



Cockerill Maintenance & Ingénierie

# 2000

YEARS OF FUTURE  
Activity report 2016





John Cockerill, a pioneer in the industrial revolution in Europe and the founder, in 1817, of the activities that gave rise to CMI Group. His face has been reconstructed from photos of current employees of CMI Group.

It is now already 200 years since John Cockerill set up in Seraing (Belgium). A genuine visionary, he carried out a multitude of projects and realizations, which marked the industrial landscape. Today, the spirit, the vision and the determined nature of John Cockerill continue to inspire the personnel of CMI Group. Proud of its past, and confident in its capacity to invent the processes of the future, CMI intends to contribute to the current challenges in society and to generate sustainable industrial progress.

Along this activity report, you will find a time-line that recalls the key dates of the history of CMI, from its roots to the present day. Several passages, recognizable for their common layout, evoke elements from the past to see just how much they have evolved today.

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1817: when he arrives in Seraing, John Cockerill manufactures steam engines. He is to become a pioneer of the industrial revolution.



**1817:** John Cockerill buys the castle in Seraing

**1818:** first industrial steam boiler



# Message from the Chairman

## 200 years of future

When he located in the Seraing Château in 1817, John Cockerill probably did not realize just what an incredible adventure he was setting in motion. Today, the bicentennial of CMI is based around a triple objective: understand the past, celebrate the present and set out for the future.

2016: steam remains at the heart of one of the innovations of the Group - receivers for thermo-solar power plants.



1826: commissioning of the first blast furnace in the Netherlands



# CMI solutions for every market

Waste treatment

Energie solaire **Air** Défense

Training **Energies** Chaudières Eau

**Environnement** Lignes de galvanisation

HRSGs Boilers **Sidérurgie** Aeronautics Simulators

Solar energy **Maintenance** Operational efficiency

Stations d'épuration Services aux projets **Equipment**

Know-how Galvanizing lines **Energies** Laminaires HRSGs

Spécialistes **Environment** Systèmes d'armes Durable

**Métaux** Industrial furnaces Weapon systems Biomasse



## 200 years of future

When he installed in the Seraing Château in 1817, John Cockerill probably didn't realize just what an incredible adventure he was setting in motion. Before Belgium was even in existence, this man – one of the first to master steam – laid the foundations of the industrial revolution in Europe, through what was to become the 'Etablissements Cockerill'.

Two hundred years later, it is a happy and enthusiastic Chairman who is addressing you to comment on the last financial year of the second century of existence of CMI.

The CMI Group has begun this bicentennial year at its best level ever. Cash flow is healthy and shareholder equity is continuing to grow. Following two years of exceptional order intake, turnover has stabilized at over 1.2 billion Euros. Order intake remains above 1.1 million Euros, slightly behind the record years of 2014 and 2015. As for operating profits, they stand at 114.1 million Euros, beyond the historic record of 2015.

## Innovation and diversification

We owe this result to the strategy of innovation and diversification which has been sustaining us since 2002. In 15 years, this strategy has fundamentally reshaped CMI, giving it the size of an international engineering and services group with a largely diversified portfolio. Today, the CMI Group is present on the five continents, and in more than 20 countries. In 2016 alone, we created two new companies, in Ivory Coast and the Czech Republic, and we opened premises in the United Arab Emirates (Abu Dhabi), Senegal, Indonesia, Singapore... Commercial diversification is underway and projects in Africa are multiplying, whether for locomotives, rail services or drinking water and water treatment installations.

Encouraged by King William of Orange, John Cockerill set about developing mechanization in Europe. Today, the issues which are occupying our technicians and engineers are extremely contemporary: the production of energy from renewable channels, energy storage, process simulation and modelling, reducing the environmental footprint of industry and society, virtual reality... The

rapid evolution of our portfolio of technologies demonstrates that the dynamism and innovative strength of John Cockerill are still firmly rooted in the DNA of our teams. By way of illustration, the internal 'CMI Awards' competition which rewards the best innovations of the year, drew 53 high quality candidate projects. In 2016, we also initiated a comparative study for energy storage and management solutions. To this effect, solar panels and prototype storage units are in the process of being installed at the historic Seraing site.

## Projects in abundance

Through his dynamism, his visionary nature and his insatiable technical appetite, John Cockerill rapidly diversified his activities in boilers, locomotives, ships, quarries, mines and of course, steelmaking.

The portfolio of CMI today is evenly distributed among the five sectors of activity, all of which recorded advances in 2016.

In energy, a second generation of thermo-solar power plants – which enables electricity to be produced 24 hours – is under construction in Chile. It includes new developments

1831: manufacture of gun carriages

1834: construction of the first steam boat at the Antwerp shipyard

which help in making this new channel a competitive alternative to fossil fuel energy.

In defence, CMI has begun its collaboration with the American Army on the development of a new generation turret. The CMI Defence teams have also been working on a maritime application (Tank Boat®), on the use of drones to widen the field of vision of tank crews, on the use of composite materials to decrease the weight of equipment and on simulation to assist the training of armies.

In the very competitive steelmaking equipment market, CMI Industry is banking on innovation, in particular by taking part in the construction of the first vacuum coating line in the world, and in the technological renovation of one of the most powerful slab reheating furnaces. In parallel, it is developing in the aeronautical sector, where it is taking advantage of its surface coating and thermal treatment expertise.

In 2016, CMI brought all of its environmental services together within a dedicated structure. CMI Environment, the Group's new sector, is present in Europe, the USA, China and Africa. In 2016, its teams developed new biomass roasting solutions, along with an autonomous water pumping solution. They also perfected a software system to help carrying out energy audits, named Perfengo®.

And finally, CMI Services once more made fine progress in 2016, in France, Africa and even in Belgium, where

the first effects of the 2015 industrial plan are beginning to be felt. From the Czech Republic to the Ivory Coast, taking in specialist expertise in wind turbines, instrumentation and electricity, CMI Services is developing its installations and its areas of intervention.

## A human adventure

Nick-named 'father of the workers', John Cockerill was very attentive to the well-being of his 2000 or so workers. He looked after the well-being of his personnel and made sure that the most promising among them could make progress within his company.

Two hundred years later, our men and women remain the main source of the long term progress of the Group, and, just like John Cockerill, we wish to make sure they enjoy the best conditions in order to lay out the future of CMI. From the day they join the company and take part in an induction day, up to benefiting from information and knowledge sharing platforms, along with encouraged internal mobility, all is done with the objective of helping our 4 600 members of staff to flourish and develop. And the infrastructures are not lagging behind, with the construction of a new international training center in the French Meuse region, the total restoration of the Group's headquarters in Seraing and the construction of an administrative building in Luxembourg to accommodate, in particular, the headquarters of CMI Services.

## Setting out for the future

From John Cockerill to CMI, this is a great story! The company has come through the times and the crises. It has always been able to reinvent itself by providing responses to the concerns of each era. And the most recent heirs of John Cockerill take on the responsibility of transmitting this industrial legacy. A dedicated foundation, a film, a book and an exhibition open to the public, are part of a bicentennial which we wish to share with our clients, the local bodies around us and, of course, with the CMI community.

Through its work as an equipment supplier, and even more through its values, the CMI Group is perpetuating the tradition of John Cockerill. Thanks to the rapid growth experienced over recent years, CMI has successfully set out on its change of century. For a long time will we keep promoting industrial innovation around the world, boosted by the experience, the skills and confidence of the 200 years to come.



Bernard Serin  
Chairman  
Managing Director



### 2017

In 2017, CMI is celebrating its bicentennial. The John Cockerill Foundation has been created on this occasion with a view to maintaining, developing and transmitting the legacy of this pioneer of the industrial revolution.

### 1817

At the age of just 27, John Cockerill manages to persuade King William I of the Netherlands to sell him the Seraing Chateau for 21 262 florins. On the banks of the Meuse, this chateau is ideally located close to sources of coal, minerals and abundant labor. Everything which is needed to install ultra-modern factories and manufacture steam engines in series. Convinced that the mastery of steam is going to totally change industrial methods and the way of life, John Cockerill is to be at the very origin of the industrial revolution.



1835: first steam locomotive, 'Le Belge', which ran on the first line in continental Europe (Brussels – Mechelen)

1842: Gustave Pastor, nephew of John Cockerill, is to take over from him at the head of the company. He will re-launch the production of locomotives, ships and steam engines, and introduce the Bessemer process into steelmaking.



1840: death of John Cockerill in Warsaw, on his way back from a business trip in Russia





## 2016 in brief

### Stabilize to consolidate

Continuing with its exceptional growth in 2015, CMI has confirmed in 2016 that it is at its highest level! Operating result amounted to € 114.1 million for a turnover of € 1.227 billion, evenly spread across all sectors of activity. And where the deployment of its activities is concerned, CMI is responding to its customers' needs in the four corners of the world.

Let us take a look back at this year of stabilization based upon an ever more diversified offering.

2016: the activities of CMI in the railway domain receive new momentum thanks to the acquisition of diesel-electric transmission technology.



1842: creation of the 'Etablissements Cockerill'

# Key figures

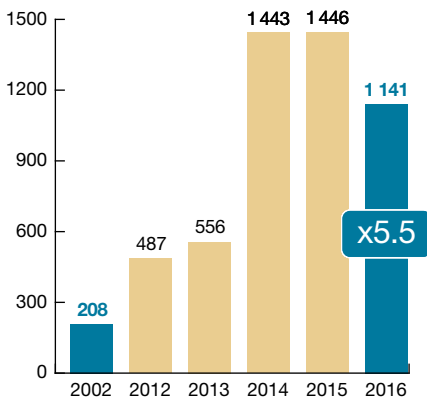
It is not possible to go back to 1817 to compare the key performance indicators of CMI with those of that time. Conversely, measuring the progress made since 2002, the year in which CMI became a private group, is certainly relevant. Here are some benchmarks from the last 15 years, which enable progress to be measured.

In thousands of Euros	2002	2012	2013	2014	2015	2016
Shareholders' equity	45 201	88 586	88 108	132 320	192 256	282 369
Cash-flow	98 030	39 108	32 770	306 029	267 832	268 741
Order entries	208 205	487 010	555 873	1 443 426	1 446 225	1 140 751
Turnover	358 280	792 789	646 836	896 059	1 317 439	1 227 119
Operating result	6 083	32 126	11 586	52 582	113 701	114 134

The data presented for 2015 and 2016 are those of the CMI Consortium. The latter comprises all the lines of business of the Group, as well as its real estate activity. Given the percentage of the shareholding stake held by the Consortium (directly or indirectly) in each of the subsidiaries included in the scope of consolidation, most of the companies of the Consortium have been consolidated by the global integration method.

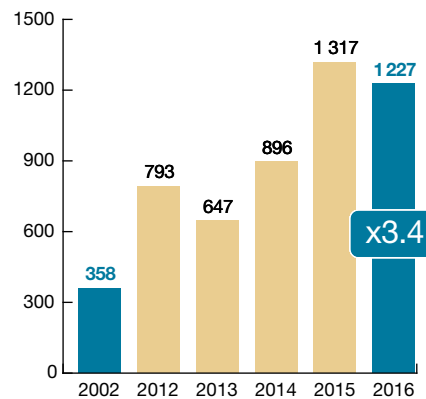
These data are published according to the International Financial Reporting Standards (IFRS). The application of these standards guarantees a homogeneous consolidation of the Group's accounts for its entire scope. It also makes it possible to read and understand its performance from an international viewpoint. All financial data are available in the CMI Financial Report.

## Order entries (EUR Mios)



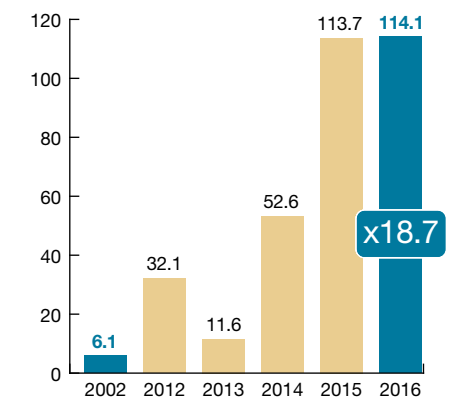
After two exceptional years in 2014 and 2015, CMI stabilized its growth beyond the one billion Euro mark in orders booked. The commercial activity which remains intense in all sectors has already led to several orders in the first quarter of 2017. The order intake level has been multiplied by 5.5 since 2002.

## Turnover (EUR Mios)



A record level of order entries was achieved in 2015, enabling CMI to stabilize its turnover for 2016 at € 1.2 billion, i.e. a performance 3.4 times higher than that of 2002.

## Operating result (EUR Mios)



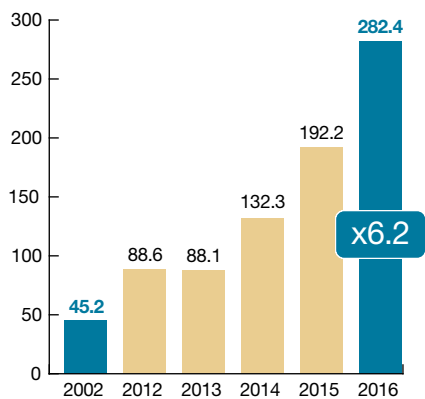
The operating result for 2016 is not only in line with the targeted profitability rates (6% to 8% of turnover), but also almost 20 times higher than that of 2002. CMI's operating result has been positive for each one of the last 15 years.

The result for 2016 is essentially driven by CMI Defence, CMI Energy and CMI Services. For its part, the result of CMI Industry remains heavily affected by its activities in the supply of equipment to the steel industry.

1843: construction of the first iron suspension bridge in the region, at Seraing

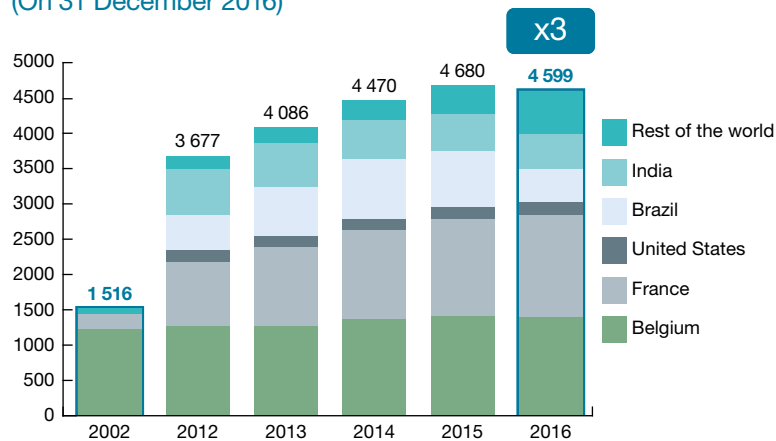


## Shareholders' equity (EUR Mios)



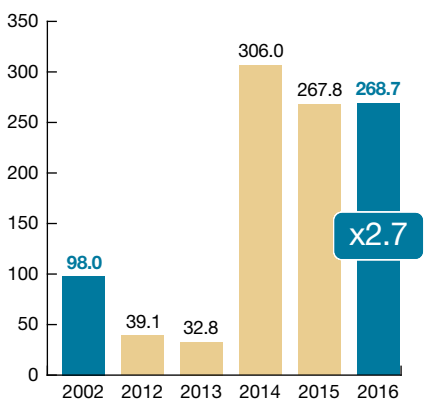
The increase of €90.1 million in shareholders' equity between 2015 and 2016 stems essentially from the positive result for the period (+€ 126.1 million for the Group) minus the dividend for 2015 (€ 35 million).

## Workforce (On 31 December 2016)



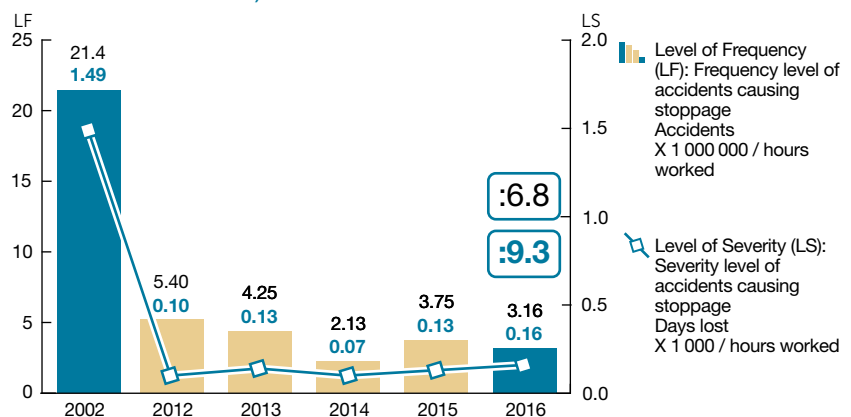
In 1826, the 'Etablissements Cockerill' numbered almost 1 500 employees. This was again the case in 2002. On 31 December 2016, CMI employed 4 599 people, 3 times more than in 2002, and located in over 20 countries.

## Cash flow (EUR Mios)



At the end of 2016 cashflow amounted to a total of € 268.7 million, slightly up compared to 2015.

## Safety performance (On 31 December 2016)



Ensuring the safety of men and women is priority n° 1 for the CMI Group. After a slight deterioration in 2015, the trend is positive again in 2016, largely thanks to the dynamic safety efforts made by the entities recently acquired by the Group.

From 2002 to 2016, while increasing the number of hours of risk exposure by four (1 963 hours compared with 7 921), CMI has decreased by a factor of seven the number of accidents per million hours worked, and by nine the number of days lost per thousand hours worked.



Dynamic presentation of CMI key figures

Since 2002, more than € 384 million have been invested by the CMI Group, while the banking sector has shown its full confidence by granting eight times more lines of credit.

# Everywhere in the world

In 2016, CMI achieved technical and commercial success all around the world. The Group extended its geographical and technological diversification even further, in line with its CMI 2017-2022 roadmap.



## America

In the **United States**, CMI Defence is selected by the American Army within the framework of the CRADA research program and is given access to the MPF program. CMI Defence opens a representative office in Detroit and for the first time exhibits its Cockerill® 3000 series modular turret. In **Canada**, CMI Environment sells an odor treatment unit and CMI Energy is to supply a boiler for the Chinook project. In **Mexico**, CMI Energy wins

a contract for the two boilers at the Norte power plant, while CMI Industry will build an organic coating line for steelmaker Galvasid. In **Brazil**, despite the economic crisis, CMI Services signs a maintenance contract for the Petrobras platform. Finally, in **Chile**: the construction of thermo-solar power plants, suspended following the financial difficulties of the client, should resume in 2017.

## Europe

In **Belgium**, CMI Industry is revamping the stainless steel rolling mill of Aleris, it is increasing the capacity and energy output of the ArcelorMittal slab reheating furnace in Ghent and is taking part in the construction of the first vacuum steel coating line in the world at Liège. CMI Environment and CMI Services will take care of the renovation, operation and maintenance of the Aperam effluent treatment station.

In **France**, CMI inaugurates its international training center at Commercy. The Bouchain power plant, equipped with CMI boilers, enters the Guinness Book of Records for its energy yield of over 62%. CMI Industry is to supply a surface treatment installation for Safran along with three heat treatment furnaces. CMI Defence becomes the 100% shareholder of its specialized subsidiary Agueris®, confirming its ambitions on the digital simulation market.

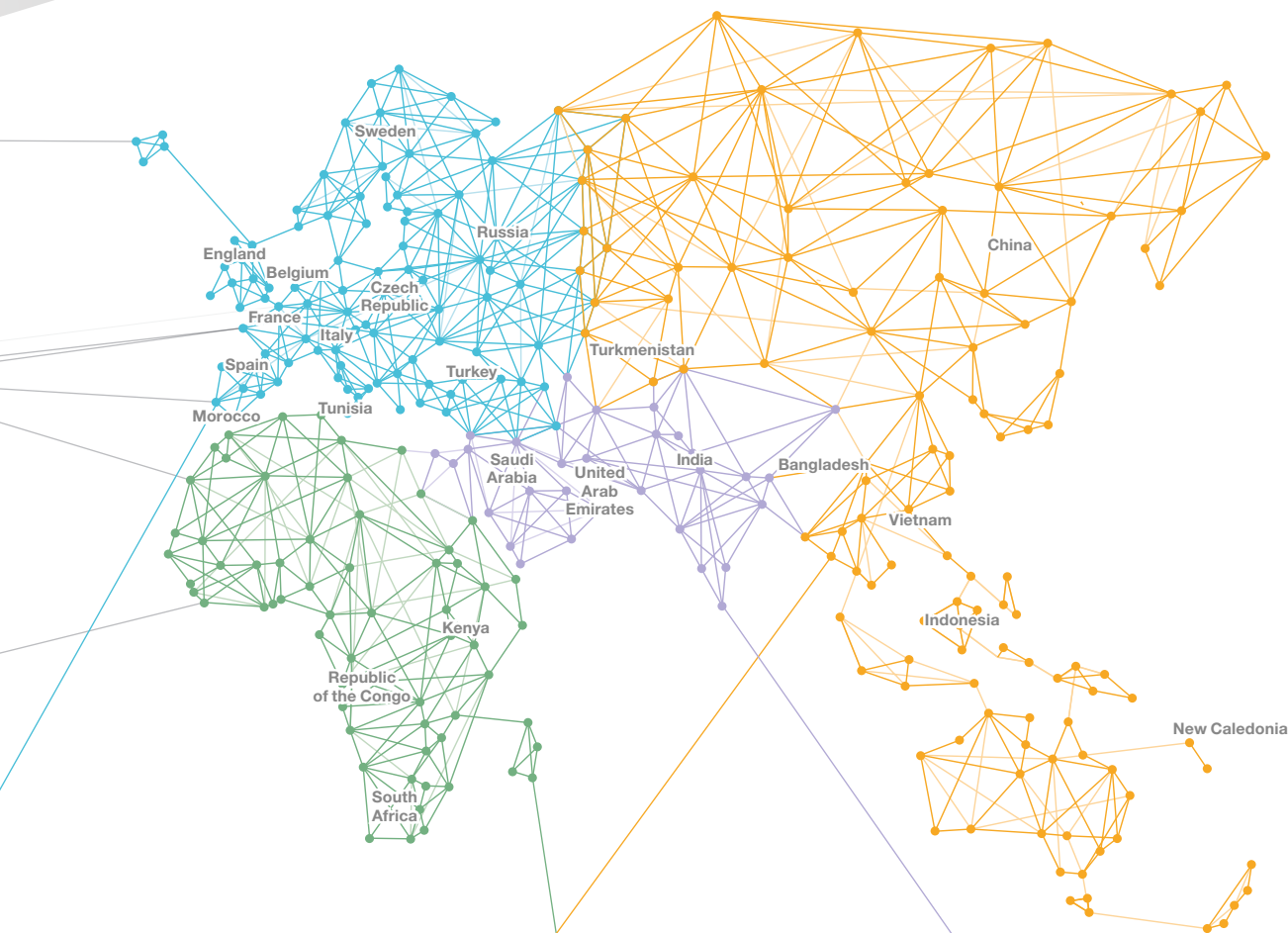
CMI Services and CMI Environment win a contract for the updating and servicing of the tertiary cooling circuits of two nuclear power plants thanks to an innovative process of electro-chlorination of sea water.

In the Paris region, CMI Environment completes the Aquaged network by acquiring two agencies, and sells two odor treatment units along with water treatment installations to Safran at Corbeil. CMI Services sets up a new workshop in Calais and continues its development with the acquisition of three maintenance companies: Axiome at Vitrolles, Acte near Le Havre and LM Energie at Clermont Ferrand. CMI Services wins substantial contracts in the program for the renovation and maintenance of nuclear power plants, in the overhead power lines maintenance machinery program for French railway operator SNCF, and in the hydraulic maintenance of ship refuelling systems.

In **Spain** CMI Services acquires G2WIND, a supplier of spare parts for wind turbines. In the **Czech Republic**, CMI Services expands its range of locomotives with the creation of a subsidiary specializing in diesel-electric technology. In **Italy**, **Sweden** and **Turkey**, CMI Industry is to supply, respectively, a cooling system for a steelmaking line to ILVA, a stainless steel pickling line to Sandvik and a galvanizing line to steelmaker Tat Metal. In **England**, CMI Energy will take part in the renovation of the King's Lynn power plant, and in **Russia**, CMI Industry is putting the coating steelmaking lines at Severstal into service and wins an order for an acid regeneration plant at NLMK.

1863: introduction of the Bessemer process allowing for large scale steel production





## Asia & Oceania

CMI Energy obtains a contract for four boilers in **Turkmenistan**, and sells three more in **Bangladesh**, while CMI Industry will for its part renovate a galvanizing line. In **Indonesia**, CMI Defence presents a world première, a catamaran fitted with a Cockerill® turret. CMI Environment is well placed in **Vietnam** for the construction of water treatment stations, while CMI Industry will equip the Hoa Sen galvanizing line with the latest annealing and zinc bath management technology. In **China**, CMI Energy has booked four orders for boilers via its licensee Wuxi. CMI Industry will supply an acid regeneration installation for Shandong and a pickling section for Foshan Chengde. CMI Services confirms its growth in **New Caledonia** where it has tripled its turnover in four years.

## Africa

CMI Energy's very first thermo-solar power plant, Khi Solar One, entered production in **South Africa**. In **Kenya**, CMI Balteau records a second success for a water treatment station. In the **Republic of the Congo**, CMI Services signs the largest contract in its history, for the supply and maintenance of railway equipment. In **Tunisia**, CMI Services takes an order for four locomotives. In **Morocco**, the 'Office Chérifien des Phosphates' mandates CMI Services with a long term maintenance contract.

## Middle East & India

CMI Defence reinforces its presence in the **United Arab Emirates** (Abu Dhabi), and in **Saudi Arabia**, CMI Environment builds four sludge treatment units on the Jazan petrochemical site. In **India**, CMI Industry wins contracts for two coating lines for steelmaking for Jindal, and one continuous annealing line for JSW.



2016  
in pictures

# Consolidated financial statements

## Assets

In thousands of Euros	31/12/2016	31/12/2015
<b>Non-current assets</b>	<b>393 477</b>	<b>324 201</b>
Goodwill	66 660	64 547
Intangible assets	44 372	43 567
Property, Plant and Equipment	109 878	111 865
Investments in associates	10 298	10 821
Other financial assets	58 673	62 963
Other non-current assets	93 795	2 089
Deferred tax assets	9 801	28 349
<b>Current assets</b>	<b>819 082</b>	<b>943 083</b>
Inventories	88 315	91 917
Trade and other operating receivables	406 917	528 538
Trade debtors	240 203	388 708
Costs and earnings in excess of billing on uncompleted contracts	144 421	90 708
Other operating receivables	22 293	49 122
Income tax receivable	28 494	8 697
Other financial assets	8 360	23 350
Cash and cash equivalents	271 723	268 639
Other current assets	15 266	19 452
Assets classified as held for sale	5	2 490
<b>TOTAL ASSETS</b>	<b>1 212 559</b>	<b>1 267 284</b>

## Liabilities and shareholders equity

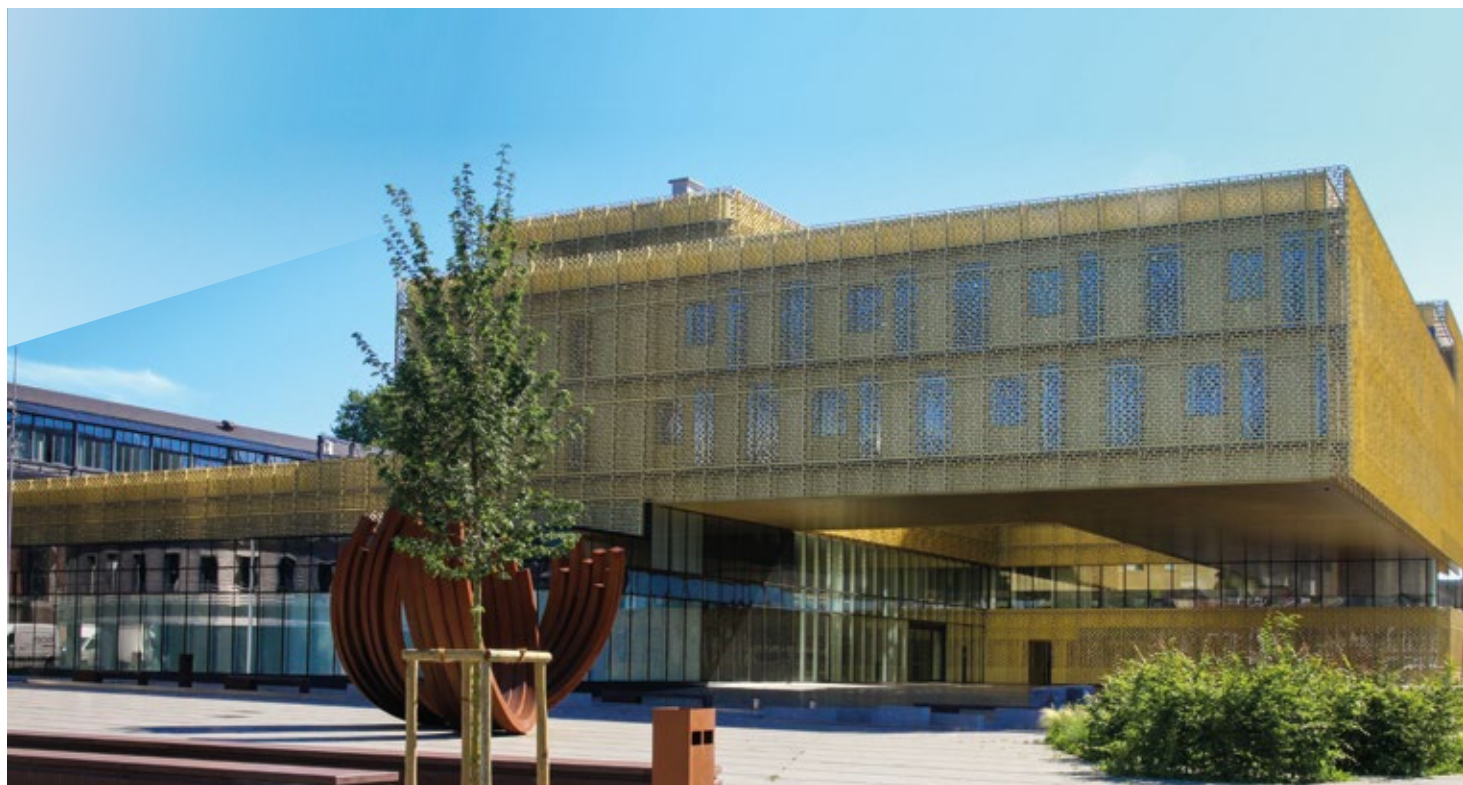
In thousands of Euros	31/12/2016	31/12/2015
<b>Total equity</b>	<b>282 369</b>	<b>192 256</b>
Capital	47 019	47 019
Reserves	226 119	136 459
Non controlling interests	9 231	8 778
<b>Non-current liabilities</b>	<b>129 501</b>	<b>148 545</b>
Employee benefits	11 538	9 513
Provisions	4 273	11 789
Borrowings	69 833	57 476
Other financial liabilities	3 918	9 050
Other non-current liabilities	1 696	3 377
Deferred tax liabilities	38 243	57 340
<b>Current liabilities</b>	<b>800 689</b>	<b>926 482</b>
Employee benefits	40	16
Provisions	10 498	12 015
Borrowings	22 968	20 235
Other financial liabilities	8 035	9 538
Trade and other operating payables	752 620	860 355
Trade payables	565 261	438 730
Billings in excess of costs and earnings on uncompleted contracts	10 636	151 078
Other operating payables	176 723	270 547
Income tax payable	349	15 514
Other current liabilities	6 181	8 809
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>1 212 559</b>	<b>1 267 284</b>

1890: construction of the first Chinese steel plant in Hanyang



## Consolidated profit and loss account

In thousands of Euros	31/12/2016	31/12/2015
<b>Operating income</b>	<b>1 238 500</b>	<b>1 334 385</b>
Turnover	1 227 119	1 317 439
Other operating income	11 381	16 945
<b>Operating charges</b>	<b>-1 108 086</b>	<b>-1 206 445</b>
Raw materials and consumables	-678 939	-700 053
Other goods and services	-170 819	-234 730
Employees' expenses	-258 048	-247 527
Impairment losses	-2 046	-7 656
Reversal of impairment loss	1 921	350
Provisions	8 716	-8 748
Other operating expenses	-8 870	-8 082
<b>EBITDA</b>	<b>130 415</b>	<b>127 940</b>
Depreciation and amortisation	-16 281	-14 239
<b>EBIT</b>	<b>114 134</b>	<b>113 701</b>
<b>FINANCIAL PROFIT (LOSS)</b>	<b>-3 963</b>	<b>29 328</b>
Share of result of associates	25	172
<b>Profit (loss) before tax</b>	<b>110 196</b>	<b>143 201</b>
Income tax	16 660	-61 444
<b>Profit (loss) after tax</b>	<b>126 856</b>	<b>81 757</b>
Profit (loss) attributable to non-controlling interests	793	-497
Profit (loss) attrib. to equity holders of the shareholders of CMI	126 063	82 254



1890: first production of guns

1904: construction of the Beijing-Hankou railway line

1865: under the leadership of Eugène Sadoine, Cockerill takes on an international dimension. The constant search for new markets leads to the company establishing steelmaking complexes and rail networks in Russia and China.



**1905:** Cockerill has a highly visible presence at the World Expo in Liège

# 3

## Operational activities

### Designing the equipment of the future

CMI designs, integrates, upgrades and services equipment for energy, defence, steelmaking, the environment and industry in general. The Group provides advice and guidance to its customers, to improve the economic, technical and environmental performance of their equipment throughout its entire lifecycle.

Its engineering activities are organized in four sectors: CMI Energy, CMI Defence, CMI Industry and CMI Environment, the last of these created in 2016. The Group's fifth sector, CMI Services, brings together service activities to all industries.

2016: CMI makes environmental activities a sector in its own right within its organization, for the treatment of water, air and solid waste.



1914 – 1918: the Seraing facilities are destroyed during World War I



*With a constant concern for anticipating market needs and for innovation, CMI Energy designs ever more flexible and high performance boilers.*



## 2016 in brief

CMI Energy pursues its development strategy by continuing to improve its historical product (heat recovery boilers), but also by confirming its positioning in innovative thermo-solar technology.

CMI Energy is among the world leaders in the design of boilers for the most efficient power stations – a technological leadership confirmed with the entry of the French power plant in Bouchain into the Guinness Book of World Records for its exceptional energy efficiency. In spite of a slight downturn in order intake in 2016, sales activity remains at a sustained level and its prospects are positive.

Developments on the thermo-solar front are keeping their promises. Now that the Khi Solar One power plant is in operation in South Africa, CMI Energy can point to a first reference of choice. Its technological offering continues to expand. The molten salt technology used by CMI to develop new thermo-solar receivers makes it possible to store energy and thus to generate electricity round the clock. The first power station of this type is 95% completed in the Atacama desert, Chile. The project will be finished in 2017 and its commissioning will provide a very fine reference for this CMI technology.

# CMI Energy

## Technology, efficiency, flexibility

CMI Energy designs, supplies, installs and upgrades steam generators for electric power plants, be they thermo-solar, combined cycle (gas and steam or integrated solar), for co-generation or the industry. These generators are a key element of the energy performance of these electric power plants.

CMI heat recovery boilers can be installed behind gas turbines of all capacities and brands, burning all types of fuel. They are particularly suited to operating in cycles, entailing frequent startups and shutdowns of power plants, depending on electricity demand.

CMI Energy also develops boilers for thermo-solar tower power plants. Installed on top of a tower, these boilers capture solar energy and can generate energy round the clock. This process could ultimately be an economic alternative to the use of fossil fuels for power generation.

The CMI Energy offering also includes

industrial boilers for sectors such as chemicals, petrochemicals, biomass, etc.

In parallel, CMI Energy provides expertise and technical assistance, retrofitting and upgrading services for all types of boilers. CMI Energy also has a Welding Expertise Center featuring the latest welding techniques for all types of materials.

CMI Energy has, additionally, a Mexican workshop specialized in the manufacture and maintenance of boiler components, particularly pressure parts.

In all these fields, CMI Energy capitalizes on its technological know-how and project management expertise throughout the world. Its teams are based in Belgium (Liège and Willebroek), in the United States (Erie, Pennsylvania and Charlotte, North Carolina) and Mexico. Its licensees, Wuxi, S & T, and Larsen & Toubro cover China, South Korea, and India respectively.

**1927:** Cockerill celebrates its 110<sup>th</sup> anniversary with a speech by King Albert I, inaugurating the FNRS (Fonds National de la Recherche Scientifique - National Scientific Research Fund)



CMI installs a molten salt receiver at the top of the tower of the Atacama I power plant (Chile)

## Solar spreads its wings

The first CMI thermo-solar boiler went into operation in February 2016 in Uppington, South Africa. The technological challenge has been taken up while the second generation of CMI thermo-solar receivers is underway. The use of molten salts makes it possible to store energy for nearly 18 hours and thus to generate energy round the clock. It is a true revolution in power generation. This type of receiver developed by CMI will equip two facilities in the Atacama desert, in Chile.

The thermo-solar technological offer continues to expand with the design of equipment for 110, 250 and 330 MW molten salt facilities, the development of new exchangers and the filing of 10 patent applications.



## Independence and excellence

The economic panorama of the combined cycle sector has moved forward following a wave of acquisitions of boiler makers by major turbine manufacturers. CMI can pride itself on preserving its independence in this domain, thus representing an alternative of choice for equipment manufacturers, who represent nearly half of the market.

In order to appeal even more to large turbine manufacturers, CMI Energy has to better target its developments. The perfecting of the Once Through Boiler has been completed. This technology will equip the turbines of tomorrow (higher temperatures and pressures).



### 2016

To the north of Uppington in South Africa, an ultra-modern steam boiler of which John Cockerill would be proud, has come into service at the top of a tower. In this desert landscape, this boiler is at the heart of a thermo-solar power plant producing electricity – from nothing but the sun – for 70 000 families. CMI has been marketing this type of thermo-solar boiler since 2012 and is constantly improving its functioning, thanks to molten salts in particular. However sophisticated it may be, this thermo-solar boiler remains a classic boiler. It contains exchanger panels, separating drums, superheaters, insulation and even valves: all components of the steam engines produced by John Cockerill 200 years ago.

### 1818

John Cockerill is one of the first men to master steam. As soon as he locates in Seraing, he wishes to make the steam engine his first product. In Belgium, between 1817 and 1850, more than half of all steam engines produced came out of the Cockerill workshops. They will help produce the energy required for all the production tools of the era.



1934: construction of the fastest diesel engine vessel of the time, 'Le Prince Baudouin'





The personnel of CMI Energy Mexico in the CMI workshop at Monterrey.

## Mexico picking up speed

The workshop in Monterrey, Mexico, is staying true to its course, ensuring the share of local production to be provided for, as per the contracts signed with Mexico. It is also well positioned to cover projects conducted in the United States. A build-up in operations has been registered there and the decision to invest in the extension of the workshop will boost its production capacity even more.

## A world first in aftersales

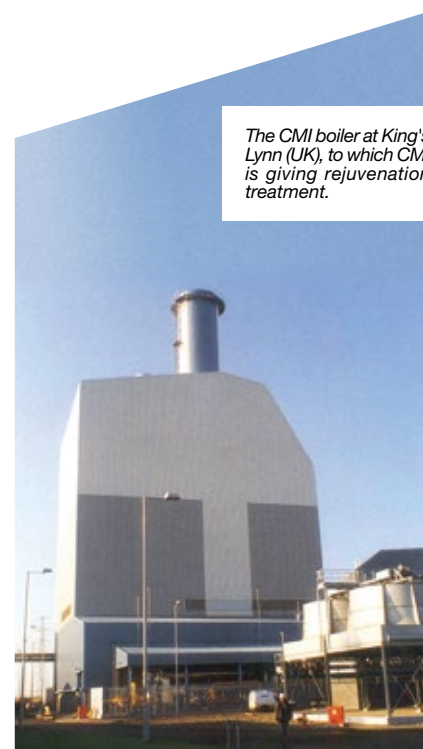
The Aftersales Department of CMI Energy signed a contract at the end of December for the re-engineering of a boiler at King's Lynn, UK, among others. This boiler had been designed and delivered by CMI in 1994. The customer has now decided to replace the gas turbine of that time, overhaul the steam turbine and replace the lower part of the boiler. CMI takes charge of this last operation. It is highly specialized work and a world first.



CMI equips the most efficient combined cycle power plant in the world at Bouchain (France)

## World record for CMI heat recovery boilers

Heat recovery boilers have registered substantial advancements over the past 25 years. The latest design of CMI boilers absorbs a tonne of hot gases (650°C) per second at a speed close to the speed of sound. It has enabled the power station in Bouchain (France) to enter the Guinness Book of World Records for its energy efficiency of 62.22%. With 13 boilers sold in 2016, this product has been the key to success of CMI Energy for 50 years.



The CMI boiler at King's Lynn (UK), to which CMI is giving rejuvenation treatment.

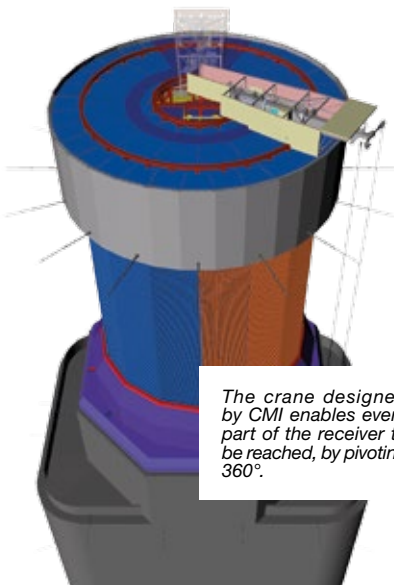
1939: construction of the T12, the fastest steam locomotive of its time

1950: first diesel locomotives





## Innovation in solar



*The crane designed by CMI enables every part of the receiver to be reached, by pivoting 360°.*

CMI Energy won the Innovation Award at the second edition of the internal CMI competition. The winning project involves the development of a crane for the inspection and maintenance of thermo-solar receivers. These being located at the top of a concrete tower more than 200 metres high. CMI has developed a crane specially designed for the maintenance of the solar receiver, i.e repainting, replacement of complete panels or tubes.

This crane enables the market to be offered a solar tower product together with its maintenance system. A complete solution system that stands out from those offered by the competition.

*CMI designed and supplied the thermo-solar receiver for the Khi Solar One (South Africa) power plant, which entered service in 2016.*



## Perspectives

CMI Energy relies on its constant technological developments and excellent project management to remain one of the top world boilermakers. The thermo-solar technology is a credible alternative to fossil energy generation. The second generation of receivers - based on storage using molten salts - is promising, particularly in China, where the government has approved several projects for this new type of power station.

In the gas-steam sector, CMI Energy wishes to consolidate its relations with EPC's (Engineering, Procurement, and Construction), particularly in the USA and China. The forced circulation Once Through boiler offers promising prospects to turbine manufacturers. CMI Energy will also continue to develop its after-sales service activities for recovery boilers.

Diversification is an important objective of the CMI Energy strategy to ensure a recurrent volume of business. Biomass and energy storage for small and medium-sized photovoltaic units are avenues that will be explored in 2017.

1956: first Westinghouse nuclear boiler

1966: first vertical boiler for TGV electric power station



## 2016 in brief

Activity was intense throughout 2016 at CMI Defence.

The teams were reinforced, mobilized and reorganized to ensure the correct execution of the AB contract. Its major milestones were achieved. The prototypes were finalized, thereby confirming the relevance of the modular design of the turrets and the performance of the systems: the pre-production turrets were manufactured.

As for the sales teams, reinforced as well, they thoroughly explored various geographic areas, namely the American continent, South-East Asia, Africa and the Middle East. These intense technical and commercial efforts benefited from the enhanced visibility CMI Defence enjoys thanks to the AB contract on the one hand, and the Cooperative Research and Development Agreement (CRADA) - whose objective is the creation of a new generation of ground weapons for the American Army - on the other.

At the end of 2016, CMI Defence took an order for Cockerill® CSE 90LP turrets for a South-East Asian country.

In 2016, the concept of modular turret appealed to a growing number of defence organizations in the world. CMI Defence gained access to a second program of the American Army (the MPF program).

Innovation remains one of the leitmotifs of CMI Defence. In 2016, at IndoDefence, it presented a life-size version of the Tank Boat®, a catamaran equipped with a Cockerill® turret. It also presented the Falconer®, its system pairing Cockerill® turrets to a drone. Finally, it honed and tested its Cockerill® CPWS remote-operated system.

# CMI Defence

## The authority for Cockerill® weapon systems integrated onto high-mobility armored vehicles

Among the top 100 world defence companies\*, CMI Defence is the undisputed technological leader in multifunctional, high-effect weapon systems for light and medium weight armored vehicles. It provides complete and innovative solutions:

- **Gun-turret systems for the entire 25 mm to 120 mm caliber range.** CMI Defence designs, integrates, produces and upgrades modular Cockerill® weapon systems that combine high fire power with light weight for high mobility armored vehicles, guaranteeing performance and protection for their crews.
- **Training and simulation.** CMI Defence devises and gives training on Cockerill® weapon equipment and systems for its customers and partners. Such training includes theoretical and practical instruction, including live firing and training on the Agueris® simulators.
- **Support throughout the lifecycle of equipment.** CMI Defence provides advice and support to its customers throughout the lifecycle of their Cockerill® weapon systems. These services include support for integrated logistics, technical assistance, operational maintenance, system modernization, documentation, spare parts, tools, etc.
- **Innovation and capability development** for new weapons systems or those already in operation, in accordance with their users' evolving operational constraints.

This entire offer benefits from the cutting edge expertise of CMI Defence in software, ballistic and mechatronic engineering and a high level production and assistance process, both from technical and human viewpoints.

CMI Defence is located as close as possible to its customers and users in Saudi Arabia, Belgium, Brazil, the United Arab Emirates, the United States, France, Indonesia, Poland and Singapore.

\*Ranking by the Stockholm International Peace Research Institute (SIPRI)

1972: MK1 gun (90 mm low pressure)

1975: continuous steel coating line





CMI Defence has equipped its workshops with state-of-the-art machines to see the production phase of the AB program turrets and guns through.



In 2016, CMI Defence produced, in succession, the pre-series prototypes and turrets for the AB program.

## The AB contract in execution phase

The AB contract actively engaged the teams in 2016. They finished the details and established nearly 6000 references needed to book orders. The prototype and shooting sessions were carried out successfully, confirming the relevance of the modular design of the Cockerill® 3000 Series turret and validating the performance thereof. The pre-production turrets were also manufactured within the required timeframe.

By way of reminder, the AB contract provides for the delivery of several series of the Cockerill® 3000 weapon systems and simulators over the next four years. These will be accompanied by training. Once the fleet has been delivered, CMI Defence will ensure its maintenance in the user country for three to five years.



With Agueris®, CMI Defence confirms its ambition in training and simulation solutions for land-based armed forces.

### 2016

CMI Defence is one of the 100 most prominent defence companies in the world\*. It has entered one of the biggest contracts ever for the delivery of land armament systems. It has been selected by the US Army in the framework of two development programs. It is present around the world with 11 locations. Its teams are steadily growing, with a total workforce of over 600 today. It remains a leader in innovation, with its modular turrets, its Tank Boat® or its turret/drone pairing system.

### 1880

During the 1880's, mastering electricity is achieved, particularly when it comes to producing at industrial level. This technology spreads everywhere, at the speed of light. It is from this period onwards that Cockerill develops an armament production, by manufacturing, for example, guns for the Belgian Army. This activity, first started in 1831 with the manufacturing of gun carriages, has never ceased developing.

1982: the Mechanical Construction Division becomes a subsidiary of Cockerill Sambre and takes the name Cockerill Mechanical Industries (CMI)



CMI Defence booked an order for Cockerill® CSE 90LP turrets for a South-East Asian country at the end of 2016.



## Commercial activity on all fronts

In 2016, CMI Defence responded to various tenders in Central and South America, Asia, the Middle East and Africa. It recruited several marketing and sales staff particularly for its representations in Singapore, the United Arab Emirates (Abu Dhabi) and the United States, where it opened an office in Detroit. Two companies are in the process of being created on American soil: the first dedicated to development (defence classified), the second for commercial and industrial development.

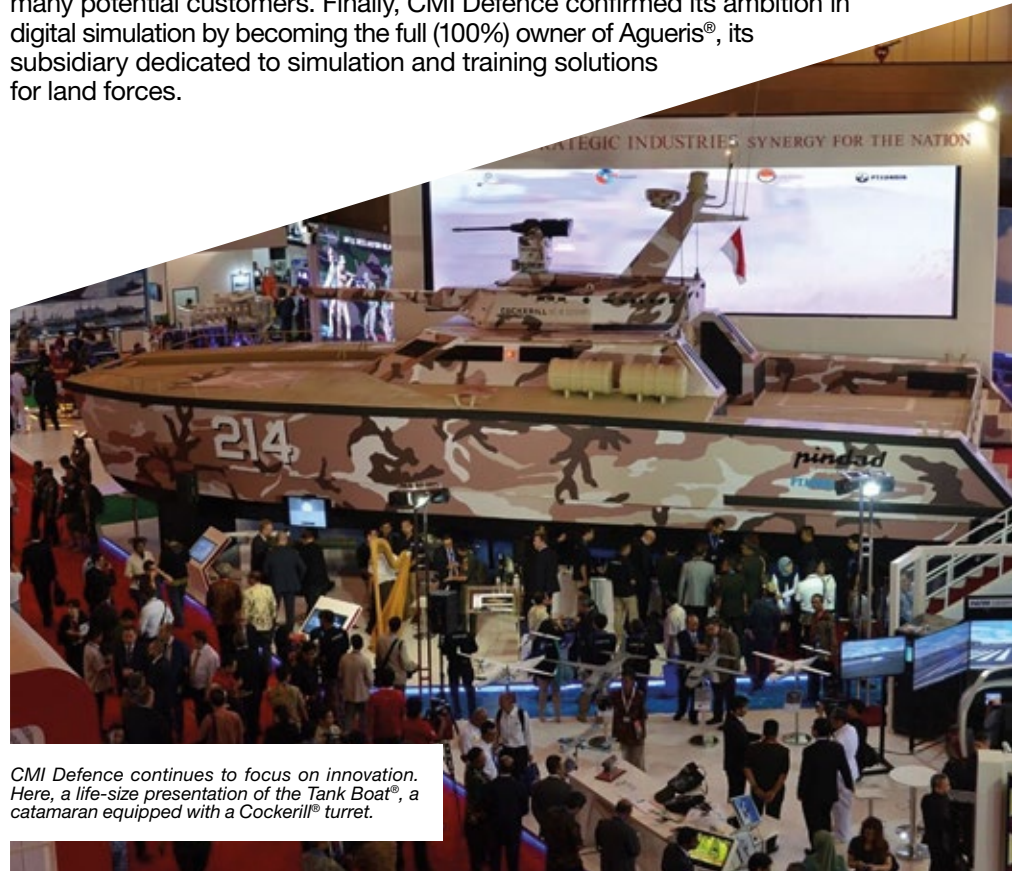
At the same time, the cooperation with the American Army got off the ground under the CRADA program. A prototype of the new generation of land-based weapon systems will be delivered in the summer of 2017. Moreover, CMI Defence gained access to a second large-scale program for the American Army: the MPF program.

And last but not least, CMI Defence booked an order at the end of the year for the delivery of Cockerill CSE 90LP systems in a South-East Asian country.

## Innovation dynamic

Innovation is at the heart of the CMI Defence strategy. Two developments materialized in 2016. The Falconer®, a system pairing Cockerill® turrets to a drone, is operational. It enables the crew to use, in real time, the data captured by a reconnaissance drone, so as to target an objective beyond its direct line of sight. As for the Tank Boat®, it was presented in full size at the IndoDefence exhibition. Equipped with a Cockerill® turret, this catamaran is particularly suited to coastal surveillance.

On top of this, CMI Defence finalized the design of the remotely operated Cockerill® CPWS station, which has been tried, tested and presented to many potential customers. Finally, CMI Defence confirmed its ambition in digital simulation by becoming the full (100%) owner of Agueris®, its subsidiary dedicated to simulation and training solutions for land forces.



CMI Defence continues to focus on innovation. Here, a life-size presentation of the Tank Boat®, a catamaran equipped with a Cockerill® turret.

1984: integration of De Malzine gears and gearboxes

1986: mechanics for flat steel galvanizing lines for the automotive industry





Pairing a Cockerill® turret with a drone enables the crew to locate and engage a target beyond its direct line of sight.



## Perspectives

The AB contract has positioned CMI Defence as a major player in the sector, among the top 100 defence companies in the world\*. It ensures a significant level of activity for the years to come. The teams are now tackling the production phase in multi-site mode. The project-mode organization set up in 2016 will optimize efficiency in this respect.

In parallel, CMI Defence expects to shortly reap the benefits of its intensified commercial approach with firm orders. The delivery in 2017 of the prototype developed under the CRADA program to the American Army will be an important step. The intensified efforts in aftersales services will be another.

Innovation remains at the heart of this ambition: an advanced and targeted technological offering is a must, more than ever, to meet the needs of customers and achieve commercial successes.

The design of the Cockerill® CPWS turret was refined in 2016. The prototype was tried, tested and presented to many potential customers during firing sessions.



## Focus on safety

CMI Defence won the CMI 'Health and Safety' Award for its protection system against mine explosions and improvised explosive devices. It consists of a shock absorber protecting tank crews. Its energy dissipation capacities can be adjusted to the operating conditions. Small in size, this device has a significant impact on personnel safety. It will equip the systems under the AB program.



Some one hundred people joined CMI Defence in 2016, particularly in engineering, purchasing and project management.

\*Ranking by the Stockholm International Peace Research Institute (SIPRI)

1987: integration of Denapak industrial boilers

1989: development of hydrostatic transmission locomotives



## 2016 in brief

CMI Industry's year was marked by the transfer of environmental activities to a new sector. CMI Industry henceforth comprises Metals and Surface Treatment. It designs and builds machines, process equipment, rolling mills and production lines not only for the steel industry, which remains its core activity, but also for aeronautics, aluminium, automotive, forging, casting, electroplating, glass and many other industries.

The new structure put in place at CMI Industry to help improve its organizational efficiency has also made it possible to better capitalize on the market potential in revamping, focus on innovation and diversification of its product portfolio, and hence position itself on new markets.

By focusing on the supply of equipment and facilities that offer customers a rapid return on investment, CMI Industry managed to book significant orders in 2016, with the supply of several new facilities in India, China, but also Mexico, Turkey and Europe. Revamping has also confirmed its potential with several contracts in Europe, the United States or Asia.

# CMI Industry

## Technologies at the service of industrial performance

CMI Industry draws on its expertise in industrial processes to improve the overall performance of the facilities of its customers by integrating and putting into operation tested and innovative processes which enable all the products required by the target market to be produced economically and with total reliability. Its offer covers:

- Equipment and services for steel and non-ferrous metal treatment;
- Heat treatment furnaces for casting and forging;
- Electrolytic and chemical surface treatment facilities;
- Dedicated solutions for extractive metallurgy.

Whether for complete industrial complexes, specific equipment or technical solutions, CMI Industry can take overall or customized charge of the needs of its clients, during the whole of the life-cycle of their equipment: from design to commissioning of facilities, and then for conversion and upgrading. Moreover, CMI Industry provides made-to-measure aftersales services and spare parts to minimize downtime. It also provides advice and support to its customers on how to improve the performance of their facilities through training, expertise, services and remote assistance.

CMI Industry is established in North America, China, Europe, India and Russia. It can also rely on the worldwide network of the CMI Group.

1995: CMI develops maintenance and services for industry (Belgium)



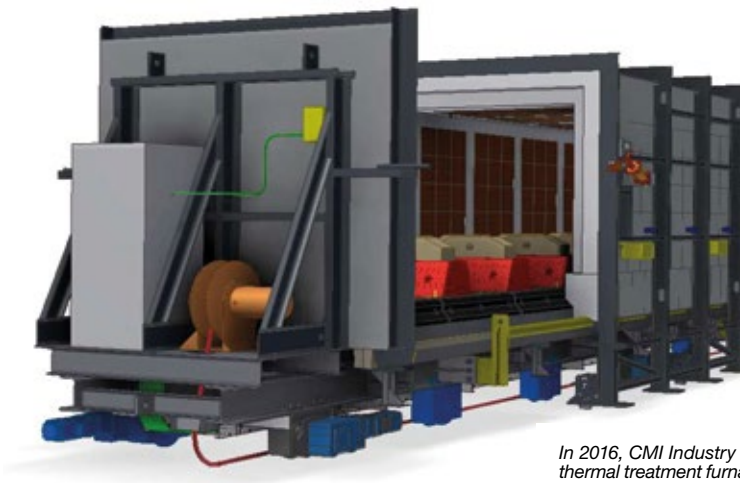


Surface treatment is one of the principal domains of diversification over recent years. In 2016, CMI Industry, still intent on developing its product portfolio, set up a dedicated team to follow up and expand diversification.

## An organization aligned on strategic challenges

In 2016, CMI Industry implemented a new organization based on three principles:

- Centralized management of the sales and marketing, project and engineering teams of its Metals activities in all of its local entities throughout the world;
- Expanding innovative approaches by setting challenges to dedicated teams;
- Building a team to define the diversification approaches based on existing lines of business. These activities will be identified in the sectors of activities using existing skills within the teams: thermal, mechanical, chemical and surface treatment.



In 2016, CMI Industry supplied four thermal treatment furnaces destined for the aeronautical, defence and health markets.

## Focus on diversification

CMI Industry wants to develop its activities outside the steel industry. Aeronautics is a strategic market, for which CMI Industry has already

developed heat treatment furnaces as well as surface treatment processes. Other areas of activities are being explored.



### 2016

CMI is participating in the construction of the first vacuum steel coating line in the world, in Liège. While this sector has acquired all the engineering expertise for cold steelmaking, it also offers specific solutions for the extractive metallurgy industry as well as equipment and solutions to a variety of sectors, such as aeronautics, automotive, forging and milling, plastics galvanizing and glass. Here are to be found heat treatment furnaces as well as electrolytic and chemical surface treatment installations. John Cockerill knew about iron and his facilities contributed to the development of steel. CMI now masters all the steel technologies and uses its know-how to respond to the needs of different industries.

### 1826

Recently installed in Seraing, John Cockerill wishes to manufacture and sell steam engines. But he needs iron to produce these. He decides to construct blast furnaces and forges, to install rolling mills and control the entire process. Among the many achievements to his name: the Lion of Waterloo, erected in 1826, consists of nine pieces of cast iron weighing 28 tonnes manufactured in the Seraing foundries! These activities really take off in 1863 when the first steel to be made using the Bessemer process is produced in Seraing. Replacing iron, steel revolutionizes the industrial world in its turn, and comes into our everyday lives.



**1996:** development of the Mk8 gun (90 mm average pressure) and LCTS 90 turret

**1997:** development of a hot rolling mill furnace

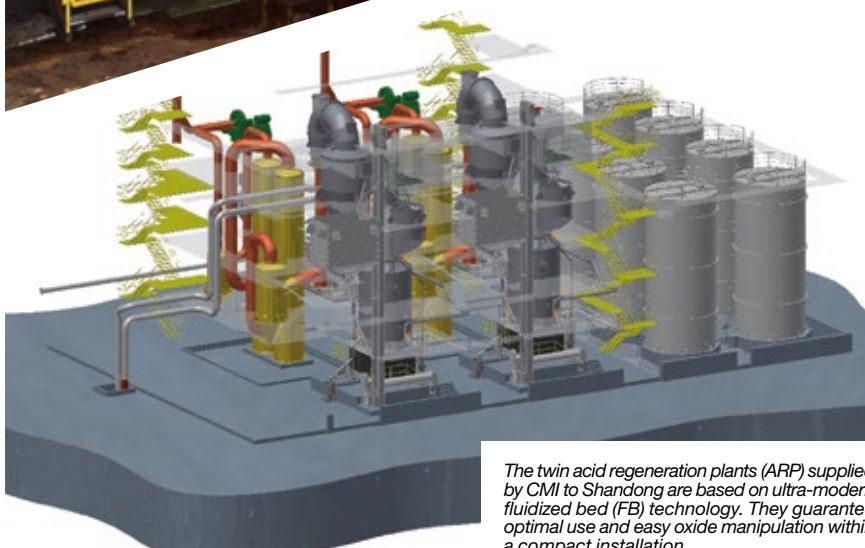
## Innovate to stand out

In a weak growth market, CMI Industry wishes to stand out through innovation. The portfolio of innovative technologies aiming at enhanced customer profitability is expanding with several additional rapid cooling processes, galvanizing bath equipment, double regenerative burners, spray pickling, and many other technologies.

CMI Industry is intent on remaining at the cutting edge of innovation in industrial equipment, as illustrated by projects carried out in Belgium: the renovation of the Aleris aluminium rolling mill, the commissioning of a reheating furnace at the cutting edge of technology for ArcelorMittal in Ghent, or the participation in the construction of the world's first vacuum steel coating line in Liège.



2016 was also the year which saw a latest technology slab reheating furnace for ArcelorMittal come into service in Ghent. This is the largest furnace of its type in Europe.



The twin acid regeneration plants (ARP) supplied by CMI to Shandong are based on ultra-modern fluidized bed (FB) technology. They guarantee optimal use and easy oxide manipulation within a compact installation.

## Orders despite an uncertain economic environment

In spite of what is still an uncertain economic environment, CMI Industry booked several significant orders in 2016.

In India, CMI Industry will supply two steel coating lines for Jindal, and a continuous annealing line for JSW.

Several orders have materialized elsewhere in Asia: renovation of a galvanizing line in Bangladesh, installation of a new coating system for a continuous hot-dip galvanizing line at the Hoa Sen steel works in Vietnam, supply of an acid regeneration facility for Shandong in China as well as a pickling section for stainless strip at Foshan Chengde.

In Mexico, CMI Industry won a contract to build an organic coating line.

In Europe, CMI Industry will:

- supply heat treatment furnaces for the aeronautics, defence and health sectors;
- supply a surface treatment installation in France;
- convert the Sidgal 3 galvanizing line at ArcelorMittal in Ghent to treat new ultra-high resistant steels;
- supply a cooling system for a steel line to Ilva in Italy;
- supply a pickling line for stainless steel tubes to Sandvik in Sweden;
- supply a galvanizing line to Tat Metal in Turkey.

In Russia, CMI Industry won an order to modernize an acid regeneration plant at NLMK.

1999: development of industrial maintenance in France





*The semi-automatic pup coil removal device greatly increases safety. The new device is operating at Tata Steel, to the great satisfaction of the client for whom, just like CMI, safety is the number one priority.*



## Safety & performance

Thirteen of the 53 projects that entered in the internal innovation competition of the CMI Group were submitted by the Industry sector alone, showing that the innovation focus is at the core of the sector's concerns, including innovations for safety and the environment. The 'semi-automatic pup coil withdrawal device' project entered by CMI Industry won the public award. This project relates to the design of a device for handling offcuts from steel coil ends resulting from the rolling process. It materialized following a request from Tata Steel, who wanted a safe and efficient pup coil withdrawal device. The new device provides for the clearance of coil drops without human intervention. This saves time and above all improves operator safety. The device has already been installed on a Tata Steel line in India.

## Perspectives

The year 2016 was marked by a 0.8% increase in world steel production. Worldsteel, the international steel association, foresees a renewed growth in demand for steel in 2017. The outlook is therefore brighter for world steel.


CMI's priorities for 2017 are the full implementation and proper functioning of the new organization. The latter is to enable CMI Industry to reach an optimal level of project completion and to provide for better customer support, by taking advantage of its worldwide locations, particularly in India, China and Russia. The innovations will lead to orders offering competitive advantages to customers thanks to unprecedented solutions on the market.

Diversification is also in the sights, with a view to identifying and developing new activities to balance the vagaries of the steel market.



*In order to permanently improve processes and technologies in operation, innovation remains an essential element for future success, both for CMI and for its clients. Stimulating innovation thus remains an essential priority for CMI Industry in 2017.*





Waste Water Treatment Plant (WWTP) at Namur (Belgium).

## 2016 in brief

The companies acquired in recent years in the environment sector have made it possible to generate an annual turnover of € 100 million, with prospects for growth. CMI wishes to develop even further. On 1 August 2016, the activities were regrouped into a new sector.

CMI Environment is making its reputation in the field of water. The first substantial export orders have been booked in Kenya and are about to be finalized in Vietnam. Commercial prospects are positive. A first major success has been registered in electro-chlorination with a contract for the maintenance of the cooling systems of power stations located by the sea.

In air treatment, the sales teams have been reinforced to boost export business volumes. As a result, contracts were signed in Canada and France. In addition, CMI Environment has a new eight-station olfactometer to measure and analyze odor concentration and intensity by human beings.

In the field of energy efficiency, the marketing of Perfengo® – an energy audit management software program – is the culmination of a promising development process.

# CMI Environment

## Customized overall solutions to support environmental performance

CMI Environment makes its expertise and innovative capacity available to design complete, customized environmental solutions for water, air and waste treatment and energy efficiency:

- Industrial and municipal water treatment;
- Preventive and curative industrial and tertiary water treatment solutions;
- Corrosive, harmful and odorous waste gas treatment;
- Solid waste treatment: biomass, activated carbon (multiple hearth furnaces and straight furnaces – The Nesa Solution®);
- Energy efficiency solutions (hydro-electric, biomethanization, support for energy efficiency, reference trainers for Afnor).

The know-how and expertise of CMI Environment in the entire environmental field enable it to meet all the needs of communities and industrialists in all sectors, by constantly adapting to the local economic and regulatory constraints.

CMI Environment is able to intervene at any project level, from design to commissioning. The solutions apply to existing or new facilities.

CMI Environment is established in Belgium, France, Hungary and the United States. It relies on the worldwide network of the CMI Group to provide its expertise on all five continents.

2003: establishment in China and Brazil

## New sector, new organization

CMI Environment has grown through acquisitions. The integration work has already led to better commercial coordination. Four transverse working groups are now working on the improvement of purchasing coordination, overhead control, value analysis and quality system coordination.

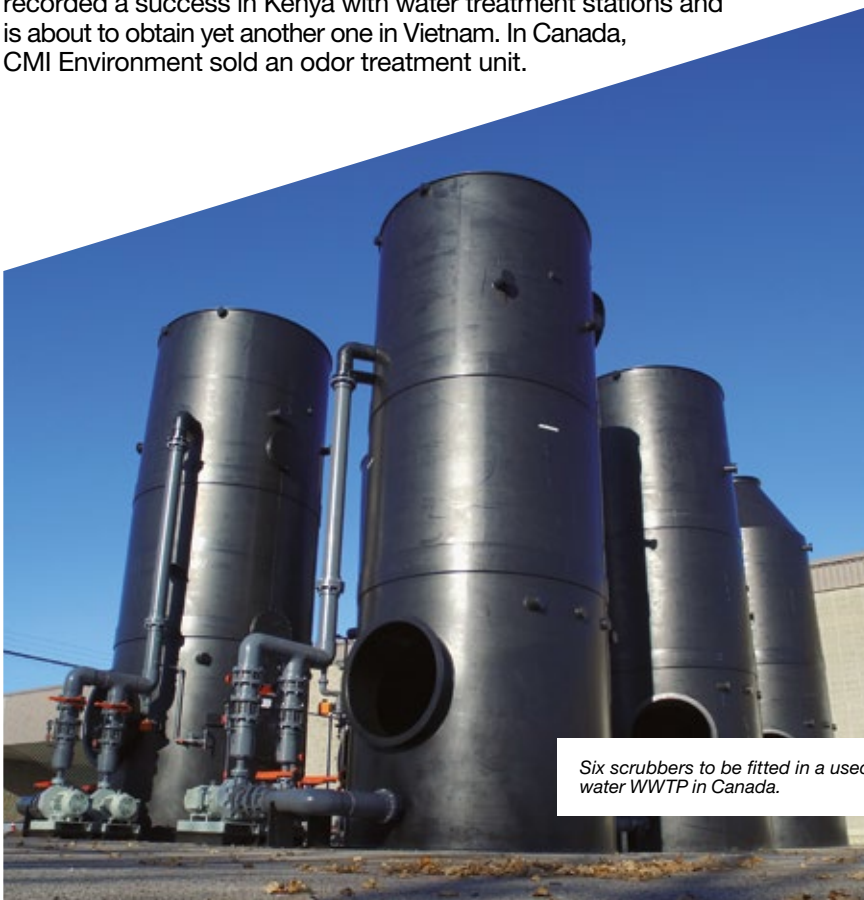
*CMI Environment: a young and diversified sector with complementary activities which mainly arise from acquisitions made between 2010 and 2014, and ready to take up the challenges of the coming years.*



## International growth

CMI Environment wishes to conclude more contracts on an international scale. This process takes time because it depends on public funding, local partners and longer studies.

Several significant order entries were booked in 2016. CMI Balteau recorded a success in Kenya with water treatment stations and is about to obtain yet another one in Vietnam. In Canada, CMI Environment sold an odor treatment unit.



*Six scrubbers to be fitted in a used water WWTP in Canada.*



### 2016

CMI's activities in the domain environment have been brought together in a sector in its own right. Having been gradually built up since 2010 through acquisitions, CMI Environment now offers a complete range of solutions for water, air and solid waste treatment, along with its recognized expertise in energy efficiency. Committed to sustainable industrial progress, CMI pays attention to reducing its own environmental footprint, along with that of client industries, and encourages the development and production of 'green' technologies. Its new sector – CMI Environment – is fully dedicated to this.

### 1968

It is not until the latter part of the 20<sup>th</sup> century that the concept of sustainable development appears, positioning itself at the crossroads of three domains: the environment, the economy and society. John Cockerill did not have the opportunity to get involved in the environmental dimension, but at CMI, the very foundations of the activities of CMI Environment date back to 1968 with the development of the multiple hearth furnace. It was originally conceived by two Americans in the 1880's for extractive industry applications, but was improved by CMI with applications both for mining and the environment, under the name 'The Nesa Solution®'. One of the recent diversifications for its use has come in the roasting of biomass with a view to producing a 'green' fuel as an alternative to coal, to be used in power stations.



**2004:** Cockerill Mechanical Industries becomes Cockerill Maintenance & Ingénierie, emphasizing the two major lines of business: maintenance and engineering



Nesa reactor thermal furnace being unloaded before on-site erection.



## Synergies which open doors

The synergies between CMI Environment and CMI Services made it possible to obtain several contracts. The two sectors will ensure the renovation, operation and maintenance of the Aperam effluent treatment station. In 2016, CMI Proserpol achieved a historic record of order entries, in particular with a significant contract in the nuclear industry, thanks to the support from CMI Services, for the installation of electro-chlorination devices to treat seawater for the cooling circuits of two nuclear power stations.

CMI Europe Environment is, additionally, a major subcontractor of the surface treatment activity of CMI Industry.

Installations for the treatment of liquid and gas effluents produced by the aeronautics industry. A good illustration of the synergies which are possible between water, air and surface treatment.



## Record in water treatment

2016 was a record year for CMI Dupuy, a designer and manufacturer of water treatment products, with production exceeding 9 200 tonnes. CMI Aquaged is also showing a double-digit growth in the preventive and curative maintenance of water circuits throughout France. Its network was expanded in 2016 with the acquisition of two agencies in the Paris region.

Installation for the production of sodium hypo-chloride from sea water.



## Skills development

The technological portfolio of CMI Environment has been developing, but it still needs to expand to compete with the major environmental players.

CMI Proserpol is continuing with the developments of electro-chlorination installations to make chlorine from seawater or simply from salt. The company encompasses the activities of Nicou Environnement, an entity specialized in electro-dialysis cells to stabilize the cataphoretic painting baths mainly used in the automotive sector.

The Nesa Solution® has designed a new all-steel furnace, without refractory, dedicated to biomass torrefaction.

CMI Energy Efficiency has launched its Perfengo®, a software program to conduct energy audits in compliance with the ISO 50001 standard. Perfengo® will be marketed through a special web-based platform.

And finally, CMI Europe Environnement continues to develop odor treatment solutions.

2004: development in the United States with the horizontal boiler for gas-steam power stations



Electric cabinets during the manufacturing process.



## Perspectives

CMI Environment continues to grow by building a global vision that goes beyond its member companies. Coordination resources deploy this vision at sector level to support the projects involving several companies, regions and technologies.

The expansion of the commercial network is a priority at local as well as international level, in particular in the United States and Africa. CMI Environment is working to improve its ability to rapidly and efficiently respond to tenders, by seeking new financing sources and local partners.

In a constantly changing sector, CMI Environment continues to develop its product range, particularly in solutions for electro-chlorination, heavy metal recovery for the oil industry, ammonia treatment, or through external growth.



## Innovation at the heart of energy transition

CMI Balteau won the CMI Award in the Environment category for the development of autonomous units for water wells in regions which are not connected to the electricity network.

Supplying power to wells through photovoltaic panels is a solution suited to African rural regions. The project is being implemented and CMI Environment has booked an order to create 50 deep wells in Kenya.



At the heart of odor measurement: the nose jury comes together for a 45 minute session to determine the concentration of odor contained in the samples.





*In wind turbines, CMI Services adapts its offering to market requirements by proposing global contracts including operation, maintenance and the supply of spare parts.*

## 2016 in brief

The diversification strategy pursued for several years is producing results and 2016 was a record year for the sector. Between 2008 and 2016, CMI Services has gone from an essentially steel-related activity to a global multi-service, multi-industry and multi-business offering. Concrete examples of this diversification in 2016 include four acquisitions in the wind energy, aeronautics and electricity-automation sectors. In the nuclear industry, CMI Services has booked its first orders related to the extension of the lifetime of French power plants ('Grand Carénage').

The new organization put in place in France enables increased growth and coordination between geographic locations to win bigger contracts.

In Belgium, the system of local services has been adapted following the contraction of the regional industrial fabric, but interactions between regions help offset this.

The geographic deployment of activities is taking off in Africa with the signing of the biggest order ever booked by CMI Services to assist a rail operator and supply rolling stock. CMI is now present in Morocco, Algeria, the Republic of the Congo and Ivory Coast.

In New Caledonia, in spite of the difficulties of the nickel market, turnover continues to grow thanks to expansion of the range of services.

In Brazil, convinced that crisis is temporary, CMI is consolidating its presence by concentrating on less impacted industries and high added value services in preparation for the recovery.

Within a new branch in the Czech Republic, CMI Services is developing the diesel-electric transmission technology.

The acquisition of G2WIND in Spain, specialized in the sourcing of spare parts for wind energy equipment, is opening up new opportunities for the provision of services on this market.

# CMI Services

## Men and women working on better performing equipment

CMI Services provides advice and support to industries and operators of public and private infrastructures for the erection, operational management and modernization of their facilities. It carries out scheduled or unscheduled specialized interventions, and provides local services to improve the technical, economic and environmental performance of their equipment.

CMI Services relies on a network of interconnected intervention units, workshops and engineering offices, either specialized or local. It has branches in Africa, Belgium, France, New Caledonia, the Czech Republic, Luxembourg and Brazil.

Thanks to a very broad, technological offering, CMI Services serves an increasing number of operators in sectors such as rail, ports, waterways, aeronautics, mines & quarries, chemicals, the steel industry, petrochemicals, conventional, renewable and nuclear energy generation, and upstream of oil & gas (exploration-production).

CMI Services, thanks to its engineering offices, also designs and supplies certain types of equipment, new industrial components and subassemblies (shunting locomotives, gears, gearboxes, butterfly valves, nuclear containers...) and spare parts.

2004: perfection of the Cockerill® CT-CV Weapon System gun turret (105 mm)

## Success in the nuclear field

In just a few years, CMI Services has earned a reputation as a quality service provider on the nuclear market in France and Belgium. The sector booked its first orders under the 'Grand Carénage' program to extend the lifetime of French nuclear power stations, and is very active in the daily maintenance of nuclear power plants. The renewal and maintenance contracts are strengthening its position on this market.



The Management of the nuclear power stations awarded the first prize for safety to CMI Services for its work during 2016.

## Indicators turning green again

CMI Services confirms the return to break-even initiated in 2014 and 2015 with a highly positive result in 2016. This result is a source of satisfaction for the teams which are mobilizing in all the sectors in which CMI Services is present.

2017 will witness the fruition of all the strategic actions previously initiated in France, Belgium and Brazil and will generate even more satisfactory prospects.



Producing an exterior drive crown for a fertilizer furnace.

## Rail: record orders

Orders were booked in record numbers by CMI Services in the rail industry in 2016, with the supply or renovation of almost 40 railway engines over the next two years. CMI Services is expanding its range of action with the opening of a subsidiary in the Czech Republic, whilst boosting its order portfolio with contracts in the Republic of the Congo, Tunisia and France.



### 2016

Throughout Cockerill's history, locomotives have been produced. And we are still making them at CMI. Once more, it is through technology that they have evolved. From 1950, CMI railway engines used the diesel process. In 1989, hydrostatic transmission came in and in 2016, diesel-electric. On the rail front, 2016 is a record year: supply or renovation of almost 40 rail locomotives within two years, expansion of the scope of action in the Czech Republic and numerous orders in Africa and France.

### 1835

Railways. There's a good opening for John Cockerill, who gets down to work right after Belgium declared its independence. Steam locomotives had been perfected a few years earlier by George Stephenson, an Englishman from whom John Cockerill buys the patent. This was stroke of genius! In 1835, Belgium inaugurates its first railway line, from Brussels to Mechelen. The first five locomotives were supplied by Stephenson and the sixth, 'Le Belge', by John Cockerill. Of the 122 locomotives in service on the Belgian network between 1835 and 1840, more than half will be built in the Cockerill factory. And it would be impossible not to mention here 'The T12' which, from 1939, made a mark both for its futuristic look and speed – up to 140 km/h –, quite a feat for the time.



2005: CMI establishes in Russia



## Diversification continues

CMI Services continues its diversification strategy through the acquisition of three companies in France. Axiome in Vitrolles supplements the expertise of CMI Services, which is developing in the maintenance of production facilities in the aeronautics sector. Acte, near Le Havre, brings in its capacities in the development of software solutions for maintenance. Finally, LM Energie in Clermont-Ferrand reinforces the offering in electricity and automation.

Wind energy is also a line of diversification. Thanks to the acquisition of G2WIND, a Spanish company specializing in spare parts for wind turbines, CMI Services now offers overall contracts that cover operation, maintenance and the supply of parts. A pioneer in the maintenance of offshore wind turbines, CMI Services consolidates its contribution to the development of renewable marine energy through maintenance engineering studies for the new generations of tidal turbines and for floating wind turbines. CMI is also positioning itself in the service to the maritime industry with several vessel maintenance contracts.



## CMI Serviços Brasil continues to adapt to the situation

An unprecedented economic and political crisis continues to impact the Brazilian economy. Nevertheless, CMI Services believes in the potential of this great country and is digging its heels in while waiting for the recovery. The local organization has been adapted by, in particular, closing the Vitória branch, but sustained commercial activity has made it possible to win contracts on such markets as the paper, services to energy, and oil & gas industries.

## Teams in marching order

CMI Services has revised several parts of its organization to adapt to its growth and to the new needs of the markets on which it is active. The new matrix organization put in place in France improves its overall efficiency by focusing on the regional proximity dimension and on the activities of customers and cross-organizational sharing of resources and expertise.

In Belgium, the organization of CMI Services Liège was adapted and the return to break-even initiated in 2016 should be consolidated in 2017. The synergies of the proximity hub are also beginning to bear fruit. Activities on thermal boilers in New Caledonia, Morocco, Brazil, and at new customers in France offset the decline of activity in this traditional sector in Belgium and France. At the end of 2016, CMI Services Energy slightly reshaped its organization to better support the diversification strategy by applying its skills and expertise in new industrial sectors such as foodstuffs and petrochemicals and to strengthen its presence in the Belgian nuclear industry.



*The proximity and the multiple skills of the teams enabled increased added value customer service.*

2005: development of the industrial thermal unit and the vertical furnace process lines



*CMI Services benefits from the expertise of its technicians. Here, a 'industrial mountaineer' for hydro-electric maintenance activities.*

## Perspectives

CMI Services will continue with its geographic diversification and market strategy. This entails expanding its presence in Africa. CMI Services will continue diversifying on other markets and improving its range of skills and offerings in different industries such as the aeronautics, rail, or the nuclear sector.

In all its projects, CMI Services wishes to boost the added value offered to customers by developing skills in electricity and instrumentation and by speeding up technology transfer between regions.

CMI Services has consolidated and is continuing the strategy initiated in 2007 and which can be summed up as follows: geographical and market diversification, extension of the technology offering and operational efficiency improvement.



## International developments

CMI Services is strengthening its presence in Africa, with the opening of CMI Côte d'Ivoire, which is becoming the control center for the activities of CMI Services in Ivory Coast, Togo, Gabon, Cameroon and the Republic of the Congo.

After energy, Morocco is continuing its diversification in hydraulics and the rail sector. The local teams have scored a triumph with a 6-year maintenance contract for the Office Chérifien des Phosphates.

New Caledonia continues to record successes in a difficult context and has registered constant growth in turnover over the last three years.

2008: acquisition of the reversible cold rolling mill in India



1887: a man of technological progress, Adolphe Greiner is to develop military activities and the recovery and re-use of gas from blast furnaces as a fuel.



2008: wind turbine maintenance

# 4

## Strategic orientations

On course for 2017-2022

In the 15 years since it was taken over by independent shareholders, the CMI Group has emerged as an international engineering and services group, with a diversified technological portfolio.

2016: simulation enables CMI to provide innovative solutions for training in the use of weapon systems.

2009: boiler for thermo-solar power plant





# On course for 2017-2022

CMI's ambition was translated into a ten-year strategic roadmap in 2012 under the name 'CMI 2017-2022'. This strategy sets out the guidelines for growth to reach a turnover of two billion Euros and a profitability rate of 6 to 8%, with a volume of business activity evenly distributed among its operational sectors. Half way through, the Group is right on course: the actions carried out in 2016 contributed to this by combining growth, innovation, commercial development and an expansion of the portfolio of technologies.



Development of the technological portfolio



Corporate social responsibility at the heart of the bicentennial



Innovation



Group talents



Reduction of the energy footprint



2009: development in nuclear valve and pipework



## Development of the technological portfolio

On the energy front, CMI continues to make progress in generating electricity from solar energy. The second generation of **thermo-solar power stations**, which is capable of generating electricity round the clock thanks to molten salt technology, is under construction in Chile. In parallel, CMI experts are continuing with the developments and improvements, to turn this new green sector into a competitive alternative to fossil fuels.

In defence, under the Cooperation for Research and Development Agreement (CRADA) program, CMI is cooperating with the American Army to **develop a new generation turret**. Capitalizing on this major recognition on the international defence market, CMI is continuing its innovative efforts with **maritime applications** (Tank Boat<sup>®</sup>), the use of drones to improve situational awareness for the crews, or the use of **composite materials** to make the equipment lighter. It is also worth noting that in 2016, CMI consolidated its expertise in the **simulation** sector with the acquisition of all the shares of Agueris<sup>®</sup>.

CMI continues to diversify in **aeronautics** through its expertise in surface coating and heat treatment, but also in services, with the acquisition of maintenance companies in France, Acte and Axiome.

CMI consolidates its position in wind power with the acquisition of the spare parts supplier G2WIND in Spain. The acquisition of LM Energie in France is opening up new prospects for services related to **instrumentation** and **electricity**. Within the framework of its international development, CMI Services has also created two companies: one in the Czech Republic, in charge of providing support to the development of the **diesel-electric transmission** technology for railways, and the other in Ivory Coast, which is becoming the central point for service activities in this region of Africa.

In the highly competitive steel-making equipment market, CMI Industry is focusing on innovation, in particular by participating in the construction of the world's first **vacuum coating line** for large steel coils or the renovation of the slab reheating furnace – one of the most powerful in the world – at ArcelorMittal.

The **environmental solutions** henceforth benefit from a dedicated structure, CMI Environment, which is generating a turnover in the vicinity of € 100 million. In the water segment, the network of CMI Aquaged, specialized in the preventive and curative treatment of industrial and tertiary waters, has been reinforced by the acquisition of the Aguha and Aquaperf branches in the Paris region. CMI environment has also invested to enhance the capacity of the Quatre Champs plant in France, specialized in water treatment products. Continuing its international development, CMI Environment is now present in the USA, China and Africa, and has registered successes in Kenya, Vietnam and Canada. Its teams have also developed new solutions for biomass torrefaction, autonomous water pumping units and assistance for conducting energy audits by developing a dedicated software application, in accordance with the ISO 50001 standard: Perfengo<sup>®</sup>.

This growth is sustained by cross-organizational projects coordinated at corporate level to provide operations with the support they need. Efforts in 2016 particularly focused on deploying resources and processes to provide better support for the globalization of activities, innovation and talent management.



2010: solutions to reduce the environmental footprint of industrial processes





# cmiawards



## Innovation

The Group's top innovations have been rewarded through the 'CMI Awards.' The second edition of this internal competition brought together 53 projects in 2016 characterized by synergies between the Group's entities and the active involvement in the search for innovative solutions.

The four winners are:

- **Water from the sun:** a **water pumping system that mainly functions with solar energy** for rural areas not connected to electricity. This system is implemented in Kenya.
- **Land mine protection:** a **shock absorber** used to dissipate energy and hence protect the crews of armored vehicles.
- **Maintenance at 220 metres heights:** a **crane for the inspection and maintenance work on towers of thermo-solar plants.**
- **Semi-automatic pup coil withdrawal device:** a device improving the safety of operators, used to **remove steel ends without human intervention.**

As each year, the **International Technology Meeting** brought together the technologists in the Group to share the state of the art in innovation. The main themes developed this year involved connected devices, virtual reality, energy transition and mathematical models.



2010: development of the Falarick® 105 guided anti-tank missile



*Torrefied biomass: an alternative to coal for the generation of energy.*

## Reduction of the energy footprint

Reducing the energy footprint of human activities remains a major concern for CMI technologists. The teams at CMI Environment have developed a prototype furnace entirely in steel for the torrefaction of biomass. The torrefied wood obtained after treatment can be used to replace coal for the generation of energy and thus reduce the environmental footprint of the process.

In conjunction with the development of thermo-solar solutions, CMI launched, in 2016, a study to identify the best electricity storage solutions for small and medium-sized photovoltaic units and the management of stored energy.

The teams at CMI use latest generation tools in the computer simulation of fluid dynamics thanks to 'massively parallel' software. They can concurrently improve the performance of existing facilities and secure that of new facilities.



*Calculation power to conserve energy.*

### CMI is committed to sustainable development

CMI is one of the 80 companies, civil society organizations and representatives of the public sector, which signed the 'Belgian SDG Charter for International Development' on 18 October 2016 in Brussels. This charter is the continuation of an initiative of the United Nations which led to the approval of 17 Sustainable Development Goals (SDG's).

Each signatory makes an active contribution to the implementation of the charter through themed round tables. In view of its specific lines of business, CMI has decided to focus on the discussion of renewable sources of energy.

2011: perfecting of the on-board simulator to train troops in the use of weapon systems





## Social responsibility at the heart of the bicentennial

A commemorative year, 2017 has three ambitions: remember the past, understand the present, project into the future.

The history of John Cockerill and his companies is intrinsically linked to the history of Belgium and the industrial revolution in Europe. It is the public story of a private company.

CMI is perpetuating the equipment manufacturing activities of Cockerill and the tradition of that mechanics genius who promoted industrial innovation throughout the world. Owner of the Cockerill brand, with a registered office in the Cockerill Chateau, the CMI Group has understood all too well that being one of the latest heirs to John Cockerill's industrial story entails the responsibility to bring that heritage into the spotlight on the occasion of the 200<sup>th</sup> anniversary.

200 years to the day after John Cockerill bought the Seraing Chateau, CMI has created the John Cockerill Foundation to maintain, develop and pass on the legacy of this pioneer of the industrial revolution. 2017 will be a busy year with a program featuring in particular:

- The production of a **documentary** in partnership with the French-speaking Belgian Broadcasting Corporation (RTBF);
- The publication of a **book** on the castle and the recent history of the Group, jointly with the Walloon Heritage Institute;
- The **celebration** of the 200<sup>th</sup> anniversary of the Cockerill Chateau in the presence of His Majesty the King;
- The mounting of a major **exhibition** in the Boverie museum in Liège in the summer of 2017, 'John Cockerill: 200 years of future' will look back at the industrial revolution in Wallonia, its social, economic, urban, environmental, educational and medical impacts, thanks to the technologies of today;
- The participation in the **Wallonia Heritage Days** (September 2017), with the exceptional opening of the castle and the hosting of events;
- The organization of an **international colloquium** 'Technology and Society' in cooperation with the Royal Academy of Belgium and the University of Liège;
- The creation of the **John Cockerill Prize**, which will, every other year, reward a technological innovation chosen by an international panel.

2011: treatment of industrial effluents



## Group talents

The commitment of staff members is a strong point of the Group, as confirmed by the results of a Pulse opinion survey conducted in 2016 for the second time among the Group workforce in all countries and sectors.

This survey showed that four out of five people are strongly committed to the CMI Group (79%). The ongoing concern for safety probably has something to do with this: in 2016, the low accident frequency rate with downtime has been reduced even further, by more than 15%, thanks in particular to safety guidance and support to the new entities that have joined the Group. SPOT, the Group's talent management platform, was enriched with a new recruitment management module in 2016. Finally, the first investment phase in the Campus Cockerill, the Group's international training center, was successfully concluded with the opening of the education and training facilities.



### 2016

Times, problems and methods change, but human capital remains the principal asset of the enterprise! CMI numbers 4600 members of staff, whose welcome, induction, safety and well-being are priorities. In 2016, 79% of the personnel declare themselves committed to their company over the long term. On all continents, investments are being made to ensure that the tools and infrastructures for managing Group personnel are at the same level as this commitment.

### 1826

On the continent, the Cockerill factory is what is called at the time an 'integrated factory', the first of its kind. It attracts a plentiful workforce from all around. As is the case everywhere, working conditions are tough, wages are very low and working days very long. However, John Cockerill is not a boss like the others. He is recognized for his strong sense of social responsibility for the time. In Seraing, for example, he opens an industrial school for the sons of his workers. He doesn't only manufacture machines, he also creates a 'social ladder' before the concept is even known. In 1826, the Cockerill factory is already considered the largest and most modern in Europe. Politicians, journalists, writers... come from everywhere to visit it.



2012: first marketing of boilers for thermo-solar electric power plants



1915: Léon Greiner succeeds his father Adolphe. He is to enthusiastically set about the reconstruction of the factories following World War I. This brings Cockerill to prosperity between the wars and to international records with the T12 locomotive, the postal boat and the Prince Baudouin liner.



2013: CMI establishes in Africa and New Caledonia

# 5

## Governance

### Continuing commitment

CMI is under the leadership of a Board of Directors committed to the industrial project of the Group over the long term. It is supported by the governance bodies necessary to the healthy management of the company, whether in terms of strategy, operations or support activities. These coordination instances ensure that the Group stands together and that transversal activities are consistent. Their respective responsibilities are clearly defined.

2016: CMI entirely reconstructs the steel strip reheating furnace at ArcelorMittal Ghent, the largest hot rolling mill in Europe.

2013: gaseous waste treatment





## Evolutions in 2016

With great sadness, CMI lost a member of its Board in 2016: Jean-Marie Hansoul, President of CMI Energy, unexpectedly died at the age of 63. During all his career at CMI, he touched the teams of Locos Diesel, Metallurgy and Energy, by his commitment, his professionalism and his great expertise in project management. Jean-Marie Hansoul was a colleague, a boss and a respected friend, a real pillar of the Group! Pierre Melin took on the interim presidency of CMI Energy before handing it over to Jean-Michel Gheeraerds on May 1<sup>st</sup>, 2017.

With the creation of CMI Environment in August 2016 (and following an integration period of the activities previously under the Industry sector), Jean Jouet adds his functions within the Development Board at Group level to those of President of CMI Environment. João Felix Da Silva joins the CMI Group at this same time to take over as head of CMI Industry.



## Board of Directors

### **Ebenis SA**

Represented by Bernard Serin  
Chairman  
Managing Director (Executive)

### **Nicolas Serin**

Director, Vice-Chairman

### **Libert Froidmont**

Independent Director

### **Albert Henon**

Independent Director

### **G rard Longuet**

Independent Director

### **Poncelet MC2**

Represented by Jean-Pol Poncelet  
Independent Director

### **S2M Productions SPRL**

Represented by Maurice Semer  
Independent Director

### **Louis Smal Consulting SPRL**

Represented by Louis Smal  
Independent Director

### **Path Consulting**

Represented by Paul Thonon  
Independent Director

## Shareholding of the CMI Group

	Percentage	Number of shares
Ebenis SA	80.65%	659 479
Dodeca SA	19.35%	158 270

*Through a mechanism of rationalization of the various companies involved in the shareholding of the Group, Bernard Serin and his family hold 80.65% of the Group's shares. The remaining 19.35% are held by senior managers of the Group through the Dodeca S.A. company.*



More information  
on these  
governance bodies

2014: water treatment

2016: CMI makes the environment a sector in its own right



From left to right: Pierre Melin, Franck Pasqualini, João Felix Da Silva, Jean-Marc Kohlgruber, Bernard Serin, Yves Honhon, Brigitte Coppens, Patrick Paramore, Jean-Luc Maurange and Jean Jouet.

## Executive Committee

**Bernard Serin**  
Chairman and Managing Director

**Brigitte Coppens**  
Chief HR and Communication Officer

**João Felix Da Silva**  
Executive President of CMI Industry since August 1<sup>st</sup> 2016

**Yves Honhon**  
Chief Financial and Administrative Officer

**Jean Jouet**  
Executive President of CMI Environment and Chief Development Officer

**Jean-Marc Kohlgruber**  
Chief Strategic Planning Officer

**Jean-Luc Maurange**  
Executive President of CMI Defence

**Pierre Melin**  
Advisor to the Chairman until 25<sup>th</sup> April 2016, then Executive President of CMI Energy\*

**Patrick Paramore**  
Chief Sales and Legal Officer

**Franck Pasqualini**  
Executive President of CMI Services

## List of governance bodies

**Board of Directors**  
(3 meetings in 2016)

**Audit Committee**  
(3 meetings in 2016)

**Risk Management Committee**  
(6 meetings in 2016)

**Ethics Committee**  
(6 meetings in 2016)

**Appointment and Remuneration Committee**  
(2 meetings in 2016)

**Development Committee**  
(8 meetings in 2016)

**Executive Committee**  
(monthly)

**Extended Executive Committee**  
(quarterly)

**Sectors Committees**  
(monthly)

**Operational Entity Committees**  
(at least monthly)

(\* ) Jean-Michel Gheeraerds replaces Pierre Melin as Executive President of CMI Energy on May 1<sup>st</sup> 2017.

### Certified Public Accountant

DELOITTE Reviseurs d'Entreprises SC s.f.d. SCRL  
Représentée par Laurent Weerts  
Rue Alfred Deponthière, 46  
BE - 4431 Liège (Loncin) Belgium  
End of mandate: April 2017



## Consolidated companies at 31 December 2016

Company	Country	Consolidation Method	% ownership	Energy	Defence	Industry	Environment	Services	Real Estate	Corporate
ACTE INDUSTRIE SARL	France	G	100,00					•		
AGUERIS SAS	France	G	100,00		•					
AGUHA	France	G	100,00				•			
ALPHA INDUSTRIES SAS	France	G	51,00				•			
AMCEC INC	United States	G	100,00				•			
AMPLAST CORP	United States	G	100,00				•			
AQUAGED SARL	France	G	100,00				•			
AQUAPERF	France	G	100,00				•			
AQUION SAS	France	G	100,00				•			
AXIOME INDUSTRIE SAS	France	G	100,00					•		
CAMPUS COCKERILL SAS	France	G	100,00							•
CMI AMERICA INC.	United States	G	100,00							•
CMI AUTOMATION PVT LTD	India	G	100,00			•				
BALTEAU SA	Belgium	G	100,00				•			
CMI ENGINEERING (Beijing) CO LTD	China	G	60,00			•				
CMI BEUGIN SAS	France	G	100,00			•				
CMI BRASIL LTDA	Brazil	G	100,00			•				
CMI CONGO SARL	Republic of the Congo	G	100,00					•		
CMI CZ s.r.o.	Czech republic	G	100,00					•		
COCKERILL MAINTENANCE ET INGENIERIE CMI DE MEXICO S.A. de CV	Mexico	G	99,80	•						
CMI DEFENCE LLC	Saudi Arabia	G	100,00		•					
CMI DEFENCE SA	Belgium	G	100,00		•					
CMI DEFENCE SAS	France	G	100,00		•					
CMI ENERGY France SAS	France	G	100,00					•		
CMI ENERGY LLC	United States	G	100,00	•						
Compania Mexicana de Calderas y Mantenimiento Industrial, S.A. de C.V	Mexico	G	56,00	•						
CMI EST SCI	France	G	100,00					•		
CMI EUROPE ENVIRONNEMENT SA	France	G	100,00				•			
CMI FPE LTD	India	G	75,00			•				
CMI France SAS	France	G	100,00							•
CMI GREENLINE EUROPE SAS	France	G	100,00			•				
CMI INDUSTRY AMERICAS INC.	United States	G	100,00			•				
CMI INDUSTRY O.O.O	Russia	G	100,00			•				
CMI KLEIN SARL	New Caledonia	G	100,00					•		
CMI Luxembourg HOLDING SARL	United States	G	100,00							•
CMI Luxembourg SERVICES SA	United States	G	100,00							•
CMI M&W Engineering GMBH	Germany	G	100,00			•				•
CMI MAINTENANCE EST SAS	France	G	100,00					•		
CMI MAINTENANCE HAINAUT SA	Belgium	G	100,00					•		
CMI MAINTENANCE NORD SAS	France	G	100,00					•		
CMI MAROC SARL	Morocco	G	100,00					•		
CMI MCF SAS	France	G	100,00					•		
CMI MUON SAS	France	G	100,00					•		
CMI ENERGY SERVICES BV	Netherlands	G	100,00					•		
CMI BRAZIL PARTICIPACOES LTDA	Brazil	G	100,00							•
CMI PROSERPOL SAS	France	G	100,00				•			
CMI SA	Belgium	G	100,00	•		•	•	•		•
CMI BRAZIL SERVICOS DE MANUT. EQUIP. INDUST. LTDA	Brazil	G	100,00					•		
CMI SUD SCI	France	G	100,00					•		
CMI TECH3I SAS	France	G	100,00					•		
CMI TECH5I PASTOR SAS	France	G	100,00					•		
CMI Tech5i Luxembourg SARL	United States	G	100,00					•		
CMI TRACTION SA	Belgium	G	100,00					•		
CMI UVK GmbH	Germany	G	100,00			•				
COCKERILL MECHANICAL INDUSTRIES INTL LTD	Ireland	G	100,00							•
DUPUY SAS	France	G	100,00				•			
ENGINEERING & MECHANICAL SERVICES (EMS) SA	Belgium	G	100,00					•		
G2WIND	Spain	G	51,00					•		
GIMCO EMBOURG SA	Belgium	G	100,00							•
GIMCO France SCI	France	G	100,00							•
GIMCO Luxembourg SA	United States	G	100,00							•
GIMCO SA	Belgium	G	100,00							•
GIMCO WILLEBROEK SA	Belgium	G	100,00							•
MR11000 SAS	France	G	100,00			•				
NEYRTEC ENVIRO INC	Canada	G	100,00			•				
NICOU ENVIRONNEMENT SAS	France	G	100,00				•			
CERI PHOENIX FURNACE LTD	China	E	20,00			•				
PRAYTECH MAROC SARL	Morocco	E	50,00					•		
JV CORBELIN SCI	France	G	100,00				•			
MITRY MORYCE SCI	France	G	100,00				•			
CMI SLETI SAS	France	G	96,15			•				
SOLUSTEP SAS	France	G	100,00				•			
VENTACID HONGRIE kft	Hungary	G	100,00				•			
WUHAN COCKERILL ENGINEERING AND TECHNOLOGY CO LTD	China	E	49,00			•				
YANGZHOU METALLURGICAL SCIEN. TECHNOLOGY CO LTD	China	E	20,00			•				

\* G = Global, E = Equivalence

## Non-consolidated companies at 31 December 2016

Company	Country	% ownership	Energy	Defence	Industry	Environment	Services	Real Estate	Corporate
CMI ARGENTINA SE	Argentina	34,00	•						
CMI DE CHILE LIMITADO SA	Chile	95,00	•						
CMI DEFENCE POLSKA	Poland	100,00		•					
CMI DEFENCE PARTICIPACOES SA	Brazil	100,00		•					
CMI IBERICA	Spain	99,99			•				
CMI INDIA ENGINEERING PRIV. LTD.	India	99,99			•				
CMI POWERINDO SE	Indonesia	45,00					•		
CMI SERVICES	France	100,00					•		
BASE de BARONVILLE	Belgium	46,00		•					
JD'C INNOVATION	Belgium	24,85		•					
CMI PROJETOS E DESENVOLVIMENTO DE SISTEMAS DE DEFESA LTDA	Brazil	100,00		•					

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The Communication Department thanks all those who contributed, to a greater or lesser degree, to the making of this activity report.

Ce rapport d'activités est également disponible en français sur demande à [communication@cmigroupe.com](mailto:communication@cmigroupe.com)

CMI also publishes a financial report containing all the financial data in IFRS format. This financial report is available in French and English on request at [group.finance@cmigroupe.com](mailto:group.finance@cmigroupe.com)

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### CMI solutions for every market

CMI designs, installs, upgrades and services equipment for energy, defense, steel-making, the environment and other industry in general. CMI assists clients throughout the whole of the life-cycle of their equipment in order to improve the economic, technical and environmental performance of this equipment.

### When technology inspires people

The benefits of CMI are numerous: a unique combination of expertise in engineering, maintenance and the management of international technical projects, a vast geographic and technological scope, and an ability to innovate in accordance with the concrete needs of its customers. CMI numbers 4 600 experienced employees on five continents.

### Designing the equipment of the future

Proud of its past and aware of its own capacities to invent the processes of the future, CMI intends to contribute to meeting the challenges of today's society and to generate sustainable industrial progress for the benefit of its customers, employees, the communities in which it is established, and the planet.

CMI, ever more reliable, efficient equipment,  
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