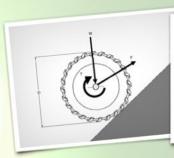


Year 10, Issue 4 2012



THE TECHNICAL ADVANTAGES
OF SAI EFFICIENCY





LET ENERGY
BE YOUR EFFICIENCY

POWER THROUGH EFFICIENCY

# APPLICATION FOCUS

THE ENERGY CYCLE POWERED BY SAI





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# WELCOME

## TO THE SAI JOURNAL!

Dear Reader.

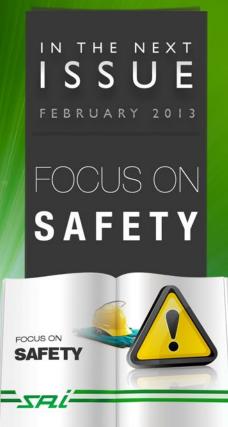
this issue of the SAI Journal focuses on Energy. Energy is an indispensable requisite for performing work, this concept being relevant in many disciplines.

The efficient use of energy is the target that everybody should be aiming for. We should all strive towards reducing the amount of energy required to produce products and provide services, thereby saving money and preserving the planet for future generations.

The focus of SAI on energy has always been to develop technologically advanced products that could efficiently perform the transformation of hydraulic power into mechanical power offering optimal performances to the designers facing the challenges and the demands of their Market. Efficient energy use is what SAI motors provide when powering the machines. Our green logo and our motto "Power through Efficiency" perfectly reflect our mission.

For better or for worse, the world has changed and keeps on evolving, and the increased interest in the efficient use of our energy resources is driving the redesign of many equipment. This, of course, means several products are becoming obsolete more quickly but on the other hand this offers the possibility to design and manufacture new equipment that can be much more efficient and environmentally friendly and that could help all of us in living in a better world. Therefore the current market instability could represent a great opportunity if we direct our efforts towards overcoming it with new ideas and new solutions. Gladly, I can say SAI is being achieving this goal. The year that is ending has not been an easy one. Despite the unstable markets and the financial turbulences in some parts of the world, SAI has expanded its market share in several areas, it has greatly benefited from the contribution of our newest products - dual and variable displacement motors - and it has increased the efficiency of its operations worldwide. These results are extremely positive and they represent a great basis for the developments of the next years. Our efficiency is the result of passionate staff, their ideas and efforts; a team of experienced and qualified people who believe in their work and who transform their energies into productivity. Our weapon against economic adversity is to perform with the right moti-

So, I wish you pleasant reading. Vittorio Pecorari







# LET ENERGY BE YOUR EFFICIENCY

... in a company such as SAI, the concept of change is closely bound by two principles: TECHNOLOGY & EFFICIENCY, this is how we fulfil to the world's continuously changing requirements for products or services ...

The concept of EFFICIENCY is never out of fashion but it has evolved with the passage of time and with technological advances. In our industry, efficiency is the capability of a specific machine to achieve an effective outcome with the minimum amount of wasted energy, expense, or unnecessary effort.

The struggle for survival that has featured for most of human existence can be related to an industrial evolutionary advantage for the process of economic growth: "it is not the strongest of the species that survive, nor the most intelligent, but the most responsive to change" [Charles Darwin].

In a company such as SAI, the concept of change is closely bound by two principles: TECHNOLOGY & EFFICIENCY, this is how we fulfil the world's continuously changing requirements for products or services.

SAI has always focused on the technical evolution of the products as well as on the development of advanced processes including the monitoring and control of raw materials, components, and all aspects of the production, manufacturing, assembly and inspection processes.

This evolution is being reflected in the increased PRODUC-TIVITY of our manufacturing and sales activity, this being a direct consequence of being efficient, as we are!

The benefits of higher productivity can be observed at

many levels. All process starts from a good organizational structure that determines the operational modes designed to achieve specific aims.

We firmly believe in the importance of PRODUCTIVITY GROWTH - the element which makes SAI extremely competitive in the Market.

It is through the capability of meeting our customers' interests, through a close partnership with our suppliers, through a high motivation of our employees, and through the focus of our shareholders on the long term results, that we improved our competence and our market penetration.

These principles are clear to all our associates which, in turn, make part of processes aimed to get the best performance through knowledge, skills, experience and qualifications.

This combination of TECHNOLOGY & EFFICIENCY makes SAI one of the world's leading companies in research, development and production. The correct application of our products will inevitably improve the overall ENERGY EFFICIENCY of any machine on which they are employed.

Reduced energy loss, means decreased cost, and all the time

CONTACT PERSON

Vittorio Pecorari President | president@saispa.it



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that this energy saving offsets any possible additional costs of implementing an energy efficiency solution the result will be an overall financial cost saving to consumers and will be another step towards a green environment - often not directly measurable in financial terms.

SAI regularly creates and launches new products for specific applications. The latest generation of SAI motors features extremely compact size, with our technologically advanced variable displacement systems, offering a myriad of control options including integral electro-hydraulic and microprocessor control.

A wide range of benefits can be gained from our vast range of products for powering advanced hydrostatic transmissions for all types of industrial and/or mobile applications.

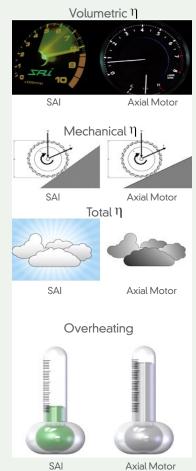
The SUSTAINABLE ENERGY POLICY of SAI is what makes us a valuable partner towards obtaining major reductions in energy loss and heat generation.

By continuously developing innovative products, SAI creates project solutions enhancing the efficiency of the machine. Advanced technology, combined with compact sizes and state of the art manufacturing, makes SAI the best choice when the goal is reducing fuel consumption, heat generation, exhaust emissions, and increasing lifetime of the equipment. Thereby decreasing costs without compromising on the benefits of improved machine performance is the key to competitiveness and success in the Market.



THE SUSTAINABLE ENERGY POLICY OF SAI IS WHAT MAKES US A VALUABLE PARTNER TO-WARDS OBTAINING MAJOR REDUCTIONS IN ENERGY LOSS AND HEAT GENERATION.

# THE TECHNICAL ADVANTAGES OF SAI EFFICIENCY



The general trend in recent years concerning the design or the improvement of the existing products has been mainly focused on the development of solutions operating at high efficiency with particular emphasis and attention on energy savings and reliability.

Considering that an hydraulic motor is a mechanical actuator that converts hydraulic pressure and flow into torque and speed (i.e hydraulic power into mechanical power), the high efficiency is certainly one of its most relevant features.

As the overall efficiency depends on two factors (friction  $[\eta m]$  and leakage  $[\eta v]$ ) is quite simple to understand that different structures of hydraulic motors (axial, orbital, radial) have different performances and efficiencies.

The hydraulic architecture that gives the best performance in terms of efficiency is the crankshaft design radial piston motor. SAI design is characterized by cylinders supported in the motor casing by two trunnions which allow the cylinder to swivel, in this way the piston and cylinder remain aligned with the eccentric axis of the crankshaft as the shafts rotates, that is why SAI motors are featured by extremely high starting torque.

Therefore the use of SAI products has a positive impact on the overall efficiency of the complete power transmission, reducing the machine fuel consumption and operational costs.

CONTACT PERSON

Marco Costaggiu Technical Supervisor technical.supervisor@saispa.it



## SAI GREAT BRITAIN

Serving the whole of the United Kingdom and Ireland, SAI (GB) Limited has been offering sales, service, spares and application advice relating to the SAI hydraulic motor range since its conception in 1993.



The company has risen from small beginnings to be the one of the major players in the radial piston motor market in the U.K.

In 2004 SAI (GB) Limited moved from their original modest base in Chelmsford, to a brand new, purpose built industrial unit in Basildon, Essex where it continues to operate to this day.

The company specialises in supplying SAI products to applications of a high technical and performance requirement and in fields that include defence, offshore, marine, telecommunications, energy and many more.

Always at the helm has been Managing Director Kevin Parslow who, together with his small team of experienced and dedicated staff, has steadily and solidly grown the business from its modest beginnings to the thriving success that it is today. Not satisfied by resting on its laurels, there are plans for further expansion of the company in 2013 and beyond.

SAI (GB) Limited has always majored on Customer support. All enquiries are handled immediately by an experienced Engineer with product selection, price and delivery times always being available at the time of the initial contact.

It is this level of service that is so important in the UK market and which sets SAI (GB) Limited apart from so many of its competitors in the hydraulic motor market.

This essential requirement has been confirmed by our continued success.



#### SAI (GB) Limited

welcomes customers and potential customers in Unit 8, Honywood Road Business Park, Basildon SS14 3HW UK

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# THE EASIEST ACCESS TO SAI WORLD



If you're looking for a specific motor or just have questions about what will best suit your application, our experts are always available to provide you with the best engineering solution! Your problem is our challenge.

SAI engineers work closely with machine manufacturers in offering the most suitable products to result in optimum energyefficiency.

Wherever they are required to work, the prerogative is to apply the most advanced technology to improve performance towards reducing overall cost.

Power through Efficiency is not only our motto, but it is also our mission! When downtime is an issue, you can be certain that we can get you back up and running in no time.

The well known quality and technological advances which go to make up our products, ensures that, by choosing SAI, you will not only meet, but you will most likely exceed your needs. With virtually limitless application experience and the high performance capabilities of our products, you will undoubtedly achieve extremes of efficiency, performance and reliability.

Our worldwide presence assures that technical support is always available to you.

Our engineers and sales experts are always available for troubleshooting even when our factory is closed for public holidays or for any other reason.

Our Help Desk service (+39 059 420250) works during shutdown periods at normal working hours (8 a.m. - 5.30 p.m.).

So don't miss the chance - be efficient - contact us today!



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# SALK BV1A



## BV1A **MOTOR**

Five piston variable displacement hydraulic motor supplied with complete electronic control package. Featured by significant power density, high speed and pressure capability.

**Description:** 5 piston variable displacement hydraulic motor

Motor Code: BV1A Mass: 35 kg Power: 90 kW

Data sheet:121052.2





## TS8D **MOTOR**

Seven piston dual displacement hydraulic motor with integrated gearbox, also available with negative disc brake and wheel hub. It is featured by continuous torque of 35000 Nm, it is able to convey 7300 cc in 50 cm.

It is the most compact solution in the market, perfect to improve performances compared to: radial CAM motors, axial piston motors + gearbox.

Description: 7 piston dual displacement hydraulic motor

including planetary gearbox

Motor code: TS8D Mass: 380 kg Power: 220 kW Data sheet: 121132.2



\_SRi\_

TECHNICAL PARAMETERS PARAMETRI TECNICI								
TECHNICAL PA	RAMETE				ECNI 800	1000		
	MIN	450 110	150	200	400	250	1100	1200
Max Displacement / Massinus Clindrates	cm/my	445	104	532	400	9/5	1100	1222
Min Displacement / Minima Clindrata	cm//rev	111	149	208	416	241	277	305
Bore / Alexaggio	mm	35	44	52	52	56	60	63
Strake Max Displ. / Cores Cl. Alessina	mm	56	56	56	56	56	56	56
Stroke Min DispL / Corse Cit Minima	mm	24	34	14	38	34	14	14
Specific Tonque Nex Displ. / Copple Specifics Cit. Massins	Mryber	7,09	9,40	13,24	13,24	15,36	17,63	19,45
Specific Torque Min Displ., / Coppia Specifica Cil: Minima	Mrybor	1,77	2,37	3,31	6,62	3,63	4,41	4,85
Pressure Reting / Pressione Nationale	bar	400	400	400	400	400	400	150
Peak Pressure / Pressione of Picco	ber	458	458	450	450	450	450	400
Cont. Speed Max Displ. / Welsoth Cont. Cll. Massine	rpm	550	550	550	550	550	500	500
Cont. Speed Min Displ. / Velocité Cont. Cit. Minima	rpm	1400	1400	1400	1200	1400	1300	1300
Max Speed Plax Drigt. / Webcibi Plax CF Massima	rpm	700	700	700	700	700	650	650
Max Speed Hin Displ. / Melocial Max Cll Affects	rpm	1800	1800	1800	1500	1800	1600	1600
Polk Pover / Astesza di Acco	VW				220			
Approximative Mass / Massa Approximative	ig					129		
Case Of Capacity / Capacital Offic Corpor Shirts	1					4		
Max Casing Pressure / Pressions Max In Circusson	ber			Peak / Piccs		15		
			0	nt.		5		



## TV3.5 **MOTOR**

Seven piston variable displacement hydraulic motor with high capacity bearings which allow to achieve continuous torque able to convey a better transmission, pressure and power stability. The motor body is composed of three parts to guarantee a better modularity and lightness.

**Description:** Seven piston variable displacement hydraulic

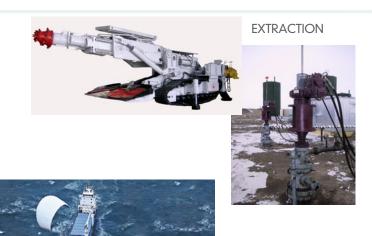
motor

Motor Code: TV3.5 Mass: 120 kg Power: 220 kW Data sheet: 120913.6









**ENERGY RECOVERY AND PRODUCTION** 



CONTACT PERSON

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

# The energy cycle powered by SAI

Why is SAI your best ally to help you obtain overall energy efficiency? Because SAI can be with you through all phases of the production process

RAW MATERIALS: In the drilling/explora- movement of platforms are required, In these kinds of application the motors tion field, our variable motors (TV series) are i.e. Jack-up. able to perform at extremes of Torque and TRANSPORT: SAI has excellent so- their capability of withstanding extre-Speed making them the ideal choice for all lutions for equipping bulk carrier ves- me and sudden speed changes; the kind of applications. This is true especially sels; the advanced technology of SAI well known efficiency of the whole SAI in areas where versatility is most needed, motors, allows for high performance, product range, allows precise control such as for rotary heads.

For drilling applications, SAI products are Cover drives. What is more, SAI mo-speed. often used on feeders too, where the need tors are ideal for powering thrusters In the field of energy recovery transmisfor operational precision is required. Due to the high mechanical efficiency and peak power capability, machine designers are able gaining the confidence that only having wide range of speeds even when worto call upon just one SAI motor to cover a total control can give. One of the main king as pumps. The inherent high effivast range of operational parameters which advantages of using SAI motors is the ciency means that SAI motors are able would normally require different motors for capability of reaching the application to use the kinetic energy of vehicles to different operations.

great experience over the years. In oil pum- ciated in steering thrusters. ping applications for instance, the sturdi- ENERGY RECOVERY AND PRODUCness of the SAI design guarantees the stabi- TION: in all processes to follow, the SAI is present in the whole energy lity of the overall equipment notwithstanding efficiency of the motor has a great in-cycle since our efficiency increases the sudden variations in power requirement. fluence on the application productivity. your productivity and eliminates waste! SAI products are also particularly suitable Perfect examples are given by mixers, for applications where the positioning and producing biogas or by sky sailors.

especially suited to Winch and Hatch between the highest and the lowest

(TV series) are recommended due to

and steering drives. The operator is sion, the variable displacement SAI able to perform precise manoeuvres motors are also capable of working at a maximum speed without exceeding the pressurise accumulators, forming ener-EXTRACTION: in this field SAI has acquired gearbox input limits, extremely appre- gy reserves to be used at start up, (suggested product BV1A).

SAI, Your Worldwide Green Partner.

# EVENTS

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5-8 February 2013 Mumbay INDIA



8-12 April 2013 Hannover GERMANY



15-21 April 2013 Munich GERMANY



29 April - 3 May 2013 Riberao Preto BRAZIL



4-8 June 2013 Moscow RUSSIA



4-7 June 2013 Oslo NORWAY



18-21 September 2013 Johannesburg SOUTH AFRICA



# INTERVIEW



The following interview is aimed at introducing Mr Luca Yu, the SAI CHINA Sales Manager, to you.

# SAI CHINA, has recently opened a new production facility and office, can you make an assessment of the last months? How is your domestic Market going?

The last months can hardly be defined as good months as the world-wide market is currently at quite slow. The Chinese market is not exception. It is believed that a turning point may be reached by the end of April 2013. It is widely believed that the new government will give a strong input to the economy. In response, even during this low season, SAI China has increased its stock and opened the premises to face this challenge. We want to be prepared when we start to see the first light at the end of the tunnel.

# Talking about production improvements, China has been one of the first Markets to experience the SAI new generation of motors, how did customers receive them? Are the new technologies affecting the sales volume? If yes, how?

We have new applications using the TD/TV series of motors, most importantly on drilling machines. The feedback has been very positive. With the selection of TD/TV motors, the driller achieved a much wider speed range than using a traditional axial piston motor. In the near future, once the market re-establishes itself, we expect to see an increase in turnover generated by the T series.

# Which Market sectors do you think will be the most dynamic? Is the well known SAI efficiency a key factor to getting success in these fields?

One of the most dynamic market sectors at this time is the energy market, mainly mining and offshore. The efficiency of SAI motors has always been a key factor in the success of the whole group. Our goal is to satisfy the customer with better performing solutions to achieve mutual benefits. SAI motors do a great job with their high volumetric efficiency, high starting torque and wide speed range.

# SAI will be exhibiting soon in the BAUMA CHINA fair, held in Shanghai, P.R.C., what expectations do you have for that event?

This exhibition is very important to the SAI group. The construction machinery is one of the most promising markets for SAI products and China is one of the largest markets for construction machinery. We expect visitors from all around the world to visit our stand to share the latest innovations from SAI. At this very low point of the market, we think SAI products can offer something more for machine performance and subsequently give benefit to our customers.







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