



# **SAMMI publications on industry magazines**







**BULK HANDLING - CRUSHING - CONVEYOR DECK EQUIPMENT - SHIPLOADERS - LIME KILN**



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# SAMMI COAL HANDLING SYSTEM

Figure 1



Italian manufacturer Sammi, established in Narni Scalo (Terni), has huge expertise in manufacturing and marketing equipment for bulk material handling.

Sammi has always been associated with vast experience and flexibility in customized solutions and with undisputed expertise in technologies gained in part through close cooperation with industrial partner.

After the acquisition of Molliconi-Metmo in 1999, Sammi has acquired a strong leadership position in the bulk material handling sector in particular Sammi has consolidated its skills in conveying system with experience in port and vessel equipment for bulk material handling in co-operation and partnership with Coeclerici Logistics Spa.

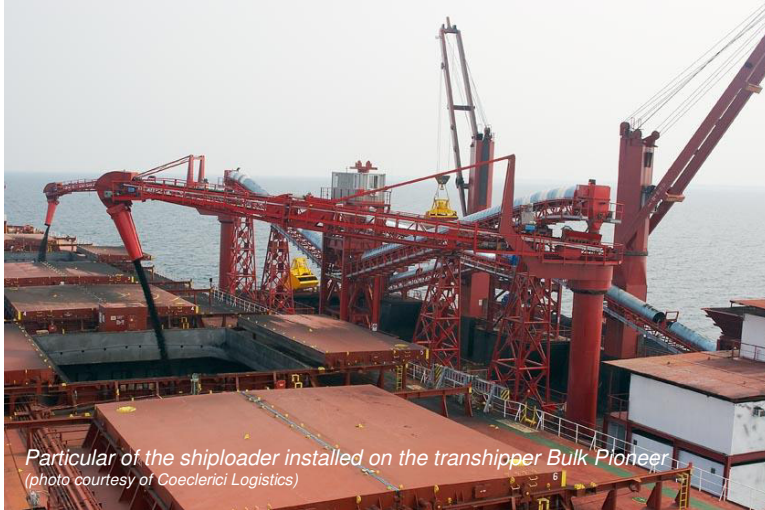
Specialized in design and manufacturing of machines and turn-key plant for bulk material handling, Sammi can provide complete installation in different fields such as:

- Mine and Quarry plants
- Cement factories
- Off-shore plants
- Harbour plants
- Glassware factories
- Waste/Power/Biomass plants
- Steel plants
- Tunnelling plants
- Agro food industries

## REFERENCES

In 2005, Sammi was awarded for the design and supply of belt conveyor system that was successfully installed and commissioned on the trans-shipper *Bulk Pioneer*. The system is designed for a rated capacity of 1,800tph (tonnes per hour) handling coal.

Figure 2



After the trans-shipper *Bulk Pioneer*, in 2009, Sammi was awarded another contract for for the engineering and supply of a turnkey coal handling and ship-loading system with a rated capacity of 2,000 tph, to be installed on the trans-shipper *Bulk Java* including double charging hoppers, belt conveyors and two continuous ship-loaders both slewing and luffing-type.

Figure 3



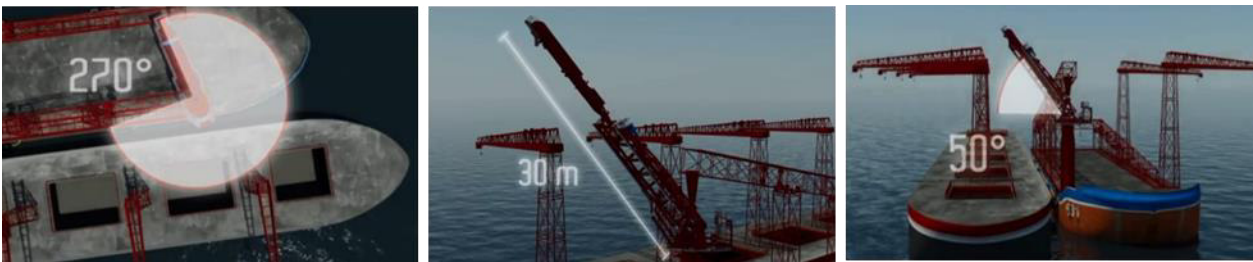
The system is composed by two cranes of 30 ton each one that feed two hoppers. The product is extracted from each hopper through an extractor belt made in rubber and then is carried to a unique transversal belt that, on its top, has a by-pass that unloads the material on two longitudinal belts that feed a ship-loader. The system is realized in order to load vessels up to 2000t/h of coal. All the mechanical elements of the transport system were built in Italy and then sent to the site where they became active with the help of some Sammi supervisors. In addition to the mechanical section, Sammi company supplied also the electrical and oil hydraulics part.

Another contract that was awarded to Sammi in 2010 was for the design and supply of an offshore vessel loading system. The scope of work includes a complete handling and shiploading system which is suitable to transport and load sulphur on vessels from Handy up to Panamax size. The plant will be installed on the *Bulk Kremi* trans-shipper and includes hoppers, belt conveyors and a shiploader.

Figura 4



Figura 5



The system is designed for a load of 750 t/h of sulphur, but can transport coal and iron ore in different specified weights, using the extractor inverters.

With this configuration the unit can take material with the barge crane and load it in its hold or transfer the load directly on the OGV.

- Luffing Angle (max):  $+50^\circ$ , for berthing operation or to by-pass mast or other vessel's facilities (crane) during change-hold operations.
- Sewing Angle:  $+270^\circ$ , around its own axis.
- Extractable shuttle/discharge: up to 30 m.

The plant and its components are suitable for operative and dangerous conditions according to the projected Atex classification.

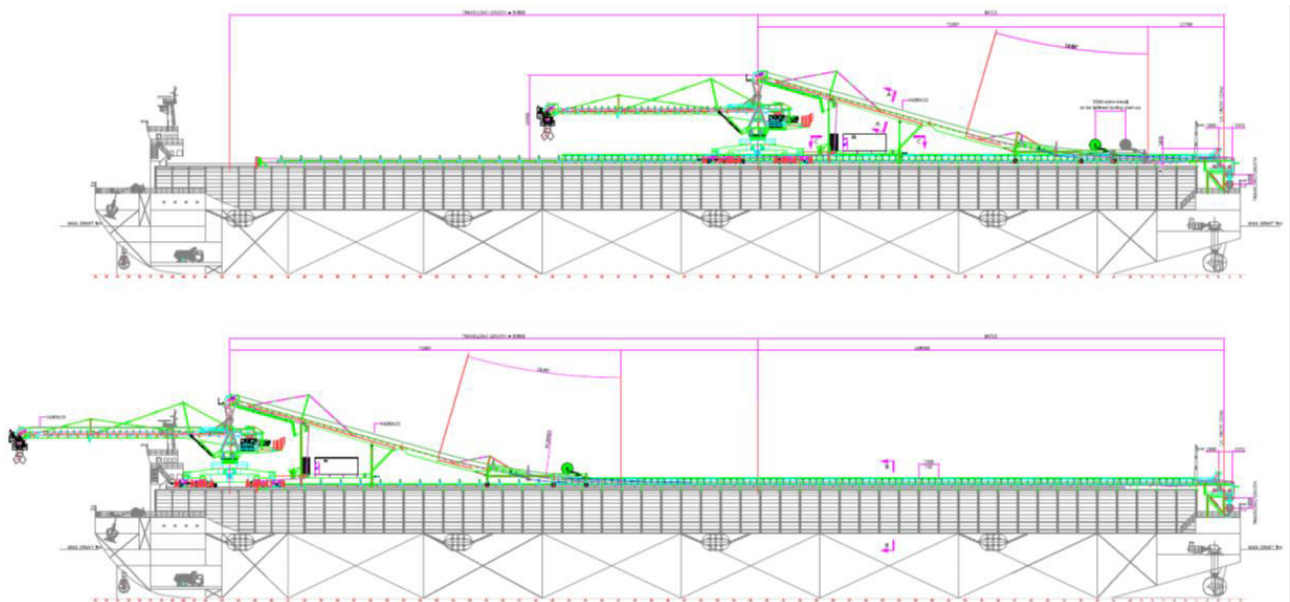


Figura 6



As well as the projects already in hand, the company is also undergoing feasibility studies for a range of further orders, with increased handling rates of up to 4,000 tonnes per hour, as well as for a variety of equipment to meet all bulk handling needs and requirements of its customers. Sammi's technical solutions are all engineered to offer reliable, efficient and cost-effective operations.

Figure 7





# Mining for growth

**W**ith a network of offices around the world, Coeclerici has more than 100 years experience in the sourcing, marketing and transportation of raw materials from mines to energy and steel industries around the world. Committed to continual improvement, Coeclerici adapts itself to the changing needs of its customers and the market conditions of the industries it operates in by investing in state-of-the-art equipment, innovative technology and floating transportation.

Known for developing long-term agreements and partnerships with major world producers Coeclerici also has a strong reputation for investment and has invested directly in the development of certain mines over the years. This tradition for building the foundations for growth has resulted in positive results for the group and its global customer base as it can confidently meet its single objective of providing tailor-made solutions to customers at production sites around the world while offering the most balanced cost/performance ratio possible.

In line with the group's strategic plan, Coeclerici invested approximately \$18 million in the development of a coal mine

located in the Kemerovo region, Russia, in 2002 and 2003 acquiring exclusive international marketing rights for the two million tonnes that the coal mine produces annually.

In 2008 Coeclerici acquired 100 per cent of Korchakol, a steam coal mine based in Siberia near the city of Novokuznetsk; it was the first ever steam coal mine to be bought by a Western company.

The acquisition included the production site and transportation system for carrying the raw material to nearby customers as well as a loading centre.

Viewed as a major investment for Coeclerici Group, Korchakol had the logistics in place to ensure easy transportation of raw materials to the port of Murmansk, where the company is well established; it also formed part of the group's corporate strategy to promote enhanced upstream integration in purchasing coal from Russia.

Organised as a parent company with four divisions: mining, trading, logistics and shipping, Coeclerici has created an integrated and flexible structure that guarantees efficiency, security and quality for organisations with complex procurement requirements. The synergies between these four divisions have developed over the last century to ensure the best possible results as close checks can be made at every single stage of the procurement process.

Committed to evolving with the demands of the market, the group strengthens its logistics division service offering by establishing strategic international relationships with major coal

*Sister vessel Bulk Limpopo during operations in Beria, Mozambique*



**SAMMI Group** has long and detailed experience in the design of plants in the material handling sector, both on-shore and off-shore, capable of meeting the most sophisticated market requirements of a sector that is extremely demanding, diverse and continually growing.

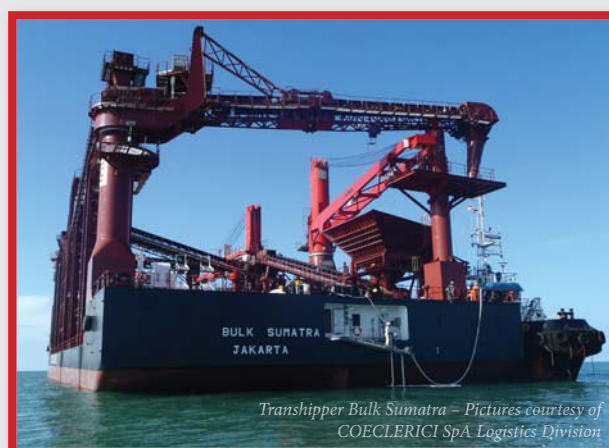
After the acquisition of METMO MOLLICONI S.p.A. in 1999, SAMMI Group can boast reference all around the world starting from the first projects of MOLLICONI in 1964, up to present days with 50 years of experience on bulk material handling.

Thanks to a team that has grown over the years, made up of engineers and architects specialised in the industrial plant engineering and mechanical, civil and structural engineering sector, SAMMI is well known within the market for providing a full range of activities alongside its design work, making it a point of reference for its clients, consulted particularly when the following requirements must be met: technical and financial analysis and feasibility studies; preliminary and final design and executive plan; project management, supervision of works and accounting; supervision during construction;

safety co-ordination during the planning and building phase; administrative static and technical tests; consultancy work; renovating and/or upgrading existing plants.

SAMMI Group is well known as supplier mainly of the following equipment: belt conveyors, dust-tight belt conveyors, gallery bridge belt conveyors; belt conveyors with free-standing structure to span roads and/or rivers, belt conveyors for spoil-removal systems, belt conveyors for extraction from stock pile, belt or chain bucket elevators, step angle conveyors, extractors, vibrating hoppers, tripper cars, stackers, movable dock machinery for loading ships, ship loaders and unloaders.

SAMMI Group designs and builds complete off shore plant including ship loaders and unloaders to meet the specific needs of its clients. These machines comprise movable frames so as to cut down on transportation operation times and allow the material to be evenly distributed over the entire stowage area, maximising the load and reducing dust emissions into the surrounding environment.



*Transhipper Bulk Sumatra – Pictures courtesy of COECLERICI SpA Logistics Division*

The ship-loader below forms part of a complex system designed and built entirely by SAMMI. It has the distinction of being the first plant in the world suitable for off-shore transhipment of bulk sulphur using belt conveyors. This machine is the first of its type capable of carrying out movements and performing so as to be

able to load any type of ship (from small crane ships to Panamax size ships), offering marked reductions in transhipment times while still observing environmental regulations.



*Transhipper Bulk Kremi – Pictures courtesy of COECLERICI SpA Logistics Division*

The system is designed to handle 750t/h of sulphur but is also able to transport coal and iron ore of various specific gravities, using inverters in the extractors. The ship loader is capable of rotating 270° about its own axis and vertically between

0° and 50° and is telescopic so its length can be extended by a further 30 metres. The fact that the ship loader can traverse allows the cranes to straddle the holds of crane ships, thus enabling them to be loaded.



## SAMMI

SAMMI started to work alongside Coeclerici SpA Logistics Division in 2005, with the first transshipment plant 'Bulk Pioneer' realised for Coeclerici SpA Logistics Division, where despite the tight timelines of the project, all the plant performances requested in the beginning were largely overcome.

Due to its versatility, skill and ability to tackle ever more complicated projects and challenges, day by day, SAMMI Group has gained the trust of Coeclerici SpA Logistics Division, creating a relationship that goes beyond the normal supplier/customer relationship, over time becoming a partner on which to rely when faced with the challenges created by the market. Today, SAMMI Group is the sole supplier of Coeclerici SpA Logistics Division for offshore plants.

producers, such as PT Berau Coal, the fifth largest coal producer in Indonesia and international partnership with local companies.

The four Floating Transfer Stations were designed to the specific need of PT Berau Coal right from the drawing board and are being used to conduct offshore coal transloading operations at Muara Pantai anchorage, East Kalimantan, Indonesia, at a loading rate, each, in excess of 40,000 tons per day.

One of the strong points of Coeclerici logistics division business is that it is market oriented and focuses on the real customer's needs. The floating terminals Coeclerici designs, builds and operates for its clients, are innovative vessels, built to highest technological and safety standards by the most advanced shipyards in the world.

The floating terminals are cost effective alternative to fixed port infrastructures, useful for solving logistical bottlenecks, port restrictions, draught limitations or lack of port facilities.

Another significant example is given by the two 53,776 deadweight last-generation transshipment units, Bulk Zambesi and Bulk Limpopo, specifically designed to overcome logistical constraints inherent to the port of Beira (Mozambique), as well

as to optimise, from both a commercial and environmental point of view, Vale's coal handling process from the Moatize mine to worldwide importers.

Viewed as the cornerstone of Coeclerici's business since its inception, the shipping segment was further strengthened in 2013 via a joint venture with Italian firm d'Amico Group. An important step in Coeclerici's growth strategy, the partnership has resulted in dACC Maritime Limited, a Dublin based company that has two 60,000 deadweight tonne supramax bulker newbuilds on order, with options for two more, at the world-renowned Oshima Shipyard, Japan.

Strongly committed to environment protection and the stringent control of sea and air pollution, both d'Amico and Coeclerici have chosen vessels designed with compartments that recover and treat residual water from cargo holds. In addition, the vessels have class notation ENVIRO, for gas limitations from the combustion, double wall fuel and oil tanks, as well as GP certifications that ensure no environmentally harmful materials were used during the construction.

Furthermore, the design will include integral technological upgrades that ensure the units are highly flexible and specialised from both a technical and commercial aspect. The propulsion will include the most up-to-date Man/B&W engine, ME type electronic controlled with low RPM, which will enable speeds of 14.5 knots when combined with cutting-edge solutions to the propeller and hull. This remarkable design will save approximately seven tonnes of fuel on a daily basis when compared to similar modern vessels in operation.

Due for delivery in the second half of 2015, the first two vessels will potentially be followed by the two optional ships in 2016. Operating in a challenging market, which rewards firms that invest and adapt, this joint venture of two leading shipping firms

*Floating Transfer Station ( FTS) Bulk Java during operation. The FTS is part of a fleet composed of four units working for PT Berau Coal at Muara Pantai anchorage / Indonesia*



is certain to lead to exceptional results as a wide range of shipping expertise and managerial experience knowledge is shared.

With a firm belief that correct conduct and true transparency throughout all operations is key to ongoing success, Coeclerici has developed a coveted reputation for excellence over the years.



*The 53,776 DWT Bulk Zambesi transshipment vessel, the first of two such vessels to be deployed at Beira port, Mozambique*



*A view of Korchakol mine located in Siberia near the city of Novokuznetsk*

### CEVA Italy

CEVA Freight Italy and Coeclerici's partnership started in 2013 to provide spare parts freight services from Italy to various destinations. The nature of the products requires timeliness and maximum attention to every single detail. CEVA showed a great service level and high standard of quality due to its innovative track and tracing solution. Leveraging on its experience and network, CEVA supported Coeclerici to reach every destination in the world.

CEVA Logistics, one of the world's leading supply chain management companies, designs and implements industry leading solutions. Approximately 50,000 employees in more than 160 countries are dedicated to delivering effective and robust supply chain solutions across a variety of sectors where CEVA applies its operational expertise to provide best-in-class services across its integrated network.

Through continued technological enhancements that provide safe and environmentally friendly transportation, the group ensures full compliance with IMO resolutions, IACS class standards, IOPP/ISPP standards and ISO 9001 requirements for lower dust emissions from coal handling operations. This is made possible through the utilisation of products and technology such as closed grabs, water spray systems, duly designed hoppers, wholly enclosed conveyer belts and shorter grab cycles. This commitment to high standards and serving customers with a comprehensive range of quality services is certain to hold Coeclerici in good stead as emission and fuel regulations become increasingly more stringent in the shipping industry.

Despite a challenging economy in 2012, the group recorded a turnover of 589 million euros and a net profit of about 14 million euros. With a tradition for continual strengthening of its corporate structure via joint ventures and partnerships as well as ongoing strategic investments in areas of potential growth, Coeclerici has developed a group that is fully capable of prospering in the most challenging global economic markets. ●

### Coeclerici

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

- Global group divided into four divisions
- Joint venture with d'Amico Group
- Over 100 years of experience



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

### Efficient Energy

CGT Power Systems supplies the best technology in the world, supported by the best available service. Its team supports you from the first project phase to the installation and the engines maintenance phase.

**Propulsion Systems**

- High Speed between 127 and 2.525 kW
- Medium Speed between 1.730 and 5.420 kW
- Low Speed between 1.020 and 16.000 kW

**Auxiliary Generator Sets**

- Between 11 and 6.500 KW



# Focus on stockyard systems



## SAMMI: a wide range of handling systems, including stockyard equipment

Italian manufacturer Sammi specializes in material handling equipment and machinery. It has been supplying a wide range of systems to meet the diversified needs of users for over 30 years.

Its business covers the whole lifecycle of the equipment supplied, starting from R&D, engineering, manufacturing, commissioning, maintenance and through after-sales service to meet its customers expectations.

Sammi has given Dry Cargo International details of some of the recent contract awarded or completed around the world.

### MAJOR PROJECTS

In the middle of 2011, the company was awarded a contract for the engineering and supply of a system for limestone crushing,

*Hopper to receive limestone from vertical tunnel.*





*Rushing mill erection works inside underground chamber.*



transportation through belt conveyors and stockpile formation.

Sammi is also committed on other projects. Among these, one of the most notable is the order awarded by the company on the end of 2011 for the complete design, supply, erection and commissioning services for a coal handling and storage system for Italcementi group (Ciment Calcia) to be installed in Couvrot, France.

The new installation can be divided in two main parts:

- ❖ **coal storage facilities:** which includes truck unloading station, receiving hopper, one 50m-long (250tph [tonnes per hour]) belt conveyor to transport the coal to a transfer and sieving station. From this station, coal can be either transported to a storage area or diverted to another conveyor if over-sized.
- ❖ **coal recovery facilities:** which includes one 250m-long belt conveyor with an altitude variation of 25m (100tph) to transport coal from storage to the existing crusher feeding facility which will be revamped with a new 110m<sup>3</sup>-capacity hopper and a set of Redler mass conveyor to feeds the crusher.

To date, the engineering phase is completed and equipment is being manufactured in Sammi's premises. The new plant is expected to come into service at the beginning of September 2012.

One important feature of project is that the design has been developed fully in accordance with directive Atex 94/9/EC regulations.

*Stockpile conveyor.*





Another important project recently won by the company (in 2011) consists of a complete handling and storage system to be installed in the existing warehouses of grain terminal in Ravenna, Italy.

The system includes a truck unloading station, receiving hopper, bag type dust-suppression filters, belt extractor for material recover from hopper and to feed one 600tph bucket elevator which transports the material to a set of belt conveyors to feed either the existing conveyor lines or to transfer the material onto the new tripper conveyor, which will be installed in height inside an existing building to stock grain, cereals and flours.

Also this plant has been designed and fully comply with directive Atex 94/9/EC regulations for equipment installed in potentially explosive atmosphere.

To reduce potentially dangerous dust spillage, each conveyor will be provided with cover hoods for the whole length and pocket filters on both loading and discharge sections.

The rated capacity of conveyor system is 1,200tph for a total storage capacity of about 15,000t inside the building (covered area). The peculiarity is that the system is almost entirely installed underground, in view of a quarry expansion project: a new vertical tunnel of height 150m and diameter 4m, chamber and horizontal tunnel have been excavated. Inside the underground chamber one hopper for limestone vertical receiving, feeder and crushing mill will be installed.

After being reduced in size, material will be transported via belt conveyor system to the outside.

In addition to that, the belt conveyor which transports limestone to the outside is plain-curved with a radius of



*Bucket elevator at a grain terminal in Ravenna, Italy (600tph).*



*Belt conveyors for transshipper Bulk Borneo (Picture courtesy of Coeclerici Logistics SpA).*



*Transshipper Bulk Kreml (picture courtesy of Coeclerici Logistics SpA).*

600m, to fit the geometry of the excavation.

On the outside, one transfer point will be installed between conveyors which allows the second (inclined) conveyor to form limestone stockpile.

On March 2012 Sammi successfully completed the commissioning of the sulphur handling and shiploading system installed on the transshipper Bulk Kreml, owned by Coeclerici Logistics. The system was fully described on pp109–113 of the November 2011 issue of *Dry Cargo International*.

This month (April 2012), the company will start commissioning the transshipper conveyor system on the Bulk Borneo transshipper, which consists of a coal handling and shiploading system with a rated capacity of 2,000tph.

The vessel is owned by Coeclerici Logistics SpA. The deck conveyor equipment includes double charging hoppers, belt conveyors and two continuous shiploaders, both slewing and luffing-type. The Bulk Borneo is designed to load vessels up to Capesize draught.







*Limestone handling –  
stockpile and feeding  
conveyors.*

# SAMMI

building for the future

Italian manufacturer Sammi offers a wide range of equipment for the bulk handling industry.

The company's slogan is 'Sammi, building for the future', and the structure of the company reflects this focus.

The company's aims are to:

- ❖ design;
- ❖ build; and
- ❖ innovate.

Sammi places emphasis on the generation of new advance-guard products for international markets that are ever more competitive and demanding. It invests constantly, to allow it to offer solutions that anticipate the needs of its customers.

Special attention is paid to all the various production stages, from designing to the selection of materials, from production to assembly, from the outset of work right through to maintenance and after-sales technical services.

Thanks to its ever-increasing investment in human resources and specific modern equipment, the company is able to deal with the demands of many national and foreign customers.



*The Sammi head office in  
Terni, Italy.*

To date, Sammi has carried out installations within Italy and other countries in Europe, as well as in North Africa, the Middle East, the Ukraine, the United Arab Emirates, China, Indonesia and central America.

Today Sammi is a major company in design, supply and installation of industrial plants, and it is able to resolve the most sophisticated needs of the client, with a wide range of extremely complex and diversified application, such as:

- ❖ complete mechanical industrial plants;
- ❖ bulk handling equipment;
- ❖ off-shore conveyor systems;
- ❖ transport system for loose and packed materials;
- ❖ lime kilns; and
- ❖ machines for the ceramic sanitary sector.

It is involved in important planning and construction works including: supply of materials with surface treatments, packaging, transport and installation, followed up by simulation and operational tests.

The continuous and constant evolution of Sammi over time, is marked by some fundamental events:

- ❖ 1976: year of foundation;
- ❖ 1980: building of the first production facility;
- ❖ 1993: transformation from partnership to joint-stock company;
- ❖ 1999: acquisition of the company METMO Molliconi Spa, a world-leading company in the design and supply of bulk conveyor systems; and
- ❖ 2010: extension of his base and new office buildings

Sammi today operates in an area that includes 800m<sup>2</sup> of administrative and technical offices, a covered 2,500m<sup>2</sup> workshop divided into production sectors, 10,000m<sup>2</sup> of external ground



*Conveyor for waste removal.*

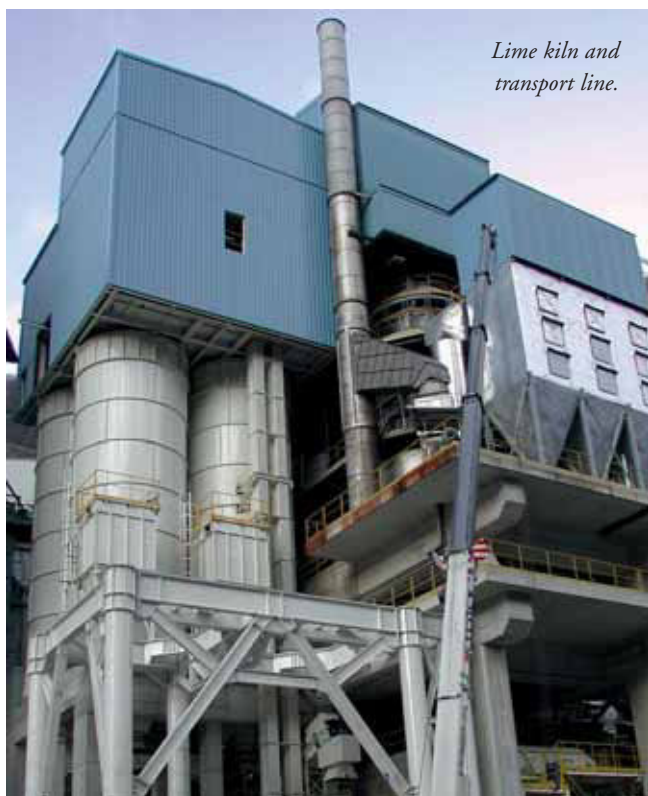
and 600m<sup>2</sup> of painting shop that includes a recently built 8m x 15m shot-blasting cabin.

In both the 'old' and the 'new' company structures, the focus has always been and remains flexibility, pragmatism, coherence and substance. By sticking to this ethos, the company strives to become better and better known in global markets, and continues to invest in research, quality and professional service to the benefit of both its customers and its collaborators.

#### RECENT PROJECTS

Sammi has carried out a range of advanced projects, which include:

- ❖ the design, supply and installation of a conveyor system to remove waste from the new SNAM gas pipeline tunnel between Parma and Pontremoli (Italy). The conveyor has a length of approximately 1,200m. The design had to overcome various site restrictions, such as different altimetry levels, slopes and bends.
- ❖ the supply and installation of a steel construction weighing more than 400 tonnes, include all the equipment for a lime kiln engineered by MAERZ Ofenbau AG, Zurich. The contract for a lime plant at Brembilla, Italy.
- ❖ Sammi successfully supplied crushing mill plants with a rated capacity of 800tph (tonnes per hour). A first contract was placed for the design, supply and installation of a 800tph primary crushing mill at Calce Dolomia plant in Genoa, Italy. A second



*Lime kiln and transport line.*



*Dry mortar plant.*

contract was for the complete design and supply of a secondary crushing in Cagliari, Italy.

- ❖ the complete design, supply and installation of all the equipment and the steel structure for a dry mortar production system for the Calce Dolomia production plant in Campiglia, Italy.
- ❖ in December 2009, Sammi was awarded of a contract for the Italcementi plant at Gaurain-Ramecroix, Tournai (Belgium). The contract was for a complete handling and storage system to be installed at the quarry of the cement factory, for a nominal load of 2,500tph of limestone. The project includes the design, manufacture, supply and installation of:
  - ❑ two transport lines complete with towers and tunnels including one tripper car, with a nominal capacity 2,500tph;
  - ❑ stockpile building for limestone storage, with a total capacity of 50,000 tonnes.
  - ❑ two transport lines complete with towers and tunnels for the recovery and feeding of the cement factory, with a nominal capacity of 750tph.

DC



*Primary crushing mill.*



# Sammi presents 'Bulk Kreml' project to operators worldwide



The date 1 October 2011 will remain a milestone in the history of Italian manufacturer Sammi, a provider of equipment for offshore bulk handling. On that date, Sammi celebrated the successful completion of one of the most complex contracts recently awarded to the company: an offshore vessel loading system which will be installed on the *Bulk Kreml* transshipper. The project has been undertaken by Coeclerici Logistics Spa (CCL), a major presence in the transshipment of dry bulk cargo, and it has a long history of co-operation and partnership with Sammi.

The Floating Transfer Station (FTS) *Bulk Kreml 1* is one of seven owned units in CCL's fleet. The FTS handles mainly sulphur cargo but also handles iron ore and coal in the Black Sea. With the addition of the new shiploader, *Bulk Kreml 1* will further increase its yearly offshore transshipping capacity.

The plant in its entirety consists of two hoppers, two belt conveyors for the extraction of material from the hoppers, three conveyor belts of lengths up to 60m and one shiploader with slewing, luffing and shuttling functions with a total span of 30m when fully extracted.

The shiploader, with its total weight of 90 tonnes, has three key features that allow it to reach all

corners of the holds of merchant ships up to 80,000dwt. These characteristics translate into the ability to load material at each point of the holds, to optimize load capacity and, not least, to enable a reduction in load times. This ability means, in other words, more revenue for the customer.



*The Bulk Kreml shiploader boom during construction in Sammi's workshop.*

*The Bulk Kreml shiploader boom during installation over the testing platform in Sammi's workshop'*



Particular attention was paid to limiting dust spillage from the plant, by adopting the most advanced solutions and installing components from leading international sub-contractors in reducing emissions system.

Notable among these solutions is the use of a cascade loading chute, which offers the double advantage of reducing

dust emissions at the base of the chute, and also reducing degradation of product and impact abrasion of the material.

#### EVENT

In the presence of more than 200 guests, included among which was the customer Coeclerici Logistics Spa, representatives of

*Demonstration of shuttle extraction (Bulk Kreml).*







*General manager of Sammi Floriano Bussetti during the Bulk Kremi presentation speech.*

local government and industrial associations and main project partners, Floriano Bussetti (general manager of Sammi) welcomed Sammi's latest challenge in equipment for offshore bulk handling.

During his speech, Bussetti emphasized that the whole *Bulk Kremi* plant, including the shiploader, was completely conceived, designed and fabricated on Sammi premises in Narni Scalo, and

the whole process of engineering and construction took only ten months.

The plant will be soon shipped to its final destination (Ukraine seas) to be installed on the 14,500dwt geared pontoon *Bulk Kremi* (the transshipper) which has been already provided with two cranes.

The shiploader is of course the heart and the crown jewel of



*Bulk Kremi shiploader with Sammi guests visible in the background.*

a broader system, and it has the following main features:

- ❖ boom with slewing, shuttling and luffing functions;
- ❖ material transfer from the feed chute at the pivot structure to the boom tip;
- ❖ retractable loading chute, for efficient material distribution and to reduce dust emissions; and
- ❖ luffing angle up to 50° to pass over vessel's mast or cranes to enable quick hold changes during loading.

This plant is particularly notable, as it is the first in Europe that is suitable for the offshore transshipment of pelletized sulphur, a material that gives off highly flammable dust. For this reason, the design had to be developed within the European ATEX Directive (94/9/EC) for products intended to be used in potentially explosive atmospheres. This fact led to a further technical effort by Sammi to match the design requirements of the directive.

It is expected that the *Bulk Kreml* pontoon will be brought into service very soon (at the beginning of 2012), as most of the problems that normally arise during the commissioning process have been already faced and solved by Sammi technicians.

On the occasion of project presentation, the company also organized a demonstration of shiploader operation, which was placed on a test platform erected for workshop test and project presentation on the external area of Sammi premises.

The pre-assembly activities for the shiploader started at the beginning of August, and after the successful operational test the machine will be now partially dismantled to be shipped.

Another aspect that the general management of Sammi wanted to highlight during the day of 1 October is that the company will not cease to invest, as it always has done, in human resources and specific modern equipment, with the result that brought the company to be a major company in design, supply

*Bulk Kreml shiploader running at full inclination.*



and installation of industrial plants.

"Thanks to its ever increasing investment," said Bussetti, "the company is today able to deal with the demands of many national and foreign customers,"

As proof of that, in the current year the company has been awarded a contract for the design and supply of a 2,000tph (tonnes per hour) offshore turnkey coal handling system, to be installed in a new transshipper owned by Coeclerici Logistics Spa, and a new contract for a plant with similar features will be signed by end of 2011.

As well as the projects already in hand, the company is also undergoing feasibility studies for a range of handling rates as well as for a range of equipment to meet all the bulk handling needs of its customers.

DCi



# Sammi dry bulk cargo handling systems



*Plug-and-play equipment: shiploader testing area with switchgear and PLC cabin in Sammi's workshop (Bulk Kreml).*

Italian manufacturer Sammi has extensive expertise in the supply of equipment for offshore bulk handling. This expertise has been widened even further with the acquisition of the company METMO Spa, which has allowed Sammi to integrate its consolidated skills in conveying systems with experience in port and vessel equipment for bulk material handling in co-operation and partnership with Coeclerici Logistics Spa.

## REFERENCES

Sammi began its operations on bulk vessels with its conveying and loading systems when it won a contract to design and supply

a belt conveyor system that was successfully installed and commissioned on the transshipper *Bulk Pioneer*. The system is designed for a rated capacity of 1,800tph (tonnes per hour) handling coal.

In 2009, Sammi was awarded a contract for the engineering and supply of a turnkey coal handling and shiploading system with a rated capacity of 2,000tph, to be installed on the transshipper *Bulk Java*.

The system includes double charging hoppers, belt conveyors and two continuous shiploaders both slewing and luffing-type and is designed to load vessels up to Capesize draught.



*Shuttling and pivoting conveyor - Metmo*



*The transshipper Bulk Pioneer loading a Panamax (photo courtesy of Coeclerici Logistics).*



*The transhipper Bulk Java during construction works (photo courtesy of Coeclerici Logistics).*

All the equipment has been delivered to the Chinese shipyard, installed and successfully tested.

Another contract that was awarded to Sammi in 2010 was for the design and supply of an offshore vessel loading system. The scope of work includes a complete handling and shiploading system which is suitable to transport and load sulphur on vessels from Handy up to Panamax size with a rated capacity of 750tph.

The plant will be installed on the *Bulk Kreml* transhipper and includes hoppers, belt conveyors and a shiploader with a total span of 30 metres when fully extended.



*Transhipper Bulk Pioneer (photo courtesy of Coeclerici Logistics).*

#### System specifications

- ❖ boom with slewing, shuttling and luffing functions;
- ❖ material transfer from the feed chute at the pivot structure to the boom tip;
- ❖ retractable loading chute, for efficient material distribution and to reduce dust emissions;
- ❖ luffing angle up to 50° to pass over vessel's mast or cranes to



*Transhipper Bulk Java ready for commissioning (photo courtesy of Coeclerici Logistics).*

enable quick hold changes during loading;

- ❖ design fully in accordance with directive Atex 94/9/EC regulations.

To date, engineering and construction phases have been completed, and all the equipment is ready for no-load testing in Sammi's premises.

In 2011, the company was awarded of a contract for the design and supply of a turnkey coal handling for a rated capacity of 2,000tph of coal, to be installed in a new transhipper presently under construction.

As for the project *Bulk Java*, the system will include double charging hoppers, belt conveyors and two continuous shiploaders both slewing and luffing-type. The launch of the new



*Deck conveying equipment For the Bulk Pioneer (photo courtesy of Coeclerici Logistics).*

vessel is foreseen for middle of 2012.

Looking at the project in greater detail, there will be operational tests carried out in which the shiploader will be completely assembled in the workshop together with its electrical and hydraulic power elements, to test that all slewing, luffing and shuttle functions operate as they should.

The main advantage of carrying out these types of workshop tests is that they significantly reduce the time required in the shipyard for the assembly, commissioning and fine-tuning of the



*Bulk Java shiploader with luffing and slewing spout (photo courtesy of Coeclerici Logistics).*

system. This further underscores Sammi's commitment to meeting all the expectations of its customers.

As well as the projects already in hand, the company is also undergoing feasibility studies for a range of further orders, with increased handling rates of up to 4,000tph, as well as for a variety of equipment to meet all bulk handling needs and requirements of its customers.

Sammi's technical solutions are all engineered to offer reliable, efficient and cost-effective operations.



# Costruire il futuro

Flessibilità e pragmatismo alla base di un successo internazionale

**E**sistono imprese per le quali il lavoro significa perseguire un sogno ...costruendo il futuro! “Sammi, ‘building for the future’, è questo lo slogan della nostra azienda – afferma Floriano Bussetti alla guida della SAMMI Srl insieme al padre Graziano –, il principio verso cui tende tutta la nostra struttura: progettare, costruire, innovare per generare nuovi prodotti all’avanguardia per un mercato internazionale sempre più competitivo ed esigente”.

“Società Artigiana Montaggi Manutenzione Impianti”, questo era il nome della S.A.M.M.I. quando nel 1976 nacque come società in nome collettivo grazie alla volontà di tre soci, ex operai di provenienza locale, uno dei quali tutt’ora presente in azienda. “I soci fondatori partirono senza capitali e iniziarono l’attività andando a fare montaggi in giro per il mondo” – sottolinea Bussetti.

Nel 1980 la Sammi inizia la costruzione del primo padiglione, assume personale selezionato in ambito locale e soprattutto allarga il suo settore d’intervento, estendendo l’attività e occupandosi sia dei montaggi sia delle costruzioni per conto terzi.

Dopo aver lavorato per un certo tempo su commesse di aziende maggiori, comincia ad acquisire commesse dirette fino ad assorbire alcune di quelle stesse aziende per le quali aveva lavorato in subfornitura.

Nel 1993 si trasforma nella società di capitali SAMMI Srl ed espande il suo raggio d’azione soprattutto a livello internazionale, dove l’azienda da subfornitore e trasformatore per conto terzi diventa main contractor per clienti finali in diversi settori. Ciò ha consentito ai ti-

tolari e al personale di accumulare un’esperienza tale da trasformare in pochi anni la società in una delle aziende più competitive del settore, come testimonia l’ingente archivio di progetti degli impianti realizzati.

“Oggi l’azienda è florida – prosegue Bussetti – e rappresenta una realtà tra le più avanzate nel settore della progettazione e della re-

alizzazione di impianti meccanici industriali”.

L’azienda ha avuto uno sviluppo continuativo puntando sempre sulla ricerca e sull’innovazione tecnologica, crescendo costantemente ed aprendosi canali sempre nuovi nei mercati esteri.

Un passaggio fondamentale è stato la costituzione nell’anno 2000 del servizio tecnico d’ingegneria e



Da sx Floriano e Graziano Bussetti

progettazione al proprio interno, un vero e proprio centro di ricerca che agisce sulla base delle specifiche esigenze del cliente.

Ciò ha coinciso con l'entrata in azienda della seconda generazione, la quale operando in piena continuità con la prima generazione ha permesso di ottenere risultati significativi. Bussetti non ha dubbi: "La flessibilità, il pragmatismo, la coerenza e la sostanza sono obiettivi che sia la 'vecchia' guardia che le nuove leve generazionali dell'azienda vogliono perseguire, creando un connubio di intenti allo scopo di far crescere sempre più il nome di Sammi nei mercati mon-

diali, investendo in particolare nella ricerca, nella qualità e nella professionalità del servizio.

Oggi siamo leader nel comparto industriale, ma lo siamo per necessità e competenza e non è detto che un giorno non diversificheremo le nostre attività in altri settori".

Nel tempo l'azienda si è sviluppata consolidando un indotto di partner industriali strategici che le permettono di perseguire i risultati attesi e di garantire professionalità, puntualità e qualità dei servizi. L'azienda dispone di una capacità tecnologica e produttiva all'avanguardia che si applica a diversi settori, tra i quali: impianti "off sho-

re", impianti meccanici industriali completi, macchine per il settore ceramico-sanitario, cementifici, forni per la cottura della calce, sistemi di trasporto per materiali sia sfusi che in sacchi, impianti di estrazione miniere/cave e carpenteria in generale.

Tali lavori sono svolti soprattutto grazie a commesse estere, verso cui Sammi indirizza la quota maggiore della produzione realizzata, ad oggi circa l'80%. "Nonostante la congiuntura sfavorevole degli ultimi tre anni – dichiara Bussetti – stiamo crescendo come prospettive e qualità del lavoro. Noi siamo sempre protesi alla ricerca e soprattutto alla selezione delle opportunità.

La nostra consapevolezza è che quello che vale oggi potrebbe non valere più in futuro. Bisogna saper prendere delle decisioni in anticipo rispetto al verificarsi degli eventi e reinvestire in modo produttivo gli utili realizzati. Fino al biennio 2006-2008 il lavoro arrivava da solo e a volte dovevamo rifiutare le commesse.


A partire dal 2009 si è verificato un rallentamento dell'economia ed un mutamento repentino delle condizioni di lavoro, ma è cresciuta l'opportunità di integrarsi in un contesto globale ed è stato strategico sviluppare un'azione commerciale di livello, con figure professionali adeguate, consapevoli delle nostre possibilità.

Oggi ci aggregiamo a società multinazionali forti, che hanno importanti commesse nel mondo. Non cerchiamo la commessa spot ma puntiamo a dare continuità al nostro lavoro, fidelizzando il cliente con un rapporto diretto che comporta una gestione della relazione a 360 gradi.

La Sammi è soddisfatta del presente, ma è anche protesa verso un futuro che vuole vivere da protagonista; un futuro che vogliamo vedere come un'opportunità nuova, da cogliere avendo la visione che "non esistono confini ma solo nuove sfide..."







**Mirko Sbrenna, Sammi s.r.l., Italy,  
describes a number of the company's  
coal handling projects.**

## A SAFE PAIR OF HANDS

**S**ammi is an Italian manufacturer of bulk material handling equipment with experience providing customised solutions through close cooperation with industry partners. Since its acquisition of Molliconi-Metmo in 1999, the company has consolidated its skills in conveying systems with experience in port and vessel equipment for bulk material handling in partnership with Coeclerici Logistics. The acquisition of Plania Engineering, a company of civil and industrial engineers and architects, in 2012, has completed the range of competencies the company can now offer.

Sammi specialises in the design and manufacture of machines and turnkey plant for bulk material handling. It can

provide complete installation in different fields, such as:

- Mines and quarries.
- Cement factories.
- Offshore plants.
- Harbour plants.
- Glassware factories.
- Waste/power/biomass plants.
- Steel plants.
- Tunnelling plants.
- Agro food industries.

### Case studies

#### Bulk Pioneer and Bulk Java

In 2005, Sammi was awarded the design and supply of the belt conveyor system that was successfully installed and commissioned on the transhipper, Bulk Pioneer. The system

is designed for a rated capacity of 1800 tph of coal.

After the Bulk Pioneer, in 2009, Sammi was awarded another contract for the engineering and supply of a turnkey coal handling and shiploading system with a rated capacity of 2000 tph for the transhipper, Bulk Java. This included double charging hoppers, belt conveyors and two continuous shiploaders, both slewing and luffing-type.

The system comprises two 30 t cranes that each feed two hoppers. Coal is extracted from each hopper by a rubber extractor belt and then carried to a transversal belt that, on its top, has a bypass that unloads the material onto two longitudinal belts that feed a shiploader. All of the mechanical elements of the transport





Shiploader installed on the Bulk Pioneer.  
Photo courtesy of Coeclerici Logistics.



Shiploader installed on the Bulk Kremi.  
Photo courtesy of Coeclerici Logistics.



Petcoke transportation at Cement Calcia.  
Photo courtesy of Italcementi Group.

system were built in Italy and then sent to the site where they were commissioned with the help of Sammi supervisors. In addition to the mechanical section, the company also supplied the electrical and oil hydraulics components.

### Bulk Kremi

In 2010, Sammi was awarded a further contract for the design and supply of an offshore vessel loading system. The scope of work included a complete handling and shiploading system suitable to transport and load sulfur on

vessels from handymax up to panamax size. The plant will be installed on the Bulk Kremi transhipper and includes hoppers, belt conveyors and a shiploader.

The system is designed to load of 750 tph of sulfur, but can transport coal and iron ore in different specified weights, using the extractor inverters. With this configuration, the unit can take material with the barge crane and load it in its hold or transfer the load directly to an ocean-going vessel. Its key specifications include:

- Luffing angle (max): +50°, for berthing operation or to bypass the mast or other vessel facilities (crane) during change-hold operations.
- Slewing angle: +270° around its own axis.
- Extractable shuttle/discharge: up to 30 m.

The plant and its components are suitable for operation in dangerous conditions, according to the projected ATEX classification.

The company is also undertaking feasibility studies for a range of further orders with increased handling rates of up to 4000 tph, as well as for a variety of equipment to the requirements of its customers. Sammi's technical solutions are all engineered to offer reliable, efficient and cost-effective operations.

### Coal/petcoke conveying at a cement factory

The company is also involved in coal/petcoke conveying at cement factories. For example, at the end of 2011, Sammi was awarded a contract for the complete design, supply, erection and commissioning services for a coal handling and storage system for Italcementi Group's Ciment Calcia to be installed in Couvrot, France.

Sammi was involved in the design, procurement, construction, surface treatment, transportation, erection, testing and start-up assistance for a transportation system consisting of several machines intended for the reception, processing and transportation of coal/petcoke to power the cement mill. The machines are appropriate to be installed in ambient ATEX 22 dust. The project can be divided in two main parts:

- Coal storage facilities: these include the truck unloading station, receiving hopper, 50 m belt conveyor (250 tph) to transport the coal to a transfer and sieving station. From this station, coal can be either transported to a storage area or diverted to another conveyor if over-sized.
- Coal recovery facilities: these include a 250 m belt conveyor with altitude variation of 25 m (100 tph) to transport coal from storage to the existing crusher feeding facility, which will be revamped with a new hopper with a capacity of 110 m<sup>3</sup> and a set of redler mass conveyors to feeds the crusher.

Sammi's gallery structure is made in standard section profiles, allowing a span of more than 50 m. The gallery supports belt conveyor structure and walkways. <sup>W</sup>C