



fives

# DESIGNING THE FACTORIES OF THE FUTURE, TODAY

ANNUAL AND CSR REPORT

2017 #2016 financial year

# PROFILE

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As an industrial engineering group, Fives designs and supplies machines, process equipment and production lines for the world's largest industrial players in the aerospace, aluminium, automotive, cement and minerals, energy, glass, logistics and steel sectors.



# FIVES AND THE INDUSTRY OF THE FUTURE

Looking ahead to navigate a complex environment.

In 2016, the global economic conditions remained difficult and volatile for capital goods suppliers. Although this environment had an impact on Fives' overall performance, the first signs of improvement were discernible by the end of 2016, and were confirmed in the first quarter of 2017. Beyond these temporary circumstances, a structural trend has also been at work: today's manufacturers must come to terms with the emergence of new players, riding the wave of the digital revolution. Where the threat to traditional industrial sectors was overall in the emergence of new giants from developing countries, it now comes from direct competition with smaller entities that are unencumbered, agile and fiercely innovative. The usual reference points have been turned upside down. There will be no shortage of opportunities to be found in the upheaval.

In this constantly evolving environment, the deck is being reshuffled and there is only one solution for Fives and its subsidiaries: to be proactive, to achieve a successful transformation. More than ever, it is essential to look ahead, in order to start building tomorrow, today. The rules have changed, the drivers for growth are no longer the ones we are familiar with, therefore, we must adapt to these new paradigms, and update our strategies and organizational systems accordingly.

Our Group's transformation, which began fifteen years ago, has enabled Fives to position itself as a leader in developing the factory of the future. But it is not enough to rely on this achievement. Not only by continuing to innovate at full throttle will we keep our lead, but also by continuing to prioritize a decentralized, and therefore agile, organizational model will we be able to meet the challenge thrown down by this newly emerging world.

## THE FACTORY OF THE FUTURE IN A GLOBAL MARKET

Frontiers have been erased to create a global playing field.

Economic actors, including manufacturers, now must face global competition, where they must differentiate themselves by optimizing their performance. The manufacturer must be ready to come to terms with changing market conditions, particularly with regard to the availability of the resources needed for production. At the same time, the field of action is expanding: the consumer now has access, everywhere and in real-time, to an unlimited offer that will satisfy specific and immediate needs. These are also new opportunities for a producer.



Frédéric Sanchez,  
Chairman of the Executive Board

**AGILE,  
FORWARD-FOCUS  
AND DIGITAL...**

### Organizational innovation, for greater agility

Since its foundation, our Group has never stopped evolving, reinventing itself and moving forward, thanks to talented women and men who have been able to seize the opportunities for growth on offer. Today we continue to nurture this pioneering spirit, venturing into new geographical and technological territory, looking to anticipate the profound changes affecting our undoubtedly international and ever more competitive environment.

#### THE FACTORY OF THE FUTURE: HUMAN-CENTRIC

The factory of the future will not exclude human beings, instead making them once again central to production activity. New technologies, such as digital (mobile devices, 3D tools, augmented reality, etc.) and cobotics (human and robot working together), will make work less onerous while men and women retain the creative prerogative and final control of product quality.

These technologies also contribute to making factories more agreeable to work in, and to encouraging the emergence of more qualified trades.

This is the very essence of our Group: to explore all openings, to seize opportunities as soon as they arise, and to move quickly into innovative projects. Our agility has been developed with the adoption of a highly decentralized organizational model. Over a few years, Fives has reinvented itself, organizing around strategic sectors of activity, supported by a light-weight, expert central structure, thereby both empowering all parties while establishing a network to include all skills and drives. Our subsidiaries are attuned to manufacturers and their concerns, and are quickly able to mobilize resources according to their needs - something of which our customers are particularly aware of.

This agility also means that Fives is quickly able to grasp opportunities for external growth. In 2016 we acquired Daisho Seiki Corporation, a leading Japanese supplier of grinding machines for the automotive industry in particular, its activity presenting powerful synergies and complementarity with the expertise Fives has developed in this field. This acquisition has consolidated our presence in Japan and Korea.

Agility also enables the Group to adapt quickly to changes in its markets. For example, in

2016, in China, we significantly strengthened our position in high growth sectors such as intralogistics and aerospace. In this market, Fives is an actor recognized for its ability to offer high performance technologies. This recognition has led to the Group being chosen as a representative and ambassador for the industry of the future, in that specific country with the mission for convergence between Chinese (Made in China 2025) and French (Industry of the Future Alliance) initiatives.

Our organizational model is also built upon the diversity of our activities and locations. Our business portfolio is unique: we are active in several sectors, organized around in-depth knowledge of industrial processes. The wealth and complementarity of our expertise mean that communal, cross-sector projects can be developed, on the basis of shared objectives.

Our geographic and cultural diversity is another asset: with more than 100 locations in 30 countries, and nearly 8,400 people with 60 different nationalities, we have a real local experience, which guarantees a better understanding of our customers' needs.

#### Cultivating a pioneering spirit

An ability to innovate is another asset. We have always looked to develop sustainable and competitive solutions: pioneering technologies and global service solutions that improve the environmental and operational performance of the manufacturers we serve.

To fulfill this ambitious promise, we continue to apply two drivers:

- Our talented people: the main source of creation in our Group, so long as we succeed in maintaining and strengthening the pioneering spirit that has characterized the Group from the start.
- Our Research & Development effort: in 2016 our investment increased again (+1.5% to €36.7 M); figures to which can be added expenditure on developing additive manufacturing technologies, as part of our partnership with Michelin.

These efforts are especially reflected in a consistently high rate of patent registration (45 in 2016). Fives was placed 32<sup>nd</sup> for patent deposition in France, a ranking that places the Group far higher than the scale of its activity would suggest. Since its foundation, Fives has been a frontrunner

in industrial breakthroughs. In 2007, when our motto became “Designing today the plants of the future”, we accelerated our actions to meet this ambition.

developing our service and aftermarket activities as a result of digital technology, with real-time monitoring of equipment performance throughout its lifecycle.

### THE FACTORY OF THE FUTURE: NEW MATERIALS AND MANUFACTURING PROCESSES

Manufacturers seek to develop systems that are more flexible, while considering the impact on workers and the environment, as well as remaining competitive and flexible as markets and needs change. New technologies are emerging, revolutionizing production, such as 3D printing, enabling parts to be designed with unique geometries, at the same time removing the constraints of traditional machining. Materials such as composites, which perform better than traditional materials and alloys (weight, strength, etc.) have seen an uptick in use for structural elements.

Today we continue to change technological direction in ways that make Fives an trailblazer in the Industry of the Future. In 2016, AddUp, a joint venture by Fives and Michelin in metal additive printing, has continued to develop, working in particular on designing 3D printing machines and solutions adapted to the aerospace and medical industries. Throughout all our activities, we are inventing even more flexible global solutions, combining our in depth knowledge of processes with other expertise: robotics, helping optimize existing technologies and develop complementary applications, in the field of composite fabrication for example; digital technology, facilitating management and maintenance of industrial production equipment.

The digital transformation of the Group’s offer is ongoing!

Innovation is not the sole prerogative of our technical offices. Our ambition is to be the go-to supplier for our customers all over the world, while also significantly

The macro-economic context in which we are operating today is an invitation to manufacturers to reassess how they organize to transform themselves, to become more responsive, more agile, to develop new technologies - in short, to be constantly reinventing, so as to be able to continue to respond to new contextual challenges and market trends, and maintain their position in this ever-accelerating global economy. Fives began this transformation several years ago. Today, more than ever, our Group is well positioned to seize the opportunities offered by this new, frontier-less world, and so become a part of this new economic, social and environmental dynamic, building the factories of the future.

### THE FACTORY OF THE FUTURE: FLEXIBILITY AND SIMPLICITY THROUGH DIGITAL

Digital technologies and built-in sensors are optimizing production from the design phase to factory operation. Factories are becoming “smart”, with connections to:

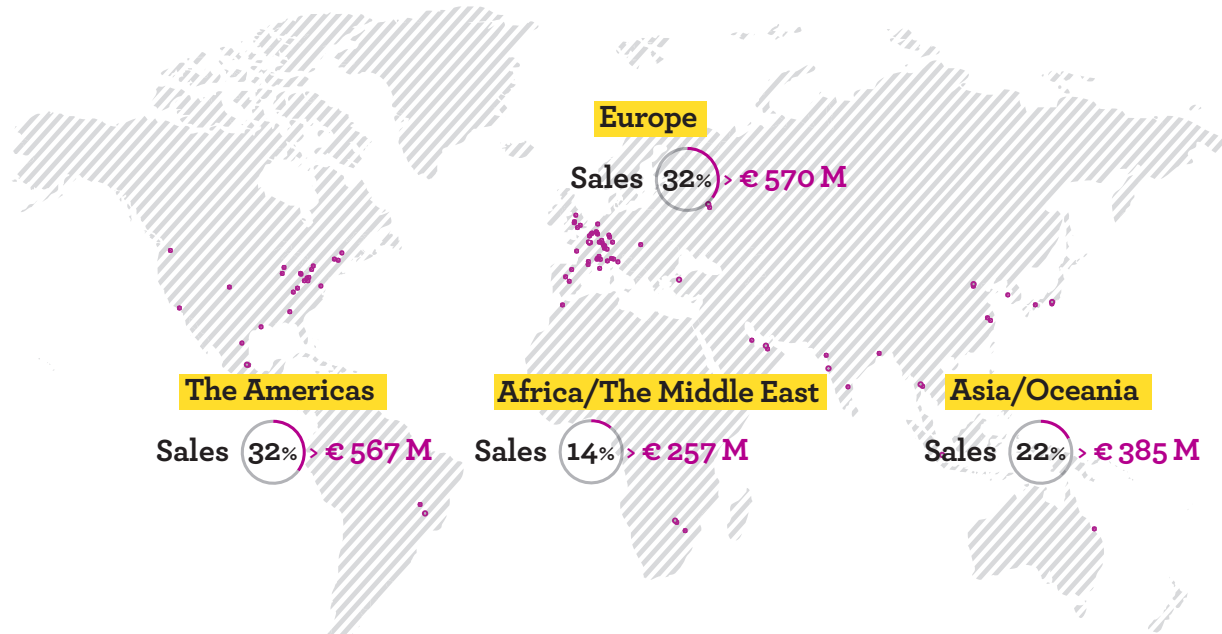
- the supply chain, so production is constantly kept up to date;
- other factories, to optimize consumption and maintenance;
- and of course, operatives, contributing to continuous improvement of processes.

With digital technology, production system performance can be optimized, including on the environmental level: data provided means energy and resource consumption can be optimized in real-time.

Fives' international network is based on operational units which include commercial, industrial, R&D and service structures.

In addition, eleven regional offices\* and four operational subsidiaries - located in Brazil, China, India and Russia - help the Group companies in local markets by providing country expertise such as knowledge of the industrial structure, regulatory watch, relations with institutions, sourcing, local supply, etc.

\* Fives Brazil, Fives China, Fives India, Fives Indonesia, Fives Japan, Fives Mexico, Fives Middle East, Fives Russia & CIS, Fives Southern Africa, Fives Thailand, Fives Turkey



# TODAY, FIVES is...

SALES

€1,779 M

ORDER INTAKE

€1,465 M

CLOSE TO

8,400 employees

A NETWORK OF OVER

100 locations  
in about 30 countries



# MILESTON



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# TOTAL EXPERTISE IN INDUSTRIAL ENGINEERING

From design to commissioning, Fives has the resources and means to offer customers high-performance solutions and services based on innovative and sustainable proprietary technologies, on multisector and international expertise, and on recognized know-how.

## Design and integrate

Fives designs and supplies equipment, machines, systems and services that are integrated into operational industrial production lines.

Fives also supplies lines and complete plants including key process equipment.

## Develop high added-value proprietary technologies

Fives owns a wide portfolio of proprietary technologies. For the last three years Fives has been in the top 50 for registering patents in France, with 45 new patented inventions and a portfolio of 2,032 patents in force covering all of its areas of activity.

Since its creation, Fives has been a trailblazer in a long list of industrial sectors. Today, the Group is continuing with its exploration of the factory of the future, to identify and offer technologies that herald the next development, particularly for additive manufacturing and composites. For several years,

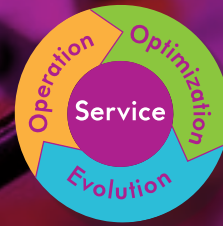
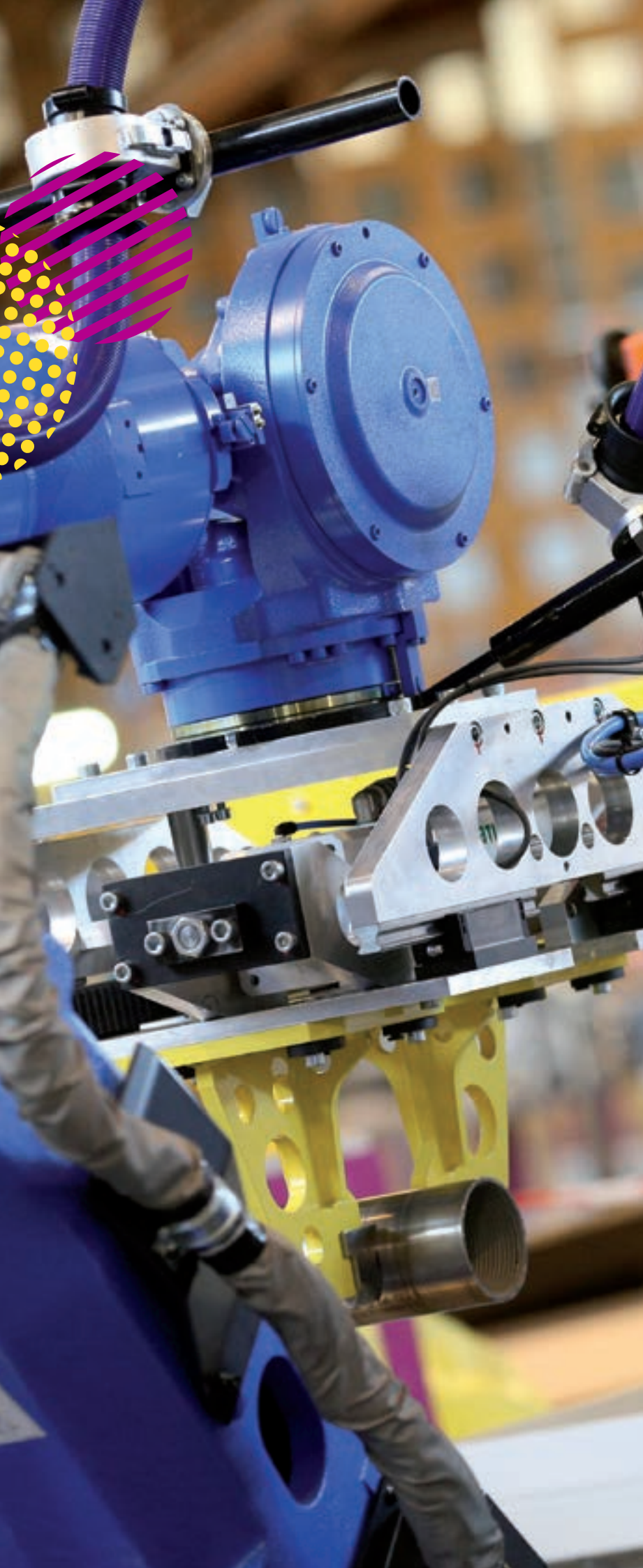
we have devoted a significant portion of our investments to developing technologies with high energy and environmental performances.

## Managing production and assembly

The key elements of the Fives offer, as well as its proprietary technologies, are produced and assembled at the Group's own manufacturing sites, which consist of more than a third of their facilities around the world.

Fives uses subcontracting for the rest of its manufacturing activity, with an international network of highly qualified and experienced machining and assembly workshops in Europe, the Americas and Asia. The Group also includes operational subsidiaries that handle its production activity in Brazil, China, India and Russia.





## A COMPLETE SERVICE OFFER

Fives provides full support to its customers throughout the entire lifecycle of the equipment installed.

Three ranges of service:

- service for start-up and operational phases, aiming to maintain the equipment's initial performance levels ("Operation" service range);
- support for customers to maximize the efficiency of production processes ("Optimization" service range);
- a response to the need to align equipment and production processes with new uses, through retrofitting and rebuilding offers ("Evolution" service range).

Fives' structure enables each of its subsidiaries to provide a dedicated service organization for each market and to work closely with its customers.

# FINANCIAL INFORMATION

Suresh Abye,  
Group Chief Financial Officer

**A SOLID 2016 FOR THE GROUP WITH A PROMISING START TO 2017**

SALES

€1,779 M

ORDER INTAKE

€1,465 M

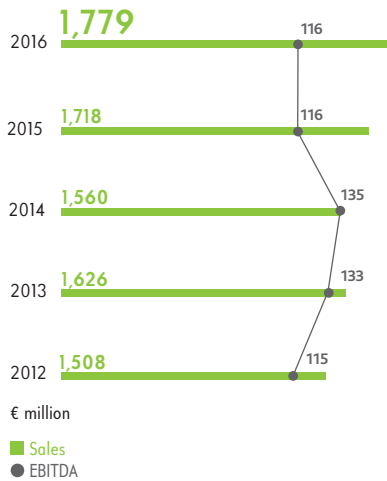
SHAREHOLDER'S EQUITY

€456 M

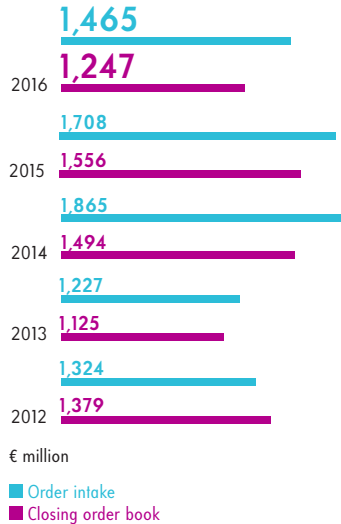
CASH POSITION

€120 M

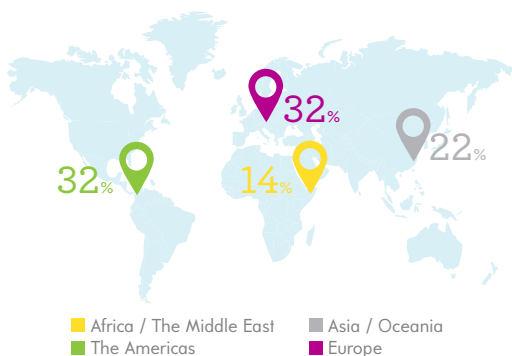
SALES AND EBITDA



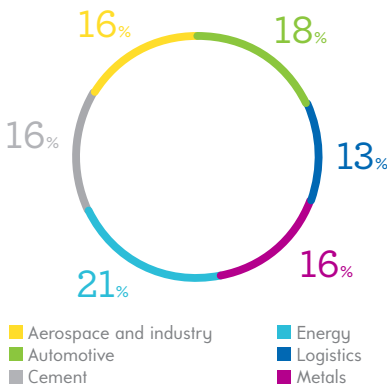
ORDER INTAKE AND CLOSING ORDER BOOK



BREAKDOWN OF SALES BY GEOGRAPHICAL AREA



BREAKDOWN OF SALES BY END MARKET



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## A DIFFICULT ECONOMIC ENVIRONMENT

Group order intake in 2016 totaled €1,465M, down on 2015 (€1,708M), in an environment marked by the virtual absence of major projects, with the key industrial order-makers putting back their investment decisions because of a particularly volatile economic, political and institutional context. Commercial activity held up in Europe and North America, thanks to the favorable trend in the equipment sector for the automotive and logistics industries, which was able to balance the low performance from energy and general industry; whereas Asia, the Middle East and Africa, with more exposure to major projects and the metals and cement sectors, saw a slow down.

With order intake of small- and medium-sized orders holding up well through the year, alongside a high opening backlog (more than €1.5 billion), the Group was nevertheless able to post turnover of €1,779M, slightly up (+2%) at constant scope and exchange rate. EBITDA at €116M is also up at constant scope and exchange rate (+3 %).

After two complicated years, marked by the fall in oil prices (and raw materials generally), as well as historically low levels of industrial investment worldwide, 2017 is looking much more promising. A very good first quarter order intake performance (more than €600M) has bolstered the order book, which should increase from €1,247M at end-December 2016 to around €1,450M at end-March 2017, thereby ensuring that 2017 will see activity levels at least comparable to 2016. At the same time, the Group's initiatives around optimizing costs undertaken over the last two years should lead to improvements in EBITDA and cash-flow in 2017.

# NON-FINANCIAL INFORMATION

## INNOVATION

### RESEARCH & DEVELOPMENT

Fives continues to invest in R&D, with a 1.5% increase in the budget assigned to research and innovation. Particular emphasis is placed on developing new products and processes. Fives has continued to develop partnerships and has joined forces with major industrial groups within institutions and research programs (CEA, IRT Jules Verne, SOFIA, etc.).

**€36.7 M** spent on R&D in 2016

**611** patent families

**2,032** current patents

Fives has accumulated a portfolio of 611 patented inventions, covering all areas of their market and activities. They are protected by 2,032 patents in force in numerous countries. For the last three years, Fives has been in the top 50 for registering patents in France. (Source: INPI - the French National Institute of Industrial Property).

**10** products have been awarded the Engineered Sustainability® in 6 business lines\*

In 2016, the Engineered Sustainability® brand was awarded to three new products, selected for their strategic character in their market: the Lineos pitch fumes treatment system (Aluminium); CTD Flex +, a coal tar distillation (Chemtec); and the FCB Horomill® grinding mill for its cement application (Cement | Minerals). Significant results were obtained in terms of reducing their environmental impact.

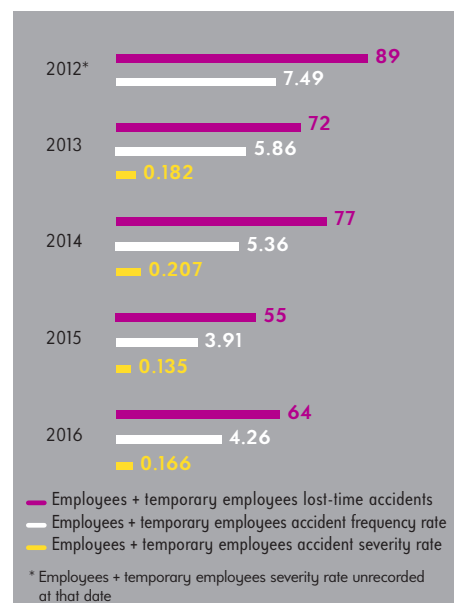
\* Aluminium, Cement | Minerals, Chemtec, Combustion, Intralogistics, Steel



## SAFETY/ ENVIRONMENT

### WORK ACCIDENTS

The Group overall frequency rate has been reduced by a factor of three in six years. The frequency rate target set in 2013 was achieved in 2016, at constant scope, but there has been a set-back this year. New measures have been implemented to return to past positive progress.



### ENVIRONMENTAL CERTIFICATION

In 2016, two additional industrial sites achieved ISO 14001 certification.

**73%** of Fives' industrial sites are ISO 14001 certified



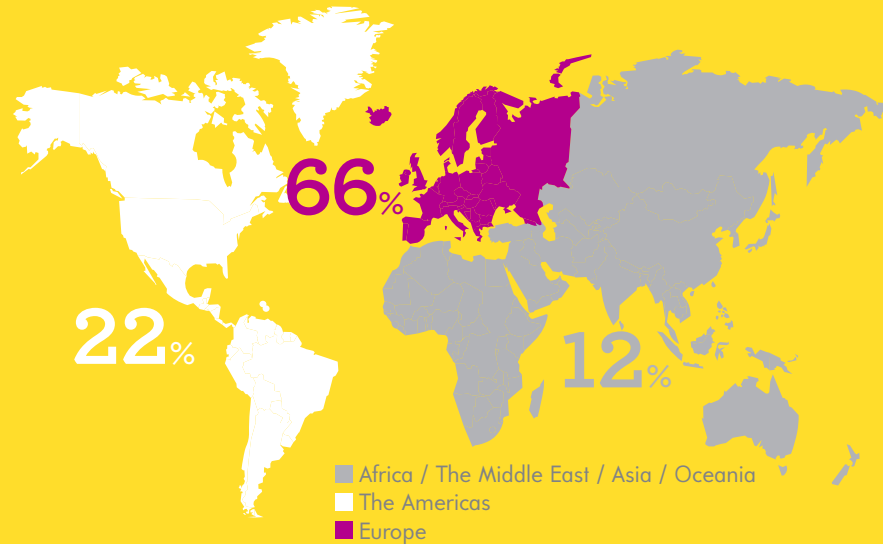
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## HUMAN RESOURCES

### BREAKDOWN OF EMPLOYEES BY GEOGRAPHICAL AREAS

At end 2016, Fives numbered nearly 8,400 employees, a workforce that remained stable across all geographical areas.



### EMPLOYEE INTEGRATION

Fives is continuing its support for new hires, with the Starter meeting: a review meeting organized after 6 to 18 months in post.

Career management committees (CEDRE) have helped develop the careers of more than half the Group's employees.

**454** employees have had a Starter meeting

**56%** of employees have been seen by CEDRE career management committees

### QUALIFICATION AND TRAINING

Group personnel profiles are more and more qualified. For two years the proportion of engineers, managers and technicians has grown by 2% a year.

Training remains at a high level, with extra emphasis in 2016 on management training and the launch of the Group's first worldwide training program, the Fives Leadership Factory.

**69%** of headcount are engineers, managers or technicians

**73%** of employees attended at least one training course

# EVENTS



## April ADDITIVE MANUFACTURING

AddUp, a joint venture by Fives and Michelin, was created to offer global industrial solutions in 3D metal printing, from designing and supplying machines to producing parts, supporting each manufacturer in the search for the best technological and financial solution.



## November RESEARCH PARTNERSHIP

Through AddUp, Fives has teamed up with manufacturers and academic institutions to launch SOFIA, an applied research program in the field of metal additive manufacturing. The goal is to continue to contribute in the development of this technology by promoting convergence of skills between the various partners.

## June ENERGY RECOVERY

Fives has published a White Paper on waste heat recovery in the steel, aluminium, cement and glass industries, showing its customers the possibilities for reducing the environmental impact of their installations. As well as designing production equipment and systems that are energy efficient, Fives offers industrial waste heat recovery solutions.



Waste heat recovery: technologically and economically viable solutions for industrial businesses  
A white book on industrial waste heat recovery

## July AEROSPACE

In the US, Fives delivered two Liné Machines Powermill V systems to Boeing, for profiling and drilling wing components of the new Boeing 777X at the Everett (Washington) plant. In Japan the Group also installed several composite laying systems for the Boeing 787 program for Fuji Heavy Industries and Mitsubishi Heavy Industries.



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August

## AUTOMOTIVE

GMCH paid tribute to the performance of the first grinding machines supplied by Fives for its Grand Rapids (Michigan) site in the United States. Designed and developed by the Group following the acquisition of the Bryant patents, these grinding machines have delivered better performance than any others on the site.

December

## ACQUISITION: DAISHO SEIKI CORPORATION

Fives has added to its grinding technology offer and consolidated its presence in the Japanese and Korean markets with the acquisition of the Daisho Seiki Corporation, a company specializing in designing and building disc grinding and bar peeling machines for the automotive and other industries.



## LOGISTICS:

### New technologies serving customer performance

The Group has developed UltiView™, a proprietary oversight system for automated handling installations. A breakthrough innovation, the system is based on a network of cameras with overlapping fields and the attribution of a unique reference to every object, even the smallest; this takes it beyond standard tracking and provides complete traceability for the objects monitored, as well as problem anticipation and high-performance management for installations.



## RESEARCH AND DEVELOPMENT

For three consecutive years, Fives has been in the top 50 for patent registration in France (ranked by the INPI French National Institute for Industrial Property). In 2016 the Group moved up the rank of 32. Fives continued to push patent registration, with 45 new inventions registered making a total of 611 (protected by families of patents). These patents cover all areas of activity and are protected by a total of 2,032 patents current in the countries where it operates.



## FIVES INNOVATION AWARDS

Since the introduction of the Fives innovation competition in 2012, the number of ideas submitted has doubled: from 252 to 528 ideas entered in 2016. This annual internal event bears witness to the enthusiasm and commitment of employees for proposing ideas to improve products, processes and methods.

# TERRITORIES

## THE AMERICAS

### Mexico

#### Tubes and profiled products

Perfiles y Herrajes, L.M. S.A. de C.V. and Productos Laminados De Monterrey, S.A. de C.V. (aka Prolamsa) selected Fives for the design and supply of production lines, respectively for mechanical and structural tubes as well as carbon steel tubing and component for the automotive industry.

### The United States

#### Automated production systems

General Motors awarded Fives a new order for the supply of an assembly line for different sub-assemblies as part of its 10-speed ABIV automatic transmission program. The installation, with an annual production capacity of over 250,000 transmissions, will be delivered in November 2017.

#### Aerospace

The Group will deliver two Liné Machines Powermill V high rail multi-axis profilers capable of machining large-scale parts: one for profiling and drilling wing components of the new Boeing 777X at the Everett (Washington) plant, and the other for special tooling to machine the ribs of the 737 and 747 at the Frederickson (Washington) plant. The machines will add up to the ten machines previously delivered to these two sites.

#### Iron ore pelletizing project

Cliffs Natural Resources (Minnesota) chose Fives to supply and install a new combustion system. Once the project is commissioned, the pellets produced will supply one of the largest blast furnaces in the USA.

### The United States and Mexico

#### Grinding: a 3-year contract with General Motors

In 2016, Fives started the supply of the 24 machines ordered as part of the framework contract for the supply of all of the crankshaft grinders for its new motor programs, particularly the CSS and V8 that signed with General Motors in 2015. The delivery is scheduled until 2018.

## ASIA AND OCEANIA

### China

Flat steel: new stainless steel production line Foshan Chendge Stainless Steel Co., Ltd. selected Fives to build its new cold annealing and pickling line, with an annual capacity of 500,000 tons.

Automated production systems: Fives supplies a new plant in Liuzhou, Guangxi province Shanghai Automobile Gear Works (SAGW, a SAIC group subsidiary) chose Fives for the supply of a complete CVT transmission assembly line, including testing equipment and washers.

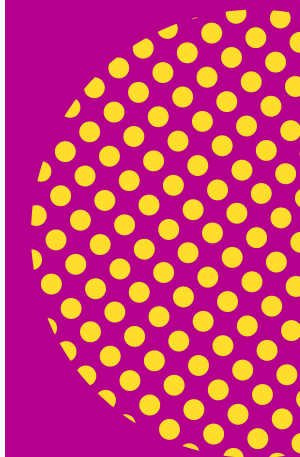
#### Aerospace: Hongdu Aviation renews its confidence in Fives

Hongdu Aviation has once again chosen the Group for the supply of a Liné Machines Flexitool universal holding fixture, which will be installed on a Forest-Liné V-Star2. It will be the largest universal holding fixture ever installed in China.

### South Korea

#### Logistics: LG CNS renews its confidence

LG CNS chose Fives to build an entirely new giant logistics terminal in Gwanju for CJ Korea Express. The solution, which features the cross-belt sorting system is designed to handle packages weighing up to 50kg and will offer the customer sorting throughput of 150,000 to 200,000 packages per hour. This installation will start up in June 2018.





## EUROPE

### France

#### Nuclear sector: new contract with EDF

For the fourth time running, Fives and its piping design consortium partners Endel, Bocard, and SOM, won the design framework contract from EDF (for DIDPE division). This five-year contract, which includes an optional one-year renewal, covers dimensioning studies and piping production for the entire French nuclear fleet.

#### Sugar sector: new partnership with Tereos

Fives designed a new “100% stainless steel” version of its Cail & Fletcher ZUKA® batch centrifugal for Tereos. The client first order for its Chevrières site in the Oise region, was so satisfactory that it was followed by five more for its plant in Escaudœuvres in the North of France. Tereos also worked with Fives Sugar Consulting to improve its production approach and optimize its northern site’s performance.

### Germany

#### Filling sector

Daimler chose Fives to replace its multi-fluid filling systems on its Düsseldorf production site. This is the first site where Daimler has implemented its new “Intégra” automation standards, which suppliers will have to master to continue working with this client in the future.



### North Europe

#### Logistics: a long-term partnership

PostNord selected Fives to automate the Herning and Aarhus postal terminals in Denmark, and to supply a sorting system in Trondheim (Norway) for parcels and large letters. PostNord also chose the Group to upgrade the sorting systems during the renovation in its postal centers in Göteborg and Malmö (Sweden) whose lifespans will be extended by five to ten years.

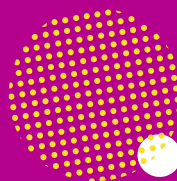
### The United Kingdom

#### Gas and fume treatment

Fives has been selected for the supply of three Enhanced All Dry systems (EAD™) in the United Kingdom. These systems will reduce particle emissions from the gasifiers, designed to process waste wood and recycled solid combustibles.

#### Logistics: two decades of partnership

TNT chose Fives with a new contract for the automation for its new site in Dartford, England. The solution includes a cross-belt sorter to sort parcels weighing up to 50 kg to 79 destinations. The system will enable TNT to sort up to 11,000 packages per hour.



## THE MIDDLE EAST AND AFRICA

### Egypt

#### Cement production burners

CDI, a subsidiary of Chinese engineering firm Sinoma, selected Fives to supply complete combustion systems for the six clinker burning lines it is building for the Egyptian government. This order includes, in particular, some thirty Pillard NOVAFLAM® and Pillard PRECAFLAM™ burners.

### Oman

#### Cryogenics

Fives successfully entered the market for cold boxes over 300 tons when it was selected for an order related to the Liwa gas treatment project through South Korean engineering firm GS.

# FIVES' GOVERNANCE

Fives is headed by an Executive Board overseen by the Supervisory Board. The Executive Board has two members and it has the most extensive powers to act on behalf of Fives under all circumstances, limited only by the company purpose and powers expressly vested by the Supervisory Board and shareholder meetings. The Supervisory Board exercises permanent control over the management of the company by the Executive Board. It has seven members: Philippe Reichstul, Jacques Lefèvre, Dominique Gaillard, Lise Fauconnier, Antonio Marcegaglia, Jean-Georges Malcor and Laurence Parisot.

To support it in its decision-making, the Executive Board has introduced an Executive Committee and five Country Coordination and Steering Committees:

– As the body responsible for consultation, recommendation and implementation, the Executive Committee examines the proposals put forward by the Country Coordination and Steering Committees as well as the Functional Departments, considers issues submitted to it and supports the Executive Board in reaching those decisions that fall within its scope of competence.

Its members include the members of the Executive Board and the Group's key operational and functional directors as well as the Country Directors.

– The Country Coordination and Steering Committees are responsible for conducting a broad dialog on the strategies to implement within the Group, as well as the operational priorities and cross-cutting policies to focus on, for each geographic zone. They define the methods for implementing these topics in the various subsidiaries.

In addition to the members of the Executive Committee, they are made up of Chief Executive Officers (or equivalent positions), functional directors for Fives or Country Directors.

The Country Coordination and Steering Committees are chaired by the Country Directors for North America, China, India and Italy, and the Chairman of the Executive Board for France.



## THE EXECUTIVE BOARD

**Frédéric Sanchez** Chairman of the Executive Board

**Martin Duverne** Member of the Executive Board



# THE EXECUTIVE COMMITTEE

(From left to right, top to bottom)

**Daniel Brunelli-Brondex** Country Director - India  
**Sylvain Dulude** Country Director - North America  
**Frédéric Renaud** Country Director - Italy  
**Michelle XY Shan** Country Director - China

**Bruno Carbonaro** Head of the Automotive Business Line  
**Alain Cordonnier** Head of the Cement Business Line  
**Guillaume Mehlman** Head of the Steel and Glass Business Lines  
**Terry Moody** Head of the Aerospace Business Line  
**Luigi Russo** Head of the Combustion and Intralogistics Business Lines  
**Hugues Vincent** Head of the Aluminium Business Line

**Suresh Abye** Group Chief Financial Officer  
**Xavier Becquey** Head of Group Operational Performance  
**Jean-Marie Caroff** Head of Group International Development  
**Arnaud Lecœur** Group General Counsel  
**Yannick Leprêtre** Head of Group Innovation and Digital  
**Paule Viallon** Head of Group Human Resources

# OPERATIONAL PERFORMANCE AS A DIFFERENTIATOR IN SERVING THE CUSTOMER

In 2016, Fives implemented numerous projects and initiatives aimed at supporting the subsidiaries more effectively.

**Xavier Becquey,**  
Head of Group Operational Performance

***FIVES IS CONTINUING ITS POSITIVE TRANSFORMATION: IT SYSTEM CONVERSIONS, ROLLING OUT LEAN AND REDESIGN TO COST, STRENGTHENING PROJECT AND PURCHASE MANAGEMENT, ETC. OUR ROLE IS TO PROVIDE RESOURCES AND KNOW-HOW TO BETTER SUPPORT THE CHANGES AT EACH OF THE SUBSIDIARIES.***

## **A common reference**

In 2016, Fives increased its efforts to build a joint reference-base for improved sharing by all of the Group's entities around challenges, best practice and expertise.

The Group:

- launched the SAPHIR project, a Group ERP based on the most recent technology from SAP: S4/HANA. With SAPHIR, all of the subsidiaries will benefit from the most advanced solutions in production-data management, project management, purchasing and finance,
- formalized a common project management reference-base for the whole Group,
- created an operational performance reference-base (maturity assessment), which the subsidiaries can use to evaluate the quality of their operational performance approach with respect to known best practice, and so define their improvement plans,
- helped the subsidiaries to define and/or deploy transformation initiatives and plans, implemented as part of the FivesWAY global enterprise project.

This program aims to act on all growth drivers for the Group: People, Customer, Innovation and Operational Excellence.

## **Expertise serving subsidiaries' performance**

With the aim of sharing best practice, cross-disciplinary teams support the subsidiaries by proposing methodologies to accelerate the roll out of lean (lean manufacturing and lean engineering), to implement proven methods for redesign to cost and to establish advanced project management procedures.

Launched in 2015 in North America, a customized project management support plan for subsidiaries is ongoing in the region, and in 2016 was rolled out to Europe for complex projects.

Particular attention has also been paid to strengthening purchasing performance, with training cycles introduced in France and Italy, as well as support for subsidiaries in setting up the supplier and negotiations plan for complex projects.



**+ MORE DETAILS**  
OUR BUSINESS p. 24  
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## IT SYSTEM SERVING PERFORMANCE

Fives is investing heavily in optimizing their information systems:

- SAPHIR, the project to reshape the Group ERP.
- A new system to virtualize HR processes, deploying a new Group HR Information System.
- A project to virtualize supplier invoicing.
- Creating a common Group reference-base of customers/suppliers.
- Extending the Group CRM to share commercial information between subsidiaries and business lines.
- Deploying a flexible and effective Document Process Management solution for the Group.
- Support for the subsidiaries in updating their PLM systems and CAD tools.
- Major enhancement of collaboration tools shared by the whole Group, rolling out global messaging, flexible video-conferencing tools and the full set of modern exchange tools, from instant messaging to an enterprise social network.

Fives' IT Management also reviewed its organization to better serve the subsidiaries, appointing contacts for major geographic areas, while strengthening its efforts on infrastructure, IT security and web development.

# SUPPORTING THE COMPANY'S STRATEGY

Fives has deployed a human resources organization tailored to the Group's growth and its new geographic and operational dynamics.

**Paule Viallon,**  
Head of Group Human Resources

**OUR MISSION IS TO SUPPORT ALL OUR SUBSIDIARIES TO DEVELOP THEIR ACTIVITY, BY WORKING UPSTREAM TO MOBILIZE SKILLS AND TALENTS.**

## Helping organizations to grow

Implementing the strategic plans requires work in each company to align the organization, the processes and the resources. In 2016, Fives continued to deploy its strategic workforce planning which addresses this need. Every steering committee works collectively to identify key skills and establish a target organization. Then, they work in close collaboration with the human resources teams to formulate individual and collective development plans, for the immediate and medium-term, which will amend and strengthen the existing structure.

## Establishing new resources and structuring the organizations

To support the increasing internationalization and remain as close as possible to the operations, the human resources organization has changed, streamlining the corporate functions by delegating certain aspects to the HR teams in the various countries and divisions. Country HR Directors now exist in North America, China, France, India and Italy. They promote the Group's HR policy within their geographical zone and ensure that the related processes are properly deployed, coordinate actions to facilitate synergies between the various entities in the country and develop career paths. They also support each division's HR Directors with their assignments in these countries.

Fives has also integrated the new digital challenges into its HR practices and has digitized its HR processes by introducing a global management system: Fives&Me. This system, which considers regional specificities, is a facilitator and open to all (employees, managers, HR), should make it easier to share and use information. The advantage of the tool due to updated information and its interactivity, foster the identification of new career development opportunities.

## Supporting the development of talents

Fives has continued to deploy the training program designed for its managers and directors: the Fives Leadership Factory. Building on the three modules that make up the program, the Group aims to develop a managerial culture with common values for directors worldwide, which takes into account local specificities. The ramp up of the Manager@Fives program in the Group's main zones, i.e. North America, China, Italy, India and the United Kingdom has also contributed to the development of the teams, by their managers, and even the organizations. In 2016, we also deployed the first session of the BusinessManagement@Fives module, in partnership with INSEAD, focused on Strategy and Leadership skills.







## RESOURCES POOLING

In 2016, Fives strengthened its resources and skills pooling program. Created nearly ten years ago, this process shares resources between the subsidiaries and the divisions by offering temporary mobility to address economic uncertainties in the divisions and retain talents. This program addresses all of Fives' professions, including engineers in design offices, R&D, projects, sales, etc.

## 2016, RESOURCES POOLING IN FIGURES

**164** staff loans

**19** "source" subsidiaries in France, Spain, Italy and the United Kingdom

**29** "recipient" companies in the Group in France and China

**4** external "recipient" (partners/customers)

**6.7** months is the average duration of a staff loan



# OUR BUSINESS

A large industrial robotic arm is the central focus of the page, shown in a grayscale, slightly desaturated style. It is positioned diagonally from the top left towards the bottom right. The arm has a complex structure with various joints, cables, and a gripper at the end. The background is white, and the overall design is modern and clean. There are several decorative elements: a large purple circle on the left containing the letters 'ESS', a purple circle with yellow polka dots overlapping the arm, and a purple circle with white diagonal stripes at the bottom left. There are also some thin purple lines and a white circle scattered around the composition.

# ESS

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# INNOVATE: TO CREATE THE TECHNOLOGIES, PRODUCTS AND SERVICES OF THE FUTURE

Innovation is a tactical development strategy for the Group. Fives promotes creativity within the teams and invests strongly in Research & Development; resulting in high performance technologies that meet manufacturers' current and future needs.

## Cutting-edge technologies for the factory of the future

Fives continues to invest in cutting-edge technologies that help meet current requirements for reliability, performance and flexibility in production systems. Digital tools are used to manage industrial installations with precision, as a result of real-time feedback of production data; Fives' engineers and technicians, who are process experts, are able to analyze this data to improve production performance and, ultimately, product quality. The Group also concentrates on implementing new materials (composites) and new manufacturing processes (3D printing); April 2016 saw the founding of AddUp, the joint venture established by Fives and Michelin in this field, to serve the rapidly expanding market in metal additive manufacturing.

## Improving energy efficiency for processes

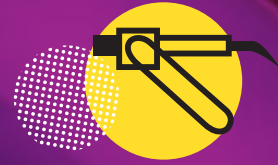
Fives is also introducing practical solutions to make industrial processes more energy efficient, by developing eco-designed technologies. With its Engineered Sustainability® program, the Group recognizes products that combine operational excellence with high environmental performance; in 2016 three new pieces of equipment were awarded the brand. Fives has also produced a White Paper on industrial waste heat recovery, which puts forward practical solutions that are both technically and economically viable, improving the energy efficiency of energy-intensive processes (cement, steel, glass and aluminium).

## Making Fives ever more innovative

Fives' innovation ambition is supported by a proactive internal policy that aims to strengthen the culture of innovation in the Group with various initiatives. The innovation competition organized each year, works as a catalyst for all the Group's employees; in 2016 the number of ideas submitted to the competition went up again (+8%). Skills groups meet regularly, to strengthen synergies and share best practice between the different activity subsidiaries on a particular topic (combustion, refractory materials, etc.). Finally, the Group works with other partners on pilot projects, such as the FFLOR (Future Factory @Lorraine) platform, which implements key production technologies for the factory of the future, such as collaborative robotics, cobotics, virtual reality, smart logistics, etc. Fives contributes its expertise in designing and supplying fully automated and integrated systems.

These efforts translate today as a portfolio of over 2,000 patents, with a growing portion of the Research & Development budget dedicated to developing new products and processes.





## ROBOT MACHINING SOLUTION

Fives Machining (Capdenac, France) has developed an innovative solution for specific machining tasks on composite aircraft wings at an Airbus site in Illescas (Spain): the “Manhole Rebates Station”. A robot positions a portable milling machine at various locations on a large wing, so that openings can be precision machined. As well as expertise in automation and robotics, complex calculations were required to compensate for the wing’s changes in shape under its own weight. This solution helped improve the quality of machined parts and the productivity of the workshop.



## RESEARCH AND DEVELOPMENT

€36.7 M invested in R&D

2,032 current patents

3 new products branded Engineered Sustainability® (making 10 in total)

# SERVING INDUSTRIAL PERFORMANCE

As well as designing innovative and reliable technologies, Fives provides a meaningful support for manufacturers, with a complete range of services, from spare parts to revamping, and including connected services, to guarantee top performance for the lifetime of the equipment.

## An expert Group with a local presence

Fives commits to providing support to manufacturers, to ensure the availability of equipment and to help achieve the performance levels they seek.

The Group has two primary assets that help fulfill this commitment. First, the Fives engineers and technicians, system and process experts who have precise understanding of the manufacturing challenge. They play a specific role in identifying the most suitable solution, which optimizes production performance throughout the equipment's lifecycle.

Second, the Group has facilities in 30 countries, comprising a responsive and agile local network. In 2016, Fives continued to increase its presence to meet manufacturers' needs, and now has nearly 2,000 service-dedicated personnel worldwide. Three working groups (in Europe, Asia and the United States) meet regularly to share their best practices and develop synergies.

## An expanding service offer

In 2016, Fives continued to expand the services offer in order to meet the needs of manufacturers throughout the lifecycle of the equipment, from technical support and spare parts to revamping. In particular, the Group is developing in the field of connected services; digital technology can meet the current requirements of complex production, which must remain flexible while providing the highest product quality.

The opportunities offered by digital technology include real-time or retrospective production controls, as well as predictive maintenance. As a result of the expertise in industrial processes, Fives is well positioned to utilize this data to improve production system performance and competitiveness. These connected services represent a major development opportunity for Fives, which the Group has already begun to employ by creating offers (sugar, steel, maintenance, etc.) that have been well received by manufacturers in these sectors.



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

+ MORE DETAILS

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## A FULL MODERNIZATION SOLUTION

In 2016, Fives OTO S.p.a., which specializes in production lines for steel tubes, perfected a full modernization solution for cut-off equipment. This new modernizing kit adapts to the existing machine, increasing its productivity by an average of 20%, while limiting the necessary investment. It incorporates all the latest blade technologies, with double the lifespan of earlier technologies, which means the machine's cutting applications can be extended to other materials. This service can be installed in three days, significantly reducing down-time for the machine in comparison to a traditional solution.

# AEROSPACE AND INDUSTRY

In the aerospace sector, the sustained fall in oil prices has made current fleets sufficiently profitable deferring investment in more fuel-efficient models, thus, contributing to a slow-down in the subcontractor chain. However, the effects of this phenomenon have been balanced by activity in China, which is acting as a supplier to the large manufacturers, and preparing to produce its own aircraft. Defense markets also saw a clear recovery at the end of the year.

In industry in general, low energy and raw material prices have continued to affect activities linked to oil, gas, mining and construction machinery. Industrial maintenance has continued to develop at a sustained pace, particularly in the aerospace and rail sectors.



## OFFER

**Metal cutting and machining solutions for large complex parts, as well as composite processing machine tools, designed for the aerospace and heavy manufacturing industries**

- High-precision machines and high-performance composite processing systems: large vertical gantry mills, high-speed machining centers, profilers, stack routing machines, fiber placement and tape laying systems, boring mills and vertical turning lathes, grinders, extrusion machining cells, broaching machines, automated drilling units and portable milling machines.
- Services: evolution of new production lines, rebuild/ retrofit of machine tools and other services such as: upgrading, repair, machine health checks, industrial transfer, production support, after-sales, technical assistance and customer support.

### Maintenance

Corrective and preventive maintenance solutions with contracts with performance objectives and maintenance engineering support services.

### Innovative technologies in the global aerospace market

In the USA, the Group delivered two Liné Machines systems for profiling and drilling wing components of the new Boeing 777X in Everett, Washington. In Japan, Fives installed several composite laying systems as part of the Boeing 787 program for Fuji Heavy Industries and Mitsubishi Heavy Industries. In China, Hongdu Aviation (AVIC) renewed its confidence in Fives for the supply of a universal holding fixture - the Liné Machines Flexitool - installed on a Forest-Liné V-Star2 machine. It is the largest universal holding fixture in China. The Group also designed and implemented various machining machines, such as Forest-Liné P2M, the first five-axis robotic portable machining machine, designed for finishing operations on composite wings, which was delivered to Airbus in Spain, the first Forest-Liné Modumill MT double-gear chamfering/turning machine, designed to machine titanium motor parts, the first machining center for hard materials, Forest-Liné Flexiax, and the new T-Bed Giddings&Lewis HBM (Horizontal Boring Mill) boring/chamfering product range. In order to fulfill the specific needs of the defense industry, Fives also designed a six-axis machining machine, the Cincinnati Wing/AutoDrill, which can handle large, complex parts that are extremely long and wide, for the JSF program.

### Group excellence in the industrial equipment, mining and oil industries

Fives is still a major partner based on its advanced technology and expertise in the field. John Deere gave the Group the John Deere Achieving Excellence award for the exceptional quality of its products and services and the company's commitment to its ongoing improvement process.

### Industrial maintenance teams with recognized expertise

In the industrial maintenance sector, Airbus chose Fives to maintain its production, logistical and lubrication resources on its Nantes sites (France), which specializes in manufacturing the center wing boxes of airplane wings, nacelle air inlets, and structural parts





# LINÉ MACHINES ROBOTICS

A ROBOT PLATFORM SPECIALLY DESIGNED TO MAXIMIZE PRODUCTION EFFICIENCY FOR THE CUSTOMER

The launch of the Liné Machines Robotics platform signals an extension of the Fives product range. Robot options will complement conventional machine-tool solutions already supplied to the aerospace, rail and heavy equipment industries.

The Group intends to supply high added-value equipment offering greater reliability, increased productivity and better health and safety conditions. Liné Machines Robotics will offer solutions around seven main processes:

- Milling, trimming and drilling
- Deburring and polishing
- Cleaning and surfacing
- Forming
- Inspection and scanning
- Automation, tooling and part storage
- Peripheral equipment for machine tools

Robotic solutions will be explored in laser, waterjet, shot-peening, scanning, vision and other technologies

## MAIN CUSTOMERS

ADDUP - AIRBUS - AIRCELLE - ALSTOM - AMADA - ARCONIC - AREVA - AUDI - AVIC - BAE SYSTEMS - BEAM - BELL HELICOPTER - BOEING - BOMBARDIER - CAMERON - CATERPILLAR - COMAC DAIMLER - DASSAULT - DCNS - FUJI HEAVY INDUSTRIES - FIAT GM POWERTRAIN - FIGEAC AERO - FORD - GE - GENERAL MOTORS - GETRAG FORD - GKN AEROSPACE - GROUPE PSA - HONEYWELL - HONGDU AVIATION - JOHN DEERE - LOCKHEED MARTIN - MAGELLAN AEROSPACE - MICHELIN - MITSUBISHI HEAVY INDUSTRY - PRATT & WHITNEY - PREMIUM AEROTECH - ROLLS ROYCE - SAAB AERO - SAFRAN - SAGW - SEAT - SKODA - SNCF - SONACA - SPIRIT AEROSYSTEMS - STELIA - TAI - TRIUMPH AEROSTRUCTURES - VALEO - VOLKSWAGEN - WANGXIANG...

made of carbon fiber reinforced plastic (CFRP). This initial contract with Airbus is one of a series of commercial achievements with other aerospace industry players like Ratier Figeac this year, and the Safran group over the past decade.

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

**+ MORE DETAILS**

- Metal Cutting | Composites
- Maintenance

# ALUMINIUM

In the aluminium sector, the significant drop in the cost of energy enabled the majority of producers to remain profitable by maintaining production using smelters at lower costs. The increase in global demand, associated with the increase in the price of aluminium, has changed producers' outlook. In this new context, they have begun to free-up funds to maintain their industrial systems (replacing equipment, servicing) and are also considering new capacity projects.

## Fives, partnering aluminium producers

After modernization projects on two Pot Tending Machines at the Trimet aluminium smelter in Saint-Jean-de-Maurienne (France), Fives won two new contracts from this customer at the same plant. The first involves supplying two tapping assemblies and various accessories, a transfer gantry and retractable bumpers. The machines will be delivered and assembled on-site in 2017, and will be installed in line G of the AP30 potlines, where an extension is ongoing to add a transfer and maintenance hall. The second involves the retrofit of four Pot Tending Machines in line G, which is a complete electrical refit and some mechanical equipment replacement. On-site installation will start in September 2017 and should take approximately a year.



*Fives designs key manufacturing processes and supplies equipment and integrated solutions for the carbon, reduction and casthouse sectors of aluminium smelters.*

## Raw materials

Liquid pitch marine terminal

## Reduction

Gas Treatment Centers (GTC) - Pot Tending Machines (PTM) - Pot equipment - Potroom cranes and transfer systems

## Carbon

Bath processing units - Green Anode Plants - Firing and Control Systems (FCS) for anode baking furnaces - Fume Treatment Centers (FTC) for anode baking furnaces - Carbon butts recycling units - Furnace Tending Assembly (FTA) machines - Anode rodding shops - Anode stacking cranes and anode handling systems

## Casthouse

Holding and melting furnaces - Heat treatment furnaces - Casthouse water cooling systems - Global casthouse solutions

## Pioneering proprietary equipment

In the United Arab Emirates, Fives successfully achieved performance testing of its latest generation Xelios 2.0 vibrocompacting machine, supplied to Emirates Global Aluminium (EGA) as part of the revamping line 2 of their Green Anode Plant in Dubai. The launch of the installation and these performance tests were completed in record time (six weeks) and met all the customer's expectations, in terms of the installation's reliability, its availability and its performance levels alike.

In the United Kingdom, the Group carried out a first casting with the new Genios system, the electromagnetic stirring/moving technology that obtained the Fives Engineered Sustainability® brand for its eco-design approach, and which offers real benefits to the customer in terms of capacity, energy performance and operator safety.

## Fives, local support and expertise

For service, the Group has teams based near customer sites, which are able to manage projects that include design, manufacturing, control and installation. In the United Arab Emirates, Ma'aden Aluminium chose Fives to provide a year-long technical assistance, including the provision of ten technicians to maintain all overhead cranes in Reduction and Carbon sectors. Aluminium Bahrain (Alba) contracted the Group for anode size enlargement at Green Anode Plants 2 and 3, as part of a global creeping project to increase production from 960,000 tons to more than a million tons of aluminium at end 2017.

To consolidate service quality in South Africa, the Group has merged its two service companies, in Johannesburg and Richards Bay, into a single entity, with a single team split between the two sites. This unified organization will enable the teams to offer an overall expertise, as well as a service offer and local fabrication activity for spare-parts and simple sub-assemblies for Solios and ECL™ products.



## XELIOS 2.0

### AN ANODE FORMING SOLUTION WITH ENVIRONMENTAL CREDENTIALS

Xelios 2.0, the latest generation of Fives vibrocompactor, has been designed to meet the new requirements of high amperage electrolysis pots and compensate for the fall in coke quality. It brings increased flexibility and improved process stability, producing high density, defect-free anodes, for better pot behavior.

The Xelios 2.0 includes numerous innovations, such as the double wall mould and cover, and the DynpacRT real-time compaction controller, and is fed by a mobile transfer hopper with top cover and fume collector for optimized fume capture and noise reduction. It was first installed at Emirates Global Aluminium in Dubai in 2016.

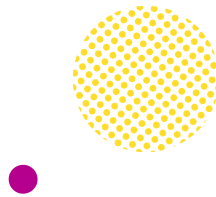
## MAIN CUSTOMERS

ALBA - ALCOA - ALRO - ANGANG STEEL - ANYANG BAOSHUO TAR CHEMICAL - BHP BILLITON - CENTURY ALUMINIUM - CHALCO - EMIRATES GLOBAL ALUMINIUM (EGA) - HINDALCO - HYDRO - MA'ADEN ALUMINIUM - RIO TINTO - RUSAL - SHANXI COKING GROUP - SOHAR ALUMINIUM - VEDANTA...

 [www.fivesgroup.com](http://www.fivesgroup.com)  
**+ MORE DETAILS**  
- Aluminium

# AUTOMOTIVE

In the automotive sector, investment was driven mainly by the dynamic North American market (USA and Mexico), with the overhaul of motors and transmissions for existing models, as well as preparations to launch new models in the coming years. More recently in China, the increase in demand generated a wave of capacity-building programs, by both foreign (mainly German, American and Japanese) and domestic producers. In Western Europe, renovation and modernization programs continued, particularly in the SUV segments and at premium brands car production sites. Only the Russian, Brazilian and Indian markets remained unaffected by this trend.



## Internationally recognized expertise in automation

In Belgium, Audi chose Fives to modify the final line in its electric vehicle assembly shop at its Brussels site. Due to Fives equipment, production increased to a speed of one car per minute.

In the United States, General Motors reasserted its trust in the Group, for the November 2017 supply of an assembly line comprising different sub-assemblies as part of its 10-speed AB1V automatic transmission program. This installation will enable annual production capacity of over 250,000 transmissions.

Fives also achieved a breakthrough in China where, at the end of the year, Shanghai Automobile Gear Works (an SAIC group subsidiary) ordered the supply of a complete CVT transmission assembly line, including testing equipment and washers, for a new plant located in Liuzhou, Guangxi province.

## Fives, the leader in high precision grinding

In 2016, Fives took an order for 24 machines, as part of a three-yearly contract signed with General Motors in 2015, for the design and supply of all crankshaft grinders for the manufacturer's new motor programs, in particular the fifth generation CSS and V8 for trucks. The Group also booked the two first orders in China for the new Giustina RVD double disc vertical grinder, the product of a collaboration between two subsidiaries in Italy and Japan. These orders came from Jiangsu Advanced Engineering Ltd. and NBTM, tier 1 suppliers of automotive components. The machines will produce key parts for reducing emissions from internal combustion engines.

## Pioneering fluid filling and test equipment

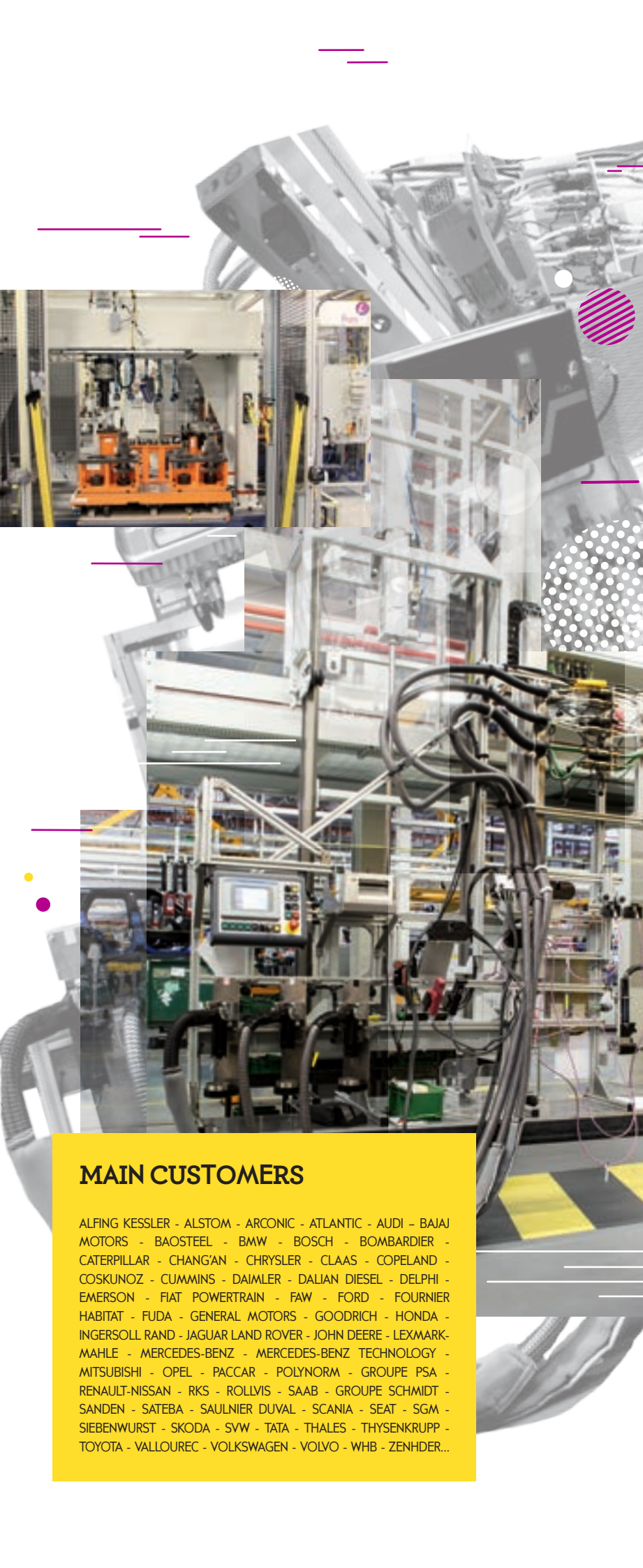
Fives was able to meet Daimler's new "Integra" standards for its suppliers and was chosen by the manufacturer to upgrade all the fluid filling installations at its Düsseldorf production site in Germany. The Fives teams will upgrade the equipment design using specific 3D CAD software for the mechanical elements, as well as other tools for designing the control cabinets and software. It will be an opportunity for Fives to demonstrate its responsiveness and adaptability. Also in 2016, Fives delivered filling lines for HFO refrigerants to several Renault sites in Europe.



## OFFER

*Fives designs, manufactures and installs equipment, machining systems, automated production systems and fluid filling systems primarily for the automotive industry, and related services.*

**Equipment and automated systems with high production rates** for foundry, machining, automation, assembly, integration of industrial processes and production of wooden panels.



# LANDIS-BRYANT GRINDERS

ACCLAIMED BY MANUFACTURERS!

The 2015 acquisition of Bryant Grinder technologies extended Fives' expertise in the field of high-precision industrial grinders for internal and external diameters. It has enabled Fives to expand its Grinding | Ultra Precision offer portfolio in the bearings, transmissions, distribution, fuel system and medical sectors. In buying this technology, the Group also acquired a whole range of after-sales services dedicated to existing Bryant Grinder customers. In the United States, Fives took an order for several high-performance Landis-Bryant UL2 internal grinders; the customer, GMCH at Grand Rapids in Michigan, praised the performance of the machines delivered, which exceeded all expectations.

In 2016, Fives continued to extend its range of grinding technologies with the acquisition of Daisho Seiki Corporation, in Japan.

## MAIN CUSTOMERS

ALFING KESSLER - ALSTOM - ARCONIC - ATLANTIC - AUDI - BAJAJ MOTORS - BAOSTEEL - BMW - BOSCH - BOMBARDIER - CATERPILLAR - CHANG'AN - CHRYSLER - CLAAS - COPELAND - COSKUNOZ - CUMMINS - DAIMLER - DALIAN DIESEL - DELPHI - EMERSON - FIAT POWERTRAIN - FAW - FORD - FOURNIER HABITAT - FUDA - GENERAL MOTORS - GOODRICH - HONDA - INGERSOLL RAND - JAGUAR LAND ROVER - JOHN DEERE - LEXMARK-MAHLE - MERCEDES-BENZ - MERCEDES-BENZ TECHNOLOGY - MITSUBISHI - OPEL - PACCAR - POLYNORM - GROUPE PSA - RENAULT-NISSAN - RKS - ROLLVIS - SAAB - GROUPE SCHMIDT - SANDEN - SATEBA - SAULNIER DUVAL - SCANIA - SEAT - SGM - SIEBENWURST - SKODA - SVW - TATA - THALES - THYSENKRUPP - TOYOTA - VALLOUREC - VOLKSWAGEN - VOLVO - WHB - ZENHDER...



### + MORE DETAILS

- Automation
- Filling | Sealing
- Grinding | Ultra Precision
- Cutting Tools | Abrasives
- Maintenance

# CEMENT AND MINERALS

In the cement sector, there was slight increase in demand; existing capacity utilization rates remained low in many areas worldwide. On the producer side, those subject to a trend market concentration posted rationalization and reduced investment targets. Regional participants that have developed over the past few years in the strongest emerging markets (Central and South America, Southeast Asia, North and Sub-Saharan Africa, the Middle East), faced financing issues due to the fall in commodities prices, especially oil prices. Only a few countries in Africa, the Philippines, Indonesia, Mexico and Colombia continued with capacity investment.

### Expertise in production line supply

In 2016, the Fives teams focused on delivering key contracts in several countries.

For Qatar National Cement Co., Fives installed the two new cement grinding units in the Umm Bab fifth production line, with a daily capacity of 5,000 tons.

In Mexico, Fives started up the first FCB Horomill® in the cement grinding plant of the new 3,300 tpd production line for Cementos Fortaleza SA de CV, which is under construction at their Tula site.

In the Philippines, Republic Cement, part of the CRH-ABOITIZ Group (formerly Lafarge Republic Inc.) completed industrial production tests

of the FCB Horomill® cement grinding plant with a 850,000-ton annual capacity at the Norzagaray site.

In the United States, Fives obtained the acceptance certificate on the Buzzi Unicem raw grinding plant at its Maryneal (Texas) site, which includes an FCB Horomill® grinding mill producing 270 tph of raw meal.

In Brazil, performance tests for the FCB Horomill® 4400 grinding plant - to produce 420 tph of raw meal - were conducted with a system total specific power consumption below 11 kWh/t, to the complete satisfaction of Holcim Brasil SA. These tests followed the commissioning of the kiln No.2 and the inauguration of the new production line at the Barroso site.

### Proprietary technologies with international recognition

The Group boasts an offer of high added-value proprietary equipment, which the teams are constantly upgrading. Fives installed an FCB Rhodax® 4D hematite grinding system at a foundry, replacing several machines as a result of its high reduction coefficient. This equipment helps improve the efficiency of the crushing plant, reduce fine generation and limit dust emissions and the number of maintenance actions. The completion of this project also demonstrates the Group's ability to reduce the environmental impact of its customers' installations, on account of innovative technologies.

Belgian company LHOIST, one of the world's leading producers of lime, renewed its confidence in Fives with an order for an FCB TSV™ Classifier, to increase production at its limestone grinding plant in Poland. Installation of this equipment will increase the capacity of the grinding line, while also improving the quality of finished products.

As part of its project for six clinker burning lines for the Egyptian government, CDI, a subsidiary of Chinese engineering company Sinoma, chose Fives to supply complete combustion systems, including six eco-designed Pillard NOVAFLAM® kiln burners and 24 Pillard PRECAFLAM™ precalcination burners, as well as the hot gas generators, gantries and pump systems.



## OFFER

*The Fives offer covers from design, to turnkey supply and installation of process equipment, grinding plants (cement and minerals) and complete cement plants, and associated services.*

**Process equipment for the cement industry and mineral grinding** (FCB Kiln, FCB Zero-NOx Preca, FCB Preheater, FCB By-pass system, FCB Horomill®, FCB B-mill, FCB Rhodax® 4D, FCB VIF™ Crusher, FCB TSV™ Classifier, FCB Flash dryer, FCB Aerodecantor).

**Engineering and clean combustion systems** for rotary kilns, calcination and drying processes (Pillard NOVAFLAM®, Pillard ROTAFLAM®, Pillard HeatGen System™, etc.).

**Gas treatment equipment** (TGT®, Sonair™ filters and EAD™ dry-scrubbers) for kilns, coolers and mills.



# FCB HOROMILL® GRINDING PLANT

AWARDED THE ENGINEERED  
SUSTAINABILITY® BRAND FOR  
ITS CEMENT APPLICATION

The Engineered Sustainability® brand celebrates Fives technologies that demonstrate the best combination of environmental and operational performance. By combining several items of proprietary equipment such as the FCB Horomill®, the FCB TSV™ Classifier and an FCB Flash dryer or FCB Aerodecantor, the FCB Horomill® cement grinding plant offers unique performances with environmental advantages (high energy efficiency, no need of water addition, additives drying, high flexibility and easy maintenance) for the best final product quality.

The Fives eco-design process involves an in-depth analysis to guarantee the FCB Horomill® grinding plant's performance in terms of energy, water consumption and cement quality, and its positioning compared to other grinding technologies available on the market.



## MAIN CUSTOMERS

ARMSTRONG CEMENT - ARGOS - BUZZI-UNICEM - CDM-CLEAN HARBOR - CEMENTIR - CEMENTOS MOCTEZUMA - CEMEX - CIMPOR - CONCH - CRH - DANGOTE - ELEMENTIA - GICA - HEIDELBERG CEMENT - IMERYS - ITALCEMENTI - LAFARGEHOLCIM - NGHE AN CEMENT CO - OCP - QATAR NATIONAL CEMENT COMPANY - SACCI - SAINT GOBAIN BRYANT - TITAN - VICAT - VINACONEX - VINAINCON - VOTORANTIM...

### Fives, optimizing production lines

Recognized for its expertise and ability to support its customers in upgrading their installations, Fives signed a contract with Vatutinsky Kombinat Vognetryviv, an Imerys plant producing refractory chamotte, to revamp its kiln located at the Cherkassy site in Ukraine.

The contract includes the supply of parts for the kiln mechanical refurbishment, as well as an erection engineering and supervision. Revamping and upgrading the kiln No.1 are part of a productivity improvement project for the installation.

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

**+ MORE DETAILS**

- Cement | Minerals
- Combustion

# ENERGY

## OFFER

*Fives designs and manufactures a variety of industrial equipment for the energy sector, primarily in high-performance industrial combustion systems, tube and production finishing equipment, cryogenics equipment for hydrocarbon processing and air separation and bioenergy and sugar industries. Plus, on the piping solutions segment, the Group is involved in maintenance contracts as well as some new construction projects.*

**Combustion systems** designed for electric and thermal energy production and for industrial processes

**Equipment and complete plants** primarily used in sugar and bioethanol production; advice for optimizing production

**Industrial equipment primarily used in energy production:**

- Brazed aluminium plate-fin heat exchangers (for air separation units, ethylene production or liquified natural gas)
- Cryogenic piston and centrifugal pumps (for air separation units, hydrocarbon production and distribution of any liquified gas)

**High-performance industrial piping:** Engineering, supply, manufacturing and assembly of highly technical piping (new construction or refurbishing).

**Tube and pipe solutions:**

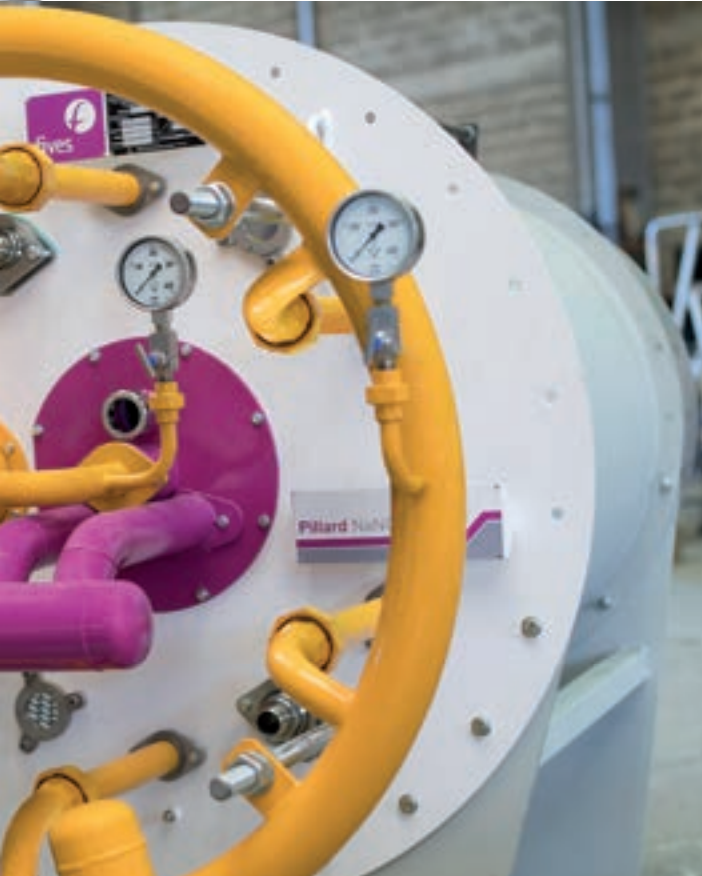
- Production lines: slitting lines, tube mills, finishing lines
- ERW mills and related equipment
- Finishing equipment
- Automation





# COMBUSTION

The market remains greatly affected by low oil prices, reducing the number of new projects in industries exposed to oil exploration and petrochemicals. In Europe, upgrade and compliance activity for boilers has also been reduced to critical investment.



## High performance technologies and internationally recognized expertise

Following the excellent results obtained with the Pillard LONoxFLAM® burners installed on boilers at several sites owned by Paris metropolitan heating operator CPCU (Bercy, Grenelle, Vaugirard and Ivry-sur-Seine) in France, the Bercy site was selected as a pilot for using biofuels. Two of its four boilers have been running with Pillard LONoxFLAM® burners fed with biofuels since May 2016. The excellent emissions results obtained rewarded the Group's efforts on developing eco-friendly solutions. The satisfied customer has decided to switch the burners on two of its Grenelle site boilers to biofuels.

In the US, Cliffs Natural Resources, located in northern Minnesota, chose the Group to supply a new combustion system for its Mustang Pellet project. Once the project is commissioned, the ore pellets produced will feed the largest ArcelorMittal furnace in the United States.

In the United Arab Emirates, ITAS flare technology was chosen by the Abu Dhabi Company for Onshore Petroleum Operations Ltd (ADCO) for its oil extraction development program. Fives is supplying 28 units.

In South Korea, 38 North American regenerative burners were fitted to forge furnaces at a plant owned by Hyundai. A major electronics company was very satisfied with the results obtained by Pillard NANOxFLAM® burners fitted to its boilers. NOx emissions are 25% down on those recorded with burners recognized as the Best Available Technique by the European Best Available Techniques reference documents. The Pillard NANOxFLAM® is already listed as the Best Emerging Technique. This success has enabled Fives to take new orders and presents a promising outlook for future projects.

Finally, the year was also marked by the launch of North American Total Care, the new local support and services unit dedicated to maintaining combustion systems for steel and aluminium producers.

## MAIN CUSTOMERS

ADGAS - ADM - AIR LIQUIDE - AK STEEL - ALBEMARLE - ALERIS - ALFA LAVAL - GE POWER - ARAMCO - AREVA - ARKEMA - BAOSTEEL - CERREY - CHEVRON TEXACO - CMI - CNIM - DALKIA - DOOSAN - EDF - ELLWOOD GROUP - ENFAB - ENGIE - ENGIE COFELY - ENI - ERAMET - ESSAR - ESYS - EXXON MOBIL - HYUNDAI HEAVY INDUSTRIES - KOBESTEEL - KWB - LINDE - MAPNA GROUP - METSO - MICHELIN - NATIONAL GYPSUM - NEMAK ALUMINIUM - NEREFECO - NOOTER ERIKSEN - NOVELIS - OUTOTEC - OWENS CORNING - PETROFAC - PROSERMAT - SAIPEM - SAMARCO - SAMSUNG - SNECMA MOTORS - SOLVAY - RENAULT - TATA - TECHNIP - TECNIMONT - TEREOS - TESORO - THERMAX - TOTAL - VALE - US STEEL...



## + MORE DETAILS

- Combustion
- Cryogenics | Energy
- Piping Solutions
- Sugar | Bioenergy
- Tube and Pipe

# ENERGY

## SUGAR AND BIOENERGY

Drought conditions affecting several major sugar-producing regions (China, India and Thailand) reduced supply encouraging consumption of stocks from previous year. After a low point in the middle of 2015, the price of sugar has increased sharply in 2016, encouraging renewed investment in the sector.



### High performance equipment, proven and internationally recognized expertise

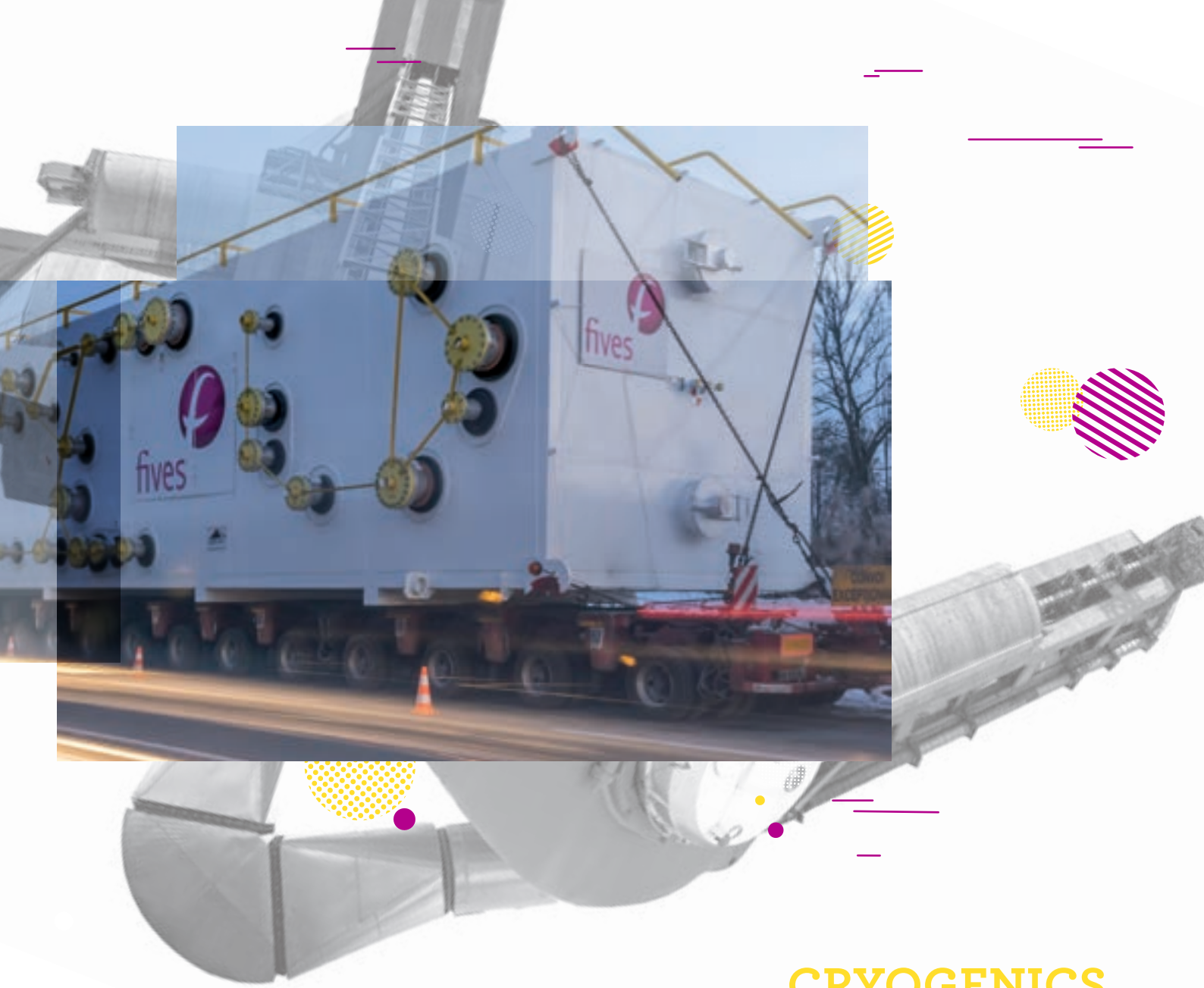
Adding a new chapter to its collaboration with Tereos, a world leader in the sugar industry, Fives has again demonstrated its ability to adapt to the customers' needs. The Group designed a new "100% stainless steel" (including the parts not in contact with the sugar) version of its Cail&Fletcher ZUKA® batch centrifugal for Tereos' Chevrières site in the Oise region of northern France. The highly satisfied customer then ordered five more for their plant in Escaudœuvres (Nord department). Tereos also worked with Fives Sugar Consulting to optimize the latter site's performance and improve its productivity.

With in-depth expertise in the full sugar process, and a wide range of adapted tools, including the proprietary BEMEIO™ simulation system they have developed, the Fives teams created a 3D model of the entire plant, and the crystallization process in particular, to reach recommendations for changes to operating systems to help maximize revenues.

In Tanzania, the Group carried out successful commissioning of a falling film evaporator at the Tanganyika Planting Company (TPC, a subsidiary of the Alteo group, a regional player in sugar cane production and renewable energy). With this new equipment, TPC, which has consistently increased capacity over the past fifteen years, will be able to produce an additional 100,000 tons.

### MAIN CUSTOMERS

AB SUGAR - BUNGE - COSUMAR - CRISTAL UNION - ETHIOPIAN SUGAR CORP. - GRUPO GLORIA - GUARANI - INCAUCA - LEDESMA - LOUIS DREYFUS COMODITIES - MITR PHOL - PANTALEON - PRODIMEX - PT SUNGAI BUDI - RAIZEN - SAINTLOUIS SUCRE / SUDZUCKER - SIPH - SOMDIAA - SUCDEN - TEREOS - WEST KENYA SUGAR - WILMAR...



## CRYOGENICS

In cryogenics, activities associated with gas, coal and hydrocarbon processing remained heavily impacted by the weakness in oil prices, whereas in the air separation segment, the main players continued deploying major projects initiated in 2015.

### Recognized expertise, worldwide presence

In this downturn market of hydrocarbon, Fives has nevertheless managed in 2016 to secure major orders in China with several contracts in Shanxi province and established a new partnership in the USA with UOP Russell LLC for the gas treatment industry.

Additionally, the Group successfully entered the mid-scale market for cold boxes in the hydrocarbon market, when it was selected by the South Korean engineering firm GS for a gas treatment project at the Liwa site in Saudi Arabia. This size of cold box represents a promising strategic market for Fives' commercial expansion.

On the air separation side, Fives successfully delivered the three major projects awarded in 2015 for Air Liquide Sasol project in South Africa, Air Products Jazan project for Saudi Arabia and Praxair CNOOC project in China.

### MAIN CUSTOMERS

ADNOC - AIR LIQUIDE - AIR PRODUCTS - ARAMCO - CB&I LUMMUS - CRYOGENMASH - DAELIM - DOW CHEMICAL - ENTERPRISE - EXXONMOBIL - GAIL - GS E&C - HANGYANG - HYUNDAI - INEOS - JGC - KAIFENG - KBR - KPIC - LG - LOTTE - LYONDELLBASELL - OPD - ORPIC - PETROCHINA - POSCO - PRAXAIR - QATARGAS - RELIANCE - S&B - SABIC - SAIPEM - SAMSUNG - SASOL - SHELL - SIAD M.I. - SK E&C - TECHNIP - TOTAL - TOYO E.C. - WARTSILA...



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

### + MORE DETAILS

- Combustion
- Cryogenics | Energy
- Piping Solutions
- Sugar | Bioenergy
- Tube and Pipe

# ENERGY

## INDUSTRIAL PIPING

The 2016 market in high-performance industrial piping was impacted by limited new works in France, where activity is mainly driven by the EPR construction at Flamanville. Nuclear maintenance activity was better sustained, and chiefly linked to EDF's "major refit" program.



### Fives, partner of choice for the French energy industry

In the nuclear piping sector, Fives and its piping design consortium partners Endel, Bocard, and SOM were awarded the design framework contract covering dimensioning studies and piping production for the entire French nuclear capacity by DIDPE. The request for proposals was Europe-wide and Fives and partners won the award for the fourth time running. DIDPE is the EDF division which is responsible for engineering on the nuclear portion of power plants (reactor building and nuclear island), as well as preparing for and carrying out heavy maintenance work on the major nuclear components. The fact that EDF has once again chosen the consortium confirms the quality of the work done by its teams since 1999. EDF also placed eight "pipe supports" orders with the Group. These contracts are to run from 2017 to 2019 and involve checking pipe supports and carrying out minor repairs.

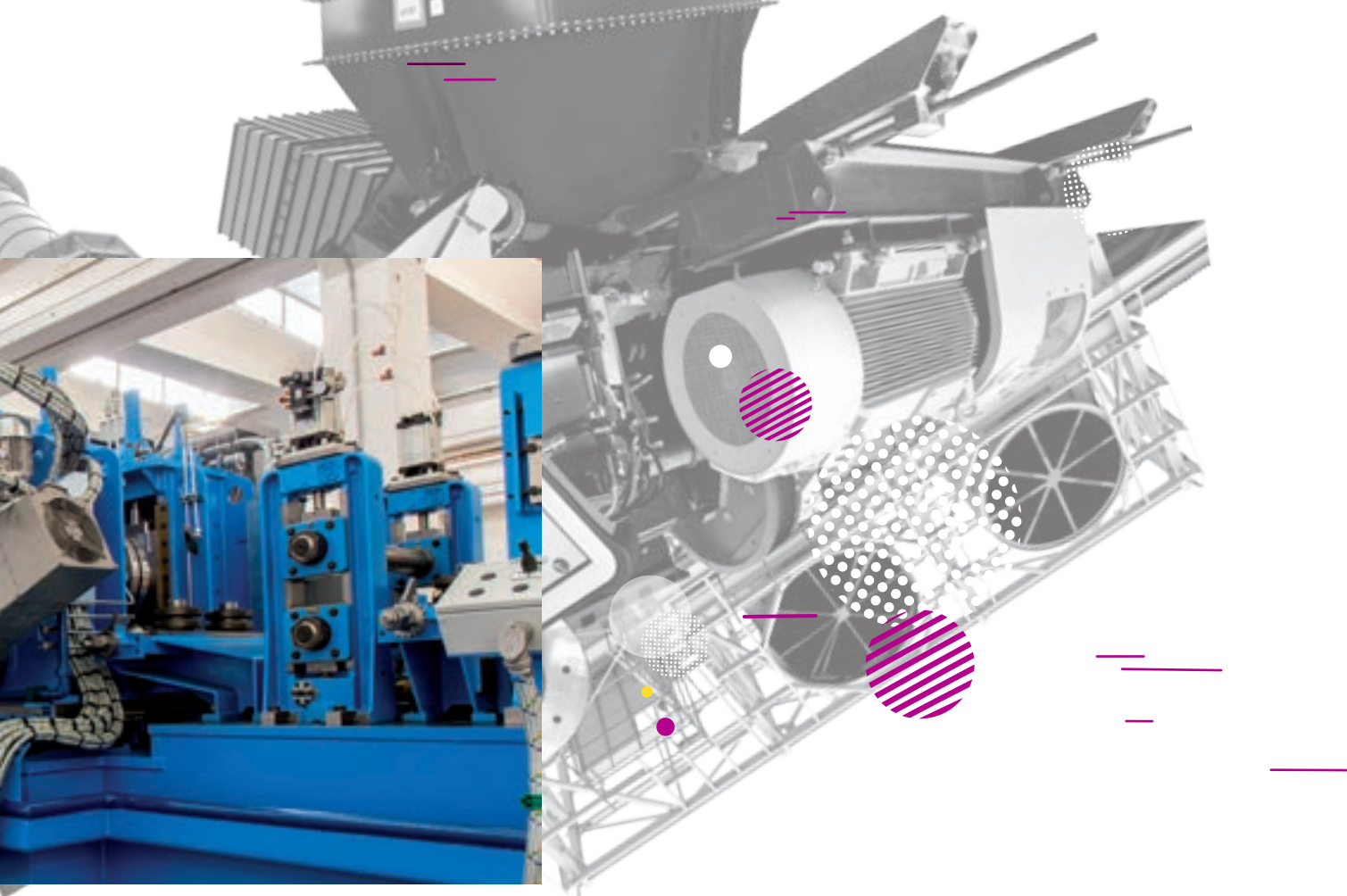
Fives has also strengthened its position in the gas transportation sector with works to modernize a certain number of switching or delivery stations for TIGF and GRTgaz in France. The latter also placed a new order with the Group to modernize its switching station in Laprade.

### Expertise serving diversification

Fives' efforts to diversify met particular success in the chemicals, aerospace and paper sectors. For Borealis in Ottmarsheim, Fives successfully completed a project including supplying four collectors for a reforming furnace at an ammonia production facility. The Group also supplied and assembled expansion joints for the Grandpuits site. As part of the development of France's Ariane space program, the Group successfully completed the renovation of the "fluids" lot on testing bench PF 52 for ArianeGroup (formerly Airbus Safran Launchers). This high precision project occupied teams for two years and was an opportunity to demonstrate their expertise in delivering this sort of installation, in the extremely demanding context of the aerospace industry. Finally, Fives carried out metal framework and stainless-steel piping work for the Tembec papermill's Blow Tank project. Successful completion of the project earned A and B scores for deadline, quality and safety criteria.

### MAIN CUSTOMERS

AIRBUS - AREVA - ARKEMA - BOREALIS - CEPESA - CNPEC - DRT - EDF - ESSAR - GENERAL ELECTRIC - GRTGAZ - HEEREMA - MICHELIN - MEKONG ENERGY COMPANY - PETROINEOS - SAFRAN - STX - TEMBEC - TIGF - TOTAL - WESTINGHOUSE.



## TUBE AND PIPE SOLUTIONS

The world market in tube production shrank by 5% in 2016, to around 120 million tons. This fall is chiefly attributed to reduced activity in the United States, reflecting weak drilling figures. This is the same scenario in China where several production plants closed. However, this trend was balanced by equipment demand for the automotive, machinery and constructions industries.

### Benchmark technologies preferred all over the world

Worldwide, Fives is recognized for the quality and performance of its technical solutions for welded tube production lines and finishing equipment, through their Abbey, Bronx, OTO and Taylor-Wilson legacy names.

In Turkey, Fives carried out successful commissioning of three welded tube production lines for Tosçelik, at its Dilovası plant, bringing the number of lines installed for this manufacturer to 24 in five years.

In Mexico, the Group also supplied two tube lines to the largest regional producer, Perfiles y Herrerías, as well as to the Prolamsa Group, parent company to long-time American customer Axis.

In Italy, stainless steel tube manufacturer Iltax Inox (Arvedi Group) confirmed its confidence in the Group with an order for a new packaging system. Padana Tubi also chose Fives technologies for four orders for production lines making carbon steel and stainless-steel tubes.

### MAIN CUSTOMERS

ALCOA - BAOSTEEL - BORUSAN - EVRAZ - FUNDIA - GERDAU - GRUPPO ARVEDI - HYUNDAI - JINDAL STEEL&POWER - MARCEGAGLIA - MARUICHI STEEL TUBE - NEXTEEL - OMK - PADANA TUBI - POSCO - PROLAMSA - SEVERSTAL - SHOUGANG GROUP - STEEL DYNAMICS - SUMITOMO CORPORATION - TATA STEEL - TENARIS - TMK - TOSÇELİK - USIMINAS - U.S. STEEL - VALLOUREC - WEBCO - WUHAN IRON AND STEEL - YUSCO METAL - ZEKELMAN INDUSTRIES...

In India, APL Apollo confirmed the order for engineering and supply of two hollow shape universal forming mills (OTO HSU).

The Group also took several orders to supply finishing equipment to Canadian, French and Japanese producers.



### + MORE DETAILS

- Combustion
- Cryogenics | Energy
- Piping Solutions
- Sugar | Bioenergy
- Tube and Pipe

# GLASS

The recovery in the flat glass market begun in 2015, and continued in 2016. Recovery in the sale price of glass, driven by activity in the construction and automotive markets, saw investment picking up again and existing lines renovated across all five continents, including Europe where lines that had been shut down were restarted, and new lines were constructed.

In the specialty glass industry, producers continued to renovate their installations, choosing technologies with high energy and environmental performances.

### Setting the standard for technology, an upgraded equipment offer

In response to its customers, Fives has designed a set of solutions to meet the demands of high-end flat glass production for the automotive industry and electronic applications. Fives has also upgraded its entire range of bath equipment, to offer competitive, high performance solutions that several major producers (Cardinal Float Glass, Schott, AGC, Saint-Gobain) have chosen when renovating their existing lines.

In the specialty glass sector, Fives is the go-to supplier for forehearths and electric heating equipment, known for their performance and reliability. This equipment has also been upgraded to provide higher flexibility and environmental performance. Several installations implementing the new Prium® PlanarTek high-yield combustion technology and new Prium® VariCool electrode holder have been put into service at a major customer in Poland.

### Fives serving glassmakers' performance

With its high added-value technologies and installation expertise, Fives has helped improve the performance of production lines for numerous glassmakers. In Turkey, for Düzce Cam, the Group started up a float glass production line, with a capacity of 800 tons per day. The design of the furnace supplied by the Group enables energy savings of up to 20% in comparison to conventional technologies. The furnace is also equipped with a fully digital control system for production optimization, which offers a complete overview of the glass manufacturing process. In the United States, Fives assisted Fuyao Glass America produce defect-free high-end glass, supplying a Prium® Lehr annealing system. Fuyao in China is a long-time Group customer. Fives was also chosen by the Xinyi Group for a major production project in Malaysia, to supply nine flat glass lehrs with capacity of 1,200 tpd and eight solar glass lehrs - the Prium® Lehr PVG - with capacity of 250 tpd. In Italy, for Luigi Bormioli, a leading producer of glassware and perfume flasks, the Group put a fully electrical furnace into service: the Prium® E-melt CTVM. This equipment features an integrated steel cooling system to improve glass melting performance and reduce refractory wear rates.

### Service: recognized expertise

The expertise of Fives teams, and their local presence near the customer, was the motivation for choosing the Group to increase capacity at the Luigi Bormioli electric furnace in Parma, Italy, in partnership with the University of Milan. The Group also carried out furnace repair work for Pittsburgh Corning in the Czech Republic; pre-engineering for rebuilding and to improve environmental performance of a sodium silicate furnace for Solvay, in Livorno, Italy; and waste processing for a borosilicate furnace for SGD in France. Euroglas, in France, chose Fives to modify several equipment items on its melting furnace.



## OFFER

*Fives provides specialty glass and flat glass production lines, equipment and associated services.*

### Thermal equipment and production lines for:

- automotive, architectural, solar and ultra-thin glass: melting furnaces, tin baths and annealing lehrs
- specialty glass (fiber, cosmetic, pharmaceutical, etc.): melting furnaces, conditioning equipment, feeders, boosting and ancillary equipment.



# PRIUM® PLANARTEK

THE INNOVATIVE COMBUSTION  
SYSTEM FOR BETTER THERMAL  
CONSISTENCY

A new and innovative approach for Working Ends and Forehearths, the Prium® PlanarTek combustion system is designed to meet specialty glass producers' requirements. Combined with the Fives patented flat flame burner block, it improves glass conditioning performance, with reduced gas consumption. It can be readily integrated with a customized heat recovery system to further increase energy and operational efficiencies.

## MAIN CUSTOMERS

ASAHI GLASS COMPANY - BA GLASS - CARDINAL FLOAT GLASS - CHINA SOUTHERN GLASS - CHINA YAOHUA GLASS GROUP - DÜZCE CAM - EUROGLAS - EUROFLOAT - FUYAO GROUP - GUARDIAN INDUSTRIES - INTERNATIONAL COOKWARE - KCC - LG CHEM - LUIGI BORMIOLI - NIPPON SHEET GLASS - OBĚKAN GLASS CO. - PITTSBURGH CORNING EUROPE - SAINT-GOBAIN - SCHOTT - SGD - SOLVAY - SWAROVSKI - TAIWAN GLASS - VALMIERAS - VIVIX - XINYI...


[www.fivesgroup.com](http://www.fivesgroup.com)  
**+ MORE DETAILS**  
 - Glass

# LOGISTICS

The market continues to grow at an exceptional pace, driven by the expansion of e-commerce, with handling and throughput management constraints supporting demand for sorting center automation. In Europe, Japan, South Korea, North America and Australia, large numbers of capacity-building or modernization programs have been launched by courier companies. They are investing in hubs of all sizes around major cities, and near national postal services that rely on their capillary networks to serve remote areas. The distribution market is also increasingly active in Japan and Western Europe, where numerous operators are starting to automate their warehouses.

## **Fives, unmatched global player in express courier and postal services**

In South Korea, LG CNS chose Fives to build an entirely new giant logistics terminal in Gwanju for CJ Korea Express, the country's leading express courier service. The Fives solution features seven cross-belt sorting loops for 4,400 meters long, with 56 injection lines for nearly 3,000 destinations in total. The mechanical installation services and slide plates for chutes were designed to handle parcels and packages weighing up to 50 kg. Once it is started up in June 2018, the system will offer the customer sorting throughput up to 162,000 items per day. This new contract for the Gwanju site follows the 2013 completion of three cross-belts sorters for CJ Korea Express' Daejeon, Sangnok and Gwanak terminals. It confirms customers' trust in Fives' cross-belt technology, as well as the Group's ability to provide support as a full partner for their large-scale projects.

## **OFFER**

*Fives designs automated sorting systems for logistics, express parcel, postal and distribution companies*

**Design and installation of tailor-made logistics solutions** based on proprietary technologies, such as high-speed cross-belt sorters, shoe sorters, flat belt sorters, parcel singulators, pushers and diverters, as well as computerized order fulfillment and robotics solutions

**Design of customized software solutions (realtime, destination servers, WCS, SCADA, etc.)**

**Customer service, such as system maintenance, 24/7 hotline support, preventive maintenance, full maintenance, as well as retrofit and system upgrades**

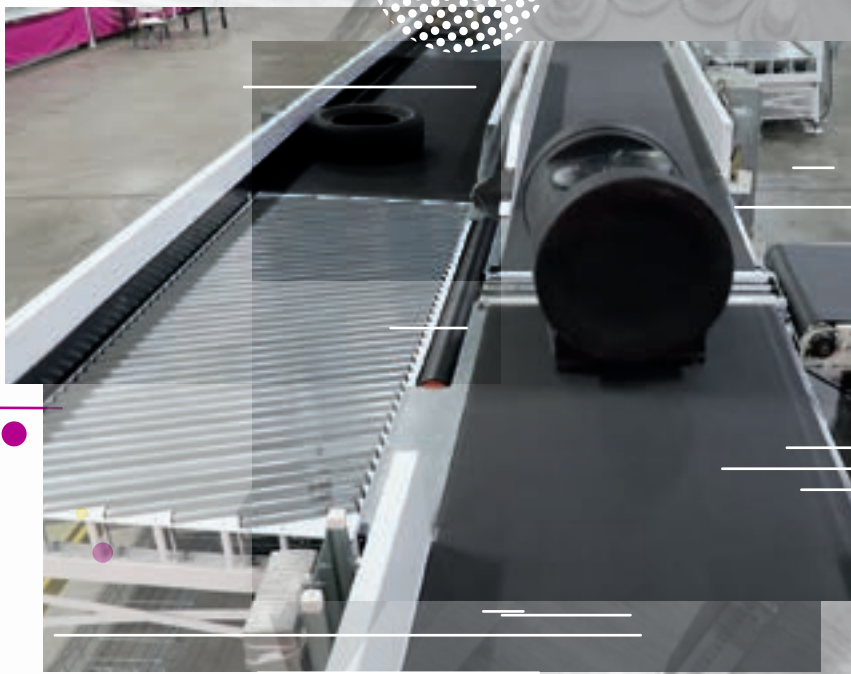
In the United Kingdom, TNT is continuing its two decades of partnership with Fives with a contract for the automation for its new Dartford site (England). The solution designed by the Group includes a cross-belt sorter with four induction lines, to sort parcels weighing up to 50 kg to 79 destinations. Once operational, the system will enable TNT to sort up to 11,000 packages per hour.

PostNord selected Fives to automate the Herning and Aarhus postal terminals in Denmark, and to supply a sorting system in Trondheim, Norway, for parcels and large letters. These new orders for key sorting systems highlight the confidence this long-time customer has in the proven performance and reliability of Fives cross-belt technology, installed in the region's sorting centers for over twenty years. Fives will also renovate the sorting systems at postal centers in Göteborg and Malmö in Sweden, to help PostNord identify the critical components of the systems to upgrade. The two centers are currently equipped with cross-belt sorters supplied by Fives in 1996, which are still sorting small packages ranging from 50 g to 10 kg, with a maximum throughput of 10,000 items per hour. Their lifespan will be extended by five to ten years.

In China, the leader in this rapidly developing sector has chosen the Group to automate two sorting centers processing packages, boxes and plastic bags, at sites located in Beijing and near Shanghai.

In 2016, the Fives teams also commissioned several high-speed automated sorting platforms for long-time customers in Japan and South Korea. In Australia, the Group delivered a third sorting hub to the Toll Group, for its South Sydney site. Equipped with a cross-belt for processing small packages and parcels, this center gives the customer sorting capacity of 16,000 items per hour to 341 destinations. In Italy, Fives delivered its first eco-designed cross-belt sorter, the GENI-Belt™, for a leading express courier company's airport hub.






## GENI-FLEX®

### THE NEW SORTER FOR NON-COMPATIBLES

The GENI-Flex® - a new system for automated sorting in courier and distribution centers - meets operators' growing need to handle non-compatible objects, which are too large, too heavy or an unusual shape.

The GENI-Flex® automates handling of items up to 2.5 m long and weighing up to 70 kg. Despite its small footprint, it can sort 95% of non-compatibles at high speed and in complete safety. The flexible GENI-Flex® is available in uni- and bi-directional configurations.

## MAIN CUSTOMERS

AEROPORTS DE PARIS - ARATA - BENETTON - BCS - CANADA - POST CORPORATION - CANPAR - CHRONOPOST - C-LOG - CORREOS - COLIPOSTE - DECATHLON - DEUTSCHE POST DHL - EURODEP - FEDEX - FEDEX GROUND - FUKUYAMA - GEODIS - GLS ENTERPRISE - INTERMARCHÉ - JP SERVICE- KOREAN EXPRESS - LA POSTE - LDLC - LECLERC - MANGO - MICHELIN - MNG KARGO - NIPPON EXPRESS - OCP - OMNIVA - PIXMANIA - POCZTA POLSKA - POSTNORD - PUROLATOR - SAGAWA - SAMMY - SCACHAP - SCHENKER AB - SEA MALPENSA AIRPORT - SEINO - SLOVENIA POST - SNATT LOGISTICA - SODIS - SOMFY - SONEPAR - STIHL - SYSTEM LOGISTICS - TOLL IPEC - TEMPO ONE - TNT EXPRESS - UNITED AIRLINES - UPS - USPS - VIAPOST - YAMATO...

**In the distribution and e-commerce sector,** Fives also remains a key supplier, recognized for its technologies and expertise. The Group continues to develop solutions for a major online retail company. Fiducial (an office equipment supplier) also chose Fives to replace an existing order fulfilment system, without a shut-down of the operation. The solution provided by the Group includes the WCS Trace® tool developed by Fives for controlling automated systems.

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

**+ MORE DETAILS**

- Intralogistics
- Maintenance

# STEEL

The steel market is still being affected by structural overcapacity. Few significant projects have materialized, including in China, the leading global producer. However, a number of technological niches, linked to producing high added-value steel, and geographical openings (particularly in India, the US and Russia) have offered and will continue to offer opportunities.

## Flat steel: Fives, designing high-end steel processing lines

The Group's recognized expertise in the design and supply of high-end equipment and project management, which has enabled it to produce close to fifty strip treatment lines and cold rolling mills for stainless steel plants over the past two decades, convinced the Chinese producer Foshan Chendge Stainless Steel Co., Ltd. to select Fives to build its new cold annealing and pickling line. This new line, featuring proprietary Group technologies such as an annealing furnace and the DMS SkinPass 2Hi in-line

rolling mill, has an annual capacity of 500,000 tons and will produce stainless steel for a range of applications, including construction, machinery, the automotive industry, household appliances, medical equipment, chemical storage tanks, high-speed train rails, and aviation. The line is scheduled to start-up before end 2017.

Shanghai STAL Precision Stainless Steel (China), already a Group customer, reaffirmed its confidence with an order for a DMS 20Hi cold rolling mill, capable of rolling strips down to thicknesses of 0.040 mm, destined for high-end applications, such as smartphones and tablet computers.

Shougang Jingtang United Iron & Steel Co., Ltd. commissioned a Stein Digiflex® vertical annealing furnace, with an annual capacity of 430,000 tons, intended for tin plate production for use in the food packaging industry at its Caofeidian plant in Hebei province. The furnace, which features Fives' latest technologies, the FlashCooling® rapid cooling system and the AdvanTek® combustion system, was installed on tin plate annealing line No.3, one of the fastest in the world, with strip production speeds of 750 mpm. It is the fifth Fives continuous annealing furnace to be operated on the site by Shougang Jingtang, which is highly satisfied with the performances observed.

Also in China, two complete continuous galvanizing lines for producing a wide range of high added-value steels for the automotive industry, as well as furnaces for two annealing lines were started up on the Baotou site, in Inner Mongolia. In February, the first hot coil was also successfully produced on the continuous annealing line of Baosteel Zhanjiang steel plant. The Group has also processed its first rolled coil on the new continuous annealing line for Guangxi Steel (Wisco). This complete line includes the latest technology and equipment developed by Fives, including an electrolytic degreasing section involving a series of chemical processes, followed by mechanical and electrolytic processes to guarantee the high required levels of cleanness, a Stein Digiflex® vertical furnace equipped with the AdvanTek® combustion system and FlashCooling® technology, a DMS SkinPass 6Hi mill, complete terminal equipment and a double scrap press.



## OFFER

*The Fives global offer to steel producers meets several needs: providing process expertise and operational support to optimize performance (costs and product quality), developing breakthrough technologies to meet the new needs and new applications of the steel market, and in particular high value-added steel grades.*

The global offer covers carbon, stainless and silicon sectors in long and flat products, as well as tube and pipe, including complete solutions for strip processing, reheating and rolling:

- Metallurgical and technological process expertise
- Design and supply of strip processing lines and reheating furnaces
- Thermal and mechanical technologies and proprietary equipment (furnaces, rapid cooling systems, cold rolling mills, etc.)
- Induction heating
- Surface treatment solutions
- Long product straighteners
- Automation systems
- Full range of services: cost optimization, upgrade, training, operation and maintenance assistance, etc.



## NEOKOIL®

AFFORDABLE CAPEX,  
ULTIMATE OPEX

Fives registered a new brand NeoKoil® for its strip processing lines for carbon, stainless and silicon steel. Among recent installations: two complete continuous galvanizing lines, each of 417,000 tons annual capacity to produce a wide range of exposed and non-exposed steel coils for Baotou Iron and Steel Group (BISG) in China. The complete continuous annealing line with an annual capacity of 930,000 tons and two continuous galvanizing lines with an annual capacity of 870,000 tons in total to produce advanced high strength steels are in the commissioning phase at the Fangchenggang plant of Guangxi Iron & Steel Group Co., part of WISCO group (China).

## MAIN CUSTOMERS

ACERINOX GROUP - AK STEEL - ALCOA - ATI - BAOSTEEL - BAOTOU - BEHAI CHENGDE - BENXI IRON&STEEL - BLUESCOPE STEEL - BORÇELIK - CSN - ERDEMIR - ESSAR STEEL - EVRAZ - GERDAU - ISDEMIR - JINDAL STEEL - JISCO - LUSOSIDER - MARCEGAGLIA - MASTEEL - NLMK - NORTH AMERICAN STAINLESS - NUCOR - OMK - OUTOKUMPU - POSCO - SAIL - SALZGITTER - SEVERSTAL - SHOUGANG JINGTANG - SWSS - TATA STEEL - TENARIS - THAINOX - TISCO - THYSSENKRUPP - USIMINAS - US STEEL - VALLOUREC - VAMA - VOESTALPINE - WUHAN IRON&STEEL - YUSCO

### High added-value solutions for reconstruction and modernization

The Group has worked alongside European steel makers whose goal is to modernize their plants in the months and years to come. The reconstructions undertaken are focused on reducing energy consumption, improving quality, both for hot and cold rolling, as well as increased production. Fives has implemented both thermal and mechanical solutions to meet customer needs, in Finland, the Netherlands, Spain, Portugal, Romania and France.

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

### + MORE DETAILS

- Steel
- Induction
- Manufacturing



# OUR COMMIT



# MENTS

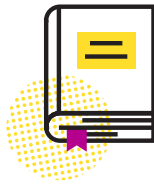
- 52 Fives, a responsible group
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# A RESPONSIBLE GROUP

The Group's corporate social responsibility program reflects its determination in relation to Ethics, Energy and environmental performance, Health & Safety and Human resources.

## ETHICS

**97%** of Group companies distributed the Code of conduct to their employees



## HUMAN RESOURCES

**16%** women  
**39%** of women are engineers and managers



**73%** of employees attended a training course during the year

## HEALTH & SAFETY

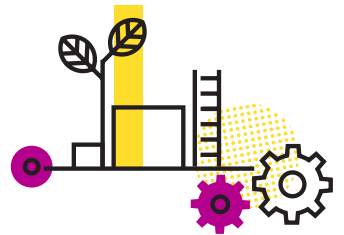
**4.26** The 2016 accident frequency rate



## ENERGY AND ENVIRONMENTAL PERFORMANCE

**10** products earned the Engineered Sustainability® brand in 2016

**73%** of industrial sites were ISO 14001-certified



## RATING



**TOP 2%** of the EcoVadis panel with a score of 71 out of 100, representing a 13 points increase since 2012. This assessment has four sections: Environment - Labor practices - Business ethics - Sustainable procurement



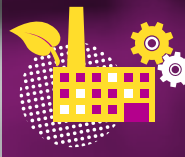
[www.fivesgroup.com](http://www.fivesgroup.com)

### + MORE DETAILS

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# 4 COMMITMENTS



**ENVIRONMENT**  
Minimizing the environmental footprint of Fives and its customers



**ECONOMICS**  
Promoting fair practices in the marketplace



**WORKFORCE**  
Providing a safe and motivating working environment



**GOVERNANCE**  
Incorporating CSR priorities into the organization of all Fives entities

The Fives corporate social responsibility program consolidates the Group's past work, in particular around human resources and innovation. It is also investigating and structuring new avenues of intervention and coordination (health and safety, environment, ethics, etc.), reflecting Fives' ambitions in these areas.

## KEY STEPS

**2008** Launch a structured Corporate Social Responsibility (CSR) program

**2011** Voluntary decision to publish the first Annual and CSR report

**2012** Creation of the Engineered Sustainability® eco-design program and launch of Fives' ISO 14001 process for industrial sites

**2013** Commitment to an accident frequency rate below 4 in 2016 and to developing a strong safety culture.

**2015** Business Ethics program enhanced

**2016** Group Safety Golden Rules deployed.

### THE UNITED NATIONS GLOBAL COMPACT

In 2011, Fives became an official signatory of the United Nations Global Compact, affirming its membership in a global business community that believes in respect for Human Rights, workplace standards, the environment and anti-corruption.



**Frédéric Sanchez,**  
Chairman of the Executive Board

**WE MUST ACT WITH SOCIAL AND CIVIC RESPONSIBILITY EVERYWHERE IN THE WORLD AND IN ALL OUR ACTIVITIES. THE UNITED NATIONS GLOBAL COMPACT IS A GOOD WAY TO REGULARLY REASSESS THIS COMMITMENT AND PROVIDE OFFICIAL ACCOUNTABILITY FOR OUR ACTIONS.**

# THE INTERNATIONAL CHALLENGE

International development is part of the history of the Group, which has on an ongoing basis, been able to assimilate changes in regulations worldwide.

**Stefano Olcese,**  
Head of the Tube and Pipe Business Line

**WE HAVE INVESTED TIME AND ENERGY TO TURN THIS STRINGENT CONTEXT AS AN OPPORTUNITY FOR OUR ORGANIZATION.**

## Business Ethics: establishing a climate of trust

Given the number of countries where Fives has facilities and operates, the anti-corruption mechanism implemented by the Group is based on two main approaches:

- deploying a full set of rules and tools;
- risk analysis with the operatives involved for all activity divisions, taking specific exposure factors into consideration for each of the entities.

On this basis, action plans are defined per subsidiary, with particular attention paid to the role of intermediaries.

However, beyond the written rules distributed throughout the organization for several years, it is the trust in the actors and their empowerment, together with a culture of transparency, that are the sole guarantee of the system's proper operation. For the tools provided to the subsidiaries to be effective, it is essential that the Business Ethics message is reinforced at every level.

## New risks for export

For several years, rapid changes in geopolitical context have imposed particular vigilance on all organizations when it comes to export rules. Within the Fives group, a network of actors has been established to ensure information about decisions affecting export rule compliance is fed back to the teams involved (legal, project finance, customs and logistics).

## Sharing culture and practice across the whole Group

A product of the Group's experience and an expression of Fives' policies in all its areas of activity, the Directives and Guidelines Manual is the common framework for all Fives subsidiaries. The directives clarify the Group's fundamental rules, such as the Code of conduct for employees, which is increasingly the subject of presentations at the subsidiaries. The increased role in the organization for the activities divisions will involve an update to the Directives Manual in 2017.







## CONSIDER EACH LOCAL LEGAL CONTEXT AS AN OPPORTUNITY

Italy has implemented a specific regulatory framework concerning the prevention of Corruption, the Legislative Decree No. 231 of June 8<sup>th</sup>, 2001. It states that a company cannot be held liable if, prior to the crime being committed, it has adopted and effectively implemented organizational, management and control models. Fives is encouraging its Italian subsidiaries to go down this path that allows them to comply with the Fives expectations and demonstrate pro-activity in the field of Business Ethics.

## KEY FIGURE

**97%** of Group companies distributed the Code of conduct to their employees

# DIALOG, DEVELOPMENT AND DIVERSITY

A human resources policy to support employees throughout their career.

## Dialog and action

In 2016, Fives continued the actions initiated in 2015 following the satisfaction survey conducted with its employees all over the world. In the United States for example, the emphasis was on improved internal communication: more frequent information meetings are held with all the sites, and local surveys implemented for regular follow-up to the teams' input.

## Track and develop skills

With the CEDRE career management committees, Fives tracks the development of its employees in all geographical regions. The number of employees benefiting from a CEDRE review continues to grow, with an increase of 40% since 2010. Fives is also prioritizing training to develop its teams' technical and managerial skills: more than 70% of employees underwent training in 2016, and the three training programs for managers within the Fives Leadership Factory are in place worldwide.

## Promote diversity

In France, Fives promotes local development, in particular through vocational integration and support for young people. Fives has partnered with the "Nos Quartiers ont des Talents" (NQT) association since 2015, making a commitment to this innovative initiative where experienced managers and business leaders mentor young graduates under 30. As a result of this support, nearly 70% of the young graduates were recruited in under six months to a long-term post that matched their qualification. In 2016, there were more than 30 Fives mentors in France.

In the US, Fives has for many years been a partner of United Way Worldwide, a long-standing American NGO that works in more than 40 countries to provide access to education, employment and healthcare.



## SOCIAL BENEFITS

In 2016, the social benefit development policy saw concrete results, with death cover introduced in India and improved healthcare cost coverage in China. Fives also launched a telemedicine service in France. At the same time, Fives strengthened its worldwide assistance program for emergencies when traveling for business.

## KEY FIGURES

**8,365** employees

**60** nationalities

**56%** of employees reviewed during the career management committee (CEDRE)

**454** employees were interviewed during a Starter meeting

**73%** of employees attended a training course during the year

# COMMIT THE ENTIRE ORGANIZATION TO MAKE SAFETY AN INDICATOR FOR FIVES' CULTURE

In 2016, Fives continued with a progress process launched in 2009, which achieved a major reduction in accident frequency. With everyone committed, it should be possible to transform the organization for the long-term, and strengthen the safety culture within the Group.

**Jean-Yves Lys,**  
Europe HSE Coordinator

**OUR INDIVIDUAL AND COLLECTIVE COMMITMENT  
IN DEPLOYING THE GROUP SAFETY GOLDEN RULES  
CONTRIBUTES TO PROMOTING SAFE WORK  
BEHAVIORS AND SITUATIONS IN OUR OPERATIONS.**

## Mixed results in 2016

In 2016, the accident frequency rate target set in 2013 was achieved, on a like-for-like basis. Overall, the Group frequency rate has been reduced by a factor of three in six years.

However, the year also saw the first increase in frequency, which until then had been steadily dropping since 2009. This increase is chiefly explained by a new surge of accidents in the Group's workshops, which are once more the location of two thirds of lost-time accidents. Newly acquired companies generally present some difficulties in assimilating the Group's safety standards. Seven severe accidents also took place within Fives businesses, one of them fatal for a subcontractor at a steel site in India.

## Safety oversight for the whole organization

The severe accidents of 2015 and 2016 demonstrate the need to continue mobilizing the mobilizing the entire organization and reassert Fives' safety goals. While the fundamentals are in place, efforts must still be made to continue with the long-term

transformation of the Group's culture, both at worksites and in Fives workshops. This change in culture is based on deploying tools to enable everyone to be involved in managing safety, including subcontractors, and safety being integrated with Group management at the deepest level.

To this end, in 2016 the Group developed two primary tools: the Group Safety Golden Rules, which aim to better identify and control the risks inherent to Fives' activity, and the Field Safety Observation and Dialog visits, to develop a culture of shared vigilance.

## A new Group ambition to develop a strong safety culture

Several Executive committee sessions will be scheduled in 2017 to redefine the 2020 safety ambition and how to achieve it.

Oversight at the highest level for the program of actions decided for 2020 should enable Fives to take an important step in the context of safety culture, and continue to reduce accident frequency.



## THE GROUP SAFETY GOLDEN RULES

With the 2016 deployment of the Group Safety Golden Rules, Fives moved to the next level for enhancing its safety culture, not only for employees but also subcontractors. As the product of the Group's collective experience and assessments, these Golden Rules aim to control and reduce the risk of severe and potentially severe accidents.

## KEY FIGURES

**4.26:** lost-time accident frequency rate

**0.166:** severity rate

**64** lost-time accidents including  
**7** severe accidents

**1** fatal worksite accident (subcontractor)

# OPTIMIZE INDUSTRIAL ENVIRONMENTAL PERFORMANCE

For several years Fives has been investing resources and funds in the reduction of the environmental impact of its own activities, and of the products designed for industrial customers.

## A proactive approach since 2012

At the end of 2011, Fives decided to take a more proactive approach to the environment by applying the two drivers available: first, designing and building production lines and/or technologies that reduce the environmental impact of solutions for manufacturers, and second, making environmental management systematic at its own industrial sites. In particular, this led, in early 2012, to specific resources dedicated to the environment being deployed to the teams responsible for innovation and CSR in the Group.

## A voluntary eco-design program

Developed in 2011, Engineered Sustainability® is a stringent product innovation program which incorporates, throughout the process (impact review, design, performance demonstration) the three pillars of sustainable development: the environment, economic and operational performance, and the human element (safety in particular). After being audited by EY, the program received an assurance statement in 2013. At the end of the design process, the Engineered Sustainability® brand is awarded to the end product for a period of three years, if it is shown to be the best technology available on the market.

This voluntary program was developed for use by the Group subsidiaries which, once involved, must then deploy it for all their key products. By the end of 2016, one third of Fives subsidiaries eligible for the program were involved and ten products hold the brand, three of them achieving the brand in 2016 in the aluminium, cement and carbochemistry sectors.

## Improve strategic awareness of the environment

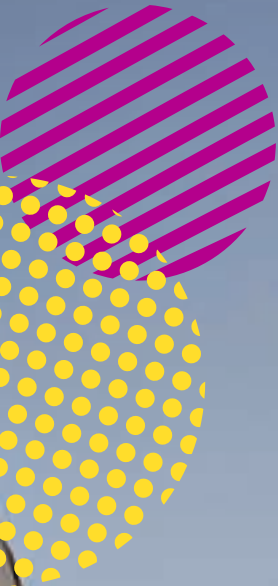
In 2012, Fives committed to obtaining ISO 14001 certification for all of its industrial sites. In 2016, nearly three quarters are certified. The new provisions of the ISO 14001 standard, which include eco-design requirements and strategic consideration of the environment, are a framework for Fives' efforts to adopt these practices across the Group.

For the launch of a metal additive manufacturing activity in 2015, Fives conducted analyses to evaluate the environmental impact of the process. At the end of 2016, Fives also launched a forecasting exercise to evaluate the impact of political decisions around climate change (COP 21, EU ETS\*, etc.) on the Group's activities and those of its customers.



\* European Union Emissions Trading Scheme





## SHARING ENERGY EXPERTISE

In 2016 Fives published a White Paper on industrial waste heat recovery, which identifies viable solutions for improving the energy efficiency of energy-intensive industries (cement, steel, glass, aluminium). This White Paper, the product of consolidating the expertise of Fives subsidiaries active in these sectors, is intended to promote the energy recovery technologies available, both for companies and institutions.

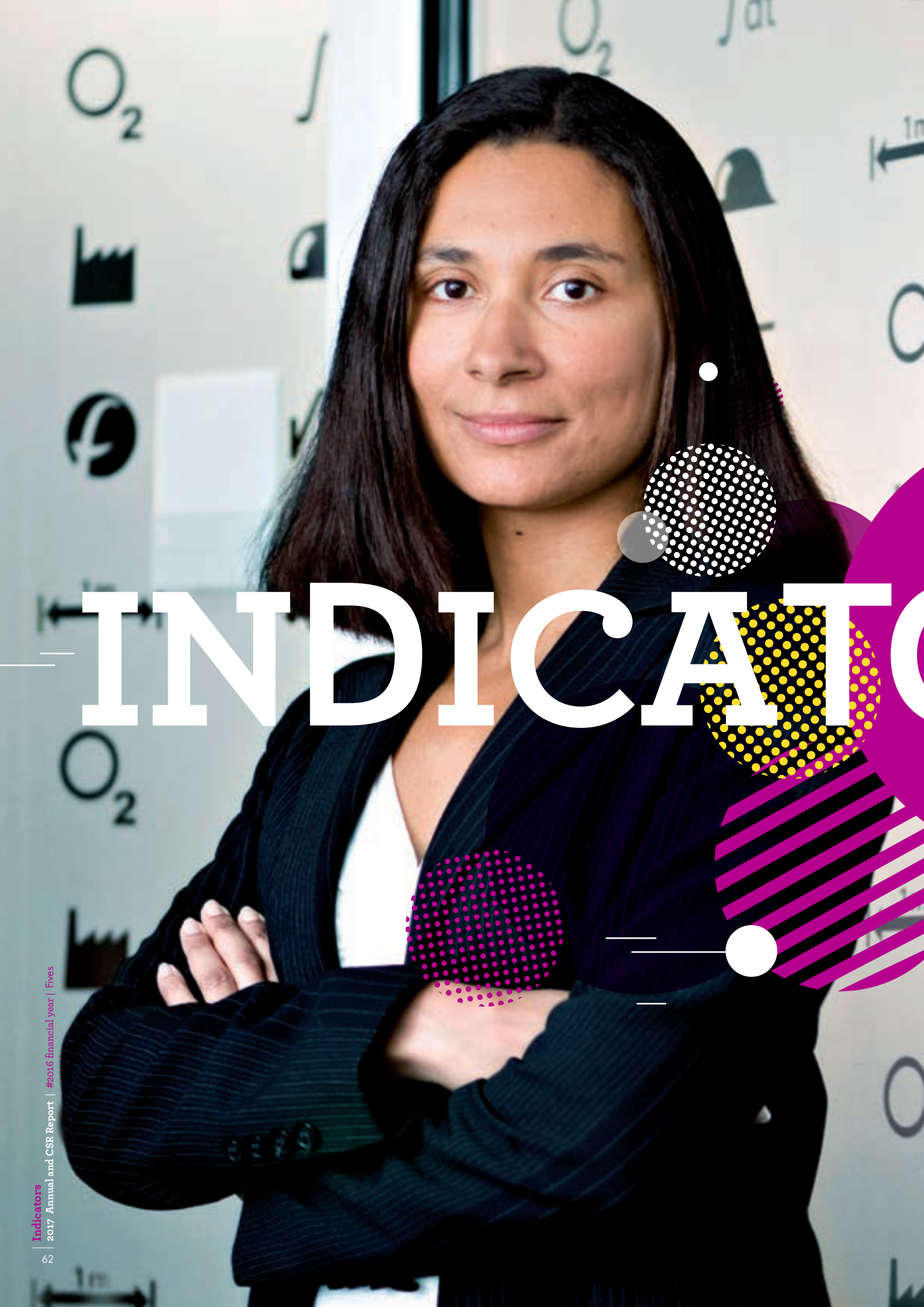
## KEY FIGURES

**33%** of eligible subsidiaries are involved in the Engineered Sustainability® eco-design program.

**3** new equipment items earned the Engineered Sustainability® brand in 2016.

**12** products have been awarded the brand since its inception in 2012, with **10** still within the brand at end 2016.

**73%** of industrial sites were ISO 14001-certified

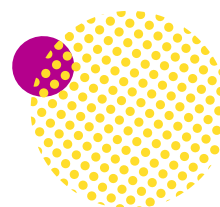


# INDICATORS



# INDICATORS

- 64 Financial indicators
- 66 Non-financial indicators
- 74 UN Global Compact



**SALES**

**BY GEOGRAPHICAL AREA**

€ million	2015	2016
Americas	521.1	567.3
Asia and Oceania	369.0	384.8
Europe	511.6	570.0
Middle East and Africa	316.5	257.1
<b>Total</b>	<b>1,718.2</b>	<b>1,779.2</b>
Contribution from mature economies	58%	60%
Contribution from emerging countries	42%	40%

**BY END MARKET**

€ million	2015	2016
Automotive	333.0	318.5
Logistics	179.2	238.7
Metals (aluminium and steel)	277.9	274.9
Energy	364.5	375.5
Cement	318.5	278.0
Aerospace and industry	240.0	285.2
Holding and sourcing co.	5.1	8.4
<b>Total</b>	<b>1,718.2</b>	<b>1,779.2</b>

**ORDER INTAKE**

**BY GEOGRAPHICAL AREA**

€ million	2014	2015	2016
Americas	408.7	635.9	482.0
Asia and Oceania	360.3	364.0	328.8
Europe	539.3	532.5	550.2
Middle East and Africa	556.7	175.4	104.1
<b>Total</b>	<b>1,865.0</b>	<b>1,707.8</b>	<b>1,465.1</b>
Contribution from mature economies	51%	62%	64%
Contribution from emerging countries	49%	38%	36%

**BY END MARKET**

€ million	2014	2015	2016
Automotive	273.6	314.5	386.9
Logistics	180.3	218.7	210.0
Metals (aluminium and steel)	213.1	259.2	201.0
Energy	398.1	334.9	301.0
Cement	587.8	232.7	84.4
Aerospace and industry	212.1	342.6	266.6
Holding and sourcing co.		5.2	15.2
<b>Total</b>	<b>1,865.0</b>	<b>1,707.8</b>	<b>1,465.1</b>

**ORDER BOOK**

**BY GEOGRAPHICAL AREA**

€ million	12.31.14	12.31.15	12.31.16
Americas	255.3	400.9	317.0
Asia and Oceania	344.2	359.6	312.0
Europe	366.2	394.4	369.9
Middle East and Africa	527.9	401.0	247.8
<b>Total</b>	<b>1,493.6</b>	<b>1,555.9</b>	<b>1,246.7</b>
Contribution from mature economies	40%	45%	47%
Contribution from emerging countries	60%	55%	53%

**BY END MARKET**

€ million	12.31.14	12.31.15	12.31.16
Automotive	189.7	188.1	257.0
Logistics	117.9	165.2	143.8
Metals (aluminium and steel)	256.1	262.2	186.6
Energy	275.2	250.5	175.9
Cement	536.4	447.6	249.5
Aerospace and industry	118.3	237.8	222.9
Holding and sourcing co.		4.5	11.0
<b>Total</b>	<b>1,493.6</b>	<b>1,555.9</b>	<b>1,246.7</b>



**+ MORE DETAILS**  
Financial report



## SUMMARY OF CONSOLIDATED FIGURES

€ million	2015	2016
<b>Sales</b>	<b>1,718.2</b>	<b>1,779.2</b>
Gross profit	377.4	383.0
General expenses	(294.1)	(299.8)
Other revenue and expenses	7.4	6.5
<b>EBITA</b>	<b>90.7</b>	<b>89.7</b>
<b>Profit from recurring operations (EBIT)</b>	<b>64.0</b>	<b>64.1</b>
<b>EBITDA</b>	<b>116.0</b>	<b>115.6</b>
	6.7%	6.5%
<b>Operating profit</b>	<b>56.5</b>	<b>49.1</b>
Net financial result	19.3	(13.9)
<b>Profit before tax</b>	<b>75.8</b>	<b>35.2</b>
<b>Net profit</b>	<b>55.7</b>	<b>4.0</b>
Net profit (Group Share)	54.4	3.2





The Group's progress on social and environmental issues, innovation and ethics is monitored year-round for analysis and strategic purposes. Our reporting system is designed so that we can track progress on the Group's initiatives and keep all Fives stakeholders informed of these changes.

The HR (social indicators) and Innovation reports cover the financial consolidation scope. Health, Safety, Ethics and Environmental data, on the other hand, is based on headcount and activity criteria which may lead to differences in scope.

**SOCIAL INDICATORS**

	2014	2015	2016	The Americas	France	Europe excl. France	Asia and Africa*
<b>Employees</b>	7,745	8,298	<b>8,365</b>	1,834	4,305	1,230	1,043
Workforce at the end of the year from acquisitions completed in the year	65	641	<b>60</b>				
Workforce at the end of the year in companies entering the consolidated scope	1	69	<b>7</b>				
Number of new hires (all types of contracts)	966	989	<b>961</b>				
<b>Workforce by gender</b>							
Percentage of men	84%	84%	<b>84%</b>	86%	84%	86%	78%
Percentage of women	16%	16%	<b>16%</b>	14%	16%	14%	22%
Percentage of engineers and managers among women	36%	37%	<b>39%</b>	30%	46%	20%	32%
<b>Share of women in management - total</b>	14%	14%	<b>14%</b>				
Share of women among CEOs	2%	2%	<b>1%</b>				
Share of women in Management Committees	13%	14%	<b>16%</b>				
Share of women managers who report directly to a management committee member	16%	15%	<b>14%</b>				
<b>Number of nationalities</b>	53	61	<b>60</b>				
<b>Employees by category</b>							
Engineers and managers	41%	42%	<b>44%</b>	41%	44%	36%	60%
Technicians, designers and supervisors	24%	26%	<b>25%</b>	17%	32%	24%	17%
Staff	11%	11%	<b>11%</b>	14%	7%	16%	13%
Operators	22%	19%	<b>18%</b>	26%	15%	23%	10%
Alternates	2%	2%	<b>2%</b>	2%	3%	1%	0%
<b>Employees by age range</b>							
Less than 20	0%	0%	<b>0%</b>	0%	0%	0%	0%
From 20 to 29	14%	14%	<b>13%</b>	11%	14%	8%	16%
From 30 to 39	25%	26%	<b>27%</b>	18%	29%	21%	44%
From 40 to 49	25%	25%	<b>25%</b>	18%	26%	29%	26%
From 50 to 59	28%	27%	<b>27%</b>	31%	27%	33%	12%
60 and more	8%	8%	<b>8%</b>	22%	4%	8%	2%
<b>Employees by length of service</b>							
Less than 5	37%	36%	<b>37%</b>	37%	36%	27%	50%
From 5 to 10	22%	23%	<b>24%</b>	17%	24%	26%	29%
From 11 to 15	9%	10%	<b>11%</b>	7%	13%	8%	9%
From 16 to 20	8%	8%	<b>8%</b>	6%	8%	13%	4%
From 21 to 25	7%	6%	<b>6%</b>	5%	5%	9%	4%
From 26 to 30	5%	5%	<b>6%</b>	8%	5%	10%	2%
From 31 to 35	5%	4%	<b>3%</b>	4%	3%	4%	1%
From 36 to 40	5%	5%	<b>4%</b>	9%	4%	3%	0%
41 and more	2%	2%	<b>2%</b>	6%	1%	1%	0%

\* Including the Middle East and Australia



	2014	2015	2016
<b>Employees by region</b>			
The Americas	22%	22%	22%
France	51%	52%	51%
Europe (excl. France)	16%	15%	15%
Asia and Africa (including the Middle East and Australia)	11%	12%	12%
<b>Employees by business sector</b>			
Aluminium	4%	10%	10%
Steel	12%	11%	9%
Cement	9%	8%	8%
Energy	32%	28%	26%
Logistics	5%	5%	7%
Automotive	17%	16%	18%
Aerospace and industry	17%	17%	19%
Others	4%	4%	4%
<b>Skills and mobility management</b>			
% of employees reviewed by the CEDRE* career management committee	54%	46%	56%
% of employees receiving regular appraisal interview	68%	66%	69%
% of employees having attended at least one training course	73%	74%	73%
Number of employees shared between the companies	85	126	164
Number of people who underwent a starter meeting**	337	470	454

\* CEDRE: Career management committee (Human resources evaluation and development committee)

\*\* Starter meetings: Assimilation reports completed 6 to 18 months after new hires arrive

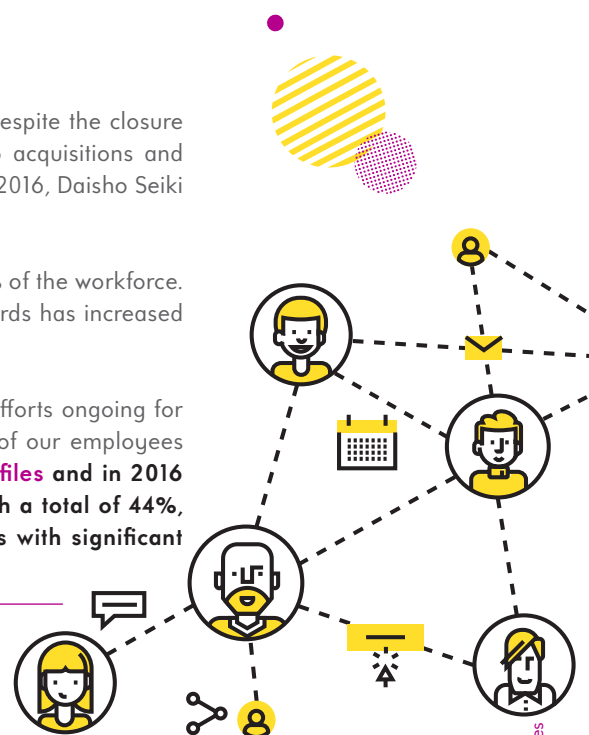
The Fives workforce remains more or less stable, with 8,365 employees at end 2016, despite the closure of a site in France. The increase in workforce in 2015 was, for the most part, due to acquisitions and consolidations within the Group, particularly Fives ECL and its subsidiaries. At the end of 2016, Daisho Seiki Corporation joined the Group, increasing the workforce on the Automotive side.

For the fifth consecutive year, the proportion of women in the Group is unchanged at 16% of the workforce. However it should be noted that the proportion of women on the entities' executive boards has increased two points to reach 16%.

The distribution of employees by age and seniority also remains stable. With renewal efforts ongoing for several years, 37% of the workforce has less than 5 years of seniority. Nearly a third of our employees are aged 30 to 39. **For several years the Group has been hiring more qualified profiles and in 2016 there was a two-point increase in the number of Engineers and Managers, to reach a total of 44%, approaching half of the total workforce, despite the integration of new companies with significant numbers of operators.**

**Significant increase of our various Human Resources management tools by the recently integrated entities** saw a ten-point increase in staff reviewed by career management committees (CEDRE) and a three-point increase in employees seen at annual reviews.

The process of resource sharing between subsidiaries and activities further intensified, proving itself a tool for adapting to activity volumes and retaining skills within the Group: in 2016 more than 160 employees were made available to another subsidiary, of which more than 110 were new contracts in 2016, and 45 were 2015 hires. In France the main "source" subsidiary was Fives ECL (Aluminium) and the main "recipient" subsidiary Fives FCB (Cement).



INNOVATION INDICATORS

	2014	2015	2016
<b>R&amp;D expenditure in € million</b>	<b>33.1</b>	<b>36.2<sup>1</sup></b>	<b>36.7</b>
<b>Breakdown of R&amp;D expenditure</b>			
Costs of patents and trademarks	9%	9%	<b>9%</b>
Standard design and formalization of know-how	8%	9%	<b>11%</b>
Continuous improvement of products and processes	27%	24%	<b>21%</b>
Development of new products and processes	43%	44%	<b>46%</b>
Research and radical innovation activities	12%	13%	<b>13%</b>
<b>Patents and trademarks</b>			
Number of patents and patent applications in force	1,859	1,948	<b>2,032</b>
Number of patent families in force	532	582	<b>611</b>
Number of first patent applications (new patented inventions)	53	50	<b>45</b>
Number of first patent applications relating to energy and environmental performance	17	11	<b>7</b>
Percentage of patents relating to energy and environmental performance	32%	22%	<b>16%</b>
Number of "product" trademarks registered	113	111	<b>126</b>
<b>The eco-design program</b>			
Number of products carrying the Engineered Sustainability® brand	6	9	<b>10</b>
Number of products currently being analyzed	10	7	<b>6</b>
Number of subsidiaries participating in the program	14	14	<b>12</b>
Percentage of eligible subsidiaries participating in the program	33%	39%	<b>33%</b>
Number of people trained in eco-design in 2016	54	98	<b>17</b>
<b>Fives Innovation Awards</b>			
Number of subsidiaries taking part in the Group Innovation Award contest	45	46	<b>46</b>
Percentage of Group employees invited to compete for the Group Innovation Award	82%	79%	<b>79%</b>
Number of ideas submitted for the Group Innovation Award	407	481	<b>528</b>
<b>Research and test centers</b>			
Number of research and test centers <sup>2</sup>	27	28	<b>29</b>
France: 17, the Americas: 6, Europe (excl. France): 4, Asia: 1			

1 Reprocessing of the 2015 data, calculated excluding subsidies and research tax credit (total value €35.5 million with subsidies included).

2 All of the subsidiaries conducting their own R&D product testing in designated locations are counted.

On a like-for-like basis (excluding the acquisition of Daisho Seiki Corporation at the end of the year), the Group R&D program saw a renewed emphasis in 2016, with a 1.5% spending increase on research and innovation. The percentage of the R&D budget dedicated to new product/process development continued to grow in 2016, reflecting the Group's desire to offer innovative, high-performance technical solutions to its customers.

Fives kept up a high pace of patent registration, with 45 new inventions registered in 2016 (ranking it 32<sup>nd</sup> in France) and several new patents lodged at the very start of 2017. The Group has a broad range of 611 patented inventions, covering all of its activities and protected by a total of 2,032 current patents in different countries. Daisho Seiki Corporation contributed to this impressive figure with 21 inventions protected by 43 patents. The limited number of new patents linked to equipment energy and environmental performance reflects the current climate, with manufacturers apparently less preoccupied by these topics.

Daisho Seiki Corporation also brought the number of Group research and testing centers up to 29.

**Good results for the 2016 Innovation competition, with a 10% increase in the number of ideas submitted, confirm that the contest has become a major annual event for the Group. All employees, whatever their position, feel empowered to make suggestions to improve our products, processes and methods, thereby contributing to Fives' reputation for innovation, among both customers and stakeholders.**

The roll-out of the Engineered Sustainability® eco-design program, an innovation process which aims to optimize the environmental and operational performance of Fives' products, continued in 2016 with the selection of Group products with a strong environmental impact and which are strategic for the Group's markets. EY audited the program and issued a certificate of insurance in October 2013.



In 2016, a decision was made not to renew the Engineered Sustainability® brand (reviewed every three years) for the Chamber Washer from the CentriSpray range - a washer for automotive engine parts; the subsidiary chose to focus on the development of robotic technology that is more suited to its current market. The Engineered Sustainability® brand awarded to the Stein Digit@l furnace AT 2.0 is currently being renewed, so there will be a new version of this slab reheating furnace on offer in 2017. At the same time, after undergoing a stringent process, three more products earned the internal Engineered Sustainability® brand: Lineos, a pitch fumes treatment system located in marine terminals close to aluminium plants; CTD Flex +, a coal tar distillation for producing pitch and oils such as carbon black; the FCB Horomill® grinding mill for its cement application.

The Engineered Sustainability® program also saw tools incorporating environmental aspects deployed to engineering and design offices. The arrival of AddUp (a joint venture between Fives and Michelin) also involved an environmental analysis of additive manufacturing.

In 2016, Fives published a White Paper on waste heat recovery in the steel, cement, aluminium and glass industries, showing its customers the possibilities for reducing the environmental impact of their installations.



## INTRODUCTION TO THE DATA BY SITE AND THE STATISTICS ON ENVIRONMENT/HEALTH & SAFETY/ETHICS AND GOVERNANCE

Corporate Social Responsibility (CSR) reporting covered all sites with an average workforce of 10 or more in 2016 and all sites with an industrial activity.

In 2016, the changes to the scope were caused by four factors:

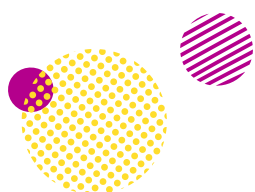
- the inclusion of Fives ECL and its four subsidiaries in the aluminium sector, acquired in 2015,
- the inclusion of Fives Lund LLC, in the aeronautics sector, acquired in 2015,
- the inclusion of Fives Landis GmbH, in the automotive sector,
- the removal of Fives Industries in France, in the steel sector, which ceased activity in 2016, and the merging of two Italian entities.

NB: unlike for HR and Finance reporting, this report does not include companies that did not conduct their business within the Fives Group for the full year 2016. Daisho Seiki Corporation, the Japanese company acquired during 2016 in the automotive sector, was therefore not included in the scope of CSR reporting.

### CSR CROSS-SECTIONAL INDICATORS

	2014	2015	2016	The Americas	France	Europe excl. France	Asia and Africa*
Number of subsidiaries included in the scope of the CSR policy	62	59	64	14	20	15	15
<i>Subsidiaries acquired in n-1 that entered the CSR scope in n</i>	7	1	7	2	1	1	3
<i>Subsidiaries newly included in the CSR scope</i>	2	1	-2		-1	-1	
<b>Total number of sites</b>	<b>92</b>	<b>98</b>	<b>102</b>	<b>20</b>	<b>42</b>	<b>19</b>	<b>21</b>
Industrial sites	37	38	41	13	15	8	5
Offices	29	31	32	4	13	5	10
Combined sites, test centers and regional facilities	26	29	29	3	14	6	6
<b>Management system</b>							
Number of sites with ISO 9001 certification	56	61	69	12	34	15	8
Number of sites with pending ISO 9001 certification	7	7	4	1			3
<b>Health, Safety and Environment (HSE) community</b>							
Number of Group HSE representatives	58	59	60				
Number of Group HSE auditors	15	20	21				
Number of Group HSE audits conducted	21	20	18				
Percentage of companies audited (cumulative)	79%	81%	73%				

\* Including the Middle East and Australia



Fives' most recent acquisitions have again increased the proportion of industrial sites in the Group, bringing it up to 40%. These are divided almost half and half between North America and France.

The reduction in proportion of audited companies follows from the relative increase in service subsidiaries, which are local to the customers and are monitored and included in the health and safety program in a different way to their parent companies.

**ETHICS INDICATORS**

	2014	2015	2016
Number of subsidiaries which have trained its management committee to Business Ethics	0	5	5
<b>Code of conduct</b>			
Number of languages into which the Group Code of conduct has been translated	13	13	13
Percentage of companies in which the Code of conduct has been distributed	87%	88%	97%
Percentage of employees accounted for by these companies	76%	84%	94%
Percentage of subsidiaries that hold an annual presentation of the Code of conduct involving at least 25% of the workforce	16%	10%	22%

*In 2016, the business ethics program roll-out has concentrated on conducting risk analysis for each major activity sector, so as to scale the actions to be implemented for prevention and training.* To that end, the training program for executive committees was put aside and restarted in 2017. A new awareness session did however take place during a dedicated meeting for the Group's 30 key directors at the end of 2016.



The various initiatives implemented by the Group on business ethics have meant **improved distribution of the Code of conduct**, as well as its effective presentation to teams.

**HEALTH & SAFETY INDICATORS**

	2014	2015	2016
<b>Number of industrial sites</b>	37	38	41
<b>Number of sites with safety certification*</b>	22	25	29
Number of sites engaged in safety certification	5	4	5
Percentage of industrial sites with safety certification	30%	32%	32%
Percentage of subsidiaries having written and distributed a Health & Safety Policy	79%	83%	89%
Number of FTE(I) Health & Safety staff in the Group	50.7	53.0	61.3
<b>Accident statistics (employees + temporary employees)</b>			
<b>Number of severe accidents**</b>	NA	5	7
Number of which were fatal	0	1	0
<b>Number of lost-time accidents (≥1 day)</b>	77	55	64
Percentage of lost-time accidents occurring on customer/subcontractor sites	31%	42%	23%
Percentage of lost-time accidents occurring in workshops	64%	45%	64%
Percentage of lost-time accidents occurring in offices	5%	7%	9%
Percentage of lost-time accidents occurring on business trips	0%	5%	3%
<b>Lost-time accident frequency rate</b> (Number of lost-time accidents (≥1 day) x 1,000,000 / Number of hours worked)	5.36	3.91	4.26
<b>Severity rate</b> (Number of lost-time accidents (≥1 day) x 1,000 / Number of hours worked)	0.207	0.135	0.166

(I) FTE: Full-Time Equivalent  
 \* OHSAS 18001 or MASE ("Manuel d'Amélioration Sécurité des Entreprises") certifications (Corporate Safety Improvement Manual), French safety management system  
 \*\* Severe accidents: Accidents which could have severe reversible or irreversible consequences, or which could cause death (monitored from January 2015)



2016 was marked by the first increase in our Group lost-time accident frequency rate since 2009, and by two fatal accidents at our worksites, involving in one case a Group subcontractor in India, and in the other, a Group customer subcontractor in Mexico.

These tragic events took place when actions were in hand to re-shape the Group's ambition in this area for 2020, since 2016 was the final year of the program set out in 2013. **The targets set, to halve the 2012 frequency rate over the period, were met, thanks to the commitment and collective effort of the Group companies.** Nevertheless, the declining performances of late 2016 lead Fives to remotivate its teams on both field-based people and the management and executives.

In 2017, actions will mainly focus on defining the Group Safety ambition for 2020 (and the associated strategic actions) and on the proper deployment and reinforcement of the initiatives launched in 2016:

- **Group Safety Golden Rules** to significantly and durably lower the number of severe accidents,
- training for management teams on **Field Safety Observation and Dialog** visits, to develop a shared culture of vigilance.

Specific actions will also target the workshops. Proportionally, the number of lost-time accidents has risen back to 2014 levels. They are less severe, however, than those taking place on worksites (which are rarer but more severe).

**These actions, supported by safety performance oversight at the highest level, should enable the Group to turn a corner in terms of safety culture and ultimately seek to lower the accident rate.**

## ENVIRONMENTAL INDICATORS

	2014	2015	2016	The Americas	France	Europe excl. France	Asia and Africa*
Number of sites with ISO 14001 certification (all types of sites)	31	37	42	9	18	7	8
<b>Objective of ISO 14001 certification for industrial sites</b>							
Industrial sites	37	38	41	13	15	8	5
Number of industrial sites with ISO 14001 certification	25	28	30	9	12	6	3
Number of industrial sites with ISO 14001 certification in progress	3	6	6	1	2	3	0
Percentage of industrial sites with ISO 14001 certification	68%	74%	73%	69%	80%	75%	60%
<b>ISO 14001 certification for other types of sites (offices, combined sites, test centers, regional facilities)</b>							
Number of non-industrial sites with ISO 14001 certification	6	9	12	0	6	1	5
Percentage of non-industrial sites certified	11%	15%	20%	0%	22%	9%	31%
<b>Environmental management system</b>							
Percentage of sites that have written and distributed an Environment policy	61%	64%	71%	60%	76%	89%	52%
Number of FTE** Environment staff in the Group	20.8	20.0	21.1	3.5	10.31	4.0	3.4
<b>Energy consumption in GWh</b>							
Electricity consumption in GWh	65.2	63.0	66.3	29.2	22.6	7.2	7.4
Natural gas and heating oil consumption in GWh	61.6	62.2	65.7	32.4	22.6	9.9	0.8
Total energy consumption in GWh	126.8	125.2	131.9	61.6	45.2	17.0	8.1
<b>Energy consumption in €000</b>							
Electricity consumption in €000	5,857	6,451	6,243	2,496	2,028	921	799
Natural gas and heating oil consumption in €000	2,140	2,124	2,064	525	1,059	437	43
Total energy consumption in €000	7,997	8,575	8,307	3,021	3,087	1,358	842
<b>Water consumption</b>							
Water consumption (industrial sites) in m <sup>3</sup>	83,816	89,316	97,405	39,926	26,571	11,666	19,242
Water consumption (industrial sites) in €000	178	213	261	142	70	39	10

\* Including the Middle East and Australia

\*\* FTE: Full-Time Equivalent

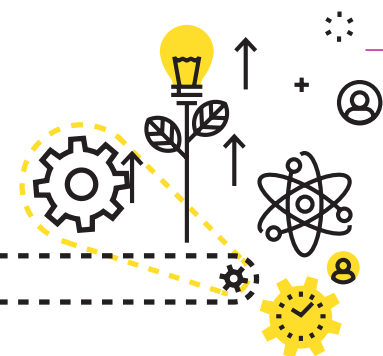
The increase in number of sites certified ISO 14001 continues in 2016, although the proportion of industrial sites with the certification is slightly down. This is explained by the addition of two non-certified industrial sites to the scope this year, as well as the closure of one industrial site that was certified ISO 14001.

The percentage of non-industrial sites certified is however clearly up (reaching 20% in 2016), as is the proportion of sites with a written and distributed Environmental policy, which now stands at 71% (for all site-types). **This reflects the drive for environmental performance within the Group: environmental management systems are now being voluntarily implemented and are making it possible to go beyond the certification targets set for industrial sites.**

The revised ISO 14001, which all the concerned subsidiaries must adopt by 2018, is also **an opportunity for synergy between quality and environment systems, and to promote eco-design**; the latter is now an integral part of the standard. Joint efforts will be made with the Innovation Department to support the subsidiaries in this transformation.

The Group's energy consumption was up 5% in 2016. This increase, which involves both electricity and fossil fuels, is directly linked to the integration of new companies into the scope. With energy prices down, and thanks to the impact North America has on the Group's energy consumption, this increase in volume has not led to a corresponding increase in the Group's energy bill. Like-for-like, the Group's energy consumption has remained virtually stable in volume.

As with energy, the 9% increase in water consumption in 2016 is explained by the addition of new companies to the scope of the report. Unlike energy, this increase is felt in the Group's water bill; water prices are up overall in all geographic regions.







## PROGRESS ON DEPLOYMENT OF THE GROUP CORPORATE SOCIAL RESPONSIBILITY PROGRAM

Since 2012, a yearly assessment of the progress done by the Group in the field of Corporate Social Responsibility is being carried out. This, has enable Fives to improve its actions taken during 2016 and to set annual goals for 2017.

The firm Indefi has also assessed the Group’s corporate social responsibility process annually since 2013. This analysis is based on a materiality matrix (facing).

Their findings provide information to the Group for talks about priorities and determinations to make across the whole corporate social responsibility program.

The following table (see pages 76-79) details the overall progress made by the corporate social responsibility program of the Group and how that progress relates to the commitment made by Fives to respect and promote the 10 principles of the United Nations Global Compact.

Their correlation with the 10 principles of the UN Global Compact is indicated by “GC1” (Global Compact 1) for the program that corresponds to Principle 1 of the United Nations Global Compact, and so on, as detailed below:



“We must act with social and civic responsibility everywhere in the world and in all our activities. The United Nations Global Compact is a good way to regularly reassess this commitment and provide official accountability for our actions.”

**Frédéric Sanchez**, Chairman of the Executive Board

### Human Rights

- GC1. Businesses should support and respect the protection of internationally proclaimed human rights; and
- GC2. Ensure that they are not complicit in Human Rights abuses.

### Labor

- GC3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- GC4. The elimination of all forms of forced and compulsory labor;
- GC5. The effective abolition of child labor; and
- GC6. The elimination of discrimination in respect of employment and occupation.

### Environment

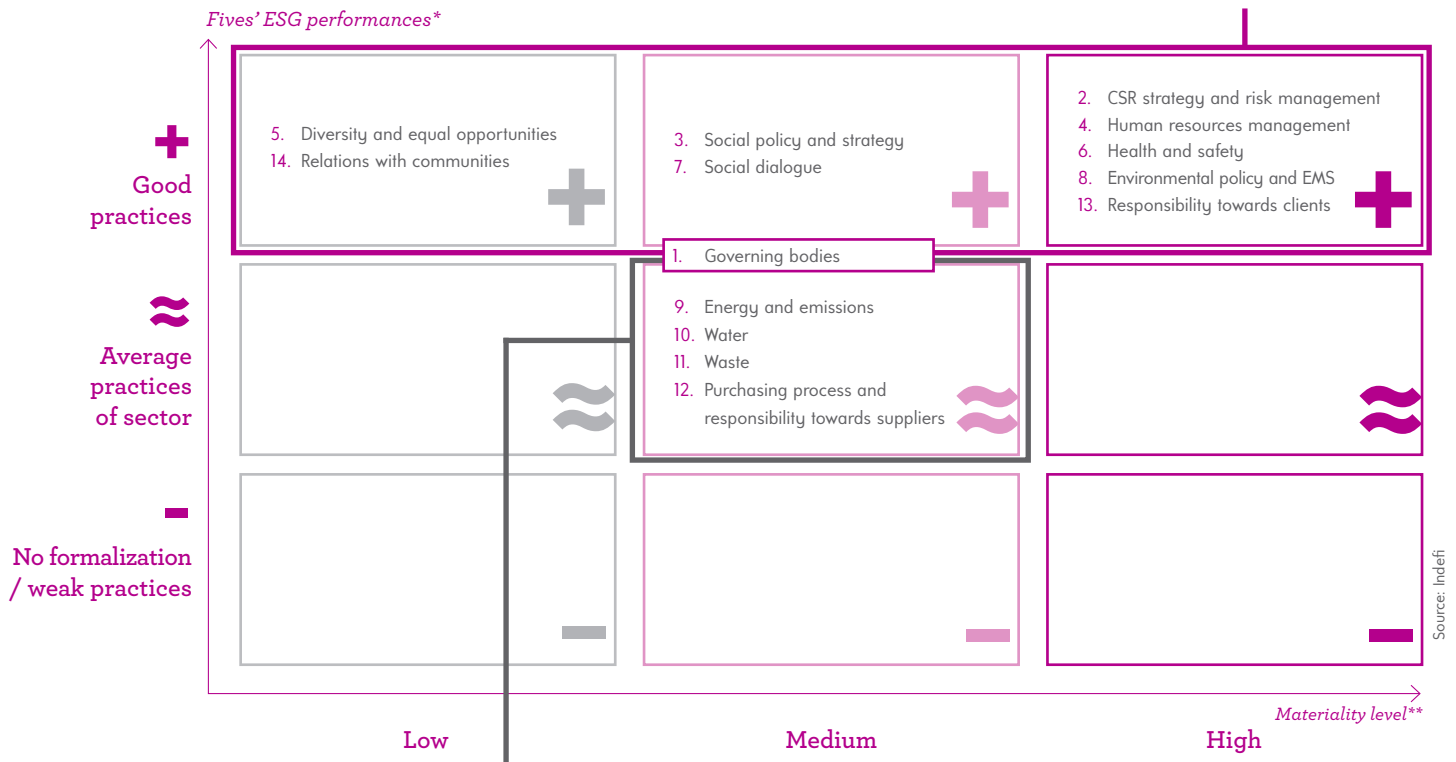
- GC7. Businesses should support a precautionary approach to environmental challenges;
- GC8. Undertake initiatives to promote greater environmental responsibility; and
- GC9. Encourage the development and diffusion of environmentally friendly technologies.

### Anti-corruption

- GC10. Businesses should work against corruption in all its forms, including extortion and bribery.



FIVES ADOPTED GOOD PRACTICES ON ALL KEY ISSUES AND PERFORMS WELL ON SEVERAL LESS MATERIAL STAKES



ENVIRONMENTAL AND RESPONSIBLE PURCHASING STAKES ARE MANAGED IN LINE WITH THE PRACTICES OF THE SECTOR

\* Governance, social and environmental performance  
 \*\* Materiality level: Material topics for an organization should include those topics that have a direct or indirect impact on an organization's ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large (source Global Reporting Initiative - GRI)

External evaluation by Indefi

The evaluation conducted by Indefi was based on documents, questionnaires and interviews that were used to balance out the evaluation guidelines Fives applies and to measure Fives' performance against these guidelines.

The materiality matrix above provides an overview of these two working strategies:

- On the x-axis, materiality reflects the significance of each topic in relation to Fives' business (according to the Global Reporting Initiative<sup>(1)</sup>, these are "topics that have a direct or indirect impact on an organization's ability to create, preserve or erode [...] value for itself, its stakeholders and society at large")
- On the y-axis, Environmental and Social performance and Governance (ESG) pertains to Fives' ability to understand these topics.







According to Indefi, the key areas of social responsibility for Fives are part of the following Fives programs (detailed on pages 76-79):

- 2. CSR strategy and risk management: Good practices** / Embed the CSR priorities into the organization of each Fives entity
- 4. Human resources management and 6. Health & safety: Good practices** / Provide a safe and motivating workplace
- 8. Environmental policy and Environmental Management System (EMS): Good practices** / Environmental ISO 14001 certification program
- 13. Responsibility towards clients: Good practices** / Engineered Sustainability® eco-design program

<sup>(1)</sup>The Global Reporting Initiative is an organization that advocates for the standardization of sustainable development reporting practices to encourage the use of best practices and comparisons of organizations.

## UN Global Compact

Commitment	Program	Achievements at end-2016	2017 goals	Level of maturity at end-2016
Minimizing the environmental footprint of the Group and its customers	<b>Engineered Sustainability®</b> Internal eco-design program which meets (and exceeds) the requirements of the ISO 14062 standard. It's an innovation process that can lead to the award of a brand identifying best-in-class products in terms of environmental and safety performance. EY awarded this program an insurance certificate in 2013. <b>GC 8 - GC 9</b>	<ul style="list-style-type: none"> <li>- 3 products branded in 2016 (Lineos, a pitch fumes treatment system located in marine terminals close to aluminium plants; CTD Flex +, a coal tar distillation for producing pitch and oils such as carbon black; the FCB Horomill® grinding mill for its cement application), making a total of 10 products in all.</li> <li>- 6 products being analyzed.</li> <li>- 33 % of the eligible subsidiaries are involved in this program.</li> <li>- 1 product is not renewing the label: the CentriSpray™ Chamber Washer.</li> <li>- Publication of a White Paper on waste heat recovery in the Steel, Cement, Aluminium and Glass industries, presenting solutions for reducing the energy loss and environmental impact of our customers' installations.</li> </ul>	<ul style="list-style-type: none"> <li>- Renew the brand for the Fives Stein Digital Furnace Advantek 2.0 (put back one year), as well as the other products with expiry in 2017.</li> <li>- Continue with the program, redesigning and attributing the brand to new products.</li> <li>- Deploy tools incorporating environmental elements to technical offices.</li> <li>- Strategic study by consultants Carbone 4, on the impact of a 2°C warming scenario on Fives' end markets: risks and opportunities in terms of technological disruption and business models.</li> </ul>	●
	<b>Group energy and environmental management program</b> Support Group performance improvement. <b>GC 7 - GC 8</b>	<ul style="list-style-type: none"> <li>- Set up an environment committee bringing together the Innovation, CSR and Purchasing departments.</li> <li>- At end December 2016, 42 sites were ISO 14001 certified, 30 of them industrial sites subject to the Group's mandatory certification program (73% of industrial sites, slightly down because of changes to the scope).</li> <li>- Commitment to environmental and energy issues observed, beyond the framework set by the Group: 71% of the 102 Group sites have an Environmental policy.</li> </ul>	<ul style="list-style-type: none"> <li>- 4 industrial sites should achieve ISO 14001 certification by the end of 2017.</li> <li>- Support, through 2017 and 2018, the ISO 14001 certified subsidiaries in transitioning to the new version of the standard (2015 version), in coordination with the Innovation department so that the principles of eco-design are properly assimilated.</li> <li>- Build a global improvement plan for Fives sites energy performance.</li> </ul>	●
Promoting fair practices on the marketplace	<b>Fives Code of conduct</b> Adoption of the Code of conduct by all employees by: <ul style="list-style-type: none"> <li>- Distributing it to all employees</li> <li>- Writing a reading guide for the Code of conduct, and practical examples to train all Group managers, to feed into an annual discussion of the Code in each team.</li> </ul> <b>GC 10</b>	Group actions on business ethics in 2016 have increased the subsidiaries' assimilation of the Code of conduct: <ul style="list-style-type: none"> <li>- The Code of conduct has become a real vehicle for discussion within the Group, beyond the integration of new employees.</li> <li>- 97% of the companies have distributed the Code of conduct to their employees (up 9 points on 2015).</li> </ul>	<ul style="list-style-type: none"> <li>- Continue building awareness, with the new gifts and hospitality principles.</li> </ul>	●

Commitment	Program	Achievements at end-2016	2017 goals	Level of maturity at end-2016
Promoting fair practices on the marketplace	<b>Business ethics</b> Intensify the program on corruption prevention and anti-competition practices. GC 10	<ul style="list-style-type: none"> <li>- Conduct risk analysis for each major activity sector, so as to scale the actions to be implemented for prevention and training.</li> <li>- Carry out a dedicated awareness session dedicated for the Group's 30 senior managers.</li> </ul>	<ul style="list-style-type: none"> <li>- Organize deployment of the program according to the priorities identified by activity sector risk analyses carried out in 2016: training, reviews of local procedures.</li> <li>- Reviews of procedures for agent management (contracting, oversight, renewal).</li> </ul>	
	<b>Responsible purchasing</b> Incorporate our social responsibility goals into our relations with subcontractors and suppliers. GC 1 - GC 2 - GC 3 - GC 4 - GC 5	<ul style="list-style-type: none"> <li>- Finalize the global purchasing self assessment tool, including HSE and ethics dimensions.</li> <li>- Improvement in subsidiary adoption of broad HSE and CSR criteria in selecting subcontractors (from 15 to 22%).</li> </ul>	<ul style="list-style-type: none"> <li>- Start deploying purchasing self assessment (pilot schemes).</li> <li>- Establish framework for a standard procedure for how best to incorporate Reach regulations at the Group level, following the 2016 pilot.</li> <li>- Set up a central system for third party information.</li> </ul>	
	<b>Promote social responsibility in our commercial offer</b> Figure out how to make social and environmental impacts part of the offer and the CSR performance levels for Fives and every subsidiary part of the sales pitch. GC 9	<ul style="list-style-type: none"> <li>- EcoVadis rating: stable rating at Confirmed (Gold), 71/100, in the top 2% of 20,000 companies rated by EcoVadis at end 2016.</li> <li>- Provide a document with figures and key events for sales staff.</li> </ul>	<ul style="list-style-type: none"> <li>- Continue with the mechanism that has been in place for several years.</li> <li>- Strengthen sales team involvement in the 2020 safety roadmap.</li> </ul>	
Providing a safe and motivating working environment	<b>Safety roadmap</b> Move the Group towards a safety culture shared by all. In three years, halve the accident frequency rate for employees and temporary staff, with the ultimate goal remaining zero severe accidents. Our aim is to reach a maximum accident frequency rate of 4 in 2016 for employees and temporary staff.	<ul style="list-style-type: none"> <li>- The target set in 2013 was met in 2016 on a like-for-like basis: frequency rate less than 4 for this scope.</li> <li>- However, 2016 saw the first increase in the Group lost-time accident frequency rate since 2009: 4.26 compared to 3.91 in 2015. It is deplorable that in 2016 a subcontractor suffered a fatal accident on a Steel worksite in India, and there were 7 severe accidents overall.</li> <li>- Group Safety Golden Rules deployed to all activities.</li> <li>- Field Safety Observation and Dialog visits deployed in Europe and North America.</li> </ul>	<ul style="list-style-type: none"> <li>- Frame the Group's Safety ambitions for 2017-2020 (and the associated strategic actions within the Group, activities and companies).</li> <li>- Strengthen tools and Group actions launched in 2016, in particular:                             <ul style="list-style-type: none"> <li>* Group Safety Golden Rules</li> <li>* Training management teams for the Field Safety Observation and Dialog visits.</li> </ul> </li> <li>- Launch actions for:                             <ul style="list-style-type: none"> <li>* increasing activity safety in Fives workshops,</li> <li>* monitoring Fives subcontractor safety (workshops and worksites) and their involvement in the Group safety process.</li> </ul> </li> </ul>	



## UN Global Compact

Commitment	Program	Achievements at end-2016	2017 goals	Level of maturity at end-2016
Providing a safe and motivating working environment	<p><b>Promoting diversity and raising awareness of non-discrimination</b></p> <p><b>Gender equality:</b> Tracking of the percentage of women hired, access to training and promotion; awareness raised of discriminatory practices.</p> <p><b>Employment of older people:</b> Tracking of the agreement on older people signed in France. However, the over-50s employment rate is high, and the challenge for Fives in many of its subsidiaries is to transfer know-how.</p> <p><b>Employment of disabled people:</b> Awareness-raising campaign since 2012 and sharing of best practices.</p> <p>GC 6</p>	<p><b>Gender equality</b></p> <ul style="list-style-type: none"> <li>- Renegotiate intergenerational agreements in France.</li> <li>- 16% of employees are women.</li> <li>- 39% of women are engineers or managers.</li> </ul> <p><b>Seniors</b></p> <ul style="list-style-type: none"> <li>- 35% of employees are 50 or over.</li> <li>- 40% of employees have been with the Group for over 10 years (15% for over 25 years).</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>- Carry out training against sexual harassment at all Indian subsidiaries.</li> </ul>	<ul style="list-style-type: none"> <li>- Continue monitoring initiatives in favor of young people, gender equality and diversity.</li> </ul>	●
	<p><b>Harmonization of the employee welfare protection regime</b></p> <p>Harmonize and challenge the employee welfare protection regime in the main domains where the Group has a presence.</p>	<ul style="list-style-type: none"> <li>- Strengthen Group policy on social benefits.</li> <li>- Improve cover in India and China.</li> <li>- Innovative remote consultation solution set up in France.</li> </ul>	<ul style="list-style-type: none"> <li>- Study for additional cover in Mexico, Thailand and Indonesia.</li> <li>- Harmonization study for the Canadian and Chinese systems.</li> <li>- Modify health cost plans in the United States.</li> <li>- Harmonize death-when-traveling cover for the US subsidiaries.</li> </ul>	●
	<p><b>Identification and management of employees with potential (CEDRE)</b></p> <p>Annual career management committee in each subsidiary, attended by the management team and a Human Resources representative, to:</p> <ul style="list-style-type: none"> <li>- Determine which measures need to be taken to improve employee performance.</li> <li>- Approve personal career plans.</li> </ul>	<ul style="list-style-type: none"> <li>- 56% of employees undergo a career management review with a "CEDRE" committee including at least one member of the Fives human resources department.</li> <li>- Significant take-up of our human resource management tools by the recently integrated entities saw a ten-point increase in staff reviewed by career management committees (CEDRE) and a three-point increase in employees seen at annual reviews.</li> <li>- Specific support system set up for future leaders of Fives.</li> </ul>	<ul style="list-style-type: none"> <li>- Fully digital "Fives&amp;Me" HR management system set up, which will facilitate and modernize the use of career management tools within the Group.</li> </ul>	●
	<p><b>Training and career path support for promising employees</b></p> <ul style="list-style-type: none"> <li>- New employee programs</li> <li>- Ongoing training.</li> </ul>	<p><b>Fives Leadership Factory:</b></p> <ul style="list-style-type: none"> <li>- 21 individuals benefited from the LeadershipRise@Fives program in 2016.</li> <li>- 216 individuals took the Manager@Fives program in Italy, France, the United States and China.</li> <li>- Launch of BusinessManagement@Fives: first session held in June for 25 attendees.</li> </ul> <p>Continue with the Starter meeting and Career booster programs in all regions.</p>	<ul style="list-style-type: none"> <li>- Continue with the Fives Leadership Factory program and the Starter meeting and Career booster programs in all regions.</li> <li>- Digital learning platform set up for the entire Group.</li> </ul>	●



Commitment	Program	Achievements at end-2016	2017 goals	Level of maturity at end-2016
Providing a safe and motivating working environment	<p><b>Develop an anticipatory strategy on jobs and organizations at each company</b>                      Develop this strategy with a 5-step program:</p> <ul style="list-style-type: none"> <li>- Define the company strategy.</li> <li>- Determine the business goals and the operational goals.</li> <li>- Identify the skills required to achieve these goals.</li> <li>- Qualify the existing positions in the company and the associated required skills.</li> <li>- Analyse the shortfall and build action plans.</li> </ul>	<ul style="list-style-type: none"> <li>- Highlight the human resource challenges associated with the strategic positioning of each activity, as part of the strategic reviews initiated in 2015.</li> </ul>	<ul style="list-style-type: none"> <li>- Perpetuate and systematize strategic HR reviews.</li> </ul>	
	<p><b>Maintenance of know-how and employment within the Group</b>                      Process existing in France since 2009.                      Sharing meetings held two or three times a year, to review the workloads/under-loads and make staff allocation decisions, ranging from several weeks to several months.</p>	<ul style="list-style-type: none"> <li>- The process of resource sharing between subsidiaries and activities further intensified: in the 2016 semester alone, more than 135 employees were made available to another subsidiary, of which 90 were new contracts in 2016, and 45 were 2015 hires.</li> </ul>	<ul style="list-style-type: none"> <li>- Continue with the system.</li> </ul>	
	<p><b>World employee opinion survey</b>                      An opinion survey conducted among all Group employees every three years, designed to measure satisfaction levels and any organizational malfunctions, and which gives rises to the implementation of action plans proposed by employee bodies.</p>	<ul style="list-style-type: none"> <li>- Employee work groups set up in each subsidiary to put together improvement action plans for identified weaknesses.</li> <li>- Satisfaction micro-surveys carried out within subsidiaries to measure the impact of the action plans implemented.</li> </ul>	<ul style="list-style-type: none"> <li>- Topics most often fed back to be included in the Group training plan.</li> </ul>	
Incorporating CSR priorities into the organization of all Fives entities	<p><b>Distribute best practices and Group Directives</b>                      Compilation of Directives and Guidelines covering all Group jobs, linked to internal control rules.                      GCI to GC10</p>	<ul style="list-style-type: none"> <li>- Support for subsidiaries that have recently joined the Group in implementing the Directives (Italy and North America).</li> </ul>	<ul style="list-style-type: none"> <li>- Initiate the update to the Directives and Guidelines Manual to reflect changes to the organization and in particular clarify the role of Country Management and activity divisions.</li> </ul>	



## Fives

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