

# INDUSTRIAL TECHNOLOGY

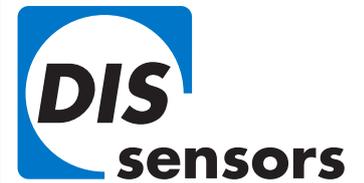
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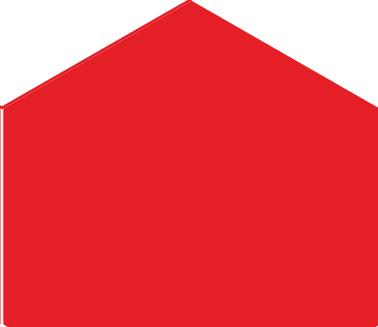
Number 1 - March 2019



OMC  
2019

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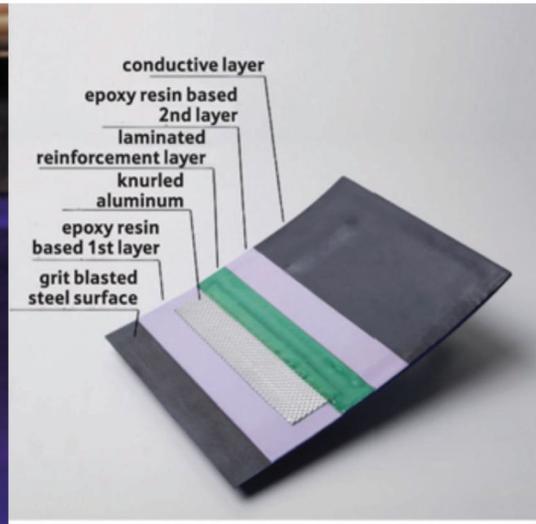




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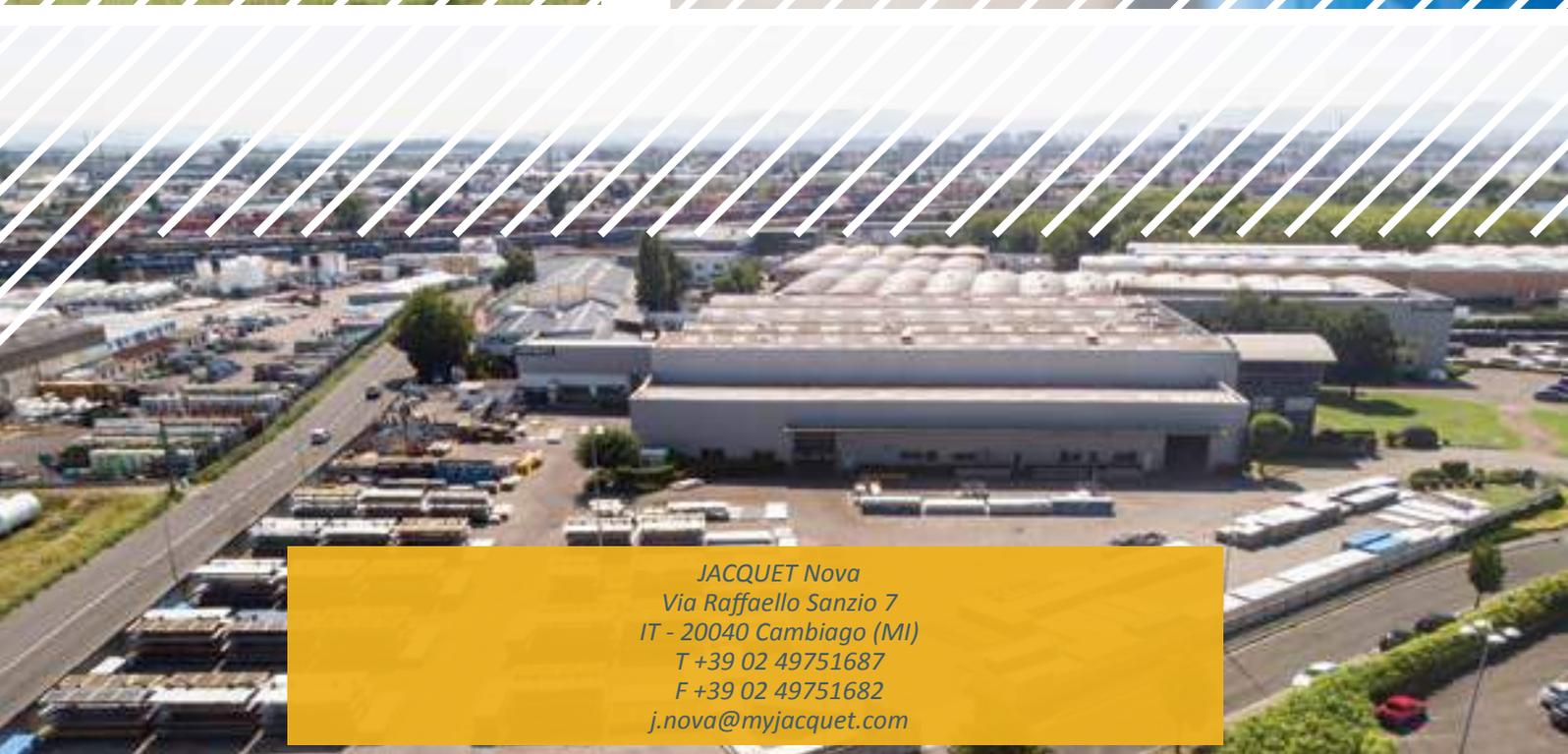
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- Companies of the Group
- Sales Network (2018)
- Further Commercial Contacts

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## OUR COMPANY

Since 1963, SGIG provides clients with EPC solutions in plants' field, specifically in Oil and gas business. We provide engineering services for a whole range of applications, in compliance with ISO 9001 certification and current applicable international standards. SGIG has adopted an environmental management system in accordance with ISO 14001 standard. SGIG stands out in the supply of fuel plants for automotive, with more than 50 years of installation of fore courts dispensing LPG, CNG, LNG gasoline and diesel fuel, as well as design and construction of tank farms for a wide variety of products (LPG, CNG, LNG, oxygen, Dimetyler, Ammonia, HFO, Jet A-1 etc). Project managers are highly qualified, paying constant attention to HSEQ cost management standing out for dynamism, versatility and experience in production and management of multidisciplinary projects.

SGIG, through its partner SGIG Corporate, provides a maintenance service for a mechanical machining and valve refurbishment including:

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- Construction of dedicated spare parts - reverse engineering
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- Profile turning and machining with fixed or portable machining equipment
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- Functional tests

SGIG, also, develops authorizations for the construction of biomethane plants that produce methane with the same characteristics as the natural one extracted from the subsoil and therefore usable for transport, high cogeneration or heating.



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## MCH 22 OPEN

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POTENZA: 7,5 KW

Motorizzazione: Elettrico Trifase

Larghezza/Altezza/Profondità: 80 cm / 154,5 cm / 102,5 cm

Peso netto: 415 Kg



## MCH 36 SILENT (RF 1000)

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Off-Shore



E & I Engineering Procurement Construction Maintenance

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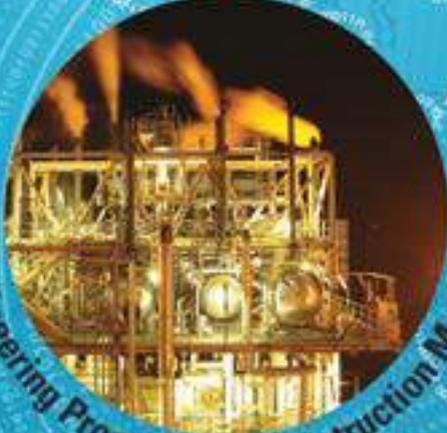
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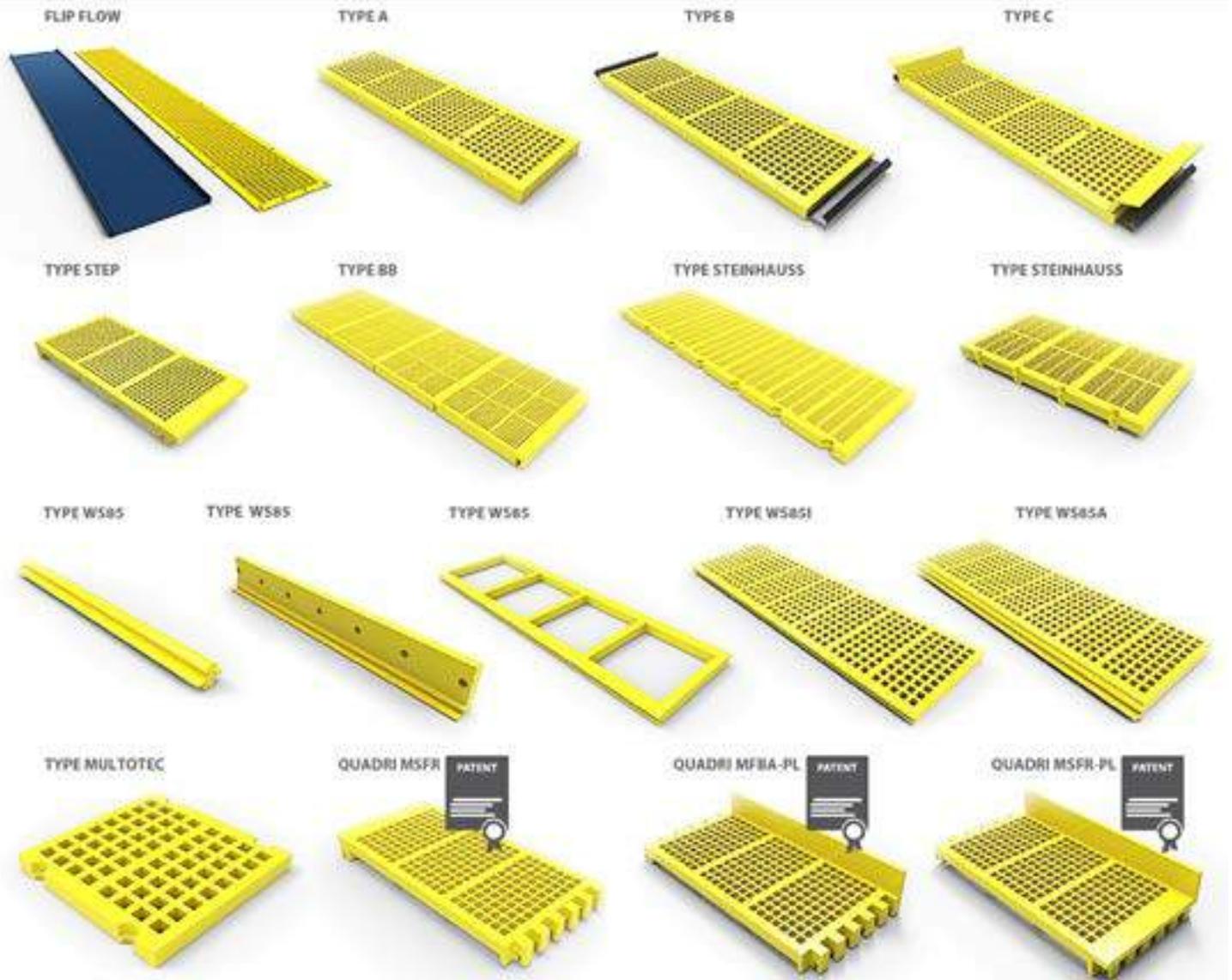




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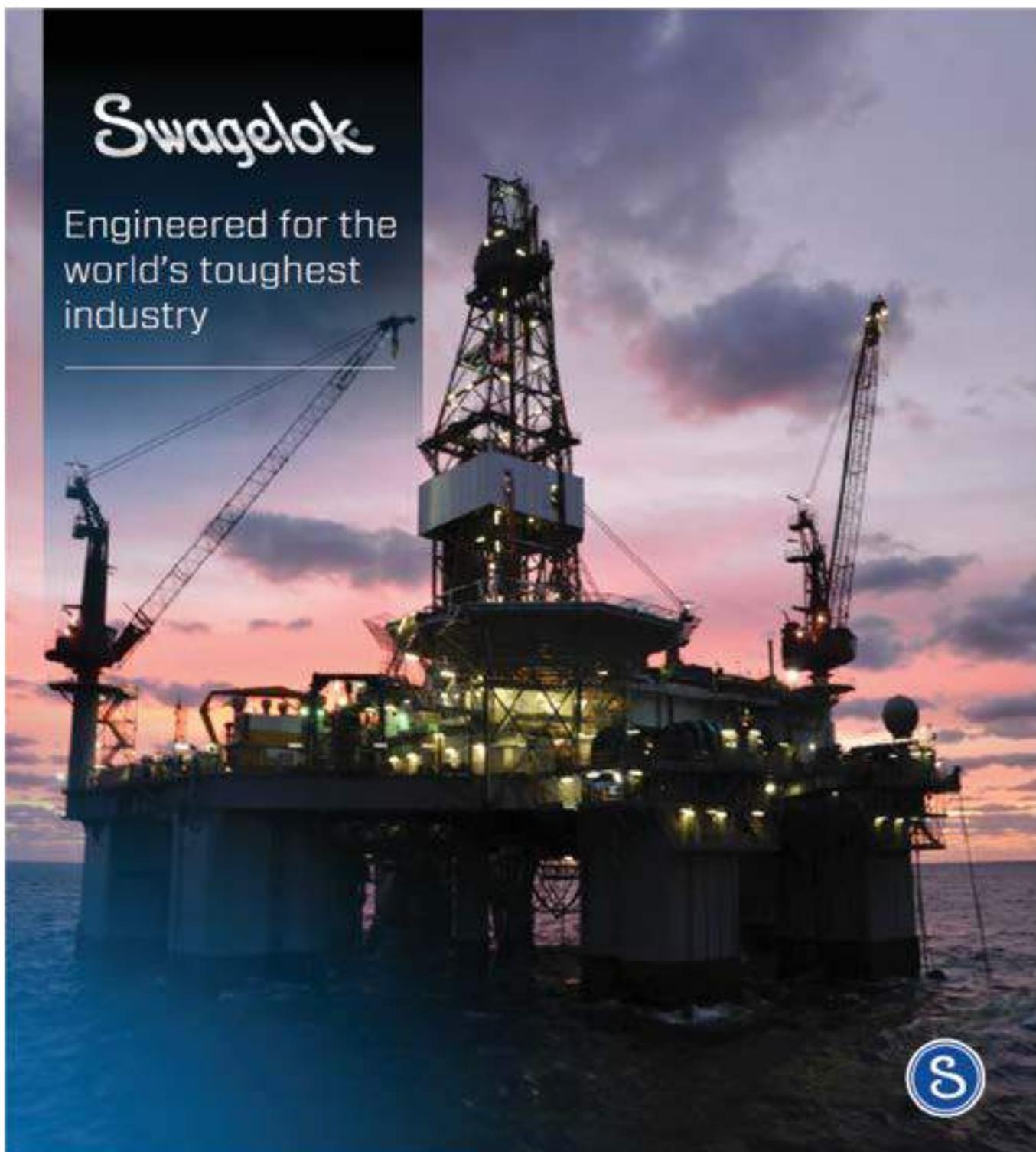
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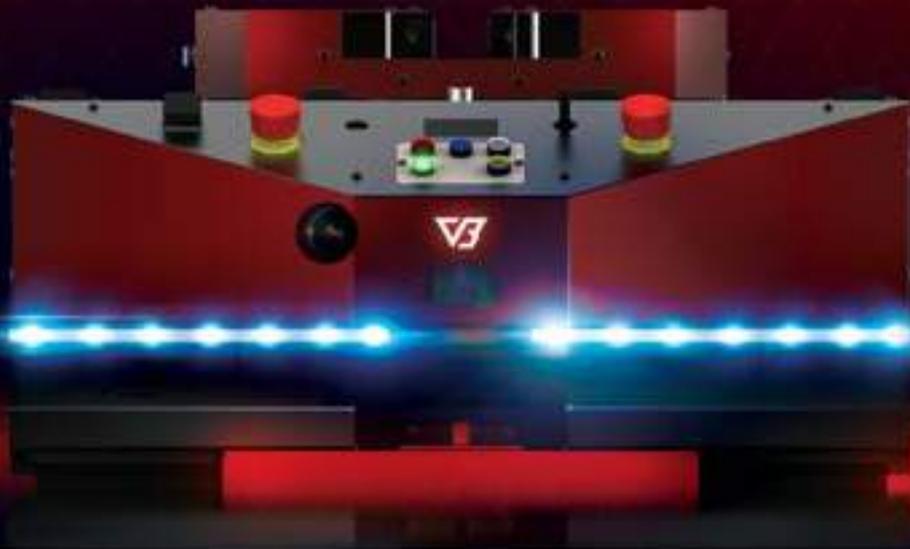
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# Index

## 24-69 OMC

Nautilus Actuators  
Hi-Force  
Jacquet Nova  
Quadrifoglio  
ITE  
Italdron  
Ramcube  
Cavicel  
Vimex  
Biesse Sistemi  
Coelbo  
Rud Ketten Rieger & Dietz GmbH  
KNF  
Fluidel  
Seingim Global Services Srl  
Tecoconsult  
Gruppo Ferrari  
RTI SPA  
Masterwatt  
R. Stahl

## 70-121 HANNOVER MESSE

### *An Ai Spark To Illuminate A Greener World*

Damec  
Aerotecnica Coltri  
El.Mec. Srl  
ACM Engineering  
Röhm GmbH  
Sagom Tubi SpA  
Coord 3  
Modula  
TEC.MA  
DIS Sensors Bv  
Nadi  
Ablerex Electronics Italy  
MTS Sensors  
Coval  
Procentec  
Ferranti  
Eco-techno Srl

## 122-127 FOCUS MECSPE

### *Industry 4.0 In Offshore Sector*

## 128-181 NEWS

### *Storing Energy To Chemicals*

Gambarotta Gschwendt  
LGM Engineering  
Orlando  
ITEC  
Carlo Salvi  
IMT Intermato  
Metal Services Group  
Bft Burzoni  
IPL  
CST- Compression Service Technology  
Indra  
Inoxdadi  
Cartelli Segnalatori  
D-KTC Fluid Control  
OMR  
Mocap



**182-191  
AUTOMATION**

***Get Ready For The Connected Industry***

Scaglia Indeva  
Siemens

**192-205  
PROCESS**

***Flare Systems***

Ultra Pompe  
Sealcore  
IMS

**206-211  
ENERGY**

***Schorn Speaks at the Cowen 8th Annual  
Energy & Natural Resources Conference***

**212-219  
FAIRS**

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Adipec  
SPS IPC Drives  
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# INDUSTRIAL TECHNOLOGY



## **Industrial Technology**

is an international magazine that deals with machines, components, instrumentation and automation for Oil & Gas industries, petrochemical, chemical and energy. It contains news, information and case histories of products, technologies, suppliers and manufacturers.

The insights are mainly related to complete installations, automation, control, instruments, valves, pumps, compressors, blowers, boilers, heat exchangers, process units, pipes, systems, software, seals, PTFE, bolts and fasteners, tanks, analysis and control, and in general to every product and service that can be used in the industrial process.

## **THE EDITORIAL TEAM - ABOUT US**

The magazine is produced by industry professionals to meet the technical and commercial needs of companies. In addition to publishing specialists, marketing and communications, they collaborate with the magazine engineers and active trading in the market. The team is international in order to cover the most of the major distribution areas - Europe, Arab countries, Iran and Africa - and takes advantage of a partnership with an import-export company in Tehran.

## **PARTICIPANT COMPANIES - WHO ARE THE ADVERTISERS**

The magazine has a broad and targeted distribution, and is an excellent tool to promote manufacturers, OEMs, suppliers, installers, engineering companies. There are interests, either for the companies that want to be known by the end user, the contractor, the EPC, also the companies that want to promote themselves with OEMs. Thanks to a specialized work distribution and reporting, advertisers are guaranteed to have a commercial return in terms of expendable contacts.

## **THE TARGET OF READERS - WHO READS**

Industrial Technology reaches more than 50,000 companies worldwide, with a particularly careful and effective distribution in the Middle East. Readers belong mainly to the oil and gas industries, chemical, petrochemical, or are distributors, engineering companies, consultants, contractors, OEM and EPC. The magazine also reaches the main fairs and major trade associations of various countries, in order to have the widest possible dissemination among stakeholders.

# Nautilus actuators

## Innovation in Motion

Nautilus actuators is a new and flexible company, specialized in electric actuators for all types of valves for all types of fluids. The company distributes 3 brands: Schiebel, Valpes and Regada. Three partners that compete on the future to seek in terms of products and services a strong growth potential.

Nautilus will be present at the OMC and will show a new feature: the CM 90° failsafe actuator with mechanical spring loaded action. The actuators of CM Series, product by Schiebel, are efficient and flexible and they're developed in three different sizes which can be used in optimum fashion regardless of the automatic control operation. The high power density of the motor in this design series makes for very compact installation dimensions. New materials were also used to enable substantial savings in terms of weight. Alternatively, special materials (such as bronze or steel) also can be used.

With an integrated control unit, the CM Series of actuators opens up new possibilities for electric actuators. Flexible, compact and smart. Utilizable in any area of use and any application. Easily expandable at any time by means of software enablements. Even the basic design copes with important operating conditions, allowing the CM Series to be used anywhere. Regardless of application, valve type or area of use, the CM Series actuators may also be used in conjunction with additional gear mechanisms.

The interface to the valve conforms with ASME/ISO standards and meets every need. Alternatively, any customer requirement can be fulfilled or adapted to existing valve fittings.

The actuators of CM series are simple to change speed and positioning time and they've many pre-integrated software







options, such as a minimal amount of work involved for subsequent adjustments to customers' distributed control system and the customized functions that can be activated on short notice.

Among the other features of this new series we find the minimal maintenance costs because mechanical and electronic components are reduced to a minimum and there's also a reduction of spare part design for subsequent adjustment. The design of these actuators is compact and, because of it and the aluminium housing, the volume and the weight are reduced. They're maintenance free and they've rotatable display panel and read-out in 90° increments.

Schiebel is taking a further step in terms of technology, customer satisfaction and innovation. Indeed, it has developed a newly introduced Bluetooth interface that makes it possible to offer wirelessly operated actuation, which is performed using a specially developed application.

The Android application for SMARTCON covers two important areas: the first is the parameterization of the actuator in offline mode as well as importing and exporting the entire data stored in the control unit. The second is the local control of the actuator via the

Bluetooth interface. It makes moving open and shut as well as setting the end positions all possible without any additional setting device. Through the possibility of sending operational and configuration data to the manufacturer for online diagnostics, Schiebel has taken a major step in the sphere of remote maintenance. Thus, not only preventive maintenance is possible but also quick rectification of malfunctions.

In the past, actuators were mainly used only to automate valves in industrial plants. Today, advanced actuator electronics from Schiebel provide the possibility of making a valuable and lasting contribution to preventive maintenance and repair. The actuator not only operates a valve, but also provides the system with valuable information about its state. Integrated logging of operational data with recording of history data in real time as well as meter readings, display of status information and warning alerts all go to provide the operating organization with additional support already on commissioning as well as in operation and subsequently in inspections and maintenance planning. Service measures and repair measures required are identified and indicated early on, as a result of which preventive and targeted measures can be taken for continued safe operation and extended product life cycles.



## Electric Actuators For Each Type Of Valve, For All Types Of Fluid



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# The value of investing in high quality Bolted Joint Integrity



Since the invention of the bolt and nut around 400BC we have used them to join various components together, in a wide variety of applications. Over the centuries the technology and how it relates to bolted joint integrity has improved significantly. Bolted joint technology is used in pipelines, pressure vessels and heat exchangers where hydrocarbons and combustible fluids and gases are processed and moved around. Bolted joints in such applications are usually of a flange design utilising a number of bolts in a circular pattern, in conjunction with a sealing material (gasket), to provide a clamping force to hold two flanges together, maintaining a leak free condition.

Typically an average size Oil, Gas or Petrochemical facility will contain in the region of 30,000 to 50,000 bolted joints, all of which have the potential to leak and create a risk to the plant, the environment and potential loss of life. Some leaks could and do result in a minor, low risk incident, but others could lead to a catastrophic loss of life and assets, as well as major damage to the environment, within the local proximity of the plant. This can also easily escalate to the wider area, dependant on the location of the plant, with the inevitable damage to the reputation of all involved. It is surely agreed that any loss of life and asset is both regretted and avoidable and history has shown us that major catastrophes can and do

happen and the costs can run to millions and sometimes billions of dollars!

So how can the whole process around “Bolted Joint Integrity” be improved and implemented, to help reduce the risks and costs related to loss of life, assets, environmental issues and project completion delay penalties? Well firstly all parties involved need to change their mind-set and buy into the benefits of implementing the necessary policies and procedures, required to deliver a comprehensive joint integrity programme. This is particularly applicable to new-builds but can also deliver significant time and cost savings during shutdown maintenance, provided everything is planned in advance. A mind-set of “First Time Right” is key to the success of the implementation of the entire bolted joint integrity programme. Rework costs will always be multiples of the original assembly costs, so surely a significant reduction in rework is something everyone involved is keen to achieve?

As a major, UK headquartered manufacturer, Hi-Force, with overseas regional offices in Holland, Italy, UAE, Saudi Arabia, Azerbaijan, Malaysia and South Africa, has over thirty years’ experience in the design, manufacture, operation and use of manual, pneumatic and hydraulic bolting tools.

# Hi-Force®

## HYDRAULIC TOOLS



Hi-Force UK operates from a “state of the art” manufacturing facility, located in Daventry, England, that houses everything from product design, through to manufacture, assembly, testing and certification, of an extensive range of high pressure hydraulic and bolting tools. Hi-Force also offers full after sales and service support, through all of its strategically placed regional offices and authorised distributors. For many years Hi-Force has also offered clients short and long term tool rental and in 2016, this service was formally extended, to offering complete on-site Bolted Joint Integrity management, during plant construction and maintenance shutdown activities.

The Hi-Force On-Site Bolting Services Division, managed from the Hi-Force UK Head Office, can now offer clients pre-start on-site surveys, full and comprehensive analysis of bolted joint needs, development of correct procedures, including all required bolted joint load calculations, on-site bolted joint integrity training courses, for the nominated contractors technicians, using ECITB qualified and trained Supervisors, full flange management control, utilising the Hi-Force BOLTRIGHT PRO software and of course high quality UK manufactured bolting tools. As part of the Hi-Force On-Site Bolting Services offering, we are able to mobilise to site bespoke twenty foot

containers, fully equipped, as either a bolting tool store, or a mobile on-site training facility, incorporating all the necessary training equipment, to deliver bolting training courses, to the highest possible standard.

Group Managing Director of Hi-Force, Kevin Brown, is directly heading up this new division, within the Hi-Force Group and enthusiastically claims: “Hi-Force is always looking to expand its offering to clients worldwide and this new venture has already delivered significant results in recent months. We currently have four containers mobilised, two each to two different plant construction sites and our clients are already seeing the benefit of employing a specialist Bolting Services Company, to manage all of their joint integrity needs at site. A further two bespoke containers have also recently been ordered. The issue of purchasing capital intensive bolting tools, is no longer a requirement for the site, because we are offering competitively priced tool rental, throughout the project, along with our own on-site tool service repair facilities with readily available spare parts, to ensure bolting work is continuously carried out. Our on-site Supervisors have all the necessary skills to supervise the bolting work, carry out bolting work when necessary, conduct training courses at site and of course carry out any required tool service and repair work.”

# A worldwide leader in the distribution of processed stainless steel and nickel alloys Quarto plates

JACQUET Nova with headquarters in Cambiago near Milan is an established market leader in Italy in the distribution of stainless steels and nickel alloys; Thanks to the great professionalism of its team, it is able to guarantee high quality standards and speed in delivery so as to make its customers always satisfied. The brand has expertise in procurement management: JACQUET GROUP can deliver goods to industrial customers anywhere in the world within days thanks to the important level of stock, as the CEO of the Company Mr. Roberto Morciano explains to us.

## Storage and distribution of high value metals

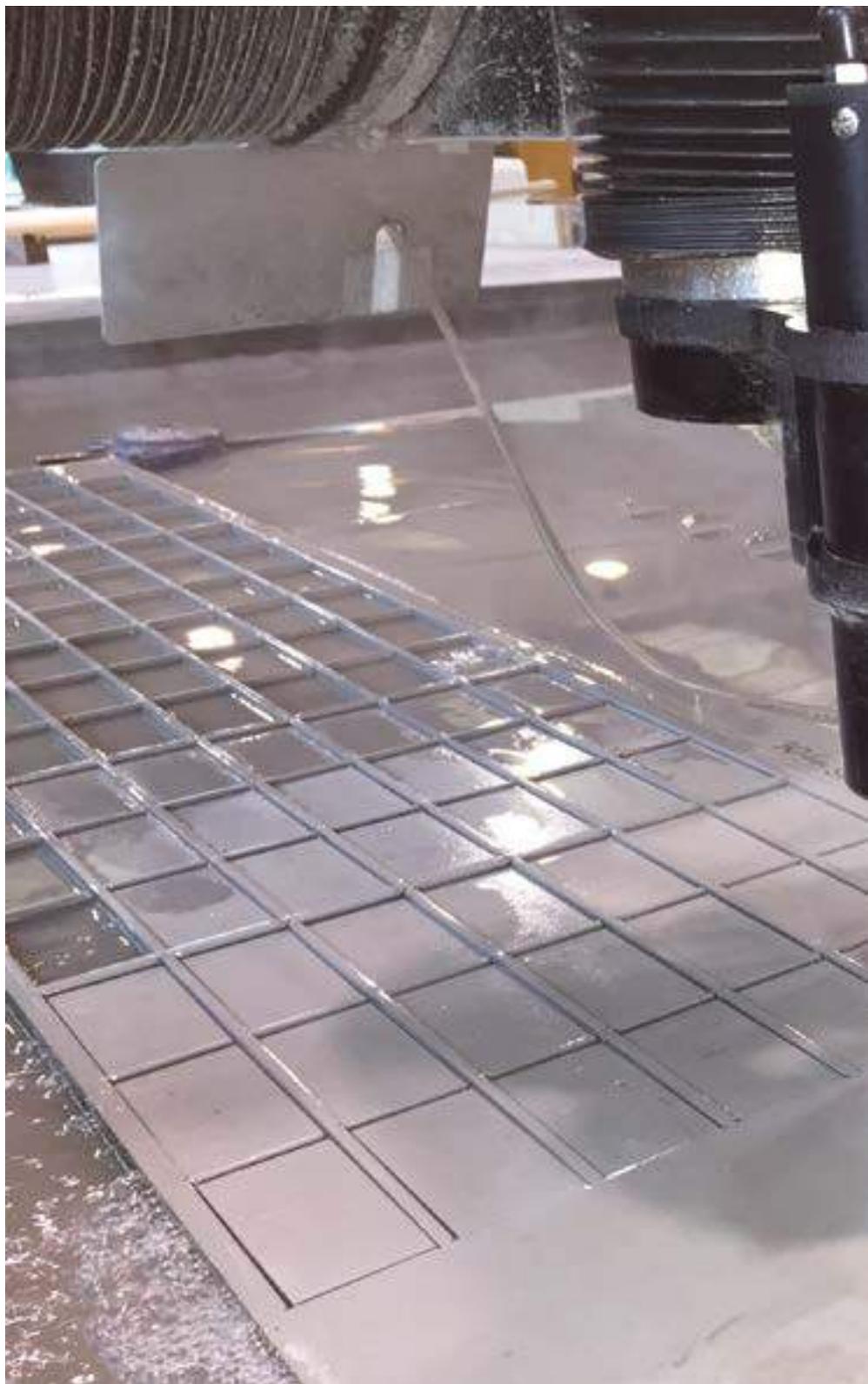
These plates can be either supplied as full plates or cut to customer specifications. A number of different processes are available, including plasma cutting, sawing cutting, water-jet cutting and laser cutting. The qualified sellers are always available and at the customer's service to advise them in the best cutting and quality solution required.

## Market and customers

JACQUET Nova is a brand of the Jacquet Metal Service Group, it's ready to be your best Partner thanks to the careful focus on the level price of market.

The biggest customers work in the following sectors: agricultural processing, energy water treatment, desalination, Chemicals and Pharmaceutical, paper manufacturing, mechanical and sheet-metal work, oil & gas, environment...

The References are: Akzo, Shell, Total, BP, Exxon Mobile, Fluor, ENI, Andritz, ABB, Alstom, Sanofi -Aventis, Areva, Siemens, Eiffel, Rolls Royce, Veolia Water, Metso Paper, Voith...



JACQUET

NOVA



# We respect the environment with processes careful to waste and consumption!

Quadrifoglio srl is an Italian company with over thirty years of experience in the manufacturing of screening panels in polyurethane.

RHT is an Italian producer of screening plants and screening panels which has been Quadrifoglio's customer for over 15 years, showing how Quadrifoglio srl has consistently been delivering the highest quality products, offering availability and flexibility in the handling of its customers' requests, as well as attaining short delivery times, and lower prices than its competitors.

RHT's CEO, Eng. Franco Ferrero, explains how Quadrifoglio company is able to produce any kind of screening system, on par and better than the most famous and influential brands in the market.

Thanks to the support and the cooperation amongst all the departments in company -technical, marketing and production- he continues, Quadrifoglio company is able to design and produce custom polyurethane products, that comply with any type of screening and sector's specifications.

Your choice of suppliers of polyurethane spare parts can be reduced to one, thanks to the broad selection of screening panels, scrapers, rollers, wheels and barrels on offer at Quadrifoglio.

All the products are of the highest quality, manufactured with wear and tear resistant polyurethane.

The on-premise technical office is capable of develop its products directly off of a customer's technical drawing , with production time between 2 to 4 weeks. The production molds are built inside the company as well, with advanced technology machines and everything is planned so as to minimize cost and production time.

Quadrifoglio srl is a solid and reliable partner in the development of custom-made polyurethane products, with a proven track record of finding solutions to specific customers' problems and needs.

The industry sectors of reference are: extractive, drilling , quarries, mines, recycling and industrial. Quadrifoglio is available to provide a quote or deliver production samples upon request."





# Quality Made in Italy for global requirements



I.T.E. S.r.l. is an Italian company established in 1998 from the fusion of two companies, one specialised in trading and one in production, created by several individuals already operating in the Oil & Gas field since 1980.

I.T.E. is one of the largest Italian and European manufacturers of valves and fittings for the installation of industrial instruments, in particular needle valves, ball valves, instrument manifolds, instrument adapter connectors, twin ferrules compression valves and fittings, check valves, globe valves, separation and condensation pots, air distribution pots, fire sensor and sampling systems.

Furthermore, I.T.E. sells Tubing, Piping, forged fittings and other components to guarantee a turn-key supply with regards to the accessories of the plant.

The company I.T.E. has its own technical and engineering department, consisting of personnel with several year

experience in this field, supported by the most advanced development systems, capable of satisfying any customer requirement.

Production, as well as mechanical processing and assembly and inspection are all carried out within the plant of Fossò (Venice), with the latest generation of numerically controlled machines and highly qualified personnel.

I.T.E. has a production batch traceability system, from receipt, to marking and right through to when the material leaves the factory with the emission of product certificates that are also available on a specific customer dedicated website.

Furthermore, the company has automatic warehouses in which the semi-finished products are stored, ready to be assembled according to the technical specifications of the customer. In order to satisfy the demands of



each customer, I.T.E. has a large assortment of finished products to guarantee fast deliveries.

I.T.E. has automatic welding machines that are operated by qualified personnel, always in observance of the welding procedures regulated by international norms. The welding machines have been designed, built and personalised especially for the specific requirements of our products.

The welding machines have been designed, built and personalised especially for the specific requirements of our products.

The success achieved by the company is connected with its ability to anticipate and understand customer requirements, offering a highly professional service combined with flexibility, fast replies, innovation and inventiveness. These requirements make our field unique on a national as well as international level and

very much appreciated by large industrial groups.

Our quality policy, satisfaction of new customer requirements, ongoing training of human resources, improvement in company equipment, research for new markets and the updating of know-how acquired represent the strategic company mission.

In order to provide greater current and future guarantees to its customers, I.T.E. has adopted a Quality System in compliance with current norms.

The company policy related to growth and improvement, as well as the control of the entire production chain has gained I.T.E. a Quality and Safety Integrated Management System certificate, with reference to the standards ISO 9001 and OHSAS 18001 as well as the Environmental Management System ISO 14001.

[www.ite-srl.com](http://www.ite-srl.com)

[info@ite-srl.com](mailto:info@ite-srl.com)

# Precise. Reliable. Connected.

## Technology takes off.

### Bring your profession to the next level



A universe of drones: from the design, developing, marketing of the most sophisticated RPAS ( Remotely Piloted Aircraft System), through the Academy where professionals and neophytes become pilots, to the Air Service which offers advanced, experimental and innovative services in Italy and abroad. To sum up nowadays Italdron Group represents a reality born 10 years ago from the idea of three young men who have decided to invest in their innovative and futuristic idea.

#### **Who is Italdron and Group and its organization.**

Italdron Group represents the synergy of three companies that focus their core business on the improvement of the group. Italdron, founder of the Group, was born in 2008 in Ravenna experimenting technologies and applications, learning from the experience of the technological innovation on the product and on the methodology of use, and it represents today the greatest Italian player on the market of the RPAS.

**Through its qualified handicraft manufacture and its engineering department, Italdron is able to develop innovative technologies and vertical solutions characterized by security, performance and high level of customization.**

Italdron Academy is born in 2016 from the manufacture experience and represents nowadays the most established training center of the national market. The pilots are

trained following ENAC regulations with a professional learning process, today also certified by CEPAS (Bureau Veritas) concerning the industrial endorsements. Italdron Air Service represents finally, the natural evolution of the acquired competences and the know-how developed internally to the other two companies, in addition to the specialistic abilities of the engineering world. It represents the key element of the group as service provider able to satisfy the most demanding client.

#### **The Group overview**

The overall turnover of the Group is about 3 millions of euro and the staff is made of 25 professionals, internal and external. Strength and soul of the Group are the territorial presence of 18 secondary bases, inclusive islands, devote to provide pilotage education and training. They are also operational bases which represents a strategic network able to increase the efficiency of services and operations, through their professionals and certified pilots. The strong point of the Group is understand the market's needs. The 10 years of know-how makes Italdron unique not only as RPAS operator but also as partner of reference for big companies to whom offers turn key solutions for several sectors, security, monitoring, inspection, reverse engineering.

#### **The manufacture and the products**

The main characteristics of Italdron's product are the



reliability and the accordance to the regulations in force; they count 50.000 missions without failure. They are the result of a consolidate know-how in specific areas such as survey, non-destructive testing, surveillance, territory asset digitalization. Some important customers such as Enel, Vodafone, Anas, Terna and several univerties have choosen Italdron not only for the product but also for innovation and development of new technologies. Recently the Italdron RPAS mass production has been associated with a “custom” production able to create new product or design, build and optimized the existing one for every single customer requirements, especially the big companies who want to internalize the process.

#### **The training**

Since 2016, when the new regulation was released, the Academy is working as RPAS training center. It has been the first operator who obtained the Enac certification and nowadays counts 18 secondary bases through the national territory, islands included. The offer includes professional pilot training for all scenarios (critical and not) starting from the practice to the application in several fields. The high specialization required for pilotage activities is creating new jobs opportunity where the pilot is not only an enthusiast but a professional figure able to offer his own service to the biggest company.

#### **The services**

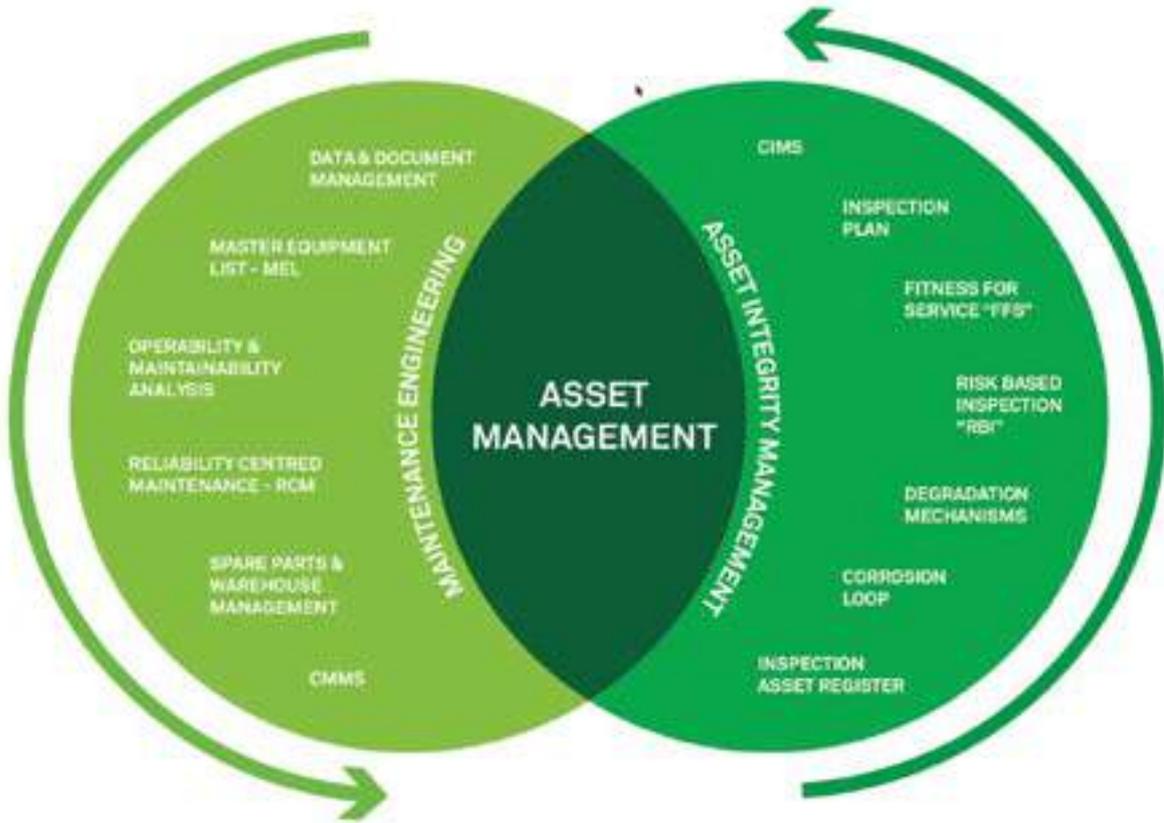
Air Service is the new born of the Group, in 2018. It represents the request of several companies which need to use the potential and innovation of RPAS in

their daily activities. The reliability of product, the pilot professionalism and the creation of dedicated payload allow to answer to the large parts of the market: damn inspection, chimneys survey, environmental monitoring, reverse engineering, 3D model creation etc. The points of strength of the RPAS activities are the repeatability of the process following programmed pattern, the data collection in repository cloud, the user friendly software with dedicated functions. The recent concluded massive jobs with great satisfaction of all the stakeholders such as TERNA SpA or Nestlè Italia represent only an example of the potential of the team’s abilities.

#### **The experimental projects in Italy and overseas.**

Italdron counts local dealers abroad in Sud America, Emirates and other european countries and attends the most important UAV and geomatic Expositions such as The Commercial UAV Show of London, Intergeo in Germany and the Commercial UAV Expo Europe in Amsterdam. The aim is to expand the business and affirm Italdron as solutions provider made in Italy. In the last years Italdron has been involved in several experimental activities and business case development from China to Emirates where it has concluded the building inspection of Ethiad Towers: it has been a huge challenge because of considerable complexities such as high temperature, high quotas of flight about 300 meters, strong wind condition and the overcoming of authorizations and rules limits.

# We design custom-made, unique, selected software solutions



**RAMCUBE** is a Company specialized in the development and application of Asset Management (Maintenance Engineering and Asset Integrity). In the modern vision of the Company organization, Asset Management is a transversal discipline responsible for the design, control and continuous improvement of the Maintenance and Inspection System. In particular, it makes it possible to supervise maintenance and inspection activities; define maintenance and inspection policies; manage spare parts; promote standardization; define workload and required skills; manage KPI; guarantee the availability of the plants and cost reduction; ensure compliance with local laws and regulations; prepare and promote the use of adequate operational support tools.

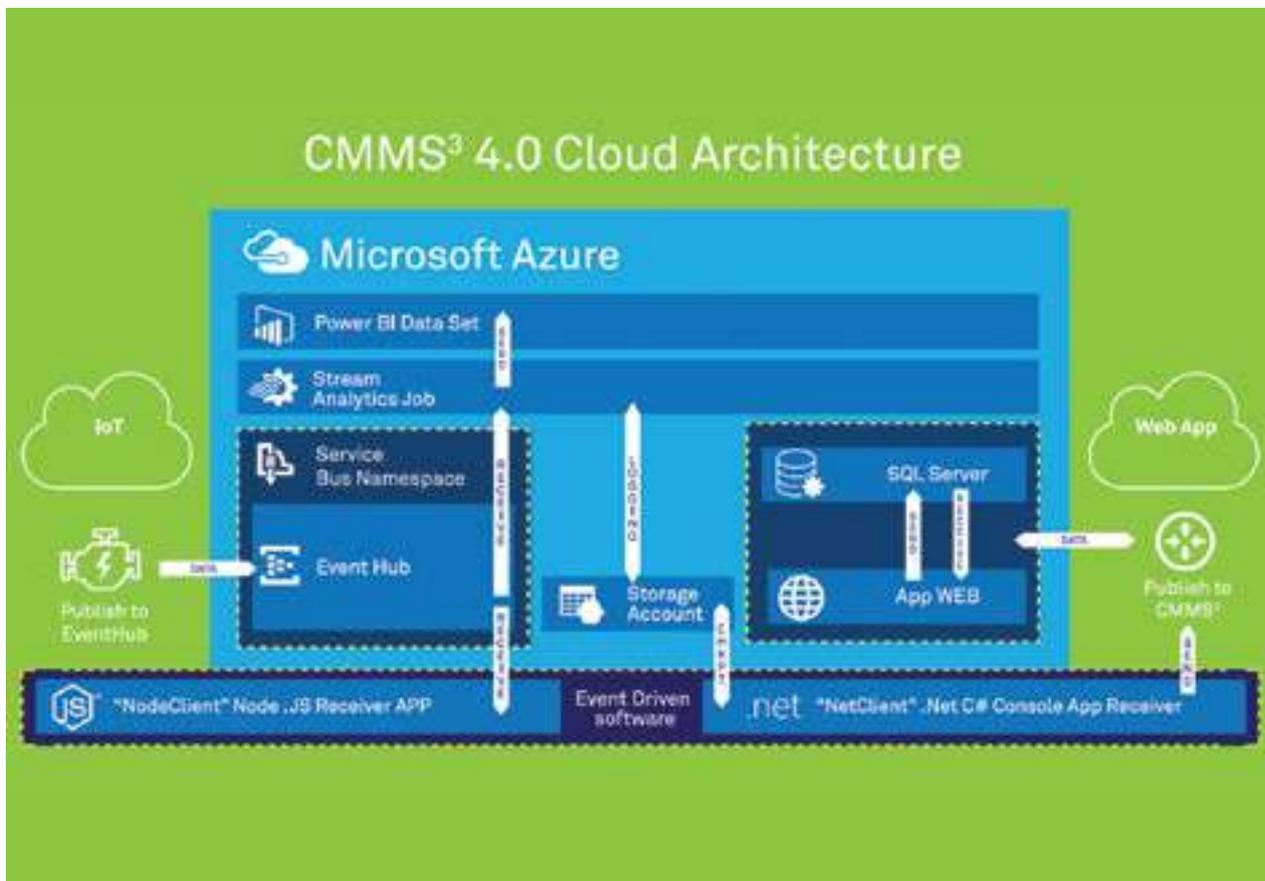
RAMCUBE key pillars:

**Survey and continuous improvement:**

We believe that in order to significantly enhance the efficiency of the system and to preserve its duration, it is necessary to apply a simple rule: “listen”. For this reason, a Survey Check List has been developed taking into consideration all past experience collected about several Projects.

**Plant analysis and implementation of proposals:**

RAMCUBE is able to provide a range of support services: training, collection and loading of plant data, creation of maintenance/inspection lists, spare parts cards,



spare parts interchangeability report, Manufacturers and Vendors follow-up, maintenance and inspection policies, customized maintenance and inspection plans, customization of approved work flows, management of workloads with consequent rationalization of resources, drafting and evaluation of KPIs.

#### Implementation of main maintenance and inspection methodologies:

RAMCUBE through its specialists is able to propose specific studies: **FMECA** (Failure Mode, Effects, and Criticality Analysis), **RCM** (Reliability Centred Maintenance), **RAM** (Reliability, Availability and Maintainability) using **MAROS**

software<sup>®</sup>, **OMA** (Operability and Maintainability), **Spare Parts Optimization Analysis**, **Material Coding**, **RBI** (Risk Based Inspection).

#### CMMS Implementation:

The **CMMS<sup>3</sup>** "Maintenance Management System" is the IT tool to support maintenance and inspection services. The proprietary software, which has important references, is economically very competitive with the aim to facilitate the development of the Operation activities in terms of Maintenance and Inspection.

CMMS<sup>3</sup> is now available on the Microsoft Azure TM<sup>®</sup> platform for easy cloud implementation.

## Is Quality a cost? Cavicel has the answer.



Everyone expects all the products on the market to have the same performances.

When we chose a product, we focus on its technical features, on what the supplier declares and then, finally, on the price.

The point is: are we even sure that we are comparing the exact same product?

More often than not, we find on the market products that apparently look very similar but only after an examination, sometimes not even so careful, we realize that there are differences able to justify the price.

Nowadays all the companies, operating in a qualified market, are ISO 9001 certificated; does this mean that all the companies sell the exact same reliable product? Of course it does not.

**Quality** is a wide concept which is not just limited to the analysis of a specific product; it is something deeper, related to the company and the people that are part of it. Investing in a high skilled staff and in valid equipment, it is something essential for **Cavicel** in order to bring new and innovative products on the market.

**Cavicel** is a company that produces special cables for over 60 years and it has always been oriented towards innovative high-performance products.

**Cavicel** has several product lines, one of these is **FIRECEL, fire resistant cable**, designed to work even during fires, guaranteeing high performances with the ultimate purpose to ensure people's safety.

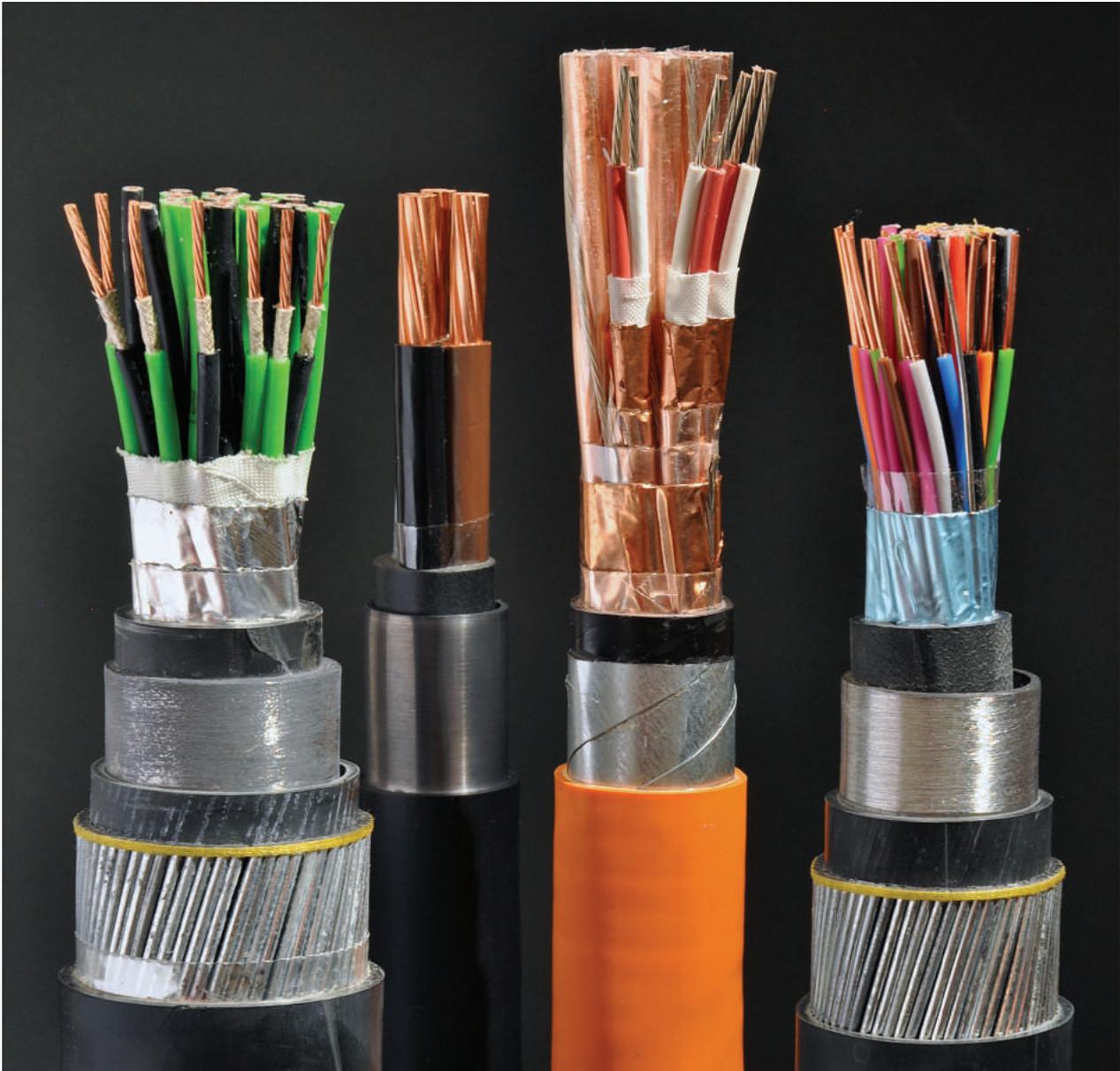
For this reason **Cavicel** is investing a lot in an organized internal laboratory, which is also one the most equipped in Europe. Their high quality equipment and their experienced staff are the core of **Cavicel's** success and essential points that allow them to proceed with a careful analysis of every single cable, testing it before putting it on the market.

During the last year, **Cavicel** performed over 550 fire tests in order to guarantee the quality of their final products. Their certifications are not just mere declaration of conformity, indeed they are effective evidences that ensure **Cavicel's** high performance cables.

Accordingly, **Quality** is a key concept for **Cavicel**, and they spread it to all their production: **INCOCEL** instrumentation



Conducting Value



cables, **OPTICEL** optical fibre cables, their offshore cables, drilling muds resistant cables and to their special products.

The quality of **Cavicel's** products is recognised by the most important engineering companies, by the countless registrations on the end users' Vendor List, by DNV, LPCB,

BASEC third part laboratories, and so on.

For this reason **Cavicel** believes that Quality is not a cost, it is a value that safeguards the investments of their clients.

***Cavicel conducting value.***

# Some things don't change That is why the LED revolutionary change is huge

Hazardous industrial locations have always demanded lighting fixtures that deliver utmost safety and dependable illumination for critical tasks. But some things are changing right before your eyes. Lighting designs in hazardous locations are increasingly responsible for energy efficiency and "green" operations to save money and precious resources.

LED lighting has come to hazardous locations, and the Viamaster / Mercmaster LED luminaire is setting the industry standard for safety, performance and efficiency.

To control the future, you need to see it :

Viamaster / Mercmaster LED Series of luminaires.

The choice for a smart future:

- Mercmaster LED Wellglass;
- Viamaster LED replacement of fluorescent lightings.

No LED industrial fixture surpasses the Mercmaster LED luminaire in efficiency, performance and advanced engineering. In day-to-day use, installation and maintenance, the Mercmaster LED luminaire's superior design simply shines. Designed to utilize as little as 32 W of power, these luminaires lower energy consumption while providing 60,000+ hours of running lamp life.

The Mercmaster LED luminaires bring their energy-saving benefits to customers worldwide, setting the bar even higher for the lighting industry in terms of lower weight fixtures, shock resistance, cold start capabilities, minimal heat production which improves service life, and overall safety.

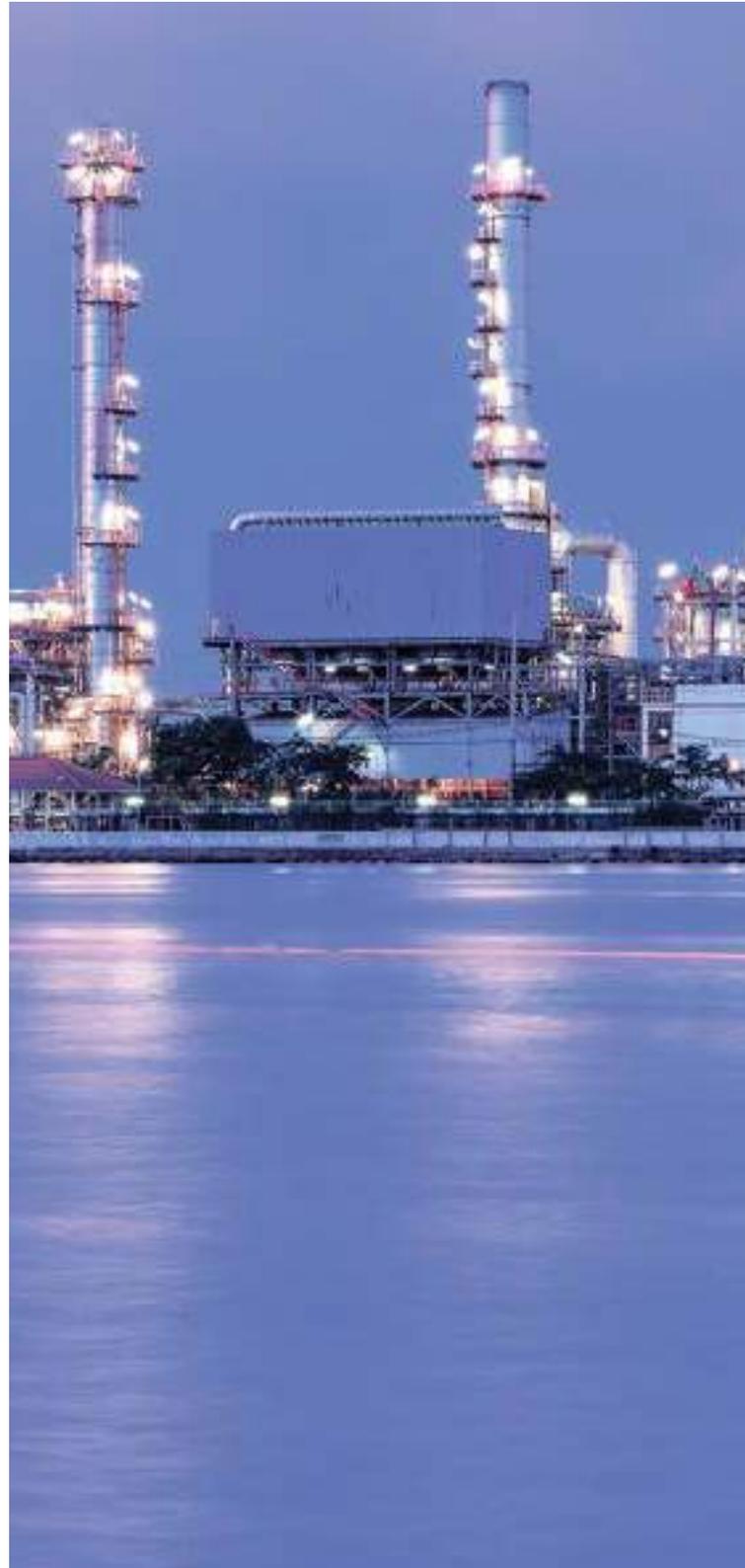
These fixtures offer a flexible, modular design that allows for retrofits and plant expansions to meet unique installation requirements.

Viamaster / Mercmaster LED luminaires comply with current Nema, UL, CSA, ATEX/IECEX and NBR IEC applicable standards for a wide range of worldwide industrial areas. They meet Dark Sky™ specifications for low glare, focused beam and avoidance of overlighting.

They are energy efficient, suitable for areas where flammable gases and vapors are present, as well as marine and wet locations subject to severe weather, excessive moisture and corrosion, including:

- pulp and paper mills;
- processing plants;
- chemical plants;
- oil refineries, gas plant, power plant, off-shore platforms;
- foundries;
- food processing plants;
- waste and sewage treatment plants.

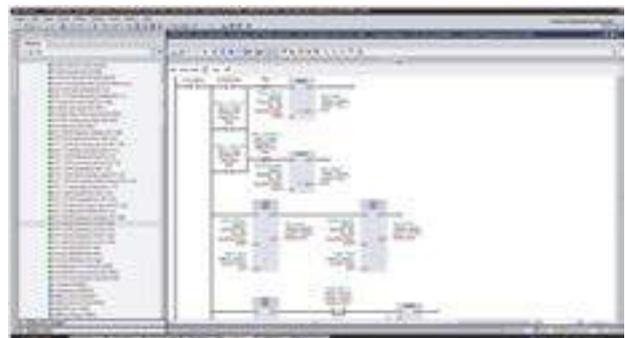
[www.vimex.it](http://www.vimex.it)





# Biesse Sistemi

## Reliable for over 40 years



**Our Services: Specific**

**Interventions and Turnkey Solutions**

- Engineering, Consultancy & Supplies
- Electrical, Instrumental & Industrial Automation Systems
- Valve revision and calibration, verification metrological process instrumentation
- PLC & DCS Software Development
- Distribution Boards, Control Cabinets, Console & Dashboards
- Special plants, Security, Telephony & Networking
- Electromechanical & Mechanical Plants, Valve and Instrumentation Maintenance and Calibration
- Ordinary/Extraordinary, Planned & Preventative Maintenance
- 24/7 Availability

**Technical Dept./Software Development**

Planning and consultation for electrical, electrical-

instrumentation and security systems. Design of transformer stations, enclosures and control rooms, power and automation switchboards. The software department is able to work on the majority of the brands and products on the market, from the small PLC up to more complex SCADA or Control Systems.

**Switchboards**

Thanks to the experience gained over the years, Biesse Sistemi is able to engineer and build Power and Command switchboards for any industry and sector as: Atex for classified areas, power distribution, process, pneumatic, control, special boards and panels.

**Packages Production**

Engineering and construction of containerised solutions for control rooms, traditional or pressurised, with control panels; transformation cabins complete with distribution panels, custom-made solutions for facilities or special equipment.



**Skids Production**

Electrical, Instrumental, Pneumatic & Mechanical plants On-Skid, including the supply of all the materials needed on the basis of documentation developed or referring to the project documentation received from others.

**Plants and Automation**

Biesse Sistemi is able to install systems that meet requirements in the industry and service sector, ports and off-shore, throughout the country. For international territories, our technicians are specialised in supervising local staff and manage them until the final testing. In some cases, Biesse Sistemi can be responsible for complete installation for both the electric part and the mechanical part.

**Commissioning**

Providing assistance during the phases of assembly, commissioning and start-up is essential for the result. Thanks to a multidisciplinary team of engineers in charge

of the supervision, quality control and training, we are able to manage the systems that we programmed all over the world.

**Electrical & Instrumentation (E&I) and Mechanical Service**

Biesse Sistemi performs metrological checks and tuning of pressure instruments, levels, temperatures, flow rates, PH, Redox, conductivity, turbidity, etc.; in the laboratory or on-site adjustment loop. The company is recognized as a Metric Repairer with its own Deposited Imprint, at the Metric Office. It also performs the reconditioning and overhauling of safety valves, regulation, on-off actuations and manuals with the carrying out of the tests and the release of the test certificates. Maintenance and calibration of pneumatic and electro-pneumatic positioners, actuators and visual levels.

[www.biessesistemi.it](http://www.biessesistemi.it)

# Explosionproof Equipment and Services for Industrial Oil & Gas Fields



COELBO s.r.l. was established in 1971 and its target was to propose new products and services that were adequate to the increasing demands of the market and that optimized, at the same time, the quality/price relation, in spite of setting up a firm's policy turned, before all, to the satisfaction of the own customers.

The Company has specialized, engaging a privileged position as supplying of leader firms, in potentially explosive atmospheres, in particular in the planning and manufacturing of explosion proof electrical equipment (Ex d), according to actual national and international standards about this feature.

General Catalogue, completely certified according both to ATEX Directive and to IEC-Ex scheme rules, keeps the company among the most competitive on the market, driving us further on to the search of new developments turned to the realization of products, which are constantly to the van.

The firm's dimension allows a great flexibility in orders administration and, above all, in terms of delivery, pursuing constantly punctuality and availability towards

our customers, with limits imposed by technical reasons, without having never lost sight of the quality, from us considered of primary importance.

Remarkable is also recent implementation of an internal testing laboratory consisting in a climate chamber, accelerated corrosion chamber, mechanical testing stations – PLC controlled – 3D measuring arm, rapid prototyping instrument/tools and other testing equipment.

Thanks to this and to production cycles based on latest technology CNC machines (both 3 axis and 5 axis, also for biggest equipment), it's now allowed to optimize control of whole productive processes so as to consolidate the "COELBO" icon like guarantee of quality recognized worldwide.

RIBCO s.r.l., founded in the 2011, produces cable glands, reducers, adapters, plugs and accessories for cables, junction boxes and enclosures suitable for containing control instrumentation for the realization of installations in zones classified as hazardous areas. Raw materials are stainless steel, brass and aluminum. Philosophy behind



the company RIBCO is based on features that make it competitive in the market, such as flexibility, total quality, continuous technological innovation, research for new markets and expanding existing ones in Italy and in the

world taking care of the company image. Everything is made to satisfy customers' needs in order to offer a product and service at the highest levels.

# Tradition in Dynamic Innovation: The RUD Group

The RUD Group is a dynamic and modern family group, that is active worldwide. Our goal is continuous, profitable growth – with serious consideration for the careful treatment of our natural resources and our environment.

We are striving for a clear leadership position with our products and services in our market segments based on organisational and operational excellence. With over 140 years of experience and, taking round steel chains as a basis, we develop future-oriented solution concepts with chain systems and components in diverse forms and for a wide range of applications. We see our products as the result of our passion to creativity and perfection in our core competences metal working, welding, heat treatment, surface technology and forging. Long-term partnership with our customers, their satisfaction and trust in us are the heart of everything we do. We vouch for customer-oriented, innovative, value-added technology as well as consistent top quality and safety. That is our joint responsibility. Through our actively practiced, open and trusting corporate culture as well as our ongoing training and education, our international family enterprise is a motivated, energetic, flexible and competent team. Our applied concept of Courtesy of Choice is reflecting the centuries-old philosophy that acknowledges differences while allowing them to exist together in harmony.

## **Sling and Lashing Systems:**

With our RUD sling and lashing means plus the lifting points we have introduced innovative designs that are setting the standards for the entire lifting industry. More than 700 lifting and lashing points either for bold-on or weld-on with a loading capacity up to 250 tons reduce handling costs and increase work safety.

With a variety of 370 VIP Sling chains and components in Grade 10, ranging from 4 mm to 28 mm and Grade 12 from 4 mm to 16 mm diameter, all lifting and lashing





Tradition in Dynamic Innovation





tasks can be solved safely. As the first chain manufacturer we have received the authority to stamp (D1-12) for the highest grade of round steel chains, from the German employer’s insurance association. The standard version with RFID transponders makes it easier to label and test components that require testing. Our internally-developed RUD-ID-Net and the RUD-ID-System make processing and management more efficient and much faster.

The RUD chains Rieger & Dietz GmbH u. Co. KG is divided into seven divisions:  
 RUD Lifting and Lashing Means, RUD Conveyor Systems, RUD Lifting and Drive Technology, RUD Tire Protection Chains, RUD Anti-Slip Chains, RUD Military Technology and RUD BarrierTech

**The RUD ROV Hook :**

The RUD ROV Hook is a completely new style of hook: one that has never been seen before. It features an innovative outwards opening safety latch and a patented mechanism with only two moving parts.

“The simple but reliable functionality is based on the leveraging principle of rigid body physics to translate the movement of a trigger, when it is pressed or pulled by a

lanyard into the opening of the hook’s gate” says David Jaramillo, Manager Business Development Marine/Offshore at RUD Ketten and Leader of the project.

The design was tested and proven on real life subsea operations. According to Kenny Morrison, Operations Manager UK/Canada at Subsea 7 “the new RUD hook provides a greatly enhanced degree of load security compared to traditional snap hooks, while retaining the snap hook’s ease of use for both connection and disconnection tasks. The initial prototypes were enthusiastically received by our offshore teams during testing as they can be operated with a single manipulator, which can significantly speed up operations. Operational feedback also resulted in the design being further optimised for use with grabber arms as well as manipulators”.

All hook main parts are manufactured from forged steel, with a safety factor 4:1 with respect to its working load limit, 100% crack-tested, and withstanding a dynamic loading of more than 20,000 load cycles according to European Standard EN 1677. The hook will be initially available as a 10t WLL capacity hook. However, other sizes are planned and will be developed based on further demand from the market.



the  
**NEW**  
**ROV**  
**HOOK**

Unique  
**COST EFFICIENCY**  
**IN SUBSEA LIFTING**  
challenges.

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## **THE SIMPLICITY OF A REVOLUTION.**

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- ✓ **NO SHEDDING OF LOADS**
- ✓ **NO SNAGGING**
- ✓ **INNOVATIVE MECHANISM  
SAVES TIME & COSTS**
- ✓ **SINGLE-HANDED OPERATION**
- ✓ **DEVELOPED FOR THE  
MARKET BY THE MARKET**



 **RUD**<sup>®</sup>

[www.rud.com](http://www.rud.com)

# OEM Gas and Liquid Pumps Laboratory Pumps and Systems

## Welcome to KNF

KNF develops, produces and distributes high-quality diaphragm pumps and systems for gases, vapors and liquids. They are available as built-in pumps for OEM use as well as for process applications and laboratory use. The independent KNF Group comprises 15 companies and five production sites worldwide. KNF Neuberger Italy was established in 1972, based at our facilities in Milan, our dedicated team of experienced sales staff are responsible for the sales, marketing, servicing and technical support for the KNF product range in Italy. KNF Italy carries stocks of both Laboratory and OEM products for the local market to provide a swift turn around and offer the best possible customer service.

## Series models

With more than 60 years' experience of diaphragm pump technology, KNF offers a wide range of series gas and liquid pumps. All series models are fully approved and tested to meet the customer's technical and economic requirements. In addition to our standard range of pumps we offer customer specific solutions and are able to tailor our pumps to suit your individual requirements. We also have the capability to design and produce pump systems to meet our local customers' needs.







#### Modular System

KNF pumps are underpinned by a modular concept. Each pump type consists of three main components: pump head, compressor housing and motor. The materials used in the pump head can be substituted to provide greater chemical resistance. Multiple motor options or inter-head connections are available depending on the customer's requirements. Starting with a series product, any pump can be modified to provide an individual customized solution, which is then referred to as a project pump.

#### Main markets

KNF works in the medical, laboratory, gas analysis and process markets, amongst others. In this latter market KNF provides ATEX certified pumps and compressors for hazardous environments containing aggressive and explosive media;

Double diaphragm pumps for the transfer of precious and dangerous gases;

High pressure compressors for the transfer and compression of neutral and slightly aggressive gases; PTFE pumps for gas sampling and heat resistant pumps for hot gases up to 240 ° C.

KNF is a leading manufacturer of the following products:

#### PUMPS FOR GAS ANALYSIS, EMISSION MEASUREMENT, INDUSTRIAL PROCESSES

- Vacuum pumps and compressors
- Micro gas sampling pumps
- Swing piston pumps

#### PROCESS VACUUM PUMPS AND COMPRESSORS

- Process vacuum pumps and compressors
- Chemical resistant pumps in PTFE
- Temperature resistant and heated pumps to 240°C
- Double diaphragm pumps for hazardous and valuable gases
- ATEX compliant pumps

#### DIAPHRAGM LIQUID PUMPS

- Liquid transfer pumps
- Dosing pumps
- Solenoid diaphragm pumps
- ATEX compliant pumps
- Laboratory pumps and systems



# PROCESS PUMPS AND COMPRESSORS

YOUR SPECIFICATIONS... OUR PUMPS



•Vacuum pumps  
for hazardous  
areas Class II 2G



•Double diaphragm pumps  
for toxic, rare and valuable  
gases



•High pressure compressors  
up to 16 bar (g)



•Chemically resistant pumps  
(PVDF & PTFE heads)



•Temperature resistant  
and heated stationary gas  
sampling pumps up to 240°C



•ATEX compliant  
industrial process liquid  
pumps

KNF Italia s.r.l.  
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20063 Cernusco Sul Naviglio (MI)  
Telefono: +39 02 929 0491 | Fax: +39 02 272 03848  
e-mail: [info.it@knf.com](mailto:info.it@knf.com) | PEC: [knf@pec.it](mailto:knf@pec.it)



# FLUIDEL, A wide Range of Industrial Products



FLUIDEL has been established in the 1968, with the intent of making available in the Italian market.

A wide range of industrial products with high engineering content for various applications.

The experience achieved in each field and the wide availability of products allow to find for each application the most appropriate and complete solutions.

The activities are splitted in three Divisions: 1 Engineering 2 Construction 3 Instrumentation-Valves.

The last two Divisions handle products mainly imported, activities are based on trading. The first Division represents from the beginning the core business. Actually Fluidel Construction program mainly includes Filters and gas separators, automatic filters, coalescers, sand filters, oil/water separators, static mixers for in line mixing, pipeline terminals as pig launchers and receivers.

Engineering services are provided in the fields of gas and fluids separation, contaminant removal from gases and liquids, fuel oil conditioning systems for gas turbines and automate custom designed packaged systems ready for use. Fluidel can also offer various types of special cartridges and strainer baskets, vane mist eliminators in many materials, and cyclones in hardened carbon steel. Fluidel products are specially used in the oil and gas industries in the various steps from production, either offshore and onshore, and to transport, refining and storage. Fluidel's activities also cover other industries like petrochemical, chemical and pharmaceutical, water treatment, desalination, power plants etc..

Fluidel have technical and commercial offices which work closely with manufacturing shops in Italy and abroad, when original imported material is requested. The organization is extended to all necessary services for a complete contract handling, including quality control. Recently Fluidel started a closed cooperation with CHEM Process Systems Ltd, an Indian Company specialised in water treatment plants (ZLD technology), evaporation plants, crystallisers, vacuum systems and heat transfer. **This will substantially increase the market spectrum and the range of high technology products which can be proposed.**

For more information:  
[sales@fluidel.net](mailto:sales@fluidel.net) | [www.fluidel.net](http://www.fluidel.net)



- Steam Ejectors
- Eductors
- Multistage Vacuum Plants
- Ejectors and Vacuum Plants
- Thermocompressors
- Jet Mixers
- Chillers
  
- Heater Exchanges
- Boiler Feed Water Heaters
- Condensers

- Dryer
- Crystallizers
- Spray Dryers
  
- Film Type Evaporator
- Forced Circulation Type Evaporator
- Multiflash Evaporators
- Evaporators With Simple and Multiple Effect
- Zld Water Treatment Plants
- Salt Recycling Plants

# Seingim

## The Art of Engineering

SEINGIM GLOBAL SERVICE S.R.L. is an Engineering Company with 20 years of experience. Through the years, the Company started focusing in multiple sectors: in the beginning, SEINGIM have operated with industries in Porto Marghera Area – one of the biggest industrial areas in north Italy. After the first years, the Company started including various sectors and disciplines. Nowadays SEINGIM operates in Oil & Gas, Petrochemical, Chemical and Pharmaceutical, Food and beverage, Buildings, Infrastructures and electric mobility, Energy production, Energy efficiency, Marine and R&D Sectors. The Company’s main activities are Engineering and Management, both mainly related to Plants and Systems Engineering. The main units are Process, Electrical, Instrumentation, Automation and control, Telecommunications, Machinery, Package, Static Equipment, Piping, Thermotechnics, HVAC, Civil and structural, Firefighting, in addition to project, construction, completion management, commissioning and plant start-up.

SEINGIM’s headquarters are in Ceggia, near Venice. Through the years, the Company opened multiple branches in strategic locations in the Italian territory, as Milan, Padua, Fano, Ispra (c/o JRC European Joint Research Centre), Bolzano, Cagliari and Rome. Further on, SEINGIM is going to open 2 more branches in Taranto and Catania.

SEINGIM pursues a business development policy, for improving constantly the technical offer. The team, is composed by more than 100 Engineers, Technicians and Experts, and in 2019 is going to reach 320.000 working hours.

The Technical Team strictly follows the HSEQ-EN Certification, to guarantee customers the highest quality in every project.

InGuamari’s “Report 2018 on the Italian Construction Architecture and Engineering Industry”, that analyse more than 10.000 Engineering Companies in Italy, SEINGIM reached the 97th place, climbing twelve positions from 2017.

### TECHNICAL CAPABILITIES

**20.000**  
project management  
hours

**22.000**  
process  
engineering hours

**38.000**  
civil and structural  
engineering hours

**90.000**  
machinery & package, static  
equip., piping, mechanical plants  
and HVAC engineering hours

**80.000**  
electrical  
engineering  
hours

**70.000**  
automation, instrumentation  
and telecommunication  
engineering hours

**320.000**  
total hours year 2019

### OUR ACTIVITIES



Site Survey



Process



Instrumentation



Automation & Control



OUR SECTORS



Chemical, Petrochemical, Pharmaceutical, Food & Beverage



Oil & Gas



Buildings



Infrastructures and Electric mobility



Energy production



Energy efficiency



Marine



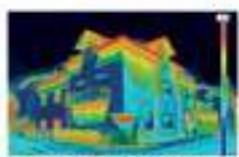
Machinery, Package, Static equipm. & Piping



Electrical



Civil & Structural



Energy Efficiency



Telecommunications



Thermotechnics & HVAC



Fire Fighting



Renewable Energy

# An outstanding multi-disciplinary engineering company operating in the global oil and gas industry

TECNOCONSULT ([www.tecnoconsult.it](http://www.tecnoconsult.it)) is an outstanding multi-disciplinary engineering and management company, operating since 1986 in the Oil & Gas and Power Generation industries, covering Offshore and Onshore Upstream and Midstream engineering design and procurement assistance. TECNOCONSULT offers engineering support and specialized technical assistance with complete project expertise, from subsea wellhead to onshore processing and export facilities, covering all integrated design services from Feasibility to Decommissioning. The skilled personnel of the company is able to manage all engineering design activities, ensuring that the design meets project objectives for cost, schedule, safety and environmental impact. TECNOCONSULT has acquired significant experiences to design **Fast Track Projects** to guarantee the best optimized solutions between the project schedule and the engineering quality.

TECNOCONSULT provides its Clients with up to date approach covering all the necessary skills tied to the development of the Project and facing with the demanding challenges of the market.

With reference to the subsea field development projects, TECNOCONSULT has consolidated capabilities in the design of subsea pipelines, ranging from shallow to ultra-deep waters, from geohazards identification to the identification of mitigation measures, from mechanical design to installation and commissioning aspects.

The extensive experience relevant to the installation design capabilities includes umbilicals, flexible/rigid flowlines and risers, manifolds and tie-in systems.

The company is now capable to deliver technical assistance and engineering services worldwide, with the appropriate cost-effectiveness in terms of innovation, accuracy, reactivity and flexibility, as per Clients requirements and the current market's offer.

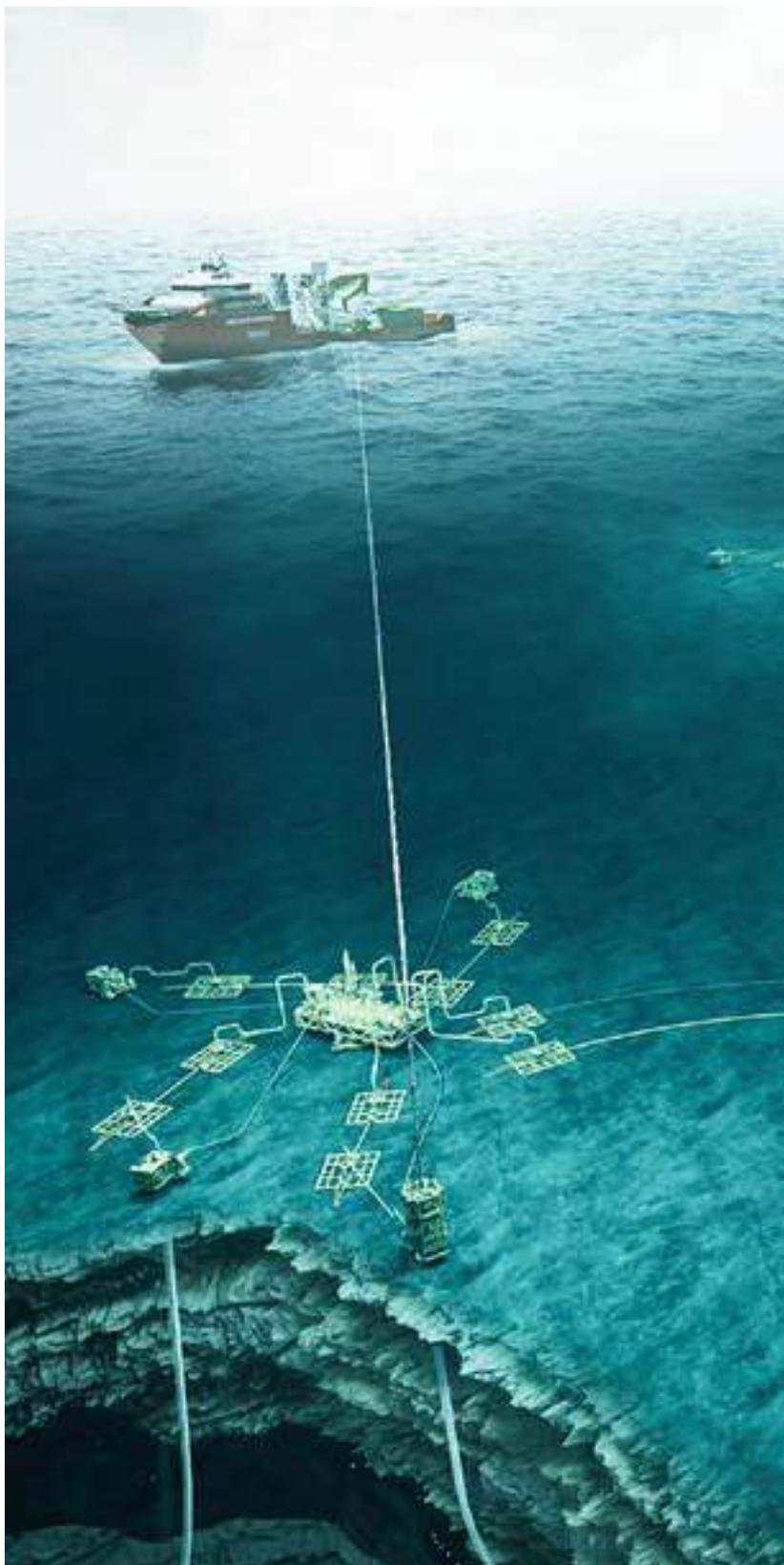
Moreover, to meet the growing of renewable sector, TECNOCONSULT is turning its experience on Oil & Gas Sector into the Offshore Wind and Geothermal Industry.

TECNOCONSULT Quality Management, Health&Safety and Environment Systems are all certified UNI EN ISO 9001:2015, OHSAS 18001:2007, ISO 14001:2015.

*Our personnel will attend the Offshore Mediterranean Conference and Exhibition (OMC) on 27<sup>th</sup>-29<sup>th</sup> March 2019 in Ravenna (IT) .*

*We look forward to your visit at **ESAin** Stand No. **2N32***

**[commercial@tecnoconsult.it](mailto:commercial@tecnoconsult.it)**





**TECNOCONSULT**  
ENGINEERING CONSTRUCTION S.R.L.



# Technology, Quality and Professionalism at your disposal



The Company Gruppo Ferrari Srl borrows thanks to its founder and CEO, Mr. Ferrari Edoardo, who has worked more than twenty years as General Manager in Oil & Gas and Energies Industries. Mr. Ferrari sets as first objective differentiating his work from competitors, providing to its customers services focused on seriousness, quality, professionalism and exclusiveness, even in the most extreme situations, in terms of time, issues and budgets. This path to success has been possible by investing time and financial resources, creating the appropriate synergies on his Team Work, providing them the necessary technical and technological competences, giving to everyone the impulses and the motivations to achieve the purposes.

Thanks to competences and Certifications (UNI EN ISO 9001:2015 and OHSAS 18001 : 2007 ), Gruppo Ferrari Srl works steadily in Oil & Gas, Energy production using central gas turbine, turbo steam and gas power plants in the petrochemical sector, starting with partial and general mechanical revisions from us performed on various types of Gas and steam turbines, centrifugal compressors, gearboxes, generators and reducers; continuing with electro-instrumental activities on-board machine, including the cable laying and wiring in the control room, calibration tools, Precommissioning - Commissioning and Start-Up.

The Company is specialized on design and implementation of "ready-to-use" plants for oil & gas industries: cogeneration plants, hydroelectric power plants, thermo power plants, biomass power plants, skids, oil rig, control cabin, assemblies and mechanical revisions.

Gruppo Ferrari examines and follows with professionalism the customer demands, needs and requests, starting from the first draft and developing it in all its various stages, to the full completeness;

As the project is ready and approved, Gruppo Ferrari creates a system from the beginning to the final installation, the programming and the start-up. This is possible thanks to the use of the best synergies among hardware, software, DCS, PLC, exploiting their best potentialities and applications.

Gruppo Ferrari has a logistic department and warehouse of about 500 square meters, in Via Pag, 15 and 37 in Ravenna and an operative department in San Vitale Port's area, composed from 10.000 square meters of open yards and 5.500 square meters of covered areas; the company also has all the necessary equipments, resources and tools to satisfy all the applications, for example :lifting and handling equipment (forklifts, cranes, truck crane), tools, personal equipment and PPE for every worker.

# RTI.

## Your Ambition, Our Challenge



RTI, as a modern structured and organized Company, left its own first footprints in the Industrial Market, in the 1980, specialized in the supply of Instrumentation and Process Bulk Material. This market approach brought RTI to a natural evolution process toward a proper “Global Service” attitude by eventually adapting the Products Range, Assets and Human Resources, according to the Local and International Clients/Projects’ needs.

The new look of RTI finds its roots in the strong will of being considered the reference for those realities, which see as main target, the desire to grow. The acquisition of few companies is stating indeed RTI dynamism and will of business and professional growth.

RTI Services together with the capability to offer top-level brands supported by an historical cooperation

with International EPCs and major Contractors help to increase a strong Multicultural Corporate Identity.

Essential Values such as respect, a shared mutual corporate feeling, proactivity, competence, flexibility and financial solidity are the RTI foundation Pillars on which RTI Mission is firmly based on:

ENSURE THE CORRECT TECHNICAL & COMMERCIAL SOLUTIONS FOR OUR CLIENTS NEEDS BASED ON OUR COMPETENCE, EXPERIENCE AND QUALITY.



## Invitation from the OMC chairman Expanding Mediterranean Energies: Fuelling Regional Growth

Dear Colleagues,

The deep-water discoveries in the East and South Mediterranean have opened up a whole new frontier.

This scenario is offering exciting opportunities to oil & gas companies to assess and develop the energy potential of this highly prospective region.

Indeed, the combined existing and potential resources represent the opportunity to expand regional markets, revitalize domestic consumption, produce community wealth not only for the involved coastal countries. The Mediterranean as expected, is turning into an important gas hub for export to Europe as well as to other Mediterranean markets maximizing the usage of existing infrastructures in the region.

Natural gas, LNG and a range of new technologies will play an important role as regards the increasing and changing demand for transport.

As the world seeks to reduce emissions, the utilization of renewables, (especially solar and wind) in the North African countries has begun to contribute to a significant extent to the energy mix, representing an appealing business option and an area where the know how of the energy industry can give a crucial contribution for the low carbon targets.

No doubt, research and innovation will act as a catalyst for the development of the entire region. The digital “revolution” and the rapid implementation of energy efficiency technologies promise to enhance productivity, increase competitiveness while ensuring higher quality standards, security and environmental protection.

These issues will be at the center of the next OMC in March 2019, across plenary, panel and technical sessions. Capitalizing on the success of the last edition, OMC 2019 will further encourage technical and business knowledge sharing among ministers, CEOs, experts and trade professionals from worldwide, thus confirming its outstanding role as a key meeting place for the oil & gas industry.

I invite you to attend OMC 2019 to meet over 20,000 industry experts and some 650 companies from 33 Countries who will discuss these important themes in Ravenna, where the development of the thriving Mediterranean energy industry all began some 60 years ago.

Enzo Titone  
Chairman OMC 2019

# Electric Heating Solutions Exchangers Packages



**MAIN PRODUCTS**

- Heat exchangers
- Flanged heaters
- Screw-plug mounted heaters
- Removable cartridge heaters
- Indirect heaters - Cast aluminium type
- Duct heaters
- Unit heaters
- Ambient heaters

**MAIN APPLICATIONS AND CERTIFICATIONS**

Masterwatt is specialized in the manufacturing of industrial electric armored heaters. With over 30 years of activity, it is the reliable partner to face complex projects for oil & gas, refineries, chemical industry, offshore applications and plastic industry. The company supports its customers providing fully customized solutions, thanks also to the use of a thermodynamic software

and a complete design in accordance with international standards. The capabilities of the company are completed by the manufacturing of pressure vessels and control panels and an efficient after sales service and field operations with qualified personnel. A wide range of certifications is available for products: ATEX, IEC Ex, EAC, CSA, UL, INMETRO, PESO/CCOE, PED, ASME U-Stamp. In addition, special types are available on request, such as for offshore applications.

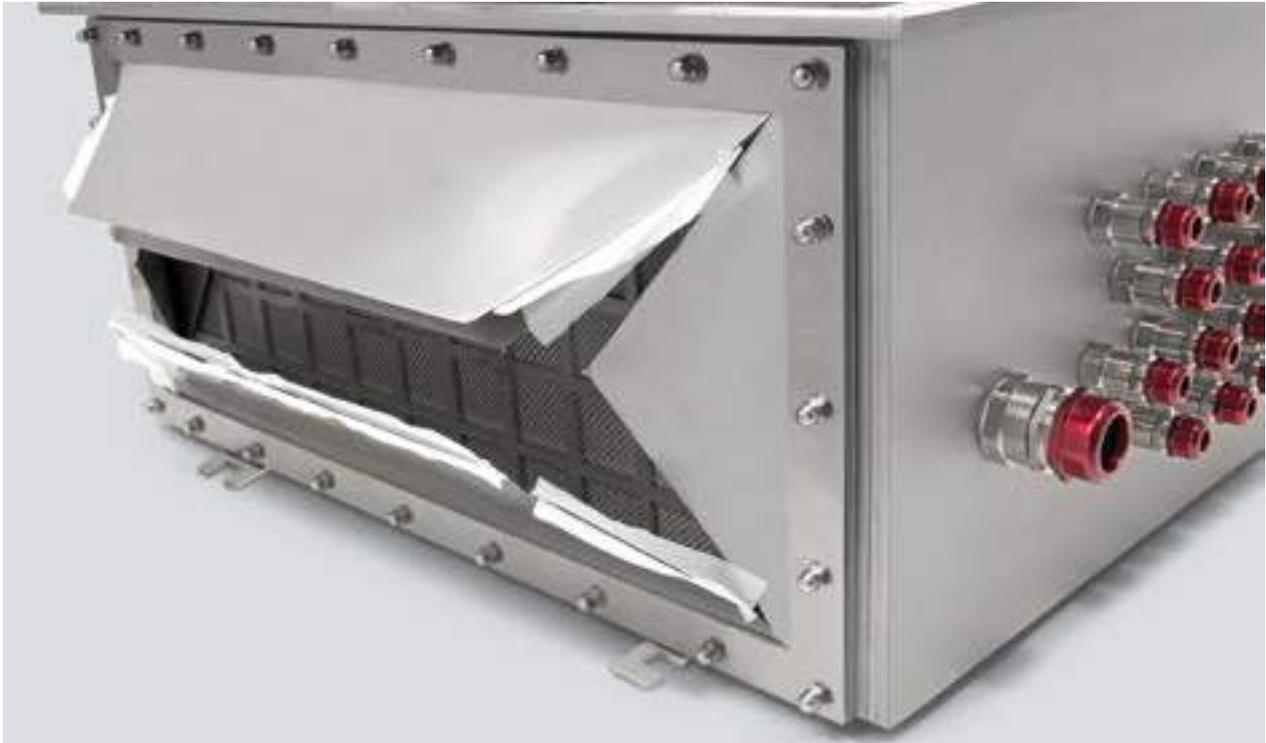
**HAZARDOUS AREA**

Ex-d and Ex-e GAS and DUST  
 Zone 1 - 2 - 21 - 22 - IIB - IIC - T1÷T6  
 Ambient temperatures -60°C÷+70°C  
 Max diameter 28" - lenght 4.000 mm  
 Max Pressure: 350 bar  
 Max Power in a single bundle : 5MW  
 Max Voltage: 690V



# Release the pressure!

## Flameproof enclosures receive a cutting-edge update courtesy of R. STAHL



In the event of an explosion inside the enclosure, the blowout panels are blasted open; the mesh elements underneath then allow the pressure to safely dissipate towards the outside

*Waldenburg, Germany – Flameproof enclosures have undergone an impressive facelift. Instead of heavy, bulky cast and steel constructions, innovative material combinations and technologies can now be employed to create innovative control cabinets that, despite being virtually indistinguishable from their counterparts in non-hazardous industrial environments, can still be used in Zone 1 without restriction.*

Flameproof enclosures are a type of protection that came into use over 100 years ago. In their original state, electrical and electronic components and apparatus exhibit a number of potential ignition sources – either as an inherent aspect of normal operation or as a result of a fault – which preclude their use in hazardous areas. Installing this equipment in an enclosure that is sufficiently robust to withstand the outward force of an explosion within it without sustaining serious damage, however, is a solution that allows it to be used in the safety-critical industry sectors mentioned. Appropriate technical measures must be taken to ensure that the outer surfaces of the enclosure remain at a temperature below the ignition point of hazardous mixtures of this nature. The technical requirements pertaining to this type of protection are defined in detail in part 1 of international standard IEC 60079; the code used in this standard for

this type of protection is “Ex d”. The widespread use of flameproof enclosures in the field of explosion protection can be attributed to the fact that they make it relatively easy to upgrade virtually any electrical equipment for use in hazardous areas. This type of protection is incredibly robust and reliable. These benefits are offset by a number of considerable drawbacks, however: Above a certain enclosure size, equipment installed in a flameproof enclosure becomes extremely heavy and bulky. Depending on the size and geometry of the flameproof enclosure’s inside capacity, the composition of the ignited explosive atmosphere and the location of the ignition source, peak blast pressures of 8-15 bar may be experienced. This often results in exceedingly high installation and operating costs because the load-bearing system and parts of a building must be sufficiently robust and adequately proportioned to accommodate this. Conventional technology encounters another critical stumbling block: in order to obtain the requisite flameproof properties, the enclosure must have thick walls in the region of 10-20 mm. If the enclosure size is to be at all cost-effective or practical, this effectively limits the enclosure capacity to no more than 500 litres. Large, complex electrical control panels and distribution boards must therefore be divided between a number of smaller



flameproof enclosures, which are then combined. With these enclosure combinations, the project engineering and production stages are considerably more complicated and time-consuming than they are for conventional industrial control cabinets. Flameproof bushings are used for the electrical connections that must be established between the different Ex d enclosures. As a result, control panels and distribution boards of this kind that are suitable for hazardous areas are incredibly time- and cost-intensive not only at the project engineering and production stages – operation, maintenance and repair work all increase this burden too.

#### **New pressure-relief solution**

For many decades now, R. STAHL has been an explosion protection technology specialist of international renown. Back in the 1960s, R. STAHL was already breaking new ground as the first manufacturer to develop and produce flameproof enclosures using plastic. A few years ago, R. STAHL began working with advanced lightweight-construction principles with the aim of eliminating the technological drawbacks and limitations described above. Developing, and subsequently patenting, a pressure-relief element which obtained its ATEX certification back in 2015, was able to reduce pressure by up to 30% more than conventional flameproof enclosures. Spurred on by this success, R. STAHL joined forces with several well respected German universities of applied science and Germany's two leading test bodies, PTB and DEKRA EXAM, working closely with these institutions. The end result was a special, woven wire mesh developed specifically for the purpose of providing effective, flameproof pressure relief. The metal mesh is woven from fine stainless steel wires and consists of several layers, stacked one above the other. Numerous tests were conducted to optimise the geometric and technological parameters of each of these layers, such as wire gauge, mesh size and weave. Using special processes, it can either be cast into cast aluminium enclosures or welded into stainless steel enclosures. In the event that an explosive atmosphere ignites within an enclosure that has been prepared as described, the chemical energy that is released is very quickly and efficiently dissipated. Various physical effects come into play at this stage, that cannot be touched briefly here. The result is remarkable: While a conventional Ex d enclosure of equivalent size will give peak pressure readings in the region of 10 bar, the new enclosures produce staggeringly low peak pressure far below 1 bar. By means of a carefully considered configuration, it has also been possible to reliably prevent the outer surface of the mesh layers from reaching temperatures above the permissible value for temperature class T4. And in order to ensure that the

new solution works under a huge range of harsh ambient conditions, such as environments where it is exposed to dirt or ice, it is important to ensure that the exposed surfaces of the outer mesh layers are properly protected. This is achieved by fitting conventional blowout panels, which provide IP66 protection in normal operation but are blasted open at a target pressure of 0.1 bar in the event of an explosion, allowing the gas to escape to the outside.

#### **Slimmer, lighter, more versatile**

The pressure reduction system described opens up whole new dimensions in flameproof enclosure design. The enclosures developed under R. STAHL's "EXpressure" brand have walls around 3 mm thick. This brings them almost into line with the dimensions of the equivalent industrial control cabinets, and has a significant impact on the weight and compactness of the structure. Comparative calculations performed by way of example have indicated weight savings of approximately 30-50% when compared to conventional switchgear and controlgear assemblies, with external dimensions being reduced by around 25%. This is particularly useful in instances in which installations are to be packed tightly together for offshore applications. On the other hand, it is now also possible to build extra large flameproof control cabinets. The largest "EXpressure" cabinet currently available is 1400 mm high, 1000 mm wide and 700 mm deep. Even larger cabinets are in the pipeline. This makes project engineering significantly easier for the reasons explained above. Sizable equipment, such as transformers and frequency converters, can now safely be installed in the spacious enclosures. ATEX and IECEx certification was conducted in parallel by the two well known German notified bodies. The necessary certificates are already available for the first four enclosure sizes. With the ATEX system, certificates have been issued solely for Ex d protection based on the provisions set out in Annex II of Directive 2014/34/EU, IEC 60079-1 and IEC 60079-33. Special protection have been used for the IECEx certificates. The two test bodies mentioned acted as the two independent verifiers required by standard 60079-33.

#### **In short**

With the advent of R. STAHL's "EXpressure" brand, the market is witnessing a trailblazing new technology for switchgears, control cabinets and distribution boards, as well as other electrical equipment such as luminaires and process analysis technology. R. STAHL has been able to overcome many of the disadvantages of conventional flameproof enclosures and replace these with considerable customer benefits.



# *HANNOVER MESSE*

70



# Which markets are you interested in?

Industrial Technology is distributed worldwide, and it covers especially the following markets



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# An AI spark to illuminate a greener world

***Innovative AI technology is transforming how energy is produced, stored, distributed, and consumed. The end result is not just convenience but a step towards a much greater cause - saving the planet.***

Artificial Intelligence (AI) is everywhere, from virtual assistants helping you plan your day to how medical conditions are diagnosed. AI is also entering the energy industry and the results are quite promising.

Machine learning is the process when a computer system uses data to progressively improve the performance of a specific task and thereby become 'intelligent'. Then, actions can be automated based on certain conditions or pattern recognition which can also anticipate future conditions. The energy industry uses this technology in a variety of applications, such as optimising production in oil and gas fields, generating compliance reports, and making predictions. "Machine learning is being widely used to give a more accurate forecast of the demand and supply, like in case of wind generation," explains Aidan O'Sullivan of University College London's Bartlett School of Environment, Energy and Resources. "The UK's national grid is deploying machine learning, which forecasts the carbon intensity of electricity 48 hours ahead."



### **Smart windmills and washing machines**

Renewable energy is becoming more important, but calm and cloudy days mean less solar and wind energy is generated. The gap is typically filled by traditional diesel or coal plants. However, when machine learning helps predict more accurately and manage these fluctuations in demand and supply, the whole system becomes more efficient.

Machine learning is also being used to lower energy consumption. O'Sullivan points to a fascinating use of reinforcement learning, where the system learns to make decisions by a reward function instead of historical data.

"Google recently handed over the management of their data centres to technology developed by Deepmind, which has reduced the energy consumption by some 40% through optimised performance," he says.

Machine learning is also entering our homes with a demand-side response and IoT devices. These devices can reduce energy consumption at peak times, for instance, by automatically running washing machines late at night.



### Minimise costs, maximise reliability

Greensmith Energy, a Wärtsilä company, uses machine learning to manage energy storage systems and broader energy ecosystems. Their GEMS software platform interacts and integrates directly with the energy generation assets such as renewables, thermal, and also energy storage installations to operate and optimise the system's performance.

"One good example of a project we have almost completed is on Graciosa, an island in the Azores," says John Jung, former CEO of Greensmith Energy. "There, GEMS is managing an optimal mix of wind, solar, and diesel generators to minimise electricity costs and maximise sustainability by assessing local conditions and weather forecasts. It is effectively the brain behind improving electricity consumption pattern on an entire island that is transitioning from traditional generation to a hybrid plant with a cleaner grid. This island is small, but the technology could be scaled up for a much larger island, such as Australia."

Energy storage is also becoming more and more important, and Jung points out that now even that segment of energy generation is programmable using the software. The GEMS platform has seven application families and 32 algorithms to match the custom needs and available resources for each project.

"GEMS can operate autonomously and automatically, based on either a rule-based engine or machine learning to act and function according to different or specific conditions sensed within the grid or integrated systems such as solar," says Jung. This technology is important to make the grid more resilient and secure - not just from intermittent supplies from renewables, but even from the hacking of vulnerable computer

## What the future holds

“When I started working with energy storage a decade ago, I knew that while batteries and other hardware were important, grid congestion was mainly a computing problem. Software, data and optimisation was the ‘killer app’ to change everything,” says Jung. “We have already begun that journey. AI as a viable approach to improve all asset-intensive industries will continue to flourish, except that it will do so at a geometrically faster rate.”

The use of machine learning can improve profitability in the industry while simultaneously making it more efficient, but O’Sullivan wants to draw attention to an even bigger issue: saving our planet.

“AI is potentially the greatest technological advance of our time and using it to solve the greatest challenge of our time – climate change – sounds poetic to me,” concludes O’Sullivan.

Author: DAVID J. CORD  
Source Wärtsilä company

The logo for Industrial Technology editorial office is centered within a white hexagonal shape. The words "INDUSTRIAL" and "TECHNOLOGY" are stacked vertically in a bold, uppercase, sans-serif font. Below them, the words "editorial office" are written in a smaller, lowercase, italicized sans-serif font.

**INDUSTRIAL  
TECHNOLOGY**  
*editorial office*

# Machine learning: artificial intelligence in Industrie 4.0

Machine learning enables predictions to be made based on large amounts of data. This branch of artificial intelligence is built upon pattern recognition and has the ability to independently draw knowledge from experience. For this reason, the technology has found its place in industrial processes.

Artificial intelligence is no longer a vision for the future. Today, large data centers and enormous storage capacities make things possible that were believed for years to be distant concepts. Two branches of artificial intelligence, machine learning and deep learning, use the possibilities of big data to optimize processes, find new solutions, and gain new insights.

## **Algorithms form the basis**

From small and medium-sized companies to large international corporations, every organization accumulates data that it can make use of. With software, this data is consolidated and evaluated to make predictions. Machine learning recognizes characteristics and relationships and uses algorithms to derive generalizations from them.

## **Big data for optimizing processes**

With the help of properly analyzed customer, log, and sensor data, new solutions can be found and processes can be made more efficient, for example. In addition to masses of data, this requires an IT infrastructure that is adjusted to artificial intelligence processes and machine learning workloads. The exact tasks of the machine learning systems are clearly defined: to recognize patterns and draw conclusions from them. The findings can then be further utilized.

## **Current applications of machine learning**

At present, the most commonly used learning method is image recognition. Other uses include digital assistants or intelligent bots, face recognition, speech recognition and speech processing, automated translation and transcription, text and video analysis, and autonomous driving.

## **Artificial intelligence in Industrie 4.0**

In a smart factory, production processes are connected – machines, interfaces, and components communicate with one another. Large amounts of data can be collected to optimize the manufacturing process. Big data supports process optimization by using image analysis and image recognition, for example.

## **Digital monitoring and control**

In production facilities, intelligent systems identify objects on conveyor belts and are able to automatically sort them. These types of systems are also used in quality control: They recognize product flaws, such as whether it is the wrong color.

## **Artificial intelligence and predictive maintenance**

Companies today use machine learning in maintenance and support services. By means of sensors, artificial intelligence helps capture the energy consumption of individual machines, analyze maintenance cycles, and then optimize them in the following stage. Operating data indicates when a part must be replaced or where there is likely to be a defect. As the amount of data increases, the system becomes better at optimizing itself and making more accurate predictions.

## **Artificial intelligence expected to drive growth**

According to experts, companies that use machine learning processes increase their economic performance. The biggest gains are expected in the IT and finance sectors, telecommunications, and the manufacturing industry. At IAMM, visitors can look forward to a comprehensive and detailed overview of what artificial intelligence and machine learning make possible in industrial applications – both now and in the future.

Source Hannover Messe.



**DAMEC**  
Rappresentanze Industriali

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DAMEC

# New Vertical Honing Machine HBL 530

Vertical honing machine with automatic movement of the axis



The new vertical honing machine HBL 530 was born from the request of a more demanding market place in terms of precision, reliability and use facility with a very beautiful design.

DAMEC has combined all the features to introduce a new product into the national and international market.

The aim is to satisfy all the needs and requests thanks to its technology and competitive price.

The areas of application of the new HBL 530 are: automotive, aeronautic, hydraulic, oil-hydraulic industry and sectors where precision honing of inner bores is essential in the process of working.



**The main technical information of HBL 530 are:**

Workable diameters	20 -300 mm	Spindle power	50-400 rpm, 200 Nm
Max. weight on table	800 kg	Expansion engine	0,4 kW, 1,27 Nm
Max. bore length	500 mm (standard) – 520 mm (optional)	Expansion speed	Max. 100 Nm
Axis X (length-speed)	1050mm – 0.05-5m/min	Coolant pump motor	0.25 kW, 100 L/min
Axis X power	1 kW, 4,78 Nm	Size	2370*2050*2330 mm
Axis Z (height – speed)	more than 620mm, 1-40m/min	Worktable	1700*800 mm
Axis Z power	4.08 kW, 26 Nm	Net weight	1500 kg
Press power	Max. 750 kg	Power	380V -50 Hz- 3 Ph – 25°
Motor spindle power	5.5 kW, 38 Nm	Cooling filtration tank to order separately	

# A wide range of compressors for specific applications

## From breathing-air gas to technical gas



Aerotecnica Coltri Spa exports 90% of its production to 60 countries. In light of this, the company can boast a global vocation and is an internationally recognized "brand". Aerotecnica Coltri Spa is based in Desenzano del Garda (Brescia) and manufactures high-pressure compressors that can be used in different sectors: from the diving industry to fire departments, from hunting to target shooting weapons, from natural gas to industrial gas. Its story begins at the end of the 1960s, when Carlo and Giuseppe Coltri started manufacturing compressors. Today, Aerotecnica Coltri Spa is one of the most important companies in the world in the design and construction of high-pressure compressors for pure breathing-air and technical gases. The company's overall covered area is approximately 8,000 square meters and its staff counts about 50 people. Recently, with the proliferation of natural-gas vehicles, Aerotecnica Coltri has also begun to manufacture compressors to refill the CNG cylinders used in such vehicles.

### Production and export

- Production cycle - The company has an in-house workshop that processes and obtains nearly all the mechanical components from die casting or bars to drawn bars using high-tech CNC tool machines and horizontal machining centres. The production process starts from a foundry that provides cast iron and aluminium for cylinders and casings. The company's palletized horizontal machining centre allows obtaining high-quality products. Highly qualified personnel run these machines and oversee the robotic cells, too. The company consists of four interconnected facilities, and a separate facility

is reserved to the assembly of the pumping units of the major machine line.

- Quality control and tests - All tests are run in the metrology room in order to maintain the high quality of the production while meeting the required parameters. The technical department constantly runs random checks using measurement tools ranging from simple gauges to DEA measuring machine, a system that serves as a high-definition scanner detecting any dimension difference (in microns) of the analysed item, checking the tolerance, and providing information on any improvements to be applied to the entire production. A trio of robots combined with automated CNC machines are also in use: these fully automated robots comprise an island that needs no human supervision.

- Global export - 90% of the company's production is exported to 60 countries. In some countries, the distribution network involves the acquisition of companies that operate in the machine maintenance industry, such as Coltri Sub Asia Pacific in Bangkok, in the free-trade zone for East Asia; and a company in Sharm El Sheikh for the Middle East and Egypt. Moreover, a network of dealers is also present in almost every country with spare parts warehouses for both routine and special maintenance.

### The compressors

The company offers a wide range of breathing-air and technical gas compressors from the small portable compressor of the Mch6 series, with a flow rate of 100 l/min and a pressure of 300 bars, to more powerful machine for large refilling centres, such as the Mch36



with a flow rate of 600 l/min and a maximum pressure of 425 bars. These compressors are available with single and three-phase electric engines as well as combustion engines powered by gasoline or diesel fuel. Additionally, a series of important accessories is offered, such as filling panels, transfer hoses, oxygen carbon dioxide and helium analysers, 300 to 200 bar reducers with safety valves and other useful accessories. "The use of high-pressure air compressors - says the owner of the company, Caudio Coltri - is very much diversified. They can be used for breathing air, diving or fire departments; to refill systems for air guns such as "paint ball", a war game with spherical dye-filled gelatin capsules, an anti-stress game; to refill real high pressure weapons, equipped with a 300 bar tank for hunting or target shooting. Last but not least, the industrial use. High-pressure compressors for natural gas and technical gases, excluding oxygen for obvious reasons". "Our engineer Marco Corsini - continues Coltri - works as an electrical designer and his work is characterized not only by his proven ability and valuable technical background, but also by his great passion. He's a mechanical engineer, with previous experience in the boiler industry, and has optimized existing machines with technical solutions that, in the case of the Mch16 compressor, have increased the stroke from 40 to 50 mm, increasing the compressor capacity compared to that of the previous series (with a stroke of 40 mm). The new compressor has been called Mch23 because of the pumping unit, to which follows a series of acronyms depending on the type of frame and accessories selected. Dr Corsini has also created a new frame called Ergo." This group will be part of a Premium line, the top of the range of the catalogue, while the 40 mm stroke model,

named Efficient, will continue to be produced within the Mch range, with the possibility to offer from 300 l/min of Mch16 to 30 l/min of Mch23.

"I would like to point out - says Coltri - that the old model has been completely revised: the cylinders are no longer made of cast iron, but of aluminium, equipped with a new type of wear-proof coating called Gilnasil, patented by Vittorio Gilardoni, whose company also treats our cylinders". "The connecting rods have been redesigned in forged aluminium, no longer cast in shells. We use a new forged crankshaft in steel, no longer a cast iron casting, the flanges are made in die-cast with new moulds, all the fittings and nuts are in stainless steel. All components are produced in house. We also apply the painting in house. These improvements clearly increase the quality of the final product." "All this - explains Coltri - is what the market requires from us. It acknowledges our results and matches the growth of our company. The feedback is immediate because the result of how a compressor works is soon obvious. The high quality of our products pays us off day after day, thanks to a team of people working together with a common goal. Our team is very close-knit - from the design department to production and sales -, and is well-supported by the purchase of new machinery, including a three-axis multi-pallet machining centre for monoblocks, a Y-axis lathe, a CNC lapping machine for machining cylinders, and a double-headed lathe. Moreover, a 3D machine was purchased for prototyping." "Man decides - concludes Coltri -, the machine helps the man. Together, we made a huge step forward".

[www.coltri.com](http://www.coltri.com)

# We are the ideal partner to make the automation you need

Since 1993 we have built efficient and reliable machines which evolve hand in hand with the world business, every line we realize is tailor-made, unique in its kind, efficient and reliable, suited to the client demands.

In El-Mec, we aim to be at the forefront, for this reason we are committed to studying and implementing the ultimate technological achievements available on the market.

We have adopted the lean philosophy, which core idea is to maximize customer value and, thanks to the collaboration of the staff, we aim at the improvement of the plant, guaranteeing the least waste.

We pay specific attention not only to technical issues but also to ergonomic issues, so as to guarantee a functional, clever and safe solution, that would work at full capacity over their entire productive life.

## OUR MARKETS

El-Mec, for over 25 years, is thoroughly present in the automotive, hydraulic and electro-mechanical worlds. Moreover, thanks to our extensive professional expertise, we are successfully operating in other sectors.

Since many years we collaborate with world leading companies of the car industry, which, for over 25 years, rely on us for the realization and development of their projects.

We are active in other markets, such as pharmaceutical and medical industries, mass market products, and more, our adaptability skill and experience allow us to project and realize the fitting assembly machineries for every market.

The hydraulic sector has always been our strong point. The high quality of our plants identify ourselves on the European market, making El-Mec a reference for both the industrial and the domestic hydraulics.

## OUR MACHINERYS TYPES

The modular line is the latest line developed in El-Mec, it meets the needs of reliability, dynamism, and modularity which are the bulk of most of our customers' requests.







This line grows according to the demand of production, with no limits and without affecting the production itself. The line is made of several modules of similar dimension, and all of them have both electronic management and pneumatics, which permits a quick upgrade of the line. The transportation is easy as well, since the division into modules consent moving the line without using big lifters.

-The mechatronic line represents the meeting point between mechanical and electronic technologies, embedding the advantages of both in one solution. The mechanical base guarantees the system high rigidity and the ready answer of the actuators, coupled with

the electronic movements, gives versatile and handling feature. The movements are controlled by electronic axis interpolation, which ensures high flexibility and quickness in production change.

-The rotating table technology is the most used technology in the automation world. It is quick, reliable, and simple, it is used anytime there are few working stations. The movements of the pieces among the different stations during the assembly phases is controlled by one or more rotating tables. Every station is equipped with pneumatic pick and place systems. El-Mec builds machines on rotating tables, integrating them with monolithic easy to transport bedplates.



**EL.MEC** SINCE  
1993

**ASSEMBLY & TEST MACHINERIES**



[www.el-mec.com](http://www.el-mec.com)

# ACM ENGINEERING: High-Quality Motors and Generators

ACM Engineering is an Italian company based in Bardello (Varese), Lombardy.

It is a leading company in the engineering, design and manufacturing of brushless servomotors.

Currently our production includes synchronous permanent magnet motors from 0,3 up to 350Nm and direct drive torque motors from 1 up to 6000Nm.

All our product can be offered in a standard version or in a customized version.

We are able to customize mechanical and electrical parts to suit your project needs. One of ACM ENGINEERING plus is that can we offer our motors with all kind of drive system or a complete solution, drive plus motor, in one pack, thanks to after many year of collaboration with drive leader factory.

Our Technical department is ready to help you to personalize a solution for your application.

The Company is ISO 9001-2000 and UL certified.

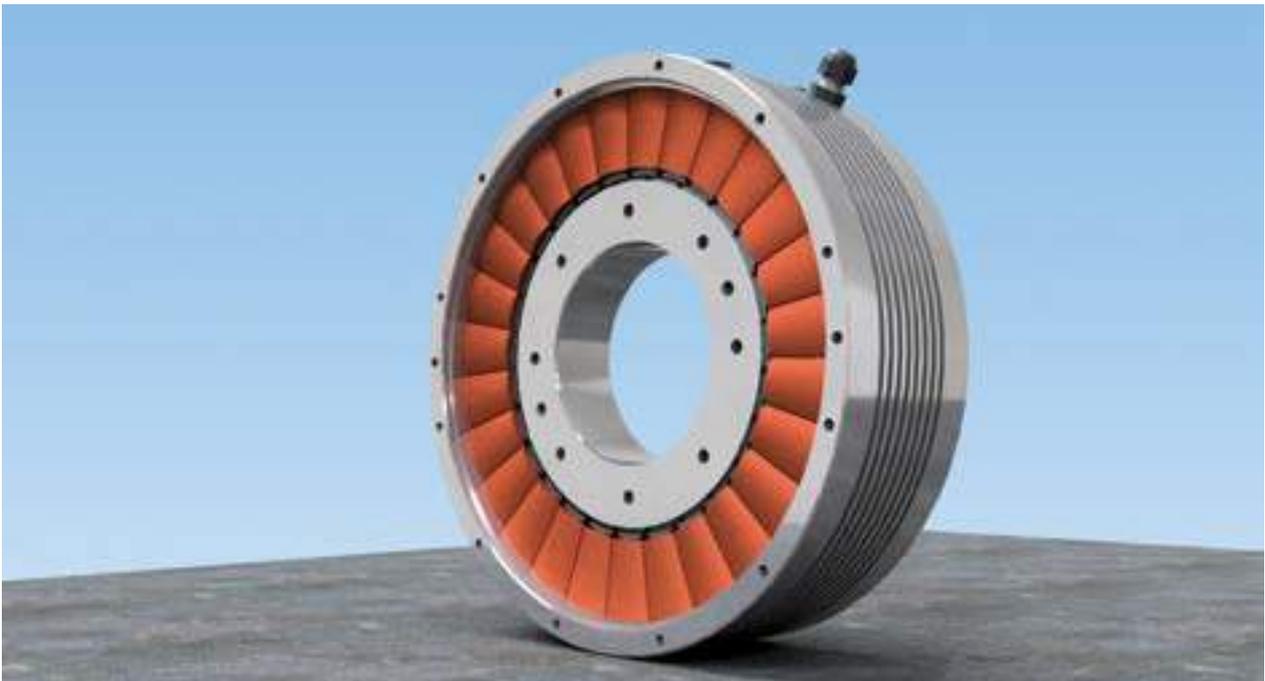
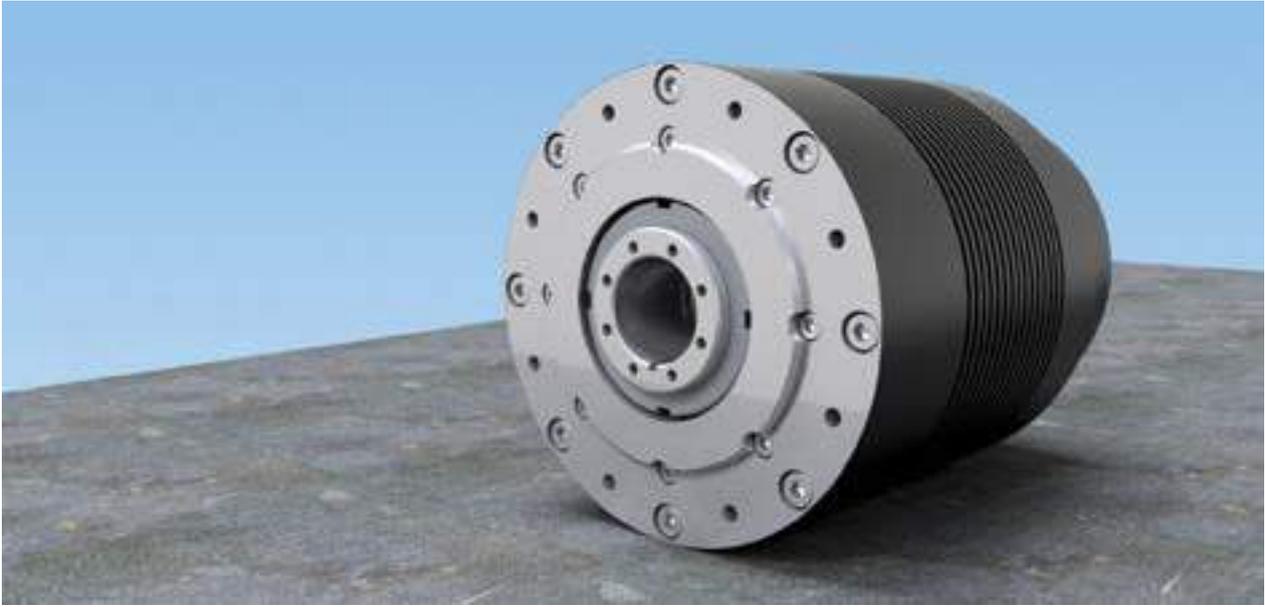
ACM products can be used in the following sectors:

- Industrial automation.
- Machines tools.
- Textile and clothing machinery.
- Wood working machinery.
- Sewing machines.
- Packaging machinery.
- Glass machinery.
- Printing machinery.
- Flexographic printing machinery.
- Roller brushless motors for conveyor systems.
- Jewellery machinery.
- Agricultural and food machinery.
- Plastic machinery.
- Marble processing machinery.
- Serigraph printing machinery.
- Sheet metal processing machinery.
- Wind turbine plants.
- Automotive applications.
- Naval applications.
- Electric and Hybrid vehicle.
- Electric and Hybrid ship propulsion.

[www.acmengineering.it](http://www.acmengineering.it)

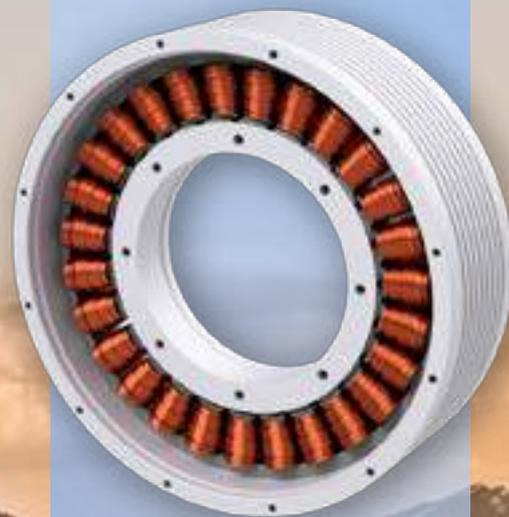






# HIGH QUALITY MOTORS AND GENERATORS

#Industrial automation  
#Textile machinery  
#Printing machinery  
#Plastic machinery  
#Jewellery machinery  
#Clothing machinery  
#Packaging machinery  
#Automotive applications  
#Naval applications  
#Wind turbine plants  
#Electric and Hybrid vehicle  
#Electric and Hybrid ship propulsion  
#And more..



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Via Don A. Camera, 25  
21020 Bardello - Varese (ITALY)  
Phone: 0039 0332.731088  
[www.acmengineering.it](http://www.acmengineering.it)



**CUSTOMIZE YOUR  
MADE IN ITALY**  
[info@acmengineering.it](mailto:info@acmengineering.it)

RÖHM GMBH

# RÖHM GmbH

## Exciting solutions for demanding customers

Founded in 1909, RÖHM GmbH is headquartered in Sontheim an der Brenz/Germany with further facilities in Dillingen and St. Georgen. The company is one of the world's leading clamping tool manufacturers, providing an extensive product offering and in-house, high-performance customized production. Some 1,300 employees manufacture and market clamping tools around the globe, ranging from drill chucks through efficient tool clamping and gripping technology to high-tech power-assisted clamping fixtures. In addition to this, Röhm also develops and manufactures products to customer specifications for virtually all clamping situations and handling tasks. Around 50 percent of the products made in Germany are exported and the company has long since become a global player, expanding its activities in Latin America, Eastern Europe, and Asia in particular. Röhm has 60 agencies and 15 branches worldwide. Gerhard Glanz has been the CEO of the RÖHM GmbH corporate group since September 2017.

### LUBRITOOL,

Machine tools achieve their full capability when they are serviced regularly. HSK clamping sets, for example,

should be serviced after approximately 75 hours of operation or 20,000 tool changes in order to ensure process reliability. Röhm, from Sontheim a.d. Brenz, has developed a special product, Lubritool, for these processes. Lubritool performs the lubrication of tool clamping systems in milling machines and machining centres within 5 seconds – instead of the usual 5 minutes. After being prompted by the machine controller, the maintenance tool is swapped in automatically directly from the tool magazine and provides the HSK-A 63 and 100 clamping set with the ideal amount of lubrication. The result is to reliably have the right lubricant measured out exactly at just the right time. After the process, which takes just seconds, the patent-pending solution moves back into the tool magazine where it remains until the next lubrication cycle.

**KZS Automated centric clamping vises** technology from Sontheim a.d. Brenz .

Optimized technologies and processes always increase the productivity levels of manufacturing companies. This also applies to centric clamping vises, which are used for the stationary clamping of round and angular





workpieces in conjunction with the most diverse machine tools. The newly-improved KZS centric clamping vises are well-suited for, among other things, 6-sided machining involving two clamping operations; these devices stand out due to a series of product advantages. In addition to a compact structure and a high degree of repetition accuracy, they deliver high clamping forces of up to 55 kN, an increased clamping range of 20% and a reduced interfering contour for an optimal chip flow. Several flexible applications are possible - This applies in particular to scenarios involving the use of the devices in 3-axis, 4-axis and 5-axis machining

centers, as well as all the usual zero point clamping systems. From the user's point of view, this area offers the largest potential for optimization. Röhms new KZS centric clamping vises and Easylock zero point clamping system are ideally-suited for automated processes. Both of the products in this range can be operated either pneumatically or hydraulically (e.g. with the help of the machine controls). In particular, this also means that they are ideally-suited for scenarios involving the robot-assisted workpiece loading operations associated with machine tools. This combination offers large cost-saving opportunities.

# Innovative Pipe Solutions since 1969



Sagom Tubi S.p.A. is an Italian company specialised in the study, development and processing of both rigid metal pipes and flexible hoses assembled for various applications mainly focusing on the automotive, engine and tractors market segments.

After being present on the market for the last 30 years significant continuous investments allowed Sagom Tubi to create and strengthen business relations with many of the most important OEMs and corporations thanks to its know-how, experience and reliability.

Sagom Tubi's success is to be attributed to its confidence in a quality management as a set of norms and respect of certifications' requirements which are the foundation of its corporate philosophy and actions taken, from raw materials and processes to the systems and personnel, and last but not least up to quality seen as sustainability and response effectiveness to the market demands.

All of these features together create a productivity and capability able to offer high volumes and constant

quality levels in compliance with the technical IATF and automotive VDA requirements.

Sagom Tubi's core competency is the processing and specifically the bending and shaping processes of pipes according to the customers' needs and requirements performed thanks to highly specialised work force and to a wide range of various specific automatic or semi-automatic equipment, tooling and numerical control machineries.

Sagom Tubi can produce up to 250.000 pcs/month and is capable to process any kind of metal pipes in the diameter/thickness range from 4x0,75 mm to 60x2 mm. Processing activities and procedures such as bending, end-forming and welding are possible thanks to the use of state-of-the-art technologies and equipment manufactured by our sister company and SAG GROUP affiliate SagTools whose work and continuous research are aiming at developing and providing the most stable and effective hydroforming production processes with the support of the long-time experience of its latest acquired company TOSCA Hydroforming.



# COORD 3, Metrology in Focus

**COORD3 SRL** since 1973 is on the market of direct production of measuring machines. Our company is identified in a few words: **MADE IN ITALY / INNOVATION / FLEXIBILITY / QUALITY.**

In MECSPE we present the latest project born - cmm Bridge UNIVERSAL 12.9.8 configured with the brand new blue light **LASER SCAN V7**. The new laser enriches our product portfolio, the V7 is ergonomic, simple, cheap.

The strengths of the V7 are:  
**SPEED / DYNAMIC RANGE / VISUAL FIELD / REAL-TIME INTEGRATION.**

Our Software **TouchDMIS** is a fully functional metrology software suite that makes measurement easy and simple. It's available for portable, manual and CNC coordinate measuring machines.

**TouchDMIS** incorporates floating tool bars to maximize your active screen. Its core functionality is accessed by 8 large buttons that step you through the programming and measurement process.

With just a few simple steps you can: **IMPORT CAD / DEFINE ALIGNMENT / PROGRAM MEASUREMENT PLAN / PERFORM MEASUREMENT / CREATE REPORTS.**

Come and visit us at Hall 3 Stand H71, visit our website [www.coord3.it](http://www.coord3.it) and request your free ticket.





**MODULA**

# Modula; Easy, Accurate, Smart Automated, Warehouse

**WELCOME MODULA SLIM**

February 2019: during the most relevant supply chain european exhibition, Logimat, Modula proudly presented its new Modula Slim: the new VLM, available in 1,3 m/ 1,9 m and 2,5 m tray length, starting from 1,64 m of depth!!!!

The big challenge was to combine all the benefits of a VLM with a Lift Technology in the footprint of a vertical Carousel.

The name is Self-explanatory: Modula Slim. It means that it really is compact, with a new concept of space saving: taking up only 1,6 m depth to store up to 25.000 kg (gross payload)

Think vertical, obviously, as the Modula Slim utilises all the vertical space up to 7 m height. This saves lot of floor space: meaning that it fits in with almost all applications and industries even if you have a very little space. It runs with less than 1,2 kW/h helping to save both energy and the planet.

The Modula Slim you can store any kind of material: cartons, bins, packages, boxes, up to 650 mm height and picking times will be dramatically improved with more than 190 picks per hour.

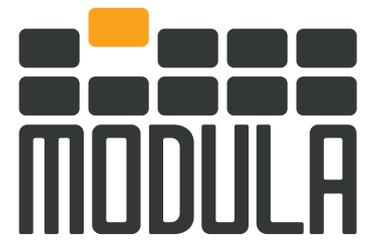
Each tray has a 350 Kg net payload and can stock a variety of different sized items, from large quantities of smaller parts to larger and heavier components.

Individual trays can be subdivided into different compartments, of varying sizes, by using dividers and partitions, allowing segregation of the components for easy identification. This makes it easy for the operator to pick or replenish, especially when combined with our software, Modula WMS, and a variety of picking aids such as the LED bar or Laser Pointer, helping to dramatically reduce operator error.

Another benefit of the Modula Slim VLM is that all of the internal space is fully utilised, thanks to our dynamic tray height storage technology: there are no fixed heights as the Modula Slim is able to calculate the optimal location for each tray and eliminates any wasted space between them.

With Lift technology and the way the elevator moves, there are no problems with unbalanced loads unlike with carousel systems.







Fast but also safe; the safety barriers are designed for operator protection, the picking bay is ergonomic and the emergency button can immediately stop the machine should this be required. The Modula Slim is easy to install and easy to use. It can be installed in any plant in as

little as 48 hours, thanks to its pre-assembled bay. It can also be integrated with various ERP systems, thanks to Modula WMS software pack.

In just a few days your staff will be ready start using it due to the intuitive and user friendly Industrial Touch screen console (Copilot) which has been designed to guide the operators through each activity with ease.

Finally, no constant maintenance worries, that is limited, due to the V-Shape toothed belt transmission system, which is super quiet, requires no lubrication and its self-aligning pulley system means it's super easy to install and adjust. The Modula Slim is a real revolution, the first step for a Lean factory, automated and integrated: using minimum space, with maximum efficiency.

### Modula presents OnePick

Modula, committed to research, development and technological innovation since it got its start, will participate again this year, with two innovations: Modula Cloud and OnePick.

#### OnePick

This innovation regards automation at the highest levels with the new vertical warehouse, OnePick. The innovation lies in the fully automatic bay not requiring an operator.

It is the ideal system to store together:

- Different weights
- Different volumes
- Different shapes
- Different geometries

OnePick has a special picking bay equipped with a robot that travels on two axes (X and Y) and a grip device that retrieves the box and places it on an external floor.

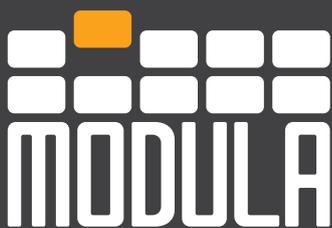
Like other vertical warehouses, it:

- Saves floor space
- Stores items safely
- Automatically manages inventory
- Tracks items
- Saves picking time
- Prevents retrieval and delivery phase errors

The OnePick warehouse retrieves from multiple rows. With an advanced grip device and tray movement synchronization system, retrieval of the boxes is increasingly precise, even when they are difficult to access, impractical and a long way from the workstation that needs the items.

This technology translates into tray space optimisation, the entire surface is used, even when the boxes have different geometry, volumes or shapes. Thanks to the Modula warehouse dynamic tray height storage, the spaces between trays can be optimised and boxes and containers of different unit heights can be stored with great flexibility and efficiency.

# The STORE age



**We are living in the “store age”, where space means time and costs.** Thanks to technology and smart design, VLM Modula vertical storage systems are a new way of utilising vertical space. Modula Vertical Lift Module (VLM) utilizes the full ceiling height of your facility thus maximizing the storage potential. Items are stored in a safe, secure unit and automatically delivered to the operator. An ideal solution for handling, picking and fast tracking of products, to save time and manage space efficiently.

## Think Vertical, Think Modula

[www.modula.com](http://www.modula.com)

## Bosch to assume full control of electric motor manufacturer EM-motive

Stuttgart, Germany, 24.01.2019 – Bosch is now assuming full control of EM-motive, one of Europe's most successful manufacturers of electric motors. Bosch and Daimler set up EM-motive GmbH as a fifty-fifty joint venture in 2011. Since then, it has manufactured some 450,000 electric motors. "For Bosch, the complete acquisition of EM-motive is the next logical step on the path to becoming the market leader for electromobility. It's a chance to establish an even broader presence in the market," says Dr. Stefan Hartung, member of the board of management of Robert Bosch GmbH and chairman of its Mobility Solutions business sector.

"For Bosch, the complete acquisition of EM-motive is the next logical step on the path to becoming the market leader for electromobility. It's a chance to establish an even broader presence in the market" Dr. Stefan Hartung, Member of the Board of Management Robert Bosch GmbH.

Right from the establishment of the joint venture, Bosch secured an option to acquire the shares. A complete takeover was thus already an option in the joint venture agreement. The change in ownership structure will not have any immediate effect on the roughly 340 EM-motive associates currently working at the locations in Stuttgart and Hildesheim, Germany.

"The company's electric motors already feature in vehicles made by Daimler, Porsche, Fiat, Volvo, Peugeot, and StreetScooter, among others. With this move, Bosch above all intends to acquire new customers in the rapidly growing global market," says Dr. Mathias Pillin, the member of the Powertrain Solutions executive management responsible for the electric-vehicle market segment. The existing company EM-motive GmbH will be transferred to Robert Bosch GmbH. The acquisition of the shares is subject to approval by the antitrust authorities.

The two parties have agreed not to disclose the purchase price or any further details of the acquisition. The EM-motive joint venture was set up to make it economical for the two partners to enter electric-motor manufacturing: given the initially small batch sizes, the two companies were able to share the high capital cost of developing and manufacturing electric motors. As a result, Bosch and Daimler were able to enter electric-motor production early.

The motor is a key component in the electrical powertrain: The more efficiently it works, the less energy it consumes, which not only means greater range, but also significantly lower operating costs. Even now, the electromobility business is growing rapidly, and by the start of the next decade at the latest, it will have developed into a mass market.

# TEC.MA srl manufactures SLOT GREASE® refillable automatic lubricator



TEC.MA srl manufactures **SLOT GREASE®** refillable automatic lubricator since 1982.

Available in two sizes, 100 ml and 220 ml.

Made of transparent polycarbonate \*Lexan®, with high mechanical, chemical and thermal resistance.

Sturdy and operating -30°C to +132°C.

**Easy and fast to refill** with all types of grease NLGI 0-1-2-3 from side lubricator.

It has simplified setting for grease exit: 1, 3, 6, 12 months variable at any time.

It displays consumption and allows remote control by means of its full transparency. Immediate activation.

**No battery or gas.** It can be installed indoors, outdoors, remotely, inversely, under water, in either dangerous or uncomfortable points. It keeps lubrication constant and prevents solid matter accumulation. Lubricant installed reserve, reducing lubrication drawbacks, preventing oversights. It saves production stops and very expensive repairs. **Environment friendly:** refillable more times, it avoids constant disposal expenses. **Fully recyclable. Easy and fast mounting.**

3 types, Classic, Oiler, Evo.

**Designed and installed everywhere a point to be lubricated is present:** bearings, bushings, joints, articulated joints, electric motors, compressors, pumps, valves, reduction units, cranes, mills, ovens, conveyor belts, rolling presses, Archimedean screws, vibrating screens, lifts, elevators, presses, rolling mills, fans, turbines, etc.

**Made 100% in ITALY.** [slotgrease.it](http://slotgrease.it)

We are exhibitors at Hannover Messe 1-5 april 2019 – Hall 24 Stand D27

## DIS makes sense

Over the course of 30 years of activity, DIS Sensors has built up a strong reputation in the field of high-quality sensor technology thanks to its great know-how and spirit of innovation. DIS Sensors develops, manufactures and sells sensors for various applications from its headquarters in Soest, in the Netherlands. DIS Sensors offers a wide range of non-contact sensors for measuring inclination, vibration and acceleration as well as rotary encoders. Its sensors can be applied in a number of fields, including: material handling, mobile machines, medical appliances, floodgates, harsh environments, (renewable) energy, oil and gas, elevators and agriculture.

Increasingly stringent regulations are forcing a wider range of equipment and devices to comply with the safety levels SIL2 (as per IEC 62061) and PLd (as per ISO 13489). To meet these standards for functional safety the Industry demands for safety sensors. Therefore both SIL1/PLc, SIL2/PLd and redundant sensors are added to the portfolio.

DIS Sensors is well-known for its customised OEM solutions as well as for its network of carefully selected suppliers, with whom it is able to produce a wide range of products at competitive prices.

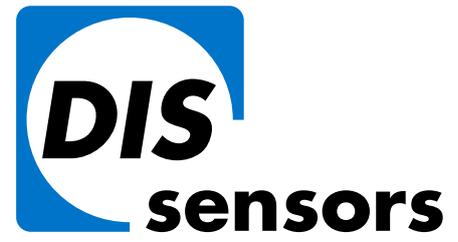
The company's network of distributors ensures exports to more than 30 countries worldwide. Thanks to this, customers can count on local support in case they need help with selecting the right sensor, if they have technical questions or need any kind of advice.

Nowadays the market trend is moving towards "autonomous mobility" for industrial vehicles, which means that companies will have to rely on sensors with "real time" accuracy. This is why DIS Sensors is always studying innovative solutions to face these changes in the attempt to make its sensors performing well in any kind of dynamic environments. Recently, DIS Sensors has developed a new QG65-DYNAMIC sensor platform for inclinometers that incorporates the latest "sensor fusion technology" to meet these challenges.

Innovation and development are key words at DIS Sensors. With this inclinometer stable real-time measurements are possible even during rapid movement. This sensor is a clear example of innovation that was developed as a desire out of the market. It's getting to its last phase of development and the company is going to launch it as soon as the quality meets the requested standard.

DIS Sensors was first awarded an ISO 9001 certificate in 2001; the most recent ISO 9000-2015 certificate was issued in 2018. Furthermore, a growing amount of the product portfolio is UL certified.





**NADI**

# Nadi, Solenoid Valves



Safety, regulatory compliance and reliability are the minimum market requirements and prerogative through which Nadi designs, manufactures and it is present present in the solenoid valves market since more than 25 years.

Explosion proof protection Ex-d certified Solenoid valves: Atex, IECex, EAC Ex (TRCU 012). Suitable for use in the more disparate sectors, especially for environments with potentially explosive atmospheres.

Features and certifications which allowed to the Nadi products to be known, appreciated and as reference products distributed globally in the most diverse industrial sectors (chemical, petrochemical, safety circuits, automation, etc.).

A wide range of solenoid valves for use in safe areas and air-operated valves supports and completes the available

products, covering to the more disparate requirements and application fields.

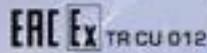
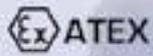
The Quality, Reliability and compliance of the Nadi products with the mandatory regulations are guaranteed by a certified Quality System since 1996.

Nadi technical department, with over 25 years of experience, can support its customers by analyzing their requests, technical specifications or specific applications, helping in the selection and suggesting the more suitable product.

# Nadi<sup>®</sup>

ISO9001 CERTIFIED  
QUALITY SYSTEM  
SINCE 1996

Since 1988 design and manufacture of



certified Ex-d IP67 solenoid valves.  
T<sub>amb</sub> up to -60°C +90°C



IP65 & IP67 solenoid valves

Air operated valves



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# Ablerex power solutions for Industry 4.0



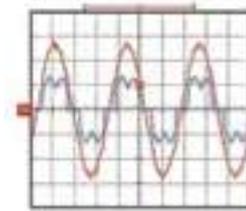
## Taurus 10kVA ~ 80kVA

Industry 4.0, Industrial Internet of Things (IIoT), Smart Factory.... Many words to explain even more different innovations of Industry, but all based on two assets: “clean” energy and IT infrastructure. In fact, all the new and innovative paradigms of industry are based on the massive introduction in the shop floor of electronic devices and functions of any kind. All modern machines are driven by industrial PCs or similar, and they are more and more connected in a network to gather data to implement new production models or even new business models. When electronic devices are present, the need of a flawless and clean supply is there. Industrial machinery becomes sensitive to electric lines disturbances and the need of a UPS becomes urgent. A UPS, and in particular an on-line UPS, on one side provides energy continuity, keeping the machines working even if a blackout appears, on the other side acts like a “washing machine”

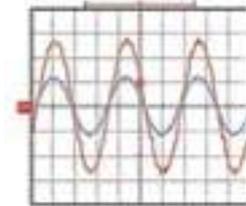
## Mars III RT 6000VA ~ 10000VA

of electricity delivering to the load a perfect sinewave whatever happens at the grid. Ablerex, with its full range of highly efficient on-line UPS, is the perfect partner to chose when looking to supply at best your Industry 4.0. Single phase UPS are perfect to supply one or few machines, while three phase UPS are most adapted to supply the industry datacenter or bigger industrial machines. When the industry issue concerns only the harmonics pollution, Ablerex has can propose the right solution: ENERSINE. This Active Power Filter is capable to remove harmonics up to the 51st, correct the power factor and balance currents, thus helping the grid and the load to perform at best.

In order to guarantee the availability of electrical energy, another aspect shall be considered, redundancy. This concept is very well known and applied in Datacenters



**ENERSINE OFF - THDi = 30%**



**ENERSINE ON - THDi=2,5%**

**APF (Active Power Filter)**

and in typical IT infrastructures and it is now increasing also in Industry. One of the ways to improve redundancy is to use two different sources to supply the same machine. But, differently from servers that are typically double corded, the industrial machines are most often single source. In this case, the use of an ATS or an STS (Automatic Transfer Switch / Static Transfer Switch) is recommended. Thanks to the minimum transfer time perfectly adapted to the supply of IT equipment, Ablerex ATS and STS are the best choice in this application.

But a smart factory is not only a high technology production with strong data gathering, analysis and use: more and more often it also targets the smallest possible carbon footprint. To reach this target the installation of photovoltaics or wind electricity is often the preferred solution. Unfortunately, this kind of energies have three

significant limits: they are intermittent, difficult to predict and present in different time frames vs. operations needs. Therefore, to maximize the use of these energies, it's strongly suggested to introduce some Energy Storage System. Also in this field, Ablerex can propose very efficient solutions, capable to achieve different results like peak shaving or time of use shifting, with a positive impact on both carbon footprint and maximization of self-production use.

Of course, all Ablerex units have onboarded communication functions, plus many options, and they can be directly part of the data network of the industry where they are installed.

Ablerex, the right Power Partner of your Industry 4.0 revolution.

## MTS SENSORS

# What your machine can tell you through R-Series V sensor technology

The goal of the Industry 4.0 is to increase productivity through smart, transformable, and efficient production. Condition monitoring of production plant machinery is an important aspect of this as information for predictive maintenance can be derived and unplanned downtime avoided. During monitoring, not only machine operating data but also usage information is collected in order to be able to carry out process optimization. MTS Sensors supports these data gathering possibilities with the use of R-Series V sensors and the TempoLink smart assistant.

Sensors should not only track and relay the actual measured value, such as position or speed; sensors should also provide information about their own state and, if possible, support the status monitoring of an application with further data. MTS Sensors has taken this requirement for self-monitoring into account when developing R-Series V. At the beginning of the development, two questions had to be answered:

**1. What additional information should a linear position sensor provide on top of the measured values position and speed?**

**2. How should this additional information be relayed to a user or control unit?**

To monitor their own status, the R-Series V sensors provide feedback on the quality of the position signal. This makes it possible to check if the sensor and position measurement are affected by damage or environmental influences. An impairment of the position signal can lead to incorrect measurement and thus to incorrect feedback to the controller.

The total distance traveled and the number of cycles run can be extracted. This data can be used to analyze and evaluate the moving machine parts similar to a car, where a maintenance interval can be defined based on the total distance travelled. The number of cycles run can be used to determine whether many short distances or fewer but longer distances were travelled.

In addition to this, the operating hours and the temperature inside the sensor are tracked and relayed. An increased ambient temperature can shorten the life span of the electronics. Thus, the temperature can be taken into account as a further value in the context of condition monitoring.

For transfer and relay of the additional information, MTS Sensors developed the TempoLink smart assistant. This R-Series V accessory assistant enables the relay of additional information about the status of the sensor. The assistant supports the setup of the sensor in an application and can be used to display and adjust sensor parameters such as resolution, filter settings and direction of measurement.

To display the additional information through the assistant on a device such as a smartphone, tablet, laptop or PC, it is equipped with a Wi-Fi access point. The user connects their device to the TempoLink smart assistant via Wi-Fi and accesses the interface via a web browser. This means that the smart assistant does not have to be integrated into a company network or operated via an app.

Tracking of data and information as well as the following analysis form the basis for Industry 4.0. The amount of additional information that can be relayed via the TempoLink smart assistant will be expanded in the future. Depending on the application, different additional information is needed, always pursuing the same goal: to gain more knowledge about the application. With the R-Series V equipment, MTS Sensors provides linear position sensors and tools which support the recording of relevant machine data. By analyzing the tracked data, the user gets to know the machine better and can identify possible improvements in the production process.



MTS SENSORS



HANNOVER MESSE



# COVAL, The Vacuum Manager



Nature doesn't like empty spaces and does its best to fill them. This is what makes vacuum-based handling system so strong. When the air is emptied from a suction cup, nature does its best to fill the empty space by pulling the suction cup even more tightly against the opposing surface. This is the simple principle exploited by **COVAL** in its suction-based handling system.

**COVAL.** The vacuum you need. Where you need it, when you need it.

Established in the south of France, COVAL sees itself as a Vacuum Manager, designing, producing and marketing high-performance vacuum components and systems throughout the entire world for industrial applications in all lines of business. COVAL markets its products and services throughout Europe as well as in North and South America and Asia, through its subsidiaries and its network of authorized distributors. **COVAL** is an ISO 9001 V2015 certified company that innovates on a global scale in the area of vacuum handling using optimized components with integrated, intelligent and reliable features. Its solutions can be adapted to any industrial context and their primary goal is to improve productivity with safety in mind. COVAL provides a handy guide to the process of choosing a vacuum handling solution. It has been boiled down to a straightforward, three-step process. "We see ourselves as consultants and solution providers, using our knowledge and experience to solve our clients' day-to-day problems", says Marketing and Communication manager Stéphane Garcia. "These solutions are an

integral part of the process of automation currently spreading throughout industry as part of the Industry 4.0 trend." Environmental concerns and energy management play an increasingly important role in COVAL's solutions. "Innovation is extremely important", says Mr. Garcia. "We are currently investing in our vacuum pump development to improve the way they control the vacuum so that just the right amount of energy is used and no more. This is very important from the point of view of saving energy and reducing costs. We are also working on networking options, remote control and even remote error diagnosis and maintenance for our solutions so that they are compatible with the requirements of Industry 4.0." One of COVAL's most recent innovations, its **LEMCOM** mini-vacuum pump with fieldbus communication, was the recipient of a packaging industry award and a mechatronic award even before it had been launched. COVAL's solutions are used in a wide variety of sectors, in which vacuum handling is critical for efficiency and productivity. The most important in terms of turnover is the packaging industry, which accounts for half of COVAL's sales. A further 30% is divided equally between the automotive, aerospace and plastic processing industries. Each application involves differing parameters although the underlying principle remains the same. "This is where our three-step guide and our consultation service come in", says Mr. Garcia. "In the case of existing product lines, we look to see where improvements can be made. First, the installation parameters must be defined, for example



the type of object, its surface composition and weight, and the movement required. This will determine which kind of suction pad and fixing is needed, and then which vacuum source should be chosen. We offer a wide choice so that an appropriate solution can always be found. We can also tailor product to specific needs”.

The Packaging field, COVAL's most important one, plays an important role in industrial production. Vacuum applications in this field range from grasping small bags to handling large-sized cardboard boxes. Their extremely various size, shapes, weights, and materials are a result of the many functions they need to fulfill: hold, transport, and store products, but also inform, promote, and facilitate use.

With the new **CVGL** series, COVAL introduces a universal solution to the Vacuum Gripper: flexible, simple and economical. Handling parts of various sizes, shapes and weights is no longer a complex, costly and time-consuming task. With a single CVGL module, easily integrated into the process, the user can simply and safely perform random gripping of assorted parts. The CVGL series vacuum grippers offer a single solution for the handling of products in multiple industrial sectors: Packaging, Plastics, Metal, Glass, Concrete/stone, Composites, Wood.

COVAL has also recently developed an ultra-compact and light **CVPC** series Controlled Vacuum Cartridges, used to

effortlessly install a vacuum generation system equipped with an electric control, as close to the corresponding application as possible. They perfectly meet the flexibility, customization and performance needs of machine manufacturers and integrators of robotic solutions, who want to easily design flexible, modular and efficient gripping tools.

These ideas, a result of constant dialogue between COVAL and its customers, is a genuine summary of the added value COVAL brings to manufacturers: practical, agile solutions which translate directly into productivity gains. This was confirmed by the first customer applications, under real production conditions in the food packaging sector.

COVAL's success in France is matched by strong export sales. The company has five sales subsidiaries and currently generates half of its turnover abroad. Export will continue to be a focus in the future.

#### VISIT US AT:

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ADVANCED FACTORIES (9-11 April 2019) Booth C316

# Mixed architecture diagnostics down to the last device

What started with a request from a colleague from the Support Department, resulted in the development and testing of the Diagnostics slave functionality of PROCENTEC's ProfiHubs. With this brand-new functionality PROCENTEC delivers diagnostics of networks with a mixed architecture of different protocols, down to the last device. Dave van Cappelle of PROCENTEC's Research & Development (R&D) team explains: "With this new functionality we can track down and pinpoint occurring errors and events in an industrial network very precisely, which helps in preventing downtime. Also, the data collection from the **ComBricks** and **ProfiHubs** can be done quick and easy by using our mobile diagnostics tablet **PROCENTEC Mercury**."

## Receive and read diagnostic data from ProfiHubs with ComBricks

A support engineer from PROCENTEC who just returned from a troubleshooting job at a water treatment plant in England, requested a functionality to look even deeper into a network without having to reprogram the software of a programmable logic controller (PLC). His support job involved a very large network that consisted of PROFIBUS and PROFINET protocols. If it would have been possible to collect data from the installed ProfiHubs through the ComBricks on this job, he would have been able to find the location of the corrupted cable faster than in the current situation. The R&D department immediately recognized the potential of this concept: with such a functionality industrial automation engineers and maintenance managers would save a lot of time signaling possible events and errors in their industrial networks.

## ComBricks and ProfiHubs: a powerful combination

For many years, end users around the world have been relying on PROCENTEC's ComBricks and ProfiHubs. Therefore it was very important to develop and comprehensively test this new functionality. ComBricks make it possible to monitor PROFIBUS and PROFINET networks 24/7. The status of the installation can be checked remotely and over Ethernet via a web browser. The ProfiHub is a multichannel network component that is used to create reliable star / tree networks and complex branches. ProfiHubs are used as signal repeaters and to segment networks, making them more stable and reliable. By combining the strengths of ComBricks and ProfiHubs it would be possible to look through the ProfiHubs' channels using the ComBricks web browser all the way through the entire network. The programming of the new software for the ComBricks Head stations and the ProfiHubs went smoothly. With many years of working experience at PROCENTEC, the R&D team was able to complete the programming without major setbacks. Programming is one thing, but how do you know if you have thought through all possible scenarios that might occur? Dave and his team had to think of a fitting setup that would test this new functionality profoundly.



# PROCENTEC



**FERRANTI**

# Ferranti, Special solutions and strong partnerships

*With this strategy in mind, Ferranti Milano has managed to reach many sectors in very short time, providing a wide range of components that have been selected to meet the most demanding technical requirements.*

Founded in 2007 from the experience gained in the field of ball bearings, positioning machines and transmission belts, Ferranti is a young and dynamic reality in the trade and production of technical components. The company's mission is to offer high-tech and high-quality solutions, developing a great selection of products, working with top brands and having competitive prices. Thanks to its strong partnerships with important manufacturing companies, each product made by Ferranti is carefully produced in order to offer the best technical and commercial solution for its customers' needs. "Throughout our history, we have developed great expertise in the study and implementation of products for specific applications. This is what we want to focus on in the future."

One of the products Ferranti stands out for is a particular type of bearing, which is used to isolate electric currents, also known as eddy currents, that generate in electric motors. These currents can cause untimely bearing failure, which therefore needs to be replaced with high maintenance costs. "These components are manufactured using the most advanced technologies, such as the use of plasma, which allows eddy currents to be isolated up to 250V or up to 1000V for the high-performance model. Our company is the only company on the market capable of insulating ball bearings, cylindrical roller bearings, needle roller bearings and tapered roller bearings."

Ferranti also specializes in machine tools and develops ball screws supports. Flange or square bearings



*F* **FERRANTI**  
MILANO





are available, with embodiment for pairs or two pairs of precision bearings. These supports guarantee maximum rigidity and precision of the screw axis, for sliding with a margin of error close to the micron. Moreover, thanks to its great know-how, Ferranti also produces customized products according to the customer's requested design.

Since Ferranti has a very wide range of rolling bearings in stock, both ball bearings and roller bearings (with holes up to 800mm in diameter), particular attention is given to the following sectors: Power, Oil&Gas, Naval, Steel and heavy industry. Spherical roller bearings, tapered roller bearings, cylindrical roller bearings with 4 or 5 rows of cylindrical rollers (multiroll), radial ball bearings and axial ball bearings - these are just some of the products available in stock. Moreover, most of the roller bearings are made with solid brass cages to support higher loads – a feature that is not easy to find on the market.

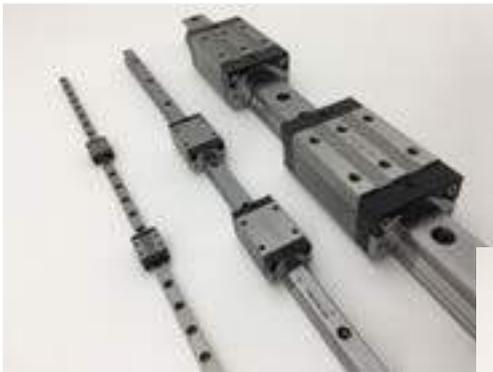
Thanks to the company's facilities and experience, Ferranti is able to produce special bearings for any customers' specific need or to reproduce special types of items that are no longer available on the market. The company can produce many different customizations to suit its customers on the basis of the following parameters: geometry of the raceways of rolling elements or ferrules; balls in different materials (e.g. ceramic) and precision; bearing rings with different diameters and thicknesses; bearing internal clearance.

Ferranti is currently setting up a metrology room that will allow the company to verify the characteristics of the components used by its customers and, in case of problems, to suggest alternative solutions. Ferranti's goal in the future is to organize this area in order to be able to give specific feedback on specific application cases.

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# Eco -Techno: vacuum evaporation plants since 1984

Customized solutions, high quality standards, thirty years of know-how and professionalism are the trademark that distinguishes the company on the market. Leader in the wastewater treatment sector for water recycling and the recovery of raw materials for over 30 years, Eco-Techno is a company specialized in the production of vacuum evaporation and concentration plants, operating worldwide. Headquartered in Busnago in the province of Monza and Brianza, Eco-Techno offers important solutions for all those companies that need a special treatment of polluted water. In addition to the more traditional evapo-concentration plants, the Evaporator Company proposes very specific technologies able to meet every specific application sector and purpose.

Compared to the majority of companies that promote a certain type of plant, Eco-Techno offers various solutions depending on the type of primary power supply: electric for heat pump systems (single or double effect) or mechanical vapor recompression, or with thermal carriers such as hot water or steam, also in single or multiple effects versions. Very precise choices are made on the basis of structural level with regard to the exchange surfaces: immersed coil heat exchanger, plate heat exchanger, tube heat exchanger or more specific systems with forced circulation evaporators and external tube bundle. In this way the Company has been able to expand its reference market and offer the most suitable solution for each application, defining the project only after an in-depth preliminary design phase. In addition to a production area of about 1500 square meters, a large part of the internal space of Busnago headquarters was dedicated to a laboratory for analysis and preliminary tests, performed both with bench instruments and pilot plants. In fact, the company boasts a full range of pilot plants covering all types of industrial versions. Therefore, the preliminary test phases offer very accurate answers in order to confirm the best technology both in terms of energy and quality.







#### Various solutions to meet the needs of each sector.

The waste water resulted from the various industrial processes has very important differences in diverse production sectors, therefore it is wrong to consider that there is a single plant-engineering solution that is always viable. Also in the design of vacuum evaporators there are different types of plants, each with strong points and defects and each one more suitable than others depending on the application.

All basic vacuum evaporation systems separate the water from a solution, by means of evaporation and recondensation in order to always be extracted in liquid form. The evaporation principle is particularly indicated if the pollutants are substances such as metals, salts or

in general "heavy" organic or inorganic compounds or compounds with high-boiling points that are difficult to treat with classical physico-chemical-biological systems or with membranes. The mistake that should never be made is to choose a compromise by adapting to a choice for its economy or plant-engineering "comfort". An incorrect analysis which does not consider this aspect during the preliminary assessment phase would entail unforeseen costs.

More than 3.200 Evaporators installed worldwide are the proof that Eco-Techno's technologies are the best solutions to reach a Zero Liquid Discharge production. Water is one of the most valuable resources, our innovation and continuous product development are based on the vision of a wastewater free future.



[www.eco-techno.it](http://www.eco-techno.it)



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# Industry 4.0 in offshore sector: revolution or valorization of consolidated assets?

Industry 4.0 acquired a central role in the discussions of entrepreneurs, experts, scholars and policy makers about the future of industrial production systems and is considered by many to be a fundamental change in economic and production systems on a global scale. The new paradigm is based on the digitization of factories, the use of internet in industrial processes, and the diffusion of ICT technologies to create intelligent devices, machines and systems.

The importance of the so-called “fourth industrial revolution” still remains unclear since most of the enabling technologies at its basis were already quite commonly adopted in several business sectors.

To this regards, Boston Consulting Group explains how industry 4.0 is based on the implementation of 9 key enabling technologies that allow companies to renew their business models:

- Cloud
- Additive Manufacturing
- Simulation
- Augmented reality
- Big Data and Analytics
- Autonomous Robots
- Industrial Internet of Things
- Vertical and horizontal integration
- Cybersecurity



Leonello Trivelli

On one hand, implementing these technologies, is expected to raise the competitiveness of companies by increasing flexibility, speed and productivity of processes, and the quality of products. On the other hand, it fosters the ability of companies to meet specific customer requests, the optimization of decision-making processes, and the creation of new value thanks to innovative services. In any case, all these innovations are based on the integration of existing technologies and their adoption within production systems.



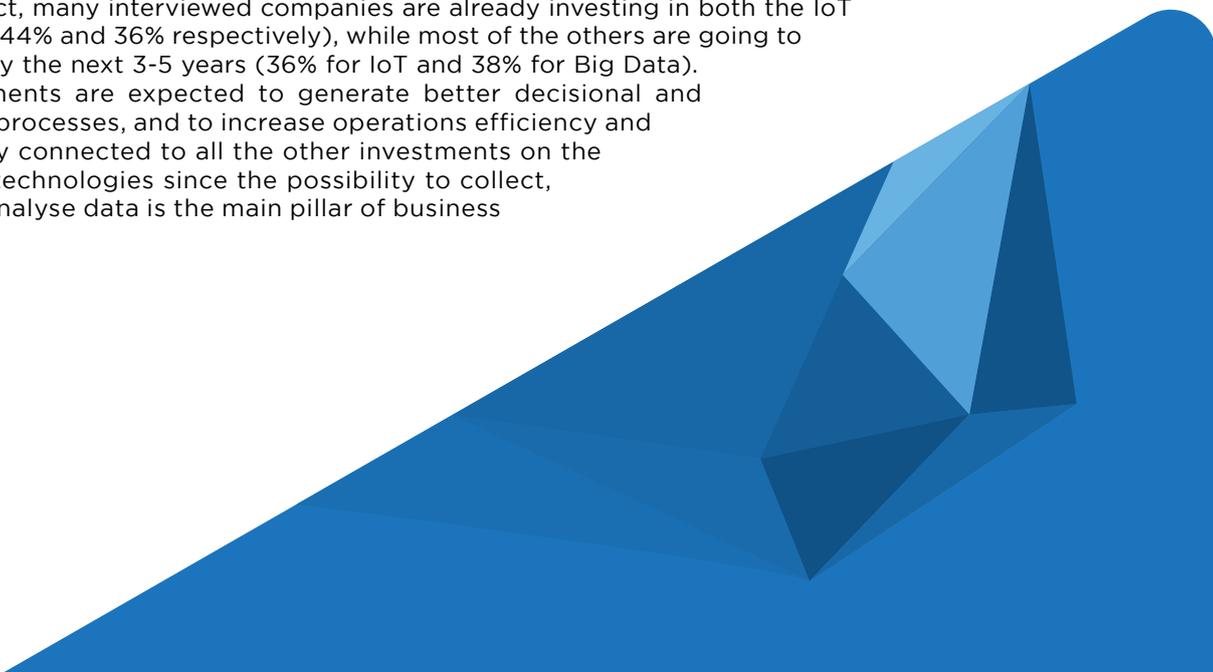
Is such integration that takes the center of the scene and companies' capability to identify new possible developments for existing systems represents the key point for building the Industry 4.0 paradigm.

Offshore businesses are not an exception to this respect, and industry 4.0 technologies enable the development of innovative solutions which generate a wide range of benefits. Industrial Internet of Things (IoT) represents one of the most important technologies in Industry 4.0 paradigm and it opens to new opportunities which foster innovation and digitalization in offshore companies. In particular, IoT and Big data are well known and used in offshore systems and they can be the cornerstone to build digitalized offshore plants.

One of the technologies linked to Industrial IoT is Wireless Sensors Network (WSN) which have been extensively used in oil and gas industry during last years. In particular, upstream sector uses WSNs technologies in exploration and extraction of oil and gas, and to optimize placement operations for oil and gas wells. Midstream sector adopts WSN for pipeline monitoring activities aiming to check pipeline condition, integrity, leakage and corrosion. Downstream sector instead implements WSNs in refinery processes. Despite the large adoption, WSNs still present some issues to be addressed and Internet of Things can help in this. In particular, intelligent IoT well monitoring system allows to obtain detailed data (pressure, temperature, vibration and flow) from oil and gas wells thanks to innovative infrastructures and devices. Smart objects can detect anomalous events and can give alarms or can take decisions accordingly without human intervention. Moreover, predictive maintenance activities could be managed through such devices.

Big data are well known in the sector and they are used in some specific activities, but their value is not completely exploited yet. Indeed, an extensive data collection activity like the one described in the previous paragraph generates huge amount of data which are exploited by Oil & Gas companies in many ways: to identify new drill sites, to ensure sustainable production, to improve subterranean mapping, and to enhance transportation processes. However, according to McKinsey, 99% of the potential value generated by big data is still not valorized and innovative approaches like predictive analytics, data science and machine learning could open the oil and gas sector to new opportunities for generating new profits and for managing offshore plants.

Since IoT and Big Data are already available in the offshore sites all over the world, they can represent the baseline for new investments on Industry 4.0 solutions which help companies to valorize and exploit existing value. To this regard, Accenture shows that these two technologies are the most appealing for upstream oil and gas businesses to invest in. In fact, many interviewed companies are already investing in both the IoT and Big Data (44% and 36% respectively), while most of the others are going to do the same by the next 3-5 years (36% for IoT and 38% for Big Data). These investments are expected to generate better decisional and management processes, and to increase operations efficiency and will be directly connected to all the other investments on the key enabling technologies since the possibility to collect, transfer and analyse data is the main pillar of business digitalization.



### What is the Industry 4.0 revolution about then?

The main differences to be considered are two. The first refers to technologies, today dimensions and costs are reduced and the concrete possibility to perform specific tasks in “real-time” is opened by more powerful and flexible connections and computing systems (cloud computing is one of the most important examples). The second instead refers to managers and operators. People today are more ready to manage such changes and the increasing familiarity everybody have with digital technologies drives the Industry 4.0 revolution. Indeed, Accenture shows that the technologies in which offshore companies are investing more are the mobile devices which every day allow us to organize many aspects of our life.

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# Storing energy in chemicals:

*the concept of smart energy carriers*

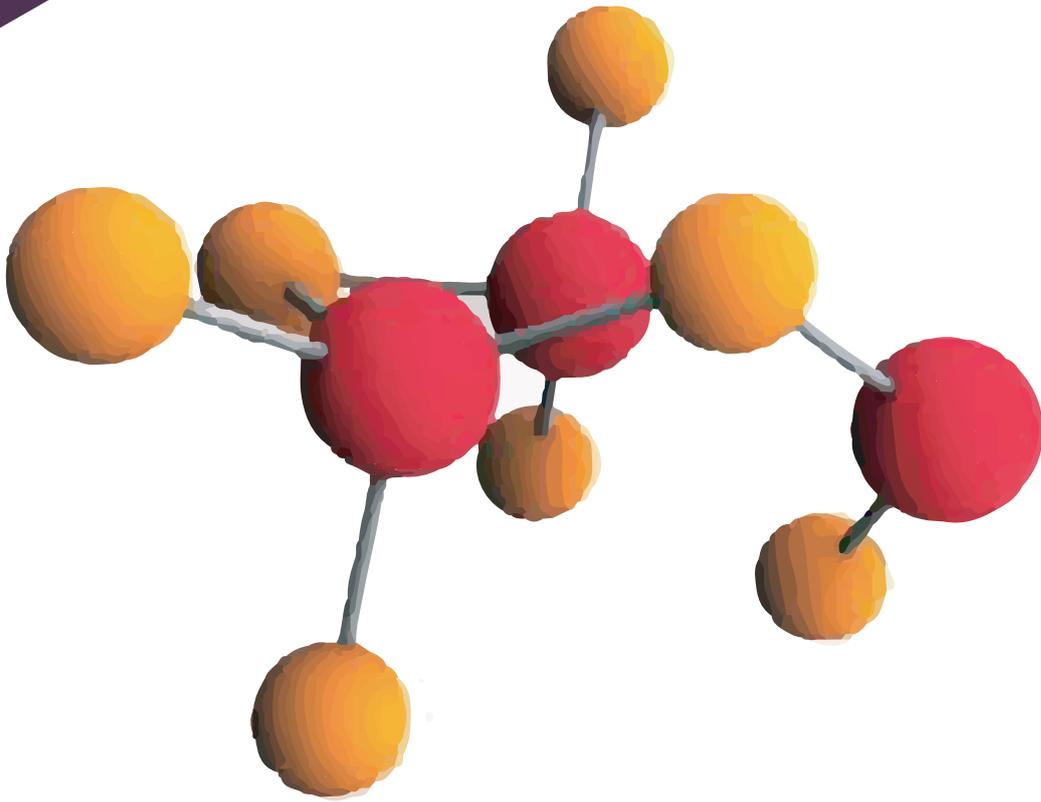
A significant adoption of renewable sources for energy production is expected in the future years to meet the long-term objective of CO<sub>2</sub> neutrality and mitigate the effects of global warming. However, the intermittent nature of renewable sources requires the development of storage solutions that can guarantee the availability of the required energy supply, when renewable sources are not available.

Only relying on Renewable Energy Sources (RES) without backup generation and storage, can lead to an imbalance between demand and generation in the European Union (EU) as large as 12%-24% of the annual consumption<sup>1,2,3</sup>. In other words, future energy systems will have to continue to balance demand with fluctuating supplies from renewables, tackling the challenge of efficient storage systems able to compensate the mismatch between generation and demand in space and time.

Power-to-fuel in combination with Carbon Capture, Utilization and Storage, Biomass-to-Liquids, Waste-to-Fuels and digestion processes, disclose a number of opportunity for efficient energy storage. Indeed, chemical molecules are characterized by large energy densities (tens of MJ/kg), and they are ideal candidates for energy-intensive processes, where the use of renewable sources (e.g. wind and solar) and other storage solutions (e.g. batteries) is not realistic. Energy storage in the form of chemical compounds, sometimes indicated as Smart Energy Carriers (SEC)<sup>4</sup>, will lead to a true integration between renewable sources and existing infrastructures for energy conversion, such as combustion systems. A Smart Energy Carrier (SEC) identifies any molecule (derived from standard, alternative or unconventional sources) locally produced or made available to be safely and cleanly transformed into energy by means of the best accessible combustion technology. A large diversity of SEC is expected in future years, resulting from the transformation of renewables and unconventional sources (e.g. shale oil) into a wide variety of compounds, including hydrogen, ammonia, methane, but also methanol and ethanol, and other synthetic fuels for targeted applications (air and ground transport, power generation, etc.). The availability of different fuel sources is an attracting opportunity to address the challenges associated to the flexibility of loads, and to contribute to a more secure energy supply.



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Politecnico di Milano,  
Milan, Italy*



However, fuel flexibility also poses technical challenges and indicates the need for advanced combustion technologies. Such technologies must be fuel flexible, highly efficient and non-polluting, operating at conditions substantially differing from those of traditional combustion systems. Within the technological challenges to be addressed multiple streams, fuel blends, adaption of burners and systems geometry and complex aerodynamics are only a few examples to optimize the efficiencies, control the reactivity and operate at extreme conditions.

Within SEC recently attracting industrial and academic interests a major role is played by hydrogen, ammonia and methanol. High production costs and storage issues somehow limit the effective use of hydrogen. Despite different routes are viable for its production (electricity, natural gas, biomass, oil, coal, waste) its extremely low energy density (4.5 MJ/L at 690 bar and 15°C) has become the main barrier for its use as a fuel for vehicles.

Ammonia ( $\text{NH}_3$ ) is a promising alternative to hydrogen, as it solves the major challenge of hydrogen storage<sup>5</sup>. In fact, hydrogen can be more efficiently stored in the form of ammonia that is liquid at roughly 9 bar and room temperature. Another advantage associated with ammonia is that it does not release  $\text{CO}_2$  when burned. Moreover, in terms of heating value (22.5 MJ/kg) and energy density (11.5 MJ/L) it looks more promising than liquid hydrogen<sup>6,7</sup>. From a safety perspective, ammonia is less hazardous than petroleum and hydrogen. Its high ignition barrier is often regarded as a drawback, but it should be instead considered as an advantage, strongly limiting the risk of accidental ignition and explosion. However, this feature requires the development of advanced technologies that can accommodate longer ignition delay times in existing facilities for energy and power production. In terms of pollutant production, it is expected that excessive amounts of nitrogen oxides ( $\text{NO}_x$ ) are formed when ammonia is burned. However,  $\text{NO}_x$  formation is a kinetic-controlled process and appropriate combustion technologies, such as MILD combustion, can strongly limit  $\text{NO}_x$  release.

Methanol ( $\text{CH}_3\text{OH}$ ) can be produced via carbon-free processes, if the required  $\text{CO}_2$  building block is obtained from air capture processes or from renewable sources containing  $\text{CO}_2$ , such as biogas. It can be easily upgraded to hydrocarbons that are equivalent to gasoline, jet fuel, and diesel fuel, through Methanol-to-Liquid processes<sup>8</sup>. Its toxicity is similar to that of gasoline, therefore facilitating its handling. Energy carriers are gaining a central role in the scenario of energy production systems as they can be considered a viable answer to energy sustainability while accomplishing supply security issues and limiting the environmental impact. Their coupling with advanced combustion technologies is paving the way to a brighter future for energy production.

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Indra's valves production can be completed with complementary accessories, something that makes the company a favourite and reliable partner for those companies that supply 'packages' of various matching goods.

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The firm is also an ISO 9001: 2008, ISO 14001 & OHSAS 18001 certified by TUV. The factory set-up has a total built-up area of 25,000 sqm with most modern CNCs and testing facilities. Today we are a leading manufacturer in pressure and temperature field.

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# EXXONMOBIL REPORTS TWO DISCOVERIES OFFSHORE GUYANA

American oil and gas multinational ExxonMobil announced additional discoveries offshore Guyana with the Tilapia-1 and Haimara-1, bringing the total number of discoveries on the 26,800km<sup>2</sup> Stabroek Block to 12.

It can be classified as one of the most prolific offshore oil potentials in South America, and it is a relatively recent discovery, which started in May 2015 with the Liza discovery.

ExxonMobil affiliate Esso Exploration and Production Guyana is operator of the Stabroek Block, holding 45% interest in the licence. The discoveries build on the previously announced estimated recoverable resource of more than 5 billion oil-equivalent barrels on the Stabroek block.

Tilapia-1 is the fourth discovery in the Turbot area of the field, which includes the Turbot, Puma and Longtail discoveries. The Tilapia-1 discovery well was drilled to a depth of 5,726m in 1,783m of water, encountering 93m of high-quality oil-bearing sandstone reservoir. The well is located approximately 5.5 kilometres west of the Longtail-1 well.

The Noble Tom Madden drillship began drilling the Tilapia-1 well in January and will move on to drill the Yellowtail-1 well, approximately 10km west of Tilapia-1 in the Turbot area.

“We see a lot of development potential in the Turbot area and continue to prioritise exploration of high-potential prospects here,” ExxonMobil Exploration Company President Steve Greenlee said. “We expect this area to progress to a major development hub providing substantial value to Guyana, our partners and ExxonMobil”.

The other discovery was at the Haimara-1 well, that was drilled to a depth of 5,575m in 1,399m of water, encountering approximately 63m of high-quality gas-condensate bearing sandstone reservoir. It is located approximately 31km east of the Pluma-1 discovery, and is a potential new area for development.

The Stena Carron drillship began drilling the well in January, and will now return to the Longtail discovery to complete a well test.

According to ExxonMobil, there is potential on the Liza prospect in the Stabroek Block for at least five floating, production storage and offloading vessels (FPSOs), which could produce more than 750,000 barrels of oil per day by 2025.

The Liza Phase 1 development is progressing on schedule and is expected to begin producing up to 120,000 barrels of oil per day in early 2020, utilising the Liza Destiny FPSO.

Pending government and regulatory approvals, the company said that it expects to sanction Liza Phase 2 in 1Q 2019. This phase will use a second FPSO designed to produce up to 220,000 b/d. Liza Phase 2 is expected to startup by mid-2022.

Sanctioning of a third development, Payara, is also expected in 2019, and startup is expected as early as 2023.

The Stabroek block is 6.6 million acres (26,800 sq km). ExxonMobil affiliate Esso Exploration and Production Guyana Ltd. is the operator and holds 45% interest, Hess Guyana Exploration Ltd. holds 30% interest and CNOOC Petroleum Guyana Ltd., a wholly-owned subsidiary of CNOOC Ltd., holds 25% interest.



Alessandra Ghinato

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## Header model CS 668



The header model **CS 668**, 6-die progressive header, is capable to handle wire with diameter from 4 mm to 12 mm.

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Cutter holder is guided in order to avoid even minor flexion, while transfer fingers consist of independent finger unit. The part to be transferred is pneumatically serrated by fingers so that the correct air pressure can be applied to each set of fingers as needed.

The oscillating transfer provides for greater flexibility and degrees of operation available for the opening and closing of the fingers; a special device allows to keep the part during the ejection from dies and is specially suggested for the production of short, special and very complex shape parts.

K.O. on punch side is innovative and independent from ram movement, trimming is made with an advanced cam

system which is always assembled on the header and the hydraulic lock of the dies are further devices that make the CS 668 a complete machine.

The header model CS 668, in the version named CS 668 WS, can be equipped with a pre-heating system. The pre-heating system with induction, if housed in a strategic position, allows to heat the material from 600°C up to 950°C and then the it can be transferred in the tooling area. Before the pre-cutting area there is an optical pyrometer that constantly monitors the right wire temperature and drives the transfer finger, in order to avoid the wrong introduction of a short-cut which has not the correct temperature.

A special refrigeration system positioned into the die holder grants the circulation of the cooling oil, while the fire-proof sound enclosure and a proper fire-fighting equipment assure the maximum safety even when working with the extreme situation.

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IMT Intermato S.p.A. started in 1983 its activity of design and construction of vertical lathes for the machining of aluminum alloy wheels.

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Mechanical, software, electrical and plant design, production, assembly and testing are all phases carried out in our headquarters in Crosio della Valle, while other Companies, always on the Italian territory and of which IMT Intermato S.p.A. it is the mother company, realize ancillary machining and some key components. Our products are therefore fully made in Italy.

The international presence is guaranteed by our service and spare parts points, directly managed by us (Indonesia and Germany) or through our close

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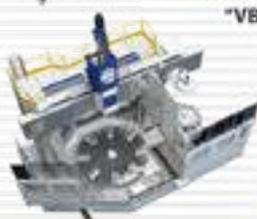
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## Saipem: new Onshore E&C contract for the Arctic LNG 2 GBS Design and Build project worth approximately 2.2 billion Euro. The Saipem share is about 1.1 billion Euro

San Donato Milanese (MI), December 19, 2018 – Saipem, in Joint Venture with Renaissance, a Turkish oil&gas services company, has been awarded a new Onshore E&C project in the Russian Federation worth 2.2 billion Euro overall. As leader of the JV, with a shareholding of 50%, Saipem's portion of the total amount is therefore approximately 1.1 billion Euro.

The contract has been awarded by the company Arctic LNG 2, consisting of Novatek JSPC (60%) and Ekropromstroy Ltd (40%). The project will be executed in the Tazovsky District, in the autonomous administrative region of Yamal-Nenets, in the western part of the Gydan Peninsula.

The project encompasses the construction of three Liquefied Natural Gas (LNG) plants, each with a capacity of about 6.6 million tons per annum (MTPA), that will be installed on Concrete Gravity Based Structures (GBS) and includes LNG storage facilities totalling 687,000 m<sup>3</sup>.

The works entrusted to the JV comprise the Design and Build of the three 30-metre-high Concrete Gravity Based Structures on a surface of 330 x 152 metres. These Concrete GBSs will be fabricated in two dry docks in a Novatek provided facility in Murmansk. Subsequently, they will be towed and installed in Gydan.

The contract forms part of a strategic partnership agreement signed by Saipem and Novatek in 2016 for activities associated with LNG projects.

Stefano Cao, Saipem CEO, commented: *"The awarding of this contract demonstrates how Saipem is fully integrated into the process of energy transition and represents a further success in the high added value LNG sector in which we have been operating for many years and in which, in the recent past, we have obtained important contracts. Finally, the signing of this contract reinforces the presence of Saipem in Russia, a country in which the Company has an important track record in the realisation of both onshore and offshore infrastructures"*.

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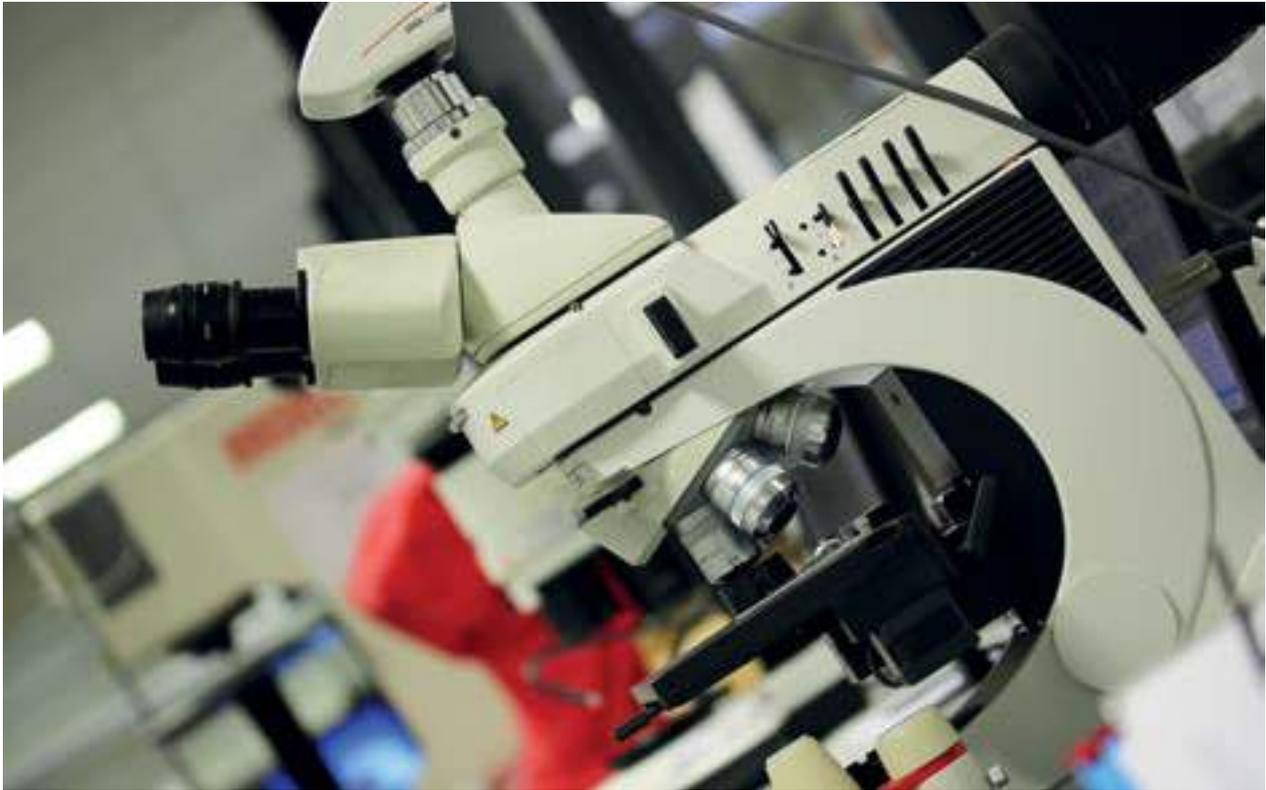
## Approvals

- ISO 15848 C01 BH
- ISO 15848 C02 BH
- API 622 2nd Edition
- Fire Test API 589
- CorrosionTest
- Weight Loss Test EN 14772, section 6.7



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# Metal Services Group Laboratory



METAL SERVICES GROUP is based and active on the market with four companies located in the north east of Italy (LAB.MET srl , METAL SERVICES srl , NDT SERVICES srl), and in the Jiangsu Province of P.R. of China (Suzhou METAL SERVICES Co., Ltd.). Activity is mainly focused on metals and the related manufacturing processes control. All the units are fully equipped as far as concerns both the testing equipment and the machining capacity necessary to get the testing specimen from the samples sent by our Customers.

The services offered to our Customers are including the following items :

- Failure analysis (corrosion related, structure related, fractography, fatigue, stress related, heat treatment related)
- Chemical composition (optical emission spectrometer, Plasma determinator, C – S – O – N – H determinators)
- Mechanical and technological testing, high and low temperature
- Metallography and micro structure defects
- Residual austenite measurement (XRay diffraction equipment)

- Scanning electron microscope analysis ( metallographic structures, fractography, phases identification, local composition EDX assisted)
- Accelerated corrosion tests (ASTM, ISO, NACE, etc...)
- Stress corrosion tests
- Environmental simulation tests (salt spray tests, Kesternick, climatic cell, humidostatic cell, ...)
- NDT - non destructive testing (UT, MT, VT, XRT)
- Welding Engineering support
- Heat treating set-up and experimental heat treating processing
- Samples machining for specimen manufacturing
- Suppliers evaluation (Organization – Equipment – Quality auditing, in process inspection, finished goods inspection)
- Manufacturing processes improving practices
- R&D projects development and supporting
- Deep cryogenic processing (residual stress elimination, wear improving performance, electrical conductivity improvement)
- Tribology tests and wear profile analysis (pin on disk, reciprocating moving)
- Residual stress measurement (strain gauge methodology)



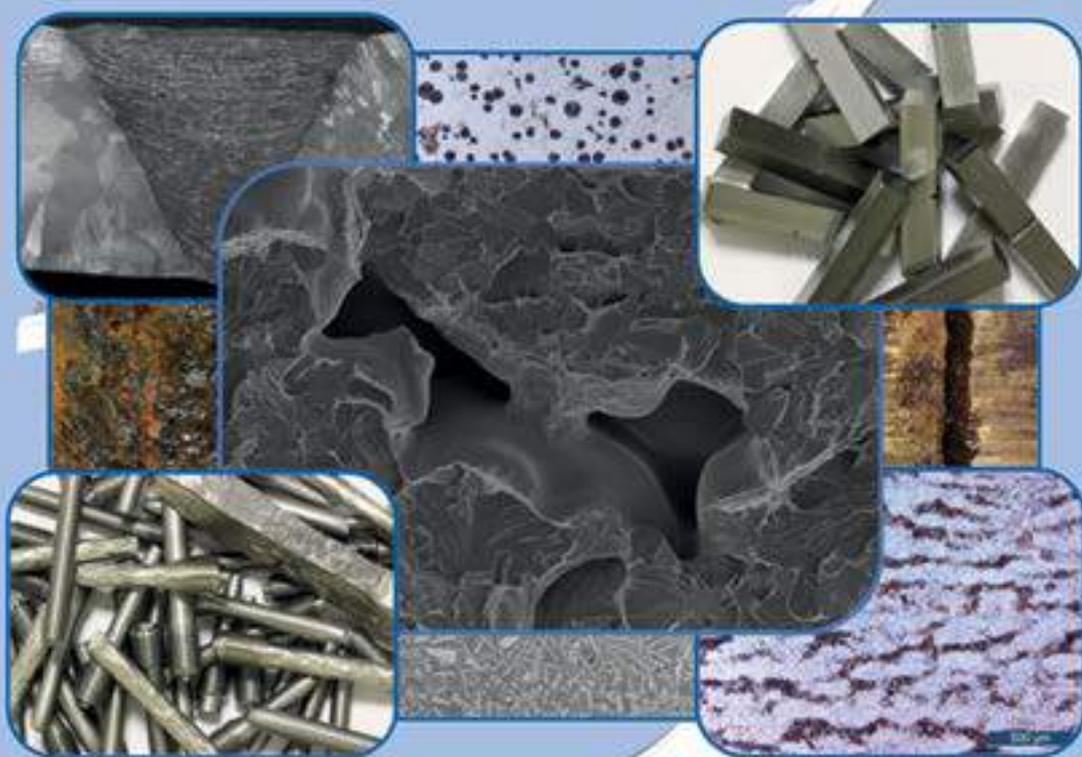
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## Saudi Aramco signs agreements to acquire stake in Zhejiang Integrated Refining & Petrochemical Complex

BEIJING, China, February 22, 2019:

- Two MoUs signed to purchase 9% share in 800,000 barrels per day integrated refinery and petrochemical complex
- Third MoU with Zhejiang Energy aimed at exploring potential investment in retail network in Eastern Region of China, in addition to other related downstream investments

Saudi Aramco today signed three Memoranda of Understanding (MoUs) aimed at expanding its downstream presence in the Zhejiang province, one of the most developed regions in China. The company aims to acquire a 9% stake in Zhejiang Petrochemical's 800,000 barrels per day integrated refinery and petrochemical complex, located in the city of Zhoushan. The first agreement was signed with the Zhoushan government to acquire its 9% stake in the project. The second agreement was signed with Rongsheng Petrochemical, Juhua Group, and Tongkun Group, who are the other shareholders of Zhejiang Petrochemical. Saudi Aramco's involvement in the project will come with a long-term crude supply agreement and the ability to utilize Zhejiang Petrochemical's large crude oil storage facility to serve its customers in the Asian region.

An integral part of the project includes a third agreement with Zhejiang Energy to invest in a retail fuel network. The companies plan to build a large-scale retail network over the course of the next five years in the Zhejiang province. The retail business will be integrated with the Zhejiang Petrochemical complex as an outlet for the refined products produced. Saudi Aramco CEO, Amin Nasser said: "The agreements demonstrate our commitment to the Chinese market and help enhance the strategic integration of our downstream network in Asia. They will further strengthen our relationship with China and the Zhejiang province, setting the stage for more cooperation in the future."

Phase I of the project will include a newly built 400,000 barrels per day refinery with a 1.4 mmtpa ethylene cracker unit, and a 5.2 mmtpa Aromatics unit. Phase II will see a 400,000 barrels per day refinery expansion, which will include deeper chemical integration than Phase I.

# Clean, safe and profitable



## CHOOSE A PARTNER WITH A PROVEN 60-YEAR TRACK RECORD

Oreco non-man entry tank cleaning and oil recovery systems provide high-technology solutions for your tanks - with safe working conditions, minimised emissions and visible cost benefit to your enterprise.

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BFT BURZONI

# BFT BURZONI

## At the top in mechanical machining



Created in 1970 by Alberto Burzoni, the company still reflects the strong personality of its founder, who is always active and dynamic in his work. After 45 years BFT Burzoni is an authentic point of reference in the field of metal chips removal. With its warehouse holding 10 million pieces divided in 45.000 articles available for immediate delivery, BFT Burzoni can meet any need in the sector. How Mrs Arianna Burzoni, the charismatic daughter of the founder, underlines "the tool market is highly specialized and competition is intense. The high quality and up to date technology of our wide range of products is one of the key of our success. In addition to large numbers of standard products, all under the BFT Burzoni trademark, our technical office, run by Pierluigi Pozzi, realizes special products upon customer request, with very short delivery times. Flexibility is one of our main characteristic. Our company logo is a black panther with yellow eyes, which reflects not only the corporate colours, but our agility and speed." Another strong point in BFT Burzoni is the team. There are 30 people working in the company and 22 agents under Sales Director Gian Luca Andrina "Twenty operates in Italy and two in Germany, while other countries are served by retailers. Essential for our sales agents is the technical competence, they are able to advise a client regarding the right product. To find the most performance tool means to save significant amounts of time and money for our customers." In 2019 Bft Burzoni will be present in three important fairs: Mecpse in Parma, 28-29-30 march, IVS in Bergamo, 22 e 23 May, and EMO in Hannover from 16

to 21 September. EMO is a very important worldwide exhibition and for BFT Burzoni is an important appointment to increase the foreign business. BFT Burzoni is a constantly evolving company and during these exhibitions will present four new line of products: BDRILL, a complete line of indexable drills 3xD, 4xD and 5xD, with 4 cutting edge inserts suitable for all materials and with one geometry especially engineered for stainless steel and heat-resistant super alloys. CU-DRILL, a complete line of

indexable drills 3xD, 5xD and 8xD. The spade drills cover from diameter 8 to 26 and have different grades that are able to machine every kind of material. CASTORO LINE, a complete and innovative line of PARTING-OFF, GROOVING, TURNING inserts. A new grade combined with a special geometry is very performing in inconel and all other heat-resistant super alloys machining. CNMG 120408, will complete the range of the successful Gold Panther turning inserts with very performing grades and innovative geometries. Alongside with new products BFT Burzoni boasts the grades CCT35 and CCD40 successfully affirmed on the market. They are very performing in all kind of stainless steel, Duplex, Superduplex, titanium, inconel and all heat-resistant super alloy, they grant high toughness under extreme temperature conditions, permitting high cutting speeds and longer tool life, as well as absolute reliability during both milling and turning machining processes. The company's portfolio has innovative products specifically manufactured for mould and die market; we will be proud to present a new patent concerning a super finishing head mill. BFT Burzoni commercial networks has all the requirements to take up the great challenge of the future with the utmost enthusiasm.





45.000 items.



10 milion pieces  
ready for delivery.

[www.bftburzoni.com](http://www.bftburzoni.com)

# IPL, Reliability, Punctuality, Support and Warehouse

IPL manufactures and sells nuts, bolts, studbolts, hex bolts and threaded rods, standard and special to adopt costumers' requirements.

IPL can supply customers with these kinds of products quickly and skillfully.

Material used: **ASTM A193** (alloy and stainless steels), **ASTM A194** (nuts in carbon, alloy, martensitic, austenitic and stainless steel), **ASTM A320** (carbon and stainless steel), **ASTM A182** (duplex and superduplex), **ASTM F468** (monel), **ASTM B637** (inconel – hastelloy), **ASTM A453**, **ASTM F467** (non-ferrous alloys).

The company can supply treatments and coatings as crucial phase of the production:

- Hot-dip galvanization ASTM F2329-F2329M
- Electrolytic zinc-plating (White – Yellow – Black ) ASTM B633
- PTFE Xylan® 1070-1024 etc. Coatings Blue / Green / Red / Yellow
- Xylar® 1 or Xylar® 2 ceramic coating
- ASTM B700 silver plating
- Geomet®
- High-salinity environment cadmium plating ASTM B766
- Nickle plating ASTM B689
- Zinc-Nickel plating ASTM B841
- Electroless Nickel plating (ENP) ASTM B733

IPL's costumers service is one of the most considered aspect of the company and can be summarized in 4 key words: Reliability, Punctuality, Support and Warehouse.

Quality, nevertheless is the most important component of our product line, that is why IPL is certified with **ISO 9001:2015** and its products with the following International certifications: - **ADWO** - **PED**

Moreover, the following experimental tests can be carried out upon request on every product:

- Mechanical testing of hardness, tensile stress, impact testing and proof load testing
- Metallographic testing
- Stress/ creep testing
- Ultrasound testing
- Test dye-penetrant
- Dimensional inspection
- ASTM D6677 adhesion testing
- ASTM D968 Corrosion testing
- ASTM B117 Saline environment corrosion testing
- Chemical analysis
- PMI (Positive Material Identification) testing





## MAMMOET EXPANDS THEIR TUG AND BARGE SERVICES IN THE MIDDLE EAST

*Mammoet has formed a strategic partnership with marine equipment owner, Astro Offshore. Astro Offshore owns and operates a fleet of offshore support vessels, including a variety of tugs and barges, providing services to oil & gas construction projects throughout the Middle East, Africa and Asia.*

**Partnership with Astro Offshore reinforces Mammoet's position as a complete solution provider.**

The deal expands Mammoet's capacity to provide comprehensive solutions in on- and offshore transport for oil and gas construction projects in the Middle East.

Both companies are major players in the transportation market for oversized cargo and are pre-qualified with the main EPC contractors around the globe.

Martijn Kuipers, Managing Director of Mammoet Middle East and Africa said: "As barging is a critical aspect in the transport chain for all future Oil and Gas projects in this region, our new partnership will bolster our available barge and tug fleet in the region, and accordingly further strengthens our services in on- and offshore transport. With Mammoet's state-of-the-art equipment, extensive expertise in marine engineering, dedicated team of naval architects, combined with the resources and the knowledge provided by Astro Offshore, we can offer a complete package of heavy lifting and transport services, from port to foundation, for any project at any location."

"There is no engineered heavy lift and transport specialist in the world that has the extensive and longstanding expertise that Mammoet has. We have been involved in the petrochemical industry for decades and have a proven track record in every service we deliver. Our projects have included: ADNOC's Shah Gas Project back in 2010, the KNPC Clean Fuel Project, Chevron's El Segundo Refinery, Saudi Aramco's Shaybah NGL, Shell's Pearl Gas-to-Liquid project in Ras Laffan, Jangkrik FPSO, Yamal LNG, Gorgon LNG and the Gudrun platform, to name just a few," he added.

Mark Humphreys, Managing Director of Astro Offshore Pte. Ltd commented: "We are pleased to announce this exciting partnership with Mammoet of which we believe will not only strengthen ties with existing customers, but new ones as well. Whilst harnessing Astro's and Mammoet's strengths, we believe the partnership can provide a plethora of 'door to door' turnkey transportation solutions.

The synergies of both companies will further allow us to provide an unrivalled solution for our customers, leveraging on past projects experiences of executing large transportation jobs within the Middle East and subcontinent. Transportation projects that have been executed by Astro within the Middle East and Subcontinent comprise of D1 Development Project (Essar Projects), Phase-1 of Nasr & Umm Lulu Field Development Projects (Larsen and Toubro), 19 Platform Jackets, (Saipem).

The timing of the partnership comes at the right time for the Astro group, as we have shown a continued growth in the last few years in what could be considered as one of the most challenging eras' in the offshore market."

Source Mammoet



# Compression Service Technology Your rotating equipment experts

C.S.T. was founded in Florence, Italy, in 2002, was initially composed of just four people and worked as a service engineering provider for an Italian O.E.M., mainly for reciprocating compressors.

The first turn-around for the company happened in 2004 when we started the process to transition into being an independent service engineering provider.

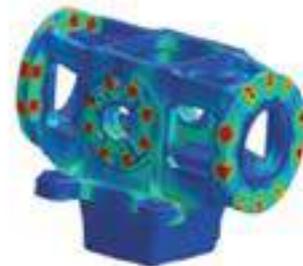
One of our first endeavors was to set up a remote monitoring and diagnostic service for reciprocating compressors. Then, in 2005 we started with our design of machine components, mainly still for reciprocating compressors. A few years later the company designed its first compression package for underground storage of natural gas.

While at first we used existing simulation software for component design, around 2010 we started to develop our own proprietary software for performance simulation, followed by software for pressure pulsation, vibration, and rotor-dynamic analyses (including torsional, lateral, modal and stability analysis). Today, we employ also Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), Fluid-Structure Interaction (FSI), failure mode analysis, acoustic studies, bearing stress analysis, and virtual prototyping.

Another milestone was set in 2011, when C.S.T. started its Consultative Services and Troubleshooting for turbomachinery. These include centrifugal compressors, steam and gas turbines and centrifugal pumps, which soon brought us also to the design of machine components for centrifugal compressors.

The latest step was to add to the company's competences also the design and execution of complete compressor







system projects. This service is comprehensive of engineering, with piping acoustical and structural studies, instrumentation and control, up to material requisition, procurement specification, bill of material (BoM), balance of plant (BoP), testing and supervision, and total project management.

Our company is presently made by four main divisions: Machine design, System engineering and construction, Service and Remote Diagnostic and Research and Development. Thanks also to the integration with highly qualified partners, technical universities, high-performance computing centers, and international regulatory bodies, nowadays C.S.T. is capable of offering full-scope customer support from the conceptual design to the final project execution, and on to troubleshooting, remote monitoring and diagnostic, revamping, conversions, upgrades, asset lifecycle management, site service and field supervision.

In the span of 15 years C.S.T. has transformed from a local maintenance engineering provider, into an international player for critical machine applications in the Oil & Gas and other industrial sectors. The Company staff is nowadays of about 50 people and while at the beginning the company business was almost 90% in Italy, in the next year C.S.T. expects to reach 50% of sales from foreign markets, offering a quick mobilization capability for any project all around the world.

Our clients come today from a wide range of industries including Machinery and equipment OEMs, Equipment Packagers, EPC Contractors, End Users, Service Companies.

We think that the main reason of the success of CST stays in the capability to work on the complete machinery cycle, which allows the continuous transfer of the field experience to the new design and vice versa the possibility to face the field problems with the design competence.

# From Machinery Design to Lifecycle Optimization

Customer Service



Machinery Design & Plant Engineering

Remote Monitoring & Diagnostics

- Reciprocating Compressors
- Centrifugal Compressors
- Steam Turbines
- Pumps
- Diagnostic Systems
- Lubrication Systems



### Special Analyses

- Piping Acoustical Analysis
- Torsional Analysis
- Lateral Analysis
- Fatigue Analysis
- FEM Analysis



### Machine Design

- Design of new machines
- Modernization of components
- Performance enhancement
- Piping Fluid-dynamic Optimization



### Lubrication Systems

Complete system optimized for:

- Flexibility
- Precision
- Redundancy
- Unscheduled shutdown prevention



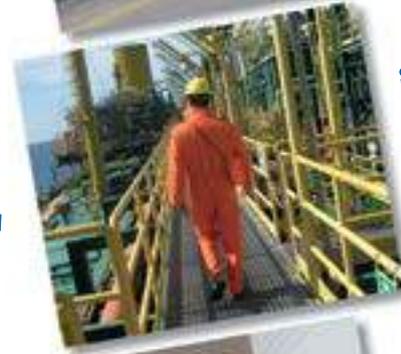
### Revamping & Rehabilitation

- Feasibility studies for new operating conditions
- Machine Upgrade & Uprate
- Machine Modification & Conversion
- Rehabilitation of damaged machines



### Technical Consultancy Services to EPC Contractors

- Documents for RFQ
- Technical evaluation and bid alignment
- Project Execution and Follow-up
- Site Support for Commissioning and Start-up



### Service and Diagnostic

- Field inspection and Measurements
- Failure Analysis and Troubleshooting
- Machine Optimization
- Predictive Maintenance
- Diagnostic Systems



### Training courses for

- Site Maintenance Engineers
- Erection Supervisors
- Rotating Machinery Engineers

**CST - Compression Service Technology S.r.l.**

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[www.cstfirenze.com](http://www.cstfirenze.com)



**CST**<sup>®</sup>

Compression Service Technology

## GAMBAROTTA GSCHWENDT

# Gambarotta Gschwendt: 100 years of history, 100 years of reliable products.



For almost a century Gambarotta Gschwendt has been designing and manufacturing heavy machinery for bulk material handling with particular engagement in the cement field. Thanks to its continuous research and development efforts and thanks to the quality of its equipment aimed at guaranteeing the maximum reliability, Gambarotta Gschwendt maintains a stable position among the leading manufacturers for the cement sector.

The range of products is focused on:

#### •PAN CONVEYORS

Metallic slat type, Deep bucket conveyors and Box conveyors (standard and special execution), for Clinker and similar materials. Capacities exceed 1000 Ton/h.

#### •APRON FEEDERS

Apron Feeders for extracting heavy and lumpy materials from silos and hoppers. No limits on capacity and material size. Surface feeders.

#### •ELEVATORS

Bucket Elevators: high and low speed, with single or double chains, with shackles or round link components, with bushed type chains, with rubber belt. Capacities up to 2000 Ton/h, lifting heights of 140 m, material sizes up to 400 mm.

#### •DRAG CHAIN CONVEYORS

All type of Drag Chain conveyors with single, double or multiple chains for conveying and extracting. Capacities range from 10 to 1250 Ton/h, width from 190 to 3000 mm.

#### •SCREW CONVEYORS

All type of screw conveyors, mixers, humidifiers with full flights, ribbon flights and paddle flights in normal and stainless steel. Complete supply of dosing and weighing systems, special design for the chemical Industry.

•**BULK LOADERS** for open and closed trucks (normal and heavy duty version; for cement, ashes, clinker and other materials.

•**CELL FEEDERS** in carbon and stainless steel with capacities up to 500 Ton/h,

#### DOUBLE-ACTING FLAP VALVES, CUT-OFF

**VALVES** with needle gate, sliding or rotating gates, etc.

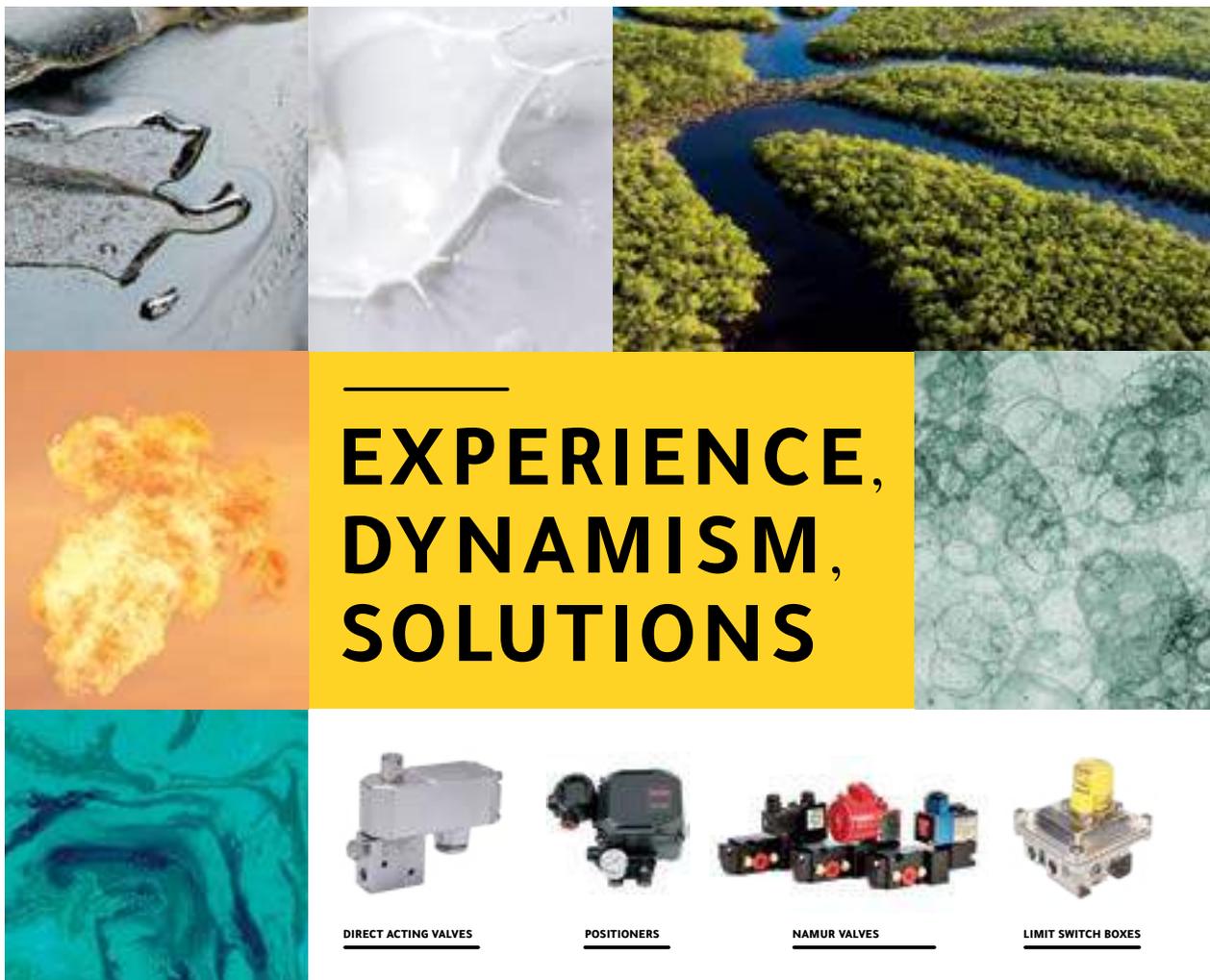
Cooperation with different cement plants worldwide and major engineering companies so as the experience acquired through installed machines have allowed Gambarotta Gschwendt to develop state-of-the-art technology and to offer tailor-made equipment. The constant updating of the design solutions, which are supported and confirmed by the data collected following after-sales activities at customers, ensures a steady improvement in order to offer highly specialized and durable machines. Skills developed in the cement sector as well as a consolidated, global presence, make Gambarotta Gschwendt a reliable and expert partner, ready to face international challenges caused by globalization and increasing market complexity. Designing efficient and integrated solutions and optimizing production processes thanks to the identification of innovative and custom made solutions make the difference.

Gambarotta Gschwendt: 100 years of history, 100 years of reliable products. Visit [www.gambarotta.it](http://www.gambarotta.it)

Mail: [gambarotta@gambarotta.it](mailto:gambarotta@gambarotta.it)



# LGM Engineering expertise and solutions for more than 20 years



**EXPERIENCE,  
DYNAMISM,  
SOLUTIONS**

**DIRECT ACTING VALVES**

**POSITIONERS**

**NAMUR VALVES**

**LIMIT SWITCH BOXES**

It is well-known that the process industry is a world in which both innovation and change represent the key-factors to succeed.

Born in the new millennium, LGM Engineering has always built with partners strong relationships of collaboration and support to provide the maximum service in terms of quality, professionalism, expertise and trust.

LGM Engineering expertise is given by the solid technical heritage of knowledge, competencies and experiences matured in the industry by working with the major operators in the European and world automation scenario.

Aiming for excellence, starting from customers' needs is the best way to gain results. This mindset together with the dynamism in responding to market requests in the best way possible, make LGM Engineering service fit

for each sector, from Oil & Gas to fire fighting and from marine industry to machine tools industry. Moreover, LGM Engineering product range is the wider within the market and counts on: Limit Switch Boxes, Solenoid Valves, Air Filter Regulators, Fittings, panels, Gas over oil specific equipment and Positioners

Want to know more? Visit [www.lgmengineering.it](http://www.lgmengineering.it) and follow us on LinkedIn



## WEIROIL&GASTOPARTNERWITH NASH MECHANICAL SEAL SERVICES TO EXTEND ROTATING EQUIPMENT SERVICES OFFERING

### Agreement To Allow Weir to Complete Mechanical Seal Service Utilizing Nash Expertise

DUBAI, United Arab Emirates, 16 Dec., 2018 – Weir Oil & Gas Dubai announced today it has signed a contract with Nash Mechanical Seal Services to partner on the repairing and upgrading of any brand of mechanical seal. The license, component supply and service agreement will see Weir extend its rotating equipment services offering to include a mechanical seal service. Nash will deliver the technical knowledge and skill relevant to the repair and upgrade of products and will provide the expertise, components, and when necessary, repairs, to allow for the success of this process.

Weir's rotating equipment services provide customers with world-class manufacturing, services, and repairs. "Partnering with Nash will allow us to extend our rotating equipment service offerings and deliver more value to customers," said Ronan Le Gloahec, Eastern Hemisphere President, Weir Oil & Gas. "Nash has a proven reputation of quality and expertise when it comes to the repair of mechanical seal service, and we look forward to leveraging this partnership to provide customers with the best services possible." "Our partnership with Weir Oil & Gas Dubai will enable them to supply a more encompassing service to their customers and also offer them a choice they currently do not have" said Barry Hoyle, Managing Director, Nash Mechanical Seal Services.

From North America to the EMEARC region to the Asia Pacific, Weir Oil & Gas solves customers' engineering challenges and improves oil and gas operators' efficiencies with a global product offering and localized service capabilities that meet the needs of each operating environment.

About Weir Oil & Gas

Weir Oil & Gas provides superior products and service solutions to make our customers more efficient and lower total cost of ownership.

More customers choose our pressure pumping solutions than any other. We provide well service and stimulation pumps, flow control products, replacement expendable parts and supporting engineered repair services. Weir's Pressure Control solutions include wellheads, API valves and frac trees, managed pressure drilling equipment including chokes, separators and containment equipment. Globally we deliver engineered oilfield and drilling equipment repair and certification, mechanical and rotating equipment repairs and upgrades, rapid prototyping of spare parts, robust asset management, Operation & Maintenance and field engineering services.

Discover more at [www.global.weir](http://www.global.weir).

About NASH

NASH Mechanical Seal Services provide world class aftermarket services for engineered mechanical seals that reduce our partners reliance on the traditional mechanical seal OEMs.

We deliver repair & upgrade services for all brands of engineered mechanical seals utilized on high duty pumps, mixers and turbomachinery. The markets we serve include upstream oil and gas, crude and gas pipelines, refineries, power, desalination, chemical, pharmaceutical and coatings/inks. Our customers range from Mexico to Singapore and from Norway to South Africa.

Discover more at [www.nashseal.com](http://www.nashseal.com)

# THE NEW GENERATION

**BANDSAWMACHINESFACTORY**



## **FMB has been producing band saw machines for metal cutting since 1982.**

Its present range is made of 30 models whose cutting capacity goes from Ø220 mm up to Ø 540 mm together with a complete set of solutions for material handling. In all these years the basic concepts of our machines have always been the same:  
**quality, solidity and reliability.**

Even today, our new models, introduced at the end of last year, have these same characteristics and the changes they present are simply the consequence of technological progress.

**FMB, fusion of technology and tradition so to offer our customers the best solution.**

**FMB s.r.l.**

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## INOXDADI

# One of the most important European producer and distributor of nuts, bolts, threaded bars...



“INOXDADI S.R.L.” founded in 1973 is one of the most important European producer and distributor of nuts, bolts, threaded bars, washers and fasteners in steel, stainless steel, brass, titanium, aluminium and exotic alloys. Our company covers a total area of 20.000mq, including about 7.000mq of building area. The factory of about 4.000mq is located in Galignano (CR); warehouse and head offices of 3.000mq in Barbata, small village 10 Km far, placed on the side of national road Milano-Brescia-Venezia, very easy to reach from Milan. Our registered capital worth 5.990 million euros and the gross investment of million euros. For the great experience developed on the field of nuts for over 30 years, “INOXDADI S.R.L.” can boast a large number of consolidated customers, especially wholesalers, and deal with a wide range of items turned out in various sizes and grades. Upon request, all the items produced can be provided with certificate of chemical analyse. “INOXDADI S.R.L.” wants to be always in step with the time: technological development and active research for new performing materials assure to Inoxdadi a foreground place in innovation field. So, to satisfy our growing customers’ demands for items in special materials, we have structured a new purchase dept. focused on particular materials and bought new machineries to work sophisticated and technologically advanced materials like Inconel, Incoloy, Hastelloy, Nimonic, Titanium, Duplex, Monel 400, Super duplex (W 1.4410 and W 1.4501), 254SMO, ... and so on. These are excellent raw materials: they have a great resistance to corrosion caused by acid,

alkaline, caustic, oxiditer or chlorated chemical agents, in addition to an high mechanical properties resistance at elevated temperatures, a very good quality and a long lasting endurance which allows their usage in a lot of different fields. The applications are various and range from petrochemical processing to marine industries, from aerospace industries to nuclear reactors, from chemical processing to pollution control, from industrial furnaces to gas turbine components, from hydro-carbon processing equipment to heat exchangers, from waste treatment to desalination equipment,... and so on. In addition we are able to manufacture special fasteners in all grades, in accordance with customers own drawing, offering our partners top quality articles and good purchasing conditions. We have an open mind always ready to start a new production, to make our articles known everywhere in the world. Our aim is to find materials more and more innovating to create different items which can help us to develop our business also in the most unexpected fields, where a standard stainless steel isn’t enough, but a particular material can generate a significant turning point. Providing quality products and improving production processes is very important for us, which is why we are starting to focus on industry 4.0. We have seen how the market is moving and it is important we remain competitive.



# Cartelli Segnalatori is a leader of the Italian safety market since the early 60's



Cartelli Segnalatori is a leader of the Italian safety market since the early 60's as manufacturer of safety signs and supplier of safety products with a strong brand and a huge distributors network.

Many years of field experience with its up-to-date safety and latest legislation and regulations knowledge.

Based in Milano, Italy the Company covers an area of 17.000 sqm of offices, manufacturing and warehouse and employs about 70 people.

The manufacturing capability offers a wide range of standard signs and symbols where to choose; 10.000 references always available in stock.



The production department has a daily production capacity of over 13.000 signs and an annual production of about 3.000.000 pieces.

We are able to satisfy the needs of our customers for customized signs with multiple choice of materials, sizes and performances.

In the last 7 years the Company heavily invested in automated production process and digital printing to satisfy the needs of our customers for customized signs: materials, compliance, sizes.

The production is fully integrated to the company ERP to meet the customer requirements and to reduce the manufacturing lead time and keep an update products stock based on customer satisfaction.

The performance and inks durability of the surface's signs has been tested over the years with an accelerated ageing test to prove that our products can fulfill the highest qualitative requirements typical of the weather and environment conditions of the oil & gas and chemical industry business.

Furthermore the design and graphic department is capable to support our customers in the development of custom signage with their expertise on regulatory, technical and graphic subjects.

# airprotech srl

Member of  Deurotech Group



FLARES



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RTO

air protection technology

[www.airprotech.eu](http://www.airprotech.eu)

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## MARATHON OIL SIGNS AGREEMENT FOR DIVESTITURE OF U.K. BUSINESS

HOUSTON, Feb. 25, 2019 -- Marathon Oil Corporation (NYSE: MRO) announced today the Company has entered into a share purchase agreement through its subsidiaries for the sale of its U.K. businesses Marathon Oil U.K. LLC (MOUK) and Marathon Oil West of Shetland Limited (MOWOS). The transaction represents a complete country exit for Marathon Oil.

MOUK holds a 37 to 40 percent operated interest in fields in the Greater Brae Area, and MOWOS holds a 28 percent interest in the outside-operated Foinaven Field unit and 47 percent in Foinaven East. The buyer, RockRose Energy PLC, will assume all obligations associated with MOUK and MOWOS operations in the U.K., including decommissioning liability.

Subject to customary adjustments, the closing consideration payable to Marathon Oil will be approximately \$140 million, which reflects the assumption by the buyer of MOUK and MOWOS working capital and cash equivalent balances, which were approximately \$350 million on Dec 31, 2018.

"Today's announcement to divest our U.K. business represents our continued commitment to portfolio management and further concentrates our portfolio on high margin, high return U.S. resource plays," said Lee Tillman, Marathon Oil chairman, president and CEO. "I'd like to recognize the significant contributions of our U.K. employees – both current and past – who built and have operated the Brae Field for more than 30 years."

Though there remain certain contractual requirements that must be satisfied, the transaction is expected to close in the second half of 2019, with an effective date of Jan. 1, 2019. At year-end 2018, the Company carried 21.4 million barrels of oil equivalent of proved reserves in the U.K., and 2018 production averaged approximately 13,000 barrels of oil equivalent per day.

**WE CARE ABOUT YOUR COOLING:** Our focus is on keeping Customer's businesses running 100% efficiently and reliably

**Specialized to supply customized chillers  
for special applications**



**Hitema® International** with 30 years' experience is today a specialist manufacturer of **customized units** for process cooling and industrial comfort applications.

## OUR STRENGTHS:

- HIGH AMBIENT TEMPERATURE AIR COOLED UNITS
- LOW PROCESS TEMPERATURE APPLICATIONS
- FREE COOLING
- HIGH TAILOR SUITED SOLUTIONS
- ECOLOGIC REFRIGERANTS WITH LOW GWP
- STRONG SELF-MADE FRAME



**HITEMA s.r.l.**

Via Mons. G. Babolin, N. 14 35024 Bovolenta - Padova - Italy

Tel. +0039.049.5386344

[info@hitema.it](mailto:info@hitema.it) - [www.hitema.com](http://www.hitema.com)

## D-KTC FLUID CONTROL

# D-KTC Fluid Control, Your EPC Partner



"Y" Strainers Cast



"Y" Strainers Forged



Flame Arrestor



"Flow" Indicators



"Conical Temporary" Strainers



"Tee" Strainers

D-KTC Fluid Control is a complete manufacturer of strainers, sight flow indicators, sample coolers and special equipment that has been supplying its products to Petrochemical, Chemical, Power, Nuclear and Onshore / Offshore industries worldwide since its establishment in 1998.

It is one of the few companies worldwide that produces a complete range of strainers and is therefore able to offer the best type and style of products / solutions to meet customers specifications and applications. Over the years D-KTC Fluid Control has developed an extensive range of pipeline ancillaries, Sight Flow indicators, Sample Coolers, Conical, Y and Tee type Strainers, Bucket strainers and, thanks to our special engineering division, strainers for special applications. All items can be supplied in carbon steel and stainless steel and are available in very short delivery times directly from our stock.

Customized materials are also available on request. Manufacturing execution can be forged, cast or welded fabricated depending on the type and size.

D-KTC Fluid Control can supply strainers from ½" to 82" for ratings up to 4500 lbs. Whenever additional ancillaries (especially for steam plants) are required, D-KTC Fluid Control is able to complete the package supplying also all the other products manufactured within the CHERO GROUP.

D-KTC Fluid Control's quality, environment and safety systems are certified according to ISO 9001, ISO 14001, OHSAS 18001, PED 97/23/EC, TRCU 019/032 and ABSA. Our quality assurance department ensures that our quality assurance, environment and safety procedures are respected and implemented throughout the entire cycle of the manufacturing process.

Within our technical department part of the staff is also dedicated to research and development, to enable our company to implement improvements or brand new products on a regular basis.

For any further detail or additional information concerning D-KTC Fluid Control, or its partners - ARMSTRONG INTERNATIONAL and CHERO GROUP- visit our website [www.dktcfluidcontrol.com](http://www.dktcfluidcontrol.com)

# OMR, The best solutions for wire winding



O.M.R. S.r.l was established in 1978 in Torre Boldone in the province of Bergamo, ITALY.

In the early years the company has entered the world of winders assisting the various customers and offering technical assistance and design. Over the years OMR gained a solid experience that led to the creation of the first winders with the OMR brand in addition to the production of textile accessories (tubes, king-spools, cones).

In the 1990s OMR acquired another factory where it started the production of the machines. In the following years OMR has always invested in cutting-edge technologies and innovative ideas. Investments that have led the company to start designing and manufacturing braiding machines and re-winders, expanding the product range. For over 40 years the goal is to improve, to improve thanks to the know-how gained and the passion of employees in the development of customized machines to meet every possible need. Each machine is made according to customer requirements, customization and attention to individual customers are the basis of OMR!

Throughout its history, it has always sought quality all round. Not only in selling, but in remaining present for the entire life cycle of the machine. Thanks to an experienced world agent network, O.M.R. follows its machines and its customers in all areas and clarifications, offering an attentive, timely and extensive service focusing on an efficient post-sales management. Prepared and experienced technicians, automatic warehouses with thousands of spare parts available, allow you to be ready and quick to solve any eventuality.

The strategic and technological heart of the company is a solid know-how, the professionalism of human resources and the continuous investment in innovation. For this reason, OMR sells its machines all over the world in the most varied sectors (textile, automotive, medical, electric cables, metal wires ...) always aiming at customer satisfaction.



## WEIR OIL & GAS AWARDED CONTRACT WITH EXPRO FOR REPAIR OF POWERCHOKE® PRODUCTS

### Weir To Provide Enhanced Manufacturing Repair and Recertification Status

DUBAI, United Arab Emirates, 16 Dec., 2018 – Weir Oil & Gas Dubai announced today it has signed a contract with Expro to provide authorized repairs, specifically for Expro's PowerChokes® product range. The Authorized Repair Facility agreement will see Expro customers send PowerChokes® products to Weir Oil & Gas Dubai's facility to capitalize on Weir's Original Equipment Manufacturer repair and recertification status.

"Expro is delighted to partner with Weir in delivering a world-class drilling choke solution in the Middle East," said Jeff Messer, General Manager of PowerChokes®. "We manufacture some of the world's most advanced chokes and control consoles, which can be used in a range of applications including underbalanced and managed pressure drilling. Our alliance with Weir will leverage their strengths in repairing and manufacturing oilfield equipment and provide our customers with a comprehensive drilling solution."

Oilfield and drilling equipment repair and certification, reliable Operation & Maintenance Services in Oil & Gas & Power Plant, robust asset management, engineered mechanical and rotating equipment repairs and upgrades, rapid prototyping of spare parts, and field engineering services are delivered globally by Weir Oil & Gas Services based in Dubai, UAE. Weir Dubai also offers a state-of-the-art facility for manufacturing and repairing oilfield equipment.

"Weir has a strong, recognized reputation in the Middle East when it comes to being a solution provider, and we are excited to partner with Expro to enhance the reach of our services even further," said Ronan Le Gloahec, Eastern Hemisphere President, Weir Oil & Gas. "Expro provides an excellent caliber of drilling choke solutions and we look forward to working with their products to achieve mutual success between Weir and Expro."

From North America to the EMEA region to the Asia Pacific, Weir Oil & Gas solves customer challenges and improves oil and gas operations from manufacturing to repairs.

About Weir Oil & Gas

Weir Oil & Gas provides superior products and service solutions to make our customers more efficient and lower total cost of ownership.

More customers choose our pressure pumping solutions than any other. We provide well service and stimulation pumps, flow control products, replacement expendable parts and supporting engineered repair services. Weir's Pressure Control solutions include wellheads, API valves and frac trees, managed pressure drilling equipment including chokes, separators and containment equipment. Globally we deliver engineered oilfield and drilling equipment repair and certification, mechanical and rotating equipment repairs and upgrades, rapid prototyping of spare parts, robust asset management, Operation & Maintenance and field engineering services.

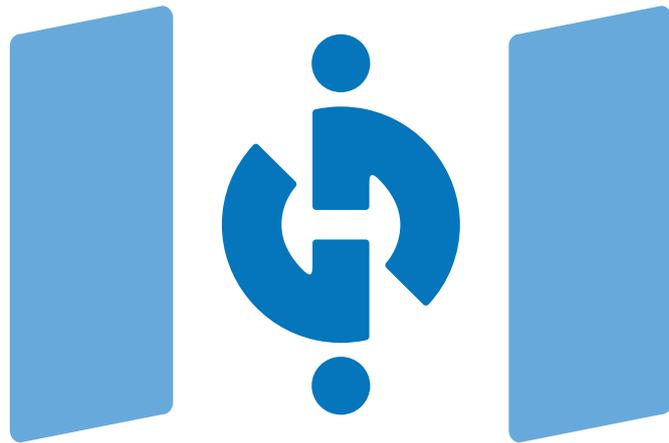
Discover more at [www.global.weir](http://www.global.weir).

About Expro:

Expro's mission is well flow management. We provide services and products that measure, improve, control and process flow from high-value oil and gas wells, from exploration and appraisal through to mature field production optimisation and enhancement.

For over 25 years, Expro's PowerChokes business has designed and manufactured some of the world's most advanced chokes and related equipment for severe service drilling, flowback, well testing and production.

Full details on: [www.exprogroup.com/aboutus](http://www.exprogroup.com/aboutus).



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## Mocap, Solutions that Fit



After many years of activity, MOCAP still wants to apply its know-how on plastic moulding to implement its presence on the hydraulic systems in the Oil&Gas industry. MOCAP was founded in Missouri in 1982 as a small dip moulded vinyl production unit, and soon became one of the largest plastic and rubber moulders in the world. Over the years, MOCAP has proudly expanded its facilities, capabilities and product lines to better serve its ever-growing customers.

Mocap's production facilities are located throughout the world and use only the latest dip moulding technologies to supply solutions to worldwide companies from its own facilities. The newest, wholly owned and operated plant in Zhongshan, Guangdong, China, complete with an in-house tooling & mould making shop, allows MOCAP to offer very low tooling costs and highly competitive prices.

MOCAP offers protection solutions including vinyl caps and plugs, threaded caps (for gas fittings, metric threads, etc.), tapered caps, pipe protectors and flange protectors. The range of products are designed in different materials to best meet any customers' needs.

Moreover, MOCAP has recently brought to the market its very own X-TREME TAPE – a self-fusing silicone insulating & repair wrap with no adhesive. Originally developed for U.S. military applications, X-TREME TAPE has been tested and proven in the most extreme conditions and environments.

It withstands extreme temperature, pressure, voltage, moisture, corrosion and contaminants. Here is a list of its main features: it withstands over 260°C without stiffening; it remains flexible to -62°C; it has an incredible 700 PSI tensile strength; it insulates to 8,000 volts per layer and stretches up to 300%. It can be used as a sealing tape and will repair plumbing, vents, ducts and hoses.

MOCAP has a large selection of sizes and styles in stock to meet all needs. The company is always ready to find the best solution for its customers and is also happy to send free samples before ordering, so that the customer may verify the part will work as expected for its particular application.

# MOCAP® Solutions that Fit

Caps and Plugs for Protection, Finishing and Masking



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**MOCAP FREE SAMPLES**



# Africa Energy made Significant Discovery and Opening of New Petroleum Province Offshore South Africa

The oil and gas company Energy Corp. announced a significant gas condensate discovery on the Brulpadda prospects located on Block 11B/12B offshore South Africa. Africa Energy holds a 4.9% effective interest in the Exploration Right for Block 11B/12B. Africa Energy Corp. is a Canadian oil and gas company with exploration assets offshore South Africa and Namibia. The Company is part of the Lundin Group of Companies and is actively building an exploration and production portfolio across Africa. Africa Oil holds an indirect interest in the project as a result of its equity interest in Africa Energy (35%) and Impact Oil and Gas (30%). The Brulpadda discovery is located 175 kilometers off the southern coast of South Africa on Block 11B/12B in the Outeniqua Basin that covers an area of 19,000 square kilometers.

The Brulpadda well was drilled in approximately 1,400 meters of water by the Odfjell Deepsea Stavanger semi-submersible rig. The well targeted two objectives in a deep marine fan sandstone system within combined stratigraphic/structural closure. Following the success of the main objective, it was deepened to a final depth of 3,633 meters and was successful in the Brulpadda-deep prospect.

The well encountered a total of 57 meters of net gas condensate pay over two Lower Cretaceous high-quality reservoirs. Core samples were taken in the upper reservoir, and a comprehensive logging and sampling program was performed over both reservoirs.

“The Brulpadda discovery opens a new world-class oil and gas play with substantial follow-on potential. The success at both the Brulpadda primary and secondary targets significantly de-risks four other similar prospects already identified on the existing 2D seismic. The Block 11B/12B partners plan to acquire 3D seismic this year, followed by up to four exploration wells” commented Garrett Soden, Africa Energy’s President and CEO.

The company looks forward to following up the upcoming drilling programs in Guyana and Namibia. The Guyana block will be the focus of a multi-well drilling program in May by operator Tullow and will test the updip extension of the major discoveries in the Starbroek block made by ExxonMobil. Africa Oil will gain exposure to this play through our 19% holding in Eco. The Venus well in Namibia, which the company has exposure to through our 30% interest in Impact Oil and Gas, is planned to be drilled later this year by Operator TOTAL.



Alessandra Ghinato



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# *AUTOMATION*

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# Get Ready For The Connected Industry

Radical change awaits us, in which entire operating flows will be transformed. Flexibility and individualized production and logistics are prerequisites for remaining competitive.

## **Intelligent, efficient, Industrie 4.0**

Industry 4.0 offers endless opportunities for German companies. Small businesses in particular have new challenges to overcome. The road to the smart factory is not lined with intelligent machines alone.

Manufacturing facilities that share information with work pieces and call a technician for help if needed? This vision becomes reality with Industry 4.0.

Machine production is networked into a self-learning system using cutting-edge communication technology – resulting in a smart factory. The foundation for this modern industrial revolution is the Internet of Things (IoT), which enables continuous data exchange between all participating units – from the production robot to inventory management to the microchip. This connects all production and logistics processes together, making our industry more intelligent, efficient and sustainable.

## **Small steps to the smart factory**

To move closer to this vision, more and more companies are integrating smart machines into their production process. Trumpf, one of the world's largest providers of machine tools, uses laser cutting machines with intelligent lenses, for example. If a lens becomes dirty, it automatically sends an alert to the maintenance team. This saves the company unnecessary servicing and cleaning costs.

Software manufacturer SAP has gone a step further in digitization: In the Open Integrated Factory, an autonomous process chain, work pieces inform the various manufacturing systems about how they should be processed. The machine can register the work piece's information, manufacture different versions of a given product and even learn new production processes while doing so.

## **Security gaps**

Smart machines are not uncommon even in small businesses these days. According to a survey by consulting firm BCG, one in every five German companies has already launched its first digitization measures. But small companies in particular still view Industry 4.0

with skepticism. Their main reason: the lack of data security. To counter these risks, research institutes such as the Fraunhofer Institute are working on new approaches to industry security. Complex attack scenarios are modeled in virtual test laboratories, in order to optimize existing security systems and develop targeted prevention strategies.

### **Smart training**

Along with security gaps, many companies also complain of the lack of qualified workers. Because standardized, simple tasks are increasingly performed by robots in Industry 4.0, workers' need for meaningful IT expertise is growing. In a survey by the German Federal Association for Information Technology, Telecommunications and New Media (BITKOM), 94 percent of the 559 surveyed companies reported that work in their manufacturing processes will require more extensive interdisciplinary expertise in the future. Specialized further education measures already exist and are being used in daily business to integrate insufficiently qualified workers into Industry 4.0. For example, smart data glasses guide employees step by step through the repair of a complex system, while smart gloves can immediately notify the worker if a component is incorrectly mounted.

The IAMD and Digital Factory flagship trade fairs at HANNOVER MESSE showcase in presentations, demos and conferences how closely the virtual and real worlds will interconnect in the future.

Source Hannover Messe,

**INDUSTRIAL  
TECHNOLOGY**  
*editorial office*

## Rockwell Automation and Schlumberger Enter Joint Venture Agreement to Create Sensia, the Oil and Gas Industry's First Fully Integrated Automation Solutions Provider

*New joint venture entity will combine Rockwell Automation's integrated control and information solutions with Schlumberger's oil and gas expertise to help customers maximize the value of their investments.*

MILWAUKEE and HOUSTON, February 19, 2019

Rockwell Automation, (NYSE: ROK), the world's largest company dedicated to industrial automation and information, and Schlumberger, (NYSE: SLB) the world's leading provider of technology for reservoir characterization, drilling, production, and processing to the oil and gas industry, announced today that they have entered into an agreement to create a new joint venture, Sensia, the first fully integrated digital oilfield automation solutions provider.

The transaction is expected to close, and the joint venture is expected to begin serving customers, in the summer of 2019, subject to regulatory approvals and other customary conditions.

The Sensia joint venture will be the first fully integrated provider of measurement solutions, domain expertise, and automation to the oil and gas industry. It will offer scalable, cloud and edge-enabled process automation, including information and process safety solutions. From intelligent systems to fully engineered life-cycle management automation solutions, the joint venture will help customers drive efficiency gains through measurement and data driven intelligent automation.

"Oilfield operators strive to maximize the value of their investments by safely reducing the time from drilling to production, optimizing output of conventional and unconventional wells, and extending well life," said Blake Moret, Chairman and CEO, Rockwell Automation. "Currently, no single provider exists that offers the end-to-end solutions and technology platform that address these challenges. Sensia will be uniquely positioned to connect disparate assets and reduce manual processes with secure, scalable solutions that are integrated into one technology platform.

"As oil and gas producers strive to improve productivity, we will bring the value of the Connected Enterprise to life for them. Sensia will provide complete lifecycle and process automation solutions from well to terminal, including industry-leading oilfield technology and expertise," said Moret.

"Sensia will create a leading technology provider that will further drive optimization of E&P oilfield assets," said Paal Kibsgaard, Chairman and CEO, Schlumberger. "This joint venture is the next step in our vision to offer our customers smart, connected devices with rich diagnostic capabilities, coupled with measurement, automation and analytics that improve oilfield operations, facilitate business decisions and reduce total cost of ownership throughout the life of a field."

Under the terms of the agreement, Sensia will operate as an independent entity, with Rockwell Automation owning 53% and Schlumberger owning 47% of the joint venture. Sensia is expected to generate annual revenue of \$ 400 million and will employ approximately 1,000 team members serving customers in more than 80 countries, with global headquarters in Houston, Texas. The management team will be led by Allan Rentcome, who will serve as Chief Executive Officer. He is currently Director Global Technology - Systems and Solutions Business at Rockwell Automation.

As part of the transaction, Rockwell Automation will make a \$ 250 million payment to Schlumberger at closing, which will be funded by cash on hand. Following this investment, Rockwell Automation will maintain its strong financial flexibility and continue to support its capital allocation priorities, including organic growth and acquisitions, dividends, and share repurchases, and Rockwell Automation reaffirms its \$ 1 billion share repurchase target for fiscal 2019.

Rockwell Automation will discuss the joint venture during its presentations at the Citigroup Global Industrials Conference on Wednesday, February 20, 2019 and the Barclays Industrial Select Conference on Thursday, February 21, 2019. Both presentations will be webcast, and available on the Rockwell Automation website at [www.rockwellautomation.com](http://www.rockwellautomation.com).

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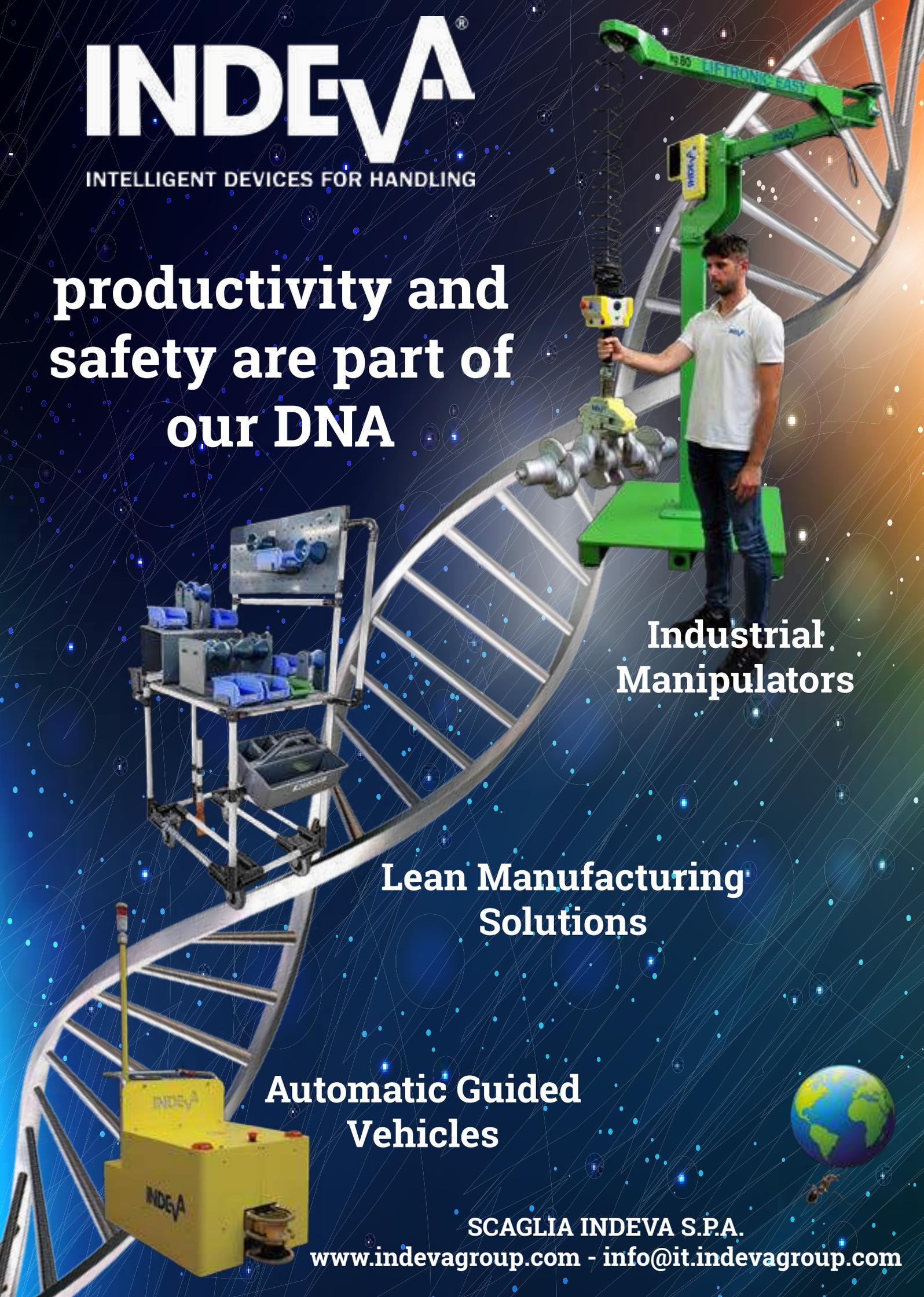
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# Intelligent Material Handling Technology



The Liftronic® Series, known as INDEVA® is a new generation of advanced industrial manipulators featuring electronic control. They represent the evolution from traditional manipulators and are part of the innovative product group of load handling devices known as **Intelligent Assist Devices**.

This series is equipped with an **advanced electronic control system** which overcomes the control limitations of pneumatic manipulators. They provide truly ergonomic and effortless handling.

The INDEVA® Liftronic® series offers numerous **important and unique advantages over a traditional pneumatic manipulator**, especially the **auto-weight sense and auto balancing** features:

- **Higher productivity:** using an INDEVA®, output can be maintained throughout a full shift giving increased productivity and operator wellbeing.

- **Better ergonomics:** a fingertip-sensitive handle allows for the lifting or lowering of heavy loads by simply touching the handle with a finger. Very little human effort is required during any part of the lift, place and lower process.

- **Higher precision:** with considerably more speed and precision than a traditional pneumatic manipulator, an INDEVA® allows for unsurpassed precision, where the operator will intuitively work at the pace best suited to the task. The operator has exceptional control with the lightest of touch needed.

- **User friendly:** the auto weight sensing and auto balancing functions operate in real time, so no need to preset the load or to keep buttons depressed. The Float Mode option allows the operator to control movement directly from the load.

- **Safety:** state-of-the-art safety features prevent movement unless an operator is present and in control. Should a power failure occur, the motor is held with a mechanical lock and the load cannot be released until power is restored, or the full weight of the load is supported.

- **Wireless connectivity for industry 4.0:** an INDEVA® can exchange data with the Customer IT System through the Company Network and allows visualisation of manipulator activity by means of interface software.

- **Remote trouble shooting:** an INDEVA® can be connected via Wi-Fi to App Indeva, so that machine data



can be transferred to a remote tablet or smartphone in real time. This can assist fault diagnosis, so significantly reducing call-out charges and operator downtime.

• **Environment friendly:** low carbon foot print thanks to efficient and low energy consumption.

#### A Case History:

**Safety issue when loading reels onto a shrink-wrapping machine.**

Scaglia Indeva were contacted by Unilever to help with a **health and safety issue when loading reels onto a shrink-wrapping machine.**

They were using a mechanical trolley-based solution and the operators were having trouble taking reels of plastic film from the pallet at 2 high and core vertical rotating them to core horizontal for loading onto the shrink-wrapping machine.

Aligning the trolley/reel core to the winding shaft was also an issue due to the limited movement available from this solution making it slow and hard to use.

**We always conduct a site survey to fully assess the customer's needs and more importantly the working area implications.**

The aisle was narrow with limited positions to place the INDEVA® machine due to fork truck traffic and the overhead conveyor ran across the only position for the manipulator.

All the information was fed back to our design team who were working on a new solution we had designed for the automotive industry to remove a spare wheel and change a battery.

#### INDEVA® solution

This solution implied a manipulator of the Liftronic® Series, Linear version, which is designed to work in confined spaces and low overhead areas.

The **Linear manipulator** has all the same **electronic balancing and auto weight sensing features** of all the other versions of the **Liftronic® Easy** and the **Liftronic® Pro** Series, but allows the product to be extended beyond the centre of gravity for special applications like this. This is achieved by the whole arm running in rails on the front of the column.

**This system allows picking from the pallet, inclination to core horizontal and insertion onto the reel shaft in one easy operation.**

[www.indevagroup.com](http://www.indevagroup.com)

# More digitalization down to the field level with Profinet and Simatic PCS 7

With Simatic PCS 7 process control system, Siemens is opening up scope for new perspectives to plant operators in the process industries and creating an additional building block en route for the Digital Enterprise. Version 9 of the Simatic PCS 7 supports the world leading Industrial Ethernet standard Profinet with two new distributed I/O lines for greater digitalization right down to the field level, as well as extensive new software functionality.

The new I/O system Simatic ET 200SP HA allows the properties of Profinet to be used to optimum effect in achieving this goal. Specifically aimed at the process industries, it is designed for high availability and can be used directly in the field up to Ex zone 2. Its protective

coating and an extended operating temperature range of -40 to +70°C allow the I/O system to be used in many cases without the need for additional air conditioning. Despite its compact, highly space-saving design – the width of the new module has been reduced by just under half- the number of modules per head assembly or per station has been increased to 56, corresponding to just under 900 I/O signals. Another benefit is its consistently modular and flexible structure, which allows modules to be conveniently hot swapped in running operational mode. The Simatic ET 200SP HA stations can be simply and rapidly extended in line with changing requirements, as the permanent wiring and use of uniform terminal blocks enable control cabinets with a standardized



SIEMENS

*Ingenuity for life*

structure. The result: lower costs for planning, assembly and installation.

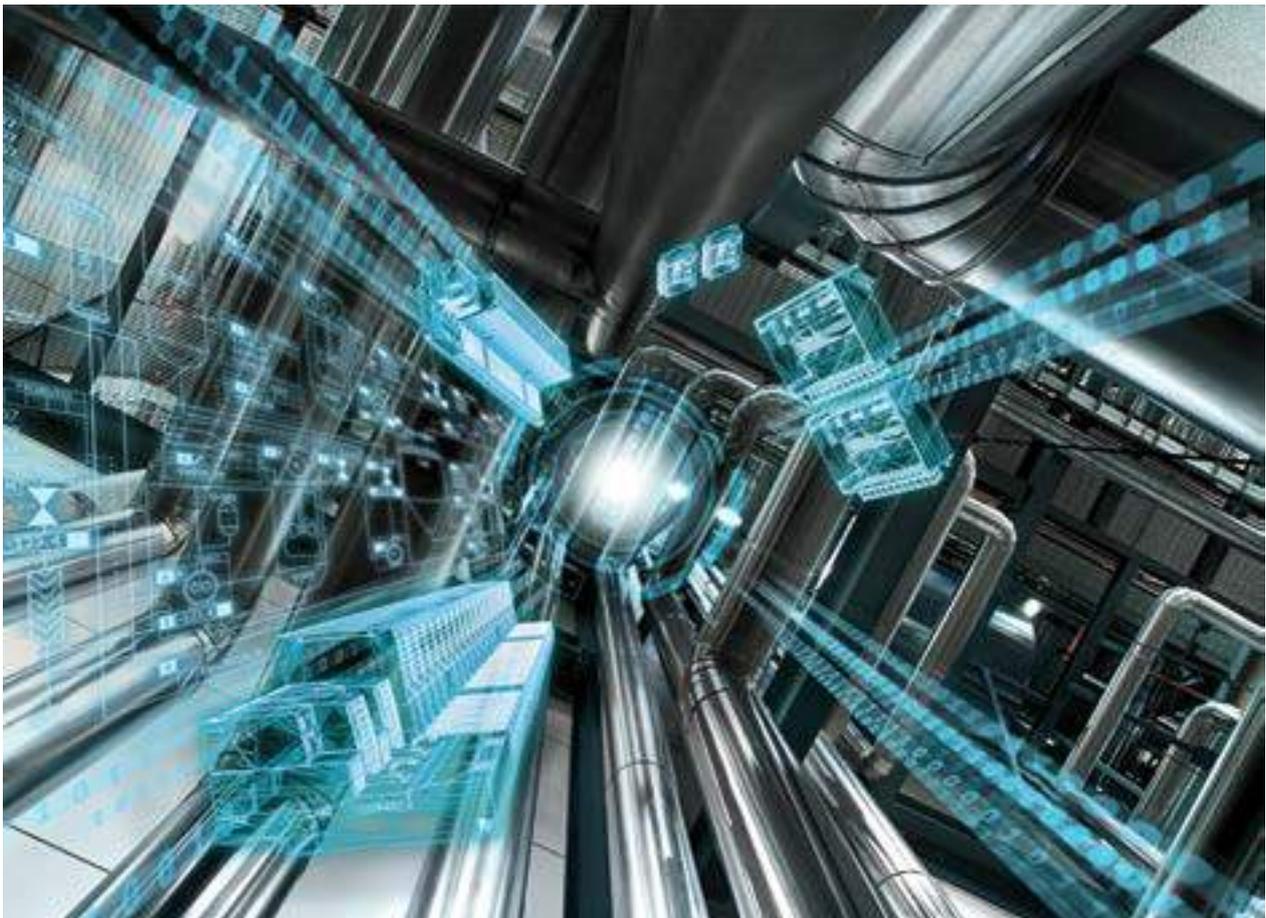
The Simatic Compact Field Unit (CFU) opens up new scope for the integration of field devices. The field distributor connected over Profinet is able to overcome the restrictions of conventional I/O concepts, providing consistent decentralization coupled with flexible structures. Distributed deployment of the Simatic CFU allows considerable savings to be made in terms of cables and terminal points. If a field device has to be connected, the Simatic CFU automatically initializes the linked device and integrates it quickly and simply into the process control system. The use of Plug&Produce results

in simple, efficient, reliable and trouble-free device integration. Alongside the 8 PROFIBUS PA terminals, there are an additional 8 discrete I/O channels available, each of which can be freely configured by the software as Digital Inputs or Digital Outputs. The solid housing provides reliable protection from the effects of weather and any unplanned external influences.

Version 9.0 of the Simatic PCS 7 also comes with extensive software innovations offering greater productivity and flexibility for plant operators and maintenance personnel.

For further information please see :

[www.siemens.com/pcs7](http://www.siemens.com/pcs7)





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# Flare Systems

*for the Chemical and Petro-chemical Industry*

## **Flare systems to ensure maximal safety for industrial and production plants**

Gas flaring is the process of excess gas burning from chemical and petrochemical plants, including wells, gas-oil production and refineries, hydrocarbon processing plants.

Flare systems are used to relieve pressure and safely destroy waste gases that cannot be processed, reducing risks for the plant and operators.

Flares are combustion devices designed to safely burn in an open flame the hydrocarbon gas excess which cannot be recovered or recycled.

Flare systems are intended as alternative to releasing the waste gases and pollutants directly to the atmosphere.

Waste gases can consist of a mixture of different gases which composition will depend upon the source of the gas going to the flare system. In oil-gas production, waste gases mainly contain natural gas, ethane, propane and other hydrocarbons.

Waste gases can occur in case of unplanned shutdown, start-up and transitory operation, in case of fire, valves or compressor failure and any urgency case with leakage of gases from the process.

The flare system should be always in operation and perfectly maintained with high reliability in order to efficiently operate and to grant the plant safety at any time and in any condition.

Flaring systems can be installed on different location at onshore and offshore plants, on transport ships, at seaport facilities, on storage tank and along distribution pipelines.



*Offshore flare*

### **Configuration and design criteria of the flare system**

Elevated flares are composed by a vertical riser stack, the burner tip installed at the top, the set of equipment to control the ignition system and network of piping to collect the waste gases from various sources.

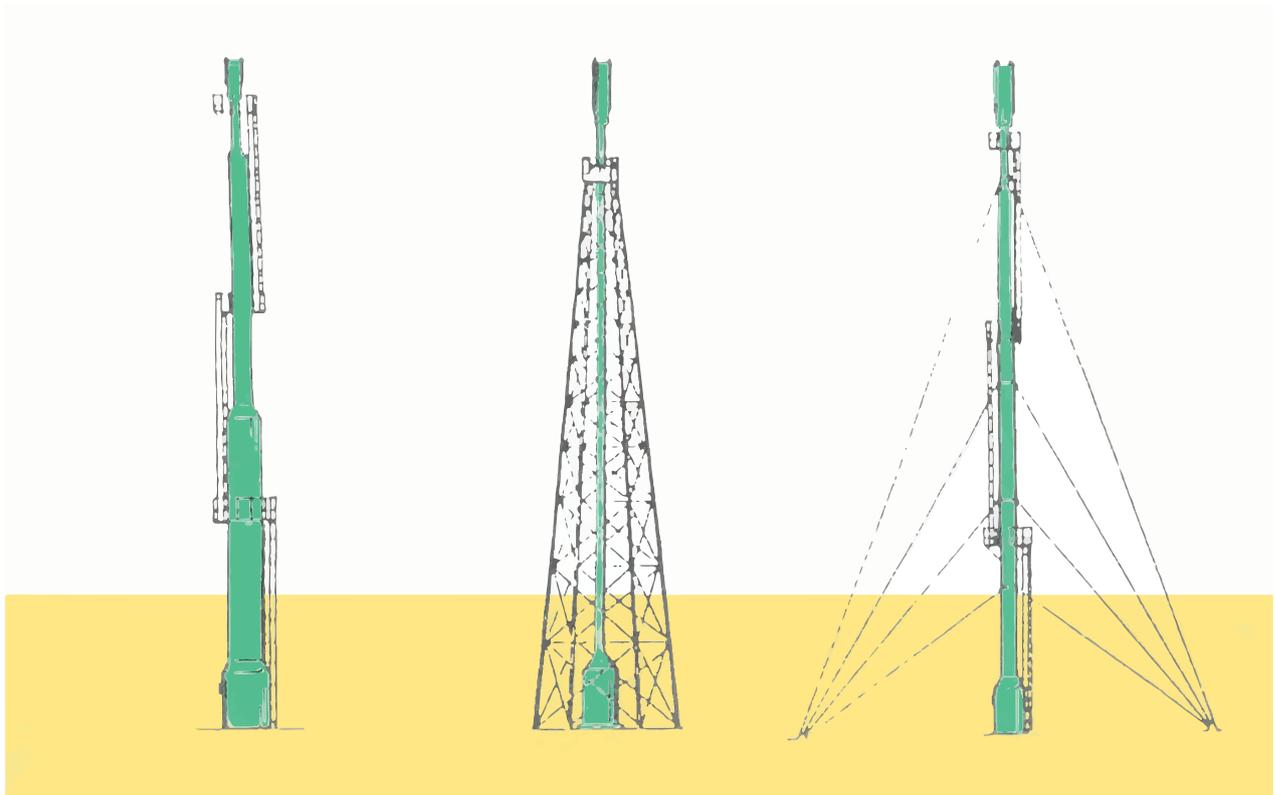
The basic criteria for the design of an efficient flare system takes into consideration the following:

- Efficient combustion of waste gases to minimize emission of toxic gases
- Heat radiation and noise at ground level
- Minimize natural gas consumption and CO<sub>2</sub> emission from pilot burners

## Riser stack

The riser stack is the body and support of the flare, flares can be configured with different supporting design

- Self-supported flare, the riser stack is self-sustained
- Guyed-supported flare, steel wires are used to anchor the riser stack at ground
- Derrick-supported flare, the riser stack is supported by a steel structure “derrick” when there is not enough space to anchor the steel wires at ground



*Self-supported flare*

*Derrick-supported flare*

*Guyed-supported flare*

## Flare tip

The core part of the flare system is the tip burner, the final part at the end of the stack where the burning of waste gas take place.

Flare tip is designed to optimize the combustion efficiency, to minimize waste gas-methane leaks and emissions of toxins like benzene, hydrogen sulfide, toluene, xylene and volatile organic compounds.

Injection of auxiliary fuel or steam or combustion air can be adopted to maximize the mixing and determine complete burning of waste gases.

Smokeless combustion can be obtained by injection of steam at the burner tip to support completion of combustion and reduce visible smoke.

Smoke formation occurs when there is insufficient amount of oxygen for a complete combustion, therefore it is required a continuous steam supply to optimize the combustion process.

Mixing of waste gas and steam shall be optimized to get the maximal efficiency and smokeless combustion.

Steam is injected directly into the root of the flame by means of a series of nozzles installed around the top of the flare tip.

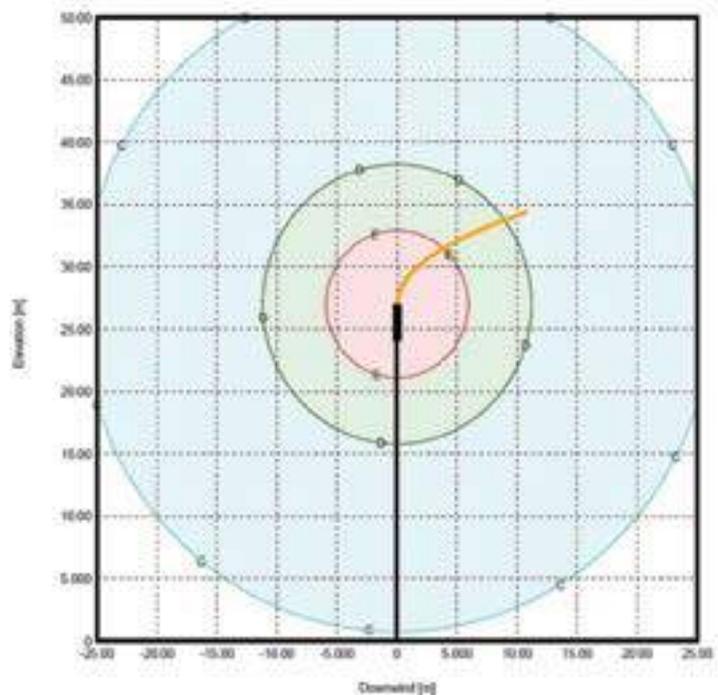
Heat radiation and noise at ground level are considered when designing a flare system to prevent any risks to people and operators.

Heat radiation from open flame at the burner tip can be quite important and dangerous in the area surrounding the flare stack.

All flare systems shall run safely and with minimal impact on the community and the environment.



Tip burner



Flare radiation map

### Flame sealing system

Flame sealing is foreseen to avoid the flame flashback, different systems are available to create the sealing of the tip burner from the raiser stack

“dynamic” sealing system based on a Venturi design of the burner tip inner part with addition of purging gas typically nitrogen  $N_2$  or carbon dioxide  $CO_2$ , purge gas constantly flows ensuring that air infiltration and flame flashback does not take place

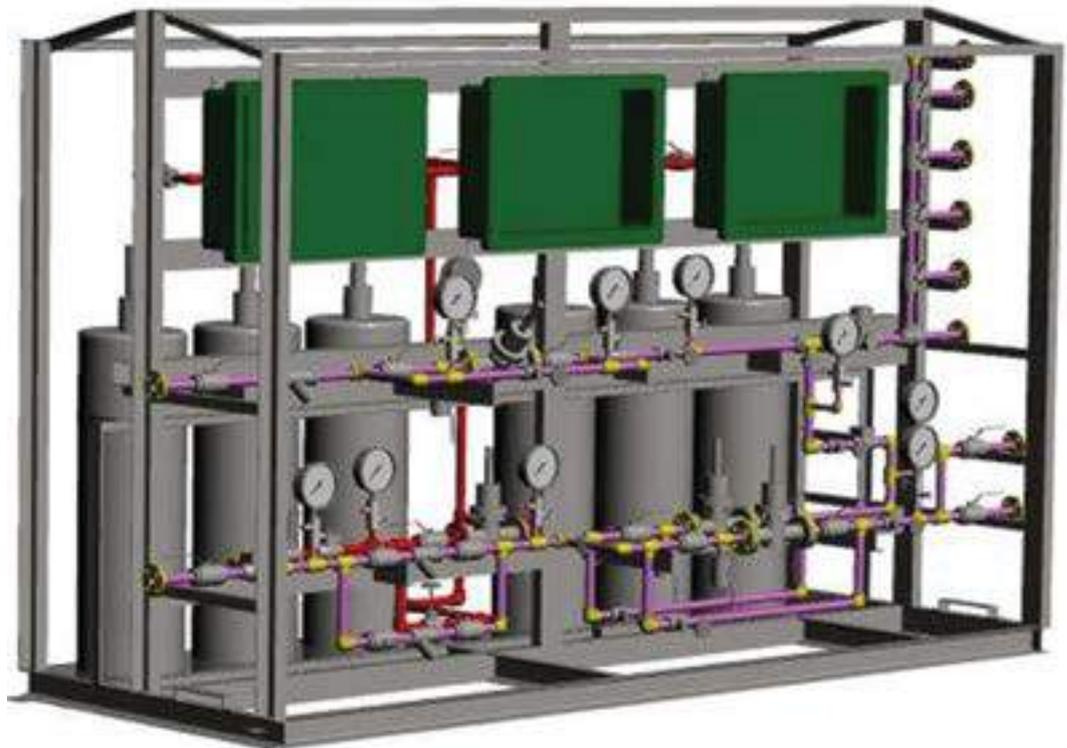
“molecular” sealing system based on a labyrinth design of the burner tip inner part, this system does not require addition of purging gas reducing the overall operating costs ensuring as well that air infiltration and flame flashback does not take place

### Pilot burners and ignition system

Each flare tip is equipped with pilot burners to provide a constant source of ignition. Pilot burners shall provide reliable ignition and a stable burning even under the most difficult climate conditions.

The flare ignition system shall be designed to achieve the maximal efficiency to minimize consumption of fuel gas to the pilots, reduce environmental impact and  $CO_2$  emission, ensuring efficient, clean and smokeless combustion.

Electrical HE high energy ignition system is typically installed to start the pilot burners.



*Control unit for ignition system*

### **Water sealing drum**

The water sealing drum is a vessel located close to the base of the flare stack to separate liquids from the waste gas stream and prevent irregular combustion at the burner tip.

Low pressure pipe flares are not designed to handle liquids together with the waste gas and do not burn efficiently when hydrocarbon liquids are contained in the flare system.

### *Airprotech srl*

*Airprotech is a leading company in the design, manufacturing and turnkey supply of systems and plants for air and gaseous effluent treatments for the chemical, petrochemical, pharmaceutical, printing and paint industries.*

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# The SEALCORE Network active for many years in the production of customized articles



“The SEALCORE Network is the result of the union of some entrepreneurial Italian Companies active for almost 50 years in the production of customized articles to drawing and technical components for various industrial sectors. The Companies of the SEALCORE Network are active worldwide in the following industrial areas:

Aerospace - Wind Energy – Mining & Earth Moving Equipment - Primary Metals – Pulp & Paper - Naval & Marine - Food - Automotive - Automation - Chemicals - Petrochemicals - Pharmaceutical - Hydraulic, Heating & Sanitary Systems - Dynamic & Static Sealing - Heavy Duty and General Industry.

The SEALCORE Network is made of 14 Companies grouped under 8 main production divisions for a total of 700 employees and about 141 million € in global sales in the year 2018. About 60 millions € have been invested between 2015 and 2018 in technology, infrastructure, people, training and equipment, and further 15 millions € are planned for investments in year 2019.

The lean management and a focus on the service to the customer, in addition to a guaranteed quality Made in Italy are the strength of the SEALCORE Network and its seven main production divisions:

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-SLIB ITALY: Self-lubricating bushings and washers for valves and other applications in the hydraulic, energy and metal industry ([www.slibitaly.com](http://www.slibitaly.com)).

All this and much more is SEALCORE Network. Discover us under [www.sealcore.net](http://www.sealcore.net) or download our SEALCORE APP from our web page of from the Google store”

## First specialty oil field chemicals manufacturing reaction plant in Saudi Arabia

JUBAIL, February 28, 2019 - Representatives from Saudi Aramco, Halliburton, Sadara, Fluor, and the Royal Commission of Jubail recently gathered to mark the groundbreaking of a manufacturing plant to be built by Halliburton at the ethylene oxide/propylene oxide (EO/PO) cluster of the PlasChem Value Park at Jubail Industrial City II.

The new facility — expected to be operational by the end of 2020 — will be the first specialty oil field chemicals manufacturing reaction plant in Saudi Arabia, and will initially create approximately 100 jobs. Engineering, procurement, and construction (EPC) of the plant will be carried out by the Fluor Corporation, which was awarded the contract in the last quarter of 2018, after completing the front end engineering and design of the facility. Fluor will lead the EPC work from its offices in al-Khobar.

“Today is about looking forward,” said Mohammed Y. Al Qahtani, Saudi Aramco senior vice president of Upstream, elaborating on how the project and those that follow will be drivers in transforming the Kingdom’s economy. “As the Kingdom continues to expand and diversify its economy in line with Saudi Vision 2030, it is projects like this that brings this vision to reality. These types of projects will transform Saudi Arabia from being an importer of specialty products to an exporter.”

Halliburton will manufacture process treatment chemicals at the facility, which in turn will be sold primarily to Saudi Aramco for use in upstream and downstream drilling and extraction activities.

Production will be fueled by a steady supply of EO and PO from Sadara via an extensive pipeline network currently under construction. The network — comprising two 7-kilometer special material pipelines — is designed to distribute products to multiple customers within the cluster, and is expected to be completed alongside the new plant’s commissioning in 2020.

The manufacturing of these specialty products in the Kingdom also contributes to the goal of meeting the key benchmark of Saudi Aramco’s iktva program, designed to boost local employment.

“This will be done with Saudi talent in line with iktva’s 70% benchmark,” said Al Qahtani. “To date, we have achieved an overall localized content level of 51%. Working to reach our goal, the support of partners such as Halliburton, through projects like this, is a clear sign of the commitment that will get us there. This project is a win-win-win for Saudi Aramco, Halliburton, and the Kingdom.”

The 12-square-kilometer (4.6 square-mile) industrial park in Jubail-II, situated adjacent to Sadara, SATORP, and the future SATORP II expansion (Amiral), is one of the Kingdom’s dedicated downstream chemicals and conversion industrial parks. The development of PlasChem is led by the Royal Commission of Jubail, with the support of multiple stakeholders including Sadara, together with its shareholders Saudi Aramco and Dow Chemicals, as well as other government entities.

PlasChem is envisioned to house and provide services to numerous downstream conversion industries ranging from reactive chemicals, polyurethanes, paints and coatings, and the diverse world of plastics.

**ULTRA POMPE**

# ULTRA POMPE:

## Our History

## Our Strength



ULTRA POMPE S.r.l., founded in 1957, was one of the first Italian firms that completely design, produce and test external gear pumps in its own workshops. ULTRA's success is based on satisfying customer requirement through efficient manufacturing and by providing quality products and competitive pricing. ULTRA POMPE know how and experience has been handed down from one generation to the next. Due to this reason they have accumulated a lot of direct experience in the last sixty years. ULTRA POMPE maintains a large inventory of standard spare parts and unassembled pumps in its own stock, allowing us to quickly provide complete pumps or replacement spare parts for customer emergency. Compact enough to quickly provide innovative custom designs, but large enough to manufacture high volumes in a short time, Ultra Pompe invests every year in new technology for the automatization of its production lines. At today, each machinery in our factory has at least one automatic backup in addition to one controlled manually. This allows us to avoid any production delays caused by machinery crashes and to meet promised delivery. ULTRA POMPE carries on in its own premises the whole of mechanical processing, gear cutting included, thus achieving an unparalleled quality standard of the finished products. Continually updating out technology and products designs allows ULTRA POMPE to provide the right gear pump or system for a variety of processes and liquid, semi-fluid or emulsions. Using of UNI/ISO/ANSI/DIN/MEC dimension significantly increase the possibility to meet all customer requests.

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These gear pumps are used from 1 up to viscosity 1'000'000 cSt. In the operating scheme is shown how the rotations of the gears displace the product from the inlet side to the outlet side. The entire operation can be

resumed in three main phases: Suction, Delivery and Discharge. Into a gear pumps the two rotors, that are respectively called driving and driven rotor, are seated in a body that round them from all side. On the both sides of the mesh zone of the teeth there is a hole in the body of the pump. These holes are respectively called suction and discharge. Spinning the rotors the fluid is moved, through the chambers between the teeth of the rotors and the body, from the suction side to the discharge side. Fluid does not pass through the meshing zone of the gears due to small tolerances. A back-flow of the fluid is blocked by the contact of the teeth of the two rotors in the meshing zone.

**ADVANTAGE**

Gear pumps need a lesser NPSH and have better properties of delivery repeatability. Gear pumps, being rotary volumetric pumps, are the best metering pumps, since their delivery depends directly on the revolutions rate. Also gear pumps will not generate flow pulsations, as standard metering pumps do, making the media flow constant.

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## BP invests in new artificial intelligence technology

28 January 2019- BP Ventures has invested \$5 million in Belmont Technology's Series A financing to further bolster BP's artificial intelligence (AI) and digital capabilities in its Upstream business.

The investment supports BP's ongoing work exploring opportunities to apply machine learning and cognitive computing in its global oil and gas business.

The Houston technology start-up has developed a cloud-based geoscience platform using AI. The platform has a string of unique capabilities including specially-designed 'knowledge-graphs'. BP experts feed the platform geology, geophysics, reservoir and historic project information. It intuitively links that information together, identifying new connections and workflows, and creating a robust knowledge-graph of BP's subsurface assets. Much like data searches available in the consumer domain, BP experts can then interrogate the data, asking the powerful knowledge-graph specific questions in natural language. The technology then uses AI neural networks to interpret results and perform rapid simulations.

Aimed at accelerating project lifecycles, from exploration through to reservoir modelling, the technology is targeting a 90% time reduction in data collection, interpretation and simulation.

David Eyton, BP's group head of technology, said: "This AI-based platform, which we've nicknamed Sandy, is expected to unlock critical data for our subsurface engineers at a much accelerated pace. Our experts will ask it questions about our reservoirs like, 'What factors control production in the Chirag field?'. Sandy will then interpret our data, including mapping out many more scenarios than are currently constructed, helping us make faster, better informed Upstream decisions.

"This investment helps drive forward our digital strategy and further underpins our Upstream operations with cutting edge technology."

BP's investment will enable Belmont Technology to expand its workforce, extend Sandy's capabilities and accelerate the deployment of its product.

Belmont Technology's CEO, Jean-Marie Laigle, said: "We are extremely honored to welcome BP as an investor as it is a validation of our approach and technology. We are excited by the prospect of deploying a cutting-edge cognitive AI solution within BP.

"Our technology enables real-time thinking for subsurface engineers, helping transform the way teams work, analyse data, understand situations and generate novel ideas."

This investment follows BP's previous deals in cognitive computing, including \$20 million in Series B funding in AI company Beyond Limits. That investment is helping deploy AI technology previously used in deep space exploration missions in offshore exploration, accelerating operational insight and process automation across operations. Belmont's scalable knowledge-graphs can be interrogated by Beyond Limits' technology for new insights.

# The IMS Tool Holder Technology for Metalworking: A Choice of Quality and Reliability



IMS was born in 1969 in Sommariva Bosco, Italy, from the initiative of its founder Giuseppe Apra`. In a historical moment characterized by great innovation and brave entrepreneur spirit, the company affirmed itself as a leading manufacturer of CNC tool holders for metal, wood, stone, aluminum, plastic and glass working. Today, its catalogue counts for more than 20,000 different types of tool holders which includes both standard and customized solutions.

In relavence of the product, high precision standards as well as our sales ability, IMS has been able to generate important feedback in the italian industrial scene.

At the end of last century, the focus was pushed abroad towards the international market, at which time, IMS invested in the production of forefront products with proven quality. The development of a new global

distribution along with the same manufacturing of high quality standards has been a major factor for IMS success.

This year, IMS is celebrating 50 years of activity and the company is carrying on with its expansion plan, both on the commercial end as well as manufacturing sides. In 2010 the first foreign exclusive distributor IMS USA was founded which was followed in 2015 by Mactechsolution (Czech Republic). In 2016, IMS Tecnica (Spain) was born. Last, in 2017, the inauguration of the new facility in Sommariva Bosco.

The latest successful IMS addition to the metalworking industry will offer the shrink fit tool holder and hydro tool holder lines, both designed to improve the production standards and the precision in the milling process and operations. Among the most common applications, there is also the automotive and aerospace industries, fields in which precision and overall quality are taken into serious consideration.

Thanks to the metal thermal expansion properties, the shrink fit tool holder line will reduce the side effects of high speed machining, like vibrations, noise, and run out increasements. The last evolution of the shrink fit technology is the Slim Fit, which will reduce diameters to allow precise operations and deep cuts.

The hydro tool holder line will provide cut precision and a very simple tool mounting system. The setting of a hydro tool holder is in fact, really simple thanks to the side lock torx flat screw.

The efforts made in new product development for industrial equipment and in the service provided are the necessary conditions for growth and IMS is completely devoted to this.





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# Schorn Speaks at the Cowen

*8th Annual Energy & Natural Resources Conference*

Schlumberger Executive Vice President, Wells Patrick Schorn addressed the Cowen & Company Energy & Natural Resources Conference in New York City.

Ladies and gentlemen good morning. My thanks to Marc Bianchi and Cowen & Company for the opportunity to be here again.

The price of oil is dominating the headlines in our industry, with a level of volatility that has brought increased uncertainty and decreased visibility.

As this conference falls between last weekend's G20 meeting in Argentina, and this week's OPEC meeting in Vienna, presenting any reliable outlook for our business is like walking a tightrope.

Nevertheless, I'm going to give you our view of the current market environment and highlight what this means for the oilfield services industry, and for Schlumberger in particular.

First, the legal information.

Some of the statements I will be making today are forward-looking. These statements are subject to risks and uncertainties that could cause our results to materially differ from those projected in these statements. I therefore refer you to our latest 10-K and other SEC filings.

Since the peak at the beginning of October, the oil price has dropped by around 30%, driven by a surge of US production from the Gulf of Mexico and the Permian, record high production from the core part of OPEC, US dispensations to the Iran oil export sanctions, and the ongoing trade war dispute between the US and China.

These elements, together with the strong US dollar, the potential for another U.S. Federal Reserve rate hike, and general investor concerns with the stock market have all had a significantly negative impact on oil market sentiment, even though market fundamentals have not dramatically changed.

Looking closer at the supply situation, US production has surprised to the upside, partly in the Gulf of Mexico and partly from the US shale basins. There was a surge in hydraulic fracturing activity in the second quarter, especially in the Permian. This activity surge levelled off in the third quarter and is dropping in the fourth quarter, which will show up in the first half production numbers for 2019.

The record high production from the core part of OPEC and Russia is simply coming from activated spare capacity, aimed at dampening the accelerating upwards trajectory of the oil price in the third quarter and leaving the remaining OPEC spare capacity at a record low level. A normal OPEC reaction would be to scale back production levels and restore prices

but geopolitical factors may rule otherwise, causing the current uncertainty.

At the same time, the US dispensations to the Iran oil export sanctions are likely to be temporary and last up to six months to allow the main importing countries in Asia to make alternative arrangements.

Finally, while the potential trade war positioning and negotiations continue between the US and China, we have yet to see a major impact on the demand outlook with 2019 demand growth still estimated at a healthy 1.2 to 1.4 million barrels per day.

So, in summary, we have seen over the past two months a combination of short-term factors that has had a significantly negative impact on oil market sentiment, while at the same time the underlying physical balances between global supply potential and oil demand remain largely unchanged, which is further confirmed by the global oil inventory data.

Translating these oil market dynamics to E&P investment levels, we expect US activity and investment to recover during the first half of 2019. However, depending on the financial markets, the recovery will likely be measured initially and more closely aligned with cash flow, with the activity surge we experienced in the first half of 2018 unlikely to repeat.

Investment and activity growth in Russia and the Middle East looks strong and firm for 2019, as these key oil-producing countries continue to manage the full-cycle of their resource base by implementing their long-term investment programs in both wells and infrastructure, somewhat independently of short-term oil market fluctuations.

And in the rest of the international markets, the need for higher investment after four years of record low activity is still there, simply to maintain production at current levels.

Still, the recent increase in oil price volatility and reduction in visibility will likely mean that our customers will take a more conservative approach to the start of 2019, and that the expected ramp-up of international investment could be somewhat muted in the first quarter, before accelerating in the second half of the year.

The current market environment reflects the change in market dynamics that has occurred over the past four years.

First, shale oil production in North America has added or removed production in the global mix with a quicker response to investment than conventional oil. The structure and technology offering of our OneStim<sup>SM</sup> business position us favorably to respond to the changes in this market.

Second, the big four Middle Eastern OPEC countries provide the fastest and largest response to counter global supply-demand imbalances. For Schlumberger, ease of coordination, scale of production, and availability of equipment capacity provide a strong platform for growth.

Third, the Rest of the World, which makes up the largest share of global production, is geographically diverse—both on land and offshore. It is highly dependent on investment, given the maturity of the producing base, and offers the opportunity to deploy the broadest range of technology from our portfolio.

These markets present a very different backdrop compared to that existing prior to the downturn, and in an environment in which commodity prices are more volatile and lower than before, the service industry has had to change. For Schlumberger, this has meant a series of transformation initiatives that have modernized our operating platform, as well as the development of our tiered offering of integrated services and collaboration models.

The contribution to our revenue from integrated services increased from 20%

in 2014 to 27% in 2017. One of the fastest growing integrated offerings is our Integrated Drilling Services (IDS) lump-sum turnkey model, or LSTK, where our interests are closely aligned with those of our customers. Our IDS business benefits from the current drilling-led phase of the market recovery, bringing cost and operational efficiencies through transformation benefits, organizational scale, and best-in-class technology. The result is continual performance improvement, with each well drilled more efficiently than the last. In delivering performance, we retain wide operational discretion while accepting a managed and capped level of risk.

Risk is managed in two ways. First, we seek only to operate in a known geological environment in which Schlumberger technology can be optimally deployed and in a geographical area in which Schlumberger has built a wide footprint, where the operating structure favors the IDS LSTK model. Second, we only accept risk for the events that are under our control. This means that any loss for equipment or technology failure remains with Schlumberger, while our customer takes responsibility for subsurface risk. IDS contracts therefore exclude unforeseen or unknown subsurface conditions that could prevent delivery of the well as specified. Should additional services then be requested, project daily rates apply.

The advantages of IDS include the ability to capture the value generated by operational efficiency and reliability—two pillars of our transformation program—as well as the value of well engineering and differentiated technology. As activity develops, IDS project efficiency accelerates and in recent Middle East contracts, footage per day has increased by 40% over a three-year period and non-productive time decreased by more than half over the same period. In addition, the improvements that we have made in equipment reliability through engineering transformation programs have enabled us to free assets from use as backup and deploy them as primary equipment.

Deployment of innovative technology is a second key IDS advantage. The customer is not ordering a specific service with IDS, but rather contracting a level of performance. The technology to deliver that performance lies within our operational discretion. This approach overcomes the traditional, conservative industry approach to new technology adoption.

A third IDS advantage lies in smaller crew sizes. This idea began a decade ago during a period of growth, when it became impossible to deploy experienced drilling engineering personnel on every complex drilling operation. This developed to become a transformation program initiative to make drilling experts available from a central location, supporting multiple operations with consistent service and wide technical oversight.

IDS LSTK work is based on a contract that sets a fixed price to drill and complete a well. The model is typically applied to development drilling activity on land, in areas where significant numbers of wells have already been drilled. This means that substantial data and records are available to define drilling programs, minimize risk, and extract value from the project learning curve.

The latest LSTK contracts signed in Saudi Arabia cover a total of 344 wells over a three-year term with the option of extensions. Rig mobilization is now complete with a total of 25 rigs operational. 70% of the rigs on the project are operated by the Arabian Drilling Company (ADC), jointly owned by Schlumberger and TAQA.

As we gain experience with the project learning curve, asset efficiency and crew size are being optimized, while new technologies are being evaluated for the performance improvement they bring.

The IDS way of working has also been a key element in our SPM portfolio that demands the highest level of integrated services and performance-based partnering. Further, the model offers one path to help deliver our incremental margin goal—even in a volatile,

lower-commodity-priced environment.

Ladies and gentlemen, before we take your questions, let me provide you with an operational update in the light of the recent volatility in the oil market.

In our October earnings call, we forecast a fourth-quarter sequential drop in earnings per share, driven by lower activity and softening service and product pricing for hydraulic fracturing in North America Land. In the international markets, we were expecting flat sequential revenue, as further IDS growth would be offset by the winter slowdown in the North Hemisphere with little to no year-end sales.

So far in the fourth quarter, international revenue, excluding Cameron, is more or less in line with expectations, except for signs of weakness in a few countries in Latin America.

In North America, revenue from our offshore business and our land drilling operations is trending to be flat sequentially. For hydraulic fracturing, we are seeing a significantly larger drop in activity than we expected, which is leading to a larger drop in pricing than we anticipated. This is resulting in a sequential reduction in our total North America revenue in the range of 15%. We continue to see the weakening of the hydraulic fracturing market as temporary, with the expectation of a gradual recovery taking place over the first half of 2019. Therefore, the fourth-quarter and potential first-quarter revenue declines will come with relatively high decremental margins.

Global Cameron revenue is expected to be slightly down due to the weakness in its short cycle businesses in North America land.

Looking forward to next year, the recent volatility in oil prices has introduced more uncertainty to the outlook for 2019 E&P spend. Faced with this, our customers will likely respond by taking a more conservative approach to the start of 2019, as they await the current market dynamics to play out and subsequently provide better forward visibility. We still expect to post solid revenue growth in the international markets next year, but the growth trajectory could potentially be more back-end loaded than previously thought. We will provide a further update on the 2019 outlook in our January earnings call, at which time we will have a clearer picture from further customer discussions, and we will also have the conclusions from the December OPEC meeting.

Ladies and gentlemen, thank you very much.

Patrick Schorn  
Executive Vice President, Wells  
Schlumberger

The logo features a white hexagonal shape with a horizontal bar across its center. The words "INDUSTRIAL" and "TECHNOLOGY" are stacked vertically in a bold, white, sans-serif font within the bar. Below the bar, the words "editorial office" are written in a smaller, white, lowercase sans-serif font.

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## Five Star Movement (M5S) and League approve small scale LNG plan for Italy and Confirm tax exemption



Two recent strategic documents by the government of Five Stars Movement (M5S) and League outline a policy on the development of small scale LNG in Italy. The first one is the proposal for the Integrated National Energy and Climate Plan (NECP), requested by the European Commission to all member countries. In 2019 all the Plans will be evaluated and changes may be requested. The document, edited by the Ministry of Economic Development (Luigi Di Maio, leader of M5S) with the Ministries of Environment and Infrastructures, has been summarized and illustrated to the technician working group in Brussels last days.

For small scale LNG sector, NECP confirms the National Strategic Framework regarding the construction of the needed infrastructures for road and maritime transport sectors: primary deposits, coastal deposits, service stations, sea sulfur content reduction to 0.1%, Sardinian methanisation by LNG, incentive policy, mandates for new public transport vehicles. The objective to achieve is 6 million tons of LNG consumed by 2030.

The Plan also provides tax exemption for the construction of deposits and/or LNG distributors in the ports; the reduction of port tariffs for LNG ships; an agreement with the EU on financing the construction of LNG deposits and vehicles; incentive measures for LNG shipbuilding.

Particularly relevant was the theme of tax exemption for LNG in transport sector: "Assure a stable reference

framework to favor investment decisions by the industrial sector providing that the excise duties on natural gas, LNG included, used in transport sector remain stable on the current value".

Another important issue for the deployment of small scale LNG is the recent Decree of the Ministry of Infrastructures and Transport, in agreement with the Ministry of the Environment, titled Guidelines for the drafting of Environmental Energy Planning Documents of the Port Systems. The Decree includes the implementation of LNG for the power supply of ships and the need to prepare the related infrastructures (also the use of LNG for other port activities in place of more polluting fuels).

A reference for the use of LNG also for the docks is part of the strategy to reduce CO2 emissions in port logistics (handling vehicles), there is the replacement of current vehicles (reachstacker, tractors, mobile cranes) with others powered by alternative fuels such as LNG (experiments in this sense are already successfully carried out in the past few years in the port of Livorno by Italian firm Ecomotive Solution).

The implementation of the development of LNG in maritime transport and port activities will be discussed in depth in Naples on May 15th and 16th during the 5th International Conference on Small Scale LNG, an event promoted by ConferenzaGNL, initiative by Mirumir srl.



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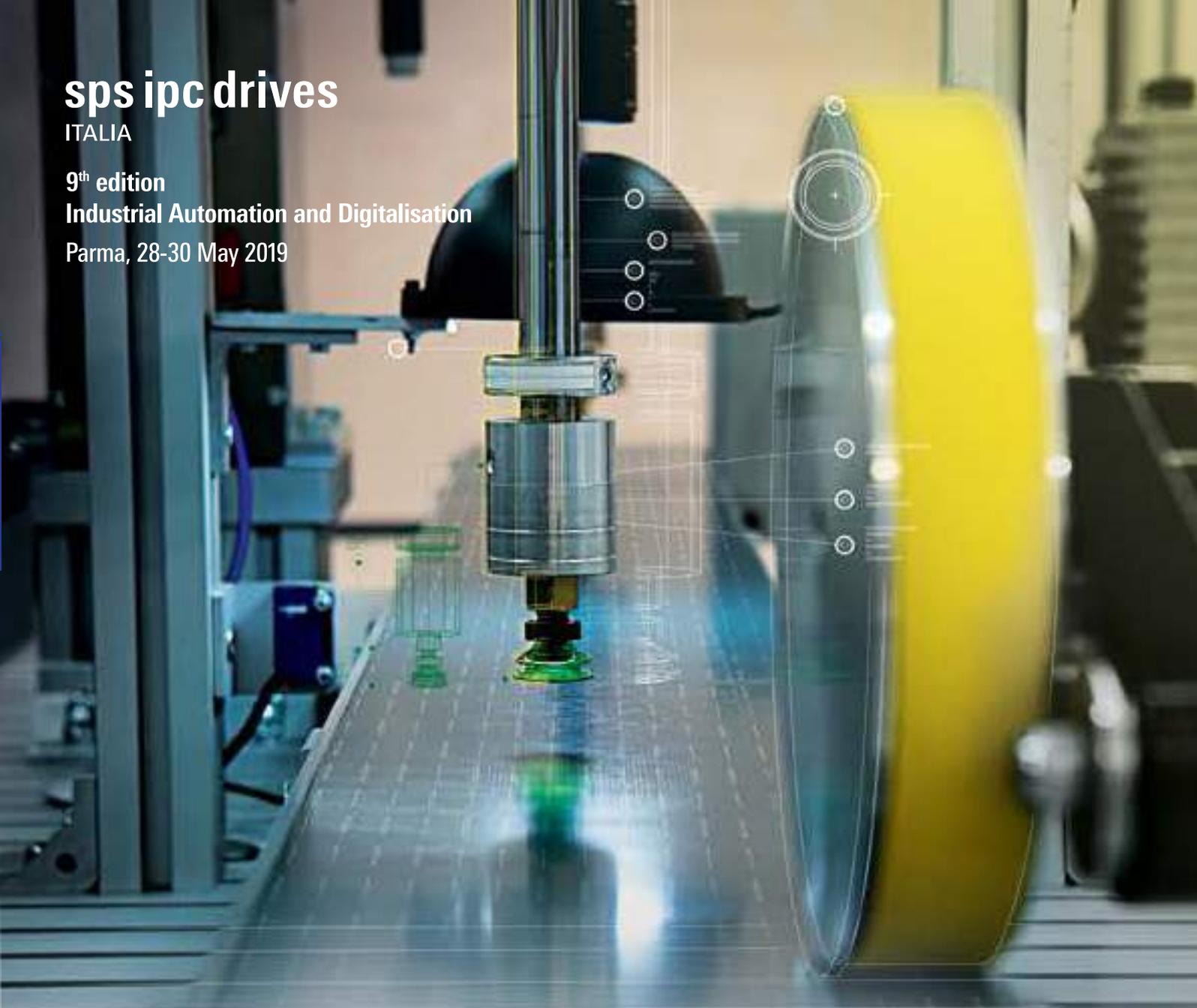


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