concentrated» version of the technology that made them so successful."

NEW MZ RANGE

Integration, Comfort, Robustness

In 1958, Poclain revolutionized the way Hydraulic excavators work with the introduction of the first cam lobe motor allowing a complete rotation of the turret. Today, the MZ motor is the legitimate successor to this prestigious history, benefiting from over fifty years of Poclain Hydraulics' experience and know-how in turret rotation solutions.

Nowadays, construction workers are no longer simply looking for the best performing product at the best price, they are also looking for components that are more easily integrated into their machine: this is the case, for example, with mini and medium-sized excavators, where the space dedicated to the integration of hydraulic features is particularly reduced. This is why Poclain Hydraulics, with the new range of MZ motors, offers a «concentrated» version of the technology that made them so successful and that is perfectly



adapted to this task.

In terms of performance, the MZ range has all the necessary advantages to carry out efficient and accurate work:

• Unlike a high-speed motor + reducer solution, the MZ motor offers a yield of over 90% when operational, which allows it to make best use of the power installed on the machine, thereby offering better acceleration, resulting in higher productivity.

This high yield directly contributes to reducing the machines' fuel consumption, a major stake for construction companies.

• The shockless and anti-rebound valves, completely «integrated» into the motor, ensure

progressivity and eliminate all clearances and rebounds during the turret's stop phase. This also contributes to reduce noise in the cabin during these phases. Coupled with radial piston motor technology, these valves guarantee extremely precise positioning of the excavator's arm in conditions of optimal comfort for the driver.

• Very specific work has been carried out during its design to ensure that this range of motors is particularly silent when operating, providing comfort for the driver.

• The precise positioning of the turret is assured while working on slopes for the elimination of drifting.

• Finally, this motor is fitted with a parking brake feature.

All these characteristics, which are essential for turret rotation, have been optimally integrated into the motor, itself designed with compactness in mind, in order to promote its integration into a confined and complex environment.

This motor is supplied with a pinion shaft, that can be easily adapted to the machines. In these ways, Poclain Hydraulics significantly contributes to the reduction in development time and costs for its customers.

The most well-known manufacturers of excavators, as well as forestry agricultural and industrial turreted vehicles, have already been convinced by the MZ motor.

A complete range of motors has been developed to cover the entire range of smaller excavators, and up to 8T, which are particularly demanding in terms of integration and compactness.

Excavator	SIZE		Displacement (cm ³)	Torque (Nm) @ 260 bar
2 – 3 T	MZ02	Min.	172	711
		Max.	255	1054
3 – 4 T	MZE02	Min.	266	1100
		Max.	398	1.647
3.5 – 4.5 T	MZE03	Min.	450	1860
		Max.	500	2067
4.5 – 6 T	MZ05	Min.	376	1554
		Max.	560	2315
6 – 8 T	MZE05	Min.	530	2191
		Max.	820	3390

At the same time, other motor offers from the MS range, recognized for their robustness and their great modularity, allow for equivalent performances on the bigger machines.

Excavator	SIZE		Displacement (cm ³)	Torque (Nm) @ 260 bar
up to 13 T	MS08	Min.	467	1900
		Max.	934	3850
	MSE08	Min.	1043	4300
		Max.	1248	5150
up to 18 T	MS11	Min.	730	3000
		Max.	1259	5200
	MSE11	Min.	1263	5200
		Max.	1687	6950
up to 24 T	MS18	Min.	1091	4500
		Max.	1911	7900
	MSE18	Min.	2340	9650
		Max.	2812	11600

APPLICATION

COMPACTION

Dedicated Hydraulic Solutions for Rollers

With 30 years experience, Poclain Hydraulics now has a comprehensive offer of systems for serving the compaction market. Whether these be manually operated rollers, asphalt compactors or soil compactors, each customer will be able to find a solution perfectly adapted to their needs.

Solutions for Transmission

	Pumps	\$	PMV0 or PM10
Walk Behing Compactors	Motors		MS(E)02 or MK04
	Valves	ø	Exchange : VE10
,	Pumps	.	PM10 or PM25
Í.	Motors		MS(E)02 or MK04 or MSE05 or MK05
Fandem Compactors < 5 T	Valves	2	Exchange : VE10 and 2C/parking brake pilot: KVC/KVM and aAntiskid: 2-ways flow divider FD-M
	Pumps	I A A A A A A A A A A A A A A A A A A A	PM50 or PM65 or PW
andem Compactors 5-16 T Split Drum 7-14 T	Motors)	MS08 or MS(E)11 or MS(E)18 MK09 or MK(E)12
	Valves	**	Exchange : VE60 and 2C/parking brake pilot: KVC/KVM and Antiskid: 2-ways flow divider FD-M
	Pumps	۱	PW (75 and 85 cc) or P90
Soil Compactors	Motors		MS(E)18 or MS35
	Valves	N	Exchange: VE60 and 2C/parking brake pilot: KVC/KVM and Antiskid: 2-ways flow divider FD-M and Twin-lock control bloc



Solutions for Vibration Electronic Solutions 2 ΚV -SD Easy or SD-CT Display 1,5 ΚV PM10 or PM25 or PM50 SD Easy or SD-CT M0 or M1 Display 1,5/ Display 4,3 ΚV PM50 or PM65 or PW SD Easy or SD-CT M2 or M3 Display 1,5 or Display 4,3 ΚV



Drive Motors - MS vs MK

Two types of motors may be used for driving compactors: the MS or MK motors. Each of these motors is suitable for very specific applications.

The MS motor offers great performance and a high degree of modularity. It is very well suited to the needs of asphalt compactors and can be offered with compact heavy bearing support.

The MK motor has a bearing support, which is extremely resistant to the forces generated by the vibration system. It has also been designed to receive a hollow shaft and has an interface for receiving the vibration motor.





PMVD with Through Shaft Reduces Manufacturing Costs

This PMVD pump version is designed for use with walked behind compactors equipped with a mechanical vibration system. Its through shaft enables the in-line assembly of the internal combustion engine, hydraulic pump and vibration clutch. As such it replaces the previous pulley-belt system used for engaging the clutch.

This PMV0 variant simplifies machine design, offering more compactness while increasing resistance. Perfectly adapted for feeding the transmission circuit of small compactors, the PMV0 pump has already proved highly successful amongst Poclain Hydraulics customers.

However, until now it was missing a valuable optional extra – a through shaft. Previously, a pulley drive system was necessary for operating the pump, since the clutch for the vibration system was directly mounted onto the drive shaft. It is now possible to assemble the engine, pump and clutch in line.

For the customer, this represents a real opportunity for integration and of costs reduction. This optional extra is of interest for small-size compactors, and in particular the wall behing rollers market, but also for mowers and small tractors, which require a secondary mechanical transmission.



CHARACTERISTICS

Displacement:
40-45-52 cm³/rev
[2.44-2.75-3.17 cu.in/rev]
Max. Speed: 3600 rpm
Max. Pressure:
350 bar [5076 PSI]
Theoretical absorbed
Power at 320 bar [4641 PSI],

3600rpm: 99 kW (133 HP)

PM50 PUMP

Designed for Medium Duty Applications

Engine anti-pollution standards are imposing more and more restrictions. End-users are becoming increasingly demanding as to the reliability, accuracy, performance and ease of use of their machines. It is in this context that Poclain Hydraulics gained attention at the Conexpo trade show in the United States, in March 2014, showcasing its new range of pumps - the PM range.

Each component of this new range was designed with the desire to enhance the overall efficiency of machines and therefore contribute to the reduction in fuel consumption expected by the markets.

The PM pump satisfies the most demanding reliability requirements. Developed according to the best quality standards, combining on bench and on field strict tests under extreme conditions, this new range of Poclain Hydraulics pumps ensures that the machines convey a positive image of the brand and contribute to customer satisfaction.

Thanks to the compactness of this range, manufacturers will have more flexibility in their machine design.

With a view of accuracy and ease of use, the controls for these pumps are available in a wide range and are able to satisfy the specific needs of each customer:

- Mechanical servo control with feedback
- Hydraulic servo control
- Hydraulic servo control with feedback
- Hydraulic Automotive control
- Electrical on-off servo control with return spring
- Electro-proportional control
- Electro-proportional control with feedback

This wide offer of controls allows each customer to find the control type that is best suited for his machine.

Controls without Feedback, Safety and Ease of Use:

Pump controls without feedback set the pump displacement proportionally to the operator setting, but the result obtained may be altered by the load of the application.

Therefore, for the same command setting, the speed of the machine will vary depending on the slope.

This function allows the user to drive his machine without fear of stalling the engine. The absence of feedback offers a natural power limitation and antistall function, it adjusts the displacement depending on the load of the circuit.





D control (Automotive) - Simplicity and Safety of Use:

The automotive control allows the machine to drive like a car with an automatic gearbox. It sets the pump displacement proportionally to the speed of the internal combustion engine. The result is progressive and accurate control of the drive speed using the internal combustion engine accelerator and a forward-neutral-reverse shift control, therefore a simple and intuitive interface.

In addition, the D control protects the components by automatically regulates the power and serves as an anti-stall function.

Controls with Feedback, Precision Handling:

The feedback corrects the displacement variations due to the variable load of the application (pressure variations in the circuit). As such, the machine speed is maintained whatever the slope and the load of the application. This ensures a high degree of accuracy during use.



The PWe is designed to meet all requirements, point by point.

HIGH PERFORMANCE PLUG & DRIVE

The New CAN Bus Controlled PWe Pump

A real cornerstone of the HIGH PERFORMANCE offer, the new range of heavy duty closed loop pumps will cover, in the long run, a range of displacements going from 85 to 164 cc/rev. Particularly compact, and equipped with great power density, these pumps are able to run at pressure levels of up to 500 bar and reach speeds of 3850 rpm.

Designed to provide increased efficiency, the PW pump reduces energy consumption and polluting emissions of the machines, thus responding to the introduction of new antipollution regulations of type euro 6 or Tier IV. Its electronic control, exclusively offered by Poclain Hydraulics, ensures its precise and dynamic behavior.

PWe pump is now available in a version with fast and easy to use electronic «Plug & Drive[™]» software. This electronic device combines essential management, security, comfort and monitoring features for hydrostatic transmissions. It is compatible with performance level d (Pl-d according to ISO norm 13849-1), in accordance with the

Machine 2006/42-EC directive and associated regulations.

Today, Poclain Hydraulics goes even further, and offers a version of the PWe that can be controlled by CAN bus. Thanks to this new feature, the pump can be controlled by any electronic control unit.

Built in to the PWe pump, it also allows the transfer of essential information concerning the hydrostatic transmission to the machine's controller in order to ensure its optimal management.

This joint use of both electronic control unit combines their performances while reducing the time to market and development costs.



The PWe Configurator: a User-friendly and Efficient Interface Developed for PWe

Developed around a simple and intuitive interface, the PWe Configurator software allows for a selection of software functions to be activated or not. It has to be used in addition to PHASES-CT software.

HIGH PERFORMANCE





Poclain Driving Values for the Future



"PHASES-CT is an extremely efficient tool, and is able to use the same features that are useful for the effective management of a hydrostatic system, with exclusive news :

- A more intuitive graphic interface

- A compatibility with Windows tablets ".

THE POWER OF SOFTWARE

PHASES-CT: Even More Intuitive and Efficient

To complement its new HIGH PERFORMANCE offer, and to accompany its new SmartDrive-CT-20D/30D/PWe calculators, Poclain Hydraulics is offering a new version of its Phases software, specially designed for its users. It can configure, optimize and ensure the maintenance of its electronically controlled hydrostatic transmission systems.

The users will find an intuitive graphic interface. Right away, they will be able to select the program language, while choosing the measurement units they are most familiar with. Another new feature is that the software now works on a Windows tablet, making it easier to use in difficult environments.

With its new modern design and excellent graphics, PHASES-CT is able to control all the functions for effective management of a hydrostatic system:

- Downloading and updating of the software.
- Machine configuration setting, adjustment and control.
- Hydrostatic transmission malfunctioning diagnostics via error message memorization.
- Graphic monitoring of 12 parameters simultaneously.

In order to use the PHASES-CT software, users will first need to acquire a user license from Poclain Hydraulics.

	PHASES CT			
Home	1	Onboard software	Time counter	
Download	*	791000714	🖞 04m	
Settings	-	Pending errors		
Calibration	0	401 LSD1.open circuit 402 LSD2.open circuit 402 LSD2.open circuit 10001 Engine speed too tire		
Diagnosis	46			More into.
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	CLOSE		Connected 😜	

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CT-DESIGN: Programming within Everyone's Grasp

Poclain Hydraulics is now offering the CT-DESIGN software to all of its customers.

With this new software, Poclain Hydraulics is making access to the electronically controlled hydrostatic transmissions even easier by allowing the OEMs to create their own management software.

The CT-DESIGN tool offers a library of tried and tested software functions. With the help of an intuitive interface, each customer using CT-DESIGN can, without any further help, combine the necessary functions to generate their software in just a few clicks, thereby reducing development costs and time.

CT-DESIGN has a simple and intuitive interface, and remains a powerful and efficient tool. It guarantees the best level of reliability for the generated software. It also provides the electronic wiring diagram that is created for each machine.

In order to use the CT-DESIGN software, you will first need to acquire a user license from Poclain Hydraulics.



CORPORATE



ALWAYS MORE LOCAL

The Shanghai Plant Keeps Growing!

To better serve its customers in China, Japan, South Korea, South East Asia, Australia and New Zealand , Poclain Hydraulics is carrying out more industrial projects in Shanghai.



S ince 2012, the Shanghai plant has been able to assemble brake valves.

In December 2014, the production of medium duty pumps will start with the assembly of the PMV0. Additional models of PM pumps will follow. In June of 2015, the production of radial piston

motors will start with sizes from 170 to 2800 cc.

Poclain Hydraulics In Shanghai

- Poclain Hydraulics has been established in Shanghai since 2010.
- The logistic platform, a 2,000m² plant in the Sonjiang district, handles Poclain Hydraulics products sold to Chinese customers
- Service benches allow for repair of products, as well as conversion to suit specific needs of the Chinese market.

An aftersales workshop is already in place with the ability to repair all sizes of radial pistons motors, medium duty (PM) and high performance (PW) pumps and VB braking valves. This workshop can also make minor adaptations to MS radial piston motors, PM pumps, and VB braking valves to accommodate the customers need.

Shorter lead times are available for customers thanks to the Shanghai logistic platform. This platform includes areas for inspection, inventory for parts and for finished goods, as well as a shipping center.

These changes in the Shanghai facility will provide exceptional customer service to Poclain Hydraulics' customers in Asia Pacific.



INNOVATIVE DISPLAY

SD-DISPLAY-4.3C: The Poclain Hydraulics' New Display

Equipped with an even greater resolution and a 24 bit color display, the new SD display from the Poclain Hydraulics delivers even more style, comfort and functionalities.

ts new graphics features are used to view as much information as possible more clearly and legibly, and depending on the customer's specific requirements.

It is possible to simultaneously display up to 8 analog values, 6 «all or nothing» indicator lights, as well as an error light that alerts the customer in real-time to any anomalies that may occur while the machine is running.

Compatible with Easy-Design, as well as the new CT-Design software, the SD-DISPLAY-4.3C lets the customer configure his own display at the end of their software's conception.

Technical Specifications:

- Power Supply: 9 to 36 V
- 2 ISO 11898 CAN bus
- 8 programmable buttons
- Simultaneous display of: 4 gages or 8 barographs or 8 digital values (can be mixed)
- IP protection : IP6k5 et IP6k7 according to norm ISO 20653

This innovative display complements the SD electronic offer.







New design fits best when low ground clearence is available (< 70 mm in total). It is a dedicated product for all applications where limited space is available underneath the cabin floor.



EXTENDED VALVES OFFER

To meet the requirements of its customers, Poclain Hydraulics continues to develop its brake valves and flow dividers offer. Performance, compactness, modularity, and interchangeability have been optimized in order to provide the optimum solution for each machine.

Horizontal Brake Valve (VB-010 and VB-020)

H orizontal brake valve by Poclain Hydraulics is an extension of the current brake valve product range. The new design fits best when low ground clearence is available(< 70 mm in total). It is a product dedicated for all applications where limited space is available underneath the cabin floor

or behind cabin fire wall. Typical examples are: excavators, dumpers, mobile cranes, forklifts, telehandlers, trucks, loaders, airport machines, etc... The same valve design can be used for floor or wall mounting. The universal pedal actuator design allows for easy interchangeability of Poclain Hydraulics pedals and change of pedal direction, compared to valve position. Therefore the same valve can be used for different cabin sizes and configurations, which allows to limit the diversity of first mount operations and aftermarket.

Benefits of new design:

• Less than 70 mm of available space in depth is enough for mounting horizontal version of VB.

- Available for single or dual brake circuit applications
- Electric positioning sensor to measure pedal stroke
- Sensor is safely positioned under the cabin floor /wall

and protected from dirt or water (introduced by operator's shoes in the cabin).

Medium Duty Flow Divider

In addition to the already existing flow divider FDB, dedicated to high pressure applications, Poclain Hydraulics introduces a smaller, optimized flow divider FD-M. While the FDB valve is designed for applications working at 450 bar for flow control from 150 to 200 L / min, FD-M is intended for applications up to 380 bar working under flow control less than 100 L / min, for a bypass flow up to 150 I / min.

FD-M range is available in different configurations with 2,3 or 4 ways, with different dividing ratios and flow control. Additional integrated auxiliary function, park brake engagement on/ off, is also offered.

All versions are available with check valves and pressure relief valves when needed.





Exchange Valve

To regulate the temperature in a close loop hydraustatic circuit, Poclain Hydraulics offers an exchange valve range (VE). The operating principle of the VE10, VE30 and VE60 consists of taking hot oil from the low-pressure side then sending it to the cooling system.

Exchange relief valve settings are:

- Fixed values on smallest VE10 valve (from 14 to 20 bar with increment of 2 bar).
- Adjustable settings for VE30 (from 10-30 bar) and VE60 (12-30 bar).

VE10 and VE60 are compatible with 450 bar max pressure. VE30 can be used for 500 bar max pressure. VE range products are designed to be easily integrated in machines. They are especially compact and available in the piped and flange versions.



VE3D can be used for 500 bar max pressure

EXPERIENCE



Mesto, worldwide leader in the industrial shredder domain

Metso is a Finnish manufacturing group which supplies solutions and services for the mining and construction industries. It addresses itself to customers operating mainly in quarries, pellet production, construction, civil engineering and mineral treatment.

Metso relies on an international services and sales network. Its industrial activity meets growing requirements in the demand for construction materials and the development of urban areas.

Metso has also achieved a worldwide reputation as a vibration device manufacturer for the mining and quarry industry.

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COLLABORATION WITH METSO

The Largest Motor Ever Built by Poclain Hydraulics

Birgitte Sallling, Procurement Manager at Metso, spoke to us about her company's collaboration with Poclain Hydraulics which has resulted in the development of the MI250 hydraulic motor: the largest motor ever built by Poclain Hydraulics.

n 2010, METSO and Poclain Hydraulics came together within the framework of its activities regarding metal recycling and waste treatment machines.

Poclain Hydraulics was put to the challenge for one of the key phases of the recycling process, the shredding phase. This stage is complex because the flow of bulky, resistant and abrasive materials is unpredictable and requires exceptionally powerful and robust fixed and mobile waste shredding equipment. The MS125 motor responds to the motorization needs of the EtaPreShred[®] 4000 Metso shredder, designed for the treatment of solid waste.

Unlike some other suppliers, Poclain Hydraulics was able to prove its willingness to listen and its flexibility in order to better respond to its customer's requirements, which was particularly appreciated by Metso. Since then, 110 units of EtaPreShred[®] 4000 have been equipped with the MS125 motors.

As a result of this first positive experience, and faced with a large-scale project, Metso approached Poclain Hydraulics with an opportunity to work together on the development of a new motor «To equip the largest machines and to develop the strongest torque in its range, the EtaPreShred® 6000 shredder».

The challenge was to meet the performance requirements, while perfectly adapting to the environment and the machine's compactness requirement.

This is how the MI250 motor was born, the largest hydraulic motor ever built in the Poclain Hydraulics range.

With a displacement of up to 30 L, it is able to deploy a torque reaching 140 kNm for a 500 kW power under a pressure of 350 bar. Equipped with Poclain Hydraulics' radial piston technology that has proven itself for fifty years, it meets the requirements set by METSO both in terms of flexibility and lifespan, whilst being able to be housed in a reduced volume space.

Despite the size of the project, and the few technical challenges to overcome through the course of the development, the product is today considered a success: «The MI250 is currently being tested on-site by a customer, and is already running at 2000 hours without problem. It will be in series version on our machines in November 2014».





MI250: Poclain Hydraulics'new Large-Displacement Motor

Poclain Hydraulics is turning towards its more demanding markets with a new hydraulic motor that has a maximum displacement of 30 L. This product will satisfy its customers' requirements for reliability and lifespan, while also coming in a compact size.

The MI250 offers an efficiency rating of over 90 %.

Its 30 L displacement used at a maximum pressure of 350 bar enables it to deploy a torque going up to 140 kNm for a power of 500 kW. Its reduced dimensions enhance the available power density.

The technology of the MI250 is that which Poclain Hydraulics has been using for 50 years in its radial piston motors. This proven design allows for great reliability and a lifespan adapted to the most demanding applications such as shredders, industrial machines, marine winches, drills, etc.

This motor takes place in a system offer composed by industrial valves and hydraulic power units.

CHARACTERISTICS

- Weight: <950 kg
- Total length: 900 mm
- Diameter: 520 mm
- Displacement: 17,500 cc/ rev to 30,000 cc/rev
- Max speed at 30,000 cc/ rev: 60 rev/min
- Max pressure: 350 bar
- Max torque: 140.000 Nm
- 2 or 4 DN38 ports with support surface allowing for direct mounting of valves
- 2 drains and 2 pressuremeasuring points

INTERVIEW



"Optimizing vehicles by limiting the engine running time is the main goal of the project."

MANITOU

Stop & Start Solution for Off-Highway Vehicles

Manitou Group and Poclain Hydraulics: two medium sized companies, two different areas of activity associated with hydraulics, two French family-run organizations... Both made for one another. The «Stop & Go» project, that sees Manitou and Poclain Hydraulics working together, is a perfect example.

A s a reminder, the Stop & Go system (called CleanStart at Poclain Hydraulics) is a hydraulic stop and start system. This solution is able to quickly and frequently start the thermal engine and bring it directly to idle speed. Therefore, the engine can be stopped during each phase when the machine is not in use. In order to better understand the context and the stakes of this collaboration, we met with Jean-Yves Augé, the R&D director for the all-terrain material and manufacturing trucks department at Manitou.

The Context

The Stop & Go telescopic forklift's micro hybridization system is part of a huge project launched by Manitou, called «Reduce».

«Since 2009, Manitou has undertaken several works in order to permanently improve the



energy efficiency of these products and to offer their customers the most economical machines in the telescopic handling world in terms of fuel consumption. For this, Manitou has put the emphasis on energy efficiency in a way that offers the customer efficient machines with low consumption that better respect the environment.»

«Thanks to a long-running project, during which multiple machines were outfitted, Manitou identified the types of operational cycles for the machines, and calculated their consumption. In respect of Manitou's total transparency commitment to its customers, all this data is available to consult online and to compare to competitors' solutions on the website: reduce.manitou.com (certified by UTAC).»

These studies have proven that, notably in the world of construction, the machine is likely to be iddling for long periods. «When the builder is working, he uses the machine, moves around, transports his load, positions himself, then, very often, he leaves his machine without turning off the engine», specifies J.-Y. Augé. For this reason, optimizing vehicles by limiting the engine running time was the main goal of the project.



Why the CleanStart solution?

Manitou Group has consulted many suppliers and has put numerous electrical and hydraulic solutions to the test. The hydraulic solution was preferred for many reasons:

• Its ability to start high-displacement and high-power thermal engines.

• Its reliability and its ability to work for the entire lifespan of the vehicle (10,000 hours)

• Its ability to quickly bring the engine up to idle speed. . «This avoids overinjecting diesel, pollution and clogging the particle filter, which considerably improves the user's comfort (the user is subject to fewer of the vibrations that normally occur during start-up)».

• Its compactness and its integration capacity are considered to be a major advantage for the machine's manufacturers.

Finally, «the Poclain Hydraulics solution offers the advantage of being readily available as it has already been in development at Poclain Hydraulics for over a year.»

According to Mr. J.-Y. Augé, «as an experienced transmission integrator, Poclain Hydraulics was aware and receptive to the integration limitations. Moreover, there was a high level of validation by Manitou and the expertise on the subject by the Poclain Hydraulics engineers established a good level of confidence in the collaboration.»

What about the measurable performances of the STOP & Go installed on the MT1840 fixed telescopic forklift (18 meter lift height and 4 tons of capacity)?

The initial customer trials in a real-life environment demonstrated that, with an average annual use of 800 h, an MT1840 is not in use and runs at a reduced speed 30% of the time.

As the STOP & GO automatically cuts the engine during these



redundant phases, this represents a reduction of fuel consumption of around 5%.

From these results, Manitou can list numerous competitive advantages:

• The elimination of fuel consumption and polluting emissions during the stop phases.

• The reduction of the operational duration of the thermal engine which provides two advantages that are very important for construction equipment rental companies (the sector's main customers):

- Longer intervals between maintenance, and the resulting cost reduction.

- Increased resale value (stops the hour meter during the engine's stop phase).»

• Improved comfort for users (machine is silent during stop phases).

The project's future

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«As we are proud of our brand new Stop & Go solution, we are considering the option of expanding this system onto new markets» mentions M. Augé. Limiting the environmental impact of machines by optimizing their running time is a strategic issue for customers and large accounts.

Manitou Group is also looking at offering Stop & Go on agricultural machines. «The farmer's concern to optimize his work time, and to loose as little time as possible». By reducing their fuel consumption, this will allow them to work longer without having to refuel, which translates to greater productivity. «Furthermore, the TCO(1) is a concept that will also be very important to farmers».

Even further, Manitou would like to continue to develop the energy performance of its machine for a given size of engine power, by taking advantage of Poclain Hydraulics' latest developments regarding the performance of its components. The collaboration between these two companies with common values should therefore last for years to come.

(1): TCO: Total cost of ownership

$M_{\text{ANITOU}, a}$ French company which is the world leader in all-terrain material handling

Founded by the Braud family, the Manitou group is a French company that today employs a staff of 3,200 employees, spread over 19 branches and 8 production sites. It is the world leader in all-terrain material handling, and, in particular, in telescopic forklifts.

With a network of over 1,400 distributors, it distributes its products worldwide, under the Manitou, Gehl, Mustang, Edge and Loc brands.

Its catalog, comprising around 400 machine models, addresses 3 main markets and is almost equally split between them. These 3 main markets are agriculture (36%), construction (37%) and industry (27%). In addition to storage and industrial handling, the industry market includes markets such as mining, oil and gas, military, aviation maintenance, etc.

Since 1998, Poclain Hydraulics has motorized the ground transmission driven skidsteere loader built by Gehl in the USA, Manitou's TMT mounted on trucks forklifts, as well as the rear axle of the MH Buggie vertical mast all-terrain forklifts with MSD2 engines. Since 2010, this collaboration has also included the development of a brand new system on the handling market: the CleanStart system. As a worldwide exclusive, the MT1440 and MT1840 fixed telescopic forklifts are being equipped with CleanStart, under the name Stop & Go, from September 2014.

XGMA & Poclain Hydraulics

A Great Collaboration

Poclain Hydraulics' solutions always keep the machines of its customers at peak performance and efficiency with a cost-effective benefit. This results in more sales and profit, which helps in strengthening the collaboration between Poclain Hydraulics and its customers.

Xiamen XGMA Machinery Co., Ltd. is a major player in the Chinese construction machinery market. XGMA has been building construction machines for over sixty years, with a wide product range including wheel loaders, excavators, forklifts, road machinery, environmental protection machinery, piling machinery, concrete machinery, as well as others.

Since 2012 when Poclain Hydraulics sold the first prototype to XGMA for a skid steer loader, the collaboration has grown stronger with every project. As of today, there are more than four different XGMA machines already in series production with Poclain Hydraulics products More importantly, looking towards the future, many new XGMA machines are being designed with Poclain Hydraulics solutions.

Poclain Hydraulics' know-how and experience on hydrostatic transmission, wide-range of products, and global presence enable it to meet many customer expectations. Customers expect a fast lead time for prototypes, high reliability products for end users, right solutions for their machines and the best possible cost. When validating the Poclain Hydraulics solution Mr. Yao, Chief Engineer or Road Machinery at XGMA, stated

"We are choosing your product not only for the brand image you build in the compactor market, but for the total cost savings." Poclain Hydraulics' unique design of the MK motor saves each machine two expensive bearings, 4-hours of working time for assembly and many other maintenance costs in the future due to failure.

After three years of cooperation, both Poclain Hydraulics and XGMA are sure the partnership will continue to advance and both companies will benefit for years to come.



"We are choosing your product not only for the brand image you build in compactor market, but for the total cost savings."



NETWORK



"Poclain Hydraulics gives us the edge in demanding applications that require fast starting torque, high pressure, efficient high power density with robust design able to perform in a harsh environment."

HYSPECS

Poclain Hydraulics' Distributor in New Zealand & Australia

Hyspecs is a privately owned hydraulic engineering company located in New Zealand and Australia. Hyspecs was formed in 1972 as an alternative to the single brand, multi-national suppliers in existence at the time. They offered then, as they do now, full hydraulic system design backed by an extensive range of hydraulic equipment.

Hyspecs products are sourced from around the world through selected well-known, quality companies. The majority of which are fully ISO 9001/2 accredited. Hyspecs has gradually grown to become New Zealand's largest supplier of hydraulic components and systems. Hyspecs also has a sister company, Hytech which manufactures hydraulic manifolds. The Melbourne branch was setup in 2010 with an eye on expanding into all areas of Australia. product development that allow Hyspecs to keep ahead of the competition. Being the sole agent for Poclain Hydraulics in NZ has enabled Hyspecs to be one of the main suppliers to the forestry industry supplying all the major manufacturers of harvesting heads. This has been a huge success for these companies.

The Poclain Hydraulics motors give the machines high productivity with superior up time. They are the heart of the harvester and have contributed to New Zealand designs

Hyspecs has positioned themselves in the New Zealand and Australia as hydraulic



in hydraulic system design, hydraulic components, and with outstanding servicing of existing plant and equipment. Hyspecs supplies the industrial, agricultural, forestry, marine and construction industries.

Poclain Hydraulics is an ideal partnership for Hyspecs. Poclain Hydraulics gives us the edge in demanding applications that require fast starting torque, high pressure, efficient high power density with robust design able to perform in harsh environments. Hyspecs appreciates the technical support and ongoing



dominating on the world stage. Poclain Hydraulics motors are also used in a unique way as a torque limiter in windmill applications.

Hyspecs was

awarded the right to sell Poclain Hydraulics product into the Victorian State of Australia. This has provided Hyspecs with a fantastic opportunity to expand Poclain Hydraulics sales throughout Australia.

Hyspecs has already successfully applied Poclain Hydraulics motors into the rail and road industry sectors. Along with general sales to applications as diverse as winch and auger drives. Together with Poclain Hydraulics, Hyspecs will continue to deliver cutting edge solutions to the New Zealand and Australian markets.

HISTORY

YUTANI POCLAIN

Poclain Hydraulics' First Big Success in Asia

It was in 1962, through the Yutani company, based in Hiroshima (Japan), that Poclain manufactured and sold its first products in Asia. A look back at a success story that lasted 20 years.

n 1917 in Osaka, Japan, Mr. Eiji YUTANI created the «Yutani Komuten» company, which produced machines aimed at the construction market.

Renamed Yutani Heavy Industries Ltd in 1962, the company purchased Poclain licenses for the manufacture and sale of the TY45 and TC50 under the name «Yutani Poclain» that appears on the machines' counterweight and arm. Production was awarded to the Hiroshima factory. This is the beginning of the Poclain brand's presence in Asia.

Kong in 1965 as the commercial and aftersales headquarters for this part of the world.

With a strong reputation for reliability and exceptional performance, more and more customers in the Far Fast were satisfied with the choice of Poclain, pioneer of hydraulic applications for public construction and grading work.

Sales progressed and Yutani Poclain renewed its license several times over to produce around 900 excavators per year between 1968 and 1982.

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years,

year а

market

POCLAIN 2,400

meet



Their commercial success was such that other contracts were signed to expand the range of machines produced, and Yutani Poclain began manufacturing the FY - FC and GC. With this same purpose in mind, a new «POCLAIN FAR EAST LTD» branch was established in Hong

bought out by Kobelko.

This being the case, the cooperation between Yutani and Poclain continues through the sale of the MS02 motors by Poclain Hydraulics to the Kobelko-Yutani factory in Hiroshima.



NEWS



NEWS & AGENDA

2015 EXHIBITIONS SCHEDULE

- INTERMAT April, 20 to 25 in Paris (France)
- STT June, 2 to 6 in Moscow (Russia) // To Be Confirmed
- AGRITECHNICA November, 10 to 14 in Hanover (Germany)

CERTIFIED REPAIR CENTER

Poclain Hydraulics is pleased to announce that the distributor HYDRO CONCEPTS AND DRIVE TECHNOLOGIES, located in Olifantsfontein, Gauteng (South Africa), has become Poclain Hydraulics Certified Repair Center. Contact: Mr Eric ALCARAZ. Tel : +27 (0) 113168518 • Email: info@hcdt.co.za • www.hcdt.co.za



PLANT EXPANSION IN BRND (CZECH REPUBLIC) AND PONDICHERRY (INDIA)

By the end of the year, 2800 m² of additional production space more and storage area will be added in Brno At Pondicherry, 1380 m² workshop and 600 m² of additional offices will be built.

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