

THE **SAI** JOURNAL

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NO LIMITS TO SAFETY
WITH SAI PRODUCTS



**SAI SAFETY AT WORK...
PRICELESS FOR YOU!**

POWER THROUGH EFFICIENCY

APPLICATION FOCUS

CONTROL IS NOTHING WITHOUT SAFETY

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SAI INTERVIEW

WELCOME TO THE SAI JOURNAL!

Dear Reader,

this issue of The SAI Journal focuses on SAFETY.

Among its many meanings, SAFETY can be defined as being the control of recognized hazards to an acceptable level of risk.

The continuous search for quality must include safety as a key component in enabling growth of any modern company.

Innovative technology and efficient service are fundamental components of survival against global competition, but the success of a company can not be divorced from the idea of a safe product. Products have to satisfy what the market demands but must still keep well within safety limits even though they are designed to exceed normal standards of performance.

Therefore we can say that, despite this eagerness to go over the limit, the final product must be safe as well as reliable once ready for the market.

Through the various articles contained in this issue, we will highlight the importance that SAI gives to the concept of safety, especially in what we are actually able to offer to the market in order to fully comply with the highest production standards, as well as to satisfy any specific demands that may require a customised solution.

As you will see SAI has faced up to this challenge with great determination, focusing on skilled and passionate people, able to form a working team whose energies are fully devoted towards maintaining and increasing the success of our company.

So join us and think safe!

Looking forward to receiving your comments, I thank you very much for your continued support. I wish you a pleasant reading!

Vittorio Pecorari





SAI SAFETY AT WORK... PRICELESS FOR YOU!

... in the modern concept of “work”, one of the main discriminating characteristics which bring about direct and indirect benefits to a company’s productivity is the importance it places on SAFETY ...

Work has existed since the beginning of time. In order to satisfy his and his community’s needs, man has always had to work the land, manufacture, bargain and better himself to achieve desired results. Man’s work has evolved over the centuries and different aspects of work have become increasingly important as time has passed.

Nowadays, it’s well-known that, in the modern concept of “work”, one of the main discriminating characteristics which bring about direct and indirect benefits to a company’s productivity is the importance it places on SAFETY.

Safety at work consists in respecting all the preventative and protective measures by the employer and workers alike. Therefore, it is clear that safety management in a company is a business choice, and as such requires investment.

Hence, the question becomes: does it really produce an economic return and in which way?

Looking at the main investments or costs associated with safety, one can include the purchase of protection equipments, investments in the security of technological interests, healthcare support and training courses for workers. On the other hand, it’s possible to list numerous benefits which are produced by

a proper safety management policy built into the business.

First of all, the main “direct” benefit is the REDUCTION OF ACCIDENTS in the workplace. This fact certainly brings with it a considerable reduction in the costs emanating from insurance, healthcare and legal expenses. Moreover, a safe workplace improves the mood and the personal satisfaction of every single employee, and therefore it increases the overall efficiency and productivity of the worker. When security is effectively applied in all working environments there is overall benefit, maximized use of time and increased quality of work as well as an INCREASE IN TURNOVER.

Furthermore, as is easily imaginable, a company that follows a precise safety program can reach improvements and advantages which go very far beyond financial matters. The so-called “indirect” benefits are, in fact, reflected in a better COMPANY REPUTATION and in an improved CORPORATE IMAGE. For example, the company will be able to guarantee uninterrupted appli-

CONTACT PERSON

Vittorio Pecorari President | vittorio.pecorari@saispa.it

No limits to safety with SAI products

cations of the most modern manufacturing technologies therefore guaranteeing the highest product quality. This in turns brings FULL CUSTOMER SATISFACTION which is, of course, the most sought after result, not just for the company itself but for every individual worker within the company!

A good business security policy conveys benefits even to the product. That is why safety is a tangible value that SAI wishes to follow and share with its customers to provide them with high quality and reliable products and services.

Many SAI products are used in applications where safety is directly dependant on the motors. When moving dangerous equipment, when positioning heavy or hanging loads or even when driving the wheels of a small sweeping machine, the controllability of the movements become a key safety feature for the operators and for the environment around them. The precise and reliable behaviour of any machine depends on the intrinsic safety embedded in the motor technology. The design and the manufacture of the product must keep in consideration the impact that they have on the safety of the machine.

Thanks to the high safety standards and advanced technology of SAI products, they achieve EXTREMELY HIGH LEVELS OF CONTROLLABILITY that bring about positive results even when they are used in the hardest working conditions.

A resistant high quality product is synonymous with great success, since a reliable and safe product is what increases machine efficiency and productivity and with it overall profitability. Therefore, the answer to the question above is that safety isn't at all expensive, rather it's priceless.



The market is becoming ever more demanding, and machines often have to cope with a different kind of phenomenon that produce very high levels of stress, due to the extreme working conditions that they have to operate in.

SAI, thanks to the group R&D Centre srl, is able to re-create those dynamic phenomena and can therefore approximate the working conditions that may be found in the field, even though they could be the most extreme ones.

The suitability of our motors to withstand the rigours of a specific application can be checked thanks to the complexity of our test benches that can map motor performance continuously, 24 hour per day. We are able to subject the motors to extreme levels of stress thus helping us to develop specific options to enable our products to resist the most extreme working conditions that they are expected to come up against.

A safe motor is a high quality and reliable product, on the basis of the customer's specific requests.

Among SAI's test benches, the inertial ones make it possible to reproduce identical working conditions to those that a hydraulic motor would have to endure, on a vehicle for example, by simulating the effect of violent acceleration or deceleration.

Identifying the appropriate inertial loads, SAI can replicate what can be expected from any specific application in the field, and is therefore able to make its products suitable for:

- pressure peaks
- cavitation transients
- rapid acceleration/deceleration

SAI products are manufactured with the aim of achieving extreme levels of performance and are compliant with the highest safety standards.

CONTACT PERSON

Marco Costaggu Technical Supervisor | technical.supervisor@saispa.it

**MANY SAI PRODUCTS ARE USED
IN APPLICATIONS WHERE SAFETY
IS DIRECTLY DEPENDANT ON THE
MOTORS**

SAI USA

SAI Hydraulics, Inc. opened a new manufacturing facility a few years ago. With this expansion, it has been possible to provide the North American market with an increase of offers and services based on highly-qualified engineering support.



Our U.S. subsidiary is the perfect partner whenever modern solutions and technologically-advanced engineering are required. Since 1973, their experience in the marketplace, along with a team of skilled and passionate people, allows them to provide complete, high-quality interaction with OEM companies in fields that include oil & gas, agriculture, earth-moving, defence, marine & offshore, and energy to name a few.

By focusing the production on the North American standards that the customer's demand, the goal of SAI Hydraulics, Inc. is to supply a wide range of motors, planetary gearboxes, brakes and related accessories while offering full, customized service. Among the latest products launched in the market, you can find complete wheel drive units, now available with dual and variable displacement. Another great success is mirrored by the 7-piston "T-Series" featuring extremely high starting torque and highly-advanced technology.

Furthermore, through its excellent marketing network, SAI U.S.A. can effectively handle any enquiry related to product selection, price and delivery windows from the point of their customer's initial contact.

Their well-stocked warehouse allows them to maintain a wide range of components to meet their customer's requirements from a small part replacement to a complete motor refurbishment, even assisting in the field, if necessary.

An invitation to visit our U.S. facility is cordially extended to all existing and potential customers.

SAI USA

welcomes customers and potential customers in
168 E Ridge Road Linwood, PA 19061 USA

E-mail: info@saihyd.com
Phone: +1 61 04970190
Fax: +1 61 04970194
Web Site: www.saihyd.com

More productivity, less waste: how to select the correct product?



SAI has been investing in a range of resources to enable it to offer its customers the best possible service. Employees at all levels are continuously trained for analysis, interaction and control of the all aspects of company policy and procedures in order to meet the demands of our customers.

To facilitate the application of its range of products, SAI has adopted a customised production system whereby our technical department works closely with buyers at the development stage of their project, thereby guaranteeing the complete fulfilment of the client's specific needs and the quality of the finished product.

SAI is capable of assisting their customers from the very beginning of any application study, by constantly looking at innovative solutions to manufacturing and performance problems. The SAI engineering department has the expertise and the equipment to acquire data directly in the field. The data capture system works through multi-channels (transducers), that take information provided directly from the hydraulic system and convert it to signals readable by the computer program.

The data acquired in the field, allows SAI engineers to perform specific bench tests enabling them to check and confirm product selection. From this they can also establish any necessity for adaptation of standard products in order to better meet any specific needs. As a consequence, machine manufacturers can be confident that they will be purchasing a reliable and safe product that will increase the overall productivity of their machine.

The best engineering solutions and top level expert assistance is always available from SAI, do not miss the chance to increase your business with us!

ATTENTION! THINK SAFE



CONTACT PERSON

Matteo Michelin Sales Manager | sales.manager@saispa.it

Control is nothing without SAFETY

Continuously variable displacement across a wide speed range - SAI wheel motors can help vehicle designers improve both safety and performance

The most technologically advanced self-propelled machines are now capable of reaching very high speeds even when working in the most arduous conditions. This calls for a continuously increasing demand for high quality products and safe vehicle design lay-out.

How is SAI able to get around this and make safe transmissions?

1. Centre of Gravity (C.o.G) anti overturning:

the wide range of products that SAI offers the Market, allows its customers to select the best solution for powering the vehicle.

SAI wheel drive units enable the C.o.G. of the vehicle to be lower, resulting in more stability, even when operating on very steep slopes.

Overall vehicle performance is thereby improved, and the risk of overturning reduced.

Furthermore, the redefinition of the vehicle lay-out and dimensions, thanks to the use of SAI wheel motors in place of a mechanical axle transmission, allows more flexibility of cabin design and engine position allowing for more comfort and safety.

Application example, orchard tractors: very compact and safe vehicles with lower cabin enabling access and operation under trees.

2. Traction Distribution - Antispinning:

controlling the traction means simply transmitting the available torque to the ground in the most efficient way possible.

Where vehicles do not operate safely due to wheel spin, the introduction of alternative circuitry, such as the inclusion of flow dividers or by connecting motors in series, are not the most efficient solution, nor do they give the fastest reaction times.

The best solution is to balance each individual wheel torque output to the torque transmissible to the ground. **Thanks to the SAI variable displacement technology, a motor can vary its displacement continuously in full power, to reach every single wheel torque limit, even down to 0cc, to prevent spinning the wheel.**

3. Traction Control:

safety is also a major factor with traction distribution. SAI variable displacement wheel drive units allow fine inde-

pendent output torque distribution from every individual motor. By using a continuously variable wheel motor, the machine makes the most efficient use of the power available dependent upon specific soil conditions.

When manoeuvring on extremely steep areas, the operator must be protected to allow him to work under the safest conditions; in such cases, by using SAI variable displacement motors, it is possible to increase the displacement on the more heavily loaded wheels, thereby guaranteeing safe traction, even on slopes and when heavily laden.

Therefore, it is possible to use the same power or the same flow setting on the vehicle, and to split it more to the front axle or more to the rear axle, as best required by the working conditions. All of the above results in ***much more efficient performance*** and safer operating machine.

4. Assisted Braking Torque:

the continuously variable displacement motors produced by SAI, have extremely high mechanical efficiency that supply high levels of braking torque from the mo-

ment the vehicle starts to decelerate thereby guaranteeing rapid and controlled stopping. What is more, the operator can continuously, and with full controllability reduce or increase the displacement as required, therefore boosting the braking torque on any individual wheel, depending on specific needs.

5. Auxiliary Traction:

SAI motors used for auxiliary traction can work at high speeds by modulating the displacement. *In so doing it is possible to use them for driving torque at low and medium speeds, whereas the motors can be set to zero cc/rev when being towed.*

The motor can continuously vary its displacement while running, providing variable power to be conveyed to the auxiliary wheels. The SAI speed capability makes it possible to work at the maximum speed limits allowable by Law.

IMPROVE THE PERFORMANCE OF YOUR MACHINES - MAKE THEM SAFE AND RELIABLE USING SAI VARIABLE DISPLACEMENT TECHNOLOGY!

EXAMPLES OF TRACTION DISTRIBUTION



30%

70%



70%

30%



50%

50%



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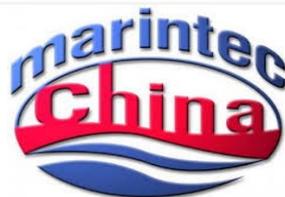


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10-16 November 2013 Hannover GERMANY



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4-8 March 2014 Las Vegas USA

**Giuseppe Pecorari**

The following interview is aimed at introducing Mr. Giuseppe Pecorari, the SAI USA Vice-President, to you.

SAI USA has recently opened a new production facility. Can you make an assessment of the last months? How's your local market going?

It has been a very exciting time and a great new opportunity for SAI Hydraulics to step up to a manufacturer from only assembly-distribution. As a local manufacturer, we have been able to expand the SAI line in order to satisfy the U.S. market demand. The new advanced line made for the U.S. market, has opened opportunities that will become evident in our sales in the near future.

Although we are still not at a full pace, we are completing our first of various phases toward manufacturing by the end of 2013. We are confident that the market demand will allow SAI USA to boost sales in 2014.

Which market sectors are currently the most dynamic ones?

We have seen an increased demand in agricultural products, as well as in the energy market. The energy market can be divided into various sectors: coal mining machinery, oilfield drilling, construction machinery, industrial applications, all these sectors are still now on a slower pace, although we have seen an increase in demand and orders.

Despite the current economic slowdown, 2013 seems to be another successful year for SAI USA. What is the forecast for the next months?

When reviewing June's sales compared to the first 6 months of 2012, SAI USA sales are slightly lower, but they are a little higher than the second half of 2012.

Looking at the order portfolio and the forecast for the next 6 months, we feel that 2013 will be a productive year with total sales being the same as or higher than those of 2012.

SAI, in 2014, will be exhibiting in the CONEXPO-CON/AGG and IFPE 2014 FAIR held in Las Vegas, USA. What expectations do you have for the event?

I feel that CONEXPO-CON/AGG and IFPE 2014 is going to be a very important event. We are coming out of a slow economic period and are foreseeing an upward trend toward a better economy and lower unemployment.

This event is a great opportunity in which we can exhibit our innovative technology, as well as boost products, made specifically for the U.S. Market. We anticipate impressing the visitors to CONEXPO-CON/AGG and IFPE 2014 with our new U.S.-made products. Our goal is to allow our current customers and those of our competition to see the advantages of our technical know-how.

Our new complete drive units will compete with the existing competitors' ones.

Our improvements, with increased capacities and manufactured in the U.S., will allow our customers to enhance their equipment, thus, maintaining or reducing their cost.



WORLDWIDE



SAI CANADA

6105 Blvd. Couture St. Leonard
Quebec CANADA

Ph. +1 51 43234552
Fax +1 51 43238780
saicanada@saihyd.com
www.saihyd.com



SAI GREAT BRITAIN

Unit 8, Honywood Road Business Park,
Basildon SS14 3HW UK

Ph +44 1268 272030
Fax +44 1268 272040
info@saigb.co.uk
www.saigb.co.uk



SAI JAPAN

Keisho ARK2 201 4-29-12 Kamiogi
Suginami-Ku-1670043 Tokyo JAPAN

Ph. +81 333905500
Fax +81 333905501
info@saijapan.jp
www.saijapan.jp



SAI USA

168 E Ridge Road Linwood,
PA 19061 USA

Ph. +1 610 4970190
Fax +1 610 4970194
info@saihyd.com
www.saihyd.com



SAI UKRAINE

Ph. +380 66 44 97 992
saihydromotors@saihydromotors.com.ua
www.saihydromotors.com.ua



SAI CHINA

1st Floor, 2nd Building, No.1281, Jinhu Rd.,Pudong
201206, Shanghai, PRC

Ph. +86 2150315248
Fax +86 2150315246
saichina@saihydro.com
www.saihydro.com



SAI BRAZIL

Ph. +55 16 97390790
saihidraulica@saihidraulica.com.br
www.saihidraulica.com.br



SAI SOUTH AFRICA

Suite 244 Postnet Private Bag X5061 Stellenbosch
7599 Western Cape SOUTH AFRICA

Ph. +27 21 9 050 835
Fax +27 21 9 057 375
info@saihydraulics.co.za
www.saihydraulics.co.za



SAI INDIA

26/C, Doddanekkundi I.A. Phase 1 Post
Mahadevapura Bangalore 560048 INDIA

Ph +91 8042605509
Fax +91 8042605506
sales-domestic@saihydromotor.com
www.saihydromotor.com



SAI

Via Olanda 51, 41122 Modena (MO) ITALY
Ph. +39 059.420111 Fax +39 059.451260
saipa@saipa.it
www.saipa.com