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- Auto diameter control



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16÷20 April 2018

Düsseldorf, Germany - www.wire.de



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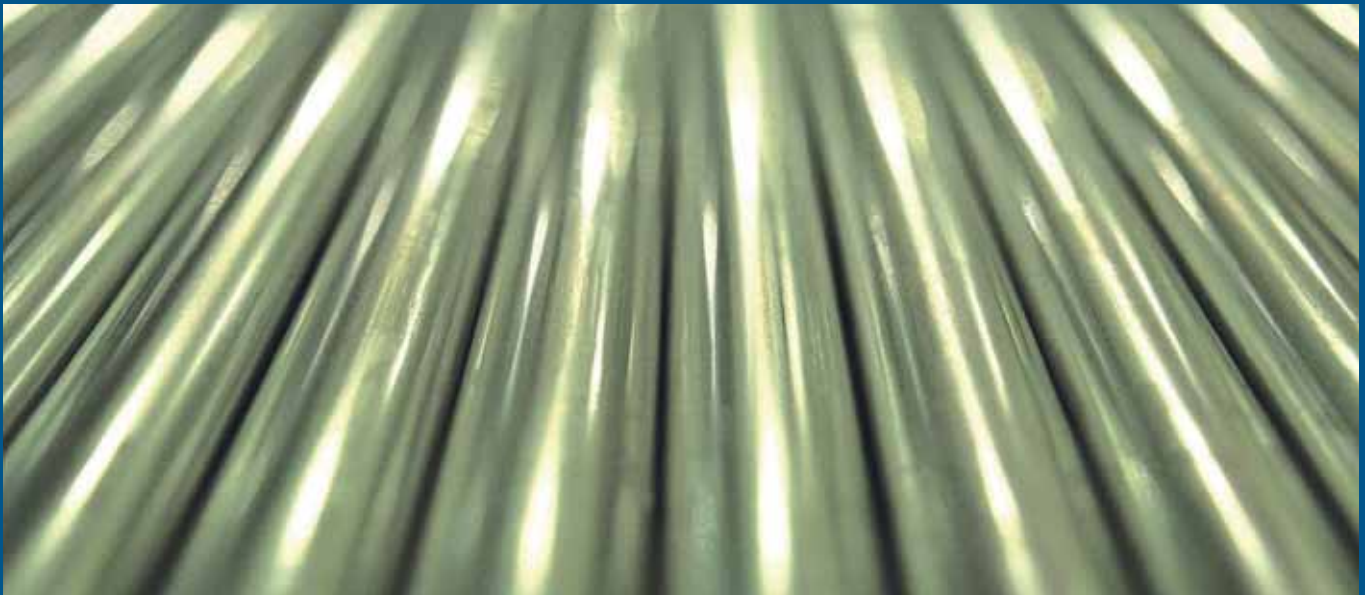
“TEC.AL.CO.” is an industrial company at high technological content specialized in the production of aluminium wires and stranded conductors for both automotive and energy distribution fields. It realized the first plant in Europe completely dedicated to the production of aluminium bare conductors, thanks to the experience of its founders in the aluminium drawing since 1979.

Top quality, cost saving, lightness, low environmental impact: these are some of the main advantages that TEC.AL.CO. can grant to its clients.

The main plant is located nearby the Gioia Tauro Port and it covers an area of 36.000 sqm. The high quality of products is guaranteed by an internal R&D Laboratory which has been studying for several years the best solutions for aluminium conductors, in partnership with the Major Players operating in both automotive and energy distribution markets.

The range of products consists of Aluminium Wires and Multiwire, Class 2 Aluminium Conductors (AAC, AAAC, ACSR, ACCC), Class 5 and Class 6 Aluminium Conductors. The portfolio of products includes some solutions specifically studied for AUTOMOTIVE applications.

All products are designed and manufactured in accordance with Clients' specifications and national and international standard regulations, such as “DIN EN 573-3, CEI 7.2 – CEI EN 50182, CEI EN 60228, IEC 60889.”



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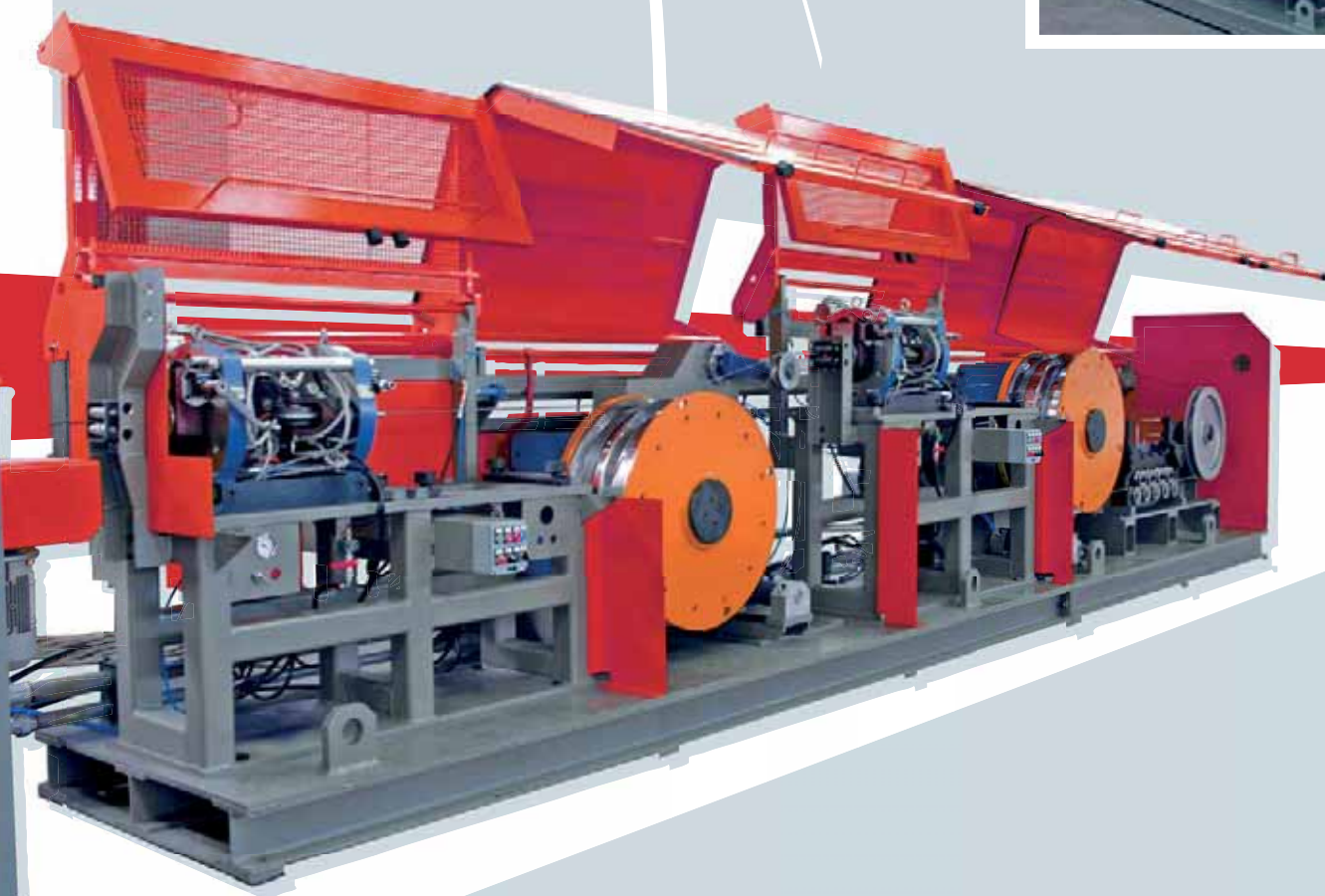
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Düsseldorf, Germany
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– Complete with P.K.O.'s on both punches

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The background consists of a complex arrangement of overlapping geometric shapes, primarily triangles and quadrilaterals, in various shades of purple and dark purple. The shapes create a sense of depth and perspective, with some appearing to recede into the distance. The overall effect is a modern, abstract, and textured background.

NEWS

PRO.CO.I.M, specialized in the manufacture of complete handling systems

The company PRO.CO.I.M. LTD was established in 1997. It is based on decades of experience of its founders, gained in one of the major Italian company, specialized in the manufacture of complete handling systems. Initially, the company has been dedicated particularly to the construction of a metal structure processed of the machine tool and not, revamping machinery, machinery moving, production lines and industrial assembly in general.

Subsequently the PRO.CO.I.M. SRL has faced and realized more and more complex works in the spirit of providing the customer with a global solution in order to address and resolve the whole of technical issues, planning and execution of a work, coming to designing an entire airport. Currently the company PRO.CO.I.M. SRL is part of a Group including Carpenteria Colombo and Impianti Draganti Italia and can guarantee to its customers very complete services in the field of handling and Infrastructure connected to it, providing innovative and comprehensive solutions both in the civil works sector and plant engineering.

TYPE OF SERVICES

- Study of feasibility of economic cost analysis of the works and handling systems in general;
- Preliminary and final design of the works, full of certifications;
- Construction of mechanical components and machines;
- Construction of handling systems complete of laying and final testing;
- Construction of infrastructure related to the handling equipment to complete civil and installation works;
- Special equipment;
- Industrial assembly in general;
- Planned maintenance and ordinary;
- After-sales service;
- Consultancy for Airport Management.

Fields of Application

AIRPORT CARGO CITY

Pallet handling systems/ goods in arrival and departure from trucks with roller conveyors and loading and unloading platforms. Palletizing and de-palletizing platforms pallet and ULD cargo in import and export



area CARGO. Ramps and platforms of flatbed attack. civil works and ancillary plant.

AIRPORT PASSENGERS

Baggage conveyor system at the start with check-in counters and X-ray systems, luggage incoming with CRESCENT conveyor system, Civil works and ancillary plant.

FIELD PRODUCTION CABLES AND REVAMPING MACHINES

Straight drawdowns, flywheel cables of Tyre Stands Tyre and cables Procedure Trays Bitumen Trestles of Tyre and Conduct cables Bitumen trays.

INFRASTRUCTURE

Warehouses goods in metal structures to complete civil works and systems. Lofts interiors for new areas devoted to offices, complete of civil works and plant. Structural expansion of the areas Airport. Reorganization and rationalization in areas Airport. Reclamation covers with civil works and waterproofing. Parking lots with metal structures. Transport systems in general. Special equipment.

Via Giosuè Carducci, 41

20098 San Giuliano Milanese (MI)

info@procoim.it www.procoim.it

How to be competitive today for “new comers” in solar market against big module manufacturers

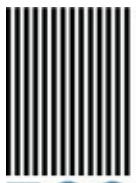


The European landscape for PV looks at present dominated by very big and mostly Chinese module manufacturers which own a large market share and generate a very tough competition against European module producers. The real challenge for European and small-medium sized module producer companies and for new comers in the solar business it is to understand how to be competitive against those Chinese module suppliers and to achieve not only good price levels to be attractive for the market but also keep high quality European standard product.

What has to be considered as milestone for Solar PV companies and new comers to solar modules manufacturing is to maintain reasonable and mid-low company overhead costs and fixed costs and aim to be efficient in the production by keeping operating costs of the manufacturing plant as low as possible. The Italian

company, Ecoprogetti, for 20 years has been designing, developing and assembling solutions for photovoltaic module manufacturing with innovative materials and high-quality standards. The company do not only produce complete turnkey production lines with great manufacturing equipment but also share its experience in the solar industry with new comers to the market and a deep understanding and transfer of the production process in order to allow new comers to reduce the entrance costs to the business of manufacturing PV modules.

To be a new comer with no experience in this business can be very challenging, as solar PV becomes more accessible and affordable across the globe, more nations are turning to local PV manufacturing in a bid to stimulate the development of their renewable energy markets, indeed many governments around the world



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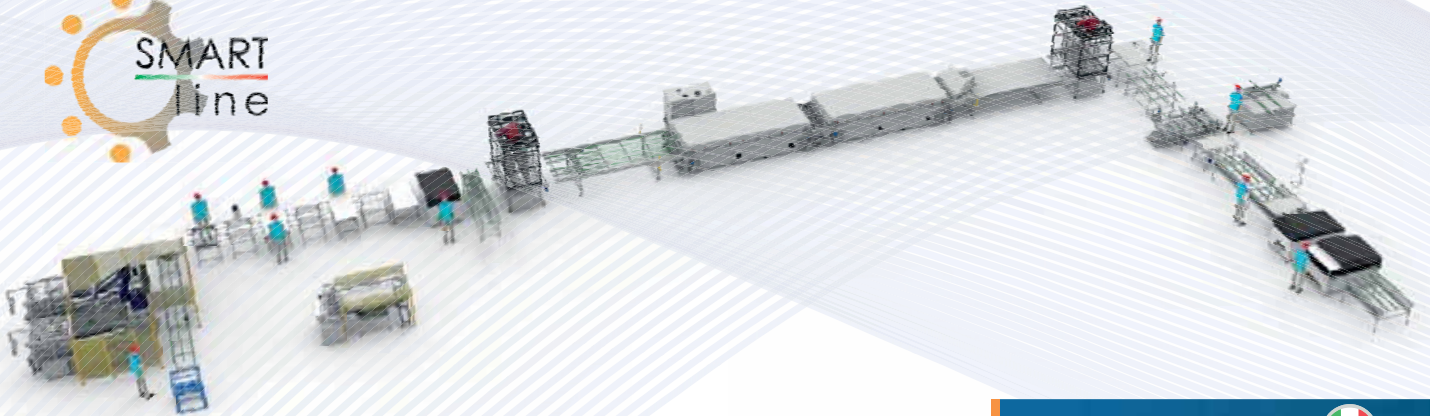
58
modules/h



10 operators
per shift



850 m²
production
area required



100% Made in Italy

ECOSUN PLUS LED SUN SIMULATOR A+A+A++

A+A+A++ UNIFORMITY
CLASS STABILITY
SPECTRUM

PRECISE
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MEASUREMENTS

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REPEATABILITY

SUITABLE FOR
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PERC, BIFACIAL
BACK-CONTACT
THIN-FILM

- A+A+A++ CLASS, CERTIFIED TÜV INTERCERT
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- NO RECHARGING FOR DATA STORAGE
- COMPACT FOOTPRINT: 1.7 X 2.4 M
- SUITABLE FOR 60-72-96 CELLS MODULE
- STABLE IRRADIANCE LEVEL
- THROUGHPUT: 250MW/YEAR
- LED LIFETIME: MORE THAN 50 MILLION PULSES
- SUITABLE FOR INLINE/OFFLINE OPERATION



ECOPROGETTI ITALY -Headquarters

Via dell'Industria e dell'Artigianato 27/C, 22/D, 35010 Carmignano di Brenta, PD, Italy.
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are looking for new ways to avoid a complete reliance on energy imports and to increase renewable local content for their countries.

New companies in emerging markets, joining the PV module production sector at a later stage, have the opportunity to immediately invest in optimal and state-of-the-art solutions, although critical risks such as overhead costs, bad quality products and resulting low selling prices can jeopardize the business. Ecoprogetti has great experience in the PV process and PV business and has been transferring technical know-how to new comers in order for them to start with the right foot, avoiding critical risks for the company management and optimizing the production efficiency to its fullest from the earliest stage, avoiding entrance costs, normally typical when entering in a new high technological business. The raw materials used to manufacture a photovoltaic module doesn't involve any warranty on the final panel, this means that the 25 years warranty of the modules, which is the standard today, must be guaranteed by the PV module producer. This commitment requires state of the art tools to test the quality throughout the production, starting from the single cells and finishing with the complete module. Ecoprogetti has a range of machinery for controlling the quality of the photovoltaic modules, able to carry out the tests that are required for

certification according to market standards. These tests guarantee the endurance of the modules, protecting the end user. The testing machines are supplied to specialized laboratories or to whoever requires them for testing their modules to obtain certification.

Next generation module concepts such as Bifacial, dual glass, flexible Glass-less modules, BIPV, Busbar-less cell interconnection, half-cut or shingled cells are all highly demanded among new market entrants, the goal is to provide a module assembly line of optimal flexibility that can keep pace with the technological changes. Among other factors, for Ecoprogetti to get a higher efficiency of the line, meaning fewer minutes per completed module, can be obtained by laying the production line in the right configuration. The Italian firm provides clients with a complete production line analysis, simulation and process optimization.



Solutions for the bio-pharmaceutical industry



With manufacturing in modern factories near Venice, Italy, Steelco Group is a major global supplier of infection control and contamination prevention solutions for the healthcare, laboratory and pharmaceutical market segments. Steelco's success is demonstrated by its strong growth, becoming the partner of choice for many of the world's leading bio-pharmaceutical companies who appreciate the company's integrity, reliability, innovation and commitment to safety, while protecting the environment. This strong approach has distinguished the Steelco brand in the bio-pharmaceutical industry, globally.

Steelco Pharma offers complete 'turnkey' solutions for washing and sterilization applications in the pharmaceutical sector, with the ability to undertake all stages of a project from first concept, to delivering solutions that exceed customer expectations. Steelco's extensive experience assists customers to increase process productivity and quality with improved ergonomics whilst limiting costs.

Steelco manufactures devices which are able to serve

the global Bio-Pharma industry with cleaning and sterilization systems (steam autoclaves, terminal sterilizers, depyrogenation ovens, dry heat sterilizers, stopper processors, parts washers, all compliant to cGMP requirements and industry guidelines.

Extensive product range

With over 3000 installations worldwide, Steelco offers a wide portfolio including:

- Innovative washing equipment, with customized loading racks.
- Diversified range of steam sterilization equipment.
- Wide range of sizes and processes.
- Innovative fully automated closure processing equipment.
- Drying and depyrogenation ovens.
- Automation systems to maximize productivity and safety.

Flexible solutions

- Ability to meet the most challenging processing needs.
- Only using best proven readily available control systems and components.



Experience and knowledge

- Strong track record of establishing long term global partnerships.
- Integrated in-house operations from incoming raw materials to installation, validation and technical support.
- Fully certified quality systems with knowledge of pharmaceutical manufacturing standards.

Global footprint

- Global HQ in Italy with regional customer support centres in America and Asia.
- Network of factory trained sales and service agencies in over 100 countries worldwide.



Stopper Processing Equipment

During the last 2 decades, several systems have been developed and adopted for the cleaning, siliconisation, sterilization and drying of all types of closures (stoppers, plungers, crimp seals), with transfer to isolated filling lines.



Each has their merits, but each is usually dedicated to one style of transfer application: whether processing with off-load to intermediate containers for manual handling, or processing with semi-automatic transfer directly to a filling line. Steelco will present at AICHEMA 2018 an innovative, flexible system which can be easily adapted to any of these applications, but also including a fully automatic / continuous processing and transfer system. It also provides best in class particulate reduction and drying capability.

A strong capacity for innovation together with a deep market and regulation knowledge have led the company to a significant growth trend. Pharma



machines are installed in more than 100 different countries around the world and Steelco is directly present in North & Central America, East Europe and Asia through its commercial branches.

*“ The greatest technology
in the world hasn’t replaced
the ultimate relationship building tool
between a customer and a business:
the human touch. ”*

~Shep Hyken

We have both.



*High performance solutions for complex
sterilization and washing challenges*



*Stopper processor
Equipment*



*Superheated Water shower
Steam and Air mixture*



*Saturated Steam
Autoclaves*



*Dry-heat sterilization
and depyrogenation*



*Parts and glassware washers
Bin and cabinet washers*



*Ethylene oxide
sterilization*

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High technology gear pumps



Pompe Cucchi is a Company of **design and production of gear transfer pumps, gear metering pumps, piston and diaphragm metering pumps** and has been present since 1948 in metering and fluid transfer fields. Pompe Cucchi works in accordance with Quality System ISO 9001 (2008).

The pumps are conformed to the **Machinery Directory 2006/42/EC, 2004/108/EC, 2014/30/UE, 2014/35/UE, UNI EN ISO 12100, UNI EN ISO 13732-1, UNI EN 809, UNI EN ISO 14847**. On request we can supply pumps conformed to the **directory 2014/34/UE (ATEX), API 676 and NACE MR0175**. All our pumps are certified **EAC (EX GOST-R) e TR CU 012**.

In addition to its production, Pompe Cucchi is Italian distributor of the Jabsco industrial line pumps, GRACO pneumatic diaphragm pumps and Grun- Pumpen drum pumps. Engineering, experience, expertise, passion and dedication: this is the Pompe Cucchi formula to offer the best products and service.

Our mission is to design and produce gear pumps and metering pumps with engineering criteria of product that meets the needs of our customers: quality, reliability, ease of inspection, maintenance and cleaning and also provide technical assistance based on a competent team of experts in order to find solutions for multiple applications in many field through the use of innovative materials to meet the specific technical customers requirements and new industrial processes. The project is managed by a team of engineers using CAD stations of the last generation continuously updated. The ongoing development of our pumps project and

new materials research allowed us to produce pumps in Titanium and in Hastelloy C in addition to classic materials as AISI 316L, ductile cast iron, bronze. Executions can be differentiated with the installation of single mechanical seals, double in tandem, double back to back or magnetic coupling also ATEX certified.

Pompe Cucchi has installed a new control numerically controlled machining centre with 18 pallets that can work 24 hours / day also not witnessed (without operator) equipped with supervising software and two new control numerically controlled machining DMG machines: a horizontal center and a vertical center. These machines, having a robotized tool magazine (about 400) and a last generation supervisor system, will allow the following production advantages:

- Increase the system's productivity
- Meet the delivery dates of the purchase orders received by the customers
- Increase the system's availability
- Improve product's quality



INDUSTRIAL TECHNOLOGY



The international magazine about machines, components, plants and automation for the Oil&Gas - Petrochemical - Chemical - Energy sectors

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.

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.

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.

Heila Cranes, redefines lifting industry



In a market with saturated and repetitive crane design characteristics to withstand heavy duty operations, **increased lifting performance, stability, and limited parking position** are more often required to be provided. A development of features that should bring to ship owners additional value.

Being this a common challenge for crane makers, for Heila instead, used to supply tailor made cranes as their peculiarity this becomes a standard operation. Every single crane is **“equally different”**. This is where the HEILA knuckle telescope cranes can overcome the need and provide a grip to these requirements.

Refit Vs Newbuild units

Upgrading or converting of an existing vessel can be competitive with newbuild options if prepared and managed well.

Accomplishing the needed maintenance and modernization is essential to creating a competitive maritime capability.

Solution by proven design

Currently, Heila is engaged in the construction of a giant 70T knuckle telescopic boom crane that will be tested by middle 2018. This crane is the latest brand new seized design concept in the entire marine market. With only 60Ton of deadweight, this crane can be installed on the smallest ship without impacting on the vessel stability; only 320kW of power consumption by electric or diesel driven power unit.

Up to 30 meters radius; very limited parking space required: only 6 meters, suitable for fitting of a 40m

vessels length and most space-sensitive offshore platforms;

Allowing the owner to:

- engage the existing unit for multi-purpose chartering,
- avoiding crane replacements due to charter requirement,
- cut off time, be more competitive and increase the numbers of awarded charter during bidding,
- cut off vessel downtime, saving money

Wider bidding prospects by wider crane application

Considerable advantages by widening the spectrum of the activities proposed to shipowners with a consequent rise for vessel charter operations and turnover prospects.

A combination that brings to owners increased fleets optimization with consequential gain on raised asset value. This means higher revenue for the ship owners. Providing to the operator key features that allow to utilize this crane in several applications.

From platform supply vessels, ROV lifting, buoy & Anchor handling, and now subsea with our new developed 100T capacity crane.

Reduced operational & maintenance time

The more time can be saved, the more can be utilized for other targeted activities.

More effective operation timing by proven design and longer lifetime by implemented in-house developed anti-corrosion program applied on every crane secure return investment for ship-owners

“Targeting excellence”



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Lifting is inside our DNA



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- Telescopic boom cranes
- Fully Foldable Telescopic cranes
- Telescopic Knuckle boom cranes
- Jib cranes
- Offshore cranes & AHC

Heila Cranes S.p.A.

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MARINE & OFFSHORE

Taylor made solutions with different accessories and automatics lines



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

Over the years, the Company has constantly evolved with the introduction of the machines series for mechanical machining in general and with the entry, first in the Asian Market and then in the global one. Production and turnover have constantly grown as well as the production site. Currently, IMT Intermato S.p.A spreads over an area of about 15.000 square meters, has a turnover of around 50 million Euros per year and employs 120 people in the various departments, as well as specialized collaborators.

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 collaborators, especially in Shanghai, China, where we have a long-standing co-operation with highly qualified Technicians and spare parts warehouse. We are therefore able to operate quickly on the five continents, both with reference to maintenance interventions and for the supply of spare parts.

Today IMT Intermato S.p.A. is a Supplier of complete turning solutions, able to assist the Customer in the definition of the technical specifications and to propose a range of tailor-made products, by ensuring at the same time high productivity with high quality



**WE PROVIDE PROVEN
SUCCESSFUL SOLUTIONS**

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VBM30.36



AUTOMATIC LINE



IMT INTERMATO is a leader company in the production of modular vertical lathes for the manufacturing of details with a diameter ranging from 100 to more than 7000 millimeters. Details always different, but united by one only great philosophy: the search for the optimal solution for every kind of production.

IMT Intermato S.p.A.

Via Caregò, 14 - 21020 Crosio della Valle (VA) - ITALY - Tel. +39 0332 966110 - Fax +39 0332 966033 - commerc@imtintermato.it

HIGH SPEED MACHINING LATHES



"JW" SERIES



"RW" SERIES



**AUTOMATIC LINE
FOR AUTOMOTIVE**

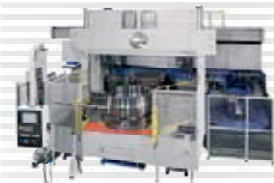
VERTICAL LATHES <1400



"VL" SERIES



"S" SERIES



"P" SERIES

VERTICAL LATHES >1400



"NTM" SERIES



"VBM" SERIES



AWDgroupsl.it

www.imtintermato.com



standards. Although maintaining its core business in the field of light alloy wheel machining, the production of IMT Intermato S.p.A. vertical lathes it is aimed at the various production sectors: automotive, aerospace, railway, heavy mechanics, oil & gas, nuclear and energetic fields, with solutions for pieces from a few tens of millimeters of diameter up to 6 meters and more.

We offer several series of machines, each of which developed for a specific sector.

The JW and RW series are destined to the machining of the light alloy wheels and they are sturdy, fast, reliable and precise machines, born from the constant development and from the over thirty years of experience of IMT Intermato. Summary of the production for this sector are our automated production cells, where the combination of high performance machines, automations developed by us and advanced process management, allow us to achieve surprising results in terms of productivity, quality and flexibility.

For the automotive sector, the machines of VR series have been developed. They are vertical lathes with capacity up to around 400 mm of diameter, with possibility of self-loading configuration, for turning's machining and possible drilling/milling operations of the various components such as bearings, wheel hubs, brakes, flywheels and clutches.

By increasing in size, we meet the VL series with the

lathes model VL8, VL50 and VL60 dedicated to the machining in various application sectors of steel and other metals, with a turning capacity up to 1200 mm and configurations with turret or head.

In the same range of dimensions, we have the machines of the S and P series, totally modular and customizable, that can be designed and manufactured according to the specific requirements of our Customers, by supplying a high performance product.

In the sector of the big vertical lathes, we have developed the mono-column of NTM series and double-column of VBM series with capacity respectively up to 2 meters and up to 6 meters and more with mobile crossrail and hydrostatic movements. These machines also, can be customized with multiple configurations and accessories, such as pallet exchange systems, tools magazine, double ram, versions for milling operation, grinding operation, angular heads and so on.

The possibility of customizations allows for having a wide range of products that are well suited to the most varied needs of the various productive sectors, which in some cases require large powers and considerable removal capacity and, on the other hand, in other applications, require extreme precisions and advanced technologies. The common denominator of all the machines is the philosophy of IMT Intermato: turnkey solutions specifically designed for the Customer, which allow the achievement of high production objectives combined with high quality.

Press release

U.S. Total, Borealis and NOVA Chemicals sign definitive agreements to form a joint venture in petrochemicals

Paris/Vienne/Calgary 2018/02/19: Total S.A. (“Total”), Borealis AG (“Borealis”) and NOVA Chemicals Corporation (“NOVA Chemicals”) today announced that affiliates of the three companies have signed definitive agreements to form a joint venture in petrochemicals on the U.S. Gulf Coast.

The joint venture – in which Total will own 50% and Novealis Holdings LLC, a joint venture between Borealis and NOVA Chemicals, will own the remaining 50% – will commence subject to customary closing conditions, including receipt of regulatory approvals.

The joint venture will include:

- the under-construction 1 Mt/y (2.2 b lb) ethane steam cracker in Port Arthur, Texas;
- Total’s existing polyethylene 400 kt/y (880 m lb) facility in Bayport, Texas;
- a new 625 kt/y (1.35 b lb) Borstar[®] polyethylene unit at Total’s Bayport, Texas, site, following a decision on the outcome of an acceptable EPC contract.

As announced in March 2017, the new \$1.7 billion ethane steam cracker is being built alongside Total’s Port Arthur refinery and Total/BASF existing steam cracker. The project, which is scheduled to start up in 2020, will create around 1,500 jobs during peak engineering and construction activity.

“This agreement is a key milestone for this integrated petrochemical project. This joint venture is aligned with Total’s strategy to strengthen our position by taking advantage of low-cost U.S. gas,” said Bernard Pinatel, President, Refining & Chemicals, Total. “We look forward to working with Borealis and NOVA Chemicals to create world-class facilities and become a major player in the growing U.S. and global market for polyethylene.”

“The JV with Total and NOVA Chemicals is a key project in advancing our global growth. Not only are we convinced of the excellent cost-economics of this integrated brownfield investment project, but we are also excited to bring our unique product grades based on our Borstar technology to the North American market,” said Borealis CEO Mark Garrett.

“A key component of NOVA Chemicals’ growth strategy is to expand beyond our traditionally Canadian footprint by extending our presence in the U.S. Gulf Coast,” stated NOVA Chemicals CEO, Todd Karran. “Partnering with Total and Borealis will allow us to better serve our customers throughout the Americas by delivering a broader slate of products that help make everyday life healthier, easier and safer.”

Leading company in high technical thermoplastic extrusion products and hydraulic protections

Born as a “spin off” of an historical Italian manufacturer leader in the extrusion of thermoplastic tubing, Smart Protections started its manufacturing operations in March 2015 and moved to a brand new site in January 2016.

Smart Protections is a leading company in manufacturing high technical thermoplastic extrusion products & hydraulic protections. The technical background, the build in know-how acquired by Smart Protections, with particular focus to quality, manufacturing capability & internal R&D testing lab, are some of the strength of this “aged” startup.

The range of products for pneumatic applications includes Tubing in Polyamide 12, Polyurethane, Polyethylene, Polyamide & Polyurethane recoils & custom made tubing made accordingly to customer’s requirements.

The range of products for the Hydraulic applications includes a complete range of protections for flexible hoses. Kovertec, a spiral wrap for abrasion protection; Textsleeve, a textile sleeve to contain oil spills; Shitec & Shiltape, a fire proof sleeve made of fiber glass & silicon. Most products in this range are MSHA approved.

TEXSLEEVE



TEXSLEEVE®
textile sleeve



TEXWRAP™
field assembling
sleeve for
medium high
temperatures



TEXSTRIP™
multiple hose or
cable containing
belts

SHILTEK



SHILTEK™
fiberglass,
silicone
coated sleeve



SHILCUT™
fiberglass cloth,
silicone coated
“flame cutting”



SHILTAPE™
field wrapping
fiberglass,
silicone coated
tape

KOVERTEC



KOVERTEC
PSA™
antiabrasive,
plastic spiral



KOVERTEC HD™
antiabrasive,
plastic spiral for
“Heavy duty”
applications



FLEXWRAP™
flat, plastic spiral
for light
applications



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field assembling sleeve
for medium high
temperatures



TEXSTRIP™
multiple hose or cable
containing belts



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fiberglass, silicone
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SHILCUT™
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silicone coated
"flame cutting"



SHILTAPE™
field wrapping
fiberglass,
silicone coated tape



**THERMOPLASTIC SPIRAL WRAPS, ABRASION, TEMPERATURE
AND WEATHER RESISTANT**



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spiral for "Heavy duty"
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FLEXWRAP™
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for light applications

Roditor & Philadelphia, one of the most important manufactures of products in the world

History

Roditor & Philadelphia is today one of the most important manufactures of products for robotic and manual polishing and metal surface treatment in the world.

The historic company, Confezioni Dischi Roditor, was born in 1958 in Verolanuova with the objective of supplying the local customers in the metal polishing. During the years Roditor & Philadelphia gained greater stature and popularity on the national market, and the products began to be used by a growing number of companies.

At the beginning of the 70's, to satisfy the requirements of the customers, Roditor & Philadelphia decides to complete the production range of buffs introducing the production of the abrasive compounds, with the assistance of an expert manufacture who was operating into the local market. In 1972, the partnership between Mr. Giovanni Pugnetti and Confezioni Dischi Roditor, forms the company Philadelphia Chemical, the name took its basis from the street the company was set up.

In 1980 the merger between Confezioni Dischi Roditor and Philadelphia Chemical created Roditor & Philadelphia birth. In 1991 Roditor & Philadelphia put together the production department of buffs and abrasive compounds and in 1999 combine the

production, the management and the sales offices into the same facility located in the present headquarter in Via San Donnino 13 Verolanuova (BS).

In 2002 the company obtains the Certification UNI EN ISO 9001 for its Quality Management and in 2016 the certification OHSAS 18001 for its Occupational Health and Safety Management System.

Today Roditor & Philadelphia solutions for the surface treatment and metal finishing are used all over the world.

Philosofy and quality

The continuous and steady research, the technical improvements of our equipments, the use of high quality raw materials are the basic principles of the company philosophy.

Thanks to this way we help our customers to reach operational advantages, such as the upgrading finishing, the progress of output results, the cost optimization, the working cycles simplification. The increase of research and development activities; the raise of the standard production and the level of customer's satisfaction; the investment in the production and storing areas; the investment in new and up-to-date machineries are the main concepts of the quality policy of our company, which is oriented to the success of our Customers.



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Fax +39.030.931768

E-mail: info@roditor-rph.it

Expertise and innovation in material handling and production logistics



GENERAL

BONFANTI owns a proven experience in development of specific solutions in the segment of material handling and production logistics. Our company staff has the aim to plan the most effective strategies in order to facilitate material handling with the consequent optimization of process timing, allowing in this way to our clients to increase the profitability of their activities, guaranteeing maximum level quality and safety standards.

Expertise and innovation in every branch of activity are the key words of BONFANTI design and development.

Our range of products represents the optimized response to all requirements of the clients: from material handling to equipment feeding, from warehousing to process control and monitoring

BONFANTI is involved in design, production and installation of:

- lifting equipment,
- material handling and storing equipment,
- SW applications and systems.

BONFANTI also provides consultancy and turn-key projects in EPC organization (Engineering, Procurement and Construction) for the supply of complete factories and systems.

Our product range includes:

- standard lifting equipment (man-operated),
- other material handling machines and systems,
- automatic warehouses,
- process monitoring and control,
- general engineering.

BONFANTI has a dedicated line of products for different industrial sectors, offering products that vary from relatively simple maintenance cranes and/or other lifting equipment up to specific process or heavy duty equipment with capacities up to a 400t.

BONFANTI STANDARDS AND QUALITY

BONFANTI equipment is designed using FEM and ISO standards in accordance with the MACHINERY DIRECTIVE for CE marking.

Their dimensioning, besides the standards, takes into account both the particularities of the service as well as the conditions present in the work area where they are going to be used.

Since long time already BONFANTI has been operating under the control and quality assurance regime certified ISO 9001 for the following activity fields: design, fabrication, installation, commissioning and after sales support.

Paying maximum attention to the standardization of spare parts and proposing Spare Part Kits carefully chosen, BONFANTI offers to the Clients the opportunity to contain the costs of their supply and to minimize the reparation times (and production loss times) that, consequently, generate costs much higher than those dedicated to spare parts.

Our mission is to offer expertise and products to the clients whose main objective is the increase of profitability of their company activities and of internal logistics efficiency.

BONFANTI FOR STEEL - HDC EQUIPMENT

In order to provide valid replies to Client requests for always bigger productivity, BONFANTI has developed the “HDC” range of products dedicated to steel industry, able to satisfy always more complex operational requirements with the increase of uptime and reduction of time losses.

The “HDC” equipment is studied to respond to the specific requirements of this extremely heavy duty sector such as:

- safety,
- reliability,
- highest performance levels.

This range of products consents to cover all the production process handling starting from raw material/mineral/scrap going all the way to the final phases dedicated to storage and dispatch areas.

Since every application inside the steelworks presents its own particularities, requiring specially designed solutions, BONFANTI has diversified its “HDC” range based on various stages of the production process.

Being orientated toward continuous improvement, the solutions applied on “HDC” equipment get constantly updated to make them always more suitable to solve specific issues related to this sector such as:

- presence of heat sources and dusts,
- management of limited maintenance periods,
- operators safety.

The design basis of “HDC” equipment assumes maximum care to the aspect of standardization of mechanical and electrical parts in order to make less burdensome the supply of spare parts.

All this consents to provide to the end users the experience and products whose main objectives are the increase of productivity and logistic efficiency with particular regard to the increase of safety and to reduction of the maintenance costs.

BONFANTI FOR HEAT TREATMENT - HT AUTOMATIC EQUIPMENT

The “HT” equipment are designed to manage AUTOMATIC handling and storing activities for the Forging/Heat treatment processes. The typical destinations are: forging, wireworks, fastener and bolts productions.

The modularity of the “HT” solutions permits to realize a complete engineering of the logistic processes.

The main features are:

- anti-sway mechanical system to avoid any oscillation during the execution of the handling/storing process,
- automatic identification of the material to be handles,
- dimensional verification of the material,
- automatic positioning of the material (to be treated and treated) in a complete process area including the loading of the furnaces, of the annealing water baths and of the cooling platforms.

- automatic storing in WIP Warehouses for the material to be treated and treated,
- automatic evacuation of the treated material from the working area,
- process data exchange with ERP and MES external applications.

BONFANTI FOR PICKLING - "PP" AUTOMATIC EQUIPMENT

The "PP" equipment permits a fully Automatic management of the material handling for the pickling plants. The typical destinations are: Wireworks, Fastener and bolts productions

The main features of these systems are:

- designed and produced to operate in corrosive and heavy environments typical of the pickling plants,
- anti-sway mechanical system to avoid any oscillation during the execution of the handling process,
- complete management of the working cycles,
- automatic positioning and execution of the movements of the material between the pickling tanks,
- complete control and certification of the dipping times,
- different working cycles in base of different kind of material,
- possibility to handle, at the same time, different kind of materials.

BONFANTI FOR STORING - "WS" AUTOMATIC EQUIPMENT

The "WS" equipment are designed to manage the AUTOMATIC storing of material having big dimensions and/or heavy weight (like Steel and Aluminium coils, steel billets, brass billets and profiles, Aluminium and steel plates, profiles, bars).

The main features are:

- anti-sway mechanical system to avoid any oscillation during the execution of the storing process,
- automatic handling (aerial with automatic stacker cranes and ground with combination of conveyors and shuttles according at the logistic and cycle constrains of the application) of the material during the receiving (input), storing and releasing (output) of the material,
- automatic verification of the material dimensions before the storing,
- automatic storing of the material in base of the availability of the space inside the warehouse and in base of the preconfigured storing logics,
- complete management of export (pickup) lists in order to automatically provide the material in the output bays in base of the required retrieval list,
- automatic reordering of the warehouse in order to optimize the space use and to minimize the future storing/retrieval cycles,
- data exchange with ERP and MES systems for the receiving of the material data, the picking list and for the transmission of the warehouse storing cells and the I/O missions.

BONFANTI FOR PLASTIC

BONFANTI is market leader for Automatic handling, storing and packaging systems for the Plastic Film Production. A complete range of equipment and systems is available to satisfy any process requirement in this production process.

More information is available on the BONFANTI website (www.bonfanti.it)

Bonfanti •
INTEGRATED HANDLING SOLUTIONS

Press release

Agreement between ArcelorMittal and NSSMC regarding joint venture to acquire Essar Steel India Limited

Luxembourg March 2, 2018: ArcelorMittal (The Company) has signed a joint venture formation agreement with Nippon Steel & Sumitomo Metal Corporation (NSSMC) in relation to its offer to acquire Essar Steel India Limited (Essar Steel). The Company's subsidiary ArcelorMittal India Private Limited (AMIPL) submitted a Resolution Plan for Essar on 12 February, which outlined the intention to have NSSMC formally join its bid for Essar Steel. Should the submitted Resolution Plan be selected and formally accepted by India's National Company Law Tribunal, ArcelorMittal and NSSMC would jointly acquire and manage Essar Steel.

In its Resolution Plan, AMIPL set out a detailed industrial and turnaround plan aimed at restoring Essar Steel's fortunes, enabling it to realise its full potential and participate in the anticipated steel demand growth in India.

Commenting, Mr. Lakshmi Mittal, Chairman and CEO, ArcelorMittal, said:

"Partnering with NSSMC for Essar Steel was always our intention and adds further strength to our offer.

Combining our experience and expertise creates a powerful partnership that has a proven track record - our rich history of positive collaboration dates back more than 20 years with three joint ventures in the US. We believe that together we can contribute our knowledge and technology to support a rapid turn-around in Essar's performance, enabling it to increase production, enhance its product capabilities and make a meaningful contribution to the future growth of India's manufacturing sector and the development of its economy."

ArcelorMittal and NSSMC have operated I/N Tek and I/N Kote in Indiana, USA, under joint venture agreements since 1987. I/N Tek and I/N Kote are high-added value downstream steel finishing facilities which serve the automotive and domestic appliance markets.

More recently, in 2014, ArcelorMittal partnered with NSSMC on the acquisition of AM/NS Calvert, a state-of-the-art downstream finishing facility in Alabama, USA. The facility, which opened in 2010 and has a 5.3 million tonne capacity, was the largest newly constructed steel facility in the US in 40 years but had failed to reach its potential. A major investment programme has been undertaken following the acquisition. The programme focused on improving the facility's finishing lines to enable the production of higher-added value steel products, including production of Usibor®, ArcelorMittal's flagship advanced high-strength steel for the automotive sector, and increasing slab staging capacity and efficiency. These investments have helped to facilitate a rapid improvement in AM/NS Calvert's performance: capacity utilisation rates have improved by over 20 per cent; shipments to the automotive sector more than doubled between 2015 and 2017; and productivity at the hot strip mill has increased by over 1 million tonnes since the acquisition.

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RASERA^{srl}

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The background consists of several overlapping, angular shapes in various shades of purple and magenta, creating a complex, geometric pattern. The shapes are primarily triangles and quadrilaterals, some pointing towards the corners of the page.

**VAL
VES**

Press release

BP licenses its latest generation PTA technology in Turkey

London, February 27, 2018

BP and SOCAR TURKEY ENERJI A.Ş (SOCAR Turkey) have entered into a licensing agreement for BP's latest generation purified terephthalic acid (PTA) technology.

SOCAR Turkey intends to deploy the technology in its new 900,000 tonnes per annum (tpa) unit at Aliğa, Turkey, expected to come on stream by 2023 once the final investment decision is taken.

"BP is committed to providing products and solutions to help our customers reduce their carbon footprint. We are proud to build on BP's long-standing relationship with SOCAR Turkey to license and deploy this technology into their facility in Turkey. This is a testimony to the advantages of BP's technology," said Rita Griffin, chief operating officer, BP Petrochemicals.

Emil Eminov, SOCAR Turkey chief operating officer, said: "This investment is highly strategic for us, fulfilling our intent to create a value chain by integrating our newly-announced aromatics complex adjacent to the STAR refinery and PETKİM plant in Aliğa with the most competitive PTA technology. This will create the most competitive asset in Turkey and the Middle East and will serve the high demand for PTA in Turkey and surrounding regions."

BP Petrochemicals' PTA technology has significantly lower capital and operating costs when compared with other PTA technologies. The technology is more energy efficient, uses less water and produces less solid waste than similar technologies on the market. BP Petrochemicals continues to invest in proprietary PTA technology to maintain its position as a market leader and technology of choice. New innovations are available to licensees.

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Effebi, high quality ball valves from Italy



Effebi is an Italian manufacturer of ball valves in steel, stainless steel and brass. With 20 years' experience, the company offers a vast range of innovative yet proven ball valves. Thanks to an integrated production process which begins with the careful selection of raw materials, Effebi has become a leader in the Italian and international markets and a reference for valve quality, reliability, competence and customer care. Since June 2002 Effebi has manufactured all its valves according to the requirements of the European Directive 97/23/CE and, where necessary the valve bodies are CE marked. Effebi offers customers all the most important certificates and declarations relating to ball valves, including DVGW (for gases and drinking water), TUV, TA-LUFT, Fire Safe, ATEX, declarations of conformity, FDA approvals for seats and other approvals (f.i. DNV or Lloyd's approved foundries). More than 50 certifications and approvals demonstrate the quality and reliability of the Effebi products. One of the biggest strengths of Effebi is the possibility to produce and customize the valves according to the customer's demand, along with highly trained staff, able to give to customers the right technical support and one-day answers. Effebi ball valves are suitable for all the most important industrial applications. The Effebi range includes manual and pneumatically or electrically actuated 2- and 3- way ball valves with threaded, flanged and welded connections. Materials of construction are carbon steel A105 or LF2. Stainless steel includes AISI316, AISI316L and AISI304. Also a very wide range of technical ball valves in brass is available, manual or with actuator, as well as cast iron butterfly valves.

The choice of pressure ratings is very wide, according to the execution from PN10 to PN100 for the wafer, split-wafer and flanged types and up to PN420 for the threaded and welded types. Temperature range goes from -40° to $+260^{\circ}$. Among the new products, the new range of ball valves in the pressure classes PN100 and ANSI600 in the wafer and split-wafer execution. The sizes go from DN15 to DN100. The materials available are A105, LF2, AISI304 and AISI316. Under development are also the ANSI600 flanged ball valves. A new range of threaded or flanged three way valves with 4 seats in Aisi316L, manual or with Iso top is also available. Special executions include: standard painting treatment, special painting treatment according to customer's specifications, zinc plating treatment, degreased valves for oxygen, integral seats for the food or paint industry, special valves' marking, tag numbers or packing according to customer's specifications. The possibilities of special products also include valves with heating jacket, flanges' surface finishing according to customer's specifications, spindle extensions, locking devices, gear boxes, mounting kits according to customer's actuator connection, raw materials from DNV or Lloyd's approved foundries.

The Effebi range also includes a very wide range of electrically or pneumatically actuated ball valves, in brass, steel and stainless steel, including accessories like solenoid valves (standard or ATEX), limit switches (standard or ATEX), electro pneumatic positioners, pressure reducers, emergency gear boxes and emergency batteries. Also compact electric actuators for special executions can be offered.

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BFT Burzoni, constant innovation!



For more than 40 years, BFT Burzoni has been operating successfully in the machining mechanical operations and tools market. The philosophy of the company from Piacenza is to continue investing heavily in its product range. “BFT Burzoni - tells Arianna Burzoni, daughter of founder Alberto Burzoni and on his side in managing the company - was born in 1974 as a small business reality and since its inception the intent has always been to provide the best service possible to clients. That’s why we have tried to create a complete, reliable and forefront utensil program. “ BFT Burzoni is a constantly evolving company and introduces every day new products to offer to its customers. The company has achieved remarkable results from the two innovative grades of hard metal CCD40 and CCT35, which are drawn for the processing of demanding materials such as stainless steels, titanium, titanium alloys, Duplex and Superduplex (Hrsa). They guarantee a high degree of toughness under conditions of extreme temperatures, allowing high cutting speeds and longer lives, as well as absolute reliability during milling and turning operations. “Competence is indispensable - says Alberto Burzoni, BFT owner - but two other important aspects are the attention to quality-price ratio and the a ready delivery service in less than 24 hours, which we can guarantee to our customers thanks to an enviable warehouse, our flagship flower. Our sales philosophy must always be customer-oriented: to ensure a full service by placing first the highest customer satisfaction, which must be supported from planning to implementation of their projects, without neglecting any details. “The goal of BFT is therefore to continue the development course undertaken in these years, both

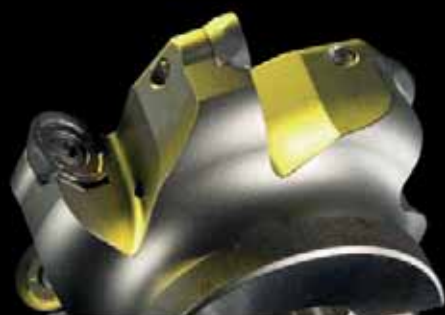
commercial and technological, in order to constantly play a leading role in the tool market. BFT aims is to expand its range of product lines so that they can cover an increasing number of types of mechanical machining. For the year 2018 the BFT Burzoni is introducing a lot of new products and projects. Two good example are the new line of turning inserts Gold Panther and the innovative development of a high feed indexable milling cutter, the TJ401. The new line of hard metal turning inserts called Gold Panther (GP, featured in a gold-plated coating that will also keep track of the wear of the insert itself) included new geometries and new innovative coatings complement the already proven Black Panther line. In this way, the BFT further expands its range of possibilities in all application of turning machining. The new TJ401 is a milling cutter with a specific insert (SDMT12 and SDMT16) specifically developed for high feed operation of hard materials with large chip volume removal. The metal quality and the innovative coating of the inserts ensure an efficient and long tool life. The strategic direction of “BFT Panther” is not only to consolidate its position within the Italian market, but also intends to increase its commercial flow to foreign markets. “Even so, 90% of our turnover is achieved in the Italian market - says Arianna Burzoni - we are already present in some foreign markets such as Brazil, Germany, Spain, Hungary, Poland, Romania Croatia and Slovenia. Certainly, BFT can boast points like the quality and professionalism of the service it offers to its customers. It will be the task of BFT’s commercial network to face the great challenge of expanding the foreign market share with the utmost enthusiasm. “

THE NEW 2018 CATALOGUE IS COMING!

KEEP
CALM

AND

FOLLOW THE PANTHER



www.bftburzoni.com

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 many 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 – 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 12 Companies grouped under 7 main production divisions for a total of 652 employees and 130 million € in sales in the year 2017. About 44 million € have been invested between the year 2015 and the year 2017 in technology, infrastructure, people, training and equipment, and further 21 million € are planned for investments in year 2018.

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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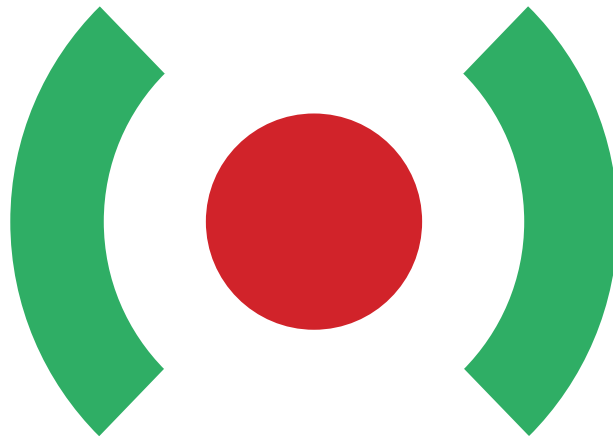
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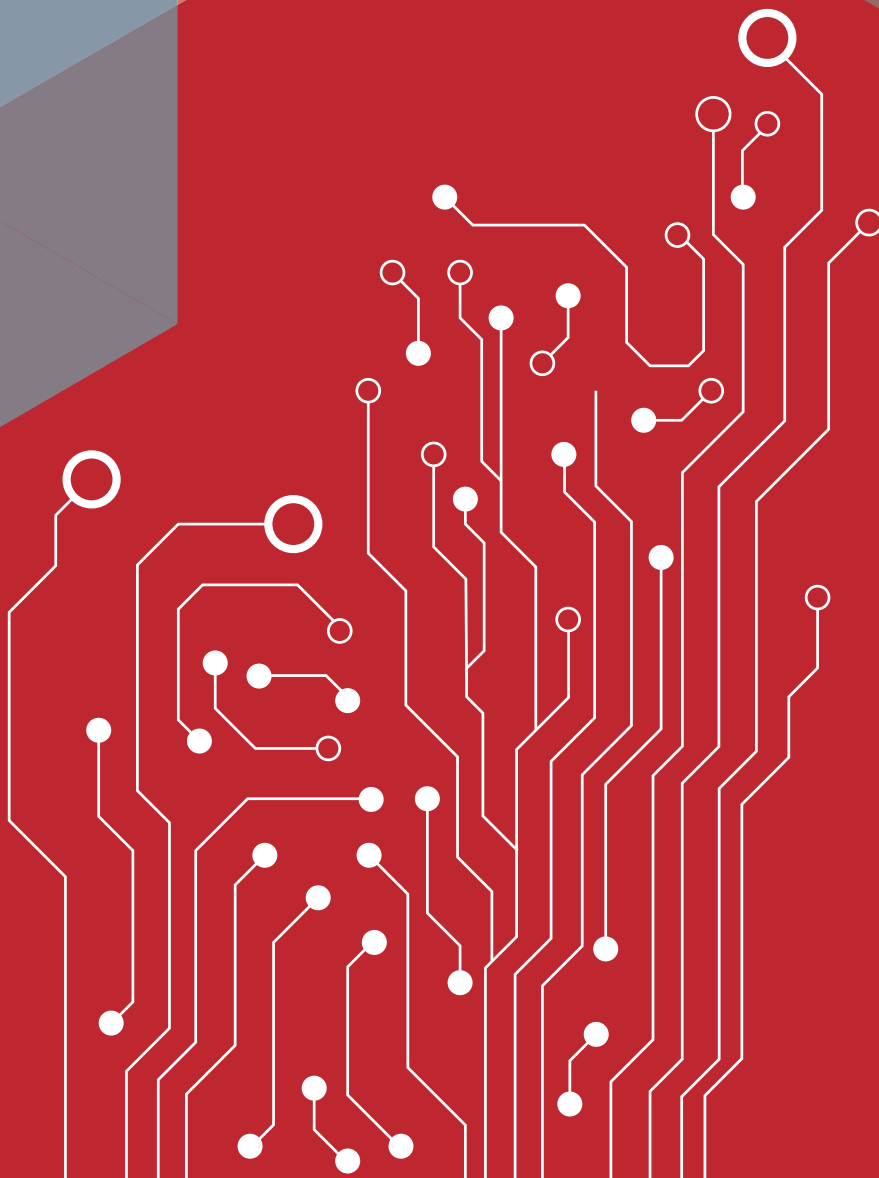
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Using Wireless Modbus For Process Control

MODBUS is the most widely used communications protocol in process industries today. It is simple, convenient, universal and easy to use.

Although the new products offered in the market of process control, such as analysers, flowmeters and PLCs, usually have a wireless, Ethernet or fieldbus interface, MODBUS is still the protocol that most vendors choose to implement in different solutions. Another benefit of MODBUS is wiring technology. ModBus can run over all communication media, including twisted pair wires, wireless and fiber-optics.

Some manufacturers have developed "hybrid" devices that act as MODBUS slaves, but also have "write capability", which makes them pseudo-master at times. The three most common MODBUS versions used today are MODBUS ASCII, MODBUS RTU, MODBUS/TCP. All MODBUS messages are sent in the same format. The only difference between the three MODBUS models is the way messages are coded. In MODBUS ASCII all messages are coded in hexadecimal, using 4-bit ASCII characters. For every byte of information, two communication bytes are required, twice as many as with MODBUS RTU or MODBUS/TCP.

Therefore, ModBus ASCII is the slowest of the three protocols, but it is suitable to be used with radio (RF) links because ASCII makes use of characters to delimit a message. Thanks to this message delimitation, any delay occurring in the transmission medium will not cause any misinterpretation of the message by the receiving device. This can be important when dealing with slow modems, mobile phones, noisy connections or other critical transmission media.

In MODBUS RTU, data is coded in binary and the protocol requires only one communication byte per data byte. This is ideal for use over RS232 or multi-drop RS485 networks, at speeds from 1,200 to 115Kbaud. The most common speeds are 9,600 and 19,200 baud. MODBUS RTU is the most widely industrial protocol used today.

MODBUS/TCP is the Ethernet version of MODBUS. Instead of using device addresses to communicate with slave devices, IP addresses are used. With MODBUS/TCP, MODBUS data are simply encapsulated within a TCP/IP packet. Any Ethernet network that supports TCP/IP should support the protocol without any problems.



Armando Zecchi

MODBUS RTU BASICS

In other articles of this series about ModBus we have already examined the various characteristics of the bus. Now we will just take up some concepts to describe the process automation solutions and wireless solutions.

To communicate with a slave device, the master sends a message containing: device address, function code, data, error check. The device address is a number between 0 and 247. The Message sent to address 0 (broadcast messages) can be accepted by all slaves, while addresses from 247-1 are addresses of specific devices. With the exception of broadcast messages, a slave device always responds to a MODBUS message so the master knows the message was received. The function code defines the command that the slave device is to execute, such as read data, accept data, report status, etc. The function codes vary from value 1 to value 255. Some function codes have sub-function codes.

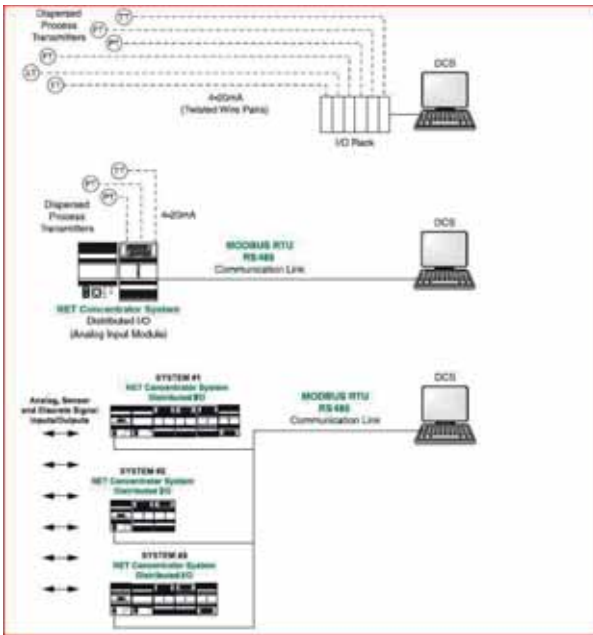


Figure 1. A MODBUS RTU network consists of a "master", such as a PLC or DCS, and up to 247 slave devices connected in a multi-drop configuration.

The error check is a 16-bit numerical value representing the Cyclic Redundancy Check (CRC). The CRC is generated by the master and checked by the receiving device. If the CRC values do not match, the device asks for a retransmission of the message. In some systems, a parity check may also be applied.

When the slave device performs the requested function, it sends a message back to the master. The returning message contains the slave's address and the function code (so the master knows where the message comes from), the requested data and the error check value.

MODBUS MEMORY MAP

Each MODBUS device has a memory, where process variable data are stored. The MODBUS specifications dictate how data are retrieved and what type of data can be retrieved. However, there is no restriction on how and where the device provider enters these data into its memory map. The following is a common example of how a vendor can logically map different types of process variable data. Discrete inputs and coils are one-bit values, and each has a specific address. Analog inputs (also called "Input Registers") are stored in -16bit registers. By using two of these registers, MODBUS can support the IEEE -32bit floating point format. Holding Registers are also -16bit internal registers that can support floating point.

| Command | Function Code |
|---------|---|
| 01 | Read Coils |
| 02 | Read Discrete Inputs |
| 03 | Read Holding Registers |
| 04 | Read Input Registers |
| 05 | Write Single Coil |
| 06 | Write Single Register |
| 07 | Read Exception Status |
| 08 | Diagnostics |
| . | . |
| . | . |
| xx | Up to 255 function codes, depending on the device |

Figure 2. Function codes.

Reading and Writing data

MODBUS has up to 255 function codes, but the most commonly used are the following: 01 (read coils), 02 (read discrete inputs), 03 (read holding registers) and 04 (read input registers). When the instruments are wired in a distributed I/O system, such as Moore Industries' NCS product, multiple devices can be added, but only one twisted pair is required to transmit all data to the MODBUS master.

For example, to read three -16bit words of analog data from device 5's memory map, the master sends a command that looks something like:

3 2 04 5 CRC

Where 5 is the device address, 04 says to read input registers, 2 is the starting address (address 3, (30,002 means to read three contiguous data values starting from address 30,002, and CRC is the error check value for the message. After receiving this command, the slave device sends back a response that looks something like:

04 5 aa bb cc CRC

Where 5 is the device's address; 04 is the repeated read command; aa, bb and cc are the three -16bit data values, and CRC is the error check value for this message.

Reading and writing digital inputs and outputs is done in a similar manner using different reading and writing functions. Assuming that the device follows the MODBUS specification, it is a simple programming task to set up the master to read and write data, check status, obtain diagnostic information and perform various control and monitoring functions.

CONNECTING MODBUS DEVICES

One of the easiest ways to bring field devices into a process control system, PLC or industrial computer is to connect digital and analog I/O into a distributed I/O system featuring MODBUS communication capability. For example, the NCS system (NET Concentrator System) from Moore Industries allows a user to connect remotely analog and digital signals, which can then be connected to a MODBUS master with a twisted pair cable. Multiple NCS systems can be installed in several locations throughout the plant.

This solution works for both new and existing plants. A distributed I/O system can accommodate all of the existing I/O, or it can be used just to send data from all the new field instruments. In some cases, the control system is not able to deal with a MODBUS signal. It may be that the legacy control system is accustomed to dealing with 20-4mA analog signals. Reprogramming the old system to accommodate MODBUS data would be difficult. Often, users would like to add new remote signals to their system without having to run wire or buy expensive MODBUS interface cards that require extensive re-programming. In that case, a peer-to-peer solution works best.

HART via MODBUS

Another project trend for process control systems is to install HART smart devices. HART is a digital protocol that was designed to allow transmitters to simultaneously transmit digital data and an analog signal over a copper twisted pair. This enabled users to configure, interrogate and diagnose transmitters locally or remotely via any point along the twisted pair. HART slaves can be wired in a point-to-point configuration or in a multi-drop configuration. In the point-to-point configuration, which is the most common, the HART transmitter varies the current on the analog loop to represent the required process variable.

Both process variable data and digital data can be transmitted by the HART slave or the HART transmitter. This data could be used to monitor the status of the instruments or can be used by the process control system or asset management system to optimize processes, assist in providing tighter control, or prevent unexpected process hiccups. In some cases, existing plants may have hundreds of HART enabled instruments. Unfortunately, for one reason or another, many plants have not made good use of HART's capabilities.

A HART instrument can send up to four process variables via the HART signal: PV (Primary Variable), SV (Secondary Variable), TV (Tertiary Variable) and FV (Fourth Variable). Additionally, there are various bits and bytes of status data that can also be transmitted. However, if the control system cannot read the additional process variable data – or any of the other diagnostic and status information — from the digital HART signal, then that data go wasted.

Customers certainly have options to get this HART data, even in legacy and old plants. Some companies offer new upgraded analog I/O cards that have the ability to “pick off” the HART data. However, these cards usually cost three to five times as much as the traditional analog I/O cards. The solutions available on the market offer HART multiplexers that can be installed on existing analog loops equipped with RS422 and RS485 outputs. It should be noted that the cost of these multiplexers can be very high.

An optional alternative is to use a HART to MODBUS converter like HIM (HART Interface Module) from Moore Industries because it allows the flexibility of monitoring of a few or many loops at reasonable costs. With a HART interface module that supports MODBUS RTU communication, all the HART data can be brought to the control system. The HIM is a smart device that acts like HART master on the front-end while MODBUS RTU slave works on the back-end.

The HIM extracts all the digital HART data from the 20-4mA signal without overloading the loop. The device is provided with a display, three 20-4mA signals, two relays and an optional dual MODBUS RTU output. The HART data are digitally mapped to the HIM’s MODBUS memory map where it can then be polled by a PLC or DCS that is acting as the MODBUS RTU Master. With multi-drop process control types of various HIM devices via RS485, it essentially becomes a scaled asset management system for a fraction of the cost.

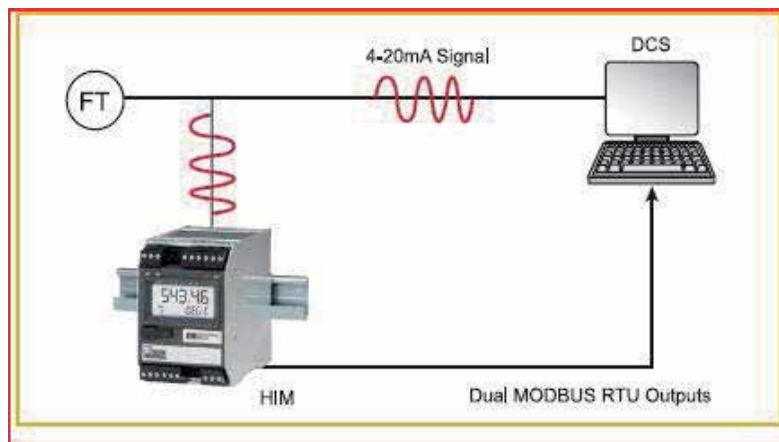


Figure 3. A HART Interface Module (HIM) extracts digital data from the HART signal and stores it in its MODBUS memory map, so that any MODBUS master could read it. The original 20-4mA signal is still wired to the control system as before.

MODBUS wireless

A MODBUS network can be easily set up to work over a wireless link (Figure 4).

Essentially, this wireless solution allows to replace the twisted pair cables with a transmitter/receiver at each end of the network. Many wireless devices manufacturers support the MODBUS protocol. However, due to some encryption schemes and time delays that radios and modems use, installation problems may occur.

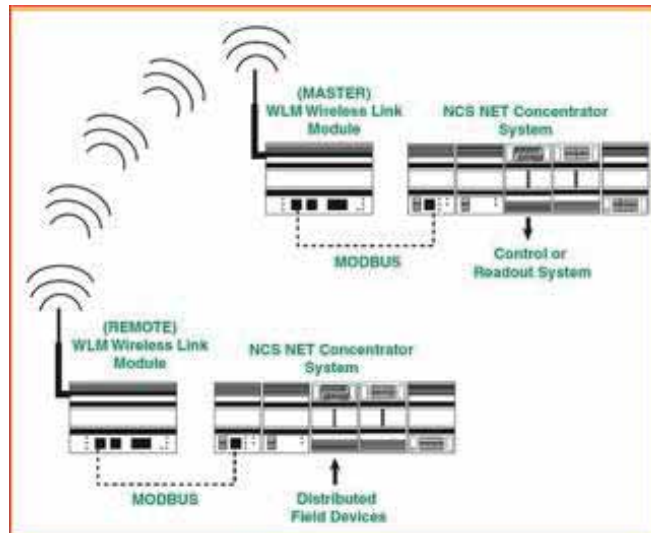


Figure 4. Peer-to-Peer Wiring. In some cases, the control system is not able to deal with a MODBUS signal. In that case, a peer-to-peer solution with two NCS systems replaces all the home run wiring with a single MODBUS cable.

USING MODBUS FOR PROCESS CONTROL AND AUTOMATION

The major advantage of wireless MODBUS is the cost savings in wiring infrastructure. MODBUS via wireless is transparent to the control system or host and the slave. Like the systems previously described for legacy plants, the host system doesn't even know that a wireless MODBUS network exists, because it doesn't have to deal with it. When a MODBUS master makes a request to a slave and the packets arrive at the transmitting radio, the radio will usually re-order the packets and encrypt them before transmission. Once the RF (Radio Frequency) packets are received by the "slave" radio, it de-encrypts them and send them on the MTL bus. The company offers solutions that can connect to Modbus devices over a stand-alone network or transfer data to a host computer for remote monitoring and control. Both Modbus TCP and RTU are supported and the MTL solutions allow data and signals to be converted between them, which maximizes operating options when new devices are networked. These wireless products also provide an unlicensed range of frequencies to meet both distance and bandwidth needs, regardless of location.

SYSTEM DESCRIPTION

One of the challenges that the modern control system has to face is to access the available data from the various smart devices to which it is connected. MTL systems enable a secure data exchange by creating the available data on a new or existing 802.11 infrastructure. The systems can be distributed in different ways for data transfer from Modbus TCP and RTU devices. For stand-alone networks where no external hosts or master devices are available, the WLN2000- Wireless Device Server can be implemented as a Modbus TCP master. Through the use of VCM and in addition to the RTU conversion function, three types of interfaces (Ethernet, RS232 and RS485) can exist on the network at the same time and communicate with each other via the advanced functions of WLN2000-. In addition to the stand-alone networks, the WLN2000- can be distributed to passively transfer data between the master and the slave in a transparent way, converting from TCP to RTU. WLN2000- is available in the 2.4 GHz and 5 GHz bands, with multiple channels available and the ability to test the radio channel and features for optimal channel selection. WLN2000- includes encryption, traffic management and routing features to ensure secure and compatible wireless networks.

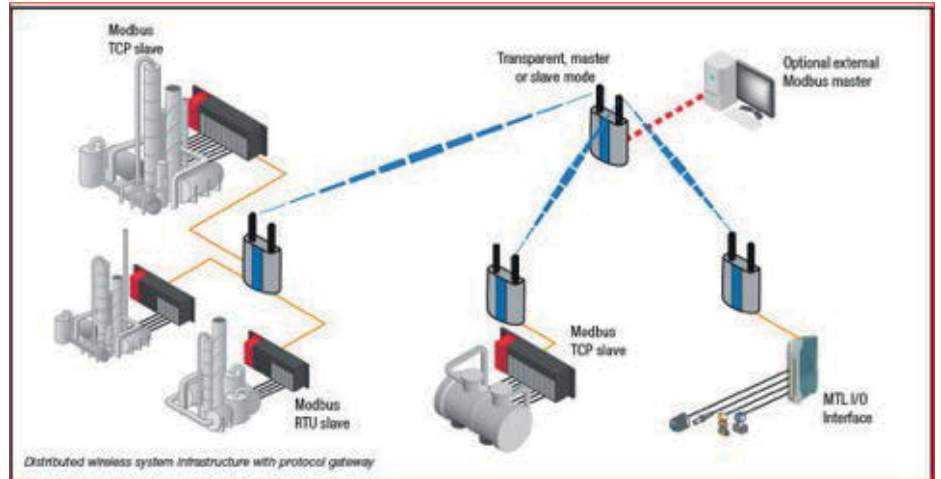


Figure 5: Wireless Distribution System Infrastructure.

See Figure 5 for an installation where wireless devices not only communicate with each other but can also convert from one protocol to another. This example is based on a subset of a small, remotely monitored pumping station. To improve downtime and introduce fault tolerance into your network, the network has redundant link mesh repeaters enabling Wireless Distribution System (WDS) and Spanning Tree Protocol (STP) options in WLN2000-. For purely digital and analogue signal networks, MTL also offers an I/O interface to provide sensor and control information via the Modbus protocol. Wireless devices on the network can be configured remotely and live diagnostics is available while the network is in operation, maximizing network uptime and enabling real-time intervention with an expansion method available if multiple sites are required.

Tool Steels by Lucchini RS



>>Interview with Luigi Lucchini - Forging & Casting Division Operations Director

Lucchini RS is known worldwide as a leader in the manufacturing of products and solutions for railway rolling stock.

How important is the tool steel market for your company?

There is no doubt that over the last ten years the company has devoted most of its investments, more than 200 million euros, to renewing the Railway division's plants and machinery. This has brought 70% of the Group's consolidated turnover today, about 430 million euros, to come precisely from the Railway division. Despite this fact, the Forging & Casting division continues to be fundamental for us; in fact, the industrial plan drawn up last year outlines a path for the division's development

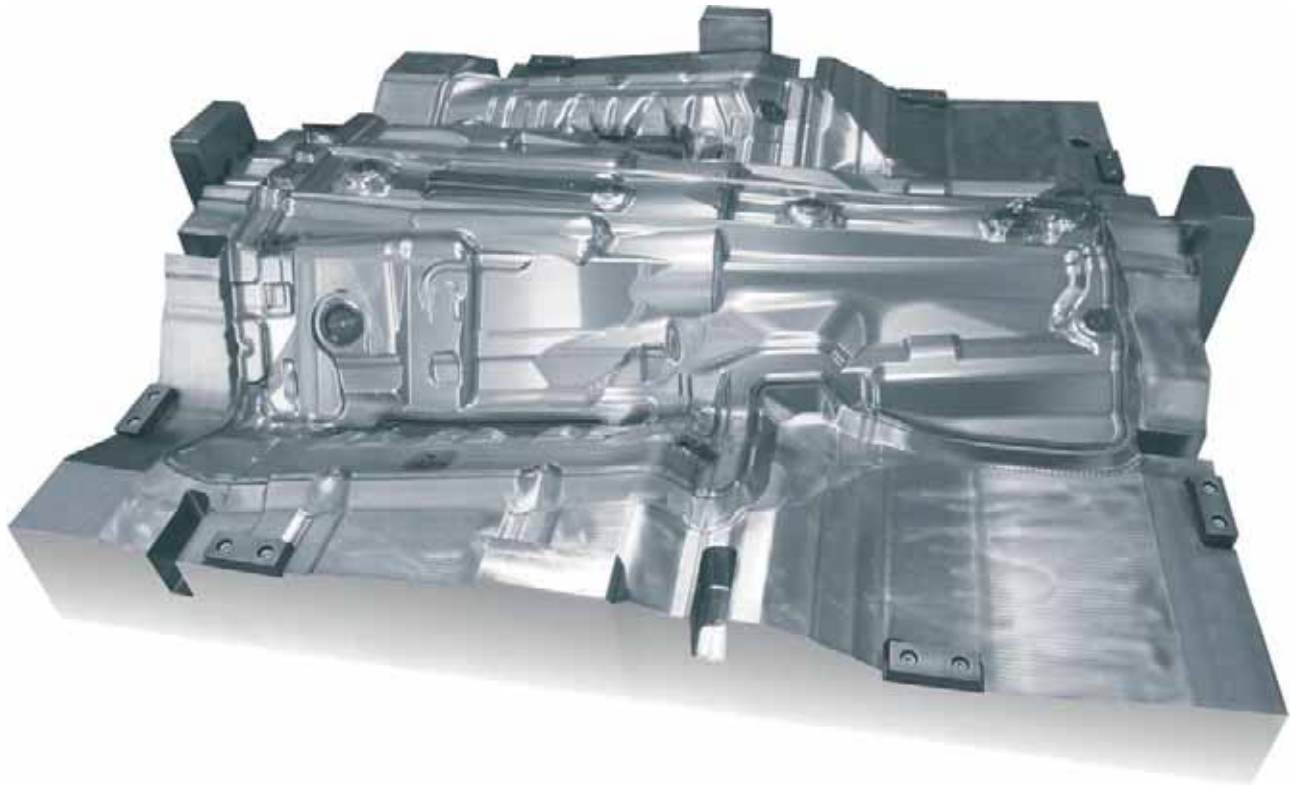
in order to cover new markets and offer new products. Tool Steel plays a central role in this.

Should the acquisition of "Euras", today Lucchini Tool Steel, be interpreted along these lines?

Exactly. Contact with the final user is fundamental, as is the guarantee and technical assistance that only "steelworks" can give. While improvised producers who perhaps produce steel at their sites and outsource the forging to third parties are common right now, I believe that being able to control the entire supply chain provides customers with a more effective guarantee on the product, as well as more flexibility.

When we decided to acquire "Euras" in 2017, we set ourselves challenging objectives in terms of volumes and new customers. I was certain of the work of Mr Forcella, the President of Lucchini Tool Steel, but witnessing how the objectives have already been surpassed today makes





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me truly optimistic about the implementation of the plan in the next few years.

**Not just plastic, but also die-casting.
Are you focusing on this sector?**

It could not be otherwise. We have been present in this sector for many years, but especially in the last two years we have seen a significant increase in volumes that can be attributed to the market's confirmation of our quality and seriousness. The results are good but not enough for us; we still want to grow, both in Italy and abroad.

Many large players neglect the plastics industry, at times using third party products. Will you also implement this strategy?

Absolutely not. Those who purchase Lucchini RS steel are confident that the steel was produced and forged on the shores of Lake Iseo, where our production plant is located. In order to be competitive in the plastics sector, we have invested and continue to invest in production equipment and warehouse. All this in order to be flexible and offer customers what they need, when they need it.

>>Interview with Alberto Ronchi - Lucchini Tool Steel Director

Euras, a company that has been known for decades in the distribution of tool steels, was sold at the beginning of last year by Acciai Brianza to Lucchini RS, the well-known company that has produced these products in its steelworks in Lovere (Bergamo) for decades.

The service centre is managed by Mr. Alberto Ronchi, thirty-year-old, thanks to his qualified experience gained in the field; we met with him for an interview. The declared objective of the Lucchini RS Group is to put the entire production-distribution chain at the service of its customers.

Tell me about the first year at Lucchini Tool Steel.

I'd firstly like to point out that the close collaboration of LRS and EURAS, today Lucchini Tool Steel, has always been constructive and the continuous exchange of information has allowed us to best grasp the opportunities offered by the market.

This direct relationship is reflected in the considerable acceleration in sales volumes, which has involved both the plastic moulds segment and the die-casting one.

The verticalization of our distribution has been received quite well by the market, mainly as regards the product's qualitative aspect and the related technical services offered pre- and post-sales.

So did you also invest by strengthening your team?

Obviously yes, while also maintaining a lean and reactive structure. The presence of our vendors throughout Italy is fundamental.

We want to grow in a sustainable manner, and the entire team is focused on the immediate needs of the customer.

And how do you plan to achieve this?

With dedication and determination, without ever forgetting the considerable financial commitment that materialises in large volumes of steel that are always available to meet customers' demand.

How do you see Lucchini Tool Steel in the future?

We will do what has been planned with great care and we will grow while always remaining a trustworthy and reliable partner able to offer all the services that the constantly evolving tool steels market asks of us.

I'd lastly like to add that I hope you enjoy your visit to our stand during this important exhibition; for us it is a perfect occasion for meeting and continuing our dialogue in the years to come.

Termoplastica Nevianese; Quality, Innovation, Research, Competitivity



ABOUT US – THE COMPANY

Termoplastica Nevianese started the activity in Polyethylene flexible packaging field in 1979. Over these years we have developed our commercial structures and techniques, diversifying and improving our production offer. Through continuous researches and investments in new systems and thanks to a close cooperation with packing and thermoshrinking machinery and equipment producers, we have reached a very good quality level that ranks us among the best Italian firms in our sector.

The Company philosophy and policy turns to the primary aim of quality, that keeps us seeking new materials to constantly improve the performance of our products. For this purpose, we always select the best European companies as suppliers and exclusively purchase first-quality raw materials.

Our Company has always been committed to the attention for the customers and on the constant pursuit of satisfying their requests, to guarantee quality, service and price and to widen the range of our products. The extensive distribution of our sales force enables customer feedback, from the sale to the after sale support.

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Our production range is divided into several articles:

- Flat Films
- Mono and multi-folded films

- Hoods
- Tube films
- Bags (small and big)
- Single, mono and multi-folded sheets

all produced with Low Density Polyethylene, with the possibility to offer, along with traditional LDPE articles, our special NEPAK blend, that represents the best result of our technical know-how. We have been producing, for some years, some High Density Polyethylene articles, particularly studied for food and preservation sectors.

Thanks to the variety of our range, in addition to standard multi-purpose products, we can offer our customers personalized solutions, according to their requirements and applications.

We have at our disposal the most updated and advanced extruding machines and we perform accurate and continuous tests during every extrusion steps to guarantee a constant quality of our products and the respect of tolerances.

We supply leading firms in different fields: food and preservation, beverage, bricks and ceramic tiles, metallurgic and mechanic, insulation, glass, paper, furniture and many others.

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ANTI-STATIC AGENT: it gives the product an high anti-static effect, long-lasting and self-regenerating during the time.

SLIP AGENT: it acts both as process lubricating and on the finished product to give quality of high slipperiness to the film, without altering the item optical properties.

ANTI-BLOCKING AGENT: it makes opening easier during the final use of articles such as tube films, single and multi-folded films, bags and hoods and it prevents roll coils from sticking during winding process.

The a.m. additives are the most used by customers; during process we can also add other masterbatches according to particular applications of the end-user.

PRINTING

In order to meet customers' request and according to marketing and traceability purposes, we can personalize all the articles of our production range with printed logos and images of different size and colours, at different printing steps. Thanks to our flexographic

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Should you need further technical data and know about particular applications possibility, please contact our technical department.

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Besides traditional sealed and cut articles (single, mono and multi-folded sheets, bags and hoods), normally conditioned in bundles on pallet, we can supply the same items in pre-cut rolls (with tear, sealed or not), with the following characteristics:

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Max roll outer diameter: cm 30

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All items of our production range can be manufactured with co-extrusion technology (3 layers), with the possibility to combine colours (for example black inside / white outside) and diversify any layers with special materials and particular additives.

Should you need further technical data and know about particular applications possibility, please contact our technical department.

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MPT Plastica, based in Calcinaia – Pisa (Italy), was founded in the 70's and started building tools for the footwear industry. Over the following decades, the company expanded to other industries such as motorcycle and automotive. We have been representing a fundamental reality in the tooling construction and plastic injection moulding business for over 40 years and we are very representative of the ITALIAN EXCELLENCE AND SPIRIT. We are one of the most experienced and reliable partner a company can find because of the continuous improvement of the good management of each production phase, from project development and tool construction to the production of all kind of plastic parts. Today the company counts for more than 100 employees and occupy an area over 15000 m2. Aware of the great importance of innovation, in order to keep up with time and to be more competitive, we continuously invest in new technologies and machinery. For instance, in 2017 we have invested € 1.5 million in our workshop, between work centers and software licenses, and € 800,000 in the moulding department, including new presses, measuring instruments and laboratory equipment. Our mission is to build a business model based on the partnership with the customer by offering constant assistance and a complete service, representing the optimal supplier for tool construction and the production of plastic technical components. We achieve this goal on a daily basis through training sessions and in-depth study of new solutions in materials, tests,

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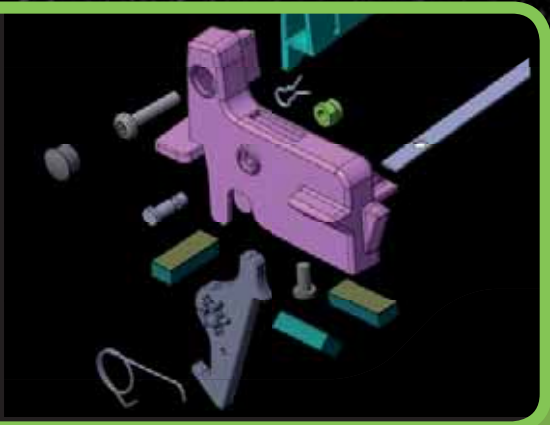
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We use traditional plastic material such as polypropylene, polyethylene, nylon, ABS and Techno-polymers. The use of plastic material with constantly more sophisticated characteristics and the automation of our production processes, allows us to produce items with excellent technical and functional characteristics, which comply to International regulations.

1.2: INDUSTRIAL DESIGN AND CO-DESIGN

In the designing phase of a new product our team of designers and engineers work side by side with our client giving full support starting with the conceptual drawing to the making of the prototypes. Through the collection, analysis the synthesis of all the data, our designers can develop any physical model designing directly with the computer software.

1.3: STRUCTURAL ANALYSIS

To determine the distribution of the internal structures and movements and tensions, to calculate the deformation and the changes, the grade of resistance of the final part, we analyze the structure of the part in the development phase to solve beforehand the engineering problems of the tooling.

2-Development of the part and prototyping:

The development of the part and prototyping phase is done by computer simulation to reduce the time for analysis to make the tooling and to test the quality. It mainly involves the below three phases.

2.1: MOULD FLOW ANALYSIS

Thanks to a dedicated software we can simulate and optimize the project development of the plastic parts and the tooling before the beginning of the production. This allows us to decrease the amount of expensive physical prototypes necessary for the tool design of the plastic part and also to launch on the market innovative products in less time and with major guarantees of reliability.

2.2: TOOL CONSTRUCTION

The Project Development Department, a group of highly specialized technicians, have CAD 2D and 3D instruments, next to analysis software as Mould Flow, CAM etc. used to develop digital models that allow to analyse the part and the process even before starting the tooling and before starting the production of the part itself.

2.3: QUALITY TESTING

To manufacture products according to the structural requirements and customers' requests, MPT PLASTICA has a laboratory where trained personnel run tests continuously on

production parts and constantly monitors samples of materials entering and products sent out.

3-Production of the plastic part:

We are able to produce plastic parts in any lot, weight and size

3.1: PRODUCING A FINISHED PART

Our injection molding department has a group of presses ranging from 65 to 2300 tons and we can produce items in any lot, weight or dimension. We make and use in production multi-cavity tools and two-component injection and one of our major strong points is gas assisted injection moulding.

3.2: ADDITIONAL PROCESSES

We also have a department of semi-finished products in which we complete the processes of assembly, pad printing and other activities. We are also able to perform particular welding techniques such as vibration or ultrasound welding, and this allows us to select the type that applies best to the part according to the clients' requirements.

3.3 PAINTING DEPARTMENT

We also have a partnership with a painting company to satisfy clients who require painted parts. The painting company covers an area of about 10.000 m² (half of which are covered) where the automatic painting systems are present. Among the painting systems, we have also the painting line for water based products.

QUALITY AT MPT PLASTICA

The constant research of highest quality is the main goal of MPT PLASTICA in every phase of production. Starting from project development to the making of the tool, all the way to the production of plastic parts, every detail is studied, analysed and approved by our quality technicians, achieving the highest quality level for our clients. MPT PLASTICA IS A CERTIFIED COMPANY AND OPERATES IN RESPECT AND CONFORMITY OF THE QUALITY REGULATIONS **ISO 9001:2008**.

By the end of the year 2018 MPT PLASTICA will be certified **IATF 16949**.

RESEARCH AND DEVELOPMENT AT MPT PLASTICA .

The Research & Development department is constantly engaged in the research of new innovative raw materials and technical solutions.

RESEARCH AND DEVELOPMENT ACTIVITIES:

- To test new polymers and innovative raw materials.
- To pinpoint new process methods.
- To apply technologies to our production.
- To constantly improve the overall production quality.



Press release

License of Acrylic Acid and Acrylic Acid Ester Manufacturing Technology to Indian Oil Corporation Limited

Apr. 26, 2018

Mitsubishi Chemical Corporation (Headquarters: Chiyoda Ward, Tokyo; President and CEO: Masayuki Waga; hereinafter "MCC") has concluded an agreement with Indian Oil Corporation Limited over the licensing of MCC's proprietary technology for manufacturing acrylic acid and acrylic acid ester.

Indian Oil Corporation Limited has been developing a project for producing petrochemicals from propylene in Dumad, India. The country's largest oil and gas company has selected MCC's technology for the process of manufacturing acrylic acid (an annual capacity of 90,000 tons) and butyl acrylate (an annual capacity of 150,000 tons) in the project.

MCC launched the development of a process for producing acrylic acid and acrylic acid ester from propylene in 1962, built the first commercial plant based on the process at the Yokkaichi in 1973, and has since continued to operate the plant to date. The process has been licensed in a total of more than 10 cases in the world.

Acrylic acid and acrylic acid ester are suitable for use in super absorbent polymers for disposable diapers, coating compositions, and adhesive agents. Global demand for these acid chemicals is growing at an annual rate of more than 5%.

MCC will actively promote licensing activity to new projects resulting from the growing global demand for petrochemicals.

Gimatic Utilizes 3D Printing Technology From HP to Innovate More Quickly and Better Optimize Its Production Capacity

How 3D Printing Technology from HP Helps Gimatic Better Compete In the Fast-Paced Robotics Industry

With HP's Multi Jet Fusion 3D Printing Capabilities, Gimatic Develops New Products More Quickly, Gains a Speed-To-Market Advantage, and Wins More Deals



Gimatic was founded in 1985 in Brescia, Italy by three partners whose goal was to create a dynamic organization that was attentive to market developments and the needs of its customers. Patented in 1986, the company's first product, was a pneumatic gripper for the industrial automation industry. Since then the Gimatic has filed over 180 patents and has become a leader in the handling industry.

Gimatic is well-known in its space for technical leadership. Gimatic invests 10% of its annual revenue back into research and development, which has created a steady stream of new innovation. The company is also recognized for its superior quality of its products. Thanks to advanced machinery and close-knit controls, consistency and reliability are ensured, spanning from individual components to final end-use products. Further, Gimatic takes pride in its culture of corporate social responsibility, adopting the strictest possible measures to safeguard the environment.

Gimatic serves many types of clients globally, most of whom operate assembly lines in the automotive and durable goods industries. The company operates four separate, but connected lines of business, including:

- Handling:** Offers many types of pneumatic precision grippers, indexing tables, linear actuators and more.

- Plastics:** Provides interlocking components for injection molding machines, including clamping systems, grippers and more

- Sensors:** Offers magnetic, ultrasonic, optical, and shock sensors, among others

- Mechatronics:** electric grippers, linear motors, interfaces and related products.

Today, Gimatic has sales companies around the world and relies on a widespread, organized, stable network of distributors. The company's sales network not only markets Gimatic products, but also collects user requirements and builds specific solutions for the given need.

Often this can require products that must be modified or customized.

INDUSTRY SECTOR

Industrial Automation

OBJECTIVE

Utilize 3D printing technology to assist with the

HP Jet Fusion 3D Printing Solution

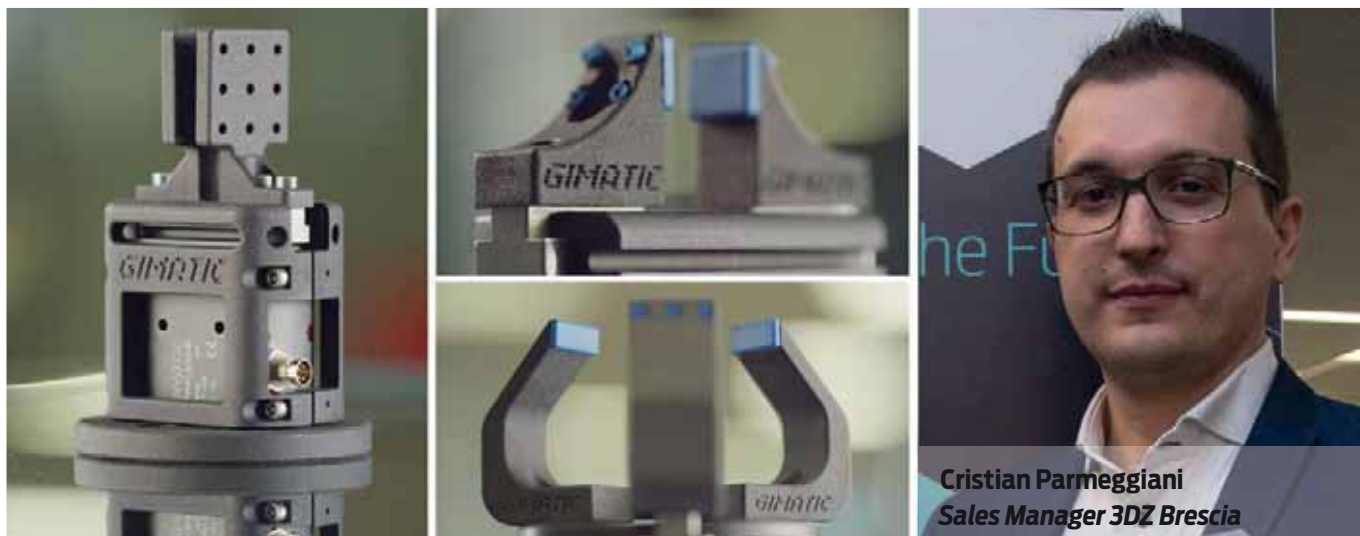


Print the Future

www.3dz.it



keep reinventing



development and manufacturing of key components, from initial design and prototyping, through production.

APPROACH

Discover the capabilities of HP’s 3D printing technology throughout the product development lifecycle. Determine the value of Multi Jet Fusion in developing prototypes, producing fixtures and tooling, and manufacturing components for end-use products.

TECHNOLOGY

HP Multi Jet Fusion, HP Jet Fusion 3D Printing Solution

CHALLENGE

“Our Mechatronics business is focused on creating and manufacturing intelligent products that have both mechanical and electronic components,” Says Gimatic’s Quality Assurance Manager, Pietro Belleri. “This line of business is a recent expansion for Gimatic, and our current challenge is to profitably establish ourselves in this relatively new market.”

Over time, Gimatic has grown the number of products it offers and often times these devices must be updated, improved or customized. The process of improving products can be expensive and time consuming, and Gimatic has been committed to utilizing technology to reduce costs and streamline its workflows.

About a year ago, Gimatic began exploring how 3D printing might help them improve their product development process. They started with early stage prototyping, working with a service bureau that utilized stereolithography (SLS) -based machines.

SOLUTION

“While it was a great way to familiarize ourselves with 3D printing especially with design for additive manufacturing,” says Mr. Belleri, “it didn’t 100% fit our needs. We started looking for a different technology to have in-house. At the end of 2017 we bought an HP Multi Jet Fusion 4200.”

The more Gimatic learned about 3D printing, the more they could imagine the use cases extending beyond early stage prototypes. Given the complex nature of their products, they also wanted to utilize the design freedom offered by additive manufacturing, far deeper into the product lifecycle. Gimatic wanted the ability to produce end-use parts.

Gimatic chose HP’s technology because:

- It helps them improve at all stages of product development** - Gimatic can now create physical representations of each product rendering - from conceptual models to functional prototypes
- They can produce manufacturing aids** - Gimatic can now produce jigs and fixtures for their mass production manufacturing lines and before having access to 3D printing, Gimatic either had to dedicate machine time to these very short run applications, or outsource them
- They can produce functional components** - Gimatic is utilizing the design freedom offered by additive manufacturing to produce components for their current products. Some of the new structures they incorporated include cones and blunted edges that improve the ergonomics of their products while also improving safety for machine operators. For example,

Cristian Parmeggiani
Sales Manager 3DZ Brescia

Gimatic makes carters for “collaborative robots.” These machines are designed to work side-by-side with human beings. Being able to shape the carters without hard corners and fewer exposed peaks minimize the risk of injury in cases of impact between a robot and an operator

•**They can produce customized components for customers** - Gimatic’s customers were asking for the ability to customize their products and have them produced “on demand.” Traditionally, Gimatic would provide an end-of-arm tool for a robot and leave the client to modify end tooling to fit their own production lines. Now the company can provide client with a more complete solution that includes the electronics, as well as end-of-arm tools such as gripping fingers and other final tools. This has allowed Gimatic to expand beyond its “core business” and meet more of its customers needs.

These advantages are particularly important for Gimatic’s Mechatronics business, where volumes are less economical for mass production techniques such as injection molding.

RESULT

“From a personal standpoint, the capabilities of Multi Jet Fusion have been a big win for me,” says Mr. Belleri. “In my role as Quality Assurance Manager for Gimatic, I’m responsible for the quality of all of our products. Prior to bringing HP’s technology in-house, there were times we had to make sacrifices and other times when we simply couldn’t meet a customer’s request. Today, we are much better positioned for success, and this is especially important for our fledgling Mechatronics group.”

With the assistance of their new HP Jet Fusion 4200 3D Printer, Gimatic can now react to market requests much more quickly. This speed-to-market advantage has been a big benefit for the company. Now within days, they can put functional prototypes in the hands of their

customers. This is helping Gimatic win more deals. The design freedom enabled by HP’s 3D printing technology is also helping Gimatic improve the performance of its products. Although the company still produces a large amount of injection molded parts, every day they’re learning more about how to leverage the geometries and shapes that additive manufacturing makes possible.

Perhaps most importantly, Gimatic has unlocked significant capacity with new product development. In the past the firm was forced to rely on CNC capabilities. Now those machines are focused on longer production runs and are being operated more productively. In the past new innovation took a backseat to the needs of production. Now Gimatic can accomplish both goals synergistically. They can continually improve while still meeting the demands of everyday business.

“Although we’ve only had our HP 3D printer for a few months, I’m confident that we’ll be pushing the limits of its capabilities very soon,” says Mr. Belleri. “As we continue to deepen our knowledge of design for additive manufacturing, I trust that we will continually improve the number of products that are 3D printed. From a quality perspective, that’s very exciting.”

To learn more about HP Jet Fusion 3D Printing Solutions Visit www.3dz.it.



Print the Future

Gimatic S.r.l.

•sito web

<http://www.gimatic.com/>

Intervista all'Ing. Pietro Belleri

Gimatic Quality Manager

•**Qual è l'ambito in cui si muove la sua azienda?**

pinze, attuatori e componenti pneumatici ed elettrici per automazione industriale, mani di presa per stampaggio plastico e movimentazione pick and place.

•**Attuale situazione (n di dipendenti, n di sedi o negozi, struttura, sedi italiane o estere)**

Circa 240 dipendenti nel mondo, una sede produttiva in Italia e 16 consociate nel mondo:Italia, Germania, Spagna, Francia, Polonia, Repubblica Ceca, Slovenia, Serbia, Svezia, Turchia, 2 in Cina , Giappone, Corea,

Stiamo aprendo delle filiali in: India, Russia, Romania

•**Quanto tempo fa è nato l'interesse per la stampa 3D? Come e per quali prodotti?**

I prodotti Gimatic da sempre si prestano ad essere personalizzati con dita di presa specifiche per l'applicazione cliente, ma fino ad ora non abbiamo ritenuto la tecnologia della stampa 3D sufficientemente performante per garantire le necessarie caratteristiche meccaniche e di precisione. Dall'altro lato il carattere fortemente innovativo di Gimatic impone rapidità nella fase di progettazione e prototipazione di nuovi prodotti, la versatilità della stampa 3D ben si sposa con questa esigenza. Spesso riceviamo richieste di prodotti speciali da parte dei nostri clienti, la nostra forza è la capacità di rispondere in tempi rapidi alle loro esigenze. Nei casi in cui siano previste piccole serie, il costo di produzione e la flessibilità della macchina di stampa consentono di mantenere costi inferiori rispetto a processi tradizionali di lavorazioni meccaniche o di stampa ad iniezione.

•**Sfruttate un service o avete acquistato una/più macchine/scanner? Quali?**

Ci siamo appoggiati in passato a service locali nei vari stati europei per la prototipazione 3D prima dell'acquisto della stampante; l'obiettivo attuale è quello di fornire in un'unica soluzione un prodotto completo, praticamente chiavi in mano, spedito dalla casa madre direttamente al cliente finale.

Non abbiamo altre tecnologie oltre ad HP.

•**Con quale frequenza le usate?**

La nostra rete commerciale ha introdotto soluzioni in 3D da circa un anno con maggiori sviluppi in Europa centrale e settentrionale, si tratta di una soluzione che sta prendendo sempre più piede. Il nostro ciclo di produzione ha già integrato la possibilità di mettere in condizioni il nostro mercato di richiedere ed ottenere i particolari 3D in 48/72 ore. Attualmente siamo ancora in fase di start-up e quindi l'utilizzo di tale tecnologia non è ancora significativo per la produzione.

•**Quali sono i vantaggi (tempi/costi/agilità) che avete riscontrato dall'utilizzo della stampa 3D/scanner 3D?**

Riassumerei in 3 punti i vantaggi di cui stiamo beneficiando: Velocità di stampa, la stampa 3D ci dà la possibilità di realizzare prototipi subito dopo la realizzazione del modello tridimensionale, inoltre possiamo garantire gli stessi tempi di consegna dei nostri prodotti standard anche sulle parti stampate con tecnologia additiva.

I costi di realizzazione dei prototipi o di piccole serie sono equiparabili, ma spesso inferiori, ai processi tradizionali senza perdere in caratteristiche meccaniche dei materiali,

La Flessibilità della stampa 3D sta aprendo le nostre possibilità di progettazione, spingendoci a pensare forme prima non realizzabili con le tecnologie tradizionali per risolvere criticità o per innovare i nostri prodotti aumentandone le performance.

•**Breve descrizione del processo di utilizzo della stampa 3D/scansione 3D nelle varie fasi di lavorazione. Quali sono gli sviluppi che prevedete nel vostro utilizzo di questa tecnologia?**

Il nostro processo di stampa soddisfa richieste interne, quali realizzazione di prototipi o di componenti di serie per il nostri prodotti, e richieste delle nostre filiali per la realizzazione di dita di presa specifiche o di posaggi personalizzati per i loro prodotti. Stiamo iniziando a studiare nuove forme per aumentare le performance dei nostri prodotti, ma stiamo anche investendo nella realizzazione di piccole mani di presa (EOAT End Of Arm Tooling) stampate in 3d per ridurre pesi, numero di componenti e per rendere le strutture con profili più morbidi e quindi maggiormente collaborative per l'utilizzo associato al mondo in forte sviluppo dei cobot.

•**Più in generale, qual è la sua percezione degli sviluppi della stampa 3D/scansione 3D?**

La completa libertà sulle forme realizzabili rappresenta un valore aggiunto non solo per chi fa progettazione oggi ed inizia a cambiare il proprio modo di pensare, ma soprattutto per le nuove generazioni, la cui forma mentis non è influenzata dai limiti delle tecnologie tradizionali.

•**Come si è sviluppata la collaborazione con 3DZ? Oltre alla macchina che tipo di servizi vi ha fornito?**

3DZ ci ha affiancato come service in una fase iniziale, è poi diventato il fornitore della stampante fornendoci il supporto per acquisire la necessaria preparazione per la gestione della stampa.

•**Intenzione di aumentare il parco macchine in un futuro? L'eventuale motivazione? Più produttività, attività in parallelo, differenziazione di prodotti da realizzare**

La scelta della posizione della prima macchina all'interno dell'azienda è stato guidato anche dalla prospettiva di acquistarne una seconda per garantire tempi di consegna sempre rapidi per i nostri clienti una volta saturata la prima macchina.

La collaborazione tra le due realtà è stata proficua per entrambi spiega l'Ing. Cristian Parmeggiani, sales Manager della sede bresciana che si è occupato della vendita. "Oltre a una struttura tecnica capillare sul territorio" (3DZ conta 16 sedi tra Italia e estero) "offriamo ai nostri clienti un supporto formativo rivolto all'uso della macchina (il cui funzionamento è davvero molto semplice) e soprattutto rivolto all'insegnamento di tecniche per ottimizzare e massimizzare i risultati, per esempio il corretto posizionamento dei pezzi e l'orientamento degli stessi pezzi. La tecnologia della stampa 3D offre nuove possibilità di progettazione che 3DZ aiuta a sviluppare con i team di product development dei clienti suggerendo nuovi modi di approccio al progetto".

Syncro Group new products showed at the exhibition plast 2018



At PLAST 2018, SYNCRO group will exhibit some new equipment on our 300 m2 booth, number A81.

The SYNCRO Groups range of products keeps increasing every year.

During the show we will launch our new COMBYSCAN that is SYNCROs state of the art non contact, non radio-active scanner. The new design is more compact allowing for an easier installation, matching the family feel of the SYNCRO scanner series.

Another, even more important product that our group is launching at the show, is the new batch auto cleaning system to automatically drain residual material inside the hopper before recipe changes.

SYNCRO-CST is the powder division of the SYNCRO

GROUP and will exhibit SMARLEX, the single-screw feeding system that features a flexible hopper and kneading paddle. Designed to feed hard-to-flow powders and synthetic fibers, SMARLEX ensures a homogenous material flow and perfect feeding. Operating off a single motor, through a dedicated transmission, the feeding screw and kneading paddles keep a constant material flow even with difficult products. If working with a significant output, a dedicated motor for the kneading paddle can be installed to set the screw and paddle at their optimal individual speeds.

C-MULTY is SYNCRO-CST's modular multi-component feeding station perfect for starve feed extrusion. The C-MULTY can be customized for each customer's specifications, working with the full range of SYNCRO-



CST's feeders. This station guarantees an accurate feeding of each product, independent of specifications. Each component is fed separately through a loss-in-weight unit into a common collecting hopper on the extruder inlet. One of the most important products being unveiled is the new vacuum receiver from the CONVY series. This receiver will be equipped with rigid FDA-certified PTFE cartridges and an air jet self-cleaning system and will be completely sealed against powder leakages. The PTFE filters are water-safe for easy cleaning during maintenance and can be easily removed through an upper door. Long duration and high filtration efficiency are guaranteed.

Syncro-Plasmac are exhibiting their OMEGA ECO air cooled machine for the reprocessing of all forms of scrap material from reels, start-up waste and loose materials. Incorporating Plasmacs unique short screw technology, they will show world class power efficiency, recycling scrap materials using as little as 0.25 kW per Kg. They will also be running their direct extrusion Alpha 45 machine for the simultaneous recycling of trims and reels, coupled with their Powerfeed system,

this allows Plasmac to offer a full turnkey solution for trim handling and recycling.

SYNCRO Group is also exhibiting their newest technology, measuring, testing and fault detecting systems for the Wire Extrusion sector. Launched at the recent WIRE show in Dusseldorf, this is an exciting new product range that takes SYNCRO in to a new market sector. CAPAMEX measure the insulation capability for electrical cables on high-speed cable extrusion lines, DEFEX is a device for the in-line measurement and identification of surface defects, DIAMEX is dedicated to the non-contact measurement of the diameter of cables and pipes of different sizes, GLIMEX is a device for the in-line detection of insulation defects of an electric cable and then VELOMEX that is a laser device based on the Doppler effect (LDV) developed to measure without contact and with very high precision the speed and length of the product.



More than just control



Research and Development

We continuously listen to our customers' needs and requirements in order to offer ideas and solutions developed with SYNCRO passion.

Technology

Our rapid growth is attributed to our professional team members "The SYNCRO Family" who design unique flexible solutions to meet our customer's needs.

Customer Care

From design and manufacture through installation, training and after sales support, SYNCRO works closely with you, the customer. Through the HQ Service Department based in Italy we provide the best and fastest support all over the world coordinating with our SYNCRO local service offices to be closer to our customer.

SYNCRO Group

Viale dell'industria 42
21052 Busto Arsizio (VA)
tel: +39.0331.677716
info@syncro-group.it

Visit us at : " Hall 15, stand A81"

Press release

MMA Monomer and PMMA Plants Start Commercial Operations in Saudi Arabia

Apr. 04, 2018

Mitsubishi Chemical Corporation (Headquarters: Tokyo, Japan, President and CEO: Masayuki Waga, "MCC" hereafter) is pleased to announce that The Saudi Methacrylates Company ("SAMAC" hereafter), a joint venture between MCC and Saudi Basic Industries Corporation (Headquarters: Riyadh, Kingdom of Saudi Arabia, CEO: Yousef Al-Benyan, "SABIC" hereafter), has successfully completed performance test of its plants for production of methyl methacrylate (MMA) monomer and polymethyl methacrylate (PMMA) in Saudi Arabia and commenced commercial operation of both plants on April 2nd, 2018.

SAMAC commenced test production and achieved in-specification production of both MMA monomer and PMMA last November, after which first shipment of MMA to customers was made. It has been in the process of optimizing operations since then.

SAMAC's manufacturing facilities in Jubail, Saudi Arabia include the world's largest MMA monomer plant which uses MCC Group's proprietary New Ethylene Method ("Alpha Technology") for producing MMA monomer. The PMMA plant uses MCC Group's proprietary PMMA technology and MMA monomer as the key raw material.

Global demand for MMA monomer is expected to keep growing steadily with the growth of the world economy. MCC will utilize SAMAC as a strategic supply base for markets in Asia, Europe, Middle East and Africa. This new plant will strengthen and optimize MCC's global network of MMA production plants and ensure MCC's continued ability to reliably and efficiently serve and support its present and future customers' needs.

Overview of SAMAC

Company Name: The Saudi Methacrylates Company

Location: Al-Jubail, Kingdom of Saudi Arabia

Establishment: June 9, 2014

Capital: 1,350 million Saudi Riyal (approximately US\$360 million)

Capital structure: MCC 50%*, SABIC 50%

Nature of Business: Manufacture of MMA monomer (250,000 tons/year), and PMMA (40,000 tons/year)

* MCC takes a stake through The Japan-Saudi Methacrylate Company, LLC, a wholly-owned MCC company established for the special purpose of this project.

Frimec, environmentally friendly industrial refrigeration and temperature control



We have been dealing with industrial refrigeration for over 40 years, basing growth and market success on production excellence and strict quality control throughout the projects.

An intense selection, training and professional development of the internal workers allows our company to be a leader in the design and manufacture of industrial cooling and refrigeration systems and in the installation and design of refrigerating plants.

OUR HISTORY

Frimec – Frigomeccanica was established in 1968, the company's core business focused immediately on the design and construction of refrigeration and temperature control plants, supporting plastics manufacturing (injection moulding, film production etc etc) In 1980, after the initial development of production processes and the identification of areas for experimentation and technological research, the Company ventured into the European market, purchasing the new headquarters in Ponte San Marco (Brescia) in 1984.

The success achieved in international markets pushes

the Company to further diversify and complement the production activities towards other different sectors, since 1988 in relation to the Drying plants supporting plastics manufacturing.

In 1991 Frimec - Frigomeccanica started exporting to many non-European countries, by providing a structured network of technical and commercial support in all the countries where its main customers operate.

Since 1992, the company specialises in the production of special refrigeration plants for other sectors such as: food, space industry, laser and oenological.

In 2009 the new headquarters in Nuvolento (Brescia) was completed to offer additional possibilities in response to the increasing demand, especially in new areas that in the meantime had become strategic, such as the beverage industry and internal bubble cooling film extrusion (IBC) sector.

Aware of the preciousness of the energy resources and of the need to reduce power consumption of



its plants, the company has always encouraged the research and development centre to find new environmentally friendly solutions.

With its know-how in both the refrigeration and temperature control of the fluids used in the production processes of various industrial fields, after a thorough study on the evolution of the global climate, it has developed new solutions that involve using the ambient air as the free cooling system for long periods of the year, to reducing energy consumption up to six times compared to a conventional refrigeration system.

We believe that we have been able to combine environmental protection with economic advantage, two values that can never be separated. In: industrial development characterised by an increasingly reduced environmental impact. The consideration that, even within modern production processes, each company has its own and very specific needs, leads our company to the development of unique solutions, implementing the principle of selling concrete production solutions, not just machines or systems as ends in themselves.

EXCELLENCE MADE IN ITALY

The expression of Made in Italy, pride for Italian manufacturers, represents the quality, creativity and inventiveness typical of Italy and its industries. In fact, very often Italian products are considered high quality products, featuring attention to detail, creative in terms of design and form.

Nowadays Italian brands are highly valued in the international market for their innovative design and quality of materials - Frimec has been part of this category for over 40 years. Made in Italy is 100% Italian pride.

evoLOGY POLICY

Frimec changes the way of conceiving Industrial Chillers to save the climate. It manufactures drastically reduced climate impact equipment, without using harmful refrigerant gases.





MKEvoFC Serie V

Cooling applications



Industrial Refrigeration
Refrigerazione industriale
Réfrigération industrielle



Rubber
Gomma
Gomme



Plastic production
Produzione materia plastica
Production de plastique



Chemical & Petroli
Chimica & Petroliera
Chimie & pétrolière



Die Casting
Pressofusione
Moulage sous pression



Galvanic
Galvanica
Galvanique



Printing
Macchine Stampatrici
Machines de presse



Laser
Laser
Laser



Tool Machines
Macchine Utensili
Machines outils



Food
Alimentare
Alimentaire



Wine Sector
Enologico
Secteur du vin



Plastic Bottle
Bottiglie in plastica
Bouteilles en plastique

Heating applications



Printing
Macchine Stampatrici
Machines de presse



Rubber
Gomma
Gomme



Die Casting
Pressofusione
Moulage sous pression




Plastic Bottle
Bottiglie in plastica
Bouteilles en plastique



Galvanic
Galvanica
Galvanique



Food
Alimentare
Alimentaire

The background consists of several overlapping, semi-transparent geometric shapes in various shades of red and pink. These shapes, which include triangles and hexagons, are arranged to create a sense of depth and perspective, resembling a 3D architectural or crystalline structure. The colors range from a deep, dark red to a light, pale pink.

AUTO MA TION

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The Path Towards Digital Transformation

Ruggero Baldi – SMARTAFTERSALES.COM

From Big Data to Predictive Analysis

Big Data are useless without proper selection and analysis, the overload of information represent only an additional cost for the organizations to collect, treat, storage a huge amount of data with no real advantage and useful output.

Data selection and analysis is the new task to be executed with most careful procedure to provide a real and effective support for taking operational decisions.

The next fundamental step is represented by the Predictive Analysis to create a predictive output to drive the decisions. For industrial companies, based on machinery predictive performance appraisal, actions can be taken to keep high operational efficiency and avoid shut-downs.

Identifying signs of downturns and loss of efficiency is one of the main areas in which Predictive Analysis can benefit companies, in any department and sector of the facility.

Data mining, machine learning and statistics to extract information from sets of data, to find patterns and predict future consequences.

High performance-computing and high-speed networks are the basis of the growth of cloud computing, the ideal support for the development of systems for big data analysis and digital technologies in general.

Predictive Maintenance for efficient operation of industrial plants

Industrial companies with large plants and infrastructure such as chemical and petro-chemical industries are increasingly demanding the capability to analyze metrics and data that will keep their facilities and machinery up and running at all times. Predictive analysis enables them to reliably forecast and plan maintenance events and procedures, reducing maintenance costs and avoiding potential downtime.

Based on predictive analysis, predictive maintenance represents the state of the art for running industrial plants efficiently, providing the tools to make smarter and faster decisions about maintenance operations.

Collecting data related to historic events, the asset health, performance of machines and machine parts, predictive maintenance can effectively reduce operational and maintenance costs.

Unplanned downtime can be eliminated by the automatic scheduling of maintenance before equipment failure happens, and when failures happen it will be more clear where and how to solve it. Total availability and performance of equipment can be improved.

More efficient plants will reflect also in energy savings, thus costs savings and increase of environmental sustainability of the entire facility limiting emissions.

Modern CMMS and assets management systems are intelligent maintenance systems bringing together technology, data analysis and resources aiming for the machines and systems to achieve the highest possible performance levels and near-zero breakdowns.

Predictive maintenance approach is a key factor also to improve the efficiency of risk assessment by identifying high-risk activities in advance, to support the preparation of more accurate contingency plans.

Automation of processes and integration of systems

The automation of operational processes is a fundamental step to improve the efficiency of the entire business, reducing non-productive time, optimizing resource allocation, limiting the level of uncertainty for paper works and exhausting tracking of different single tasks.

Automation of processes and integration of different systems increase collaboration between suppliers of machinery and plant operators, at the same time enhancing collaboration inside

the company departments and divisions providing a common framework for management of operations and maintenance activities.

Integration allows to maximize data access without having to log into multiple systems. To link machines, technology and humans together and create an innovative and intelligent operation and maintenance system.

Cloud computing provides several advantages for the automation of processes and integration of systems

- Increasing system scalability, no limit to the number of users sharing the same platform, able to access from anywhere, at any time, from any web-connected device.
- Reducing limit from hardware obsolescence and related costs, releasing organizations from updating their software and licenses, upgrading servers and data centers.
- Expanding connectivity, offering remote working and multi-device compatibility with ability to work anytime and from any location, multiple integrated communication protocols able for easy interconnection among different systems
- All data and information from one single source breaking-down silos to foster information exchange and transfer. One single user interface being able to put the right information to the right people at the right time in the right context.



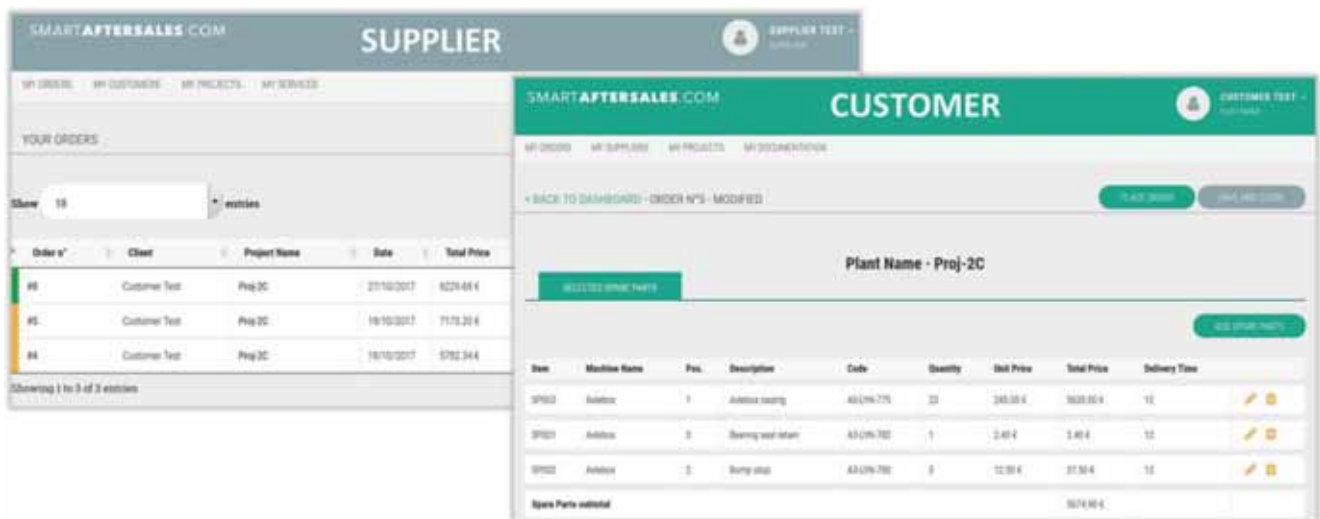
SMARTAFTERSALES.COM Digital Platform for B2B Industrial Application

SMART AFTER SALES is a cloud-based collaborative platform for sharing efficiently the main information and data required for the operation and maintenance of machinery and plants, including: Spare Parts, Assistance Service, Technical Documentation.



Suppliers upload the database with spare parts list and technical documentation for every plant and machinery supplied to each specific customer, the list of assistance service available.

Customers have full access to the information and database through an intuitive and user-friendly interface. Selection of spare parts and assistance service is done in few easy steps by an interactive process with the possibility to order online directly from the platform.



SMART AFTER SALES represent an innovative and ready-to-use E-business solution for industrial application, suitable for a variety of industry to automatize processes and improve efficiency of after sales activities. The platform is conceived as easy-to-use digital tool to empower the collaboration between business partners.

Unlimited possibilities of integration with CMMS and assets management systems for the automation of processes and easy data migration, reducing dramatically the time and resources required for ordering spare parts and service from suppliers quickly with minimum margin of mistaking.

Operational excellence as corporate strategy

The lesson learned from the recent period of economic crisis tell us clearly that only efficient and high performing companies can survive and prosper during fluctuations of markets and downturns of the demand.

Instead of investing for new plants and infrastructures, industrial companies have the option to invest in new digital solutions being able to make existing plants more efficient and profitable, reducing at the same time the overall CAPEX and OPEX expenses.

Meanwhile, manufacturing companies and equipment suppliers, instead of searching for new customers, can make existing customers more profitable by serving them more efficiently through modern and efficient digital interfaces.

Company strategy on operational excellence can be supported by the new inputs from digital transformation, the pillars of each business shall be reviewed for evolving processes and business models, with possibility for developing a variety of new business and market opportunities.

SMARTAFTERSALES.COM



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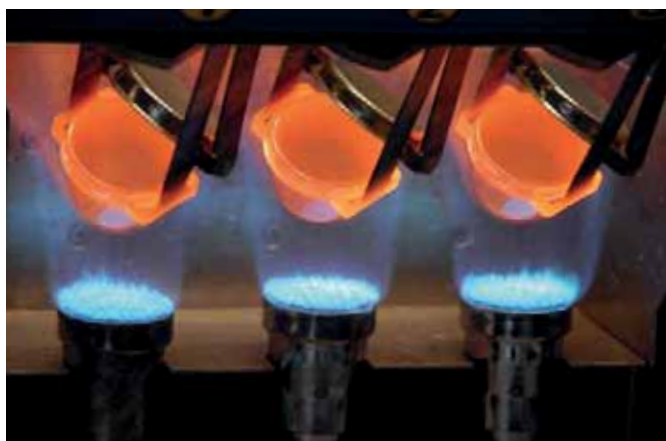
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88Labware: development, production, after-sale assistance for products and accessories in platinum for organic and inorganic analysis everything in just one brand.

8853 S.p.A. is a company with several decades of experience and in Italy is leader in the field of precious metals and semi-finished products. Thanks to its laboratory with cutting-edge technologies it is the reference also all over the world for the quality of its products rigorously **Made in Italy**.

88Labware is the branch of 8853 that is present in this field since the 60's; the continuous research of perfection is synonymous of quality for its customers and it supplies them with tailor-made products suitable for any requirements. **Crucibles and platinum accessories** for XRF analysis, microanalysis, burning and evaporation (these imply the fusion of the samples at high temperature and have to grant resistance to highly aggressive substances), **mini-crucibles, lids,**



capsules (with or without pouring lips, supporting pins), **dishes, boats, mixers, tongs with platinum tips, probes, electrodes, Sputtering Target** that are produced in platinum or in alloys with Gold, Rhodium, Iridium, Palladium and other precious metals.

The range of **88Labware** products is suitable for the most common fusion machines present on the market; at the same time professionalism, experience and care for each product allow 88Labware to provide tailored services, that also includes the platinum plating of non-precious metal crucibles.

88Labware offers to its customers the **recovery of precious metal service at 360°**.

All exhausted material can be recovered: precious metals (Au, Ag, Pt and Pd) and alloys, crucibles, dishes, capsules, sputtering targets, pellets, thermocouples and, thanks to the internal process of refining, even scraps of precious metal.

Our strength point: 10 working days delivery time for new products and less than 15 working days for the recovery and regeneration process.

The main advantage of the partnership with 88Labware is the personalized services that we deserve our customers: a tailor-made and door to door service. "We take care of everything!"

88Labware will be present at Achema 2018 in Frankfurt from 11th to 15th June, HALLE 4.1 STAND A36

If you are an agent or a dealer, come to visit us at the stand or contact us!

The **8853 S.p.A.** quality system is compliant with UNI EN ISO 9001:2008 certified by TÜV/Germany. **8853 S.p.A.** is also a RJC member (Responsible Jewellery Council Member) which guarantees the use of "conflict free" metals.

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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.

GEAR PUMPS – EASY VIEW

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.

ADVANDAGE

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.

MAIN APPLICATIONS

- Lube oil Pumps
- Fuel Pumps
- Chemicals Pumps
- Bitumen Pumps
- Foam Pumps

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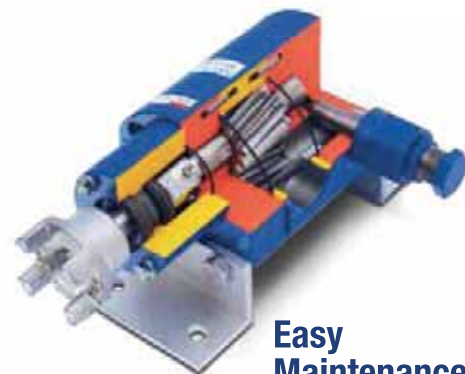


Compliance to NFPA20



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**Easy
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Heating with Pyrolysis Oil:

EU-Project aims to use biomass residues in residential heating market.



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The objective of a EU funded H2020 research project called "Residue2Heat" is to use various streams of biomass waste for residential heat generation. The aim is, by means of a liquid fuel produced in a sustainable manner from agricultural and forestry biomass residues, to considerably reduce the CO₂ emissions in the heating market compared to fossil fuels. This 2nd generation bio-fuel is being produced employing a fast pyrolysis process, allowing to use a wide variety of biomass residues as feedstock. An international consortium of universities, research institutions and SMEs (Figure 1) is examining the standardization and the use of FPBO in the heating market and optimizing a practical heating system for the use of this new kind of fuel.

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Figure 1: Industrial and academic partners involved in the Residue2Heat H2020 project.

The fuel is to be used for efficient heat generation in residential heating systems in the power range from 20 to 200 kW. The first challenge in this project is to produce FPBO despite its wide range of possible biogenic raw materials with a consistently high quality and highly standardized physico-chemical properties. The second central task of the project is the technical adaptation of a highly efficient condensing heating system for the use of FPBO. This is necessary because the physico-chemical properties of FPBO differ from those of conventional fuels, so that for example the burner of the heating system needs to be redeveloped. The focus of development in particular is the mixture preparation, which is responsible for an efficient and low-emission operation of the burner.

The production process of FPBO uses the available resources efficiently, because more than 90% of ash and minerals remaining from the biomass are removed from the process and recycled. Within the project, market studies are conducted assessing the potential of this new fuel and the modified heating system and to provide further knowledge for a successful market launch. The long-term goal of "Residue2Heat" is to produce FPBO on the basis of agricultural and forestry biomass residues, which neither can be used for food or feed production nor lead to indirect land use change (ILUC). The conceptual approach aims to obtain local biomass, convert it into FPBO in relatively small production facilities with a processing capacity from 20,000 to 40,000 tonnes of biomass per year and distribute the fuel locally to end-users. Figure 2 summarizes the overall concept of the Residue2Heat project.

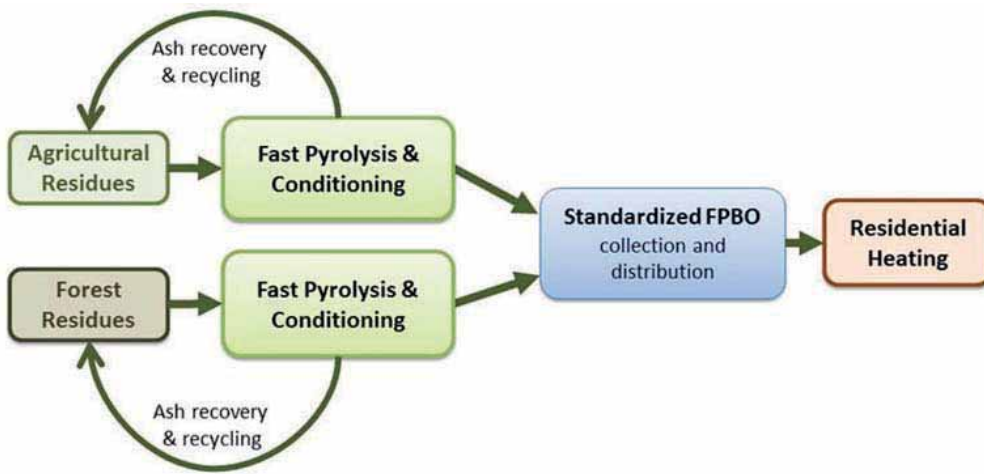


Figure 2: The overall concept of the EU research project "Residue2Heat" focuses on the development of a standardized pyrolysis oil from biomass residues, which can be used as fuel in the residential heating market.

The CRECK modeling group at Politecnico di Milano (Italy) is involved in the characterization of the physico-chemical properties of the pyrolysis bio-oil by means of surrogate mixtures formulation. In particular, the CRECK group is developing accurate chemical kinetic models for oxygenated compounds typically found in such feedstocks, and investigating the phenomena involved in single-droplet combustion and atomization. The photogram of Figure 3 shows results from a reactive fluid dynamic simulation of a single-droplet heated by natural convection, in terms of temperature yields and velocity of surrounding gases.

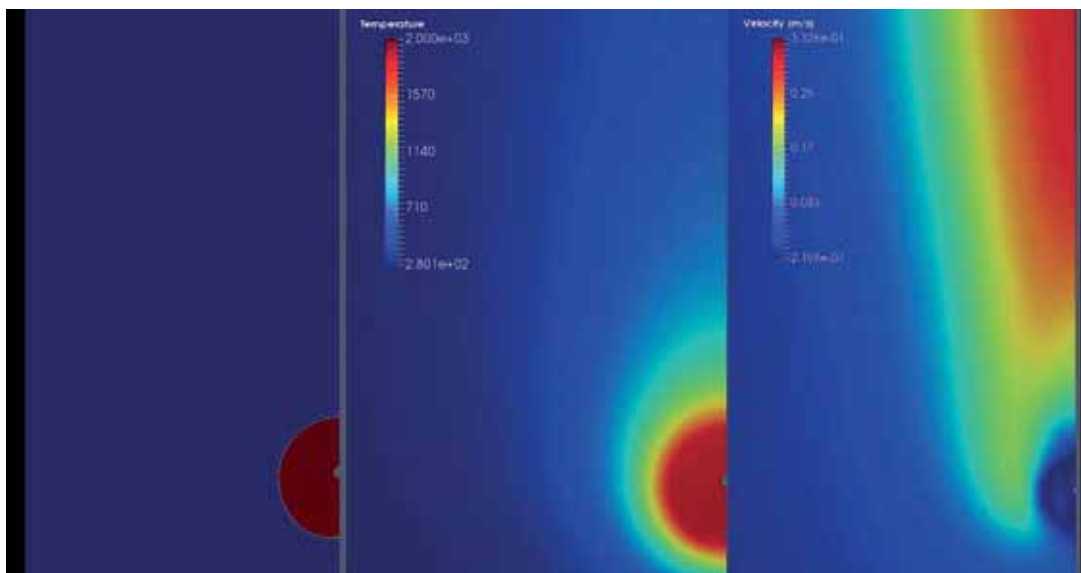


Figure 3: Droplet temperature and surrounding gas velocity during the heating of a single fuel droplet occurring through natural convection.

ACKNOWLEDGEMENT:

The Residue2Heat project has received funding from the European Union's Horizon 2020 research and innovation programme under agreement No. 654650.

CONTACTS:

Project open-public website: www.residue2heat.eu

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The logo consists of a white hexagonal shape with a horizontal bar across its center. The words "INDUSTRIAL" and "TECHNOLOGY" are stacked vertically within this bar in a bold, white, sans-serif font. Below the bar, the words "editorial office" are written in a smaller, lowercase, italicized sans-serif font.

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Specialist in pharmaceutical water purification

Founded in 1990, LETZNER Pharmawasseraufbereitung GmbH specializes in consulting, design & engineering as well as manufacturing and maintenance of water treatment systems for the pharmaceutical industry. All components of the water treatment systems - pre-treatment, reverse osmosis systems, multi-effect stills, Pure Steam generators, CIP / SIP systems, and storage and distribution systems – are customized by us due to the local conditions on site. Standardized components, modules and solutions are individually assembled according to specific customer needs and industry standards. Purified Water, Water for Injection and Pure Steam are processed in our plants according to the latest Ph.Eur., USP, JP, GMP and FDA requirements while observing the highest quality standards.

Turnkey systems and complete solutions

LETZNER is delivering turnkey systems worldwide: ready for operation solutions from drinking water to the point of use in the clean room. The entire system, including the vessel and distribution piping, can be provided and seamlessly integrated into the facility using high quality pharmaceutical grade components. Similar to modular design different qualities, components and technologies can be chosen in terms of material, surface structure, type and processing due to the need required. The total commitment from LETZNER includes consideration of all customers' needs and demands, all regulatory standards and guidelines and the given composition of the feed water.

Cold WFI production in compliance with Ph. Eur.



Since 1st April 2017, a revision of the European Pharmacopoeia allows the production of cold Water for Injection (WFI) by non-distillation processes. In this context, the European Medicine Agency (EMA) has published a “Questions and Answers Paper” as Preliminary Guideline, which provides questions and answers about the appropriate technologies and biofilm control strategies.

The publication's key points concerning the system design for production of cold WFI are:

- *Reverse osmosis technology as central purification process (single-pass or double-pass) coupled with other appropriate process steps such as electrodeionisation and ultrafiltration*
 - *Adequate water pre-treatment: removal of organic particles and matter, microbiological impurities as well as scaling and fouling monitoring and removal of microbial control agents*
 - *Minimisation of the risk of microbial contamination and proliferation*
 - *Hygienic Design: turbulent flow, complete residual emptying, no dead legs, appropriate pharmaceutical connections and surface finish*
 - *In-process monitoring of electrical conductivity and regular controls of TOC and microbial contaminations. Measurements of conductivity and TOC content at several measuring points throughout the system*
 - *Facility for sanitisation: thermal and chemical*
 - *High degree of automation and a corresponding monitoring and alert strategy*
-



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- Best-in-class experience and hands-on knowledge in the generation of pharmaceutical water and steam
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- Your wishes and our knowledge will deliver the perfect solution



Press release

ABB to provide digital automation and safety for new Statoil offshore project

May 1, 2018, Oslo, Norway – ABB Ability™ digital solutions, expert project execution and advanced services will significantly reduce capital expenditure (CAPEX) for the new offshore development field, and ensure safe and efficient long term operation

ABB announced that it will provide integrated ABB Ability™ automation and safety systems to Statoil's new Johan Castberg oil field development project in Norway. ABB's solutions and services will help to reduce the CAPEX for the project significantly. Integrated control, safety and communication will be key to the successful operation of this new field.

Located in the Barents Sea, north of the Arctic Circle, the new field will be developed with an FPSO (Floating Production, Storage and Offloading production vessel) and subsea installation with 30 wells. The new field has proven volumes estimated at between 400 and 600 million barrels of oil, and is the world's largest new offshore oil project.

ABB will provide integrated ABB Ability™ System 800xA automation and safety systems, including advanced simulation and related services to ensure safe, reliable and efficient operation of the offshore FPSO. The order is valued at around \$25 million.

Working closely with design contractor Aker Solutions ABB will provide engineering, installation and commissioning for flawless execution of the project and ensure that production runs efficiently from day one of operation.

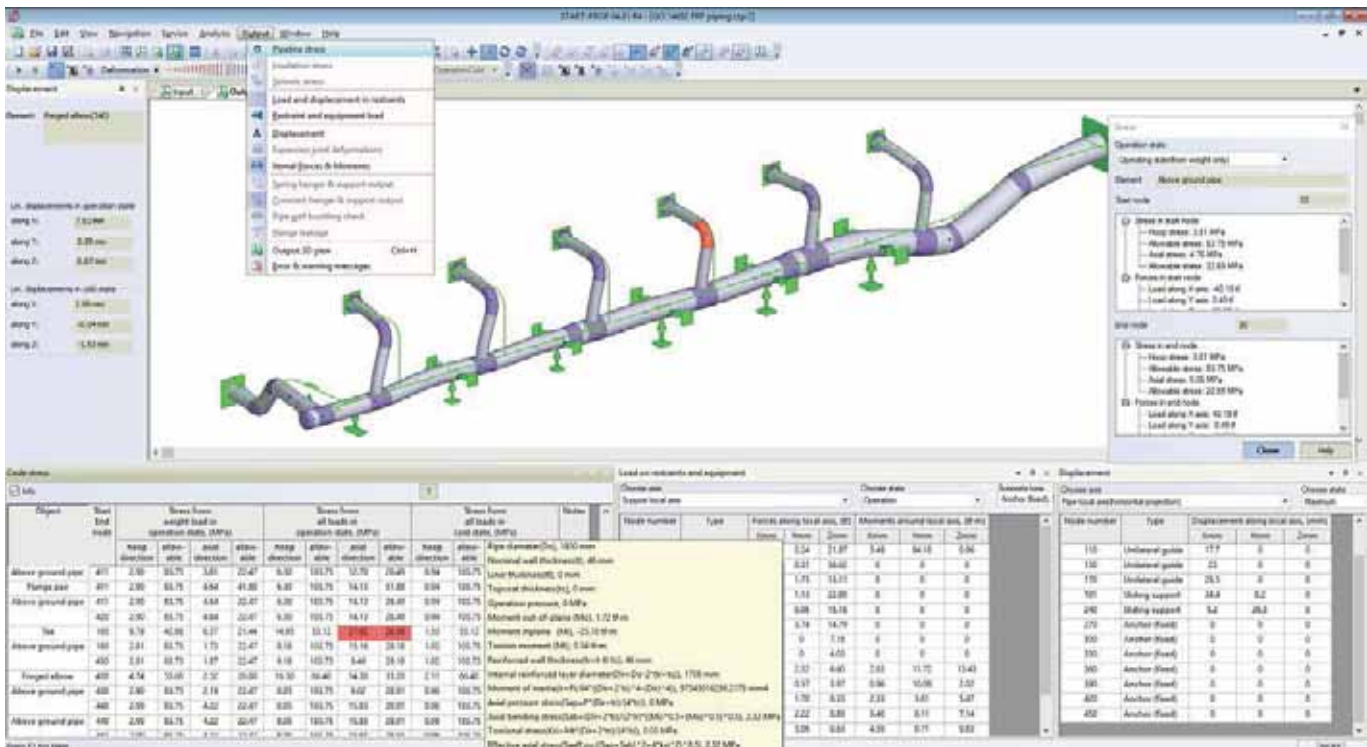
"Digitalization and advanced safety and automation systems are key to safer, more efficient, more reliable and more environmentally friendly operation of oil, gas, and chemical facilities," said Per Erik Holsten, Managing Director ABB Oil, Gas, and Chemicals. "Combined with our vast experience in advanced process control, and subsea and power systems, project execution is streamlined, cost are reduced, and long-term operations are safer and more efficient."

ABB has extensive experience in gas production and optimization, and a long history of successful collaboration with Statoil on numerous projects around the world. All major oil and gas installations above the Arctic Circle in Norway use ABB's automation and safety systems. This experience, combined with four decades of providing safety and automation systems to the industry, were important factors in this project win.

The field is scheduled to commence operation in 2022 and will have an estimated production lifespan of 30 years. ABB's deliveries will start in late 2018.

ABB's leading portfolio of digital solutions, ABB Ability™, combines ABB's deep domain expertise with network connectivity and the latest digital technologies to help customers develop new processes and advance existing ones by providing insights and optimizing planning and controls for real-time operations.

Your PASS to Quick, Effective Piping and Equipment Simulation and Sizing



PASS/START-PROF displays stress analysis results, shows piping deformations and marks problem elements/places by read color.

Piping and equipment simulation and design can quickly become very complex. This should not come as a surprise because piping systems often consist of thousands or more components exposed to possibly extreme environments (temperatures, pressures, wind, rain, snow, seismic conditions, etc.). A lot of effort has been made by researchers and plant engineers to ensure good, safe designs for process plants and other piping systems. Special tools are needed to consider all appropriate operating conditions, specific complex physical phenomena (multiphase flow, surge, severe and terrain slugging, pipe-soil interaction, nonlinear effects in piping supports and many others) and related safety codes when designing piping systems and equipment for process plants. Ideally, these tools should not require users to be simulation experts, but enable “regular” engineers to design safe and well performing systems through reliable simulation. Fortunately, such tools already exist.

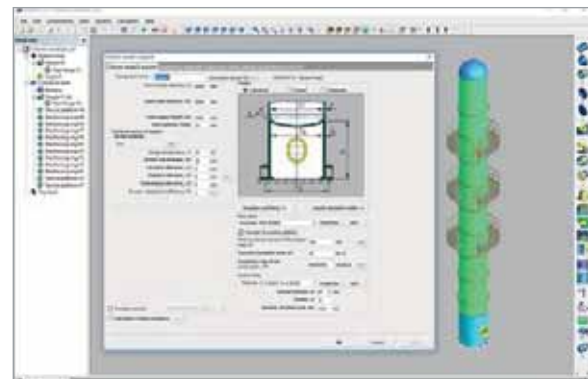
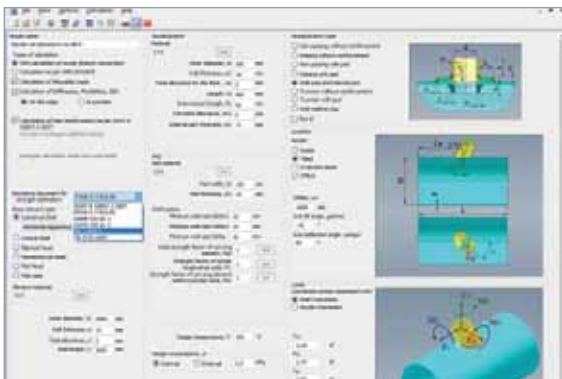
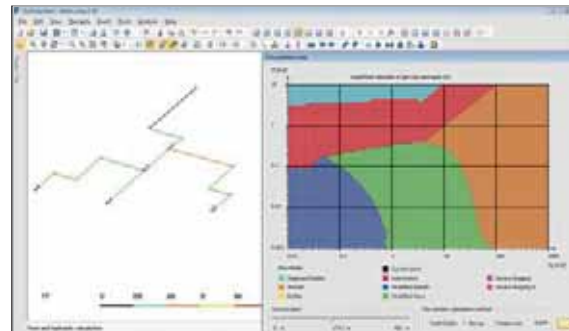
PASS: The Piping and equipment Analysis & Sizing Suite from PSRE offers smart, powerful tools for every engineer. The suite has been developed by engineering experts with the needs of regular engineers in mind and is already in successful use at hundreds of companies. Powerful CAE tools for non-simulation experts - is it really possible? The short answer is YES, and thousands of PASS users are proof of that. If you are wondering how it is possible to create such tool, there are no secret ingredients, just conversion of extensive engineering know-how into software combined with advanced technologies:

- Use and integrate best in class modern methods, algorithms and software libraries – both, proprietary and from partners all over the world
- Expose them through an easy to use and friendly GUI (Graphical User Interface)
- Provide flexible integration and data exchange between PASS components and CAD software to make CAE tools

Smart Simulation & Sizing Tools for Every Piping and Equipment Engineer/Designer

PASS covers all main aspects of pipeline and equipment analysis:

- Piping systems fluid flow and thermal analysis & sizing
- Piping systems stress, fatigue and stability analysis & sizing
- Equipment stress analysis for vessels, columns, tanks and heat exchangers
- Nozzle-Shell Junction stress and flexibility analysis
- Industrial thermal insulation calculation
- Pressure relief system sizing



PASS Application Families

The PASS software is organized into product families to meet the broad range of piping and equipment analysis and design requirements

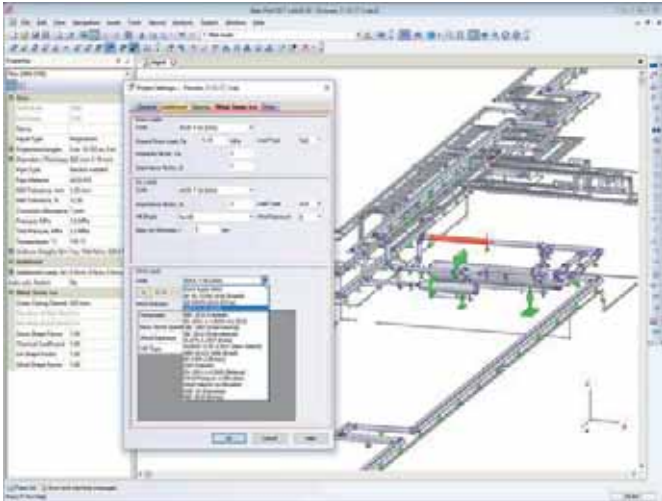
PASS/HYDROSYSTEM for piping hydraulic and thermal analysis & sizing

PASS/START-PROF for piping stress analysis & sizing

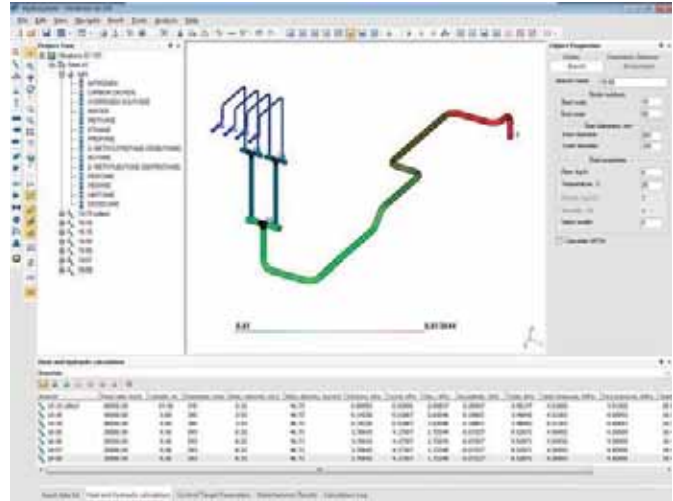
PASS/EQUIP for equipment analysis (vessels, columns, heat exchangers, tanks, nozzles)

PASS/INDUSTRY for industry specific piping and equipment analysis

Enabling new users to perform piping/equipment analysis in days rather than months



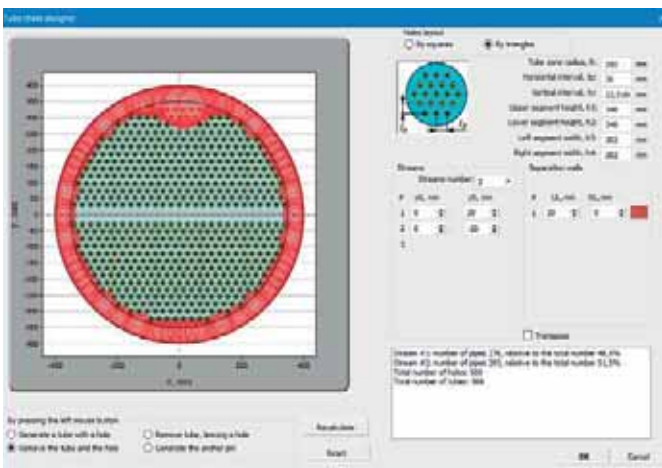
Typical process piping model in PASS/START-PROF and settings load codes window.



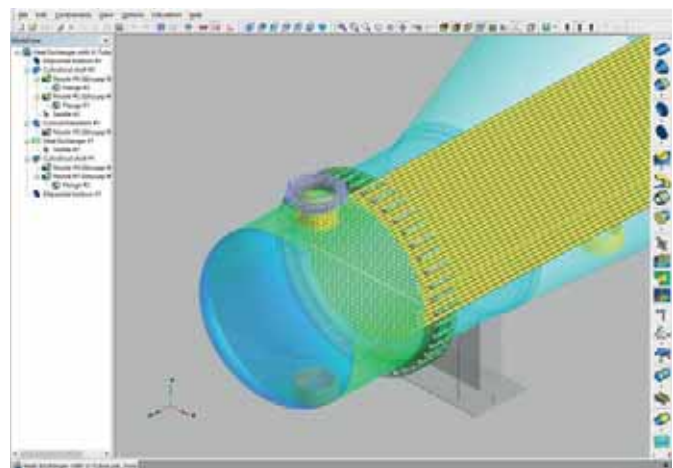
The results of gas-liquid flow analysis of transfer pipeline in PASS/HYSDOSYSTEM.

- part of any effective design workflow
- Embed and use knowledge to make the tools smart, automate standard tasks and free-up users to better focus on creativity in design
- Help the user with access to professional knowledge and experience as well as becoming more efficient using the software (context help with professional knowledge how to design!)
- Train the user with the focus on understanding international and national standards, model creation, analysis results, and best design practices
- Provide quick professional support directly from developers and experts

- Provide simulation service by experts for the most complex problems
- PASS customers benefit further from our flexible configurations and affordable pricing options tailored for the needs of all users, from individual engineers to small and medium businesses and up to huge international corporations.
- The **PASS** Suite of software – enabling smart, effective engineers.
- If you want to learn more about PASS and see it in action visit us at ACHEMA 2018 (Hall 9.2 B17)!
- Allow us to help you to effectively solve your problems!



Heat exchanger calculation model and intelligent tube sheet designer in PASS/EQUIP.



For more information see www.passuite.com.

Press release

BASF introduces innovative waterproofing and concrete protection for wastewater treatment plants and harsh chemical environments.

- MasterSeal 7000 CR system offers unique properties based on new technology
- Full protection in highly aggressive wastewater environments
- Significant life cycle extension of concrete structures with reduced downtime

Mannheim, Germany, 26. April 2018 – With MasterSeal 7000 CR from Master Builders Solutions BASF announces an innovation to protect concrete and steel structures in extreme wastewater environments. It builds on the company's new technology Xolotec™ and uniquely combines application with performance properties to meet the challenges in aggressive wastewater environments.

“Our novel Xolotec™, technology was developed to solve the problems of challenging technical environments. It is an innovative and smart way of combining the advantages of different chemical products and thus represents a unique solution. When the material is mixed on site, a cross-linked interpenetrating network (XPN) is formed, enhancing the overall material properties”, explains Roland Nowicki, Vice President, BASF Construction Chemicals Europe.

Resists biogenic sulfuric-acid corrosion

The effects of wastewater in collection networks and treatment plants can lead to rapid deterioration of concrete surfaces and corrosion of concrete reinforcements and steel structures. MasterSeal 7000 CR's high resistance to abrasion and biogenic sulfuric-acid corrosion is ideal to withstand the severe conditions that occur in pretreatment and aeration tanks, digesters, or sewers. MasterSeal 7000 CR's dynamic and static crack-bridging abilities protect concrete, even after non-structural cracks appear, thus prolonging life cycle of the structure.

Another key benefit of this novel resin technology is its tolerance to moisture, both in the substrate and in the environment. MasterSeal 7000 CR can be applied on very damp substrates by spray or roller, and its fast curing properties allow contact with water under pressure as early as 24 hours after application at 20 °C. This combination of properties provides long-term concrete protection while dramatically reducing the downtime of the structure, making MasterSeal 7000 CR the ideal solution for wastewater facilities.

“We are excited to launch this unique and performance-proven system offering the industry a solution that significantly extends the life cycle of concrete infrastructure facilities”, says Markus Scherler, Head of Business Segment Management Europe - Industrial and Concrete Refurbishment by BASF. “MasterSeal 7000 CR underscores BASF's commitment to continued innovation with the expansion of our waterproofing product range for the construction industry worldwide.”

More information on MasterSeal 7000 CR can be found at www.masterseal-7000cr.basf.com

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Ramcro at Lusail Stadium

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WIRE

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The wire and cable industry and the wire 2018

Wire is something special. Almost no other product, says Prof. Rudolf Kawalla from the Metal Forming Institute of TU Bergakademie Freiberg (technical university), has the same versatility and broad range of applications as wire.

Wire –and the resulting products, such as springs, bolts, screws and cables –are indispensable for technical systems. Technical progress and activities in the wire sector are therefore closely connected. To keep up with developments, ongoing research is conducted on wire, wire products and the relevant manufacturing processes.

On the one hand, this means studying the best ways to leverage the physical properties of wire and to derive good benefits for wire products. On the other, however, it also means optimising processes with a view to product qualities and potential cost savings. We can see the amazing progress that has been made when we compare, for instance, the drawing of copper and aluminium wire some 50 years ago and today's multi-wire drawing technology.

An exemplary institution that conducts research on wire and springs is the Machine Elements Unit at the Technical University of Ilmenau, whose research traditions go back to the early 1960s. The unit works with industrial enterprises, the Wire and Springs Research Group and the Steinbeis Transfer Centre for Spring Technology, also in Ilmenau. Its list of publications includes a large number of studies on springs and suspension systems.

Many of these studies are about the computer-aided design of springs and, as we said, the optimisation of production processes. One area, for example, that keeps receiving attention is automated wire cleaning in multiple wire drawing. Manufacturers of screws and bolts and their collective research are the subject of the Institute for Materials Research at the Technical University of Darmstadt.

Its thematic spectrum covers process chains, including heat and surface treatment. The plenary session showed participants the potential of Industry 4.0, the digital networking of product development, production, logistics and customers in the manufacturing and processing of steel. This was also the subject of the Fraunhofer Institute for Machine Tools and Forming Technology in Chemnitz.

One tool to obtain information, e.g. on patents, is the "Search Engine for the Wire Research Landscape in Germany", run by netzwerkdraht (Wire Network), an organisation based in Iserlohn, on its website.

Further opportunities to find out about the latest emphases, results and trends in wire research can be obtained at the CabWire World Conference, organised by the International Wire & Machinery Association (IWMA) and also other associations in the wire and cable industry. The convention was held for the eighth time in November 2017 at Düsseldorf Fairgrounds.

A wire 2018 technical article.

wire and Tube –a successful trade fair duo in Düsseldorf from 16 to 20 April 2018



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Pipe ID 4.0: Monitoring Plants in Real Time

Schuler introduces comprehensive process control system for the manufacturing of large pipes including product data acquisition

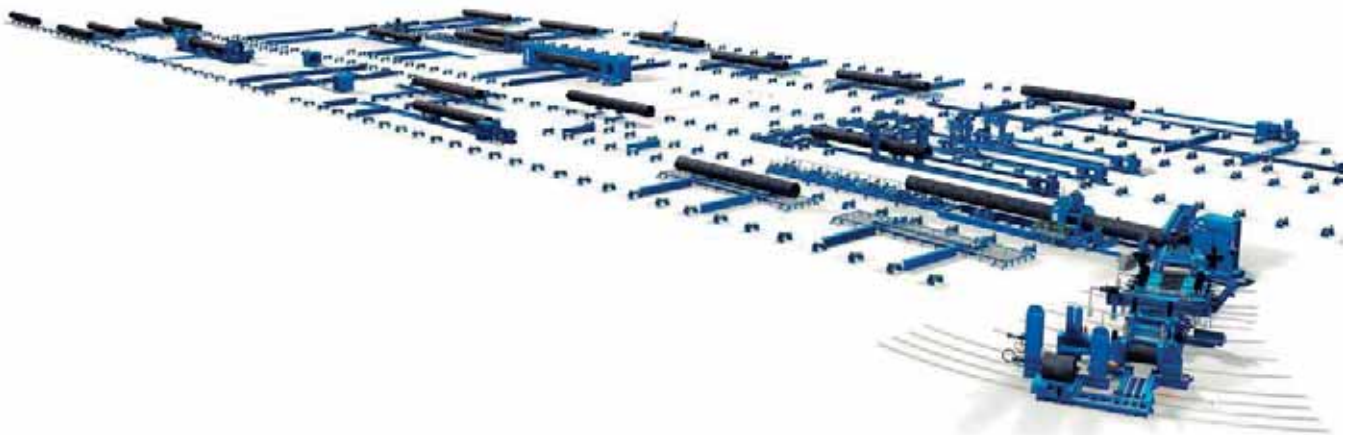
Göppingen, March 7, 2018 – For its spiral pipe plants, Schuler continuously develops optimizations aiming at similar objectives: creating a stable and safe process flow which offers high quality large pipes, low costs of operation and a high degree of automation. This is also true for the company's latest innovation, Pipe ID 4.0 – a comprehensive process control system for the manufacturing of large pipes in real time featuring a track and trace system, overall equipment efficiency (OEE) monitoring, condition monitoring, smart diagnostics and power monitoring.

Schuler has already implemented machine monitoring in other production lines, e.g. for the manufacturing of railway wheels. The production data acquired includes all planned and unplanned downtimes including their causes, fault messages, target/actual production and the quality of the parts. In this way, the system operators gain a basis for calculating the OEE. Permanent logging of parameters also enables a cycle-accurate response in real time, where necessary; condition monitoring allows checking the system at regular intervals for damage and

wear, and thanks to smart diagnostics, fault analysis is accelerated significantly.

With large pipes, product data acquisition is of particular importance when it comes to inspecting the high grade steel pipes (X100) in accordance with the API 5L standard regarding dimension or welding quality by means of ultrasonics, hydrostatic testing and X-rays. Schuler upgraded the analog X-Ray system to a digital version, so it can be easily integrated into Pipe ID 4.0. It includes a server station that stores the results of these tests as well as all of the other machine parameters.

With network label printers or paint marking and barcode scanners, all of the pipes in the plant can be tracked and traced, and their quality e.g. regarding close tolerances ensured. Even the coil storage area is managed in the database, which means that the coil data is assigned to the produced pipe. Mobile devices like tablets or smartphones can also be used for monitoring and evaluation.



Schuler's Pipe ID 4.0 is a comprehensive process control system for the manufacturing of large pipes in real time.

Fiber optical network with ERP interface

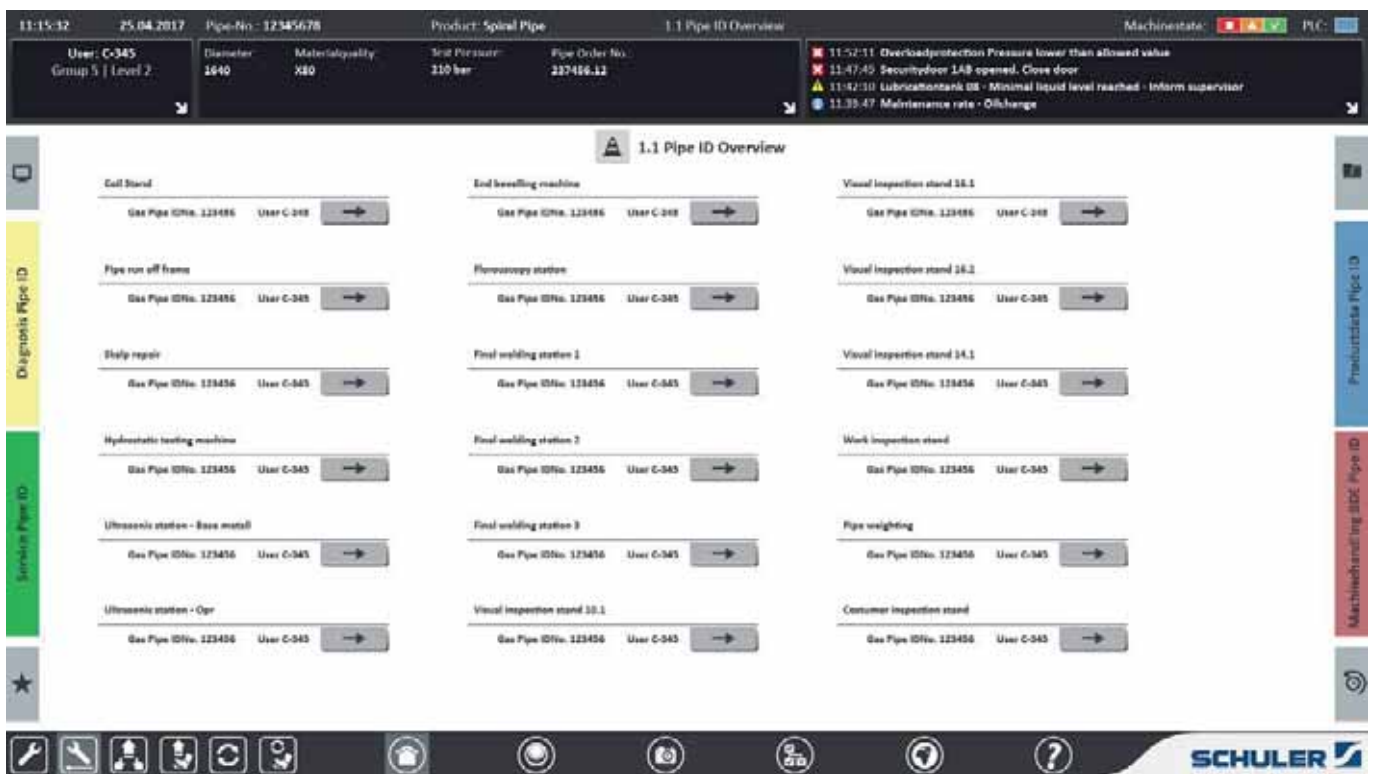
The server station also forms the backbone for the fiber optical network every machine is connected to by managed industrial switches. This enables an overview of the workflow process including a quick status of the single machines and big pictures of the stations under work and with fault, the production time of single pipes and a fault report. An interface to the customer ERP network is integrated.

Up to 50 operator terminals all over the plant grant access to information about the actual working time, the number of pipes per time unit, the production rates, the status of the plant and error messages of the working stations – like the offline welding station, the hydrostatic testing machine, the cross seam welding and repair stand, the inspection stand or the pipe end beveling machine. This reduces operation effort as well as costs for maintenance and repair.

Additionally, with its new robots for tab plate welding and cutting, final pipe measuring, grinding and pipe stenciling, Schuler developed a fully automatic system which can be used for both pipe ends. The minimum cycle time for diameters ranging from 20 to 88 inches is approximately five minutes. Short coil and diameter changing times, a high flexibility and low downtimes further increase the degree of automation that Schuler's spiral pipe plants dispose of.



It features track and trace, overall equipment efficiency (OEE), condition as well as power monitoring and smart diagnostics.



Up to 50 terminals give an overview of the workflow process or the individual working stations.



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FA 12 Innovative tube and pipe products made from steel and aluminum

Tubes and pipes are some of the most versatile products and design elements in general. Whether in the energy sector, mechanical, power or automotive engineering, in the chemical or petrochemical industry, in construction or in one of the many other areas, tubes and tube designs in different shapes, sizes and weights can be found everywhere. Steel tubes and pipes cover a particularly broad spectrum, as these products are conquering new applications, partly due to the innovative strength of manufacturers. However, thanks to new and further developments, they are also maintaining a good position in traditional applications. In the energy sector pipes have become indispensable for the transportation of oil and gas, while also playing a major role as design elements. In fact, most structural foundations of offshore wind turbines consist of pipe elements. Pipes also fulfil important functions in the offshore production of oil and gas.

Special pipes for deep sea use

This application is one of the focal areas of Salzgitter Mannesmann Forschung GmbH (SZMF), the company that handles research and development for the Mannesmann Division at Salzgitter AG. According to this company, there is a demand not only for products but increasingly also for full-scale technical solutions. In tubes and pipes, for instance, their super duplex pipes have now been optimised for deep sea applications, so that a reliable media supply can also be ensured in deep water.

Such deep sea supply pipes (so-called umbilicals) are used on offshore platforms for the transportation of control signals, energy and chemicals from the surface of the water to the seabed. Special locations at great water depths down to 2,500 metres pose major demands on the rigidity, fatigue resistance and corrosion resistance of pipes. This is why trial procedures have been developed that make it possible to qualify super duplex pipes for deep sea applications. According to the company, close collaboration with initial customers has enabled them to identify the required pipe properties quickly and efficiently and to qualify their pipes accordingly.

Other growth areas that will be supported by research

and development projects over the next few years will focus on the customised optimisation of pipe and tube properties. Take, for example, new developments for automotive engineering. Although the combustion engine has been written off by many, automotive manufacturers are not alone in believing that it will remain an important form of propulsion for many years to come. However, this makes it necessary to achieve further reductions in consumption and in harmful emissions – an area where precision tubes can help to achieve higher injection pressures that will warrant a more eco-friendly combustion process. In non-motor applications tubes with variable wall thicknesses can be used to support load-optimised lightweight construction.

Innovations for automotive tube solutions

Lightweight automotive construction is also at the focus of research and development at Benteler AG. Last year, for example, the company held its first Steel/Tube Lightweight Construction Convention in Bad Driburg. The latest innovations in automotive tube solutions included the prototype of a front axle carrier for electric vehicles. Thanks to a new innovative steel design, the weight has apparently been reduced by 35 per cent. Another innovation with lightweight potential that may be of interest to automotive manufacturers is the use of welded tubes made from a new steel with superior

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strength yet also above-average formability. The company says it has already created the first prototypes for some customers and is now awaiting validation. Furthermore, the automotive industry should soon benefit from ultra high-strength tubes which can apparently be used as innovative automotive suspension systems. Compared with today's series production, such chassis solutions should save up to 30 per cent in weight. The first systems, says Benteler, were already being manufactured and validated on customers' premises in late 2016.

The first successes have also been reported in the segment of hot-rolled axle tubes. Having received initial bookings from customers, serial deliveries are now running well. Moreover, Benteler has successfully provided customers with a range of innovative steel and tube solutions as well as prototypes for axles, track rods and axle guides for utility vehicles.

New solutions for industry and energy

But Benteler also offers innovative products outside the automotive sector. In industrial applications of seamless precision tubes this includes pre-tubes for the production of injection anchors (ground engineering). In a large-scale industrial project for tunnelling under a motorway in the Netherlands the company has successfully developed and implemented a modified steel product with, according to Benteler, offer an "excellent combination of strength and robustness" as well as special rolling and heat treatment technology. Other recent Benteler products include welded and seamless ducts based on special surface technology (Zista Steel) that is intended to provide "excellent corrosion protection in combination with outstanding processing qualities".

Lightweight tube design for electric vehicle chassis

Although the combustion engine has by no means had its day in vehicle construction, it can be assumed that electromobility will increase and gain in importance. Tube component manufacturers will need to bear this in mind. After all, a purely electric vehicle no longer has any need for a complex exhaust system, just to mention one example of a tube component. Another area – lightweight construction – should also become increasingly important with the spreading of battery-driven electric vehicles. Rechargeable battery packs with a conventional reach of 300 to 500 km (180 to 300 km) still weigh many hundreds of kilograms, which is unlikely to change much – at least in the near future. Unless it becomes possible to do largely without

batteries – fuel cells might be the answer – then it will be important to save weight in other areas.

This will make it vital to reduce the weight of vehicle parts and thus to increase overall efficiency and save resources. Modern "exotic" materials, such as carbon, still have their limits in mass production, due to technical constraints in manufacturing and also economic limits, even though progress in the industrial processing of such materials is clearly in evidence. Here, the obvious alternative is lightweight construction based on steel as a proven material.

This is the purpose for which Thyssenkrupp Precision Steel in Hohenlimburg presented a new component for the chassis of electric vehicles some time ago. Specialising in medium-wide strips within the group, the company acted as a cooperation partner in developing a super-light tube made from high-strength steel (HBS 800). As less material is required, the optimised chassis component apparently allows the manufacturer to save over 34 per cent in weight. Being one third lighter, the component is also said to have benefits such as shorter production times and far less wastage. For series manufacturers it should be important that they can continue to use their conventional manufacturing processes for the production of this innovative steel design.

Another element in the new vehicle concept is tube stabilisers made from manganese-boron steel. This innovative solution is said to save 45 per cent in weight. Moreover, its homogeneous structure and extremely tight thickness tolerances allow high-frequency welding. And the concept also permits variable wall thicknesses and thus a further reduction in weight. These new lightweight steel construction solutions are made by a processing firm for the automotive industry. According to Thyssenkrupp Steel Europe AG, the ideas developed by the cooperation partners are to be used in a project for the Asian market where they will help to create a particularly long-life electric vehicle.

Internal high-pressure forming of hybrid aluminium/steel tubes

Aluminium is one of the most widely used materials in automotive engineering, alongside steel and various plastics. Bonding steel and aluminium components, however, can be a problem. A solution has now been found by the Institut für Integrierte Produktion Hannover (IPH) gGmbH together with Laser Zentrum Hannover (LZH). The result is a tailored hybrid tube, made from aluminium and steel, which can even be given the relevant shape in an internal high-pressure

forming process. First, steel and tube elements are soldered together in a laser process.

This makes it possible to apply internal high-pressure forming without breaking the bond. The developers are convinced that their technology will allow the production of particularly light components for vehicle bodies.

Internal high-pressure forming of hybrid tubes combines two lightweight approaches: Firstly, it saves weight through the geometry of the components, as tubes are generally suited for lightweight construction because of their excellent stiffness and robustness in relation to their weight. Secondly, the combination of steel and aluminium permits further savings in weight. Being both heavy and rigid, steel is only used for parts that will be exposed to high stress. Segments with less exposure to stress, on the other hand, can be made from aluminium. The company mentions especially light body parts such as connection points to the B-pillar where steel is used for critical areas that may need to be highly impact-resistant, e.g. in an accident.

The challenge in making such hybrid components is that steel is far more resistant to forming than aluminium. Also, tube sections must be combined in a way that

avoids cracks in the joining area while forming is in progress. As welding leads to a brittle, non-formable seam, the steel and aluminium tubes are bonded together in a laser soldering process. The aluminium silicon batch is locally heated and melted, using a laser beam. The very low heat input prevents any brittleness in the components that might diminish the mechanical properties of the seam during the forming process.

According to the developers, the soldered joining area can withstand pressures up to 900 bars. In interior high-pressure forming such pressures are more than adequate for the forming of both aluminium and steel. To achieve maximum homogeneity in the forming process and to obtain the best possible results, the experts recommend combining steel (E235+C) and a higher-strength aluminium alloy (EN AW-6082).

A Tube 2018 technical article.

wire and Tube –a successful trade fair duo in Düsseldorf from 16 to 20 April 2018



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Interview

with Stefanie Flaeper, General Manager of transfluid Maschinenbau GmbH

March 1, 2018

Next trade fair: Tube 2018, transfluid in Hall 5 on Stand G34

What do the current trends in pipe forming and bending technology look like?

Basically, we assume that there's a higher demand than ever before for more flexibility in processing pipes. This is because it is foreseeable that there will only be large-scale series in the future. Production needs to adjust to these circumstances. In principle, this also applies to developments in bending technology. The demand for more dynamic production of complete kits featuring diverse geometries and diameters continues to increase.

How is the general reception of software-controlled process optimisation with regard to industry 4.0?

Connectivity is in constant demand in the most diverse areas. However, not every customer desires complete networking. In particular, wherever data protection is involved. At transfluid, we are suitably prepared to implement the right connection and integration solutions. All controller adjustments have already been implemented with new control systems.

In which areas is robotics producing faster processes?

Robots are certainly not the fastest solution in automation. We offer high-performance, linear handling systems in this area. However, robots can be used with high flexibility for a variety of components. Wherever transferring previously bent parts to further processing steps is involved, robots are the best solution in terms of efficiency.

Furthermore, the robot is sometimes can also become a bending machine, which makes it outstanding for implementing complex geometries. And as a robot bender, it's an extremely efficient and effective solution

for processing long pipes with small pipe diameters. Of course, it is also capable of assuming handling tasks as well. Programming takes place according to XYZ coordinates, and CAD is able to be imported.

How sensible is it to retrofit older pipe processing machine to make them suitable for 4.0?

Old bending machines are essentially able to be converted if they feature new controller components and these permit connection and controlling of processes. This is a basic requirement. Conversion of old systems to this standard is very questionable, and it depends completely on the individual case. If an older system only completes a rudimentary task in the process, an upgrade may be sufficient. In any case, and regardless of suitability for industry 4.0, new systems enable faster, better, and more economical processes. Plus, this is much more sustainable.

What does a sustainable machine application involve, and what needs to be considered especially during maintenance and upkeep?

Of course, it is important that service is easy to complete, downtimes are avoided, and that a supply of replacement parts is available to the customer or manufacturer. The service intervals need to be recorded, displayed, and acknowledged. Preventative service activities, e.g. via maintenance contracts, and predictive maintenance enable the life span and processing ability of systems to be improved significantly. In particular, predictive maintenance is more and more interesting for our customers to ensure long-term production and long life for their machines. 2017 has already indicated this trend.

transfluid Maschinenbau GmbH
transfluid is sought after worldwide as a partner for manufacturing tube bending machines and tube processing machines. transfluid has been developing its technologies for tube machining since 1988, so that it can provide customer-oriented, tailor-made solutions – for plant and machine construction, the automotive and energy industries, shipbuilding and medical device manufacturers.

www.transfluid.net



Stefan Flaeper, General Manager transfluid

WIRE/TUBE Düsseldorf

wire 2018: Cables for offshore wind turbines

Wind power is steadily growing as a source of energy: In 2015 German wind farms increased their output by around two thirds compared with the previous year. According to the Fraunhofer Institute for Solar Energy Systems, wind turbines between the North Sea and the Alps generated a total of 85.4 billion kilowatt hours of electricity last year. Figures in the wind power sector show that its share accounted for more than 13 per cent of all gross electricity generation and about 14.5 per cent of electric power consumption that year.

By far the largest share of power generation comes from onshore wind turbines. However, following a record year in 2014, offshore wind turbines continued to achieve record figures in 2015, when 546 such turbines were set up, totalling an output of 2,282.4 megawatts (MW). At the end of December 2015 the total number of offshore wind turbines was 792 with 3,294.9 MW (source: Deutsche WindGuard "Status des Offshore- Windenergieausbaus in Deutschland"). According to the industry, 2016 is likely to have seen an additional 700 MW.

Compared with onshore wind, offshore wind power is more expensive, as it poses far greater technical challenges. This is because offshore turbines must be firmly anchored, wired up, installed and operated at sea. Moreover, the load level under operation is greater than on land, while maintenance and servicing are more expensive, too. On the other hand, the wind yield is much higher at sea, so that offshore wind farms can in fact be very lucrative. The basic disadvantage of long distances between power generation and consumption even has benefits for an entire industry: cable manufacturers. To take electricity from a wind turbine to a power socket, offshore wind farms need considerable lengths of cables.

Take, for example, the cabling at the offshore wind farm Amrumbank West, which started regular operation in October 2015. Covering an area of 32 square kilometres (12 square miles), around 35 kilometres (22 miles) north-west of Heligoland, 80 wind turbines were set up at a depth of 20 to 25 metres (66 to 82 feet) below the sea, as well as a transformer platform and a measuring platform.

Each of the wind turbines has a rated output of around 3.6 MW and a rotor diameter of 120 metres (394 feet). This is enough for around 300,000 households.

The cables installed within the wind farm itself run from the eight turbines to the transformer platform, amounting to around 100 kilometres (60 miles). The transformer platform serves to transform a three-phase alternating current from 33 kilovolt (kV) to 155 kV. The electric power is then taken along an 8-km (5-mile) export cable to a converter platform which transforms the three-phase alternating current to a voltage level of ± 320 kV and subsequently to direct current. The next stage is high-voltage direct current transmission along an undersea cable, situated on the seabed, to Büsum. This involves a distance of 85 kilometres (53 miles) and then another 45 kilometres (28 miles) to the grid connection point in Brunsbüttel, where the direct current is transformed back to alternating current.

Germany's very first offshore wind farm Alpha Ventus, erected in the middle of the North Sea in late 2009, is much smaller. Yet the electricity it produces is sufficient for 50,000 households. It consists of 12 turbines, each with a rated output of 5 MW and an offshore substation which houses the transformer and all the necessary electrotechnical equipment.

Here, too, the electric power travels a long way from production to the consumer. Within the wind farm the electricity is first taken from the turbines to an offshore substation along 33-kV undersea cables. 16 kilometres (10 miles) of cables had to be buried at least 60 centimetres (nearly 2 feet) below the seabed. Once the electric energy has been transformed at the offshore substation to 110 kV, it is taken along a 60-kilometre (37-mile) undersea cable, as thick as an arm, across the seabed, via the island of Norderney, to the northern German coast. It then enters Germany's power grid at the Hagermarsch substation. The undersea cable also has optical-fibre data cables integrated into it, connecting the wind farm to contemporary communication and monitoring systems.

Control and monitoring on land

Offshore wind turbines are usually controlled and monitored on land. In the case of Alpha Ventus the control centre is situated in a town called Norden in the district of Aurich. This is where all information and all data are collected. The operating status of the wind farm is shown in real time on several monitors that display images, maps, charts and figures. The operating data that is recorded includes the wind speed, power output, rotation speeds, oil temperatures and the orientation of each nacelle. The data is monitored and analysed by a condition monitoring

system (CMS), so that any unusual values are detected at an early stage and suitable measures can be taken. The operations manager also coordinates and monitors the deployment of service teams at the wind farm. Furthermore, using a controllable webcam and several fixed webcams, the operations manager traces helicopter flights and the movements of ships within the wind farm. Long distances also characterise the Sandbank offshore wind farm. Situated around 90 kilometres (56 miles) off Sylt and 110 kilometres (68 miles) from the coast, 72 wind turbines are currently being installed here, at a water depth of 24 to 33 metres (79 to 108 feet). Each has a rated output of 4 MW, and the wind farm will eventually produce 1.4 terawatt hours per year, enough to serve around 400,000 German households. The wind farm is 60 square kilometres (23 square miles) in size, and the cable from the converter station to the coast is 165 kilometres (103 miles) in length. In addition, there is another 45 kilometres (28 miles) from the starting point of the cable in Büsum to the substation. Sandbank is scheduled to become operational in 2017.

Cabling within the wind farm takes the electric power from 72 wind turbines to the farm's own substation. Each cable harness serves nine turbines, connecting them to the substation. Two harnesses can each be connected to one another in such a way that turbine operation will continue in the event of cable damage. In all, around 96 kilometres (60 miles) of cables are being laid within the wind farm, using two different diameters of 630 and 185 square millimetres, respectively (10 and 2.9 square inches). In addition, the cables contain fibre-optic cables for data exchange between the wind turbines and the substation and also for the remote control and monitoring of the wind farm from the control centre in Esbjerg, Denmark. The cables are first deposited on the seabed and are then buried underneath it at a depth of at least 0.6 metres (nearly 2 feet). This work is done by a special cable-laying vessel which also takes the cables from the manufacturer in the UK to its destination at sea.

However, large wind farms are being built not only in the North Sea, but also in the Baltic Sea –for example, EnBW Baltic 1 and 2. Baltic 1, Germany's first commercial offshore wind farm in the Baltic Sea, has 21 turbines with a total capacity of 48.3 MW. Covering around 7 square kilometres (2.7 square miles), it produces some 185 million kilowatt hours per year, catering for 50,000 households. The cabling of the wind farm comprises 23 kilometres (14 miles) of 33-kV undersea cables. The total track length covered by the power lines is about 77 kilometres (48 miles), of which around 61 kilometres (38 miles) are undersea cables and 16 kilometres (10 miles) are situated on land.

Baltic 2, commissioned in September 2015, is much bigger, with 80 turbines and a total capacity of 288 MW. Connecting all 80 turbines to the substation meant laying an undersea cable of around 85 kilometres (53 miles). It conveys not only electric power, but also information and data between the turbines and the control station in Barhöft, using highly sensitive fibre-optic cables, integrated into the main cable. Once the electric power has been transformed from 33 to 150 kV, it is transported by a special export cable from the substation via EnBW Baltic 1 to the Bentwisch substation on land. It is now transformed from 150 to 380 kV and fed into the German grid. The cable runs for about 120 kilometres (75 miles) at sea and 16 kilometres (10 miles) on land.

Major installation work is required for this purpose, including not only the substation, the bases and the turbines, but also the cabling within the wind farm. A Uniconsult study, based on experience and target values, has estimated the average installation times for each of the major components at an offshore wind farm. A base apparently takes two days, and each wind turbine around 1.5 days. The transformer platform is even more time-consuming and like to take around 70 days. The greatest amount of time, however, is required for the cabling, which takes six to eight months per wind farm.

Manufacturing and laying of undersea cables

Offshore undersea cables are so-called three-core cables. According to 50Hertz Transmission GmbH, each individual conductor consists of the actual copper conductor, the inner and outer conductive layers to control the fields and some high-voltage insulation, made from cross-linked polyethylene (XLPE). To enable the transmission of measured and control signals, the undersea cable also has a fibre-optic cable integrated into it. The core is surrounded by galvanised steel wires which protect the cable against mechanical damage, for instance from anchors. The dimensions of an undersea cable are calculated from scratch and are adjusted specially from case to case. It can have a diameter of up to 25 centimetres (10 inches) and weigh around 100 kilograms per metre.

Laying cables on the seabed, says the company, can be a major challenge. First, the cables are rolled up by the manufacturer onto large drums, whereupon they are loaded onto a cable-laying ship and taken out to sea. Near the coast the cable is pulled onto land from the ship. Floats are used to keep the cable on the surface of the water for cable-laying purposes. This is to prevent damage from rocks or uneven surfaces on the seabed. When the cable is linked to its connecting point on land, the floats are removed and the cable gradually sinks down to the seabed.

As the ship moves out, the cable is unravelled from the reel and settles on the seabed. The end of the cable is connected to the end of the next cable via a sleeve.

Depending on the condition of the seabed, there are numerous different methods and tools for the laying of cables. If, for instance, the seabed is hard and rocky, it is common to use a plough-like tool slide. A sandy seabed, on the other hand, rather simplifies matters, and it is possible to use an underwater jet sled that runs across the entire length of the cable, creating a one-metre (three-foot) groove. The cable then sinks into the groove and is embedded on the seabed by the current. Finally, the end of the cable is connected to the transformer and the platform. It takes about three days to lay a cable section of 15 kilometres (just over 9 miles). In many places this means using undersea workers, i.e. divers.

One offshore cable manufacturer is Nexans Germany who claims to be among Europe's leading players in this industry. Operating from its plant in Hanover, it has supplied a variety of XLPE-insulated undersea cables throughout the world for nearly 30 years now. The structure of a cable is determined by a range of requirements, environmental conditions and of course national and international standards. As the requirement and environment profile of a cable can vary substantially, undersea cables are always customised specially for each project.

The best type of cable for use within the actual wind farm, according to Nexans, is a maintenance-free 36-kV XLPE cable with integrated optical fibre elements for data communication. Cable designs can come with and without longitudinal and transverse water protection. A beneficial design is one that has an aluminium coat, as the weight is relatively low, the diameter is smaller and the bending radius is also smaller than that of a lead-coated cable. This makes the cable much easier to handle when it is laid and also when it is fed into a turbine tower.

Steel reinforcement, says Nexans, has proved to be ideal. Stranding three power cables together with an overlay of steel reinforcement makes it possible to reduce any magnetic fields to a technical minimum. Moreover, steel reinforcement provides mechanical protection, thus cushioning the enormous tensile forces which are at work while laying the cable and while fixing it to a tower. is involved. At transfluid, we are suitably prepared to implement the right connection and integration solutions. All controller adjustments have already been implemented with new control systems.

A wire 2018 technical article.

wire and Tube – a successful trade fair duo in Düsseldorf from 16 to 20 April 2018

Press release

Ericsson, TIM and Comau enable the factory of the future through 5G, robotics and machine learning

Barcelona, 28 February 2018 – Ericsson, TIM and Comau, are showing at MWC 2018 their cloud robotics solution, as a first implementation result of ‘5G for Italy’ collaboration agreement, signed last year, to explore the potential of 5G through a series of use cases related to the development of innovative services and solutions on Industry 4.0 and Smart Manufacturing enabled by 5G technologies.

At MWC 2018, Ericsson, TIM and Comau demonstrate the benefits of 5G-based industrial virtualization through a pioneering proof of concept implemented in Italy – which is the first and concrete result of a year of collaboration - and now brought to Barcelona, showcasing the factory of the future, that will be realized through the digitization of the manufacturing process and plants, which will be enabled by 5G networks and all their building blocks.

Through the combination of TIM and Ericsson’s leadership in 5G networks and technologies and Comau’s leadership in automated manufacturing solutions, this collaboration aims to prove the benefits of advanced solutions adoption for industrial automation.

Industry 4.0 is expected to be one of the major 5G use cases in terms of business potential, as it leverages on 5G technologies, robotics, machine learning, IoT platforms, Cloud and Big Data solutions to bring, increased competitiveness and efficiency for smart manufacturing, maintenance and quality control.

Guaranteed real-time communication between humans, robots, factory logistics and products is a fundamental prerequisite of the Industry 4.0 concept.

Making good products is important for the success of a manufacturer, but it is not enough to be profitable



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and to sustain business. Improving the efficiency of a manufacturing system through automation is the key.

The factory of the future could consist of flexible production islands, able to realize different types of building blocks, without the rigidity of conveyors and with truly standard robotized working stations. The first results, coming from the '5G for Italy program' cooperation between Ericsson, TIM, Comau and the Sant'Anna School of Advanced Studies show that - with its standardized networking capabilities, built-in security, guaranteed grades of service, as well as distributed cloud and network slicing concepts - 5G is a perfect tool for advanced industries that want to take advantage of digital transformation.

Federico Rigoni, Country Manager, Ericsson Italy, says: "As a leader in 5G infrastructure - including cloud technologies, big data analytics and IT capabilities - Ericsson is well placed to take a leading role in this transformation and partner with industries to develop solutions that are tailored to fit their needs. Our fruitful collaboration with TIM, Comau, and the Sant'Anna School of Advanced Studies of Pisa, is the first step."

Mario Di Mauro, TIM Chief Strategy Officer, stresses the importance of the results: "Nowadays all industries are experiencing a deep ICT-driven transformation. Our strategy aims to make 4.0 Industry a reality in Italy, and this collaboration with Ericsson and Comau is an important milestone to prove how digital and industrial plants can leverage on the potential of 5G. Moreover, in its first year the '5G for Italy' initiative has successfully built up a solid business network ecosystem which will bring value to all the partners in diverse industries, boasting TIM's commitment for Italy as one of the leaders in its digital transformation towards becoming a Gigabit society."

Mauro Fenzi, Comau CEO, focuses on the importance of the project: "The digitized factory operations have accelerated the transformation of the manufacturing industry from mass production to personalized customization. 5G technology makes it possible to optimize the manufacturing process, detect quality issues early to prevent defects and make continuous improvements, while carrying out predictive and preventive maintenance. The combination of wireless sensors and high-capacity communication networks, such as 4G and 5G, plays a key role in this context by enabling data collection from the shop-floor level (production lines) and data transfer to cloud systems for continuous monitoring and control. This collaboration enables us to develop the technological infrastructures for the communication networks of the 'Factory 4.0'".



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Detection of critical surface defects in hot rolled long metal products with ISEND



For a long time, non-destructive testing (NDT) methods have been used for the detection of surface defects in hot rolled long products. It is a complex discipline due to production conditions such as speed, temperature and environmental dirtiness. The eddy current testing (ET) is the most reliable, accurate and widely used to do it, however it has a bit problem: the electromagnetic signals are difficult to understand, and it is difficult to create virtual images. Therefore, its main use is oriented to a classification of the coils by statistical criteria based on a combination of measurable elements such as the number of defects per unit of length or the amplitude of the signals they produce (usually related to the severity of the defects).

Once the clients have reached an optimum sorting procedure, their priority moves to the identification of the types of defects with the aim to avoid critical ones for specific customers. The ideal solution is correlating and characterizing the different types of defects depending on the electromagnetic signal they produce, but this comes up with an even bigger problem: it's extremely difficult to locate physically a defect in a coil of several kilometers, then measure its position accurately and then locate the signal it produced in the detector. The seeming easier way, and probably the only possible right now, is to analyze the coil rings that are visible and that always coincide with the tail of the same. But the tail is a special area in which the behavior of the detectors and the material is different from the rest of the coil. So, trying to characterize defects in tails is very disappointing. But there is another way to afford this problem: taking pictures of the defects that are detected by ET. However, this also comes across to another trouble:

a very precise synchronization between the image and the signal is required at very high instant speeds. With the recent advances in image capture technologies and ISEND ET solutions this is now possible. The acquisition rates of ISEND's HOTdiscover family solutions and an exclusive technology for obtaining and synchronizing the images have allowed the creation of a new system called EDDYeyes that combines both technologies. Imagine you could take real time images of every defect detected by eddy current. What could you do with this information? If you want to know more, visit us at the Tube Dusseldorf Fair 2018 at HALL 6 BOOTH 6/A02 and we will show you the advantages of having ET and vision working together.



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E-mail: contact@isend.es
Website: www.isend.es

Industry leader in the production of custom-made, Made in Italy hydraulic presses and special equipment



NRCM S.r.l. designs, constructs and overhauls presses produced for various sectors and types of use, such as moulding, deep drawing, straightening, bending, shearing, punching, etc. NRCM S.r.l. is based in the industrial area of Adro, in the province of Brescia, in an area with two sheds of 2000 and 1000 square meters, one for making presses and the other for assembly and testing, respectively. The company's goal is to combine our passion and experience in making presses with the highest quality materials and advanced equipment: hydraulic/oleodynamic presses, oleodynamic presses for manufacturing counterweights, oleodynamic presses for calibrating pipes, 2 to 4-column presses, upright presses, presses for seals and green presses. The presses are certified according to European directives and meet all legal standards and are ideal for working in complete safety.

- Sheet (coining, shearing, deep drawing, bending);
- Aggregates (counterweights production system for home appliances, complete with automatic inert loading and piece unloading, pressing and sintering of metal powders);
- Steel pipe (pipe welding systems, calibration, hydraulic test);
- Miscellaneous materials (industrial ceramics, SMC Sheet Moulding Compound, SMC CARBON);

- Rubber (seals - melamine - brake pads);
- PTFE, LOADED PTFE, PEEK, PCTFE;
- Automotive sector (heat shields);
- Mould makers (mould test);
- Construction (building panels production system -drilling - marking - stapling - arched bending machines);
- Wrapping machines (automatic horizontal and vertical wrapping coils);
- NRCM S.r.l. manufactures a wide range of presses that meet the following criteria:

Special: Our **special presses** are designed and made to suit the specific requirements of our customers. All types of presses made by NRCM S.r.l. are built with high quality materials for dimensions, strokes, speed of the moving surface, with lower and/or upper cushion, with extractors and shock absorbers. All covered under Annex IV of the Machinery Directive. The maximum size of the lower fixed surface is 6,000 mm x 2,500 mm and with tonnage up to 40,000 kN (4,000 tonnes);

Standard: Our standard machines are designed with dimensions and speeds that are not covered under Annex IV of the Machinery Directive and with tonnage up to 5,000 kN (500 Tonnes).

Servo-press: NRCM produce also Servo-press with a energy saving technology throughout the working cycle of the machine. As a result of the combination of components and design, allows a significant increase of the speed and noise reduction.

The internal procedures allow products to be made conforming to welding standards ASME sect. IX, UNI-EN 287, RINA following the WPS (Welding Procedure Specification) and under the supervision of an IWS (International Welding Specialist). It can also perform internal checks on the welds through penetrating liquids (MT 2nd level IIS-PND-001193). We specialise in making Hydraulic Presses on different types of measurement for different industries: hydraulic/oleodynamic presses, oleodynamic presses for manufacturing counterweights, hydraulic presses for calibrating pipes, 2 to 4-column presses, upright presses, presses for seals and green presses. We also produce special systems according to the needs of our customers using the FEM calculation technology.

The CALEOTTO Group has focused its core business in the marketing of high quality wire rod



The CALEOTTO Group is originated from the partnership between Duferco Italia Holding and Feralpi Siderurgica S.p.A. The CALEOTTO Group has focused its core business in the marketing of high quality wire rod, with a specific predisposition to provide quality service to customers. Both Duferco and Feralpi had years of experience in the steel industry segment. The Duferco Group was founded in 1979 and nowadays it is one of the main steel traders in the world. Since the 90s it has also been active in the production of steel in collaboration to important factories in Italy, Europe and North America. With a compact and integrated industrial system, it has 8,500 employees worldwide and produces over 21 million tons of steel a year. The Feralpi Group is one of the leading steel producers in Europe and its specialization is in the production of steels for construction. Since 1968, a path of continuous growth has given life to a Group that today produces over two million tons a year of steel and rolled and permanently employs 1,300 employees between Italy and Europe with an international and diversified structure. The production site is in Lecco, an historical area of Italian steel industry and it is managed by ARLENICO, a company of Caleotto S.p.A., with the task to carry out the productive role of the transformation through the process of hot rolling steel billets. The CALEOTTO Group aim to develop the best production of high quality steel wire rod with the highest standards in terms of products, processes, services and assistance.

The strong vocation to the quality has oriented the group strategy to high-end products. The industrial context of special steel production is characterized by a very high competitiveness and we are aware that “quality” is the key to develop and emerge in a such panorama of leading companies. This is the philosophy of CALEOTTO Group to deal with current and future commercial and technological challenges. With this optics of continuous improvement, the Caleotto Group is certified ISO9001, collaborates with the most prestigious Italian universities, is part of industry associations, chairs committees and conferences and with this spirit of innovation and collaboration will follow the path that will ferry it in the future.

Our vision is to operate toward our values:

- Responsibility: we are responsible for our product at all levels
- Respect: of the client, of anyone who works with us and for us, respect for regulations and the environment.
- Teamwork: working together, sharing skills and knowledge while pursuing the same goals.
- Continuous improvement: giving everyone the opportunity to grow and improve.
- Security: anyone must be guaranteed to work in a safe environment.

CALEOTTO PRODUCTS PORTEFOGLIO

- 1.High ductility wire rod suitable for deep draw plate.

The wire rods, characterized by a high degree of purity and a low content of trace elements, are used to produce:

- Shiny and chrome wires;
- Deep galvanizing wires;
- Flat laminates and special profiles, cold rolled or wire-drawn;
- Chains;

Grade:

- steels with a carbon content between 0.04% and 0.08% with or without boron.

2. High drawability wire rods, characterized by a marked homogeneity and micro structural cleaning that makes them suitable to produce high mechanical resistance wires as:

- Strands, braids and wires for prestressed concrete - CAP;
- Bead wire and hose wire;
- Special ropes and cables;
- Mechanical, agricultural and automotive industry springs;
- mattress springs;
- Special nails;
- Cold rolled strips;

Grade:

- Non-alloy carbon steels from C32D to C82D;
- Silicon and silicon/aluminium rimmed steels;
- High carbon chromium and chrome vanadium steels;

3. Wire rods with high plasticity and deformability, suitable for cold molding thanks to the characteristics of surface quality and micro purity.

Suitable to produce:

- Bolts for the automotive industry;
- Bolts for the mechanical industry;
- Screws and bolts from class 8.8 to class 12.9;
- Rivets;
- Mechanical parts extruded or cold pressed;

Grade:

- Silicon rimmed steels or unalloyed aluminium steels, with 0.04% to 0.40% carbon with or without boron;
- Carbon steels and alloyed with molybdenum and chromium / molybdenum;

4. Wire rod to produce springs. High micro-purity and remarkable surface quality make it the suitable product for the mechanical sector and the automotive sector.

The main applications are:

- Springs for shock absorbers;
- Clutch springs;
- Springs for the valves;

- Track tension springs;
- Torsion bars;
- Railway clips;

Grade:

- Chrome, silicon, vanadium alloyed steels

5. Wire rod characterized by very low inclusions content and very high structural homogeneity.

The main applications are:

- Arc welding wires in a protected atmosphere;
- Submerged arc welding wires;
- Electrodes in mild steel bars, both coated and uncoated.

RESEARCH AND DEVELOPMENT

We are investing in the development of our production range by expanding the technical know-how wealth through a continuous synergy with the technical and quality departments of the two steel mills supplier of billets/cutting edge, in terms of process and material innovation. Feasibility and in-depth studies are then carried out to analyse new steel technical brands. Each test is accompanied by numerous quality check carried out both at the steel mills and the laboratory located in Lecco plant.

The capability to offer customized products is one of the key points of our business.

The internal research process, highly focused on innovation, allows us to create a synergetic process and product development with the main counterparts, through the exchange of know-how between the respective quality departments. The strategic development of the Group considers in its guidelines a constant growth of added value from collaboration with customers, an increase in ties and relationships that are no longer just commercial but tend towards a real partnership.

A close synergy with the Politecnico di Milano guarantees technical support and a continuous exchange of know-how between the two partners, aimed to improve the products and rolling processes of the plant with the support of researchers and graduands.



BM Group -Polytec Robotics-



The Italian Polytec Robotics, business unit of BM S.p.A. is a story of success begun in 2012 when BM Group invested in a new company, focused in the production of highly technological robotic cells for the steel market. The deep knowledge of the steelmaking process acquired in the steel sector as supplier of automation systems, together with a constant investment in R&D have been the keys to early understand the increasing new needs of steelmakers, safety, productivity and quality.

In few years, Polytec has developed a range of more than 15 robotic cells that integrate the steelmaking process, from the furnace to the finishing mill (long&flat | tube&pipe). Each solution is manufactured on customer needs, tested in Polytec workshop and rapidly installed in new steel plants, as well as in existing ones. Advanced machine vision systems integrate the robotic cell and allow to collect data and verify product quality and process performances. The Motto “From operator to supervisor” explains clearly how the role of human operator changes: operators now supervise the activities from the pulpit of control and therefore work environment and work conditions positively improve.

The upgrade to 4.0 passes through the communication between robotics and process automation. Reliability is what Polytec Robotics can offer, from feasibility to assistance and education.

TECHNOLOGIES 4.0: A COMPETITIVE EDGE FOR TUBE&PIPE PRODUCERS

After car assembly plants, technology is arriving to Tube&Pipe Mills, as important key to increase operator’s safety and to improve process efficiency and product’s quality. Today reliable systems can replace human operator from hazardous areas and are able to standardize and automatize repetitive tasks as marking or tagging operations. Advanced machine vision systems allow to collect and manage data and report useful information towards quality standard and productivity.



THE MILESTONE POLYTEC: WORLD LEADER IN ROBOTIC SOLUTIONS FOR STEEL INDUSTRY

In 2017 Polytec Robotics has reached quota 100 robotic solutions intalled in steelmaking plants all over the world becoming World Leader in this branch.



**JUST FOR A WHILE
CAN YOU IMAGINE A STEEL MILL 4.0?**

From central pulpit, the operator manages the automatic scrap yard crane for bucket loading and bucket charging into EAF and supervises the activities of the full automatic robotic system for the measurement and samples picking and for the 360° internal view of the furnace. On Continuous Casting, the multitool robotic solution for ccm, is positioned next to the ladle with its dispenser storage equipped with a ladle shroud positioning tool, a ladle shroud cleaning one (oxygen shower), T&S lance for sample and measurement and a powder distribution. Operator controls the whole cycle via CCTV. After casting, an advanced vision system check each billet arriving from roller table in order to identify possible geometric defects and a full automatic tagging machines applicates the customized tags on the billet. Depending on the type of finished product outgoing, if bundle tubes or wire rods or flat prodcuts, there're is a specific robotic cells for the last tags application. The traceability of the complete process is possible thanks to a tracking system that collect, analyze and manages all the production's data. That's what we do.

BM Group: Integrated Solutions Provider.

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BLOOMS**

The new robotic system developed by Polytec Robotics is able to scan with a calibrated tool installed on a Robot a billet (square or round), H-beam con dimensional control associated with temperature Robot with single

calibrated head containing 3D Laser Scanner, Thermal Imaging Camera

- The system is able to scan the product in a fix position up to a temperature of 850 °C
- Management of different types of products available thanks to the recipes in the software
- Measurement accuracy for H Beam up to + -2 mm, for billets + -1mm
- Dimensional control for precise measurements, diagonal calculation and area
- Linearization of acquisitions with thermal imaging cameras in order to dynamically manage cooling curves and change dimensional morphology
- Saving on the local and remote database of the information for interfacing with MES systems
- User friendly interface
- Simple installation PLUG&PLAY

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Polytec Robotics is a Business Unit of BM S.p.A.
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Technology leader: Hatebur minimizes changeover time

- Hatebur, a global leader in high-quality forming machines and tools, presents the innovative cold former COLDmatic CM 725 at the WIRE trade show in Düsseldorf from April 16-20, 2018 (Hall 15, Booth C44).

- Changeover at the push of a button: Thanks to the use of servo motors, Hatebur was able to minimize the changeover times considerably, boosting the productivity of customers.

- Apart from the COLDmatic CM 725, the Hatebur & Carlo Salvi booth at WIRE will also highlight the impressively fast Carlo Salvi CS 001 – the machine will be in operation directly at the booth.

Reinach, Switzerland (January 15, 2018) – Innovations into the spotlight: At the trade show WIRE in Düsseldorf from April 16-20, Hatebur, a global leader in high-quality forming machines and tools, will present the groundbreaking cold former COLDmatic CM 725 (Hall 15, Booth C44). The 7 stations former is designed for the forming of highest precision parts with a length of 8 to 125mm and a wire diameter of up to 22mm. With

these specifications, the COLDmatic CM 725 is ideal for suppliers of the automotive industry.

“Our engineering team implemented several innovations to make our clients more efficient and productive: With a production capacity of up to 180 parts per minute, the CM 725 is much faster than previous machine generations”, reports Reinhard Buehrer, Head of Marketing and Sales at Hatebur.

At the push of a button

In addition, Hatebur minimized the changeover times considerably: At the wire infeed, a linear servo motor ensures that the grippers push the wire forward with highest precision. “The volume variation of the cut-off parts is below 0.35%. Together with the high quality of the sheared surface, which is typical for the COLDmatic, this results in a cut-off quality that allows forming from the first station”, says Mr. Buehrer. The centerpiece of the COLDmatic is the newly designed transfer-system on which the grippers for the part transfer are mounted: All grippers are individually driven by servo



*Speed, flexibility, precision and minimized changeover times:
The new Hatebur COLDmatic CM 725 makes manufacturers more efficient. (Picture source: Hatebur)*



660 parts per minute:

The Carlo Salvi CS 001 is ideal for the production of screw blanks and solid parts. (Picture source: Carlo Salvi)

motors, can be individually opened and closed as well as programmed. “This programmability brings enormous advantages when it comes to changeover times. Instead of changing all the parameters manually, all previously saved settings can be applied in just a few seconds”, explains Mr. Buehrer.

Because of the servo motors, the COLDmatic CM 725 uses much less mechanical parts than previous machines, reducing the overall costs by almost 20%. The innovative fast changing system allows operators to lift out all seven punches and dies at once and exchange them with prepared units. All tools can be exchanged in only ten to fifteen minutes.

Carlo Salvi CS 001: 660 parts per minute

Apart from the COLDmatic CM 725, the Hatebur & Carlo Salvi booth at WIRE will also highlight the Carlo Salvi CS 001. The machine will be in operation directly at the booth. The

CS 001 is designed for very thin wires from 0.6 to 3mm. With one die and two punches, it can form 660 parts per minute – an impressive speed. The CS 001 convinces with minimized set-up time and is easy to change-over and to operate. It is ideal for the production of screw blanks and solid parts. Even small quantities as low as 5.000 parts are profitable due to the minimized set-up time.

About Hatebur:

Hatebur is synonymous with first-class hot and cold massive forming, exceptional customer service,

premium-quality precision tools and process engineering.

Thanks to the integration of Carlo Salvi, Hatebur customers around the world benefit from a wide range of innovative solutions. This traditional company, founded in Switzerland in 1930, employs an international network of fully owned subsidiaries and sales partners to guarantee high-quality products and services that are never far away from its customers. After an in-depth consultation and design process, Hatebur offers a machining solution for producing high volumes of precision metal parts that meets the customer’s needs and requirements perfectly. Whether for the automotive, rolling bearing, aviation or fastener industry, we create solutions that offer maximum performance and efficiency in accordance with our guiding principle: Our performance. Your advantage.

Hatebur – Mr. Reinard Buehrer – www.hatebur.com
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A HATEBUR COMPANY

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Our goal is to stand out as a supplier on the crowded Italian market, focussing mainly on industrial and SME clients and offering up-to-date and highly competitive tariffs through effective trading management.

Over the years, it has always been evident that the true added value we bring lies in the service we provide, always attentive and supportive, offering instant solutions to problems encountered.

Thanks to established partnerships with the biggest Italian traders and wholesalers who produce and market electricity across Europe, I-Energy Energia e Gas clients enjoy consistent benefits through flexible solutions and customised products.

The I-Energy Energia e Gas client portfolio, today reaching one TW/h, consists of large industrial groups, reseller suppliers and direct sales to a widespread market, through a network of around 50 agents.

We at I-Energy Energia e Gas team are renowned for

our professionalism and expertise, and our ability to provide a flexible, timely response.

The company is split into four divisions, with the aim of ensuring a comprehensive, efficient service for all clients:

•Sales and Customer Support:

-Direct contact with the client in order to offer financially beneficial solutions.

-Plans developed specifically for SMEs or large industrial groups.

-Support services with qualified, dedicated consultants (we don't use call centres).

•Trading:

-Research and market analysis.

-Research into financially beneficial and competitive products.

-Development of specific, shared purchase plans with the most well-known European traders.

•Admin:

-Management of admin and accounts via an innovative and fast digital system.

-The admin department deals with finance and accounting, managing client relationships using the latest generation flexible IT software that allows easy consultation of invoices and consumption data.

•Accessory Services:

-Energy flow optimisation.

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Hydraulic and Hydromechanical couplings are characterized by the capacity to transfer torque from the driving side (motor), to the driven side (machine), transferring the centrifugal force to the oil content inside the coupling.

The internal impeller (pump) pushing the oil against the outer impeller (turbine) transfers torque necessary to start and drive the machine, with an high efficiency, close to 97-98%.

Thanks to their simple design combined with a high quality, Hydraulic and Hydromechanical Westcar couplings have distinguished themselves for their strength, affordable prices and excellent operation warranty in various fields of industry.

The following are the most common applications where our products are widely used:

- Centrifuges for oil and sludge in "ATEX" environment
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- Conveyors
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Last but not at least Westcar would like to introduce fluid coupling KD series, just developed specifically for internal combustion engines according to SAE standard connection, with output shaft specifically designed for radial load, with power capacity up to 600kW.

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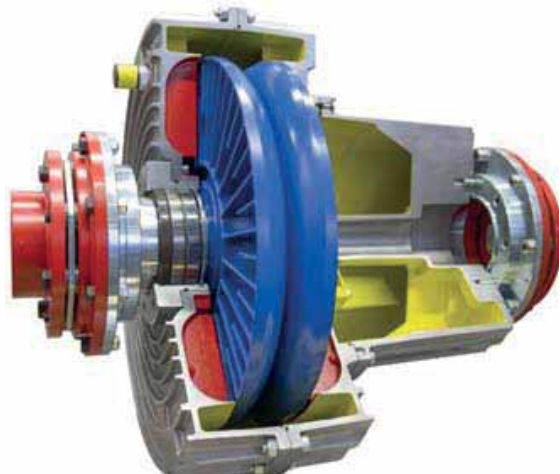
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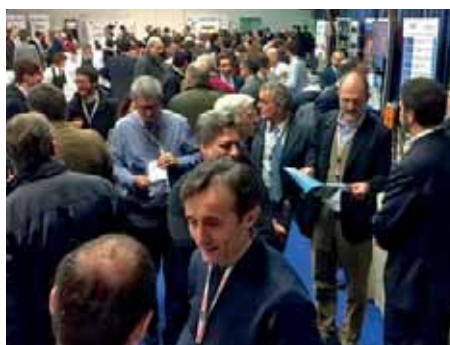
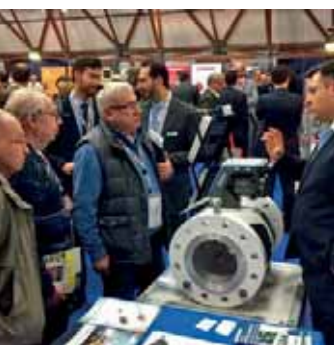
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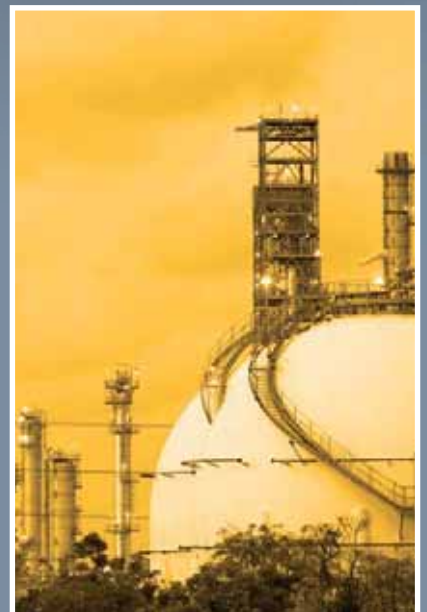


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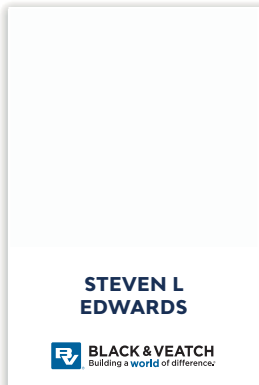
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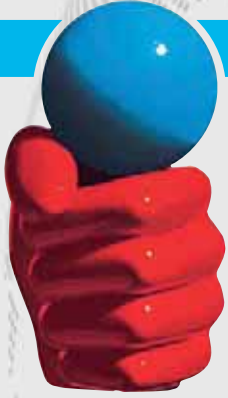
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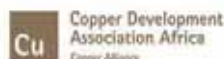
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