

VALUE GROWTH WITH CHANGES

VALE WE GRO WITH CHANGES

VALUE. GROWTH. CHANGES. OUR SELF-IMAGE IS BASED ON TIMELESS VALUES, INCORPORATING THE OLD AND THE NEW. CREDIBILITY AND TRUST. FINANCIAL STABILITY AND TRANSPARENCY. CUTTING-EDGE TECHNOLOGY AND EXPERTISE. OUR NAME IS ASSOCIATED WITH TRADITION, EXPERIENCE AND PROGRESS. WE POSITION OURSELVES BASED ON ENDURING KEY PILLARS: PRODUCTS, PERFORMANCE AND EMPLOYEES. THIS IS POSITIVELY REFLECTED IN OUR SALES FIGURES, BALANCE SHEETS AND STOCK MARKET VALUE.

WE HAVE CONTINUALLY REINVENTED OURSELVES THROUGHOUT OUR 125-YEAR HISTORY. CLEAR CONSTANTS HAVE ALWAYS BEEN INNOVATIVE STRENGTH, STAMINA AND RELIABILITY. WE HAVE TAKEN POLE POSITIONS IN OUR CORE BUSINESS AREAS OF AUTOMOTIVE AND DEFENCE. WE HAVE MOVED INTO INNOVATIVE MARKET SEGMENTS IN GOOD TIME THANKS TO ENTREPRENEURIAL COURAGE, DECISIVE ACTIONS AND PRECISE MARKET KNOWLEDGE. WE HAVE A WELL-BALANCED MIX OF BUSINESS ACTIVITIES RANGING FROM MATURE AND GROWING TO NEW. WE ARE CHARACTERIZED BY THE AGILITY OF A MITTELSTAND COMPANY AND THE PROFESSIONALISM OF A GLOBAL PLAYER.

BUT MORE IMPORTANT THAN THE SUCCESSES OF THE PAST ARE THE ECONOMIC PROSPECTS AND TECHNOLOGICAL OPPORTUNITIES OF THE FUTURE. WE HAVE SET THE COURSE FOR OUR EXPANSION INTO FURTHER MARKETS AND FIELDS OF APPLICATION. THE RHEINMETALL OF 2017 IS LEAN, PROFITABLE AND FOCUSED ON ITS OWN STRENGTHS. POSITIONED SECURELY FOR THE FUTURE IN THE AREAS OF MOBILITY AND SECURITY WITH SUBSTANCE AND DYNAMISM IN THE NATIONAL AND INTERNATIONAL ENVIRONMENT.

WE ARE READY FOR NEW CHALLENGES. IN AN INTERNATIONAL SETTING. WITH CLEAR AND AMBITIOUS OBJECTIVES. FOR CONTINUING SUCCESS. TAKING OPPORTUNITIES BEFORE OTHERS SEE THEM – THAT'S WHAT WE AT RHEINMETALL WORK FOR.

“

For Rheinmetall, sustainability is not just a buzzword but a central component of our corporate management. Sustainable business practices require clear values, the readiness to change and the ability to generate growth. This report explains how we are meeting this challenge.



Armin Pappeger, CEO

EDITORIAL

DEAR READERS,

I am pleased to present our first corporate social responsibility report. For us, a technology group with a history dating back more than 125 years, sustainability is not just a 21st century buzzword; it has been an integral part of our corporate culture for many years.

My colleagues in the Executive Board and I are committed to holistic, transparent corporate management aimed at long-term economic success that integrates ecological and social as well as corporate governance aspects into our business activities.

We live in times of great upheaval, radical changes and global challenges: Increased geopolitical and economic uncertainty, globalization, demographic factors, shifts in societal values, scarcity of resources, new mobility concepts, Industry 4.0 and climate change, to mention but a few key words.

The issues of our time will also affect us as a Company – right now, but even more so in the foresee-

able future. In facing the many challenges we rely on our strengths: Entrepreneurship, adaptability, boldness of vision and innovative strength.

There are growing expectations on companies to make a contribution to sustainable development. We accept this responsibility as a matter of course. We always have. Mobility and security are and will remain basic human needs. Rheinmetall Automotive has been working on eco-friendly mobility solutions for many years now and, with its products, is helping to ensure that the ever-growing demand for mobility does not come into conflict with environmental protection. Rheinmetall Defence's product portfolio is geared towards providing the best possible protection for soldiers on deployment. The same applies to the armed forces who provide internal security.

On the following pages you will find examples of responsible actions from right across the Rheinmetall Group. We look forward to hearing your suggestions and opening a dialog with you.

”

We focus on long-term ties.

Peter Sebastian Krause
Member of the Executive Board
Human Resources

Our Company's history dates back more than 125 years. This proud tradition also places us under an obligation towards the future. Therefore, we focus not just on lasting customer relationships, but also on long-term ties with employees. We know that companies must compete not only for customers and investors, but also for highly qualified employees. As a technology group we need the best. With this in mind, we offer attractive working conditions and remuneration, exemplary benefits, diverse opportunities for continuing professional development and interesting opportunities for promotion.

”

Sustainability is part of our business model.

Horst Binnig
Member of the Executive Board
Automotive

Innovative solutions for environmentally friendly urban mobility are our core business here at Rheinmetall Automotive. With our systems and components for engines we are making a substantial contribution to the reduction of fuel consumption and emissions of harmful substances. Sustainability is therefore an integral part of our Automotive business model and an important factor in our economic success. However, the concept of sustainability is also firmly anchored in our Defence sector. Production and processes are set up in such a way as to maintain the balance between economy and ecology.

”

We believe economy and sustainability are not in conflict with one another.

Helmut P. Merch
Member of the Executive Board
CFO

Success cannot always be measured merely in terms of black or red figures. People are at the center of our entrepreneurial activities, whether they are customers, shareholders, employees or business partners. Optimizing short-term profit does not do justice to either our value added objectives or our social responsibilities. We make our contribution to society and firmly believe that long-term thinking and sustainable business practices pay off. For us, economy and sustainability do not conflict with each other, but are two sides of the same coin.



(from left to right)
Peter Sebastian Krause,
Horst Binnig,
Helmut P. Merch

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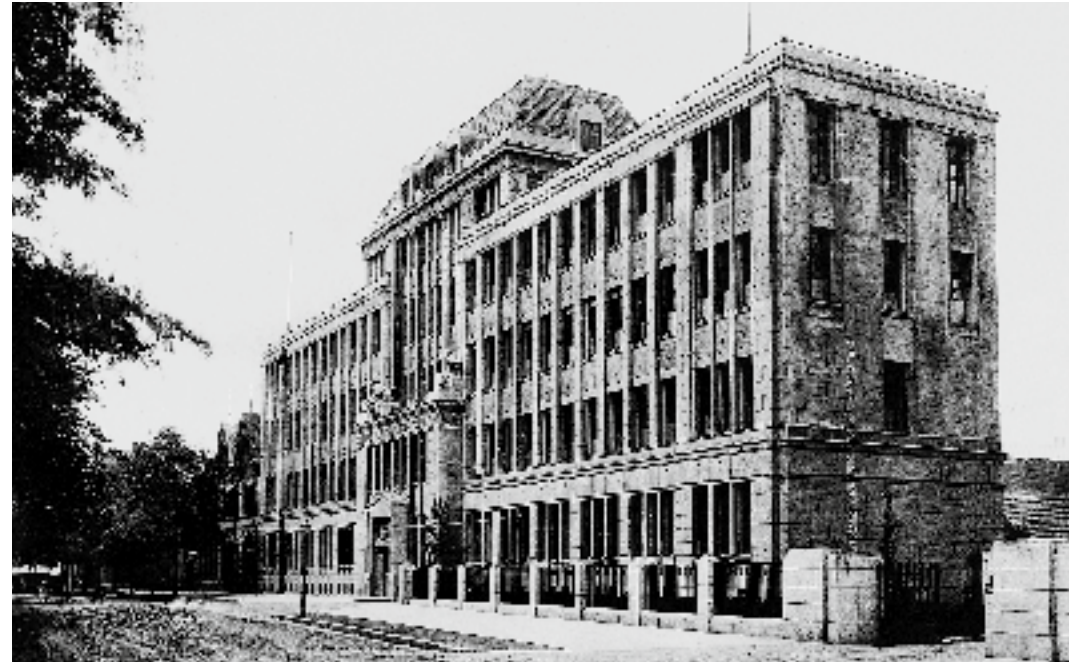
RHEINMETALL GROUP. TRADITION AND MODERNITY.



MORE THAN 125 YEARS OF RHEINMETALL.

As one of the oldest Düsseldorf companies originally founded as stock corporations still in existence, Rheinmetall has stood for continuity and change in German industrial and economic history since 1889.

1889 RHEINMETALL AG Rheinische Metallwaren- und Maschinenfabrik founded	1895/96 RHEINMETALL AG Sales of 0.8 million marks and ~ 1,400 employees	1896 DEFENCE Heinrich Ehrhardt develops the first field-duty-capable gun with recoiling barrel.		1909 AUTOMOTIVE Steel company Gebr. Pierburg founded in Berlin
1910 AUTOMOTIVE Deutsche Ölfeuerungswerke, later known as Kolbenschmidt, founded		1933 DEFENCE Rheinmetall acquires the major locomotive manufacturer August Borsig	1950 AUTOMOTIVE Kolbenschmidt casts the first cylinder heads for Porsche in Neckarsulm	1953 RHEINMETALL AG Sales of DM 50 million and ~ 4,000 employees
1957 DEFENCE Rheinmetall begins manufacturing the MG 42 and a 20 mm cannon for the armed forces	1976 RHEINMETALL AG Sales of DM 760 million and 6,240 employees	1979 DEFENCE Start of series production for 120 mm smooth bore cannon for the Leopard 2	1983 AUTOMOTIVE Pierburg begins series production of an electronic carburetor	
1986 AUTOMOTIVE Acquisition of Pierburg GmbH starts the Automotive sector	1990 RHEINMETALL AG Sales of DM 1,518 million and 14,062 employees		1994 DEFENCE Rheinmetall presents the air-transportable transport vehicle Wiesel 2	1998 AUTOMOTIVE The first series engine block from aluminum cast is manufactured
2000 RHEINMETALL AG Sales of DM 4,490 million and 29,876 employees	2002 DEFENCE The first prototype of GTK Boxer is presented	2006 DEFENCE Rheinmetall assigned the "Future Soldier" project	2010 RHEINMETALL AG Sales of €3,989 million and 19,979 employees	2011 AUTOMOTIVE Start of development of the range extender to enhance the range of electric vehicles
	2014 DEFENCE Unterlüß becomes the production center for the new Puma infantry fighting vehicle	2014 AUTOMOTIVE The new "Niederrhein" benchmark plant on the harbor jetty in Neuss commences production		2016 RHEINMETALL AG The headquarters of the Rheinmetall Group moves to the north wing of the newly constructed DELTA » D in its traditional Düsseldorf location



Rheinmetall head office, 1915

RHEINMETALL GROUP. THE TECHNOLOGY GROUP FOR MOBILITY AND SECURITY.

As a listed stock corporation with its head office in Düsseldorf, Rheinmetall AG is an integrated technology group with solid, internationally successful operations in the markets for environmentally friendly mobility and threat-appropriate security technology.

Urbanization, demographic change, migration flows, globalization, climate change and the increasing frequency and intensity of conflicts and military disputes mean that efforts to improve mobility and security are constantly increasing. Rheinmetall's two sectors, Automotive and Defence, meet these key basic requirements of modern society.

The Automotive sector with the management company Rheinmetall Automotive AG is one of the world's major automotive suppliers, particularly in the areas of air management, emissions reduction and pumps and in the development, production and supply of replacement parts for pistons, engine blocks and plain bearings. The core areas of expertise of companies in the Automotive sector lie in the reduction

of emissions, pollutants and consumption, cooling and thermal management, downsizing and reduction of weight and friction in relation to combustion engines. This applies not only to passenger cars, but equally also to light and heavy commercial vehicles, off-road vehicles and large engines. Rheinmetall Automotive also works intensively on drives for the electric and hybrid vehicles of the future.

The Defence sector of the Rheinmetall Group is a leading European systems supplier for armed forces technology and a strong and reliable partner to the German armed forces, their allies and friendly armies, along with civil national security forces. Whether it is for requirements specific to different branches of the armed forces or overall requirements, whether it is for external or internal security, Rheinmetall Defence provides system and partial system solutions as well as a wide range of services for capability in the areas of mobility, reconnaissance, management, effectiveness and protection. It also offers customized training and simulation solutions. Rheinmetall Defence stands for many years of experience and innovation in armored vehicles, weapons and ammunition and in the areas of air defense and electronics – including for the requirements of the navy and air force and for internal security.



1 COMPANY



2 CORPORATE SECTORS



6 DIVISIONS



177 COMPANIES IN
29 COUNTRIES



113 LOCATIONS IN
29 COUNTRIES



23,044
EMPLOYEES



SUPPLIES IN
138 COUNTRIES

OUR VISION

WE WILL BE A GROUP FOR LEADING TECHNOLOGIES IN MOBILITY AND SECURITY.

This vision shapes our aspiration for the future. It points the way for every employee.

ONE GROUP.

We are a company with two strong, equal pillars.

LEADING TECHNOLOGIES.

Innovative products for complex requirements with strong client benefits will also shape the character of our Company in the future.

MOBILITY and SECURITY.

We will extend our business focus in order to develop further areas of business and tap long-term growth potential for both corporate sectors. In the future, Rheinmetall Automotive's current positioning is to be broadened to include the core business area of mobility. This will better enable us to detect long-term market trends and provide new solutions for the changing mobility requirements of our clients. In parallel to this, we will widen the focus of Rheinmetall Defence to incorporate the core business area of security – and therefore also innovative solutions for the increased security requirements of civilian markets.

OUR MISSION

TECHNOLOGIES FOR MOBILITY. TECHNOLOGIES FOR SECURITY. PASSION FOR BOTH.

This clear mission describes our corporate self-image and the performance promise we would like to fulfill with respect to our clients.

TECHNOLOGIES FOR MOBILITY.

With our technologies now and in future, we help our customers meet their changing and rising mobility needs as urbanization progresses, while complying with stricter environmental regulations.

TECHNOLOGIES FOR SECURITY.

With our systems and components we offer our clients innovative, modern and threat-appropriate security – in the military and civilian sectors alike.

PASSION FOR BOTH.

Our passion for the best technical solution, for our Company and for what we do every day drives us diligently on. It is the force that unites all the employees in the Group.

OUR VALUES

RESPECT. TRUST. OPENNESS.

Our corporate values are at the core of everything we do and how we operate. They provide us with consistent rules for our day-to-day actions and the decisions we need to take in everyday working life.

RESPECT.

We respect others! We treat every colleague with esteem, irrespective of their personal background and field of work. This also includes dealing with all colleagues' opinions, ideas and achievements in an impartial way and cultivating a constructive feedback culture based on this.

TRUST.

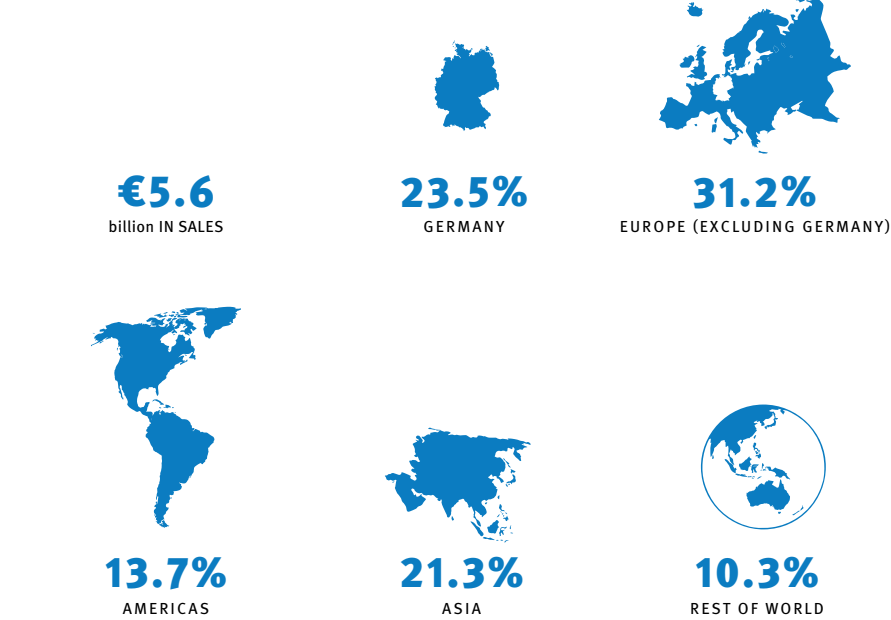
We do what we say! The confidence of our clients, colleagues, business partners and the public in our performance and reliability is the basis for our success. The actions of our employees, managers and company management must earn this confidence on a daily basis and continually reconfirm it.

OPENNESS.

We say what we mean! We maintain open communication both internally and externally and always behave in a transparent manner toward all our contacts. This is, of course, while observing strict confidentiality with respect to sensitive information at all times.

RHEINMETALL GROUP. CLEAR STRUCTURE – CLOSE TO THE MARKET AND CUSTOMERS

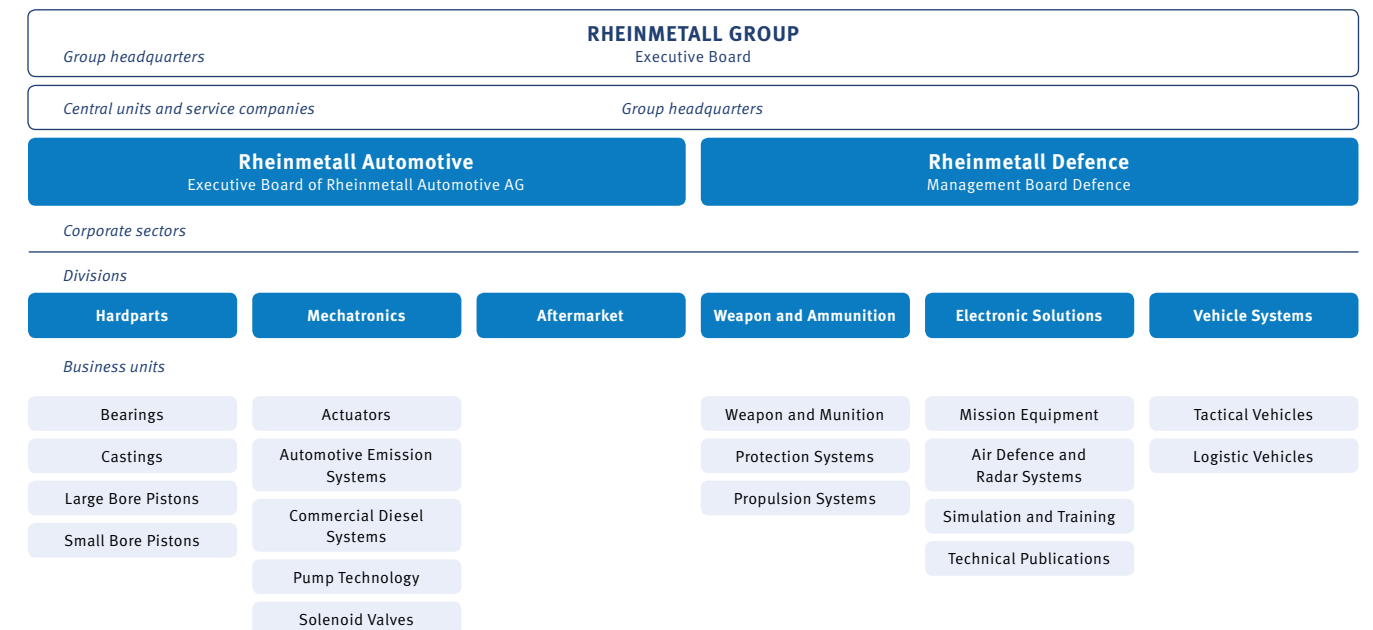
DISTRIBUTION OF SALES



It is Rheinmetall's philosophy to be present in the relevant markets, to live and work there and to understand and fulfill customers' requirements.

Our companies assume leading international positions in their fields of business thanks to their high-quality products, pioneering innovations and strong customer focus. The clearly defined core business areas of Automotive and Defence are equipped with all the necessary functions as independent sectors that operate in line with strategies, targets and guidelines determined by the Executive Board of the Rheinmetall Group, each with responsibility for their global business operations and their own management. This structure ensures a high degree of flexibility, rapid access to markets and strong customer orientation. Thanks to this high level of entrepreneurial freedom the individual companies are able to concentrate on what they do best. Fast, flexible and focused on customer requirements.

CORPORATE STRUCTURE, RHEINMETALL GROUP



KEY DATA. 2016 IN FIGURES.

353

OPERATING RESULT € million

In fiscal 2016, the operating result (EBIT before special items) amounted to €353 million (previous year: €287 million), of which €223 million is attributable to Rheinmetall Automotive (previous year: €216 million) and €147 million to Rheinmetall Defence (previous year: €90 million).

€258 million was spent on research and development across the Group in 2016, following €239 million in the previous year. Automotive and Defence reported an R&D intensity of 6.9% and 2.5% respectively, whereby the figure for Defence relates solely to the share of self-financed projects.

Both sectors contributed to the 8% increase in sales against the previous year.

5,602

SALES € million

4.6

%

R&D INTENSITY

At €7,114 million, the Rheinmetall Group had a record order backlog as per December 31, 2016.

7.1

ORDER BACKLOG € billion

In the 2016 fiscal year, around half of the workforce (49.9%) was employed at Rheinmetall companies outside Germany. Of the 11,536 employees at our German companies, 755 were foreign nationals.

23,044

EMPLOYEES

258

CAPITAL EXPENDITURE € million

In 2016, Rheinmetall Automotive reported capital expenditure of €149 million, Rheinmetall Defence €95 million and the Other Companies €14 million.

The shares of Rheinmetall AG, which has been listed on the stock market since November 14, 1894, are traded via Xetra and all German stock exchanges. Moreover, over the counter (OTC) trading platforms and multilateral trading facilities (MTF) such as Chi-X and Turquoise are playing a larger role.

The Rheinmetall share has been included in the MDAX since it was launched in January 1996. It comprises 50 companies which immediately follow the shares contained in the DAX based on rankings of market capitalization of free float and stock exchange turnover. In accordance with the guidelines of Deutsche Börse, a stock corporation's membership of an index depends mainly on two criteria: Market capitalization and the trading volume of shares. In the corresponding index rankings of Deutsche Börse, the Rheinmetall share ended 2016 in 21st and 23rd positions.

Rheinmetall's shares started 2016 with a market value of €61.48 and closed the fiscal year overall with a price increase of almost 4% at a price of €63.90.

Our dividend policy is earnings-oriented and designed to ensure that our shareholders receive an adequate share in the Group's profit on an ongoing basis. The dividend amount is based on business

performance and a payout ratio geared towards Rheinmetall AG's business results. Care is taken to ensure that the dividend is widely accepted by shareholders and that it represents an attractive investment criterion, especially for investors geared towards long-term investment. For fiscal 2016, a dividend of €1.45 per share will be proposed to the Annual General Meeting on May 9, 2017.

Analyses and comments by national and international brokers are important tools in helping institutional and private investors to make decisions. With 17 analysts, Rheinmetall's coverage by these organizations is still at a high level and confirms the high level of interest shown by the capital market in our Company. At the end of 2016, ten analysts gave Rheinmetall shares a "buy" rating, while a further seven recommended holding the shares.

Rheinmetall has had an issuer rating from the rating agency Moody's since 1999. Since the last assessment on April 6, 2016, the outlook has been stable with a long-term rating of Ba1.

LISTED ON THE STOCK
EXCHANGE SINCE

**November
14, 1894**

Ranked 21st

IN THE MDAX BY MARKET
CAPITALIZATION

€1.45

DIVIDEND

70%

INSTITUTIONAL
INVESTORS

17%

PRIVATE INVESTORS

17

ANALYSTS REPORT ON
RHEINMETALL

4%

INCREASE IN THE
RHEINMETALL SHARE
PRICE IN 2016

INNOVATIVE DRIVE TECHNOLOGY. FOR THE MOBILITY OF TOMORROW.

Rheinmetall Automotive is the mobility sector of the Rheinmetall Group. We develop, produce and sell components and systems for the vehicle industry.

The core areas of expertise of the operational units lie in emissions, reduction of consumption, cooling and thermal management, downsizing and reduction of weight and friction in relation to combustion engines. We also work on drives for the electric and hybrid vehicles of the future and gear our development and production towards this. The Kolbenschmidt and Pierburg brands have stood for know-how and expertise in the automotive sector for over 100 years, while with Motorservice we have a strong brand in the automotive aftermarket. This combination creates unique systems expertise, enabling us to cover all present and future mobility issues.



Automated, robot-assisted manufacturing

The Kolbenschmidt brand stands for high-quality components and reliable and long-lasting partnership with manufacturers of drives of all kinds. Be it small or large-bore pistons, plain bearings or en-

SYSTEMS EXPERTISE
TO COVER ALL
PRESENT AND FUTURE
MOBILITY ISSUES



Extensive testing of all components for maximum efficiency and long-term use

gine blocks – Kolbenschmidt develops, manufactures and supplies client-specific solutions for combustion engines used in passenger cars, commercial vehicles, ships and stationary engines. As one of the world's leading companies for lightweight construction and downsizing, many renowned and global manufacturers place their trust in us to collaborate in designing and manufacturing the drives of tomorrow. Apart from the quality of our products, our clients primarily value our problem-solving expertise and our service.

Reducing emissions and CO₂ while simultaneously optimizing performance are major challenges for the automotive industry. Specialists who find optimum solutions for this apparent contradiction are in demand, both for conventional and alternative drives. With its long tradition, the Pierburg brand stands for reliable partnership and future-oriented technology. As a development partner for the automotive industry we research drive technology for the future and develop innovative series-production-ready solutions based on this. Pierburg is synonymous with expertise and innovation in the area of emissions and consumption reduction, whether it be for exhaust gas recirculation systems, valves, actuators or pumps. In this process our partners trust the expertise of our employees and our passion for developing and manufacturing mechatronic components, modules and systems for drives.

Motorservice is responsible for the global replacement parts business within Rheinmetall Automotive. We are in daily contact with the wholesalers who subsequently supply our products to end customers, workshops and engine repair shops. We supply engine components from the premium Kolbenschmidt, Pierburg and TRW Engine Components brands and the BF brand to our clients in over 130 countries. We also offer our clients a full-service package. This begins with counterfeit-proof packaging, efficient, modern ordering systems and multilingual support and extends right through to the comprehensive technical information and on-site training package.



11,913
EMPLOYEES



67
COMPANIES

RHEINMETALL DEFENCE CONTINUOUSLY SETS NEW TECHNOLOGICAL STANDARDS THROUGHOUT THE ENTIRE SPECTRUM OF RECONNAISSANCE, EFFECTIVENESS AND PROTECTION: FROM VEHICLE, PROTECTION AND WEAPON SYSTEMS, THROUGH INFANTRY EQUIPMENT AND AIR DEFENSE, TO THE NETWORKING OF FUNCTION SEQUENCES, ELECTRO-OPTICS AND SIMULATION

RHEINMETALL DEFENCE. FORCE PROTECTION IS OUR MISSION.

Rheinmetall Defence is among the defense and security industry's leading providers of innovative products for the German and international armed and security forces.

We provide system and partial system solutions as well as a broad portfolio of services for capability in the categories of mobility, reconnaissance, management, effectiveness and protection. It also offers customized simulation technology for education and training.

The product range of the Vehicle Systems division includes tracked vehicles through wheeled tanks to trucks – with technological flagships such as the Puma infantry fighting vehicle and the Kodiak tank dozer, the Boxer armored transport vehicle and the Fuchs all-terrain AMPV vehicle, and not least the trucks from the TG, HX and SX families. The portfolio is rounded off by the high level of expertise in the Turret Systems unit.



Highly mobile truck 8x8 with integrated armored driver's cabin and integrated hook loading system



40 mm high velocity and low velocity practice, service and special purpose ammunition



Training in anti-submarine warfare in the German navy



10,938
EMPLOYEES



94
COMPANIES

Rheinmetall Defence's expertise in the area of weapons and munition systems is bundled in the Weapon and Ammunition division. The portfolio ranges from infantry weaponry, medium and large caliber weapon systems for land and air vehicles and sea-going vessels through high-energy lasers. Added to this are high-performance propellants, powder and drive systems for both small arms cartridges and artillery systems. The Protection Systems unit offers a variety of active and passive protection systems for personnel and materials.

The Mission Equipment business unit in the Electronic Solutions division is, among other things, the center of expertise for turret control systems, electro-optical systems, weapon platforms on vehicles and multi-sensor platforms, C4I, soldier systems, security and monitoring systems, tripods and remote-controlled weapon stations. The second business unit, Simulation and Training, incorporates the areas of maritime and process simulation, flight simulation, land simulation and live simulation. The Air Defence business unit groups together all activities relating to the design, development and manufacture or integration of systems for the entire air defense field and for airspace monitoring. The business unit simultaneously serves as the center of expertise for radar devices and services relating to air defense.

GLOBAL PRESENCE.



EUROPE

GERMANY
Aschau am Inn, Berlin, Bonn,
Bremen, Dormagen, Düsseldorf, Flensburg,
Gardelegen (Letzlingen), Geisenheim,
Gera, Hallbergmoos, Hartha, Harzgerode,
Heilbronn, Ismaning, Jena, Kassel,
Koblenz, Kiel, Krefeld, Lohmar, Munich,
Neckarsulm, Neuenburg, Neuenstadt,
Neuss, Oberndorf, Papenburg,
Rostock, Röthenbach (Pegnitz),
Schneitzleuth (Fronau), Silberhütte,
St. Leon-Rot, Stockach, Tamm,
Trittau, Unterlüß, Walldürn

FRANCE
Le Blanc Mesnil, Meyzieu,
Nanterre, Roissy (Villemorel),
Thionville

ITALY
Domusnovas, Ghedi, Lanciano,
Livorno, Rome

MALTA
Valetta

NETHERLANDS
Ede

NORWAY
Nøtterøy

AUSTRIA
Schwanenstadt, Vienna

POLAND
Gliwice, Warsaw

ROMANIA
Campia Turzii

RUSSIAN FEDERATION
Moscow

SWEDEN
Stockholm

SWITZERLAND
Altdorf, Bern, Lohn-Ammannsegg,
Studen, Thun, Urdorf, Wimmis, Zurich

SPAIN
Abadiano, Amorbieta

CZECH REPUBLIC
Trmice, Ústí (Chabařovice)

UNITED KINGDOM
Bristol, Isle of Wight, Kirtlington,
Blackpool, London, Swindon

First Locations outside of Germany

1901

EXPORTS
TO NORWAY

1902

EXPORTS
TO THE USA

1912

RHEINMETALL
INTERNATIONAL SALES

1968

RHEINMETALL AUTOMOTIVE
SÃO PAULO, BRAZIL

1975

RHEINMETALL DEFENCE
S'HERTOGENBOSCH, NETHERLANDS



AFRICA

SOUTH AFRICA
Boskop, Maitland,
Potchefstroom (Boksburg), Pretoria,
Somerset West, Wellington



AMERICAS

BRAZIL
Nova Odessa

CANADA
Ottawa, St.-Richelieu

MEXICO
Celaya, Mexico City

USA
Auburn Hills/MI,
Biddeford/ME, East Camden/AR,
Greensburg/IN, Greenville/SC,
Marquette/WI, Stafford/VA,
Wilmington/DE



ASIA

CHINA
Chongqing, Kunshan,
Shanghai, Yantai

INDIA
Mumbai, Pune (Takwe), Supa

JAPAN
Hiroshima (Takaya),
Odawara (Kanagawa)

MALAYSIA
Malacca

SAUDI ARABIA
Riyadh

SINGAPORE
Singapore

TURKEY
Ankara, Istanbul

UNITED ARAB EMIRATES
Abu Dhabi



AUSTRALIA

Adelaide, Brisbane, Melbourne

- Mechatronics
- Hardparts
- Aftermarket
- Weapon and Ammunition
- Electronic Solutions
- Vehicle Systems
- Defence



113 LOCATIONS
IN 29 COUNTRIES



138
CUSTOMER COUNTRIES



177 AFFILIATED COMPANIES
IN THE RHEINMETALL GROUP

RHEINMETALL AUTOMOTIVE. WIN-WIN IN CHINA.

THRIVING BUSINESS
AND SUBSTANTIAL
CONTRIBUTIONS
TO ENVIRONMENTALLY
FRIENDLY MOBILITY

1997
FIRST JOINT VENTURE

2,398
EMPLOYEES

€934
million SALES

It is not merely an option but rather an obligation to be present in the booming Chinese growth market, at the very least since the downturn in the North American and Western European automotive markets in the crisis-stricken year of 2009.

Although growth rates in the Middle Kingdom have not been in double digits for some years now, China remains the most powerful force in the entire sector for the foreseeable future. However, the rapid growth in vehicle ownership in the most populous country on earth brings enormous challenges with it, too. Accordingly, there is a great need to maximize all potential for the most environmentally friendly mobility solutions possible.

Rheinmetall Automotive, as a specialist in the reduction of fuel consumption and harmful emissions, does its part. This is not a recent development; it was one of the first European automotive companies to take action here. After all, our Kolbenschmidt and Pierburg operating companies entered into their first cooperations with Chinese partners back in the mid-1980s and early 1990s – at a time, therefore, when the roads in the major Chinese cities mainly still featured bicycles and scooters rather than sedans and SUVs. Against this background it is clear that with our broad product portfolio for lightweight constructions and emissions reduction in China we have written a success story that both sides consider a classic win-win situation.

EARLY COMMITMENT HAS PAID OFF

Our China story really took off toward the end of the 1990s. In July 1997, Kolbenschmidt became one of the first well-known piston manufacturers to be represented by a joint venture in China when it established a joint venture with Shanghai Piston Works (SPW) with the involvement of the Deutsche Investitions- und Entwicklungsgesellschaft (DEG). Pierburg also entered into a joint venture in 2001, founding Kolbenschmidt Pierburg Shanghai Nonferrous Components (KPSNC) with the Shanghai Automobile Nonferrous Casting Plant (SANCP), a subsidiary of the automotive manufacturer SAIC (Shanghai Automotive Industry Corporation). KPSNC was launched with a broad product portfolio ranging from intake manifold modules and cylinder heads to steering parts and complete oil and water pumps. In 2005, just a few years after entering the market, the two joint ventures already had sales of €76 million. Furthermore, in 2008 we founded our own Motorservice company in Shanghai for the aftermarket business, which is also growing in significance.

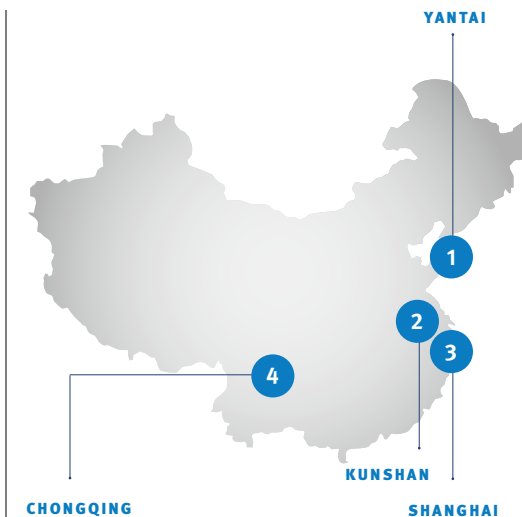


Sales performance at the time of the global industry crisis demonstrates how quickly investments in China can pay off. In 2009, sales had already doubled compared with 2005 to approximately €160 million. And Rheinmetall Automotive continued to invest in the Chinese growth market. Thanks to the expansion steps of KS Kolbenschmidt and Pierburg, the number of Rheinmetall Automotive companies has now increased to nine companies (joint ventures and wholly owned subsidiaries) and a total of 16 locations in China.

PIONEERS IN LIGHTWEIGHT CONSTRUCTION AND EXHAUST GAS RECIRCULATION

Taking cast components as an example, in March 2014 a further production site was created in the Shanghai metropolitan area based on the long-standing cooperation with the SAIC subsidiary HASCO. The new plant casts engine blocks and cylinder heads using state-of-the-art technology, as the location consistently focuses on the lightweight construction of vehicles and consequently also on the increasingly important role of aluminum technology. Rheinmetall Automotive has now assumed a pioneering role as a partner of Chinese automotive manufacturers in the area of aluminum structural components and makes a not inconsiderable contribution to improving the environmental balance of the vehicles clients produce.

Rheinmetall Automotive's most recent commitment further advances the Mechatronics business: In December 2016, Pierburg agreed to found a joint venture with Zhejiang Yinlun Machinery of Tiantai to manufacture exhaust gas recirculation radiator modules for the Chinese market. Yinlun specializes in heat exchangers for vehicles and construction machinery as well as in components for reducing emissions and die casting products. In addition to exhaust gas recirculation radiator modules, the new joint venture will manufacture components for the thermal management of electric vehicles as well as charge air coolers and equipment for the after-treatment of exhaust gases. In the interest of local sourcing, the existing Pierburg plant in Kunshan supplies the built-in exhaust gas recirculation valves and Yinlun supplies the coolers used to the new joint venture.



**16 PRODUCTION FACILITIES
AND OFFICES IN FOUR
METROPOLITAN AREAS**

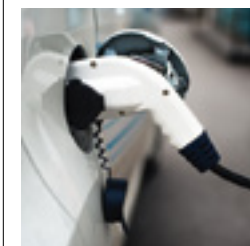
**240,000 m²
OF BUILDING AREA**

In 2017, Rheinmetall Automotive will generate sales of around €1 billion in China via its joint ventures and wholly owned subsidiaries, and the trend will continue. On balance, it is clear that our early commitment in China and good cooperation with our partners has developed into a genuine German-Chinese success story.



The 2.6 km "Bund" walkway on the west banks of the Huangpu River is one of Shanghai's greatest trademarks

Vehicles with alternative drives, such as plug-in hybrids and electric vehicles, are becoming more popular on the Chinese automobile market




10,938
EMPLOYEES


76%
INTERNATIONAL SHARE
OF SALES

700+
PRODUCTS

40
TRADE FAIRS IN 2017

1909
CHINESE DELEGATION
VISITS RHEINMETALL'S
UNTERLÜSS OFFICE

RHEINMETALL DEFENCE. ROOTED IN GERMANY – AT HOME ACROSS THE WORLD.

RESPONSIBLE INTERNATIONALIZATION AND LONG-TERM PARTNERSHIPS

Internationalization is a bugbear for some. For us, it has been an essential basis for our success for many years.

After all, developing new markets and expanding the customer portfolio are necessary requirements for maintaining our core competencies and strengthening our competitiveness. Nowadays it is vital to have a local presence. That is the only way to understand customers' requirements and meet them precisely. This particularly applies in the defense technology business, where procurement projects depend heavily on the security policy interests and challenges of the country concerned. That being said, we always ensure that our international activities are consistent with the foreign policy and security policy objectives of the Federal Republic of Germany.



Night shooting during an infantry symposium

HUBS IN THE REGIONS

As a leading systems supplier for armed forces technology we make an important contribution to the security of soldiers on deployment through our products and services worldwide. We set out on the road to internationalization very early and resolutely. And we intend to continue along this path. With 65 locations, we are now represented in Europe, North and South America, Asia, Africa and Australia. In the Defence sector we employ around 11,000 employees worldwide and generate sales of €2.9 billion, more than two thirds of which is generated outside Germany. Germany remains our most important individual defense market with approximately 24% of sales. The international locations operate as hubs in the respective countries and regions, enabling us to provide optimum local support to our partners in governments, authorities and industry.

STRONG PARTNERSHIPS AND LOCAL VALUE ADDED

To gain a foothold in new markets we particularly focus on partnerships – with other international and local companies – as well as on acquisitions. However, these partnerships only work well if both sides benefit in equal measure. While we contribute our broad portfolio of high-tech products and our key technologies in the field of armed forces technology, we benefit from our partners' expertise, contacts



Air defense systems: Optimal protection against air threats

and networks. Our readiness to involve local industry and develop expertise locally has already opened many doors for us. Through local value added we also make a contribution to regional development. After all, a large part of the sales generated by the companies flows back into the respective economies via the employees, the treasury and the shareholders. Furthermore, as an employer and customer we contribute to society in other ways through the transfer of knowledge and local social engagement.

An order for the supply of Fuchs wheeled tanks to Algeria in 2014 is a good example of our close cooperation with our customers. After obtaining the necessary approval from the German government, we trained over 200 Algerians in the production of the Fuchs at the Rheinmetall MAN Military Vehicles plant in Kassel. They also gained theoretical qualifications at the vocational training center of the Kassel Chamber of Trade. While production in the first phase of the project took place in Kassel only,

the Fuchs wheeled tanks are now assembled in a plant in Algeria constructed specifically for this purpose. All the components are manufactured in Kassel. Our Kassel colleagues also support the employees at the Algerian plant in technical matters as well as in the maintenance and repair of the vehicles. This overall package leads to local qualifications and creates future career prospects in an economically underdeveloped country.

MAXIMUM RESPONSIBILITY

We are conscious of the fact that the security technologies business brings with it the highest degree of responsibility. For one thing, the manufacture, trading and export of defense technology products is strictly regulated, particularly in our home market of Germany, and rightly so.

Besides national laws and regulations, different international agreements and provisions must be observed. Each of our international companies has experienced war weapons control and export of officers on site who ensure compliance with statutory provisions and that an appropriate approval has been obtained for each procedure requiring one. We have also set stringent rules and standards for ourselves and established transparent processes to ensure we conform to them.



Top: The modular structure of the Boxer highly mobile, armored transport vehicle allows for many mission-specific options

Bottom: Training solutions for military and civilian users in the areas of armed forces, public safety and industry in the transport, shipping, energy and raw materials sectors

Modular, integrated armor for driver's cabins protect vehicle crews from ballistics, mines and IEDs



ACHIEVING TARGETS. BUT NOT AT ANY COST.

Our reputation, the success of the business and the trust of customers, shareholders, business partners, employees and the general public in our company depend not only on the quality of our products and services, but also to a large degree on responsible corporate governance and compliance. Based on our firm convictions, we stand for sustainable corporate management, and in line with our values and rules, we are committed to impeccable conduct characterized by responsibility, integrity, respect and fairness. We are an honest, loyal and reliable partner to our stakeholders.

RESPONSIBLE CORPORATE MANAGEMENT

As an international technology group, the Rheinmetall Group is involved in the economic, ecological and social conditions of different countries and cultures. The foundation for our good reputation is the trust of customers, shareholders, employees and the public in our integrity.

We have traditionally been committed to a responsible, fair and reliable corporate policy which is geared towards the use and expansion of entrepreneurial potential, achieving medium-term financial targets and increasing the value of the Company on a systematic and sustainable basis.



In addition to continuity, economic growth and compliance with the principles of good corporate governance, responsibility towards shareholders, customers and employees as well as the careful use of natural resources are part of our self-image and our corporate culture.

For us, effective corporate governance includes protecting the interests of all stakeholders, early reporting, proper accounting and trustful and efficient cooperation between the Executive Board and the Supervisory Board. Accordingly, corporate governance is accorded major importance within the Rheinmetall Group.

The law on stock corporations, capital market law and the right of co-determination, the Company bylaws, the Code of Conduct, internal policies and the German Corporate Governance Code, which is based on internationally recognized standards, form the basis for the organization of management and control at the Company, with the aim of ensuring the greatest possible transparency for investors, business partners, analysts, media, employees and the public and strengthening trust in Rheinmetall AG's business policies.

We will continue to pursue our strategy as an international development partner in the markets for mobility and security with a focus on profitable growth. Our two corporate sectors, Automotive and Defence, have potential for organic growth which is supported by

the current regulatory and political framework as well as the investments we have made in product innovations in recent years. We will exploit the market opportunities that result from this responsibly.

We consider value creation to be continuously increasing enterprise value and securing and improving profitability, taking account of the

principles of a social market economy. The aim of value creation is profitable growth and making a positive, sustainable value contribution in all business areas over the long term.



OBEYING THE LAW AND ACTING WITH INTEGRITY – COMPLIANCE AT RHEINMETALL

In the day-to-day business of an international company, the different national political and legal systems as well as traditions, moral concepts and societal norms of different cultural groups have to be taken into account. In addition to the applicable legislation of the countries of exportation, European Union regulations as well as anti-corruption laws such as the US Foreign Corrupt Practices Act, the UK Bribery Act and the French Sapin II Anti-Corruption Act must be observed, along with economic sanctions and embargoes.

Illegal conduct can cause many different types of damage and can have serious consequences, such as the imposition of fines, the absorption of profits, claims for damages and criminal proceedings. There is also the risk of significant and lasting damage to the Group's reputation and thus a detrimental effect on its market position.

For this reason, the central compliance management system, which focuses on the protection of fair competition, corruption prevention and export control, aims by means of comprehensive rules, current information on key developments, regular training and personal consultations to ensure conduct is in accordance with the law and regulations, to prevent employees from violating laws and corporate policies and to support them in applying laws and corporate policies correctly and appropriately.

The compliance management system is updated at regular intervals, not only in line with the applicable legal requirements but also in the light of new findings from reporting, comparisons with other compliance systems and the assessment of external specialists. It is also reviewed on an ad-hoc basis if any breach of compliance regulations is suspected or discovered. Implementation of the compliance management system is monitored through monthly reports prepared by the Compliance Officer for the Corporate

Compliance Office as well as through routine and special audits conducted by Internal Auditing and the compliance organization. Internal Auditing works with Compliance on a regular basis to perform audits on compliance topics for select Rheinmetall Group companies.

In addition to four direct employees at holding level in the Defence sector, the Compliance Officers from the three divisions and, in the Automotive sector, the six Regional Compliance Officers for Europe, Brazil, India, China, Japan and the NAFTA sales region are assigned to the Chief Compliance Officer, who reports directly to the CEO. In addition, Compliance Officers in the Rheinmetall Automotive and Rheinmetall Defence companies undertake preliminary work for the six aforementioned Regional Compliance Officers.

The Chief Compliance Officer, who regularly reports to Executive Board meetings on the latest compliance issues, keeps the executive boards in the Rheinmetall Group and the Audit Committee of the Supervisory Board of Rheinmetall AG constantly informed of the status and effectiveness of the compliance management system and of the latest developments. In serious cases, the committees are informed immediately.

Rheinmetall Defence is regularly assessed by Transparency International UK, a non-governmental organization that has dedicated itself to fighting corruption. The 2015 rating examined 163 defense companies from 47 countries. Taking into account publicly accessible additional internal information that was submitted, Rheinmetall was given a "B (good evidence)" on a scale from "A (extensive evidence)" to "F (almost no evidence)".



ZERO TOLERANCE FOR CORRUPTION AND FRAUD

Each of our employees knows that we would rather not do business than breach the law. The Rheinmetall Group takes a zero-tolerance approach to illegal and/or unethical behavior and to corrupt business practices, no matter what the circumstances.

Rheinmetall is synonymous with honest business, compliance and consequential action. In 2014, therefore, we learned the right lessons from a compliance case in Greece and ensured a thorough investigation. And not only that:

We firstly separated the legal and compliance functions and subsequently restructured the compliance organization, increased its staff and, above all, also significantly extended its remit in the two corporate sectors of Automotive and Defence.

Via the newly established whistleblower system employees can reach an independent, external ombudsman who is a lawyer by profession around the clock and free of charge and give him information, anonymously if they wish, on business practices that may be prohibited, breaches of regulations or company-related crimes.

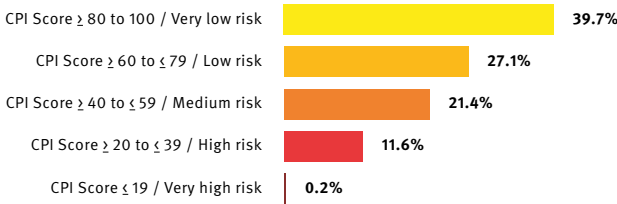
The next step was to increase the number of training sessions again, including for specific roles such as buyer or sales employee, in order to reach even more employees and raise their awareness of compliance risks through classroom training sessions and/or interactive online programs.

In the area of sales support, guidelines and handbooks for dealing with business partners have been created in addition to the development of a platform containing information on over 90 countries and regions. Moreover, the tender process was optimized: In the course of the bid/no bid decision a compliance audit using defined criteria is obligatory for projects over a certain value threshold.

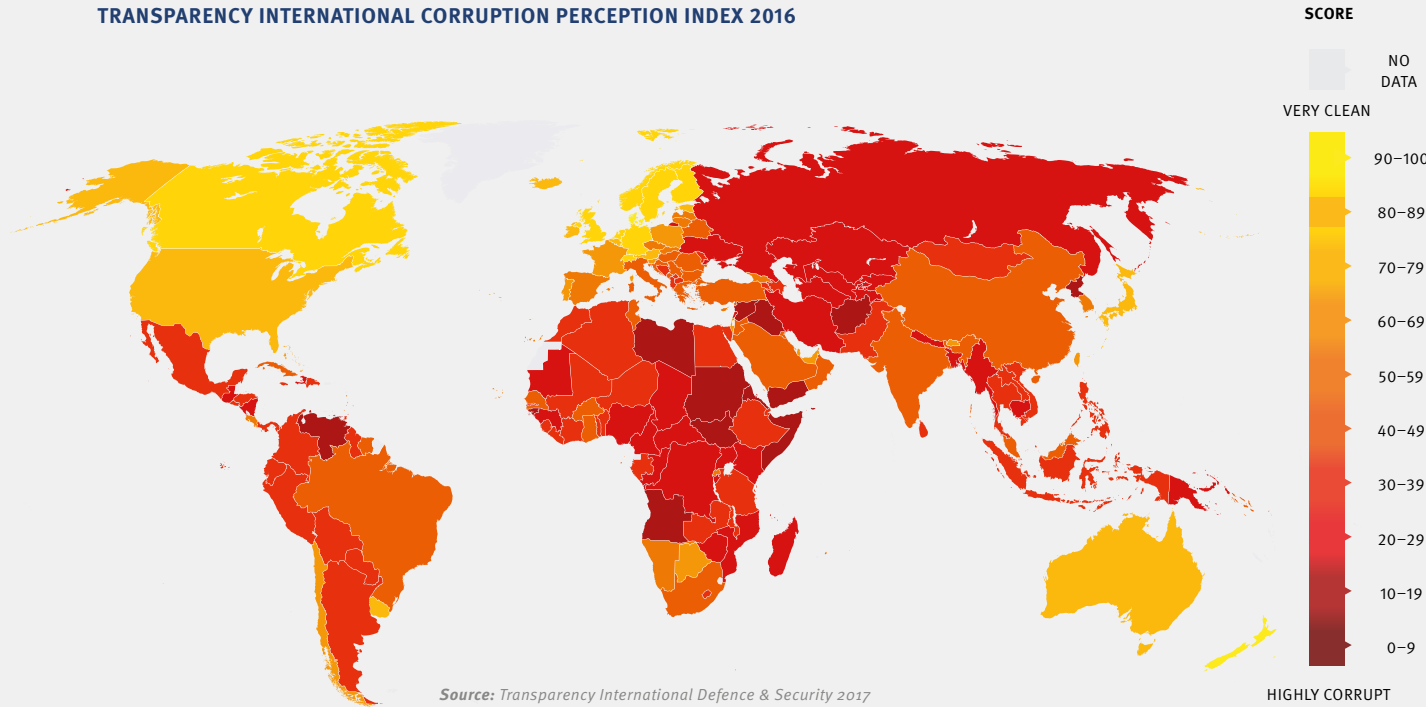
According to Transparency International's Corruption Perception Index for 2015, which ranked 167 countries in terms of the degree of corruption perceived in the public sector, we have business operations predominantly in countries with a very low or low corruption risk.

Rheinmetall is involved on a national and international level with associations and networks which also concern themselves with ethical conduct in business life.

THE RHEINMETALL GROUP'S SALES CONTRIBUTIONS BY CORRUPTION RISK



TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTION INDEX 2016



BAAINBW IS IN CHARGE OF HANDLING CENTRAL PROCUREMENT FOR THE GERMAN ARMED FORCES

OUR LARGEST CUSTOMER: THE GERMAN ARMED FORCES

The defense budget for the Federal Republic of Germany, also known as Section 14, sets the financial framework for the Federal Minister of Defense's division.

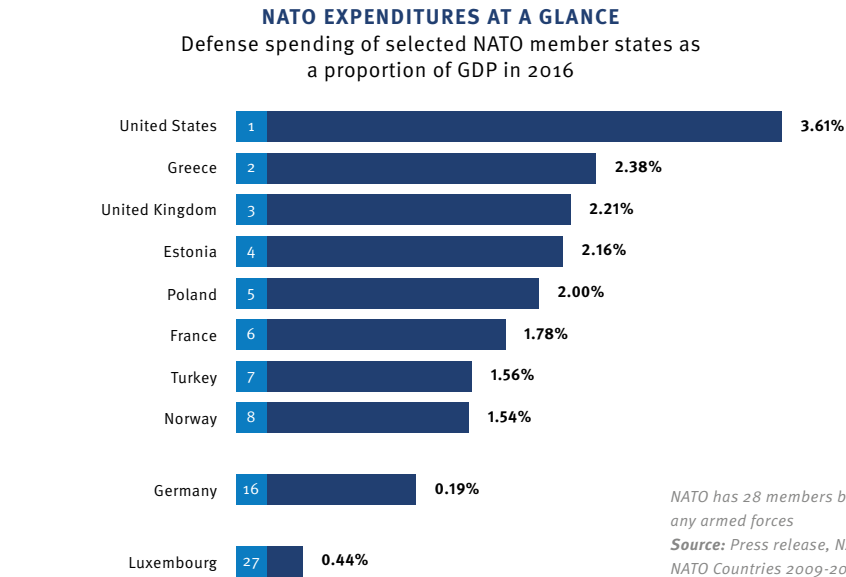
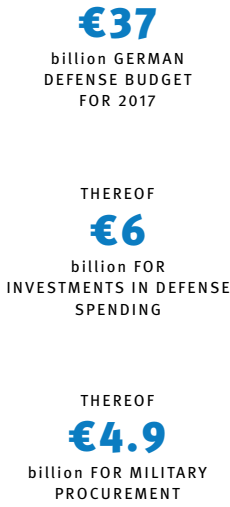
For companies which have a business relationship with the German Armed Forces, the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw) is the contact partner for contract awarding. The BAAINBw is the successor to the Federal Office of Defense Technology and Procurement (BWB) founded in 1958, from which the Federal Office for Information Management and Information Technology of the Armed Forces (IT-AmtBw) originated in 2002. Once the BAAINBw began operations on October 1, 2012, both federal offices were merged back into the BAAINBw. BAAINBw and its agencies report to department A at the Federal Ministry of Defense.

BAAINBw's main task is to equip the German Armed Forces with high-performance and safe equipment. Its work focuses on developing, testing, procuring and managing the use of defense material. These tasks are partly performed in-house but are also partly awarded to and performed by industry and commercial businesses.

The spectrum includes highly complex weapons and IT systems, tanks, aircraft and ships, as well as personal items of equipment for soldiers. The Office has end-to-end responsibility in this process, from developing proposed technical solutions, implementation and in-service management through to sorting and recycling defense material.

The BAAINBw is supported by eight Technical Centers and Research Institutes as well as by the Bundeswehr Information Technology Center. The Naval Arsenal is a further agency that is responsible for ensuring that the German fleet is ready for duty. The Liaison Office in Reston/USA represents defense technology or armaments interests when dealing with US or Canadian government agencies or industry.

The equipment and in-service support process, which comprises three processes, forms the basis for all procurement activities. Its revised customer product management process provides the framework for the timely and economical procurement of deployment-ready products and services, as well as for their efficient use. This primarily relates to armament projects and thus the core business of BAAINBw.

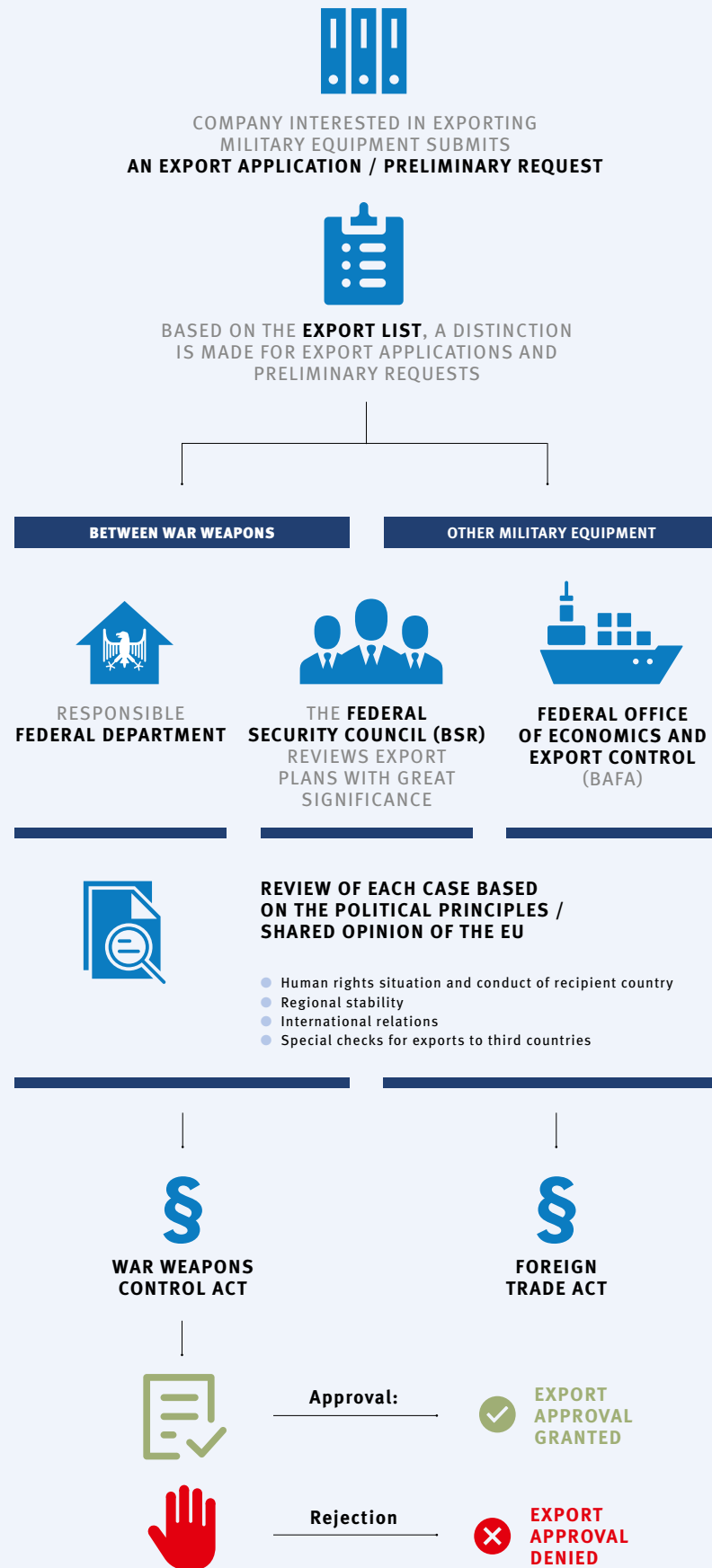


NATO has 28 members but Iceland does not have any armed forces
Source: Press release, NATO Defence Expenditures of NATO Countries 2009-2016, July 2016

2.2% MILITARY SPENDING AS A PROPORTION OF GDP IN 1991 (€1,580 billion)

1.2% MILITARY SPENDING AS A PROPORTION OF GDP IN 2015 (€3,033 billion)

EACH CASE IS REVIEWED – APPROVAL PROCESS FOR EXPORTS OF MILITARY EQUIPMENT



Source: German Federal Ministry for Economic Affairs and Energy 2017

EXPORTS OF MILITARY EQUIPMENT ARE NOT LIKE ANY OTHER EXPORTS

The export of military equipment is a very sensitive area. In Germany there is a clear legal framework for the export of war weapons and other military equipment. Article 26 (2) of the German Constitution stipulates that weapons intended for warfare may only be manufactured, transported and put into circulation with the approval of the German government.

The manufacture, trade, brokering and export of war weapons are subject to the stringent provisions of the Kriegswaffenkontrollgesetz (KrWaffKontrG – German Weapons of War Control Act). Violations are generally punishable by long terms of imprisonment. Further material federal laws are the Aussenwirtschaftsgesetz (AWG – German Foreign Trade and Payments Act) and the associated Aussenwirtschaftsverordnung (AWV – German Foreign Trade Regulations). They govern the approval process for the export of war weapons and other military equipment. Germany's Foreign Trade Regulations also contain an export list, with all military equipment for which approvals are required.

The German government bases its decisions on military exports on the “Political Principles Adopted by the Government of the Federal Republic of Germany for the Export of War Weapons and Other Military Equipment” of January 19, 2000 and the “Council Common Position of the EU defining common rules governing control of exports of military technology and equipment” of December 8, 2008. When doing so, in some cases it imposes stricter criteria than that required by the Council Common Position of the EU on weapons exports.

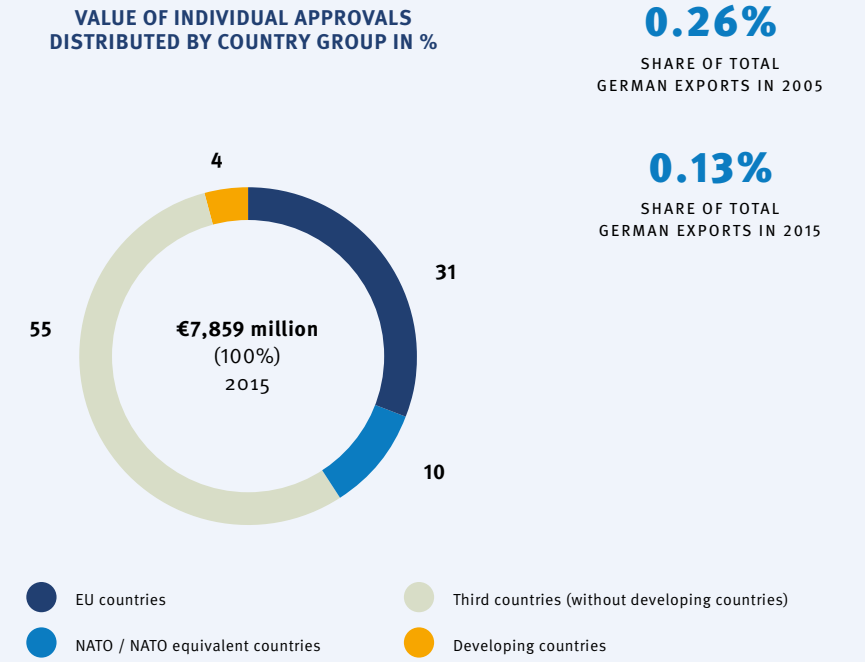
Decisions on military exports are always made on a case-by-case basis. The German government examines export applications very thoroughly. During the examination, major importance is attached to maintaining peace, security and stability and observing human rights. The test criteria are

differentiated, for example, according to the EU, NATO and equivalent countries (Australia, Japan, New Zealand, Switzerland) on the one hand and third countries on the other.

The German government applies very stringent principles with respect to military exports to third countries. The export of war weapons is not approved unless called for by specific foreign or security policy interests in individual cases. There is no entitlement to approval. For example, approvals may only be granted where there is no risk of the war weapons being used in acts disturbing the peace. Current developments, such as the global challenges presented by terrorist organizations such as the Islamic State (IS/Daesh), particularly in North Africa, the Mediterranean region and the Middle East, are taken into account in this process and play a key role in the consideration of individual cases.

In 2015, the share of annual exports of war weapons (including German Armed Forces contributions) amounted to €1,555 million (0.13% of total German exports) compared to €1,630 million in 2005 (0.26% of total German exports).

VALUE OF INDIVIDUAL APPROVALS DISTRIBUTED BY COUNTRY GROUP IN %

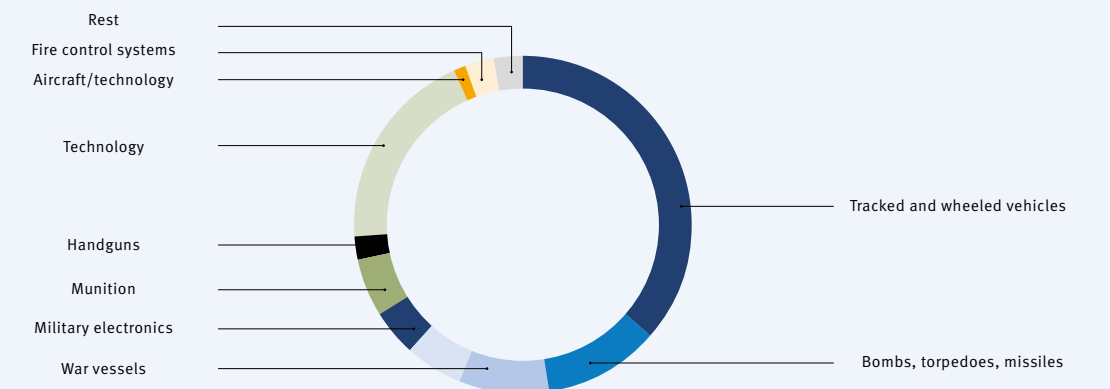


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The export of military equipment is among the most important compliance topics of all. The process is subject to the most stringent of political and official controls. However, Rheinmetall also makes its contribution towards reliable export controls by means of demanding internal standards.

Dr. Klaus Pottmeyer, Central Legal Division – Center of Expertise for Export Control

SHARE OF KEY EXPORT LIST POSITIONS IN INDIVIDUAL APPROVALS (BY VALUE) IN 2015





GLOBAL, COMPLEX RULES FOR IMPORT AND EXPORT OF GOODS AND SERVICES

The Rheinmetall Group and Rheinmetall Defence in particular have great responsibility when it comes to exports. It is essential to comply with the strict provisions of the rigorous German and European foreign trade laws and the particularly restrictive Weapons of War Control Act. Foreign trade laws govern trade with foreign countries, taking special account of their own security, export, business and trade policy needs. The Implementation Act on Article 26 Section 2 of the Basic Law (the War Weapons Control Act) governs the manufacture, provision, circulation, acquisition and transport of objects, substances and organisms that are intended for warfare.

We take this sensitive issue very seriously and adhere to the highest standards when it comes to export control. All Rheinmetall Group companies must comply with these high standards, as stipulated in numerous organizational and procedural instructions, such as in Rheinmetall Automotive's Trade Compliance Guideline. On a regular basis, all employees involved in export control are thoroughly trained on issues relating to foreign trade laws and war weapons control laws, and reminded of their responsibility. Rheinmetall has also developed its own electronic training courses on this set of issues. This provides employees with easier access to significant and complex materials.

The Legal department at the Group holding company in Düsseldorf coordinates export control. It clarifies general legal questions, maintains contact at primary level to the government agencies involved, and ensures that our high standards are met in all affected companies of the Rheinmetall Group.

PROFESSIONAL MANAGEMENT OF INTERNATIONAL GOODS TRADE AT RHEINMETALL AUTOMOTIVE

In 2016, Rheinmetall Automotive generated approximately 80% of its sales abroad, and this trend will continue. International goods trade is a very complex subject. All countries have their own regulations on export control, taxes and customs procedures that absolutely must be adhered to.

While 160 countries have joined the World Trade Organization (WTO), which generate more than 90% of the world's trade volume, not everything runs smoothly in global trade. This is because while WTO members must remove trade barriers, other trade obstacles arise such as technical standards and special certificates that countries use in attempt to protect their domestic industry from too much international competition. Apart from the nearly unlimited domestic market in the EU, there are other free trade zones with their own rules outside Europe, such as in North and Central America (NAFTA), South America (Mercosur) and Asia (Asean). There are also bilateral or multinational agreements among countries that must be observed.

Based on the Trade Compliance Guideline, Rheinmetall Automotive has continually expanded its foreign trade organization in years past, so that the diverse national and international requirements are met and all relevant internal processes are harmonized to the largest extent possible.

The key element in the area of customs and trade is goods classification. The number one rule is: There is only one customs tariff number for each product. This number (which can be obtained if needed from the customs authorities using a "binding customs tariff request") indicates what can and cannot be done with the respective product. This ranges from customs duties to export restrictions to environmental requirements.

The team of experts for the German foreign trade commissioner advises the Executive Board and divisions of Rheinmetall Automotive on all issues relating to customs and foreign trade law along the value chain -- from procurement to production to distribution. Regular communications are maintained with the regional customs and foreign trade experts. This is only means to identify what governments will do when it comes to import and export handling and export control at an early stage.

CLEAR RULES – FULL DOCUMENTATION

Experienced war weapons control and export officers are employed on site at every Rheinmetall Defence company to ensure compliance with the particularly stringent provisions of the German Weapons of War Control Act and the no less strict German and European foreign trade laws and particularly that an appropriate approval has been obtained for each procedure requiring one.

All companies dealing with war weapons are subject to comprehensive monitoring provisions. Each movement of war weapons, without exception, must be documented in the "War Weapons Book." These War Weapons Books must be submitted to the supervisory authority, the Federal Office of Economics and Export Control (BAFA), on a half-yearly basis. There, each individual entry is examined to check whether it was covered within the existing approval parameters. Maintaining the War Weapons Book entails high administrative costs. Over 18,500 entries were made at Rheinmetall Defence in 2016. With regard to other military equipment under the Foreign Trade and Payments Act (AWG)/ Foreign Trade Regulations (AWV), there were nearly 700 applications for export licenses. This does not include exports made on the basis of general approvals (e.g. temporary exports, supplies made to EU armed forces and certified recipients). These may amount to two to three times the number of individual approvals. Furthermore, all locations with war weapons are visited on a regular two-year cycle by external inspectors from BAFA who check thoroughly whether the inventories in the War Weapons Book correspond with the actual circumstances on site. They also examine whether each entry is based on a correct record.

In addition to the inspections under the German Weapons of War Control Act, there are also foreign trade audits by the customs authorities. Every three years, all Rheinmetall Group companies are visited. The audits check whether exports followed the applicable provisions of foreign trade laws. In some Group companies the inspections last several months. The standard applied by the customs authorities is extremely high.

The facilitation of supplies within the EU – Directive 2009/43/EC of May 6, 2009 "to simplify the terms and conditions of transfers of defence-related products within the Community" (OJ EU of June 10, 2009, L 146, 1 – "ICT Directive") – is aimed at simplifying deliveries of military equipment within the EU. In particular, it aims to enable deliveries between certified companies to be made on the basis of general approvals, quickly and without bureaucracy. The Federal Republic of Germany implemented the ICT Directive in national legislation in 2011. Currently, Rheinmetall Waffe Munition, Rheinmetall MAN Military Vehicles and Rheinmetall Defence Electronics are ICT-certified. Rheinmetall Landsysteme is in the process of certification. However, the simplifications are still somewhat limited at the present time. This is because only very few companies within the EU have undergone certification. However, the benefits will set in once the major EU companies in the sector have followed Rheinmetall's example.

Extract from Rheinmetall Defence's product range

18,544
ENTRIES IN
WAR WEAPONS BOOKS

171
EXPORT LICENSE
APPLICATIONS PURSUANT
TO THE GERMAN WEAPONS
OF WAR CONTROL ACT

672
EXPORT LICENSES
PURSUANT TO THE FOREIGN
TRADE AND PAYMENTS ACT/
FOREIGN TRADE AND
PAYMENTS ORDINANCE



SAFE WEAPONS HANDLING

Rheinmetall Defence attaches great importance to the handling safety of its products. The handling safety of all weapons and ammunition must be demonstrated during a qualification program.

To this end, the products undergo various tests and safety analyses in accordance with established NATO standards that map the entire lifecycle and reconstruct the conditions that arise during manufacture, storage, transport, operational use, an accident and destruction of the product. The aim is to examine whether the products are reliable and safe in all of these situations. For example, attention is focused on whether the materials used in the product react with each other in an undesired manner as a result of strong vibrations or in extreme temperatures during long storage periods, resulting in an unintended reaction.

The results of all the trials conducted are compiled and documented in a safety analysis report (SAR) for the product in accordance with established NATO specifications. This document subsequently forms the basis of the customer's approval of the weapons or ammunition. The corresponding safety regulations for users handling and using the products are also derived from the SAR. It goes without saying that Rheinmetall Defence only puts products that conform to all legal regulations and NATO standards on handling safety into circulation.

Independently of these tests relating to handling safety, Rheinmetall Defence actively works towards replacing any materials in its products that are harmful to health. To reduce any negative effects on health, Rheinmetall implements all legal regulations and NATO standards, such as the Montreal Protocol, for example.

NO FAKES! ONLY REAL STUFF – GREATER PREVENTION OF COUNTERFEITS

In many industries, product piracy is a matter of course – and the automobile and supplier industries are no exception. The auto parts market is flooded with cheap imitations of branded replacement parts. According to the European manufacturer's association ACEA, the auto industry loses sales of €5-10 billion each year due to the sale of counterfeit replacement parts. These counterfeits cause more than financial harm. Fake brake pads, imitation rims or spark plugs can have dangerous consequences for consumers – ultimately, only OEM parts meet the mandatory safety standards.

As a leading manufacturer of engine components for the general replacement parts market, MS Motorservice places great value on protection from counterfeiting of its products under the premium brands of Kolbenschmidt, Pierburg und TRW Engine Components as well as the BF brand. When it comes to product protection, we rely on a combination of the printed industry standard code and

safety features. Therefore, for many years we have used the innovative counterfeit protection technology tesa Holospot by tesa scribos, in order to protect the printed code with physical evidence and prevent piracy.

As a label-on-label solution, the tesa Holospot sticker is permanently attached to the Motorservice product label. tesa Holospot has two key advantages: The authenticity of the product can be verified at a glance, and the product can also be tracked throughout the distribution chain with precision and security. With the tesa Holospot, the item's unique code, the brand logo, and other item-specific security structures can be seen with the naked eye or a magnifying glass. The tesa Holospot integrates the printed MAPP code, which clearly identifies each component. Thus, the Motorservice product label combines clear product identification with reliable physical evidence of authenticity, in order to instantly reveal counterfeits. Motorservice also uses a tamper-proof seal from tesa scribos in order to protect shipments from theft and tampering throughout the logistics chain. The seal shows a permanent “void effect” as soon as it is opened. This not only protects all shipments from theft, but also prevents illegal re-use of packaging, such as to sell counterfeit items.



CATERPILLAR AWARDS

In 2016, large-bore piston segment of Rheinmetall Automotive continued its success from the prior year. For the second time, it received the Supplier Quality Excellence Process (SQEP) Gold Award from the construction equipment and engine manufacturer Caterpillar for outstanding supplier services. This honors KS Kolbenschmidt's 100% on-time delivery record and quality services. In other words, last year there were zero complaints.



For the second time in a row, in October 2016 KS Large Bore Pistons LLC located in Marinette, Wisconsin received Caterpillar Inc.'s SQEP Platinum Award for exceptional service and quality performance. KS Kolbenschmidt US Inc., also located in Marinette, received the SQEP Bronze Award.

VOLVO CARS QUALITY EXCELLENCE AWARD

Pierburg locations Neuss and Hartha, which deliver solenoid valves, radiator modules, water pumps and water circulation pumps to Volvo, received the Volvo Cars Quality Excellence Award (VQE) in March 2017. This quality award has extremely high standards. To be eligible, the supplier must demonstrate outstanding delivery quality during one year of close observation; it must also perform above-average in twelve different segments of the delivery chain.



KOLBENSCHMIDT K.K. IN JAPAN WINS THE OPI AWARD FOR THE NINTH TIME

The OPI Award (Overall Performance Index) is an annual competition held in Rheinmetall Automotive's piston plants that rates such key figures as efficiency, goods turnover, and rejects. Along with the plant's performance, however, the ratings are based on its improvement versus the prior year and its results compared with the top piston plant.



AWARD FOR OUTSTANDING PRODUCT AND SUPPLIER QUALITY

In 2016, Rheinmetall Automotive's Mexican plain-bearing plant received the prestigious General Motors Supplier Quality Excellence Award for outstanding product and supply quality. The prize winners must first meet a defined list of criteria that checks such aspects as customer satisfaction, delivery performance and controlled shipments. Along KS Gleitlager de Mexico, other plants of Rheinmetall Automotive have already won the GM Excellence Award, including the Pierburg plant in Ustí nad Labem, Czech Republic, Pierburg in Berlin and Pierburg S.A. in Abadiano, Spain.



YES TO GERMANY AS A BUSINESS LOCATION. RHEINMETALL INVESTS IN DÜSSELDORF, NEUSS AND UNTERLÜSS.

A former Rheinmetall production site becomes a new city district: "Unternehmerstadt" ("entrepreneur city") in Düsseldorf-Derendorf was completed in 2016

It is not only the employees who are the face of a company. It is also its sites – regardless of whether they are architectural masterpieces or simple functional buildings. Sites create tangible points of contact. We notice them and link them with their environment in countless ways. This particularly applies to our plants. Value added goes hand in hand with a site's strong local and regional network. Thriving production sites mean attractive jobs for highly qualified employees and training positions close to home as well as orders for local suppliers and service providers. Educational and cultural organizations as well as sports clubs and churches in the surrounding area also benefit from our employees' voluntary commitments.

In previous years we have invested many millions in Düsseldorf, Neuss and Unterlüß, among other places. The money was used to strengthen the sites and make them fit for the future. These investments are a clear commitment to Germany as a location: To the performance and expertise of the employees, to the attractive local conditions and not least to our social responsibility towards the respective region. Today and in the future.

A HEAD OFFICE WITH WINGS

The DELTA » D ensemble of buildings completed the entrepreneur city in Düsseldorf-Derendorf at the beginning of 2016. The innovative pair of buildings on a plot of 6,000 square meters consists of two

triangular building halves linked by a historical existing building. The office building provides total floor space of around 15,000 square meters. Each of the two wings was developed independently and has its own address. We have moved into the north wing and have created a new prestigious head office there at a linear distance of just 150 meters from the former headquarters. The Rheinmetall Academy is housed in the south wing, alongside Rheinmetall Immobilien, Rheinmetall Insurance Services and external companies. With our move to DELTA » D we have begun a new chapter in our more than 125-year history in Düsseldorf. At the same time, we are showing loyalty to Derendorf with this new building. Until the early 1990s, this is where we produced automatic cannons, guns, gun barrels, tank turret systems and munition parts. The area lay dormant for some years following the relocation of production to Unterlüß before being transformed into the entrepreneur city in a step-by-step conversion project. An urban quarter has taken the place of the old production halls. A unique mix of companies from the service, fashion and media sectors now occupies the area of over 90,000 square meters, in addition to modern city apartments, a hotel and leisure facilities.



Pierburg's main plant at Niederrhein has been on the jetty of the Neuss city harbor since 2014

BENCHMARK PLANT IN THE AUTOMOTIVE SECTOR

Neuss has a long tradition as a Pierburg location, even though our Niederrhein plant on the jetty of Neuss city harbor is absolutely brand new. After all, we have operated locally since 1946. In 2014, the production sites at Neuss and Nettetal were merged into a new, larger plant. The Pierburg Niederrhein plant is the largest single investment in our Company's



Perfect production processes at the Niederrhein plant

TECHNOLOGICAL EXPERTISE FROM THE HEATHLAND

The Unterlüß site is to our Defence sector what the Niederrhein plant is to our Automotive sector. With a tradition dating back more than 100 years, our Defence site in the Lüneburger Heide can look back on an eventful history. The acquisition of the firing range in the middle of the Lüneburger Heide dates back to 1899. Today, the Unterlüß plant is our largest defense technology site. However, Unterlüß has a promising future as well as a long history. At 56 square kilometers, it is the largest private test site for weapons and ammunition in Europe and plays a key role in future product development. Through relocations and investments amounting to €35 million we have developed this site into a center of expertise for the security segment. With approximately 1,650 employees, Rheinmetall is now the largest private employer in the region. A modern innovation, education and training center is being built there, and will train young adults mainly in technical vocations in future. The center will also be used for ongoing intercompany training and qualifications. Thanks to the bundling of development expertise and the establishment of new



Modern architecture in Lüneburger Heide

competencies, the Defence site in Unterlüß is becoming a driver for innovations and new security technologies. The modern architecture will also help to create an attractive working environment. The new building is scheduled for completion at the end of 2017.

500
PRODUCT VARIANTS

25,000 m²
OF PRODUCTION AREA

649
EMPLOYEES IN 2017

1899
ACQUISITION OF THE
FIRING RANGE

5
EMPLOYEES IN 1900

1644
EMPLOYEES IN 2017

125 YEARS OF EXPERTISE. AND THE INNOVATIVE STRENGTH OF A STARTUP.

Our products reflect our corporate responsibility. Mobility and security are important megatrends for us. Alongside the further development of products for conventional drives, Rheinmetall Automotive focuses on the development of systems for hybrid, electric battery, or fuel cell powered vehicles. With its range of products and skills, Rheinmetall Defence offers innovative, modern and threat-appropriate security – in the military and civilian sectors alike.

HIGHLY QUALIFIED
ENGINEERS AND
TECHNICIANS
WORK WITH GREAT
PASSION TO
FULFILL AMBITIOUS
CUSTOMER
REQUIREMENTS



*Rarely by chance, mostly by hard work: At Rheinmetall,
innovation is the product of extensive research and development –
often in collaboration with our customers*

TECHNOLOGY AND PRODUCT DEVELOPMENTS OPEN UP GROWTH OPPORTUNITIES

Innovative strength and technological competence are key measures of competitiveness in the rapidly changing world of business. Tradition and innovation – the Rheinmetall technology group can draw on more than 125 years of specialist knowledge and industry experience in the Automotive and Defence sectors.

Continuous and targeted research and development work is essential if we want to actively help shape technological change and succeed in a diverse range of technologically demanding markets over the long term. Important success factors that will ensure further growth and secure our competitiveness in the long term are the consistent development of the current product portfolio and the opening up of related areas of business, as well as forward-looking and user-oriented products that are in line with the market and will ensure more security and environmentally friendly mobility.

Our highly qualified engineers and technicians work with great passion to fulfill ambitious customer requirements. We invest large sums in research and development each year in order to increase our technological expertise, expand our market positions and therefore be successful in the future too.

Market, industry and technological trends are systematically observed before being analyzed and assessed in terms of their strategic and economic significance. Thanks to close collaboration between all sectors of the Company as well as intensive project work in partnership with our customers we identify new requirements of products, systems, processes and applications at an early stage. This enables us to react quickly and to develop new solutions within a short time. We continuously improve and add to our product lines and services. This enables us to exploit opportunities in new or related areas of business too.

Our own application-related research and development work is supplemented by the latest scientific findings from basic research programs. Another key pillar of our R&D activities is close collaboration with partners from industry and science, as well as experts. In this way, we actively promote the transfer of knowledge from research into practice, as security and mobility will remain global mega-trends in the coming years too.

SUSTAINABLE SUCCESS NEEDS FRESH IDEAS

In the medium to long term we also intend to support our Company's growth with products that are not directly derived from the existing portfolio or that promote the transfer of technologies between our Automotive and Defence sectors.

As a first step towards this aim we called upon our employees worldwide to enter an ideas contest ("Intrapreneur Award"), selected the best product ideas that resulted from this in a multi-stage process and backed these innovations with specific business plans. These activities, which may also be supplemented by investments in existing startup companies, will be continued under the umbrella of a Rheinmetall venture capital company. They currently encompass products and services in the fields of cyber security, 3D printing and sensor technology, for example. We monitor all the activities we support with venture capital very closely and provide mentors to our startup companies to assist them during the entire setup phase.

RHEINMETALL TECHNOLOGY CONFERENCE ENHANCES COOPERATION BETWEEN AUTOMOTIVE AND DEFENCE

In November 2016, the 4th Rheinmetall Technology Conference was held in Unterlüß. The main objective of the event, which was launched in 2013, is to foster the cooperation between Rheinmetall Automotive and Rheinmetall Defence in the areas of development and innovation, identifying synergies and future group projects, and discussing technological challenges and proper solutions.

The meetings are attended by the CEOs of Automotive and Defence along with the division and development heads of both company sectors.

The main program of the 2016 Technology Conference began by presenting the status quo of the projects defined at events in previous years, which will consolidate the skills of both sectors and are handled by representatives of Automotive and Defence. Examples include evaluating potential in the area of driver assistance systems, electronic cooperation, and selective laser melting.

Moreover, at the "Innovation Table" both sectors presented select innovations in the concept and prototype phase. Along with a detailed discussion of the current status of development and market potential, the identification of synergies through strategic cooperation between Rheinmetall Automotive and Rheinmetall Defence played a key role in the projects.

The good news from the fourth installment - since the Technology Conference was introduced, cooperation between the Automotive and Defence sectors has been expanded and greatly reinforced in the area of development and innovation. Throughout the year, the participants also maintain regular, lively dialog. The status of the group projects already underscores the fact that closer cooperation can result in clear advantages for both sectors.



4,300
PATENTS
IN THE RHEINMETALL GROUP

1,500
PATENT APPLICATIONS
IN THE RHEINMETALL GROUP

300+
TECHNOLOGIES



3,220
EMPLOYEES
IN RESEARCH AND
DEVELOPMENT

€258
million INVESTED
IN RESEARCH AND
DEVELOPMENT

4.6%
R&D INTENSITY

€2.3
billion INVESTED
IN RESEARCH AND
DEVELOPMENT
IN 2007 – 2016

“ADVANCED ENGINEERING” TEAMS IN PIERBURG
DEVELOP PRODUCTS OF THE FUTURE

The “Advanced Engineering” units of Rheinmetall Automotive are true innovation workbenches. Each day, employees work on the development of new products; the goal is not to improve existing components but create innovations that expand Rheinmetall Automotive’s portfolio. These new ideas are not just on paper. They are brought to life in the form of prototypes. This idea workshop has resulted in a compact exhaust recirculation valve, water pumps that can be switched off, and low friction piston systems.

The team is currently working on, among other things, thermal management of engines and vehicles and electrification of the auxiliary units. We cover a wide range, from products that will enter series production in a few years to developments that will not reach market maturity for many years to come. One of the key projects is currently the development of a completely variable, mechanically operated coolant pump, which meets the market requirements exactly and offers promising sales opportunities. However, the units are also focusing on longer-term developments, such as a hydrogen recirculation fan for fuel cell cars. The topic of fuel cell technology is a good example of how much stamina advance engineering sometimes needs to prepare a company for future technologies and trends.

RESEARCH AND EDUCATION

In 2014, Rheinmetall Automotive also endowed a junior professorship at RWTH Aachen for research and development of mechatronic systems in combustion engines. The increasing electrification of the drive train leads to diverse possibilities for increasing efficiency and further reducing emissions from combustion engines. This professorship also conducts research into virtual engine development and the development of hybrid drives.

With professorships for lightweight components, automotive power-plant engineering and vehicle engine technology at the renowned Tongji University in Shanghai, China, Rheinmetall Automotive is supporting young scientists at international level too.

TECHTALKS – KNOWLEDGE FORUM
AT RHEINMETALL AUTOMOTIVE

The “TechTalks” series was founded in 2006 at the Pierburg plant in Neuss. The event was redesigned in 2015 and is now a multi-location information forum. Since then, the TechTalks have alternated between Neckarsulm and Neuss, which fosters knowledge sharing and synergies between the Mechatronics and Hardparts divisions. Experts present a topic from their area in a 45-minute presentation. The audience is then given a chance to ask questions as part of a dialog with the panel. With the redesigned series, external experts are involved as well; processes and methods are discussed alongside product technologies.

Thanks to the great success and many interesting topics, such as “Advanced Thermal Management for Combustion Engines,” “TRIZ – Find Innovations Strategically,” “Application of Development Methods in Efficient Product Creation Processes,” “Aluminum Structure Components for Vehicle Chassis – a New Product Field?” the information and discussion forum will take place in 2017 as well.

TREND SCOUT, INNOVATIVE RESEARCHER OR SOURCE
OF INSPIRATION – RHEINMETALL AUTOMOTIVE’S
“NEO” PROJECT TEAM

In early 2016, Rheinmetall Automotive founded the after-hours “NEO” project team, which will ponder the future of Rheinmetall Automotive with the full support of management. This largely independent group includes new hires along with employees from various units who already have some experience in the Automotive sector. The mission of the “NEO” team is to rethink the future of Rheinmetall Automotive without a fixed agenda.

The team is focusing well beyond the standard five-year strategy period. It will discuss a range of topics from cultural issues, such as the future cooperation within various company units, to market-specific approaches with regard to future propulsion technologies, the five-year plan in China and the feasibility of innovative charging systems in electromobility. The NEO team has an incredible yet complex opportunity to ask questions now that no one has considered to date.

INNOVATION BOARD@RHEINMETALL



Rheinmetall Defence also has also created a permanent committee for further promotion and integration of cross-divisional development and innovation projects in the sector. The “Innovation Board’s” primary activities are to:

- represent the core topic of innovation at Rheinmetall Defence throughout all divisions,
- create the right framework and implement specific actions to assist with the momentum of innovation,
- act as a communications forum and steering unit for innovation management within the Defence sector and
- ensure promotion and close interaction of the development units with existing initiatives such as the Technology Conference and the Intrapreneur Award.

For the three divisions Weapon and Ammunition, Vehicle Systems and Electronics Solutions, the heads of development attend the meetings of the Innovation Board. These are sponsored by a member of the Defence Management Board and take place three times a year. The appointed division representatives are in charge of defining the main topics for the Innovation Board and will continue to develop

this shared platform in the years to come. At its inaugural meeting in February 2016 in Oberndorf am Neckar, it was decided that innovation activities at Rheinmetall Defence and cross-divisional collaboration would be supported by the following measures:

- Analysis of use of resources in R&D
- Regular presentation and discussion of the latest innovations in the business units with the Management Board of the Defence sector in “Innovation Tables”
- Organization of symposiums on topics relating to “Using experience”
- Organization of Innovation Days for the Defence sector
- Joint definition and status reviews of group projects with the Management Board of Defence
- Coordination of trade show reports and ongoing analysis of the effects from an innovation management perspective.

Successful innovations have a corporate architecture that perfectly coordinates innovation strategy, processes, culture, skills and structures. The establishment of the Innovation Board is another critical step and key pillar to ensure the company’s fitness for the future and profitable growth in the Defence sector.

RHEINMETALL AUTOMOTIVE. WORKING TODAY ON THE MOBILITY OF TOMORROW.

The requirement for mobility is an ongoing global megatrend that is influenced by technical progress and global developments such as climate change, urbanization and increasing environmental awareness and is thus continually changing.

For the first time in human history, more than half of the world's population lives in cities – and the trend continues. Although cities account for only 2% of the earth's surface, they use 75% of global energy and produce 80% of all greenhouse gas emissions. These are huge challenges, including with regard to mobility concepts.

Mobility is also one of the basic prerequisites for social and economic development. It gives people access to markets, jobs, education and health. It plays a decisive role in fighting poverty, particularly in emerging and developing countries. Rural regions in particular often suffer from a lack of infrastructure and few mobility options.

On the other hand, many emerging economies are on the brink of traffic gridlock. Particularly in metropolitan areas, the current mobility structure is based on the industrialized countries' concept of supporting prosperity and development through more traffic and



Rush hour: As urbanization continues to accelerate, particularly in the emerging markets, traffic grows

infrastructure. While there was significant expansion of the individual mobility radius in the classic triad markets of Europe, NAFTA and Japan back in the 1960s and 1970s, the BRIC markets of Brazil, Russia, India and primarily China followed with some delay. The damaging effects associated with increased personal and transport mobility, namely traffic volume, emissions of pollutants and consumption of resources, were often reflected in society and politics only some time later.

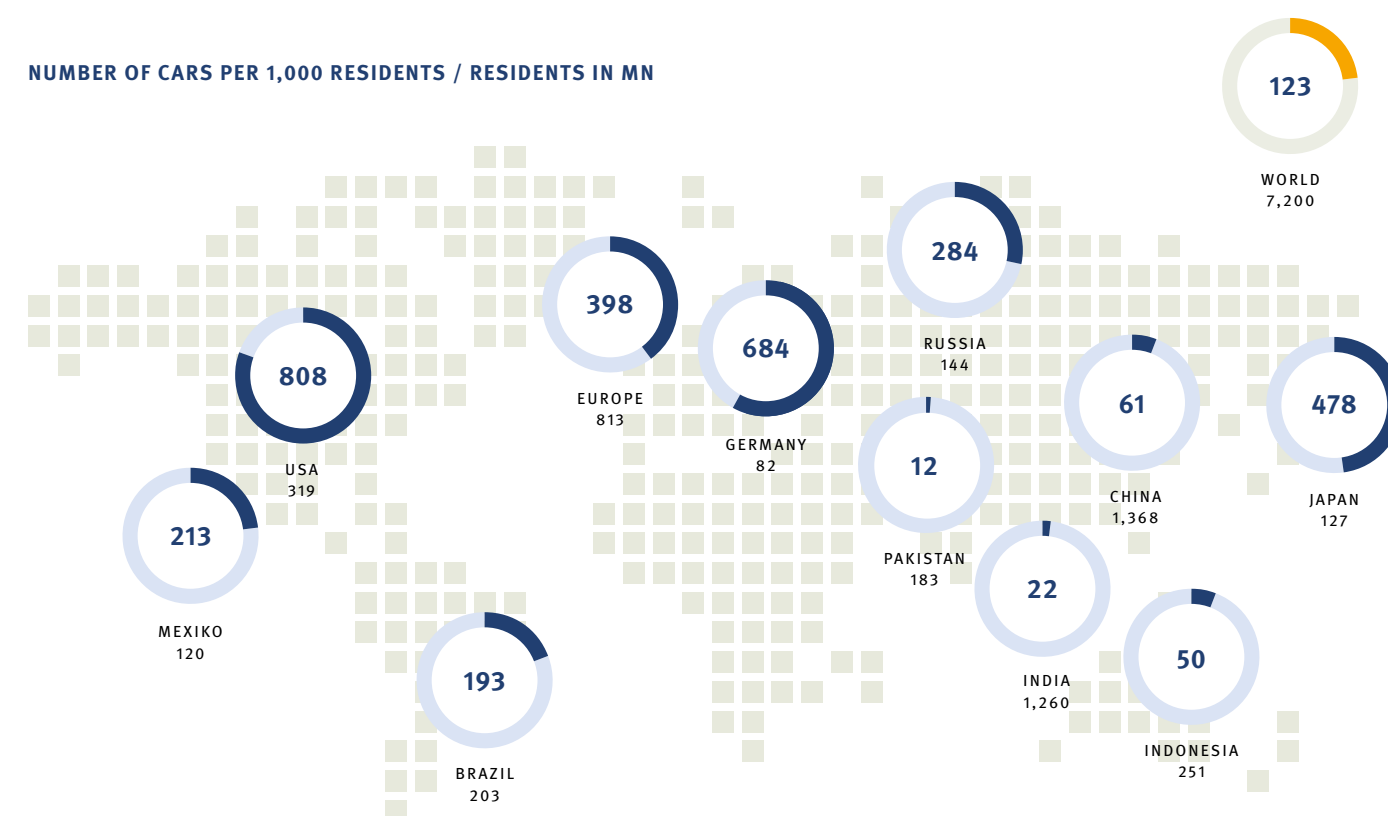


700
million REGISTERED
VEHICLES 2005



1,000
million REGISTERED
VEHICLES 2015

NUMBER OF CARS PER 1,000 RESIDENTS / RESIDENTS IN MN



THE NEED
FOR MOBILITY
REMAINS
A GLOBAL
MEGATREND

OPTIMIZING CONVENTIONAL DRIVE SYSTEMS

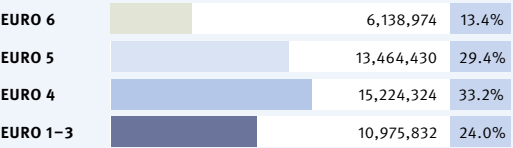
Mobility is inevitably associated with emissions of substances that are harmful to the environment and to health due to the use of combustion engines.

In California, the first exhaust gas limits for motor vehicles were set back in the 1960s due to the susceptibility of the city of Los Angeles to summer smog. The California Air Resources Board (CARB) was established for this purpose in 1967. There is now also the federal Environmental Protection Agency (EPA).

The first standardized exhaust gas regulations for passenger cars in the European Community (EC) came into force in 1970. The emissions of carbon monoxide and hydrocarbons were restricted. These restrictions were increased in 1974. In 1977, nitrous oxides were added to the exhaust gas elements to be limited. Limits on soot particles from diesel engines were introduced in 1988. In 1988, limits on exhaust gas elements were applied to trucks and



PASSENGER CAR FLEET BAROMETER BASED ON
EMISSIONS IN GERMANY (45.8 MILLION VEHICLES)



Source: German Federal Motor Transport Authority January 1, 2017

buses throughout Europe for the first time. Europe-wide exhaust gas limits for motorcycles and mopeds have been in force since 1997.

Societies and governments have become increasingly insistent over the years in their demands for environmentally friendly mobility. Governments worldwide are enacting limits on emissions of pollutants and greenhouse gases from passenger cars and light and heavy commercial vehicles with the aim of improving or maintaining air quality and reducing substances that are harmful to health.

Increasingly stringent standards have been introduced to reduce emissions of hydrocarbons (HC), nitrous gas (NO_x), carbon monoxide (CO), carbon dioxide (CO₂) and particulates caused by road traffic.

EMISSIONS STANDARDS UP TO 2023 IN SELECT REGIONS/COUNTRIES

Country/region		2015	2016	2017	2018	2019	2020	2021	2022	2023
Europe		Euro 6								
Russian Federation		Euro 4				Euro 5				
USA		TierII, Bin5	TierII, Bin4						TierII, Bin2	
Mexiko		Euro 4			Euro 5					
Japan		Japan '09		Japan '09 mit WLTP						
China	Beijing					Euro 5				
	Miscellaneous	Euro 4				Euro 5				
South Korea						Euro 6				
India	Metropolitan areas	Euro 4				Euro 5				Euro 6
	Miscellaneous	Euro 3	Euro 4			Euro 5				Euro 6
Indonesia		Euro 2		Euro 4						
Malaysia		Euro 2	Euro 3							
Thailand		Euro 4								
Brazil		Euro 5							Euro 6	

Source: IHS AUTOMOTIVE 2016

INTRODUCTION OF
EURO STANDARDS
FOR PASSENGER
CARS

Euro 1	1.7.1992
Euro 2	1.1.1996
Euro 3	1.1.2000
Euro 4	1.1.2005
Euro 5	1.9.2009
Euro 6	1.9.2014

Source: Own research

EUROPEAN STANDARDS

At present, it is still compulsory to determine the values for fuel consumption and emissions of pollutants and CO₂ required for type approval in Europe in accordance with the New European Driving Cycle (NEDC). This test was introduced back in 1996.

As of 2017, a modernized test procedure will be introduced in the form of the mandatory Standard Worldwide Harmonised Light Vehicles Test Procedure (WLTP). The switch will lead to an increase in the figures reported for consumption and the emissions measured. The EU is therefore planning to convert the NEDC-based maximum limit of 95 g CO₂/km for 2020 to the new conditions in accordance with the WLTP standard.

As the new WLTP standard is also a laboratory test, the measurements taken will not correspond to actual conditions on the road. As of September 2017, therefore, a supplementary “real driving emissions test” (RDE) will become mandatory to test real use on the road. With regard to emissions of nitrous gases, which are particularly problematic with diesel vehicles, the European Union has allowed the values for new vehicles being licensed to be 2.1 times higher than the NEDC test value until 2019 and then gradually to 1.0 times higher thereafter.

CONTINUAL TIGHTENING OF EMISSION LIMITS

In the European Union, the limits on emissions of pollutants have gradually become stricter since the introduction of the Euro 1 standard in 1992. The level of permissible emissions for gasoline engines was largely prescribed through the introduction of Euro 4 in 2005. No material reductions of the limits for this engine type were associated with the introduction of Euro 6 in 2015.

This is not the case for diesel engines. As far as nitrous gases are concerned, the emissions of a Euro 4-level diesel vehicle may still be approximately three times that of a gasoline vehicle.

Euro 6 specifies that nitrous gases are to be reduced to 32% of the Euro 4 limit. The nitrous gas emissions of a current diesel engine may then only be around one third higher than those of a gasoline engine.

The improvements required between Euro 4 and Euro 6 are even more stringent with respect to particulate matter. According to Euro 6, these may now amount to only 18% of the Euro 4 figure.

In addition to the level of the limit, which has largely been prescribed since the introduction of Euro 6, in future the test cycles for determining emissions related to vehicles will be reconfigured. The NEDC driving cycle will be replaced by the Worldwide Harmonised Light Vehicles Test Procedure (WLTP) standard, which has a significantly higher proportion of transient driving. Furthermore, real driving emissions will be relevant for the purposes of certification as of 2017. The change is a significant increase in requirements.



188.6 g

CO₂/KM
AVERAGE VALUE
FOR ALL NEW PASSENGER
CAR REGISTRATIONS
IN GERMANY IN 1998



127.4 g

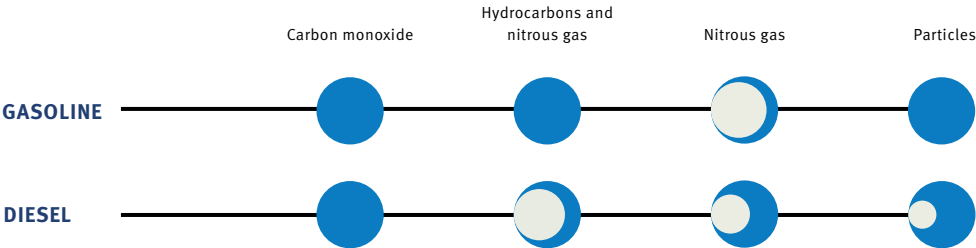
CO₂/KM
AVERAGE VALUE
FOR ALL NEW PASSENGER
CAR REGISTRATIONS
IN GERMANY IN 2016



95 g

CO₂/KM
TARGET VALUE
FOR ALL NEW PASSENGER
CAR REGISTRATIONS
IN THE EU BY 2020

LIMITS ON PASSENGER CAR EMISSIONS: COMPARISON OF THE EURO 4 AND EURO 6 STANDARDS



● Euro 4 (100%)
● Euro 6

Source: www.statista.de

EU ASSUMES A PIONEERING ROLE

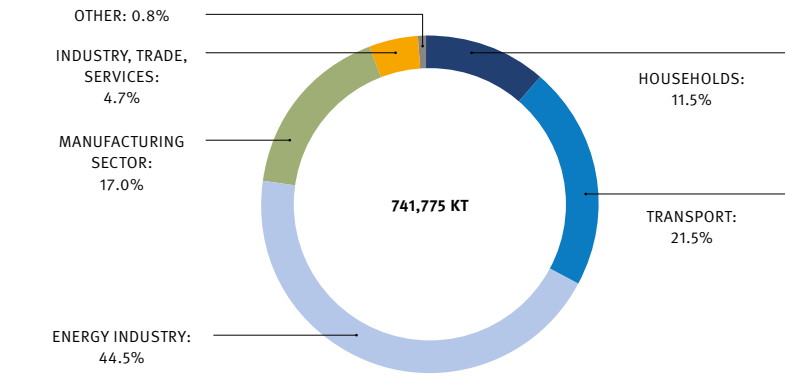
For emissions of carbon dioxide (CO₂), the strictest limits worldwide currently apply and will continue to apply in future in the European Union.

Following the reduction of average CO₂ emissions per kilometer for new passenger car registrations in Europe from 185 g CO₂/km to 132 g CO₂/km between 1995 and 2012, since 2015 the upper limit on average emissions for all new passenger car fleets in Europe has been 130 g/km, which corresponds to consumption of around 5.6 liters of gasoline or 4.9 liters of diesel per 100 kilometers.

According to information from the International Council on Clean Transportation (ICCT), average CO₂ emissions of passenger cars sold in the EU amounted to around 120 g CO₂/km, thus lying approximately 8% below the limit for 2015.

In the medium term, the European Commission has adopted a target for passenger cars of 95 g CO₂/km by 2020, with consumption of 4.1 liters of gasoline or 3.6 liters of diesel per 100 kilometers). This provision applies to the entire fleet of an automotive manufacturer (OEM). They can therefore offset higher CO₂ emissions from higher displacement engines by constructing particularly economical vehicles. The proportion of new vehicles in the EU complying with the upper limit of 95 g CO₂/km rose from 1% in 2011 to 12% in 2015.

CO₂ EMISSIONS IN GERMANY BY SECTOR IN 2015



Source: National trend tables for German reporting on atmospheric emissions 1990 – 2015

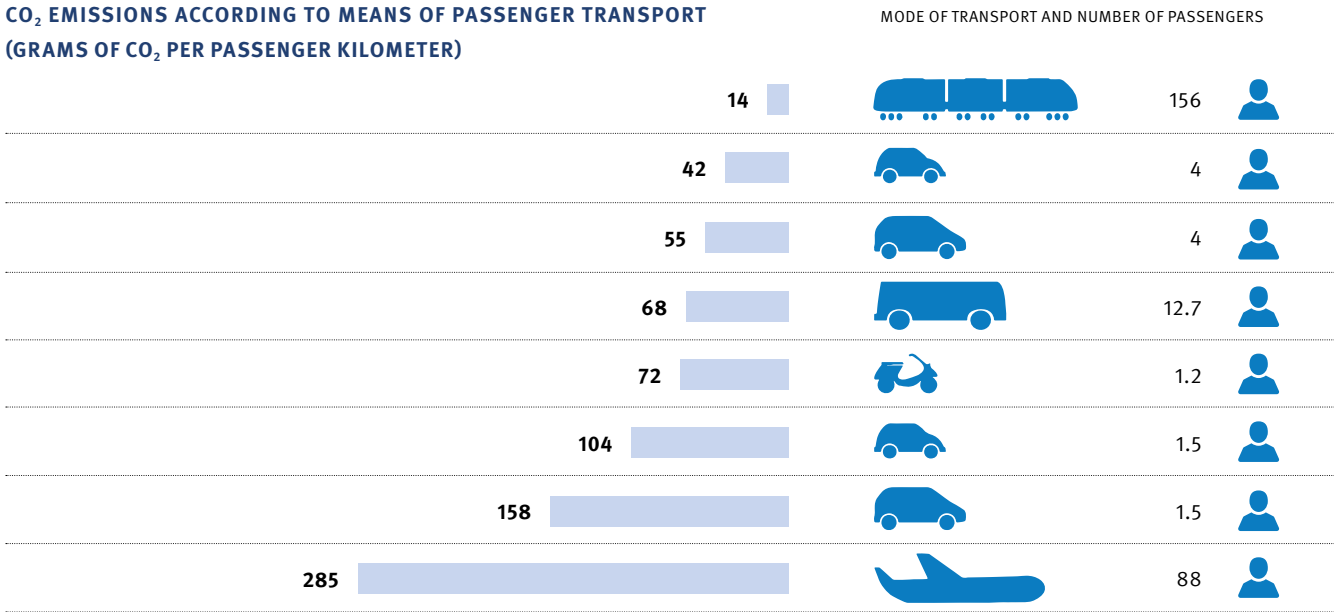
DEVELOPMENTS IN THE EU UNTIL 2030

EU	2015	2030
Passenger cars	251 million	258 million
CO ₂ emissions	770 million t	539 million t
Commercial vehicles ≤ 6,0 t	23 million	24 million
CO ₂ emissions	74 million t	63 million t
Commercial vehicles > 6,0 t	13 million	15 million
CO ₂ emissions	366 million t	420 million t

Source: ICCT European Vehicle Market Statistics Pocketbook 2015/16

A further reduction of the prescribed limit to between 68 g CO₂/km and 78 g CO₂/km with fuel consumption of 2.7 liters or 3.1 liters per 100 kilometers is under discussion for 2025.

CO₂ EMISSIONS ACCORDING TO MEANS OF PASSENGER TRANSPORT (GRAMS OF CO₂ PER PASSENGER KILOMETER)



Source: European Environment Agency report term 2014

IN 2016, CHINA ACCOUNTED FOR THE LARGEST SHARE OF THE WORLD'S CO₂ EMISSIONS AT AROUND 28%, FOLLOWED BY THE US

The maximum limit for light commercial vehicles up to 6.0 t in Europe was set at 175 g CO₂/km in 2017, which corresponds to fuel consumption of 6.6 liters per 100 kilometers. This limit will be reduced by 16% to 147 g CO₂/km by 2020, with fuel consumption of around 5.6 liters of diesel per 100 kilometers. The average value still stood at 185 g CO₂/km in 2009.

Exceeding CO₂ fleet limits has come at a high cost for manufacturers since 2012. For the first gram, €5 must be paid for every car sold; this then increases to €15 for the second gram, €25 for the third gram and €95 per gram from the fourth gram upwards. From 2019, the fine will amount to €95 per excess gram, starting from the first gram.

In international terms, the EU is assuming a pioneering role with respect to the limits on CO₂ emissions.

Some large countries have now adopted limits equivalent to the EU target of 95 g CO₂ per kilometer.

This includes the USA and Canada, each with 97 g CO₂/km from 2025, as well as South Korea, also with 97 g CO₂/km but from as soon as 2020. China has set itself the target of 93 g CO₂/km by 2025, which is even slightly lower than the EU limit.

Standards around the world for reducing CO₂ emissions will therefore continue to become successively more stringent in the future.



AMBITIOUS CLIMATE TARGETS

The historic UN climate protection agreement which was signed in Paris at the end of 2015 and is to replace the Kyoto Protocol, which remains in effect until 2020, came into force in November 2016. The 197 nations who take part in the world climate conferences are pursuing the aim of limiting global warming to far below 2 °C and increasing efforts to limit the temperature rise to just 1.5 °C.

The intention is to reduce net emissions to zero in the second half of this century. In order to meet the 2 °C target, the world community has agreed on CO₂ emissions of less than 44 gigatons by 2020. CO₂ emissions are then to fall to 22 gigatons by 2050. The European Union adopted the following climate targets back in October 2014:

- Reduction in greenhouse gas emissions by at least 40% (versus 1990)
- Increase in share of renewable energy sources to at least 27%
- Increase in energy efficiency by at least 27%

GERMANY TO BE GREENHOUSE-GAS NEUTRAL BY 2050 DEUTSCHLAND 2050

On November 14, 2016, the German federal cabinet resolved on the 2050 Climate Plan. It is the first government document that points the way towards a largely greenhouse gas-neutral Germany in 2050.

According to the plan, cars, buses, trucks, trains and airplanes in Germany are to emit an absolute maximum of 98 million tons of CO₂ by as soon as 2030. This would be about 40% lower than in 1990.



Source: www.atmosfair.de

CO₂ EMISSIONS PER CAPITA IN GERMANY



Source: www.statista.de

PROMOTING ELECTROMOBILITY

The key element of this plan is the electrification of traffic. However, Germany is still a long way off the target of 1 million electric vehicles by 2020.

At the start of 2007, the German Federal Motor Transport Authority registered 46.6 million passenger cars; at the beginning of 2017, 45.8 million passenger cars were registered. Among the alternative drive systems, hybrid passenger cars are in the lead with 165,405 units (2007: 11,275), compared to electric vehicles with 34,022 units (2007: 1,790).

The German government has set itself the goal of supporting sales of new electric vehicles with the aid of an environmental bonus. This will make a notable contribution to reducing air pollution while simulta-

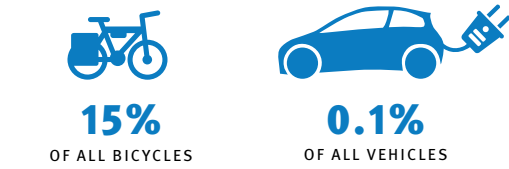
neously strengthening demand for environmentally friendly electric vehicles.

It has been possible to apply to the German Federal Office of Economics and Export Control (BAFA) for an environmental bonus since July 2016. A total of 104 vehicle models are currently eligible (78 electric vehicles, 25 plug-in hybrids and one vehicle with a fuel-cell drive).

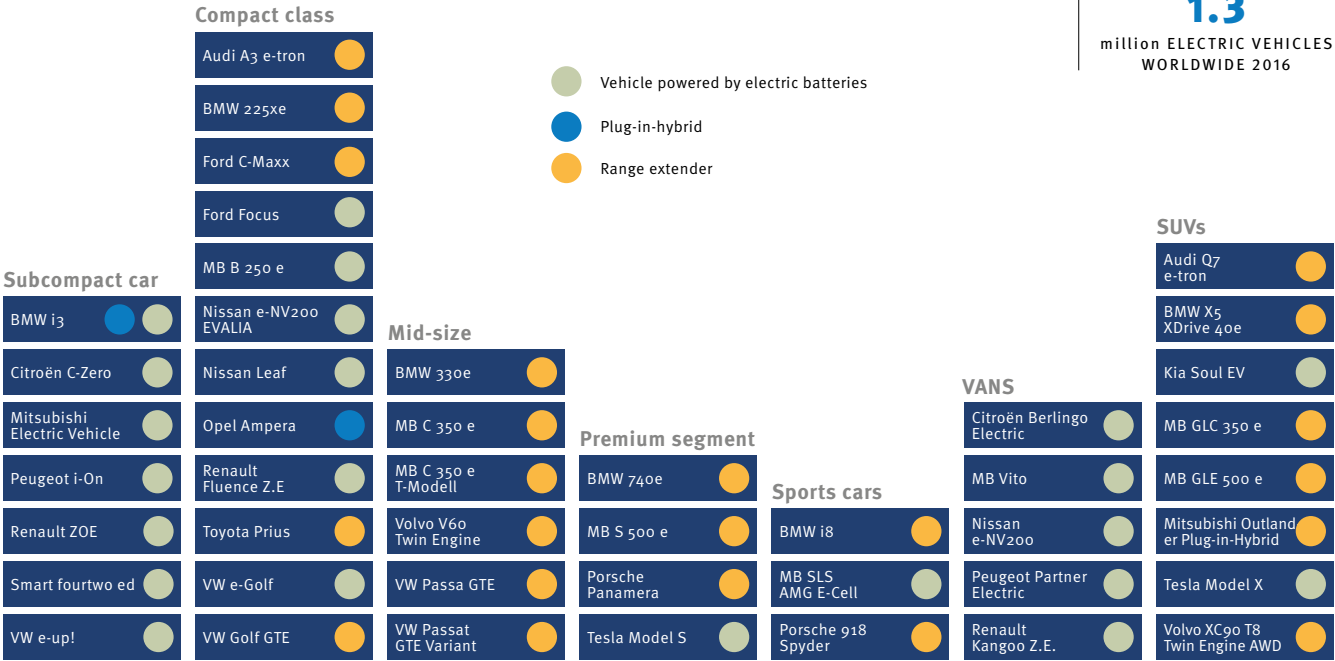
The net list price of the basic model may not exceed €60,000. Until June 30, 2019, €4,000 is granted for all-electric vehicles and €3,000 for hybrid vehicles. €1.2 billion in subsidies is available in total. The German government and the automotive manufacturers each pay half of the subsidy.

By January 31, 2017, BAFA had received 10,835 applications: 6,117 for electric vehicles, 4,716 for plug-in hybrids and two for vehicles with a fuel-cell drive. Private individuals and companies filed 50% of the applications each.

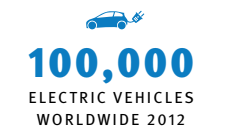
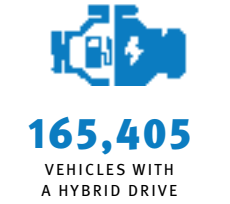
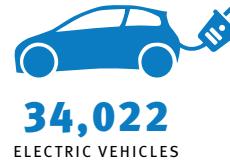
SHARE OF VEHICLES WITH ELECTRIC DRIVES 2015



MARKET OVERVIEW OF VEHICLE MODELS WITH ALTERNATIVE DRIVES



Source: German National Platform for Electric Mobility: Electromobility Guide, June 2016



INDUSTRIAL SOLUTIONS FOR ENVIRONMENTALLY FRIENDLY DRIVE TECHNOLOGY

Globalization, industrialization, social and demographic change, urbanization, regional migration and economic development in emerging markets are leading to changes in worldwide requirements of mobility, particularly individual and transport mobility.

In these times of ever-increasing traffic on the roads and global warming, the trend toward saving fuel, cutting CO₂ emissions and reducing harmful emissions generally – a trend supported through increasingly strict legislation – has over the past few years progressed at an accelerated rate.

Declining fossil fuel resources, the obvious effects of climate change and, not least, demographic developments are reasons to rethink mobility concepts.

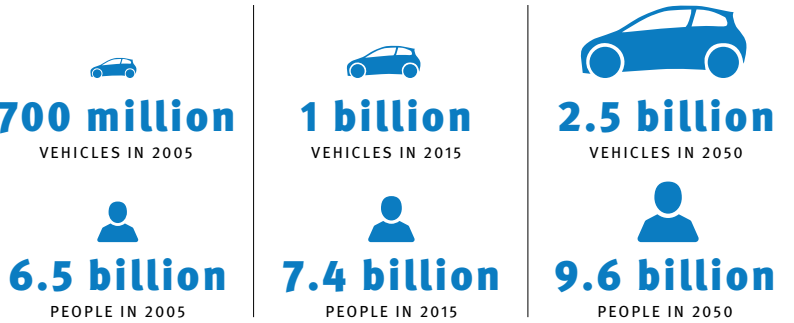
Major levers for new, modern solutions are increasing the efficiency of conventional combustion engines and developing alternative drives that use renewable energy.

Companies in the Automotive sector have long been working on eco-friendly automotive technology solutions and, with their products, are helping to ensure

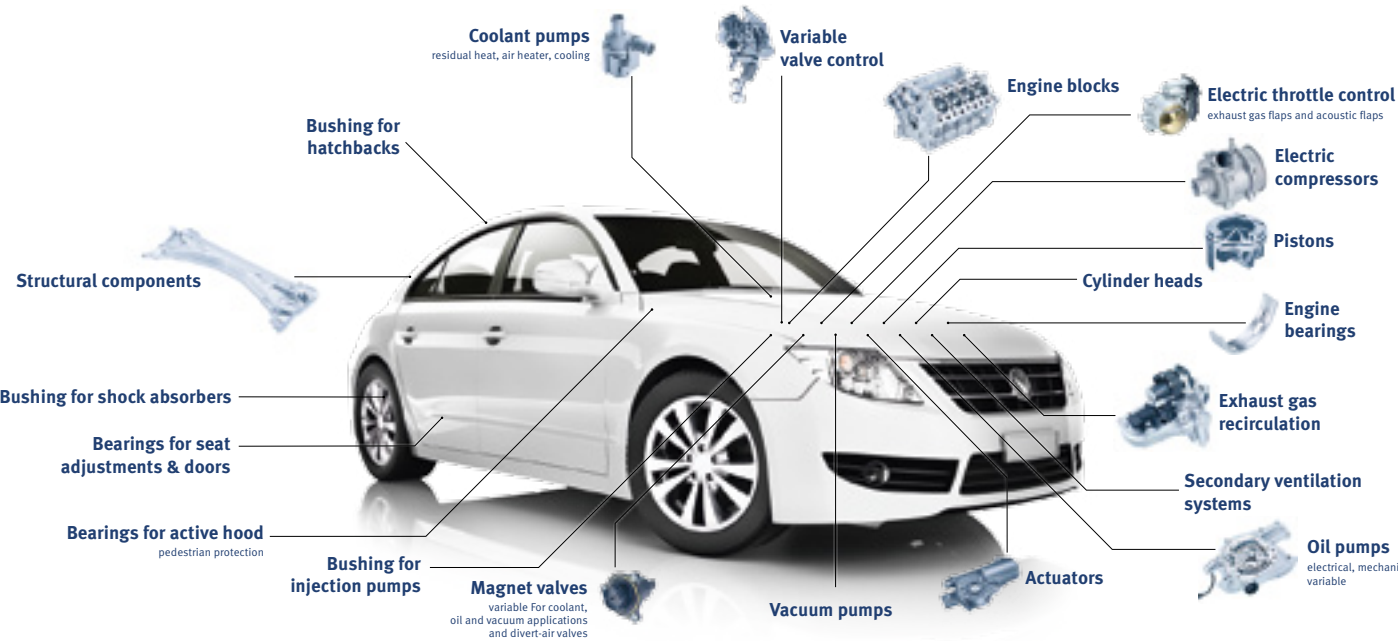
that the ever-growing demand for mobility does not come into conflict with environmental protection.

As a key development partner to the national and international automotive industry, Rheinmetall Automotive offers numerous innovative and technologically sophisticated engine technology components, modules and systems that make a significant contribution to reducing harmful emissions, cutting fuel consumption, reducing weight and optimizing performance.

NUMBER OF VEHICLES AND GLOBAL POPULATION



PRODUCT PORTFOLIO, RHEINMETALL AUTOMOTIVE



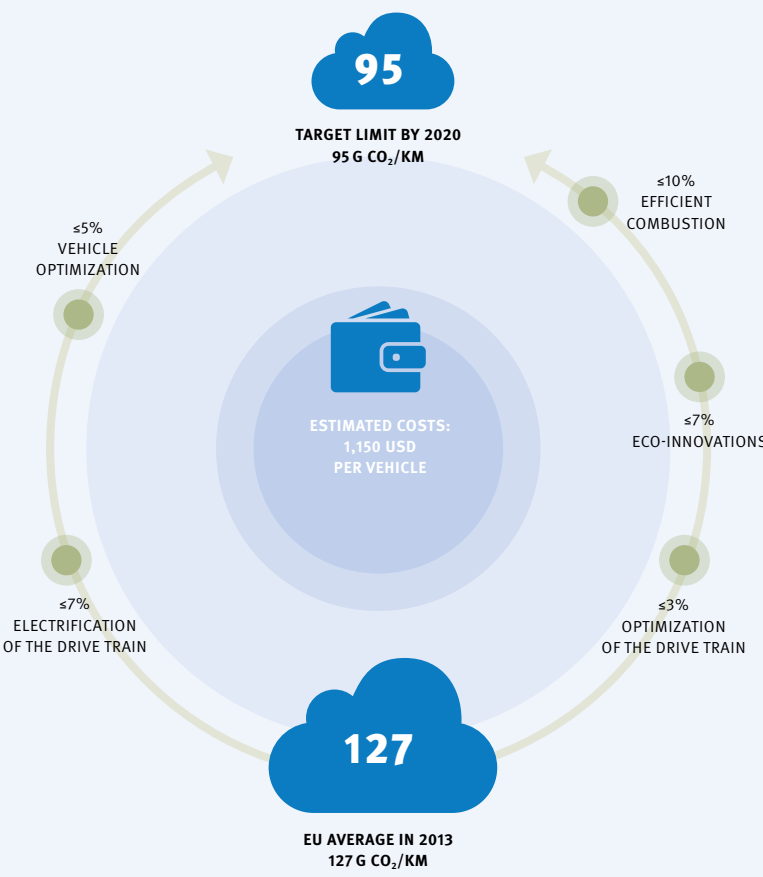
INCREASE IN EFFICIENCY

Our responsibility towards the environment calls on us to develop products that consume energy and natural resources sparingly. For us, reducing CO₂ emissions plays a key role in this.

We already offer automobile manufacturers many products that significantly reduce CO₂ emissions, thereby actively helping them to meet the EU's fleet consumption target of 95 g CO₂ emissions per km in 2020. In the future we will continue to direct a large part of our research and development work towards products that minimize the CO₂ emissions of tomorrow's vehicles. Along with legal regulations on fuel consumption, the requirement for a further reduction in emissions of substances that are harmful to health is particularly important. Measures to optimize engines are therefore increasingly being supplemented by other technical solutions, for example to reduce the weight of the vehicle. With our product portfolio we can enhance firstly the mechanical and secondly the thermodynamic efficiency of the manufacturers' established drive concepts based on combustion engines. Key mechanical success factors are, for example, less bulky components that are subject to lower friction, as well as auxiliary units which draw less power. In parallel to this, we present interesting alternatives based on innovative concepts, such as the range extender.

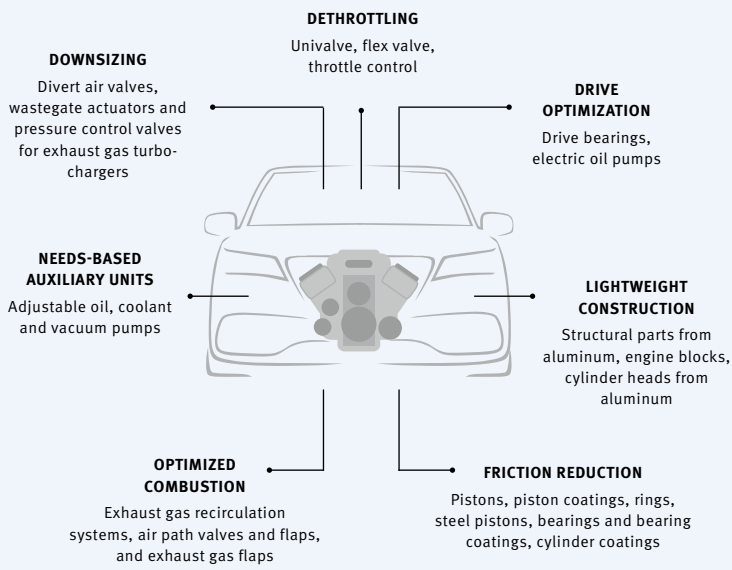
Using the steel pistons we introduced to the market as a replacement for highly stressed aluminum pistons in passenger cars with diesel engines is a good example of how efficiency can be increased. Overall, they produce a fuel consumption saving of around 3% to 4%. With regard to gasoline engines, we focus on further optimization steps with aluminum pistons. Where auxiliary units are concerned, it is a matter of reducing the drive power and frictional losses. We also see great optimization potential based on efficient thermal management, primarily in the coolant circuit. In this connection, we increasingly also supply control valves in addition to pumps. There is great demand for the ability to control coolant, oil and vacuum pumps according to need, as this makes fuel savings in the order of 1.5% to 3% possible. External exhaust gas recirculation in gasoline engines produces fuel consumption savings of up to 2%, depending on the concept, while our variable valve operating systems achieve savings of between 3% and 6%, depending on the original engine.

MEASURES TO ACHIEVE THE EU CO₂ TARGETS



Source: Citigroup (2015), Continental, Plastic Omnium Alphatech

ROAD TO 95 – MEASURES TO REDUCE CONSUMPTION AND CO₂



SIMULATION SHOWS GOOD POTENTIAL FOR CO₂ SAVINGS

We have been a specialist in reducing CO₂ emissions for many years now. Our engineers are working on the advancement of existing products and the design of new ones, while taking account of many influential factors to ultimately save as much CO₂ as possible. In this process, a great challenge lies in correctly assessing the savings potential of each individual measure as an element of the overall system.

ELABORATE SIMULATION PROCEDURE

Rheinmetall Automotive has thoroughly investigated the savings potential of its vehicle components with regard to CO₂ emissions. It used the most modern, state-of-the-art vehicle simulation procedures for this purpose. The calculation is supported by test results derived from engine test bench trials and by a CO₂ competence demonstrator that was set up in-house. The test conditions under which the vehicle simulation runs have a significant impact on the results of the studies. The effect the Rheinmetall Automotive product range had on fuel reduction was therefore determined for various approval cycles stipulated by law, for the current European NEDC driving cycle, the more internationally focused WLTP and the FTP 75 peak load cycle. When selecting the base vehicle, Rheinmetall Automotive decided in favor of a gasoline engine model from the compact class, known as the C-segment.

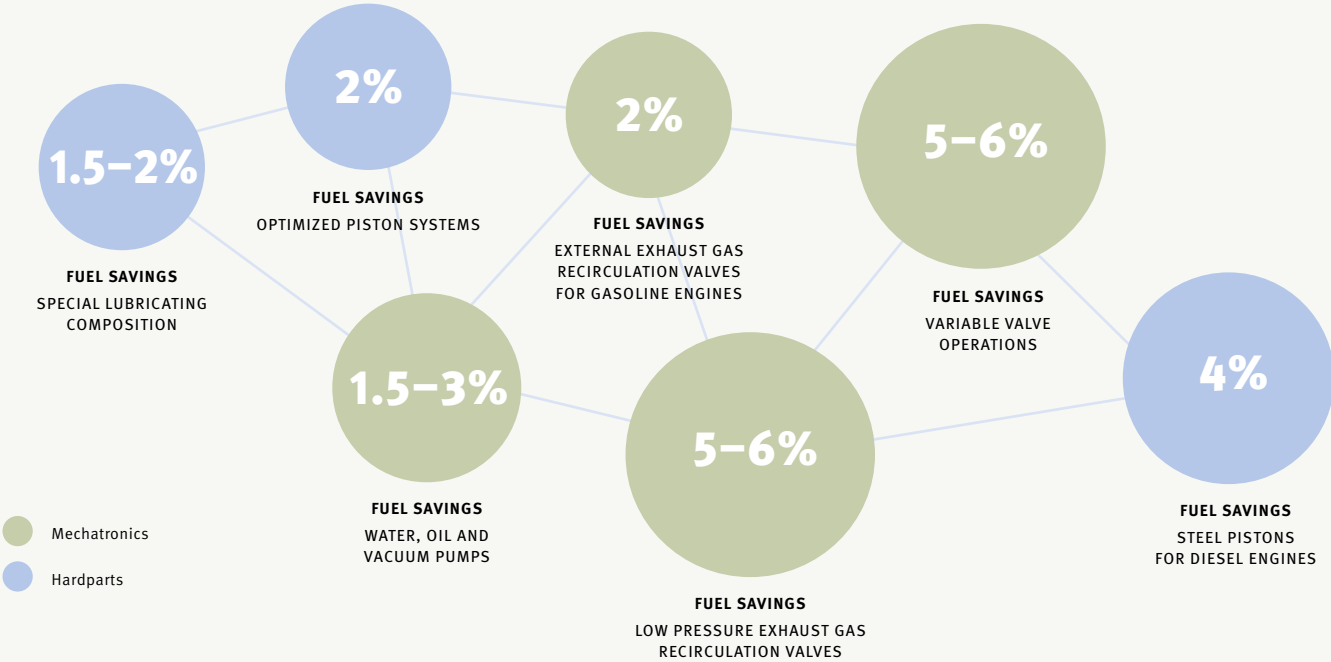
Firstly, the C-segment has very large market coverage and, secondly, for technical reasons, gasoline engines have greater specific fuel consumption levels and higher CO₂ emissions than equally powerful diesel engines.

During the whole vehicle simulations, Rheinmetall Automotive determined the effects of reducing weight by using lightweight aluminum components for the structural components, variable oil and coolant pumps and an extensively optimized cylinder system, including the piston assembly and bearing positions in the base engine. The engine was also fitted with a fully variable inlet valve control system, including two electric camshaft phase shifters, as well as cooled low-pressure exhaust gas recirculation.

13% LESS CO₂ EMISSIONS

The NEDC simulation produced a CO₂ saving of around 1 g/km for the variable oil pump. Reducing friction in the cylinder assembly and engine mountings and using a variable mechanical or electric coolant pump each brought about a CO₂ reduction of 3 g/km, while the fully variable inlet valve control system with two electric camshaft phase shifters even accounted for 7 g less CO₂/km. A vehicle weighing 50 kg less thanks to lightweight structural components made of aluminum saved a further 2 g CO₂/km. Overall, there was a total reduction of around 18 g CO₂/km in the NEDC and FTP 75 cycles. Even in the new WLTP cycle, which is intended to correspond more closely to real driving behavior, the reduction still amounted to 15 g CO₂/km. With reference to the NEDC currently in force, with 120 g CO₂/km this corresponds to a reduction of around 13% compared to the baseline emissions of 138 g CO₂/km.

FUEL SAVINGS WITH RHEINMETALL AUTOMOTIVE PRODUCTS



WE ARE WORKING ON SOLUTIONS THAT PROTECT THE ENVIRONMENT AND SAVE RESOURCES

When enhancing alternative drive systems for passenger cars and commercial vehicles, Rheinmetall Automotive focuses primarily on the field of drive train technology.

In addition to products for conventional vehicle drive systems with combustion engines, we develop systems for hybrids and vehicles powered by electric batteries or fuel cells, which, according to forecasts by IHS Automotive experts, will already achieve a market share of around 22% in 2025, following one of around 11% in 2020.

Our products will help for instance in coolant-related thermal management. Our heat pumps improve the efficiency of electric vehicles and significantly expand the range of electric battery vehicles.

RHEINMETALL AUTOMOTIVE PRODUCTS FOR ALTERNATIVE DRIVES

Hybrid vehicle	Vehicle powered by electric batteries	Vehicle powered by fuel cells
<i>REx range extender</i> <i>Components for reducing emissions</i> <i>Electric coolant pumps</i> <i>Electric coolant control valves</i> <i>Electric oil pumps</i> <i>Electric vacuum pumps</i> <i>Electric actuators</i> <i>Plain bearings/Permaglide</i> <i>Pistons</i> <i>Engine blocks/cylinder heads</i> <i>Variable valve control</i> <i>Structural components</i> <i>Thermal management systems</i>	<i>REx range extender</i> <i>Electric coolant pumps</i> <i>Electric vacuum pumps</i> <i>Plain bearings/Permaglide</i> <i>Structural components</i> <i>Electric actuators</i> <i>Electric coolant control valves</i> <i>Thermal management systems</i> <i>Battery boxes</i> <i>Housing for electric engines</i>	<i>Electric coolant pumps</i> <i>Electric coolant control valves</i> <i>Electric vacuum pumps</i> <i>Hydrogen components</i> <i>Electric actuators</i> <i>Plain bearings/Permaglide</i> <i>Structural components</i> <i>Thermal management systems</i>

DRIVE CONCEPTS: AN OVERVIEW

Autogas/liquefied gas

Vehicle with gasoline engine that is primarily operated with autogas or liquefied gas (Liquefied Petroleum Gas, LPG) Unlike gasoline engine vehicles, LPG vehicles are not necessarily following the trend toward electrification/hybridization, because this is usually a retrofit to gasoline engines rather than new vehicles.

Plug-in hybrids (PHEV)

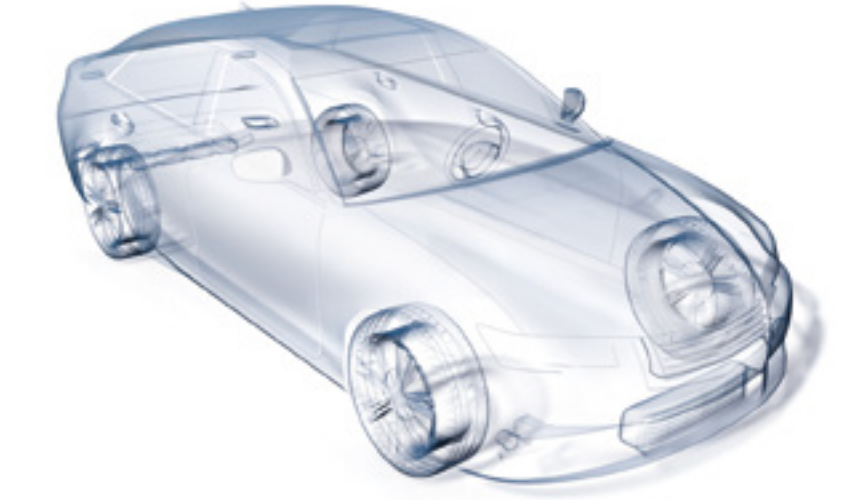
Vehicles that have a combustion engine (diesel or gasoline) and electric engine plus battery. Plug-in hybrids can also be charged externally and drive larger distances (more than 20 km today) with electric power only.

Battery electric (BEV)

Vehicles with electric engines and batteries. Battery electric vehicles get electric power only and can run on electricity only.

Fuel cells (FCEV)

Vehicles with electric engines and fuel cells and (smaller) batteries. They use hydrogen and are electrically powered only. Electric energy is obtained with hydrogen from the fuel cell.



Natural gas

Vehicles with gasoline engine that is primarily operated with compressed natural gas (CNG). Like gasoline vehicles, CNG vehicles are following the trend toward electrification/hybridization.

Gasoline

Vehicles that is propelled only by a gasoline engine and uses gasoline fuel or (sometimes) gasoline substitutes, particularly biofuels (bioethanol).

Diesel

Vehicle that is propelled only by a diesel engine and uses diesel fuel or (sometimes) liquid diesel substitutes, particularly biofuels (usually biodiesel).

Diesel hybrids (HV)

Conventional diesel vehicles that will move toward electrification/hybridization over the medium term, but are not yet plug-in hybrids. Some can obtain electric energy from driving with a combustion engine and some can drive shorter distances with the help of electricity. Diesel hybrids have much lower fuel consumption.

Gasoline hybrids

Conventional gasoline vehicles that will move toward electrification/hybridization over the medium term, but are not yet plug-in hybrids. Some can obtain electric energy from driving with a combustion engine and some can drive shorter distances with the help of electricity. Gasoline hybrids have much lower fuel consumption.

Source: SHELL Passenger Car Scenarios for Germany to 2040

ON THE ROAD TO ELECTROMOBILITY

The great future of all-electric drive systems has yet to come, as vehicles with gasoline and diesel engines will continue to dominate the street scene for the foreseeable future. Nevertheless, electric engines and other alternative drive systems are already a reality in our road traffic today.

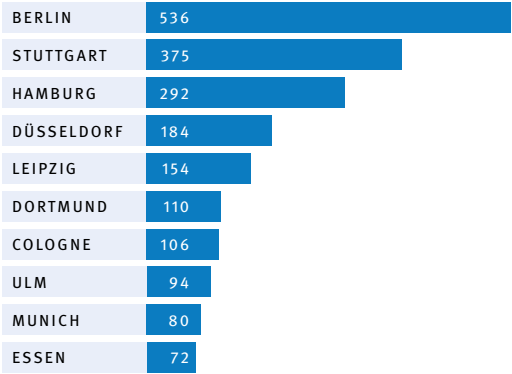
Currently, the greatest drawback of electrically powered vehicles is probably their lack of range. Batteries are expensive and heavy, which limits the electric power available within the vehicle from a construction perspective alone. For this reason, vehicles powered by hybrid drives are more prevalent on the roads than all-electric vehicles.

A hybrid drive consists – as the name suggests – of a combination of more than one drive, such as a diesel and an electric engine, while benefiting from the advantages of both technologies. To put it simply, electricity is used to travel short distances inexpensively and without emissions but the combustion engine is used either directly or indirectly if greater range is required.

If the vehicle is powered by electricity alone and the combustion engine or range extender merely provides the electric power, this is termed serial operation. In this case, the vehicle’s electric engine is sufficiently powerful to propel the vehicle without any further assistance. The required power for the electric drive is produced with a generator.

If, on the other hand, the power from the electric engine and the combustion engine are combined in one drive train, this is termed parallel operation.

NUMBER OF PUBLIC CHARGING STATIONS (TOP 10 CITIES)



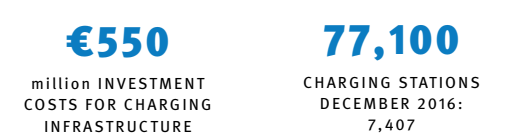
Source: BDEW survey on charging infrastructure (as of December 31, 2016)

Both engines can then be designed to be less powerful than for serial operation. The battery is also recharged through regeneration. In powersplit hybrids, the combustion engine can also be operated independently of driving status, which makes it possible to charge the battery while driving.

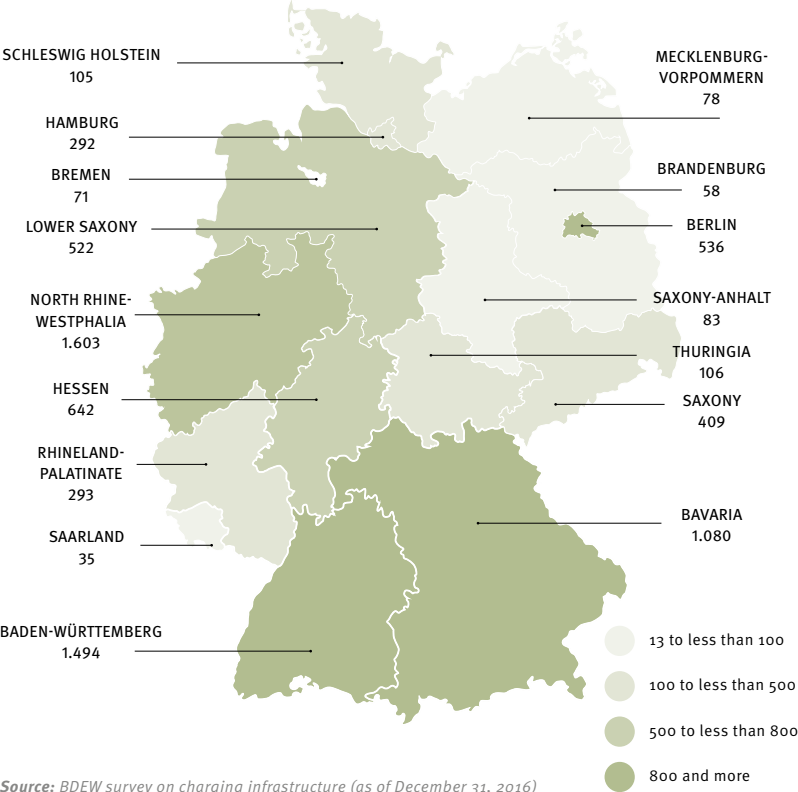
With regard to this technology, many experts anticipate that the power ratio between the electric drive and combustion engine will change in the future. Although gasoline and diesel engines are still the stronger components today, the focus could shift further and further towards electric engines.

When it is possible to recharge the battery from the power network using a power socket, this is termed a plug-hybrid irrespective of the type of drive.

EXPANSION OF THE PUBLICLY ACCESSIBLE CHARGING INFRASTRUCTURE BY 2020



PUBLIC CHARGING STATIONS FOR ELECTRIC VEHICLE PER STATE



Source: BDEW survey on charging infrastructure (as of December 31, 2016)

PROJECTED BATTERY COSTS



WHO BRAKES WINS

We sometimes use electric power for more efficient propulsion without realizing it, as many modern vehicles are equipped with regeneration systems.

These function as follows: During braking, the kinetic energy is converted into thermal energy that would normally escape unused. A regeneration system uses the braking energy (as well as energy created during deceleration) to increase the voltage in the alternator and recharge the onboard battery. If the vehicle accelerates again after the braking phase, this energy relieves the generator and decreases fuel consumption.

DRIVE FOR LONGER WITH THE REX

Both technologies – hybrid drives and regenerative braking – play a major role in the Rheinmetall Automotive range extender (REx). It targets what are currently the greatest weaknesses of electric vehicles: The lack of range and long charging times. The range is usually between 100 – 200 km, and even this is achieved only in ideal conditions. If the driver uses additional power – for example to operate the air-conditioning system – or drives somewhat faster, the range is reduced significantly. For many users, therefore, the greatest purchasing obstacle are fears that the battery power may not be sufficient for the planned journey (“range anxiety”).

This is where the REx comes into play. It is a two-cylinder gasoline engine that starts every time the charge of the vehicle battery starts to dwindle. It then provides new power by means of a generator. The 70 km electric range of the Rheinmetall Automotive test vehicle, a Fiat 500, was increased by 430 km in this way. A battery-powered vehicle would currently still have to make long stops to charge up the battery on a long journey. Not so with the REx, which even recharges more during the journey and can be refilled as usual. The driver hardly notices any of this, as the REx only creates very minor noise and vibrations.

In temperature ranges in which the battery experiences unfavorable efficiency levels while charging and discharging, it can also provide heating or cooling, thus optimizing the level of efficiency. A further advantage is that the components – except for the fuel tank and cooler – are preassembled as a ready-to-install module. The compact REx can also fit under the floor or in the spare wheel well. The engine can also be integrated into a vehicle easily.



A small car with a REx can hold its own in traffic – even on the autobahn

The Rheinmetall Automotive test vehicle also recovers the braking energy – up to 8 kW can be gained during deceleration.



Thanks to the compact design, the REx fits into the spare tire well

And soon the REx is to become even greener still. Together with several partners Rheinmetall Automotive is developing a version that can be operated with renewable natural gas. A first application is to operate a small commercial vehicle entirely with renewable power. That includes the electric main drive system and the range extender. The “Green REx” project is supported by the German Federal Ministry of Finance and Technology (BMW) on account of its significant potential for reducing CO₂.



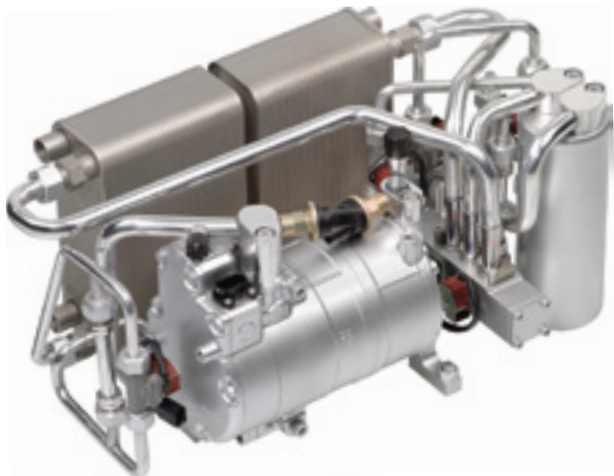
A BRIDGE TECHNOLOGY LIKE THE RANGE EXTENDER COULD ACCELERATE ENTRY INTO THE GENERATION OF BATTERY-OPERATED VEHICLES

MAKING PRACTICAL USE OF THE OPERATING TEMPERATURE

In electric vehicles, the amount of electricity available falls when the interior of the vehicle is heated or cooled.

To avoid reducing the short range of electric vehicles even further, Rheinmetall Automotive has developed a module that significantly reduces the power required for heating and cooling by using a heat pump function.

The module is designed as a key component of the air-conditioning system. It takes account of the quantity of heat created during driving and adjusts all the components to their optimum operating temperatures. The heating and cooling module helps to extend range in conjunction with intelligent regulation of the heat balance. The module can be positioned freely within the vehicle with few installation costs. Thanks to the low number of connecting elements in the almost completely hermetically sealed refrigerant circuit and a reduced fill quantity, the system also makes it possible to reduce losses to the environment.



The innovative heat pump makes energy production of electric vehicles more efficient, thereby increasing the radius of action

RHEINMETALL AUTOMOTIVE – COMPONENTS FOR ELECTRIC VEHICLES

For example, Rheinmetall Automotive is currently developing highly complex cooled aluminum housing for electric drives. Added to this are all-electric auxiliary units, particularly light structural components, heat pump components and range extenders.



Production of structural components from aluminum

Besides developing these special new system components for electromobility, we are also transferring our many years of expertise in producing vehicle components from aluminum die castings using sophisticated manufacturing techniques to an increasing number of additional product ranges outside of the conventional combustion engine.

For instance, the casting specialist KS HUAYU AluTec, which belongs to Rheinmetall Automotive, has been hired to manufacture battery box components for a German premium manufacturer using aluminum die castings. Production is scheduled to start in mid-2018.

The components, which weigh around 9 kg, will serve as carriers for the battery of two of the manufacturer's electric vehicles, namely an SUV and a high-performance sports sedan. Both vehicles have an all-electric drive system. They are currently destined for the European market.

FUEL CELL ON THE VERGE OF A BREAKTHROUGH?

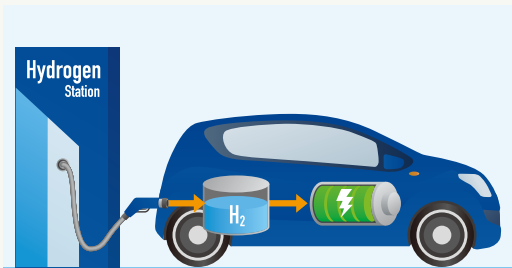
In any discussion regarding alternative drive systems attention inevitably also turns to fuel cells.

A fuel cell is an electrochemical cell that uses the chemical reaction of a fuel (generally hydrogen) and an oxidizing agent (generally oxygen) to generate power. The fuel cell converts the energy produced by this reaction into electricity.

In practice, the range of vehicles powered by fuel cells is comparable with that of conventional vehicles. However, the life cycle assessment depends upon whether the hydrogen was produced using renewable energy. The technology is currently still being tested extensively on test vehicles in the automotive industry but is well established in the military sector, for example. For instance, the German 212 A submarine class has been using fuel cells successfully for many years.

However, fuel cells could soon be found in vehicles more frequently, too. The network of hydrogen filling stations is set to expand massively over the next few years. In addition, the first production vehicles are already on the market or are about to be launched on the European market.

For this reason, Rheinmetall Automotive also has its sights on fuel cell technology. One innovation, a hydrogen recirculation fan, is already in the testing

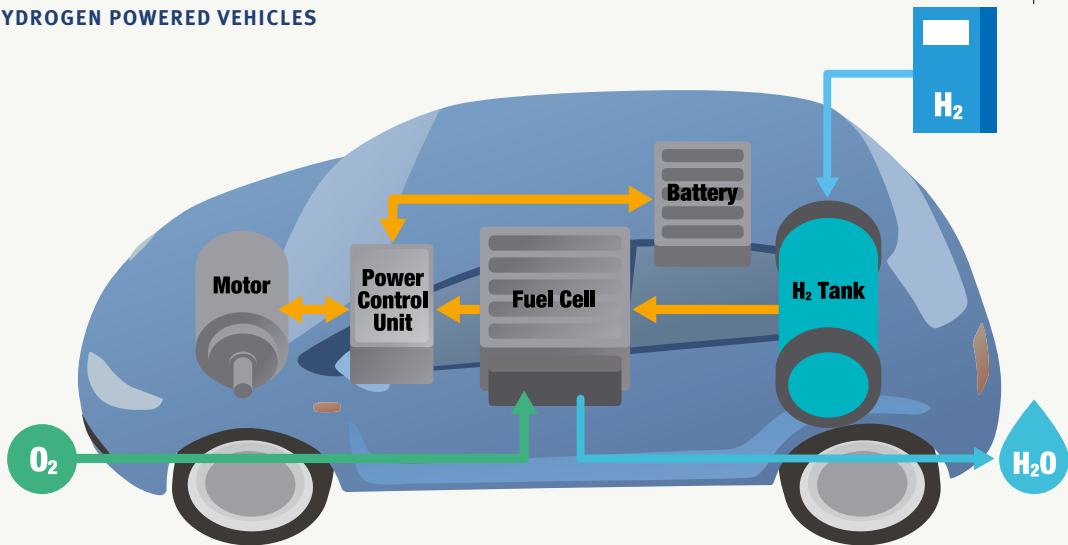


Fuel cell vehicles use gaseous hydrogen as a propellant, which is converted to energy in the fuel cell and propels the electric engine. The refueling process is similar to that of natural gas and takes about three minutes

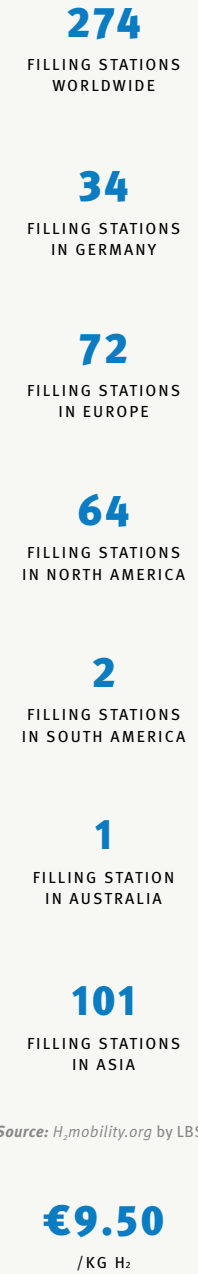
phase. This system with the somewhat unwieldy name sits on the anode side of the stack, i.e. on the “pile” of individual cells in the fuel cell. The recirculation fan primarily serves to humidify the surface of the stack as evenly as possible in order to improve efficiency and lifetime. The recirculation also leads to improved fuel utilization, as unused hydrogen is directed back to the “cold” oxidation process again. Without such a pump, efficiency could only be improved through costly measures such as increasing the platinum content of the stack.

The solutions presented are just a selection from Rheinmetall Automotive's large portfolio, but they demonstrate how our Automotive sector is already developing intelligent solutions today for the drive technologies of tomorrow – whether it be for hybrid engines, electric engines or fuel cells.

FUEL CELL: DRIVE TECHNOLOGY IN HYDROGEN POWERED VEHICLES



HYDROGEN FILLING STATIONS IN 2017



Source: H₂mobility.org by LBST



PISTONS ON LAND AND SEA

The large-bore piston division of Rheinmetall Automotive is one of the world's leading manufacturers of and provides optimum solutions for steel and aluminum pistons with a diameter of 150 mm to 640 mm for all areas of application.

Large-bore pistons are developed and manufactured for almost all the renowned manufacturers of large four-stroke engines at three production sites located in Neckarsulm (Germany), Marinette (US State of Wisconsin) and Kunshan (China).

The product range covers one-piece aluminum pistons, ductile cast iron monoblocs and composite pistons with steel top sections and aluminum, ductile cast iron and steel bottom sections through new developments in the field of steel pistons.

The cost of testing in engine operations would be too high, so the design and construction phases are very important. System components must be carefully calculated and tested. Modern analytical methods and systems are applied, such as 2D and 3D CAD, 3D analyses using the finite element method and high-speed photography in shaker test studies.

The most demanding testing systems such as 3-coordinate measuring units, isotope and x-ray equipment or ultrasonic testing devices for non-destructive tests are used to ensure high quality standards.

The installation of a dual-fuel engine on the AIDAprima was a first in the world of cruise ships. In ports with the required infrastructure, the ship can therefore be operated using low-emission liquefied natural gas (LNG) during arrival and periods spent in port. This is an important step in the reduction of emissions, as on average a cruise ship spends 40% of its oper-

ating time in port. In 2016, KS Kolbenschmidt supplied 18 pistons for use in the M46DF engine onboard the AIDAprima. With the next generation of ships, which will go into service in 2019/2020, AIDA is going a step further. They will be operated exclusively with LNG in line with the "green cruising" concept. Rheinmetall Automotive delivered 164 pistons at the start of 2017, with a further 192 to follow by 2018.

Finnish manufacturer Wärtsilä is supplying Spanish shipyard Construcciones Navales del Norte with the LNG power and drive systems for a new roll-on/roll-off ferry that will go into operation in the Mediterranean in 2019. Operating the ship using natural gas substantially reduces the ship's environmental impact. Compared to conventional marine diesel, the LNG solution from Wärtsilä's reduces CO₂ emissions by 25% and nitrous gas emissions by 85%, while sulfur and particulates are virtually eliminated. Rheinmetall Automotive is supplying the pistons for the four eight-cylinder dual-fuel main engines and the four nine-cylinder dual-fuel auxiliary engines.



Large piston manufacturing takes manpower

530,000+

PISTONS
FOR MARITIME USE
SINCE THE END
OF THE 1940s
PRODUCED



35 mm

SMALLEST
PISTON DIAMETER



640 mm

LARGEST
PISTON DIAMETER



33 mm

MINIMUM HEIGHT



860 mm

MAXIMUM HEIGHT



36 g

MINIMUM WEIGHT



562 kg

MAXIMUM WEIGHT



200 g

AVERAGE WEIGHT,
PASSENGER CAR PISTON

MINIMAL FRICTION THANKS TO INNOVATIVE COATINGS

The steel piston for diesel engines in passenger cars, which was jointly developed by KS Kolbenschmidt together with customer Daimler and cooperation partner Hirschvogel, was presented with the Steel Board's Steel Innovation Award in the category of "Steel products" in 2015.

Replacing aluminum with steel gives the piston a new level of performance. The new development also results in greater resource efficiency and reduction of CO₂ emissions.

After use in engines for commercial vehicles and racing cars, steel pistons are thus finding their way into diesel engines for passenger cars. The award-winning piston by KS Kolbenschmidt was subsequently also used in large-scale production for the first time worldwide in V6 diesel engines for the Mercedes-Benz E-Class (E 350 BlueTEC). And its series of successes continues. We are identifying very significant interest in this technology from our customers. The concepts that are currently being created for future generations of European high-performance diesel engines are almost exclusively based on steel pistons.

Steel pistons for diesel engines in passenger cars offer impressive high-level performance and remarkable potential for cutting CO₂ emissions. The piston is known to be one of the most highly stressed engine components. Measures for reducing consumption and the associated decrease in CO₂ emissions are based on minimizing mechanical friction, optimizing combustion processes and lightweight construction.

Up to 50% of mechanical friction in engines is caused by the piston/contact surface assembly. Downsizing concepts, such as



2015 Steel Innovation Award: A steel sculpture made by Heidelberg artist Stefanie Welk



Quality control at the Neckarsulm plant

decreasing capacity and reducing the number of cylinders, will increase the mechanical and thermal requirements placed on engine components even more. Steel pistons are almost perfectly suited to a highly compact construction with high reserve capacities due to their innovative design and material properties. From a construction perspective, the high strength of steel allows for considerably smaller dimensions in terms of piston height and wall thickness compared to aluminum pistons. For example, this has enabled the compression height of the piston to be decreased by approximately 30%, bringing both assembly space and weight advantages.

Further advantages of steel as a material are its lower level of thermal expansion compared to aluminum and its low thermal conductivity. This increases combustibility and reduces the duration of the combustion process. As a result, the improved degree of thermodynamic efficiency leads to lower consumption and reduced emissions.

The steel pistons produced by KS Kolbenschmidt consist of a forged part and in an innovative patented process are reshaped in such a way as to create a closed coolant passage. In this process, the resulting low wall thickness between the coolant passage and the hot piston zone are key for efficient cooling.

These innovative steel pistons are helping to reduce consumption in the current V6 diesel engine for the Mercedes-Benz E-Class by over 3% and thus document the high level of steel expertise and innovative strength of German automotive suppliers and vehicle manufacturers. Steel pistons are now also used in four-cylinder engines from Mercedes-Benz.

However, the prize awarded to the steel piston in 2015 was not its first: It had already received the MATERIALICA Design + Technology "Best-of Award" in fall 2014 for its high level of CO₂ efficiency.

EXTENSIVE EXPERTISE IN CASTING TECHNOLOGY

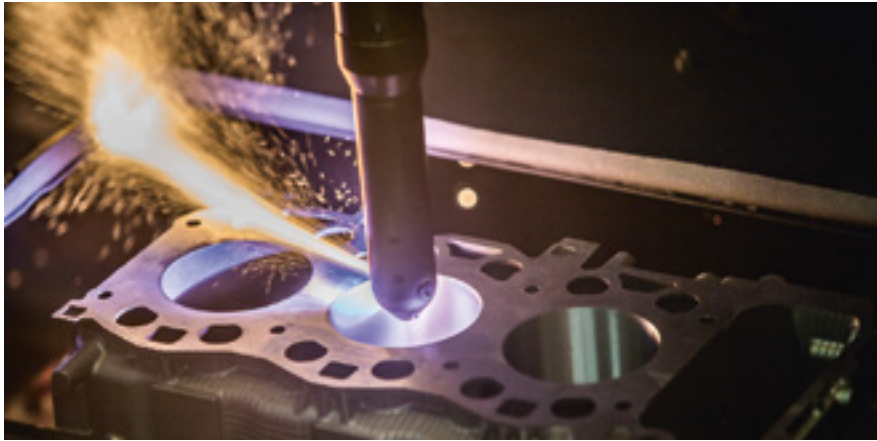
The automotive industry relies on us as a close system partner for our expertise in developing and implementing casting technologies.

Rheinmetall Automotive is among the leading manufacturers of engine blocks made from aluminum alloys and is the market leader in aluminum engine blocks for the premium segment. The casting methods used include low-pressure chill casting, die casting and squeeze casting. Kolbenschmidt's expertise includes the complete finish-machining of engine blocks.

Friction measurements taken from cylinder contact surfaces reveal that coated running surfaces offer significant advantages over conventional contact surface technologies. Our innovative rotating single wire (RSW) coating, an enhancement of the Plasma Transferred Wire Arc (PTWA) method, is used for the cylinder running surfaces in engine blocks.

INNOVATIVE TECHNOLOGY AND METHODS

The specially developed RSW method has proved its worth due to its process reliability. It uses an inexpensive wire-shaped coating material that is relatively easy to process. In this process, the wire material is fused by an electric arc that is transferred via a plasma while the molten particles



Innovative surface coating for a cylinder running surface

are accelerated via a separately supplied atomizing gas and applied to the cylinder contact surface.

In the coating process itself, one of the main areas of focus lies in creating the best possible connection with the aluminum base material of the cylinder bore. The substrates are activated by means of mechanical processing, which is simple to integrate into existing production lines and therefore advantageous compared to other activation methods.

Apart from the coating method, the coating parameters used also play a role: The technology has now been developed to such a point that it is possible to produce individual layer properties in line with specific customer requirements to optimize the tribological system. It is thus possible to influence the surface structure of the cylinder running surface using a targeted method other than honing and thereby to adjust the tribological system, consisting of piston, piston ring and cylinder running surface, in line with customer specifications.

BEST FUTURE PROSPECTS

Overall, the RSW technology also offers great future potential for meeting the requirements for reducing friction and wear due to the variability of the coating material and the options for setting the process parameters. RSW coating also eliminates the need for gray cast liners. Besides saving weight, this also leads to better heat extraction so that engines can be downsized further – another contribution to the reduction of CO₂. Finally, the new method opens up further possibilities for meeting compatibility requirements with alternative or renewable fuels.

For some time now we have also used our extensive expertise in casting methods in connection with aluminum structural components for the bodywork and chassis. Rheinmetall Automotive supplies modules manufactured using the die casting and low-pressure casting method to renowned manufacturers in Europe and China either ready to install or preassembled. The use of aluminum structural components enables a weight reduction of up to 50% compared to conventional multipart steel connecting structures.

The RSW method uses an inexpensive wire-shaped material that is easy to process

MOTORSERVICE: REPAIRS CONSERVE RESOURCES

As the sales organization for the global aftermarket activities of Rheinmetall Automotive, Motorservice supplies products that offer practical repair solutions to workshops and dealers. As a service-oriented company, it focuses in this area on the overall success of repairs.

This means that we provide our customers with solutions that meet the highest possible sustainability requirements, as we firmly believe that repair is the best way to conserve resources.

Our product portfolio comprises a large number of well-thought-out solutions for protecting our environment. For example, we offer individually adaptable liner blanks and a broad range of oversized cylinder liners, plain bearings and pistons. These make it possible to repair an entire engine, thereby prolonging the lifetime of the engine considerably.

Our portfolio includes pumps and tools for fuel conveyor modules that allow for replacement of the pumps and thus continued use of the entire module. In addition, many of our air mass sensors can be installed directly in the existing measuring tubes. It is therefore unnecessary to replace the whole unit, saving money and above all resources.



Checking the piston protrusion

However, if our solutions are to function optimally we must eliminate the sources of errors during assembly. For this reason, we offer our customers professional training on handling our products

and provide them with comprehensive information, as environmental protection is always inextricably linked with expertise and intelligent use of resources.

This also played a decisive role in the planning and construction of our new logistics center and head office in Neuenstadt: With future generations in mind, we are making further contributions

to conserving resources by using full heat insulation, energy-saving light sources and a rainwater cistern, separating wastewater and water gathered from rooftops and directing it into separate sewer systems, and exclusively using geothermal heat in our office building.



REDUCED CONSUMPTION THANKS TO VARIABLE VALVE CONTROL

Rheinmetall Automotive is developing a new variable valve control system for a renowned Asian automotive manufacturer. This new “UpValve” valve control system can achieve fuel consumption benefits of up to 5% in turbocharged gasoline engines, depending on the reference cycle.

Based on the “UniValve” valve control system, which has been optimized for years, “UpValve” was developed through to production maturity and applied to the customer application. The system is currently undergoing extensive testing.

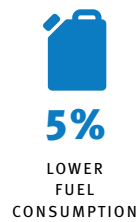
“UpValve” is optimized compared to the previous solution in terms of high-speed

performance, package and response behavior. The system simultaneously allows for cylinder deactivation as required. The “UpValve” control system will initially be installed on the inlet side of the engine and primarily enables a reduction in gas exchange losses as well as targeted charge movement.

The system will be used in a four-cylinder turbocharged gasoline engine designed in cooperation with Rheinmetall Automotive engineers. In this process, Rheinmetall Automotive is the development partner for the entire valve control system, including the actuators and electronic driver. Production is scheduled to start in 2019.



Compact, high-performance valve control – developed by Pierburg



FLANGE BEARING FOR HYBRID DRIVE TRAINS AND HIGH-EFFICIENCY ENGINES

In order to arrive at future fuel consumption and emission targets, auto manufacturers are focusing on a number of strategies: Repeated downsizing, modifications within the engine itself to allow the use of low-viscosity oils, and increasingly complex drive trains embracing both mild and full hybridization.

Accompanying these is the implementation of new operating strategies such as coasting. The objective of all these measures is to switch off the combustion engine as often as possible and this, in turn, results in a vast increase in start-stop cycles across the entire life of the engine. At the same time, running at lower RPM and increased frequency of mix-friction conditions pose new challenges on the engine’s plain bearings. An important role within this context is played by the radial and axial support of the crankshaft afforded by the half-bearings and the thrust washers.

Rheinmetall Automotive has a new preassembled flange bearing that is specially engineered for hybrid drive trains and high-efficiency engines. The new, highly load-capable polymer bearing KS R55Q is used as a radial bearing. Besides optimum, low-friction dimensioning of the crankshaft mounting, this allows the use of low-viscosity engine oils for reduced consumption. Combined with two thrust washers in wear-resistant bi-material KS R535, this constitutes a preassembled package especially suited for demanding engine operating strategies ranging from mild to full hybrid.

HIGHER LOAD CAPABILITY WITH POLYMER OVERLAY

The use of a polymer overlay on the finish-machined half-bearing allows load capability to climb by around 20% compared with classical bi-material bearings without any loss in system robustness. The right selection of mating materials is all-important in achieving best-possible interplay between bearing metal and polymer layer. KS R55Q’s bearing metal consists of a silicon-containing aluminum alloy that is both high-strength and wear resistant. The polymer overlay has a heat and fluid-resistant polyamide resin with a high share of fillers. The resulting enhanced load resistance allows engine developers to dimension the crankshaft bearings for minimum friction.

LESS FRICTION, LESS WEAR AT ALL ENGINE SPEEDS

One major advantage – the grooved texture of the spindled sliding surface has been retained despite the polymer layer.

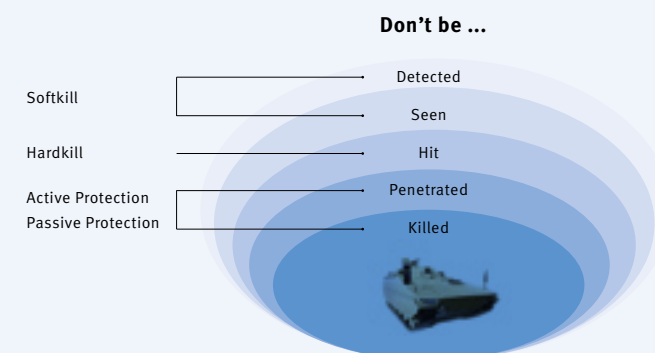
Hydrodynamic properties are thus optimized and mixed friction is reduced at low and medium RPM. This is especially significant with hybrid drive trains in view of the new operating strategies comprising extra start-stop cycles and hence the more frequent low RPMs throughout engine life.

The thrust washers are based on the KS R535 bi-material bearing, with a steel backing and an aluminum alloy containing silicon. They are of moderate hardness and their share of soft-phase tin is tailored to the thrust washer application to give them good adaptability and high seizure resistance – both essential in axial-bearing functions. Compared with conventional thrust washer materials, KS R535 has significantly higher wear resistance thanks to the silicon hard phases finely distributed in the aluminum alloy. This added wear resistance is particularly important under critical mixed-friction conditions especially prevalent during start-stop cycles.



Preassembled flange bearing for hybrid drive trains and high-efficiency engines

Our comprehensive security system is based on a multi-level approach:

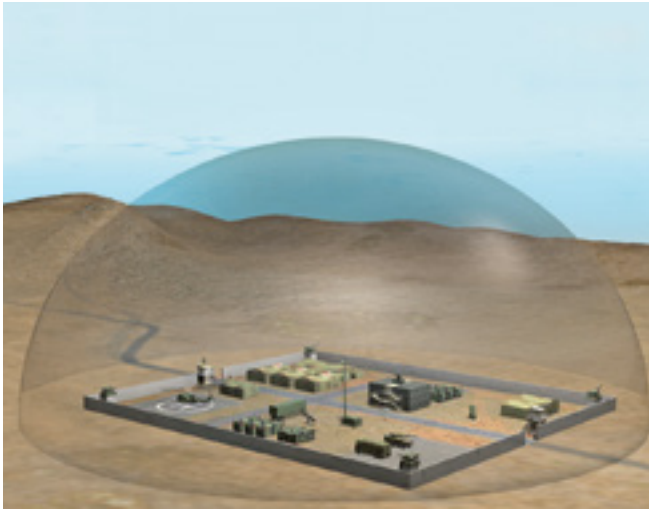


Rheinmetall Defence protects those who protect us

The “Active Defence System” (ADS) – the outer line of defense – is a particularly powerful and innovative solution for defending an object. ADS is a completely new kind of high-tech protection system for military vehicles and is an active protection system. It protects military vehicles of nearly all weight categories from threats, particularly with anti-tank weapons and guided missiles, along with certain improvised explosive charges. ADS uses the “hard kill” principle; it combats the threat even before it reaches its target by detecting enemy projectiles in flight and reacting at lightning speed with targeted energy that destroys the object immediately before it reaches its target. It is the only highly effective close-range protection system that also minimizes collateral damage in the area surrounding the vehicle.

Complementing this are passive solutions that are indispensable in a second line of defense, such as protective plates made of armored composite materials or ceramic materials, which can have only a minimal weight with maximum defense properties. We are driving forward-looking new developments in this area forward and offers its military customers complete protection solutions from one source, for example ballistic-protected compartments for logistics vehicles. The passive protection encompasses ballistic protection, mine protection, IED protection, interior protection, transparent protection, signature protection, protection against shaped charges, protection against explosions, spall liners, and standalone and add-on armor.

The protection concept is rounded off by the powerful “soft-kill” solutions that we offer for land vehicles as well as for aircraft, helicopters and ships. In threat situations, smoke protection systems such as “ROSY” make vehicles invisible to the enemy and the unique MASS marine decoy system has now set standards worldwide.



Rheinmetall Protective Shield – protection for military installations

PROTECTION DURING DEPLOYMENT

Out-of-area deployments, peace-keeping missions, task forces in crisis regions: As foreign operations increase, the armed forces are facing new challenges.

The construction of permanent field camps, landing sites and other military installations is an inevitable consequence of this. Stationary facilities such as these are preferred targets for attacks by terrorist groups due to their situation and structure. Installations of all kinds are very vulnerable where troops are stationed. The classic defense measures such as fences and walls cannot protect against threats such as basic guided weapons and cheap missiles.

As a leading European systems supplier for land forces, we offer a concept for protecting objects and stationary military installations that can be flexibly adapted to different deployment scenarios using modules. This significantly reduces gaps which may compromise the safety of troops.

The key benefit of the system as a whole is the comprehensive networking of all its components based on command, reconnaissance, surveillance and weapon systems from our extensive technology

PROTECTION SYSTEMS: AIR

To protect transport vehicles, helicopters and jets from modern infrared-controlled surface-to-air and air-to-air missiles, we develop highly efficient decoys and flares. These decoys can be used by crisis response teams or by civil aviation, for instance.

portfolio and that of our industrial partners. This makes all conceivable configurations available in a modular system, making it possible to integrate existing systems and create interfaces with the command and deployment systems of other nations. Future technology solutions can also be integrated into the system.

PROTECTION SYSTEMS FOR LAND VEHICLES

We have a wide range of highly effective active and passive protection systems. Alongside classic camouflage with smoke grenades, we offer active concealment and deception systems to protect against dynamic precision weapons in the infrared and laser segment. The use of smoke screens on the enemy side with artillery and mortars can protect troops, military facilities and equipment. With the use of highly modern modular composite technologies, we also develop passive system solutions for ballistic protection, mine protection, IED protection, signature protection and interior protection. Our technologies protect the Fuchs wheeled vehicle along with the compartments and trailers of military vehicles.



Highly mobile truck 8x8 with integrated armored driver's cabin and integrated hook loading system

PROTECTION SYSTEMS: SEA

Missiles and increasingly intelligent weapons systems are a permanent threat to civil and military aviation. We also offer a wide range of highly effective active and passive protection solutions for sea vessels, from decoy systems to ballistic and mine protection.

SYSTEMS FOR PROTECTING PEOPLE AND ASSETS

We have perfected protection for a wide range of applications. We offer a broad range of highly effective active and passive protection solutions for defending against internal security risks and protecting the civilian population, systems and assets while taking account of the changed threat level.

The product portfolio ranges from systems for protecting military and civil assets such as field camps, command posts and power plants through to armored vehicles and body armor.



PROTECTION OF MILITARY AND CIVIL INSTALLATIONS

Protection of civil installations, such as nuclear power plants, is gaining increasing importance. With the help of high-performance concealment systems, threatened installations can completely vanish in a cloud of artificial smoke in a matter of seconds. This makes it impossible to aim a plane directly into the target, significantly reducing the probability of a direct hit. The multispectral cloud produced in hazardous situations is impenetrable to optical systems, infrared sensors and radar.

PROTECTING INSTALLATIONS WITH COLD SMOKE

Legal restrictions, collateral damage and possible environmental side effects often place limits on the techniques that can be used for protecting installations. We have developed a non-lethal glycol-based cold smoke system to provide effective protection for sensitive installations both outside and inside buildings. In combination with acoustic and optical irritant agents it completely disorients intruders, thus impeding or preventing them from carrying out their intended task. Cold smoke systems pose no ecotoxicological or human health hazards and are also completely residue-free.



CONCEALMENT SYSTEM TO PROTECT AGAINST TERROR ATTACKS FROM THE AIR

If a threat penetrates the defined security area, our Rheinmetall Defence concealment system cloaks the installation it is protecting in a wall of artificial smoke within 20 seconds, thereby countering targeted attacks and reducing the risk of damage. Moreover, the concealment system can

be augmented with a GPS jamming/spoofing system to prevent a successful GPS-guided attack. The artificial smoke poses no ecotoxicological or human health hazards and does not impair the necessary security functions.

**SOPHISTICATED PRODUCTS
AND SOLUTIONS FOR EFFECTIVE
BALLISTIC PROTECTION OF LIFE
AND EQUIPMENT**

Rheinmetall Ballistic Protection offers a broad product portfolio for the ballistic protection of people, vehicles, helicopters and ships. Its particular strength is its ability to provide maximum protection while adding minimum extra weight.

We specialize in developing and producing state-of-the-art protection systems. Fabrics made of high-performance fibers form the basis of our ballistic products. Composite systems using the most innovative ballistic ceramics and metallic materials add to the product portfolio for asset and body armor. Renowned military vehicle and automotive manufacturers from Germany and abroad have trusted the VERHA product family for decades.

VERHA stands for “Versatile Rheinmetall Armour”. The protection systems are developed specifically in line with customer requirements and range from spall liners and standalone armor through add-on armor taking account of the individual security level, which ranges from light protection and heavy armor through to protection against explosions.

Our customized VERHA automotive object protection system can be adapted to the individual design of automobiles and the threat level in their particular area of operation. We use state-of-the-art materials



*Police as first responders
are protected against
terrorist attacks or
active shooter situations
with ballistic inserts
for body armor*

such as individually coated aramid, high-performance polyethylene and combinations of different ballistic materials in the manufacture of its products.

Virtually invisible and without affecting performance and handling, our automotive protection systems offer levels of protection in line with the most stringent international standards. Rheinmetall Ballistic Protection develops and manufactures protective systems for special vehicles produced by OEMs such as Audi, BMW and Mercedes-Benz. We also supply materials offering a high level of ballistic protection to retrofitting companies.

PERSONAL PROTECTION

In order to protect police patrol car crews for instance, particularly from rifle fire, we have partnered with special equipment maker to develop bullet-resistant plate carriers. These can be transported in the patrol car and donned quickly if required.

In addition, our forward-looking and innovative Sensing Armour technology enables maintenance and inspection of hard ballistic bullet-resistant vest inserts. An integrated sensor system embedded in the insert makes it possible to check for damage quickly and easily even when inserts appear from the outside to be intact – without the need for expensive x-rays.



*Participants at the 41st G7
summit in June 2015
at Schloss Elmau. The motto
of the sixth summit
in Germany was “Think ahead.
Act together.”*

HIGH-TECH PROTECTION AGAINST DRONES

There was great concern that there could be illegal drone flights or that targeted intrusions or even attacks could be staged or arranged using drones during the G7 summit at Schloss Elmau in June 2015.

To protect the seven heads of state and government and their delegations, our experts at Rheinmetall Defence in Bremen used the state-of-the-art Universal Multi-spectral Information and Tracking System (UMIT) to ensure the prominent guests and their staff were spared unpleasant or dangerous intrusions by drones.

The UMIT system is a universal monitoring system for small to mid-sized sites. Both aerial and ground-level movements within a 360° radius are automatically detected day and night. Following the automatic alarm, a verification sensor that provides visual identification as well as position and movement data (e.g. the object’s direction and speed) is activated. This enables the operators to assess the risk level rapidly and to initiate appropriate protective measures immediately.

The open system architecture allows various sensors (optical, acoustic, radar) to be integrated depending on the deployment requirements. In this way the system

can be flexibly adapted to a wide range of requirements. The system’s signal and video processing capabilities enable it to produce displays either in a stationary control center or a mobile emergency vehicle. Thanks to the large degree of automation and its intuitive operating concept, the system can also be used by non-specialist staff after a brief induction.

Besides taking video footage from the air, drones can also transport prohibited or hazardous items. Around the world, incidences of drones smuggling items over prison walls are on the rise. In Germany,



*Sensor unit centrally mounted onto a building roof
and operated from a vehicle*

there have been occurrences in Berlin, Hamburg and Bremen, for instance. There are also several cases in the USA where drones are known to have smuggled drugs and other items such as cell phones into correctional facilities.



*Further autonomous sensor unit to monitor
the building perimeter*

Several incidents have also been reported in Switzerland. The main correctional facility in Lenzburg in the canton of Aargau is now safeguarding itself against drones with a protective system. It has installed a detection system from Rheinmetall Defence for early detection of small flying objects. Using a combined radar and video system, this is capable of detecting drones, model airplanes, balloons and objects sized 7 cm and above that are thrown over prison walls. The system serves to alert security staff in good time so that they can take appropriate measures.

VERHA – protection for a wide range of uses

VERHA® – VERSATILE RHEINMETALL ARMOUR



EQUIPMENT FOR LIGHT INFANTRY – MORE MOBILE, MORE EFFECTIVE AND GREATER PROTECTION

Infantry soldiers also play a key role in the land forces trained for the new deployment scenarios.

Their range of duties is extremely complex. In particular they are needed for highly mobile, mostly remote deployments in tough, complex terrain. More and more, infantry soldiers are in urban environments, sometimes with extreme climate conditions. They are exposed to threats that more and more frequently stem from irregular troops and asymmetric warfare. What’s more, during air mobile or special operations, infantry is faced with a wide range of potential deployment options and assignments. This not only requires a change in structures but also more modernized equipment.

Modern technologies can play a key role in improving the survival chances, management, stamina, mobility and effectiveness of missions. The objective is better protection for soldiers with highly effective tools, to give them a clear picture of the situation and reliable means of communication. An open infantry system based on modular equipment for the troops is essential to enabling better performance and lower equipment weight. An excess burden on soldiers must be avoided not only in terms of weight; the same applies with regard to managing equipment while on assignment.

Our soldier systems cover all five capability areas without overburdening the individual rifleman. The system’s modular structure provides flexibility for changes in conditions and assignments. We are considered the world’s leading developer and supplier for soldier systems with concepts tailored to the user’s needs. We have already developed the highly modular “Future Soldier – Extended System (Gladius)” on behalf of the German Bundeswehr and various systems and components for other NATO partners.



Gladius includes these systems:

- Clothing, protection and carrying system
- Weapons, optics, optronics
- Command, Control, Computers, Communications and Information (C4I)

that are designed to improve the performance of infantry troops for the entire spectrum of applications, while reducing the risks for soldiers overall. All components have been coordinated with one another and the weight has been optimized in each part of the system.

Gladius integrates the infantry forces – equipped with reliable communications and robust tools – with their vehicles including the base station into networked operations management. Gladius provides a full picture of the situation and allows for rapid information exchange. Protection for ground troops is greatly enhanced and their operational effectiveness is raised considerably for the deployment. Alongside the Gladius system in our portfolio, we developed the Argus system for the Canadian military, for example.



The ergonomically optimized clothing, protection and carrying system offers protection from fire, vectors and also ballistic protection from projectiles and debris. With C4I the IdZ-ES is part of networked operations management and at tactical level is connected with all soldiers at group level

SIMULATION TECHNOLOGY FOR EMERGENCY SEA RESCUE

In the second half of the 19th century, when sea rescuers headed out on rough waters because a ship had capsized far out at sea the fearless crew boarded a boat that was brought to the water by a horse and cart. The rescuers then had to row to the scene of the accident. Fortunately, these days are long gone. The Deutsche Gesellschaft zur Rettung Schiffbrüchiger (DGzRS – German Maritime Search and Rescue Association) has been equipped with motorized ships since 1911 and now has the world’s most modern sea rescue technology at its disposal.

However, today – just as was the case 150 years ago – it is primarily the people on board the vessels who have to stand their ground and they need excellent training for this. One of the partners in this task is our Simulation and Training business unit in Bremen. Around 20 years ago, what was then STN Atlas Elektronik handed over a simulator to the sea rescuers that could realistically rehearse all the communication processes in a rescue mission, thereby providing a dry run of a sea rescue mission.

Together with the University of Cologne and Chemnitz University of Technology, we have developed the “MAR-SimNET” maritime simulation network with funding from the German Federal Ministry of Education and Research (BMBF). It comprises a core simulator and instructor’s post installed in Bremen from which the entire simulator and network is initialized and controlled.

A key component of the simulation system is the German Maritime Search and Rescue Association’s original Maritime Rescue Coordination Centre (MRCC) where, for example, training for the management of large-scale maritime emergencies can take place. Also installed at the German Maritime Search and Rescue Association in Bremen are three ship’s bridges (e.g. sea rescue cruisers) and two bridges for variable use. A further bridge that can be linked via the public network to the main simulator in Bremen is permanently installed in Neustadt (Holstein). In addition to this there are two further mobile stations/bridges that can be variably configured as ship’s bridges or control centers in order then also to communicate with Bremen via the public network. For the first time, this makes it possible to train all units and control centers in a joint scenario simultaneously at different locations without having to assemble all the exercise participants at one location.

In this way it is possible to simulate and train for the conduct required of crews of stricken vessels, vessels in the vicinity that are required to provide assistance, helicopters, agencies and not least the sea rescuers themselves.

This facilitates the task of the DGzRS. Around 84,000 souls saved in the organization’s history bear witness to its enormous capabilities, which would not be possible without perfect training for the men and women involved.

WE GO OUT WHEN OTHERS ARE COMING IN

1,000
SEA RESCUERS

20
SEA RESCUE CRUISERS

40
LIFEBOATS

54
STATIONS

1
TASK

Rescue at sea around the clock and in any – we do mean any – weather



IDEAL
COMBINATION
OF MOBILITY,
PROTECTION
AND CAPACITY

SURVIVOR R: PROTECTION
FOR POLICE FORCES

Silver-blue is not a typical color for vehicles from our Rheinmetall Defence sector but it suits the Survivor R really well. In its new “police dress” the protected wheeled vehicle from our Vehicle Systems division’s portfolio is currently attracting interest from security agencies in Germany and abroad.

It has become strikingly clear that police forces need such a vehicle system, as demonstrated not least by the terrorist attacks in Paris and Brussels. The current tense security situation is also causing numerous European governments to invest more heavily in equipping their agencies for internal security. In Germany alone there is significant demand for a vehicle of this kind by the Federal police force and the special task forces of the German states. Outside of Germany, Austria, Spain and Poland have already signaled an interest, too.

The Survivor R, developed jointly by Rheinmetall MAN Military Vehicles and a partner, provides an ideal combination of mobility, protection and load capacity and offers task forces optimum support in all relevant deployment locations. Based on the client’s individual needs, the Survivor R can be

configured for police use with extensive special equipment.

Based on a 330 hp (242 kW) 4x4 truck chassis from MAN and an armored steel cab, the Survivor R combines automotive volume-production technology with the latest protection technology.

The armored monocoque can be individually tailored to changing threat scenarios with adaptive protection elements and is equipped with an integrated air purification system as standard to protect against nuclear, biological and chemical warfare agents. Although the Survivor R is protected to an outstanding degree, for police use its external appearance is deliberately civilian.

The interior is bright and ergonomically designed, with enough space for a crew of up to ten individuals and their personal equipment. It also provides enough space for radio and command equipment. An engine-independent air heater and high-performance air-conditioning system provide a comfortable working environment for the crew all year round.

MOVING TARGET SECURITY ELIMINATES
TARGETS OF DIGITAL ATTACKS

When the Internet was invented, data protection and protection of classified information and material was not a basic requirement: It was its very simplicity, openness and clarity that made it a success. Thus it is used to transmit increasing volumes of ever more valuable content. This attracts criminals and spies who launch increasingly professional attacks.

Up to now, IT security products have corrected and compensated for the weak points of the original Internet protocols and attempted to close existing gaps. However, they do not solve the problem as the targets remain visible to the attackers.

_cyel, the joint venture between Rheinmetall and the Swiss company Dreamlab Technologies, has learned from the attackers and is pursuing a new strategy in cyber security. This does not involve new generations of patches and firewalls, but rather moving target security, which removes the targets of attack from the “line of fire” and hide them from cyber attacks – all without replacing clients’ existing systems. It is installed as an add-on to the existing network without the need to adapt network cabling, user systems, servers or applications.

We move, disperse and hide the targets of attack. Rather than preventing penetration of a static net-



work, the network itself becomes a dynamic system with moving targets. The users are no longer readily visible to the outside world. Every data transfer is encrypted. Any intruder that moves laterally will automatically attract attention.

There will never be 100% security, but now there is predictability: With moving target security, the effort involved in attacks can be demonstrably increased at will according to requirements. In future, the feeling of security will no longer be based on trust, but rather on mathematics.

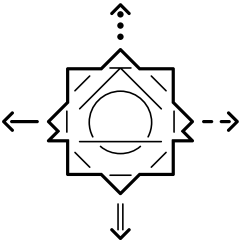
Moving target security can not only be used for companies’ IT systems. There are also numerous conceivable applications in mobile systems such as smartphones and tablets, as well as in the automotive industry.

10
PERSON CREW

330 HP
OUTPUT

4X4
MAN
TRUCK CHASSIS

The highly mobile Survivor R, which has a cab of armored steel and can travel more than 100 km/h, stands for automotive volume production technology with state of the art protection from Rheinmetall Defence



ATTACK SURFACE
MUTATION

Instead of a fixed IP address, each device receives a new address for each transaction. Even if third parties gain access, they cannot observe any regularities or draw any conclusions: In each new transaction the sender and recipient are no longer recognizable. Any information that is gathered becomes instantly worthless again.



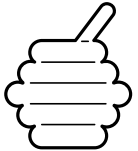
ENCRYPTION

It goes without saying that each communication is encrypted from point to point. The encryption changes at each node, making it impossible to trace back the data packets; the message is no longer identifiable as such.



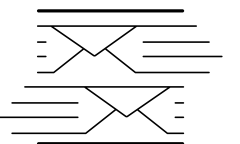
AAA

Authentication, authorization and accounting means that each process in the network can only be performed by authenticated devices, must be explicitly allowed (white list) and is recorded. There are no external actors, unknown routes, lateral movements or unverified actions.



HONEY POT

Known attackers are directed to a simulated environment, known as a honey pot, where they cannot do any damage but where their behavior can be observed. In this way you are always one step ahead of the attackers instead of having to react to leaks.



DUMMY TRAFFIC

The system sends out disruptive traffic that drowns out the true signal. Attackers can neither identify nor use behavior patterns; servers that experience high levels of traffic cannot be distinguished from sporadic users.

INFRARED BASED
MONITORING
AND ALARM SYSTEM
OFFERS THE
BEST PROTECTION
FOR WHALES



HIGH-TECH FROM BREMEN
PROTECTS WHALES

Many marine biologists and other scientists are becoming increasingly concerned regarding the considerable rise in loud underwater noises. These particularly occur in connection with exploration activities relating to oil and natural gas deposits.

However, the increased background noise has both short-term and long-term negative effects on marine fauna, as most marine mammals and many fish species rely on waterborne sound when communicating, searching for food and navigating.

For this reason, many national government authorities have already developed requirements to protect marine mammals. Therefore, systems such as sound cannons may only be used if no marine mammals have been sighted in a defined zone around the ship for at least 30 minutes prior to use of the device. Should marine mammals approach the ship within this zone during use of the sound cannons the systems must be switched off immediately.



The automatic infrared-based monitoring and alarm systems have already been tested on numerous expeditions in the Arctic and Antarctic

However, the measures currently taken still do not offer absolute protection as the current method of detection is based merely on visual sightings of the whales' blows by specialist whale monitors and the entire area around the ship cannot be covered comprehensively and continuously. Furthermore, some whale species only come to the water's surface to breathe at relatively long intervals. For this reason, they should be detected at a greater distance as early as possible.

There is also the not inconsiderable economic aspect to consider. Chartering a research vessel for several months costs the oil and gas companies several hundred thousand dollars a day. Visual whale monitoring can only take place in daylight. This means sound cannons cannot be used at night, significantly restricting efficient use of the research vessel. Trips lasting several months present a further problem. Due to the monotonous and tiring nature of the task, large teams of trained whale monitors are required so that they can rotate with one another regularly. This in turn creates considerable costs.

Rheinmetall Defence Electronics and the Alfred Wegener Institute have jointly developed an automatic infrared-based monitoring and alarm system to protect whales and other marine mammals (AIMMMS – Automatic Infrared Marine Mammal Mitigation System), which has been used for research purposes on board the Polarstern research vessel for several years now.

This completely passive system has special software designed to reduce the negative impact on marine mammals, particularly whales, caused by seismic offshore projects. AIMMMS allows continuous 360° all-round detection with a high scan rate that is unique worldwide and simultaneous and automatic detection and display of various events. This enables whales' blows to be mapped and assessed in real time within a 360° panoramic video image. The entire panoramic image can be updated up to five times per second. This is the only way the whales' blows, which are only visible for a fraction of a second, can be detected and visualized.

The results evaluated after use of the AIMMMS system are overwhelming. A considerably larger number of whales were detected compared to visual monitoring. Moreover, electronic monitoring of the areas of sea concerned is possible around the clock. Apart from the economic aspect, the system also greatly facilitates the whale monitors' work. However, the greatest added value this highly advanced technology brings is a significant improvement in the protection of marine animals.

SMART VISION – MORE SECURITY
AT AIRFIELDS

The sky over Germany only appears empty at first glance: Deutsche Flugsicherung, the German air traffic control company, records around three million aircraft movements based on instrument flight rules per year; that is over 8,200 per day. Added to this are around 50,000 visual flights per year. Coordinating and monitoring this large number of takeoffs, landings and overflights presents major challenges for air traffic control.

The "smartVision" system developed by us and a partner provides an innovative solution for visualizing the environment around the control tower of an airport or air base. Its two sensor systems, "FIRST" (Fast InfraRed Search and Track) and "MSP" (Multi Sensor Platform), simultaneously enable both a networked panorama and a detailed representation. Selected areas of ground, such as landing thresholds, waiting points and taxiways, as well as aerial targets in takeoff and landing can be shown in precise detail. This is possible not only in good visibility, but also in poor weather, fog and, in particular, darkness.

"First" is a rotating infrared reconnaissance sensor that generates a continuous and instantaneous video stream. The system provides a 360°x18° panorama. It is capable of simultaneously detecting up to 256 aircraft, land vehicles, persons, animals or even birds and showing the air traffic controller the exact position (azimuth and elevation) of the object in relation to the sensor's location.

MSP is a stabilized infrared imaging sensor. Its field of vision covers 360° in azimuth and –40° to +85° in elevation. The platform is equipped with a high-resolution infrared sensor, a daylight camera and a laser range finder. This enables MSP to monitor each object detected by FIRST or by radar and to track and visually survey the movement of the object. Distance, speed, direction of flight, flight altitude, elevation and azimuth are continuously measured in relation to the sensor's location and the actual position of the object is thus identified and displayed to the air traffic controller with great precision.



Remote tower station

While "First" automatically detects and tracks objects and provides alerts, MSP enables the air traffic controller to verify and identify these preclassified targets visually. Both sensors are suitable for continuous use around the clock under all climatic conditions and have a broad detection and reconnaissance range. Moreover, MSP is capable of continuously detecting and displaying the exact position of an individual target on a map. The images from both sensors are processed and analyzed by multi-mode/multi-target-tracking software and displayed on any number of screens.

A further benefit of smartVision is that the system allows the remote control of tower functions. Therefore, any air traffic on its final approach, taking off, on the runway or on the ground can be monitored and controlled from any location. This means the air traffic controller does not have to be physically present at the respective airport. Remote tower also allows all tower functions to be maintained in the event of a fire or a terrorist attack. In addition, several small airports or air bases where only a few aircraft movements take place can be efficiently managed from one central location in this way.



Flight control tower

THANKS TO
RHEINMETALL
DEFENCE'S IMAGING
SYSTEMS, AIR TRAFFIC
CONTROLLERS HAVE
A REALISTIC VIEW
OF WHAT'S HAPPENING
AT THE AIRPORTS
TO BE MONITORED.
THEY ARE SUPPORTED
BY AUTOMATIC
ASSISTANT SYSTEMS



SECURITY, PROCESS OPTIMIZATION AND ENHANCEMENT OF EFFECTIVENESS

RHEINMETALL OIL AND GAS TRAINING – TRAIN TO PERFORM

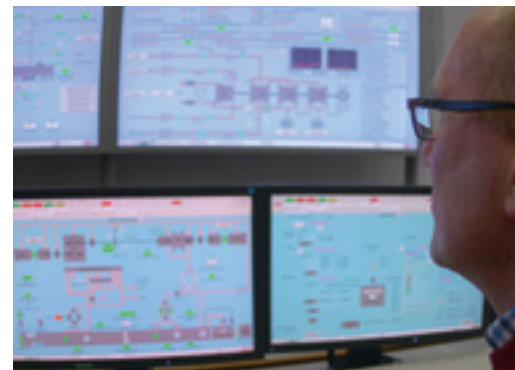
At the end of 2015 we won a contract to build and operate a modern training center in Mexico that will be used to train staff who operate extraction and production platforms for the Mexican state-owned oil and gas group PEMEX.

Following a three-year construction and installation phase, at the end of 2018 we will hand over the complete infrastructure and equipment for the Centro de Adiestramiento en Procesos de Producción (CAPP – training center for production processes) in turnkey condition and operate the center for a period of 12 years.

PEMEX intends to use this production processes training center to provide its employees with comprehensive training for their challenging work on the extraction and production platforms in the Gulf of Mexico. Security, process optimization and increased efficiency are the focus of this extensive and coordinated package of measures that PEMEX is implementing based on our expertise in the field of sophisticated simulation solutions.

1,000
PEMEX EMPLOYEES
TO BE TRAINED PER YEAR
AS OF 2019

Crane operators practice difficult loads with the crane simulator



Operators must respond suitably
to dynamic process simulation

Besides the latest simulators for oil/gas production and refining processes, the training center will also have full mission simulators for various types of crane as well as technical systems replica for equipment training. Laboratories, training rooms, e-learning equipment and training management complete the overall package provided by Rheinmetall Defence. From 2019, approximately 1,000 employees are expected to be trained at the center every year.

Rheinmetall Gesellschaft RH Mexico Simulation und Training S.A. de C.V. (RMST), which was founded especially for this purpose, is collaborating in the construction and operation of this upstream training center at local level exclusively with Mexican partners. For example, the trainers and lecturers at the training center will be provided by a local university. RMST is responsible for training these teaching staff to use our simulator technology and supporting the management of the training center. We are directly helping to create local jobs and is making a valuable contribution to ensuring a high level of training and accident prevention in one of Mexico's most important branches of industry.

AIDA CRUISES PROVIDES TRAINING USING SIMULATION TECHNOLOGY FROM RHEINMETALL DEFENCE

In September 2012, AIDA Cruises set up a maritime simulator training center at its company offices in Rostock. At the AIDA Academy, captains and nautical and technical managers receive training and further education. Rheinmetall Defence Electronics supplied the technology for this, including a full mission bridge simulator as the main bridge and four smaller part-task bridge simulators.

The aim is for the simulation to feel as realistic as possible. The design and layout of the main bridge is thus based on the bridge of the AIDAblu, a cruise ship commissioned in 2010. It is not only the colors, carpet and even ceiling of the bridge that are identical in their design; in particular, the same devices (e.g. electronic charts and radar) have been installed as on board the ship.

The software we have developed simulates signals that “stimulate” these devices and convey the effect of real surroundings to them. They subsequently react and function exactly as they do on board the real ship. On other simulators these elements are only represented virtually by software instead. The advantage of the stimulated system is that absolutely all the operating elements and menus correspond to the original. Most simulators are generic, i.e. they can be used for various types of ship. However, this one is specific to the ship in terms of the functionality and layout on Aida.

During training on the full mission bridge simulator realistic scenarios can be loaded onto the 220° panoramic screens and maneuvers simulated 1:1, taking into account influencing factors such as swell, wind, current, different visibility conditions and precipitation. The training covers AIDA Cruises' navigated areas around the world, including the ports of Hamburg, Bangkok and Singapore, as well as much-navigated areas such as the Kadetrinne, the Norwegian fjords and the Bosphorus. On the part-task bridges new officers are trained to use nautical instruments and equipment such as the radar system.

The holistic security concept also includes an engine room simulation on the AIDA ships. This simulates operation of the machinery as well as emergency scenarios and provides training via team and individual exercises. In November 2013, we coupled the bridge simulation with the engine room simulator, thereby treading new ground in European simulation technology. Now even more complex safety exercises can be carried out under virtually real conditions. Problems in the engine room are immediately visible on the ship's bridge and require a reaction from the trainee.

AIDAblu takes to the sea



Ship navigation simulator
for nautical training



Radar on a ship
navigation simulator

PRESERVING A FUTURE FOR ORIGINAL MATERIAL

Be it yesterday, today or tomorrow: Wherever history is written, paper is involved.

However, documentary material dating from the period of around 1830 to 1990 is affected by acid degradation and decay. This is primarily attributable to the use of inferior quality papers since the beginning of industrial paper production as of around 1850/1860. Acids that have got into the paper degrade the cellulose that is responsible for the mechanical strength of the paper. This acid degradation causes the paper to become fragile and brittle and the pages to yellow. This aging process is autocatalytic, i.e. it accelerates on its own.

Without appropriate preservation measures the originals of valuable documentary materials can no longer be kept for subsequent generations. Globally speaking, an estimated 80% to 90% of total inventories of archive and library material are in danger. Of these inventories, 10% are no longer usable, 30% are affected by decay and 40% are at risk.

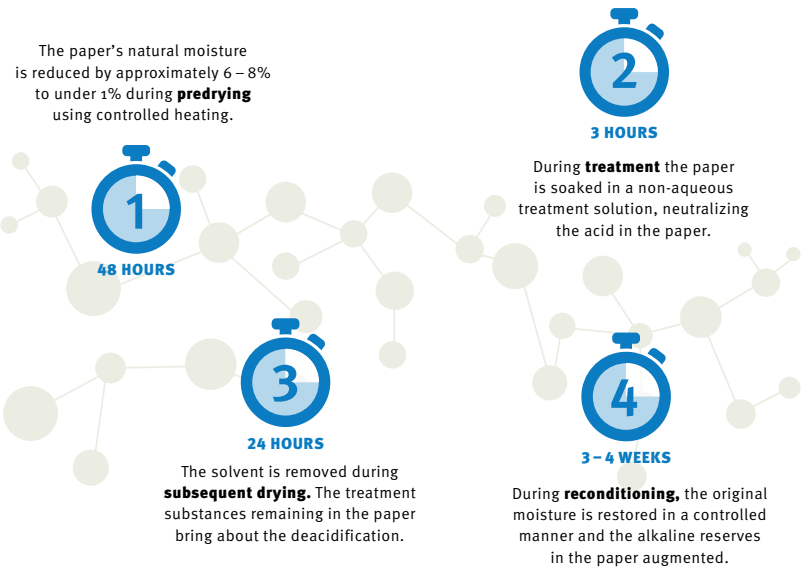
With our long-standing experience in the area of cellulose chemistry and cellulose analytics we have developed the Papersave method for mass paper deacidification. In Switzerland and Germany, the Nitrochemie Group operates two of the world’s most modern and largest deacidification plants of this kind. They are designed to treat volumes of 120 tons and 180 tons per year.

Mass paper deacidification has the advantage of being less expensive than digitalization. Furthermore, written documents only retain their legal validity when in paper form.

This technology guarantees the preservation of valuable and irrecoverable books and documents. Thus with our civil application for preserving historical documents in accordance with the “Papersave” method we are helping to conserve important cultural assets.

TREATMENT SCHEME

Steps 1 – 3 take place in the treatment chamber.



80–90%
OF THE ENTIRE ARCHIVE
AND LIBRARY MATERIALS
ARE AT RISK

120–180 t
TREATMENT VOLUME
IN TWO PLANTS

The baskets with the materials are loaded directly onto a rack and protected from unnecessary stress

90+
CUSTOMERS

RETROFIT PROLONGS LIFE CYCLES OF MILITARY VEHICLES

With more than 1,000 units featuring over 40 different variants and equipment kits implemented in the German armed forces since its introduction in 1978, the Fuchs has gained the trust of soldiers when it comes to reliability and suitability, even in difficult deployments, for example as a standard armored transport, emergency medical, command and control, reconnaissance, jammer and not least an NBC armored reconnaissance vehicle.

No other vehicle system currently in use by the German armed forces can match its wide range of functions. The performance capability and protection level provided by the vehicle Fuchs has continuously increased due to regular adjustments. The vehicle models with protection modules intended for the German armed forces’ deployment in the Balkans were retrofitted for better ballistic and mine protection for the first time in 1995, which was a major advancement.

Owing to the weight increase as a result of the level of protection, the next step was to dispense with buoyancy, which was now negligible. Strengthened 9-ton axles were installed and the brakes and chassis modified as part of “Modification Package 1”. Further significant improvements were also made in terms of mine protection on the ground by adding extra armor and installing inner liners, reinforced bullet-proof glass and window shields. The resulting increased load capacity and the integration of an electrohydraulic device for opening and closing the door as well as air conditioning for the driver’s cab and the fighting compartment further augmented the operational efficiency of the vehicle. The Fuchs 1A7 model had been created, proving that the Fuchs concept is and remains viable for the future.

NEW PROTECTION AGAINST NEW THREATS – THE FUCHS REMAINS VIABLE FOR THE FUTURE

Experiences gained during the ISAF mission in Afghanistan and Mali are proof of increasing changes in the threats faced by our soldiers. The increased number of IED attacks on vehicles and convoys as well as the current threat from mines once again call for rapid reactions to improve the level of protection. This shows once again that the potential for developing the Fuchs armored transport vehicle is far from exhausted.



Transport vehicle Fuchs 1A8 with a weapons station type FLW 200 on the training course

The first vehicle with improved IED and mine protection capability with the type designation Fuchs 1A8 was delivered to the German armed forces in March 2008. Since then, a total of 177 vehicles have been retrofitted. At present, a further 90 vehicles are being adapted into the 1A8 variant by 2020. Now there are 18 different variants of the Fuchs 1A8 configuration level – a well established concept.

The example of the Fuchs armored transport vehicle demonstrates how long our sustainable and durable products can remain in use. All Fuchs armored transport vehicles regularly undergo repairs at the plant to ensure the system’s trouble-free use over the long term. With a useful life of over 40 years and continuous enhancements, the next logical step of prolonging the useful life beyond 2030 is continuing via the latest 1A8+ model with a completely new drive train and state-of-the-art electronics.

Furthermore, all the Fuchs vehicles deployed in Afghanistan were returned to Germany and received a general overhaul at the plant so that they can be fully operational again for use by the troops.

1,000+
FUCHS TRANSPORT VEHICLES
AT THE BUNDESWEHR

>40
YEARS
USEFUL LIFE

18
VARIANTS OF THE
FUCHS 1A8
CONFIGURATION LEVEL

177
VEHICLES RETROFITTED
SINCE 2008

HOT AND COLD – ENDURANCE
TESTING AT THE TEMPERING TEST PLANT

Back in 1972, Rheinmetall Defence in Unterlüß constructed a tempering test plant meeting the latest and strictest requirements for the climatic testing of weapons and equipment, systems, assemblies and components. This is also largely used for the testing of civilian products.

For example, in the past we have used it to test helicopters, mobile excavators, large tractors, recovery vehicles, x-ray containers, defueling systems, aerial masts, ticket vending machines, franking machines and electrical control cabinets used in automation engineering. In addition, air heaters, climate systems, automobile seats and dashboards have undergone climatic testing

for suppliers in the automotive industry and the German technical inspection organization TÜV. Even the national biathlon team tested its rifles there.

In the tempering test plant, all the world’s climate zones can be simulated, as can the effect of the sun, rain showers, extreme ice conditions, etc. Temperatures range from +85°C to –46°C. Among the most challenging simulations was a test in which a 33-ton fire truck had to demonstrate its permanent standby capability in temperatures as low as –33°C, or a vehicle crane, weighing around 60 tons, that underwent functional testing in the temperature range of –40°C to +40°C.

Under the key word “environment”, the program encompasses everything from sand and dust tests, altitude tests (e.g. for aircraft transport), leaktightness checks (e.g. water leaks), and compatibility with liquids right up to long-term temperature storage and salt spray tests (corrosion testing).

UP TO
1,200 W/m²
RADIATION OF THE SUN

< **10%** UP TO > **95%**
RELATIVE HUMIDITY



Extreme temperature test
for vehicles and trailers



Vehicle test type:
Ice conditions

SAFE AND PROFESSIONAL RECYCLING
OF AMMUNITION PROTECTS PEOPLE
AND THE ENVIRONMENT

Enormous quantities of outdated, surplus and unusable ammunition are lying in stores around the world. The improper storage and handling of this ammunition regularly causes accidents, with grave consequences for people and the environment. Conventional disposal methods such as burning off or detonating ammunition in the open air pose great hazards to people and the environment. Moreover, they are extremely uneconomical as materials in the ammunition that could be recycled are destroyed.

There are various reasons for excluding ammunition from its intended use. The most important of these is firstly excess age of ammunition stocks based on the usual lifetime expiry period under normal conditions (e.g. storage under prescribed climatic conditions) and early expiry of the lifetime under special conditions (stress on the ammunition on account of temperature, vibration or shock during transit to deploy-



Belt filter in a cleaning system for explosives

ments) and secondly surplus inventories of ammunition stocks due to reductions in troop strength, dissolution of certain military units, discontinuation of a weapon system, a change in deployment principles, banning of certain ammunition types or grades and the withdrawal of troops from war, crisis and deployment zones while leaving ammunition inventories behind.

Ammunition is disassembled for examinations and inspections, for re-use in its

entirety or in parts, for recycling of substances and materials and in order to destroy ammunition, explosive materials and objects containing explosive material. Apart from the types and grades of ammunition, their quantities, age and condition determine the details of the individual procedure and thus the type, size and extent of the equipment required.

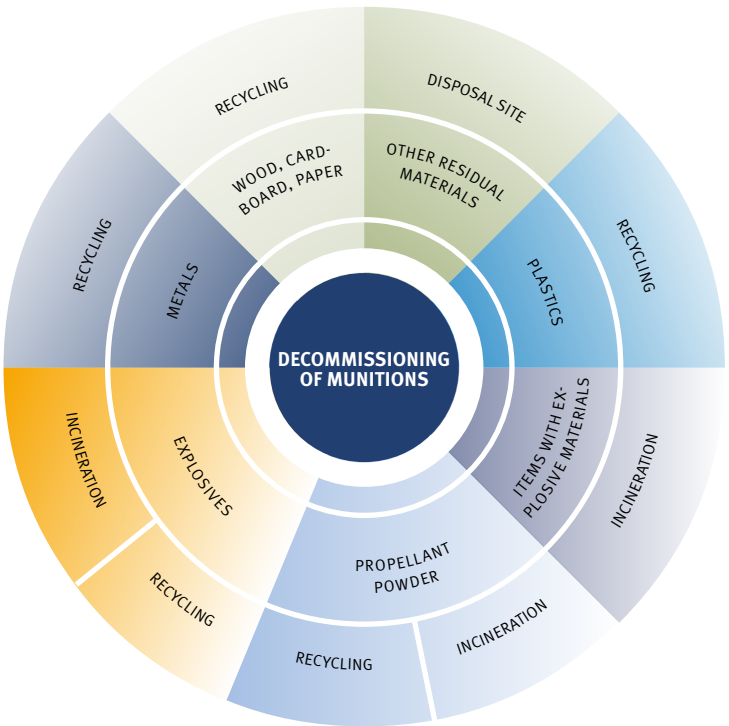


The challenge ...

Professional separation of the individual materials enables the vast majority of raw materials derived in this way to be fed back into the recycling loop. Only small residual quantities are no longer economically viable to recycle and are thus disposed of in special incineration facilities in an environmentally friendly manner in accordance with the law. Alternatively, it is also possible to recycle outdated service and practice ammunition.

The decommissioning and disposal of ammunition that is unusable or no longer needed requires a high degree of technical expertise. Rheinmetall Defence is an experienced licensed partner for the secure, efficient and environmentally friendly disposal of conventional ammunition as well as explosive materials.

RECYCLING AND DISPOSAL SYSTEM



Type and style of munitions determine the scope and extent of decommissioning along with the subsequent use or disposal of the components and materials

INNOVATION IS THE HEART OF OUR DNA.

186
IDEAS

9
JUDGES

5
FINALISTS

Innovation is the most important component in Rheinmetall's DNA. As a technology group, we consider it our mission to deliver high-tech solutions to fulfill basic human needs for mobility and security. In 2016, we placed even more emphasis on this guiding theme with the newly created Intrapreneur Award (IPA) and for the first time honored brilliant minds within our company for outstanding business ideas, in keeping with the motto "Boost your ideas!"

An impressive 186 ideas were submitted and assessed by a panel of internal and external specialists. Five concepts made it into the final round following a selection process that took almost a year. There then followed a neck-and-neck race – with a surprising outcome: The five "finalists" showed so much business potential that they were all proclaimed winners by CEO Armin Papperger at our international management meeting.

However, the competition is neither just for show nor an end in itself – quite the contrary. Sponsorship programs have been tailored to the brand new intrapreneurs' business models. The ideas are to be put into practice. To this end, there will not only be professional support and coaching but above all start-up financing of up to €250,000 from the "Group fund". The start-up capital is intended to give the innovative pioneers the opportunity to help actively shape Rheinmetall's future. It is particularly encouraging that the winning concepts covered our entire range of core areas of expertise relating to the issues of mobility and security.



THORSTEN KRILL, DIETMAR GREVEN AND ALEXANDER BAUMANN at Rheinmetall Automotive developed a drive system for pedelecs (pedal electric cycles) with gears, steering, controller and display, an app and an innovative battery management system.



TOBIAS BEHR from the Simulation & Training business unit at Rheinmetall Defence Electronics will implement his "360° PanoView" business idea with the support of the IPA prize money. Thanks to this innovative development, vehicle occupants – in a tank for example – can make it appear as though the external walls have virtually disappeared. With the aid of virtual reality glasses they gain perfect all-round vision without having to leave the armored vehicle.



The aim of the winning "Sensing Armor" idea of **NILS HOLT** (Rheinmetall Ballistic Protection) is for armor to learn to feel by means of integrated sensor technology. This makes it possible to monitor everything from individual protective vests through complete vehicle armor.

Last but not least, **DR. FRANK JUNKER AND STEFAN PÖRTNER** at Pierburg have invented the "Rheinmetall 3D Tech Center". The service center for 3D metal printing is soon to produce individual prototypes or even small batches for companies in the Rheinmetall Group.



Equally innovative is the idea of **DR. NORBERT BÖRSKEN, JENS JESSENBERGER AND DIRK PAPE** at Rheinmetall Defence Electronics. They plan to transfer existing image processing, tracking and sensor technology expertise in the military domain to civilian processes. For example, thermal imaging and pattern recognition can be used to identify sick animals in slaughterhouses or to count bus and rail passengers automatically for the purpose of calculating fare allocation formulas.



**INTRAPRENEUR
AWARD
2016**

Maximum performance requires a great team – this is true of sports and business alike. That's why in a tough competitive environment, qualified, highly motivated and entrepreneurial-minded employees are a must. Their knowledge, ideas and commitment play a critical role in helping to shape the Rheinmetall Group's future. We are not only a strong, attractive and secure employer, we are a home and a family. Our collaboration is defined by our values: Respect, openness and trust.

A COMMON
FOUNDATION:
**RESPECT,
OPENNESS
AND TRUST.**

23,044
EMPLOYEES
IN 2016

6,000
EMPLOYEES
IN 1976

4,000
EMPLOYEES
IN 1952

2,400
EMPLOYEES
IN 1895/96

FORWARD-LOOKING HR POLICIES SUPPORT LONG-TERM GROWTH

Our companies operate in intensely competitive markets, which are characterized by dynamic developments and demand a high degree of specific expertise. People shape the future with new ideas. Experienced managers, qualified specialists, practical specialists and highly motivated junior staff are securing Rheinmetall's international competitiveness and success today and in future, thanks to their dedication, passion, foresight, personal initiative and keen sense for innovative products. We are not focused on short-term effects but long-term achievements. This has always set Rheinmetall apart from the rest.

Central challenges such as demographic change, employability and the effects of digitalization are also a challenge to us. In view of the anticipated skills shortage in many places, the targeted and innovative recruitment and advancement of employees at all levels is a key factor in the successful achievement of the Rheinmetall Group's growth targets and its future viability. It is vital to secure and continuously expand their high level of qualification in order to ensure the Rheinmetall Group companies can achieve their business goals.

For many years now, market, industry and technological trends and their impact on the focus of the international business activities of our companies have been systematically researched, analyzed and assessed in an integrated approach. Developments

in the technologies that are strategically relevant to Rheinmetall are linked with human resources, staff development and succession planning so that we can reliably anticipate which technical and managerial employees and specialists the companies will require in the future.

We offer our employees secure jobs with interesting activity profiles and flexibility in a modern work setting. Our multifaceted business methods result in numerous areas of activity and development. Our corporate culture is shaped by a value-based management style, open and constructive dialog and a constant affinity for change and innovation. We recognize performance and strong identification with our company by way of attractive compensation and a wealth of individual development opportunities. We also help employees achieve a better work-life balance and support active health management. All of this makes us an attractive, interesting employer.

EXCEPTIONAL EMPLOYER

Companies in the Rheinmetall Group are faced with increasingly tough competition from other companies to gain qualified personnel. Acquiring skilled professionals for these companies is therefore a key task in HR work. In addition to performance-based remuneration and progressive benefits, we attach importance to a wide spectrum of career opportunities in the Defence and Automotive sectors, interdisciplinary career paths, deployment opportunities in the international companies and attractive education and further training opportunities for professional and personal development.

In addition to its own training for junior employees, we use traditional and modern employee selection methods and are also in close contact with universities, colleges and research institutes in order to get to know suitable science, technology and business graduates at an early stage. By doing so, the Rheinmetall Group is creating a platform for presenting its diverse business activities and career opportunities for its employees.

By maintaining a strong presence at recruitment fairs and universities and offering a broad range of opportunities for gaining an insight into the world of work, we are increasingly positioning ourselves as an attractive employer for junior employees. And its modern image at university fairs, graduate conferences, recruitment events and on online job sites is increasingly bearing fruit.



Managing two of the biggest challenges of our time – mobility and threat-appropriate security technology – cannot be handled by desk jobs alone

In 2016, our activities also received recognition from outside the Company: The "trendence study" once again calculated the attractiveness of German engineering companies as employers in 2016. Rheinmetall was again rated as one of Germany's 100 most attractive employers in the "Engineering Edition", coming in 56th place (previous year: 55th). In the Universum rankings (Germany Top 100 Ideal Employers) in the field of engineering, we came 44th in 2016, moving up considerably again from just 55th place in the previous year. Rheinmetall took only 101st place in both rankings in 2009.

Besides joining the Company directly, we also offer opportunities for university interns and graduates, primarily in technical disciplines. While Rheinmetall Defence had 215 interns and graduates in 2016, Rheinmetall Automotive had 184 people and the management holding had 23 people.

2,574
NEW HIRES
RHEINMETALL GROUP

2,027
DEPARTURES
RHEINMETALL GROUP

10
RECRUITING EVENTS
IN GERMANY 2017

44.8
YEARS AVERAGE AGE
UPON DEPARTURE
RHEINMETALL GROUP
GERMANY

15.9
AVERAGE LENGTH OF
TENURE UPON DEPARTURE
RHEINMETALL GROUP
GERMANY

31,172
APPLICANTS VIA THE
TALENTLINK APPLICANT
PLATFORM



Young and experienced talent alike appreciate the international development opportunities at outstanding employers such as Rheinmetall



2011

START
INTERNATIONAL EXECUTIVE
DEVELOPMENT PROGRAM

2016

START
INTERNATIONAL YOUNG
MANAGER PROGRAM

82

EXPATRIATES

HR INTERNATIONAL: AT HOME AROUND THE WORLD

The expansion and reinforcement of international structures are essential for many companies when it comes to internationalization. We are no exception. Assignments outside their home countries enable employees not only to acquire new skills but also to strengthen their cross-cultural competence. This also leads to a greater transfer of knowledge within the Rheinmetall Group across national borders. Ensuring that employees and their families feel at home anywhere in the world requires secondment agreements, visas and housing searches. With every stay abroad, younger and older expats alike expand their horizons, develop their own personalities and build an international network. Experiencing a country's working styles can also help transfer best-practice models to other locations. In 2016, 82 German employees were posted abroad and were able to prepare for this through seminars covering country and culture-specific topics.

INTERNATIONAL TRAINEE PROGRAM AT RHEINMETALL AUTOMOTIVE

The six-month International Trainee Program at Rheinmetall Automotive fosters young high potentials who like working in an international setting and is aimed at an international talent network. The seven trainees from the 2016 program, who came from Germany, India, Iran, Malaysia, Mexico and Tunisia, were selected from approximately 500 applicants. Rheinmetall Automotive benefited from their international experiences, new and fresh ideas, and team spirit. At the Open Door Day in September 2016 they presented their projects, including strategies for developing new Pierburg activities and a supplier evaluation project.

AUSTRALIAN EXCHANGE STUDENTS COMPLETE AN INTERSHIP AT RHEINMETALL LANDSYSTEME IN KIEL

German engineering skills are renowned worldwide. Two students from the University of New South Wales, Australia, made the long journey from Sydney to Kiel to further their education during a six-week internship at Rheinmetall Landsysteme in the area of latency measurement and ground radar.

APPRENTICE EXCHANGE PROGRAMS EXPAND HORIZONS AND FOSTER SOCIAL SKILLS

For the second time since 2014, in September 2015 KS Gleitlager sent two third-year industrial mechanic apprentices in cooperation with the Hubert-Sternberg School in Wiesloch to China. These apprentices had been chosen for their exemplary academic performance. Since 2011, the school in Wiesloch has had a partnership agreement with the Jiangsu Taicang Vocational Education Center (JTVEC), which has some 3,500 students, and the Deutsche Ausbildungszentrum für Werkzeugmechaniker in Taicang (DAWT), which was started by two German companies in 2001. Today, the DAWT (located at the headquarters of Kern-Liebers) has some 90 students who are being trained under the German system in the professions of industrial, tool and cutting machine operations. Taicang itself, some 50 km from Shanghai, is considered China's "Germany city" as it is home to many German industrial companies. In line with the slogan "Learning from one another" the students and teachers can become familiar with various educational systems by visiting schools and completing internships in various companies. This cultivates mutual interest between German and Chinese students in other countries and cultures while breaking down barriers. At the same time, social skills and team spirit are boosted.

The exchange program for trainees between Rheinmetall Air Defence in Zurich, Switzerland and Rheinmetall Waffe Munition in Oberndorf, Germany, hosted three trainees each. They visited both locations and took a look at a typical workday there. From the very first day, they participated in actual projects and learned not only about project work but also the differences between the German and Swiss education systems. All three apprentices proved that they could communicate their approaches and solutions at their final presentation to numerous specialists and managers.

STRONG COMMITMENT TO QUALIFIED TRAINING

As well as university graduates, our operational units need qualified skilled workers. In view of this and as part of our social responsibility we also continue to emphasize our commitment to qualified, multifaceted and practical training for young people in technical, commercial and IT careers, which also includes the opportunity to complete a dual course of study with a technical or commercial focus.

In 2016, 747 young people in Rheinmetall companies in Germany and abroad received vocational training, 392 of whom were based in Germany. In 2016, 66% of the young people in the Rheinmetall Group received industrial technical training, 15% received training for commercial careers, while 19% completed a dual course of study.

The percentage of female trainees in the Rheinmetall Group was around 12%, while the percentage in Germany reached 14.3%. The apprenticeship ratio was 4.0% of the workforce for the German locations and 3.7% for the Rheinmetall Group as a whole.

In 2016, 149 people started their training at Rheinmetall companies in Germany. In the same year, 103 trainees took up temporary or permanent employment after successfully completing their training.



”

Good training is a two-way street: On the one hand, talented young employees are the future of the Company. On the other hand, we offer young people forward-looking career prospects through qualified training courses and attractive career opportunities. In this way, the Company's interests go hand in hand with social responsibility.

*Peter Sebastian Krause,
Executive Board Member in charge of HR, Rheinmetall Group*

Within the wide spectrum of 19 industrial technical and four commercial training courses as well as ten dual courses of study on offer during the fiscal year, industrial mechanic, machining mechanic, mechatronics engineer, machining mechanic and industrial business manager represented some of the most important professions for trainees at locations within Germany, as in the previous year.

33
TRAINING OCCUPATIONS

289
INTERNS

INTERESTING FACTS

Hermann-Leverenz Foundation, Bremen, promotes vocational programs for young business people. In 2016, trainees from Rheinmetall Defence Electronics were among the prize-winners for the sixth consecutive time.

747
TRAINEES IN THE
RHEINMETALL GROUP

392
TRAINEES IN THE
RHEINMETALL GROUP
GERMANY

3.7%
TRAINEE RATE IN THE
RHEINMETALL GROUP

12%
FEMALE TRAINEES
IN THE
RHEINMETALL GROUP

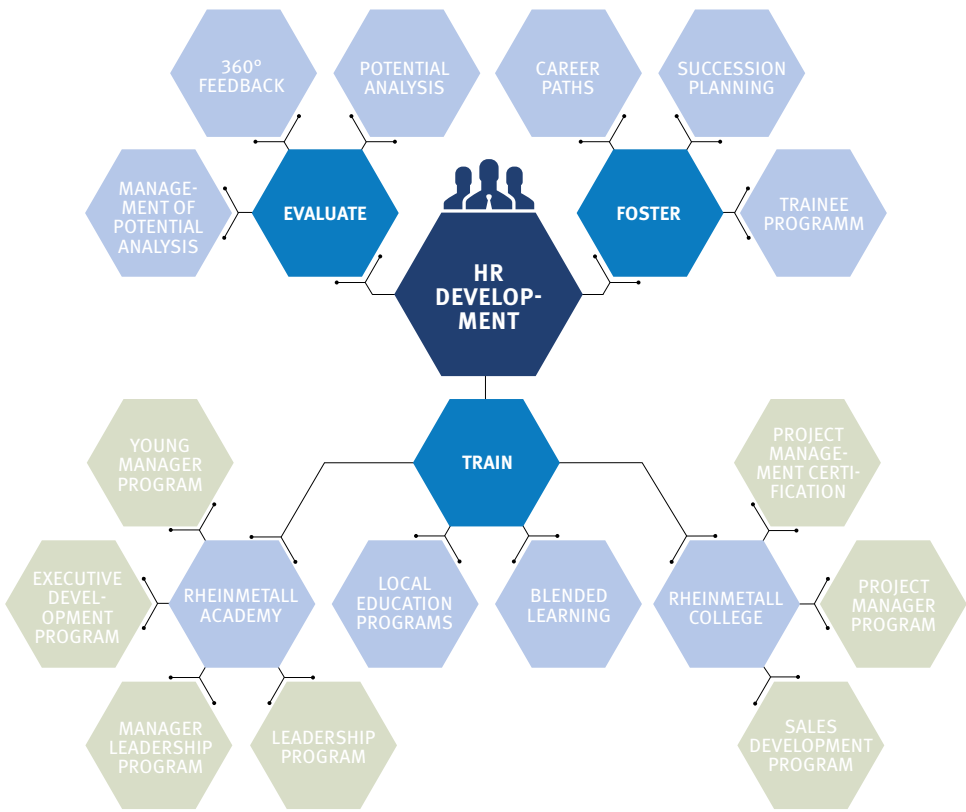
66%
INDUSTRIAL/
TECHNICAL CAREERS

15%
COMMERCIAL
CAREERS

19%
DUAL STUDY PROGRAM

€12
million INVESTED
IN TRAINING IN THE
RHEINMETALL GROUP
GERMANY

DIVERSE FURTHER EDUCATION OPPORTUNITIES
FOR LIFELONG LEARNING



The “Components of staff development” matrix shows the wide range of our activities

In the face of tough international competition, the development of employees, talented management trainees and experienced specialist and managerial staff in line with current and future requirements is a key factor in the successful achievement of the Rheinmetall Group’s ambitious growth targets. A range of training opportunities allow our employees to improve their performance in their field of work and expand their knowledge beyond the requirements of their current position.

Rheinmetall works with the latest management and HR development tools, such as management via performance plans, success-related pay and regular analyses of potential. These ensure that employees are actively involved in the process of value enhancement, their creativity and expertise are utilized, and each individual is deployed where they can make the best use of their talents. We rely on the early recognition and targeted support of the individual potential of our employees. We offer broad opportunities for development to anyone who wishes to face new challenges, and not only in traditional management careers. As a technology group, we pay particular attention to the skills of technical specialists.

Every Rheinmetall employee has access to further training comprised of Rheinmetall Group events and company programs. These train-

ing courses, programs and workshops geared towards various hierarchical levels and functions constitute a platform for employees to exchange overall knowledge, ideas, experience and opinions.

Demand for staff development measures is determined at regular intervals on the basis of the Rheinmetall competence model, broken down according to employees paid in line with collective pay scales, employees not covered by collective wage agreements and managers, either in accordance with a collective agreement for qualification or as part of potential analyses or the “Management by Objectives” program. Training opportunities can also be derived from strategic objectives (e.g. through increased internationalization of the Rheinmetall Group).

In 2016, we invested €5.7 million (previous year: €4.7 million) in specialized, interdisciplinary and management-related training programs in Germany alone. 9,625 male and 2,065 female participants (total: 11,690 persons; previous year: 9,451 employees) benefited from 3,996 qualification measures in 2016 (previous year: 3,392) over 20,177 days (previous year: 17,273).

WE INVEST TIME AND
MONEY IN REGULAR
TRAINING FOR
OUR EMPLOYEES

3,996
QUALIFICATION
MEASURES
RHEINMETALL GROUP
GERMANY

11,690
PARTICIPANTS



20,177
EVENT DAYS
RHEINMETALL GROUP
GERMANY

€5.7
million INVESTED IN
FURTHER TRAINING
RHEINMETALL GROUP
GERMANY

RHEINMETALL ACADEMY – LEADERSHIP
EXCELLENCE UNDER ONE ROOF

Managers must be adequately prepared for strategic and operational tasks and must be able to adapt quickly to new challenges and respond flexibly to changes. This is not just about professional qualifications, but also calls for first-class leadership qualities and management skills.

The Rheinmetall Academy, which since its establishment in 2016 has brought about a stronger focus on entrepreneurship and leadership in the development of managers while linking the learning programs with corporate strategy, gradually prepares employees at various stages in their careers for assuming leadership or specialist roles.



The training center covers a total of four business fields: Programs and seminars for technical and managerial employees, postgraduate training courses and internships, and professional training for external customers.

Our Company’s own new campus views itself as a strategic partner for training and further education in the Rheinmetall Group which operates both internally (through qualification of the Company’s own employees) and externally (through training opportunities for external partners) and thereby also strengthens the Rheinmetall employer brand among the general public in a targeted manner.

The training focuses on imparting leadership and management skills to managers and talents, thus supporting their progression into entrepreneurial individuals. The further education offered by the Academy is directed very deliberately at all levels of management and future talent in order to support the strategic goals of “innovation” and “internationalization.” With the Academy, we aim to achieve a higher level of management excellence by equipping

our managers with the necessary tools to assume even more strategic responsibility, for example through training courses, the exchange of ideas, challenging projects and a diverse mix of methods. The Academy is also an ideal platform for enabling national and international managers to exchange ideas and learn from one another, because we want to make entrepreneurial individuals out of our employees.

The management training courses previously run by the Rheinmetall College have been transferred to the Academy where they follow six key themes of strate-

gy, business processes, innovation, negotiation, leadership and change. The Academy’s strength lies in the high degree of relevance to current issues arising from the strategic challenges and day-to-day business of the Company. The topics are aimed at employees at all levels of management: Top executives, top junior executives, senior heads of department and department heads and junior managers.

Management programs have recently been added for “high potentials” and “high performers.” This includes the “Top Potential Program” for managers with potential for top executive positions. The management programs typically encourage set interdisciplinary groups to learn from and with one another in a targeted manner. For young managers there is the “International Young Manager Campus” program which, similarly to the German “Young Manager Program”, is aimed at aspiring managers whose remit has a clear international focus. The Academy program is rounded off by curricula (a series of seminars over a period of time, e.g. on the topic of negotiating skills) and individual basic and advanced seminars on various topics (e.g. conflict management, communication or time and self-management).



75
EVENTS

230
EVENT
DAYS

992
PARTICIPANTS

89
FEMALE
PARTICIPANTS

58%
RHEINMETALL
DEFENCE
PARTICIPANTS

37%
RHEINMETALL
AUTOMOTIVE
PARTICIPANTS

ATTRACTIVE AND
FAIR REMUNERATION SYSTEMS

Attractive and transparent pay systems are a key aspect in recruiting and retaining dedicated staff at the Company.

As an international technology group specializing in mobility and security, we offer attractive and fair contract conditions. These are based on activities, responsibility and performance and are linked to market rates. In addition to fixed remuneration components, performance-related bonuses and variable salary components are also paid.

Division heads, managers and executives receive a long-term incentive in addition to this short-term component. This is geared towards long-term corporate success and includes payment of 40% of the long-term incentive amount in Rheinmetall shares, which are subject to a four-year lockup period. The number of shares granted is based on a reference share price which corresponds to the average price on the last five trading days in February of the subsequent fiscal year.

The “Management by Objectives” concept is linked to variable salary components for managers and employees not covered by collective wage agreements. An individual variable portion of income is paid in accordance with the achievement of individually agreed targets and depending on the Company’s performance. Depending on the extent to which targets are achieved, this amounts to between 0% and 200% of variable target income. The fact that these income components are based on targets provides incentives for employees to act independently and to take on challenges.

The Company’s success benefits employees in two ways, including staff covered by collective wage agreements: First, employees receive an annual bonus subject to the performance of their business unit or sector and, second, the increase in the value of the Company achieved is paid out in a success-oriented component in the company pension, thus leading to improved support in old age.



MY SHARE OF RHEINMETALL

Since 2008, our employees have had the opportunity to acquire shares in our Company on favorable terms and to share in their Company’s economic success as a co-owner. Besides employees of the Rheinmetall Group companies in Germany, the employees of the 19 European Group companies are also entitled to subscribe to shares. Since the share purchase program began, employees have acquired 1,291,158 Rheinmetall shares, which are subject to a lockup period of two years. We firmly believe that investing in shares motivates our employees to assume greater responsibility and identify more strongly with their employer – a key requirement for Rheinmetall’s sustainable development.

FINANCIAL MEASURES FOR SECURING
LIVING STANDARDS IN RETIREMENT

We have also for many years been supporting our employees with company pensions in order to financially secure their standard of living in retirement. The pension scheme has an identical structure for staff and managers, but higher incomes are reflected in increased benefits. This system, which applies to all sites in Germany, consists of three components: A reliable basic plan, a performance-related intermediate plan linked to the increase in Company value and a supplementary plan financed by the employee. This allows for various forms of compensation, such as deferred compensation, direct insurance or a Riester pension.

1,291,158
RHEINMETALL SHARES
PURCHASED BY EMPLOYEES
(GERMAN AND EUROPEAN
LOCATIONS)
2008 – 2016

10,763
PARTICIPANTS IN
THE SHARE PURCHASE
PROGRAM FROM
2008 TO 2016

WORK-LIFE BALANCE

Career success depends, among other things, on how content an employee is outside of their working hours.

Many employees want to take greater account of individual life stages and specific life situations in their working life and wish to create a more healthy balance between their professional goals and their family and private interests through more flexible working hours.

Above all, one thing is needed to achieve a balanced private and working life: Flexibility. For us, it is important to support our employees with a family-friendly HR policy. Options including working hour models with varying weekly working hours and a range of part-time options as well as flexitime and flexitime on trust allow employees a more flexible timeframe and, in turn, greater freedom. Sabbaticals are also possible in individual cases.

Since mid-2016, we have provided a free family service throughout Germany to support employees in matters concerning career and children and career and care through advice and assistance.

938

PART-TIME
EMPLOYEES IN THE
RHEINMETALL GROUP,
GERMANY

319

EMPLOYEES ON
PARENTAL LEAVE IN THE
RHEINMETALL GROUP,
GERMANY

15

EMPLOYEES ON
FAMILY CARE LEAVE IN THE
RHEINMETALL GROUP,
GERMANY

More time for family



FLEXIBILITY IN RETIREMENT

Many employees wish to take a step-by-step approach to retirement.

For this reason, the German companies in the Rheinmetall Group offer their employees the opportunity, depending on the agreements in force at their location, to go into partial retirement when they reach the age of 58 for a period of 18 up to a maximum of 60 months. Employees can select various models, such as a block, part-time or graduated model, to structure the active and passive phase. The respective works agreements on partial retirement govern



the matters of salary, top-up benefits, compensation payments, contributions to retirement assets, tariff increases and pension contributions.

SUMMERTIME IS
VACATION TIME

Summertime means school holidays for children and vacation time for their parents. But who will look after the younger members of the family if both parents work? Some of the German companies in the Rheinmetall Group have recently started to offer vacation programs for children, with excitement and variety guaranteed.

24

24 PARTICIPANTS
AGED 6 – 14 AT THE
VACATION PROGRAM IN
NECKARSULM

755
FOREIGN NATIONALS
WORK FOR THE
RHEINMETALL GROUP
GERMANY

65
NATIONALITIES
RHEINMETALL GROUP
GERMANY

82
EXPATRIATES

VALUING DIVERSITY

Our employees are as diverse as our markets, industries, activities and business partners. They give our Company its profile, reputation and uniqueness and are also the ones who encounter the highly diverse challenges and requirements set by our customers and other target groups in their daily working lives.

The Rheinmetall Group's workforce has become considerably more international in the last few years in line with the consistent internationalization of our business. The percentage of employees working abroad rose to 49.9% in 2016, compared to just 43.3% in 2009. With locations on six continents and supply relationships in 138 countries in 2016 as well as 11,508 employees outside of Germany, internationalism and diversity have long been part of everyday life at the Rheinmetall Group and are a key factor in the success of our global business operations.

23,044 employees form an international community which reflects a broad spectrum of cultures, diverse ethnic and social backgrounds and a wide range of skills, talents and expectations. Day-to-day practice

The area of diversity is to be strengthened further in the companies of the Rheinmetall Group over the next few years. In a first step, the Executive Board of Rheinmetall Automotive set up a new diversity management function and reinforced its commitment in the form of a diversity guideline.

Take South Africa as an example: Although all South Africans were granted equal legal status when apartheid ended in 1994, this did not eliminate the consequences of the systematic social and economic discrimination against black, colored, Indian and Chinese people in the former regime. In order to promote and accelerate economic equality for people who had historically suffered discrimination in education and the workplace, the South African government ratified the Broad-Based Black Economic Empowerment (BBBEE) initiative in 2004. This involved long-term economic policies aimed at actively involving black people in private business by transferring ownership and assigning management and supervisory roles.

Our South African subsidiary, Rheinmetall Denel Munition, is a level 5 contributor. This BBBEE compliance level, which is determined by an independent external auditor, confirms that the recommendations on promoting disadvantaged people are being implemented satisfactorily. There are eight recognition levels overall.

We practice diversity in Germany as well. In June 2015, for instance, our KS ATAG TRIMET Guss company, which is located in Harzgerode, was recognized for its commitment to attracting international experts in the German Federal Ministry for Economic Affairs and Energy's corporate "Success through diversity" competition for creating a welcoming culture.



The diversity of our employees provides a wide range of experience and skills. This can better prepare us for opportunities and challenges

shows that this diversity in terms of nationalities and languages, education and training, professional experience, age structure, skills, mindsets, viewpoints and working methods enriches collaboration and our corporate culture.



We firmly believe that our company benefits from diversity. Increasing the number of women in management is a priority for us

WOMEN IN MANAGEMENT POSITIONS

The Automotive and Defence sectors have traditionally been dominated by men who have largely completed their studies and professional training in technical or scientific subjects.

In addition to this, men apparently have a greater affinity with the Defence and Automotive industries. Moreover, while the proportion of female students on engineering courses that are of relevance to us stands at around 25% overall, only one in ten mechanical engineering students was female, for example, while for automotive engineering and mechatronics the percentage of women was even lower (6% and 7% respectively). For these reasons, the percentage of women occupying management positions in our technology group is lower than in other industries. During 2016, the Rheinmetall Group employed 2,453 managers across its first four levels below the Executive Board, of whom 247 or 10.1% were women. Of the senior management staff comprising 282 people in 2016, 3.6% were women.

Employing women, particularly in management positions, is not just a natural and essential part of diversity in the Rheinmetall Group, it is an opportunity for further development. The employment of women in management and in other leadership roles will in future be promoted more strongly. We want to significantly enhance the potential of women when it comes to internal recruiting of management roles, thereby paving the way for a new generation of fe-

male managers. In the career development platforms offered by Rheinmetall Academy, the number of women is to increase by 15% – twice the current amount of women in the first three management levels below Executive Board level. For the medium and long term, a higher number of qualified women will be prepared for their first management positions; at the same time, we can select more women than before when we recruit positions internally. At the same time, the internal manager development program sets ambitious targets for line managers with regard to the participation of women in these programs. As an attractive employer, we wish not only to foster young talent from within, but also use targeted communications and focused recruiting to find additional female management trainees for Rheinmetall.

19.8%
WOMEN IN THE
RHEINMETALL GROUP

3.6%
WOMEN IN
SENIOR MANAGEMENT

10%
FEMALE MANAGERS
IN THE FIRST FOUR LEVELS
BELOW THE EXECUTIVE
BOARD

6%
WOMEN IN THE
INTERNATIONAL EXECUTIVE
PROGRAM

9%
WOMEN IN THE
MANAGER LEADERSHIP
PROGRAM

38%
WOMEN IN THE
BUSINESS TRAINEE
PROGRAM

98
FEMALE MANAGERS
AT RHEINMETALL
AUTOMOTIVE

144
FEMALE MANAGERS
AT RHEINMETALL
DEFENCE

OVERCOMING MENTAL BARRIERS

Inclusion is making progress in the employment market. Over 1.2 employees with disabilities are working in German companies today – more than ever before. We also consciously promote the participation of people with disabilities in working life.

Equal opportunities for all means that employees with disabilities or health problems are integrated into working life at our Company too and are able to bring their skills and ideas to the table. Once again, the focus here is on developing existing strengths and potential. An important prerequisite for this is individually adapted work stations that offer good opportunities for development and allow the employees concerned to achieve work of the same quality as that of colleagues without disabilities. In 2016, the German-based Rheinmetall Group companies employed 493 severely disabled people, who are represented by the Group representative body for severely disabled employees.

Back in 2002 we formulated key principles and integration targets in an integration agreement together with the Group representative body for severely disabled employees. This plays a decisive role in our approach to dealing with people with disabilities. Our commitment does not merely pay lip service to the subject of inclusion. We are very much concerned with promoting equality among employees with and without disabilities. For years we have been committed to the barrier-free training project in order to break down any barriers to people with severe disabilities starting training. Since then, across the Group we have succeeded in enabling six young people to take up professional training in industrial/technical as well as commercial areas. In 2016, we hired our first dual-course student with a severe disability.



Mixed team at the training workshop with high precision aluminum workpieces

EXPERIENCING INCLUSION

The participants in the social project jointly run by the sheltered workshop and KS Kolbenschmidt drew a positive conclusion about their experiences during a two-week collaborative project between trainees from the Heilbronn sheltered workshop and young employees from Rheinmetall Automotive.

In July 2016, three participants from each of the two collaborating organizations worked together on highly intricate aluminum workpieces in the training workshop in Neckarsulm. The employees therefore had the opportunity firstly to sample careers in metal-working and gather practical experience in this area and secondly to gain insights into life at a training workshop. In this process, it was equally important that the trainees from the Heilbronn sheltered workshop learned to make a realistic assessment not just of their own skills and requirements, but also of the expectations of companies in the private sector.

Despite all the preparation and support, it was a great challenge for the young people, particularly those supported with vocational education in the sheltered workshop, to manage during a regular working day outside the sheltered workshop.

The trainee project in the training workshop in Neckarsulm was the most recent collaborative project between the two organizations. It was started around eight years ago now. Prior to that, there was a particular focus on Rheinmetall Automotive trainees' involvement in social assignments at the Heilbronn sheltered workshops. For example, a wild bee hotel was created on the site in 2015 and in 2016 a garden shed belonging to the organization was resourcefully renovated.

DEMOGRAPHIC CHANGE IS CHANGING THE WORKFORCE

In Germany and other developed countries, the companies are facing new challenges due to demographic change.

The population structure is changing as birth rates decrease and life expectancy rises to unprecedented levels. This trend also has an effect on the composition of the workforce: Competition for suitable young employees is becoming fiercer, the number of employees in the 40-49 age range is declining and the focal point is shifting gradually to the over 50s.

Through detailed structural analyses and simulations, interdisciplinary teams are developing new personnel programs that take into account the different existing situations and trends at the national and international sites as well as their impact on the age structure of the employees. Measures tailored to the respective sites include the targeted transfer of knowledge from older colleagues to their younger counterparts, the creation of mixed-age teams, the systematic training of junior employees as well as a more intensive, target-group-specific recruiting and HR marketing drive. This strategy also includes adapting work and organizational processes as well as additional measures and offerings aimed at promoting good health. In 2016, 7,827 or 33.9% of employees were 50 years old or older.

Whether young or old, a new employee at Rheinmetall or a long-standing one, our corporate culture is designed to ensure that each and every employee can contribute to the long-term achievement of our corporate goals. In 2016, the average age within the Rheinmetall Group (excluding trainees and interns) was 42.7.



7,827
EMPLOYEES AGED
50 YEARS AND OVER
RHEINMETALL GROUP

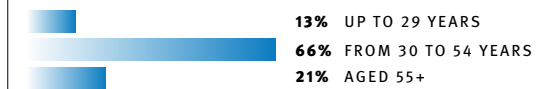
42.7
YEARS:
AVERAGE AGE AT THE
RHEINMETALL GROUP

13.7
YEARS:
AVERAGE TENURE AT THE
RHEINMETALL GROUP

766
PEOPLE
WITH >40 YEARS' TENURE
AT RHEINMETALL GROUP

Based on the data from 2016, in ten years' time approximately 11,000 employees will be in the 55+ age category. Our challenge is to identify available potential, recruit and train junior staff and develop our employees' skills (further) in order to ensure a smooth transition. Through HR policies and adequate health and support programs we are helping to maintain long-term employees' ability to work and learn, their motivation and their physical and mental agility as with their knowledge, wealth of experience and expertise, they are valuable to our Company and key to our competitiveness.

AGE CLASSES RHEINMETALL GROUP



*It's all in the mix!
We need all forms of
talent, whether they are
newcomers or have been
with us for years*



4.3%
EMPLOYEES WITH SEVERE
DISABILITIES IN THE RHEINMETALL
GROUP IN GERMANY

493
EMPLOYEES WITH SEVERE
DISABILITIES IN THE RHEINMETALL
GROUP IN GERMANY

FIT AS A FIDDLE

With regard to health and safety in the workplace and health management, Rheinmetall focuses on identifying and assessing potential risks and on health care in line with requirements, which maintains and supports the personal wellbeing and professional performance of employees. This includes the safety of facilities and production processes, modern equipment, the ergonomic design of work stations and good working conditions, along with company medical services. Workstations are set up in accordance with statutory and generally recognized safety and occupational health rules in order that work can be performed without accidents or stress.

Each individual employee has a responsibility and is required to know all the safety regulations applicable to them and to take the utmost care to apply them consistently in their own area of work – in their own interests as well as in the interests of the Company. We endeavor to minimize as much as possible any risks and hazards that could potentially compromise the safety and health of our employees and third parties. We maintain and promote our employees' health, performance and work satisfaction through continual improvements to the work environment, appropriate resources such as ergonomic aids and protective equipment and a variety of preventive programs and health-promoting measures.

Health is not just of particular individual importance, it's critical for company success too. In June 2012, a general works agreement was concluded with the European Works Council regarding health management. It aims to introduce and further develop the company's internal and external health management program at all of the Group's European locations, taking account of the aspects of occupational health and safety, health awareness, addiction management and reintegration after sick leave.



Various companies carry out health days at irregular intervals. Presentations, workshops and information stands are intended to raise employees' awareness of healthy eating, movement and reducing stress further. On March 24, 2017, a health day took place at the Rheinmetall Group's European sites under the motto "Think healthy." The themes of "movement" and "healthy communication" were the focal points of the day. A cycling competition showed how highly dynamic Rheinmetall is. We didn't stop there: At Neck-



arsulm, Rheinmetall Automotive has introduced a health pass, which gives employees points for healthy activities; depending on the number of points earned, they can receive a reward of up to €250. There are similar initiatives at other Rheinmetall Automotive locations.

Furthermore, there are a number of sporting activities, sports groups and tournaments within the Rheinmetall Group. One of the 2016 highlights was the Rheinmetall soccer tournament in



Rome. 442 Rheinmetall employees, 24 teams from seven countries, 105 goals, 88 penalty kicks – that was the 30th Rheinmetall Football Cup, which was held in Rome in June 2016 and attended by members of the Executive Board.

On April 30, 2017, ONE Rheinmetall will be among the starters at the METRO Marathon. The participants from the Rheinmetall sites at Dormagen, Düsseldorf, Krefeld and Neuss will run together in the relay competition.



CONSTRUCTIVE DIALOG
FOR FAIR WORKING CONDITIONS

Operational co-determination has a long tradition at Rheinmetall. We respect the concerns of our employees and in line with the freedom of association protect their fundamental right to join trade unions and to be represented by the representatives of these trade unions internally and externally, in each case in compliance with applicable national or local laws and regulations.

Together with the company's employee councils and trade unions we strive for fair cooperation as well as a trustful and constructive exchange to bring the interests of the Company and the employees into alignment. The Group's Works Council and the European Works Council are important partners in this process. Local works councils or general works councils form the basis of workforce representation. They represent the rights of employees vis-à-vis the management of the companies in the Rheinmetall Group.

Our works councils have extensive and substantial rights of participation, as governed by the Betriebsverfassungsgesetz (BetrVG – German Works Constitution Act). The Works Council has the right to be heard on matters concerning employees' working environment and work processes. This includes HR initiatives, equal opportunities, material changes to work content or IT processes, data protection and occupational health and safety. Matters of relevance to a division or sector that covers more than one company are dealt with by the Defence sector council or the Automotive sub-works council. Matters that can be handled only in a uniform manner for all Group units in Germany are discussed in the Group's Works Council. While employee co-determination is governed by law in Germany, in other countries it is based on the national laws and regulations.

The European Works Council, which has been in existence since 2004, exercises the employees' right to receive information and to be heard and consulted in cross-border matters. The Rheinmetall sites in EU member states, in states within the European Economic Area and in Switzerland have employee representatives in the European Works Council.

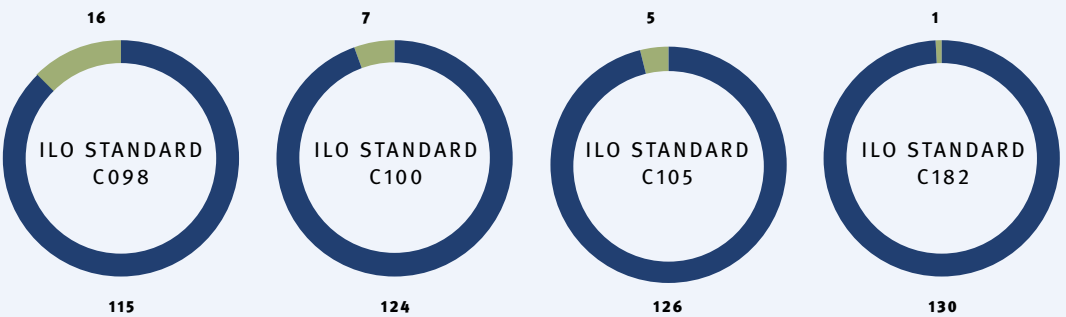
We inform the Works Council in compliance with regional legal regulations of any fundamental changes within the Company and – where stipulated by the German Works Constitution Act – conclude agreements with it regarding the impact of the changes. The lead time for implementing measures is several weeks or months, depending on the extent and significance of the planned changes.

We also keep the economic committee of the Group Works Council and the general works councils updated regarding the economic situation and changes within the Rheinmetall Group. The employees are also represented on the Supervisory Board of Rheinmetall AG, which is based on joint representation, by two trade union representatives, five elected employee representatives and one representative of the managerial staff.

Employees are not obligated to inform their employer of whether or not they belong to a trade union. The employer has no right to ask about this. For this reason we cannot provide any data on the number of Rheinmetall employees who belong to trade unions.

A further aspect of the regular dialog are local works meetings, which take place several times a year. Employees can ask questions or contribute ideas for their locations in this forum.

2016 SALES OF THE RHEINMETALL GROUP IN
COUNTRIES THAT HAVE, OR HAVE NOT, RATIFIED
SELECT ILO STANDARDS



AGREEMENT	
C098	Convention concerning the Application of the Principles of the Right to Organise and to Bargain Collectively, 1949
C100	Equal Remuneration Convention, 1951
C105	Abolition of Forced Labour Convention, 1957
C182	Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999

NOT OVER THE EMPLOYEES' HEADS: COMMUNICATING CHANGE.

There is so much literature on change processes in companies that it feels as if one could build a bridge from the earth to the moon with it. In practice, however, it primarily comes down to one issue: Early and transparent communication with employees.

Or, to put it another way: Are the employees being involved or presented with a fait accompli? At Rheinmetall Defence Electronics (RDE) in Bremen the management led by example in 2016 and provided the workforce with extensive information regarding necessary changes in the company's strategic position at a four-and-a-half-hour employee event known as a town hall meeting in English-speaking regions. It goes without saying that the event was not intended to be a one-way street: The around 950 employees present also had the opportunity to get involved in a chaired debate with the management and Works Council by asking questions and making comments. There was good news right at the outset: The management has no intention of cutting jobs.

Instead, the workforce in Germany is to be at least retained through a targeted growth and internationalization strategy. However, our subsidiary faces major challenges if it is to be competitive and safeguard jobs while simultaneously achieving its ambitious growth targets. The reason behind the necessary changes is RDE's unique position in terms of markets and products in the extremely competitive markets for defense electronics and (increasingly also) civil electronics applications in these times of digitalization and "Industry 4.0". RDE's business model is based on high-tech solutions at the edge of what is technically possible. As a Mittelstand-sized unit with around 1,100 employees, on the one hand its product portfolio encounters large global corporations and state-subsidized armaments companies. On the other hand it increasingly also has to hold its own against new smaller players from civil high-tech markets that have not only high levels of expertise in the field of digitalization but also very favorable cost structures.

COST DISCIPLINE AND STRATEGIC REALIGNMENT

In this extremely demanding market and competitive environment, RDE is further confronted with the politics and more stringent economic requirements associated with military procurement processes in the form of increasing export restrictions. All this calls for increased cost discipline, ongoing efficiency increases and a high degree of flexibility, which is why the management of RDE clearly rejected the demands of the IG Metall metalworkers' union for a comprehensive tariff commitment. However, the management team around Helmut Möring, Thorsten Quade and Ulrich Sasse does not only intend to counter the challenges with cost-related measures. RDE also intends to develop its strategic position further. For instance, the employees in the Mission Equipment business unit were given a detailed explanation of how the management plans to drive forward RDE's move from a component manufacturer to a systems supplier, for example for the

networking of new armored vehicles. At the same time, the Mission Equipment product portfolio is to be adjusted and modified with a view to winning civil business.

The increased openness to civil markets will also shape the coming years in the Simulation and Training business unit. Although there have already been some successful sales in civil markets in this area, for example with major contracts for the oil and gas industry, the trend towards non-military applications is to be advanced further. The same applies to the internationalization measures that have already been introduced and that will gain increasing significance due to the limited market for the simulation and training business for RDE in Germany. Overall, it is clear that the product and customer portfolios of Rheinmetall Defence Electronics will change; the company is increasingly opening itself up to new as yet unserved fields of business – key words are cyber security and Industry 4.0.

GETTING EMPLOYEES INVOLVED: ONLY IF THEY CAN CLEARLY COMMUNICATE THE NECESSARY CHANGES AND GET FEEDBACK FROM STAFF CAN COMPANIES SUCCEED TODAY

“

*I liked the event.
I really appreciated that
we were included.*

Marcel Jansen, HR Department

ONE RHEINMETALL – ONE RDE

Moreover, in agreement with the staff in Bremen, we created a plan for seamlessly integrating the upcoming changes at RDE into our ONE Rheinmetall Group strategy program. Just like Rheinmetall overall, RDE aims for stronger partnerships among its operational product areas and with Rheinmetall Group's affiliated companies. In both cases the strategic direction is identical: We will exploit technological potential within our Group better and increase the efficiency of processes. At the same time, this also goes to the very foundation of Rheinmetall's market positioning: We no longer wish to be perceived primarily

as an armaments company, but rather as a technology group that fulfills the basic human needs for mobility and security. Rheinmetall Defence Electronics in Bremen can and will make a substantial contribution to achieving our shared vision – that was the consensus at the employee information event in Bremen. Moreover, the positive feedback from the workforce has strengthened the management's resolve to continue this type of dialog. A follow-up event is already planned for 2017. As an addition to classic works meetings, this model allowing communication between management and employees about change is therefore ideally suited to act as a precedent for other Rheinmetall companies.



A real-life example from Bremen: At Rheinmetall Defence Electronics in 2016, management held an employee meeting to announce the changes needed in the company's strategic alignment

ONE GROUP, ONE OBJECTIVE. **SUSTAINABLE ACTIONS.**

Environmental and natural protection play a leading role in a sustainable, healthy future. The careful use of natural resources, economical use of raw materials and energy and, where possible, the avoidance of environmental damage at every stage – from product development to procurement of raw materials, production, packaging and transport, right up to disposal and recycling. We work hard to save water and energy, reduce greenhouse gases, reduce noise and increase the share of renewable energies.

ENVIRONMENTAL PROTECTION PROJECTS
AT RHEINMETALL

The protection of natural resources is of fundamental importance. Employees are encouraged to act with environmental responsibility on all levels of the value-added chain. Safe and modern facilities at certified production sites ensure resource-conserving and low-emission production processes.

In 2016, Rheinmetall Waffe Munition made changes to the oil-fired heating systems at the Hohenrieth subplant of Unterlüß. Adjusting the flow temperatures and fine-tuning the night and weekend low settings resulted in savings of some 280,000 liters of fuel oil, which put consumption below 1.4 million liters of fuel oil per year for the first time.



At Rheinmetall Waffe Munition in Tritttau, florescent tubes in office buildings and some production areas were replaced with energy saving LED bulbs, which meant an estimated savings of some 50,000 kWh/year.

Reduction in primary pump run times at the heating station for Rheinmetall Defence in Bremen has resulted in savings of 300,000 kWh/year. Energy-saving measures for facades and windows has reduced heat consumption there by another 57,000 kWh. A replacement of the central air compressor has resulted in savings of 27,000 kWh of energy/year. Some of the exterior lighting was switched from halogen bulbs to LEDs, for savings of 5,300 kWh/year.

At the Rheinmetall Automotive location in Neckarsulm, a number of changes were made. The replacement of lighting in a production building with LED lights along with integration into the building management system has meant savings of some 435,000 kWh/year. In the large pistons area, all the machine lighting has been converted to LEDs, for annual savings of some 23,000 kWh.

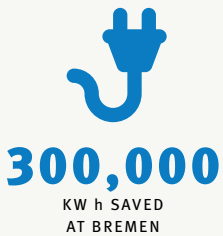
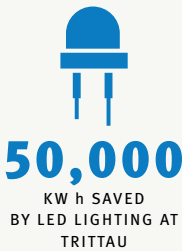
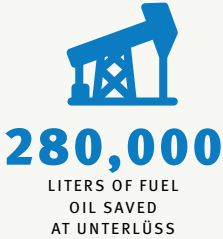
Optimizing the washing process in production has saved some 400m³ in water per month. The green spaces on the company property have been watered since 2016 with water from the Neckar, saving about 5,000 m³ of municipal water a year.

KS Kolbenschmidt Brazil and other companies in Nova Odessa donated 8,700 trees for a school project that focused on environmental and sustainability aspects.

Along with our Indian Rheinmetall Automotive plants in Supa and Takwe, Pierburg Mexico also planted trees along streets and paths.

In 2016, the automotive plant in Kunshan, China, introduced reusable packaging in order to gradually reduce the volume of disposable packaging.

The switch to LED lighting at our plant in Fountain Inn, South Carolina has saved more than 570,000 kWh/year.



NEUSS AND PIERBURG PLANTS OPERATE AN
ENERGY EFFICIENCY PROJECT

At the “Niederrhein” plant in Neuss Harbor, Rheinmetall Automotive and the local utility and energy provider Stadtwerke Neuss launched an innovative energy efficiency project. As an automotive supplier, we specialize in components for reducing harmful substances and reducing consumption. Therefore, it is a matter of course that our plant meet strict sustainability requirements for energy management.

Since the summer of 2016, a cogeneration unit has produced power and heat for climate and resource-friendly production of vehicle components. The heat is transformed to cold in an absorption chiller connected to the cogeneration unit. The system comprises a cogeneration unit with a gasoline engine, an absorption chiller, a cooling tower, a redundant compression chiller, a buffer tank and exhaust chamber. The cogeneration solution chosen has resulted in significant savings of primary energy. This in turn saves some 650 tonnes of “climate killer” CO₂ each year.

The cogeneration plant near Neuss once again highlights our goal of using the most environmentally friendly system possible for climate-neutral production according to the state of the art.

HIGH ENERGY EFFICIENCY
AT PIERBURG IN SPAIN

Another example of energy efficiency is shown by Pierburg in Abadiano. Our plant in Spain’s Basque region has already met or exceeded the requirements of the European Union’s 2020 climate and en-

ergy package. The main pillars of the EU’s 20-20-20 climate rule include: Reduce greenhouse gas emissions by 20% versus 1990, obtain or use at least 20% of energy from renewable sources and improve energy efficiency by 20%. Particularly impressive about Pierburg in Abadiano’s results relate to energy production. Since 2012, 100% of the energy consumed has come from renewable energy sources. Since 2013, a geothermal plant has been in operation which covers some 70% of the heating/cooling requirements.

ENERGY SCOUTS ON THE MOVE

31 trainees from eight companies from IHK Mittlerer Niederrhein, including Pierburg in Neuss, began serving as “energy scouts” for the SME initiative for energy turnaround and climate protection at the end of January 2017. In three workshops, the trainees learn the basics of energy, measurement technology and communication and presentation methods. During the project phase, they will develop an energy savings project tailored to their site, which they will present to a jury in late May 2017 for evaluation.

INTERESTING FACTS

In Rheinmetall Automotive, 27 companies/sites are certified in accordance with ISO 14001 and six in accordance with ISO 50001.

In the Defence sector, eleven companies/sites are currently certified in accordance with ISO 14001, and eight companies are certified in accordance with ISO 50001.



No doubt for Rheinmetall Automotive: Energy management at the Niederrhein plant must meet strict sustainability criteria

SAFE AND ENVIRONMENTALLY FRIENDLY USE OF CHEMICALS IN ACCORDANCE WITH REACH

The European REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) chemicals ordinance (EG No. 1907/2006) has regulated the registration, evaluation, authorization and restriction of chemicals in the European Union since June 2007.

REACH

- obligates manufacturers and importers to determine hazardous properties (e.g. poisonous, carcinogenic, environmentally hazardous) of chemicals and to estimate their effects on health as well as the environment.
- records the use of substances as components of products.
- prohibits or restricts certain uses of hazardous substances.
- introduces an approval and restriction procedure for particularly hazardous substances.
- obligates suppliers to provide information about the hazardous properties and safe uses of the substances.
- obligates commercial users to perform their own safety analysis if the users do not adhere to the recommendations of the manufacturer or the importer.

Before the last deadline in May 2018, some 30,000 substances must be registered. At Rheinmetall Defence, the companies Nitrochemie (manufacturer, importer and formulator), Rheinmetall Waffe und Munition (formulator and downstream user), Rheinmetall Landsysteme (downstream user) and Rheinmetall Defence Electronics (downstream user) are affected by the REACH ordinance.

Nitrochemie has successfully completed the first two registration phases of the REACH process. Additional substance dossiers are being prepared for registration by Nitrochemie for the third REACH phase, which will run until 2018.

From the current perspective, Rheinmetall Waffe Munition will not need to register any substances. The company ensures for all departments that the suppliers register all important substances required in defense production themselves, thus supplying Rheinmetall Defence in a REACH-compliant manner.

In 2015, the first mandatory approvals for some Substances of Very High Concern that also affect products made by Rheinmetall Defence came into force. These substances are usually found in supplier components. We are reacting to this development with targeted obsolescence management, development and qualification of replacement substances in the products concerned, signing of approval requests with ECHA, and requests of exceptions in the interest of national defense. The effort and expense involved in using substitutes can be very high, since change in substances require corresponding requalification of the products.

In Article 33, REACH obligates all product suppliers to inform their clients if the supplied product contains more than 0.1 mass percent of a REACH candidate substance. In a verdict from September 2015, the European Court of Justice made clear that the calculation in this regard must be based on the weight of each individual component, not the weight of the supplied global product. To implement this verdict we are updating all our affected product data sheets and REACH information in order to properly inform our clients.

BY CHAIRING THE REACH WORKING GROUP AT BDSV E.V., RHEINMETALL IS PLAYING A PROACTIVE ROLE IN THE IMPLEMENTATION OF THE REACH ORDINANCE THROUGHOUT THE GERMAN DEFENSE INDUSTRY

34

SUBSTANCES REGISTRATIONS NITROCHEMIE

9

SUBSTANCE SAFETY REPORTS RHEINMETALL WAFFE MUNITION



NATURE CONSERVATION PROJECTS AT RHEINMETALL DEFENCE IN UNTERLÜSS

Rheinmetall Defence in Unterlüß is part of the “Wildcats” non-profit project with BUND Lower Saxony, the state nature conservation agencies and voluntary patrons, which is studying whether the Lüneburger Heide is home to wildcats. The material needed for genetic testing (fur) is to be collected from 105 wooden sticks scented with Valerian, that have been placed in the district of Uelzen since February 2017. Four of these are on Rheinmetall’s property. Cats are attracted to the scent of Valerian and mark their territory on these sticks by rubbing their chin on them, so some of their fur is left behind. The sticks are inspected regularly to collect materials. If no evidence is found this year, the process will be repeated in 2018.



The first signs of a wolf on the firing range of Rheinmetall Defence were found back in 2007. Since 2011, Rheinmetall Defence has assisted with scientific documentation for the state hunting authority and Lower Saxony’s Ministry of the Environment, Energy and Climate Protection for the progressive natural propagation of the wolf (repopulation in Germany) with photos and evidence of wolves. Our company grounds in Unterlüß are a permanently inhabited wolf territory; we estimate that six to eight wolves live here and roam about other areas near our property at will. Multiple sightings are reported each month. A data analysis by the Lower Saxony state hunting authority has shown that the wolf pack has not reproduced on our property since monitoring began in 2014/2015. However, there is evidence of individual adult animals on site.

In a project launched with Rheinmetall Defence, the Lower Saxony hunting authority and the forestry department of the University of Göttingen in the fall of 2015, genetic studies are being conducted to determine whether there is fragmentation of the red deer population in Germany. Fragmentation of a population can result for instance from fences, highways or streets; some populations are “cut off” from the other territories, thereby preventing gene flow. The resulting decline in genetic diversity can make the populations more susceptible to illnesses, for instance and is seen as a critical issue. For documentation purposes, samples are taken



and studied from all slain red deer calves in the country. Rheinmetall Defence takes these samples for the “Lüneburger Heide” area.

On behalf of the nature conservation agencies of Lower Saxony, we have four projects on our company property to track species:

- In early summer 2017 studies will be conducted on dragonfly species.
- By 2018, biotope types must be mapped showing nature conservation areas on our property that are particularly in need of protection, in order to implement the European Flora Fauna Habitat directive. The results will be used in planning the further development of nature conservation areas. We believe that the Kienmoor nature conservation area could be expanded.
- Ornithological studies are being conducted in the moors, in bird sanctuary 38.
- For the regional structure plan in the district of Celle, various species studies will assist in the agencies’ planning to define space as nature conservation or commercial areas.

All species studies projects to date show that military use on our property does not impede nature conservation. On the contrary, it has a positive effect – particularly due as the moor is being kept clear and no trespassing is allowed.



DEDICATED TO NATURE AND THE ENVIRONMENT.


5,500 ha
TEST SITE


1,000
GRAZING HEATHLAND SHEEP


20%
OF THE GERMAN BLACK GROUSE POPULATION NORTH OF THE ALPS LIVES IN FOJANA


700
BEE COLONIES


1,120
BUTTERFLY SPECIES

BUSINESS AND SUSTAINABILITY IN HARMONY

Preserving natural resources and maintaining biodiversity are of fundamental importance to us – this is particularly clear from our conservation projects. Rheinmetall Waffe Munition's own test site is located on heathland near Unterlüß in Lower Saxony and covers a total area of around 55 km², almost 90% of which is used for operations. Fojana is an acronym comprising the first two letters of the German words "Forst" (forest), "Jagd" (hunting) and "Naturschutz" (nature conservation) and is the name of a natural paradise unequalled anywhere else in Germany that we have managed in line with the strict rules for integrated conservation since 1928.

RURAL IDYLL BETWEEN FOREST, HEATHLAND AND MOOR

In Fojana there is a diverse landscape of heathland and grassland, forests, fields and wetlands. Strict safety regulations are observed on the firing range of the test site. Only few people have access to it. Two thirds of the area is covered by forest. The typical north German pines are the main feature on the site, as they manage extremely well in the old, nutrient-poor soils of the heathland. The forest serves as a safety zone along the long sides of the site and is used commercially. Every year, it supplies around 17,750 cubic meters of high-quality wood certified by the German Program for the Endorsement of Forest Certification (PEFC), mainly to the construction industry.

EXTRAORDINARY BIODIVERSITY

Active landscaping helps endangered species to become established. For example, individual habitats can be created for unique animal and plant life through targeted irrigation of dry areas or specially created dry grass areas, rewetting of moors, re-naturation of rare wetlands, creation of simple stone mounds as breeding or hiding places, erection of nesting facilities or creation of open forest glades.

In the peace and seclusion of the restricted zone, a rich array of flora has developed which in turn attracts a diversity of insects and birds and also provides a habitat for large wild animal populations. Many of these animals are on the Red List of Threatened Species.

Numerous endangered species of birds have settled here on Rheinmetall's test site. Even eagles, hawks and eagle owls and the now rare black grouse, the



bird that symbolizes the Lüneburger Heide, are a fixture on the landscape of the test site. And the number of larger vertebrates on the site, which largely comprises not heathland but woodland, is also impressive: Red deer, roe deer, wild boars and hares and rabbits all share the site along with foxes, badgers, raccoon dogs and even otters and bats. The presence of wolves, which are known to be afraid of people, has been documented since 2007 and proves that the Rheinmetall forest rangers' careful management of the site is worthwhile.

In Fojana, balanced and appropriate hunting management is a key conservation tool. The principle of sensible sustainable regulation, which serves the ecological balance while at the same time ensuring minimum disruption by the hunters, applies in the Rheinmetall hunting block. Hunts take place in accordance with the strict provisions of national hunting legislation.

The far north of the Rheinmetall site can be accessed by the public. The Ellerndorfer Heide or Wachholder Heide are local family recreation areas where one can go walking and look out on an ancient landscape, the likes of which can only be found in a few nature reserves.

DISTRIBUTION OF TREE SPECIES BY AREA



Forest areas
Heathland
Pastures and fields
Moors and bodies of water
Commercial areas



3.300 ha
FORESTED AREA



900 ha
HEATHLAND



440 ha
AGRICULTURAL LAND



15 ha
MOOR AND WETLANDS

INTERESTING FACTS

3,300 ha forest is equivalent to approx. 503,000 m³ wood

3,300 ha forest binds 452,272 to CO₂

Annual growth: Approx. 17,750 m³ wood

One hectare of deciduous forest releases 15 t oxygen a year; one hectare of coniferous forest releases 30 t

Forests filter large quantities of dust and soot (up to 50 t/year)

Source: NLF 2014 annual report

Left: Honeybees
Right: Silver-studded blue



HUMMING OVER THE LANDSCAPE

Heaths, woods, moors, streams and the reservoir offer a habitat not only to the around 700 bee colonies of the beekeepers but also to a wide variety of insects. And there are many. For example, 34 species of insect were found that for over 80 years were believed to have died out in Lower Saxony. Apart from rare dragonflies and other large insects, there is also a local peculiarity: The heathland grasshopper.

WHERE BUTTERFLIES FEEL AT HOME

On the Fojana site vast open areas of land have been preserved and new locations with favorable warm conditions and areas of open ground combined with warm, dry, sandy areas have continually been created over many decades. In addition, particularly the wetter habitats of the moors and areas

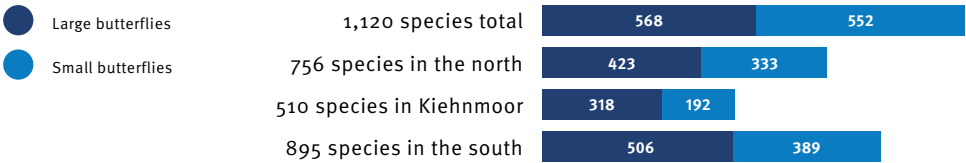


of beech wood as well as all the remaining oak mixed forests contribute to the large number of butterfly species.

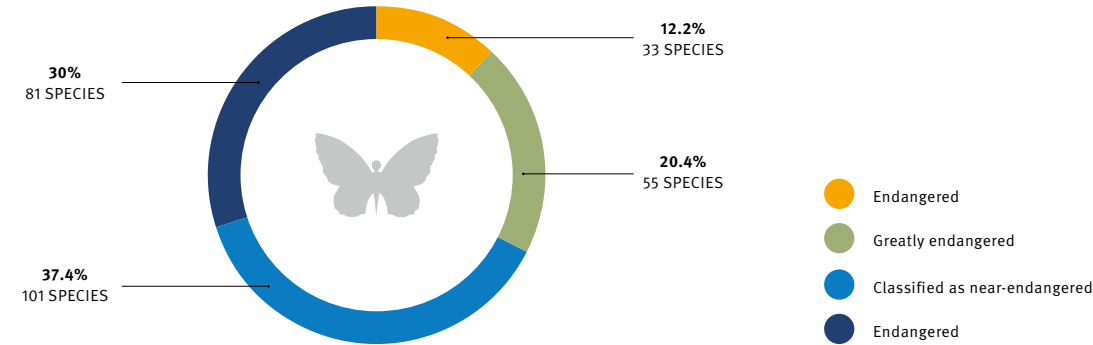
There is a valuable biotope structure for different types of vegetation that serve as a suitable location for many food plants for caterpillars. There are also some strips of flowers and waysides on old fire-breaks and half-dry patches of grass that provide sources of food for butterflies, including outside of the heath's blooming season.

Following a ten-year study, in 2011 butterfly expert Dierk Baumgarten was able to show evidence of 1,120 species of diurnal and nocturnal butterflies from 60 families. Of these, 568 were species of large butterflies from 23 families and 552 were small butterfly species from 37 families. Seven small butterfly species were shown to be in the German state of Lower Saxony for the first time.

NUMBER OF BUTTERFLY SPECIES FOUND



RED LIST SPECIES (NORTHERN SAXONY)



INTERESTING FACTS

On the Fojana property, each year some 300 red deer, fallow deer, wild boars and roe deer are culled.

A hectare of forest contributes around 1,500 m3 each year toward ground water recharge. The numbers vary by precipitation amount, land-form configuration, geology, topography, ground and types of trees.

The black grouse is found almost exclusively in the remote areas of Scandinavia. In Fojana, about one-fifth of the German population lives north of the Alps.

Source: NLF 2014 annual report

Source: Paradiesische Zustände, report from the work of Dierk Baumgarten, 2013

A HOME FOR WILD ANIMALS

We firmly believe that industrial use does not conflict with active conservation. On the contrary. Our South African subsidiary Rheinmetall Denel Munition is engaged in protecting nature and species at risk of extinction at three of its four production sites. Similar to in Fojana (page 110), large, demarcated safety areas far from residential areas enable rare animals to expand their habitats unimpeded. We enter into partnerships locally to preserve these conservation areas along with their great biodiversity and rare species.

Our Company premises in Somerset West has a three-kilometer-long untouched strip of coastline with a dune landscape that plays host to Cape Flats Sand Fynbos and Cape Flats Dune Strandveld vegetation. The site was designated a nature conservation area in 2000 and is known as the Helderberg Marine Protected Area. Numerous endangered marine bird species nest here, such as the black oystercatcher. The protected marine area extends 500 m into the sea. Ghost crabs, muscles, snails and wading birds can be found in this intertidal zone.

The unique vegetation type Renosterveld, which can only be found in the Cape region, can be seen on around 2,000 ha of our Company premises in Wellington. The floristic area in the Cape province is the smallest and most species-rich in the world and has a high proportion of endemic species. Less than 5% of the original vegetation remains.

Rheinmetall Denel Munitions' Boskop site is located on a 1,200 ha farm. The conservation area, which comprises 950 ha, is known for its biodiversity of grasses and herbs. The area also includes a game reserve which, for example, is inhabited by jackals, Cape foxes, ostriches, giraffes, zebras and 14 different species of antelope.

These examples show that we do not merely pay lip service. Conservation and biodiversity are tasks that span generations. We are making our contribution so that areas retain their beauty and unique character.

INTERESTING FACTS

According to the International Union for the Conservation of Nature (ICUN), the 1,500 endangered cape mountain zebras live in around 30 public and private conservation areas. However, the species is not immediately endangered as it was in the 1930s. Currently, around 20 cape mountain zebras live on the Boskop site of Rheinmetall Denel Munition.

400+
SPRINGBUCKS

400+
ANTELOPES

50+
ZEBRAS

36
IMPALAS

24
OSTRICHES

11
GIRAFFES

8
JACKALS

The geometric tortoise is one of the world's rarest tortoises. It is on the ICUN's red list of threatened species



Middle: Cape Flats Dune Strandveld Vegetation

Bottom: The African black oystercatcher is found only in the coastal areas of South Africa and Namibia. The ICUN reports that this species could disappear one day

Cape mountain zebras on the company property in Wellington



DIVERSE INTERESTS. OPEN DIALOG.

By knowing the needs, interests, attitudes, concerns and viewpoints of our stakeholders, we can better align our business decisions to their expectations. This is why we place great value on open, transparent discussion and regular communications. With 119 companies in 29 countries, we are present in our markets and maintain regular dialog with a range of stakeholders. This enables us to establish and reinforce a relationship of trust while gathering new input and identifying specific ideas at an early stage.

FOCUSED NOT ONLY ON SHAREHOLDERS

The public’s interest in corporate governance, compliance, sustainability, environmental protection, conservation and corporate responsibility is increasing. More and more people from all areas of society are demanding to know more about business. Expectations regarding transparency and requirements in terms of comparability are growing. Investors are looking for sustainable investments. Employees want a secure job, but at the same time increasingly want to create a healthier balance between their professional goals and their family and private interests. Eco-friendly products are in ever greater demand. Legislators, authorities and also nongovernmental stakeholders are demanding compliance with ever more stringent regulations and limits. People living close to industrial sites worry about impairments to their quality of life. Meanwhile, communities, associations and aid organizations value the support provided by companies to their social, cultural and sporting activities.

In a time in which markets are interconnected and the flow of information is becoming increasingly globalized, communications are becoming more and more important to the Company’s success. Shareholders, customers, lenders, employees, media and the general public as well as other stakeholders expect up-to-date and comprehensive information regarding products and the economic performance of our Company. We provide regular, open and prompt information on our commercial and financial situation as well as on key processes and changes and up-to-date news. The annual report, half-yearly financial report and interim quarterly reports are published within the prescribed time limits. The

online financial calendar provides information on key events and publications.

Key data on current developments and innovations are available on the World Wide Web on over 5,000 pages with a uniform design in German, English and other national languages – an offering that was used by more than 2.2 million visitors in 2016. In addition to press releases, annual and quarterly reports as well as presentations in German, English and other languages, themed information on the Rheinmetall Group, its divisions and companies, and facts and image material for products, systems and services are available on the websites. Apart from extensive basic information on the Rheinmetall Group and the divisions, the websites offer a wealth of user-specific items and download options. The online information is rounded off by numerous links that facilitate access to further information on technical subjects relevant to the Automotive and Defence sectors. More information on corporate social responsibility issues can be found on the website in the “Responsibility” section. Questions regarding the Company, products and services are answered via information e-mail addresses. In 2016, some 65,000 queries were answered. Rheinmetall AG’s Twitter account currently has some 2,900 followers. Since June 2009 we have published some 500 tweets. Motorservice is also very active on Twitter, with 880 tweets and more than 260 followers to date. Rheinmetall Automotive has been on Twitter since early April 2017.

AN ALL-ROUND
APPROACH: WE USE
A WIDE RANGE OF
FORMATS IN DIALOG
WITH OUR VARIOUS
STAKEHOLDERS

2.2
million VISITORS
TO THE WEBSITES OF THE
RHEINMETALL GROUP










65,000
E-MAIL QUERIES TO THE
RHEINMETALL GROUP

The Youtube channel of Rheinmetall Defence, launched in April 2012, currently has around 7,300 subscribers and in 2016 it had approximately 1.5 million views of its 60 videos. Rheinmetall Automotive registered some 75,000 views of its Youtube channel and has approximately 290 subscribers. The Youtube channel of Motorservice is also very popular with 2.6 million views and 9,500 subscribers in 2016



CSR RATING
AGENCIES:

SUSTAINALYTICS
OEKONOM RESEARCH
ECOVADIS
VIGEO EIRIS

STAKEHOLDER	FORMATS
 CUSTOMERS AND BUSINESS PARTNERS	Close contact to and intensive consultation with clients; client events, trade shows, corporate communications media and customer surveys
 SHAREHOLDERS AND INVESTORS	Annual shareholders’ meeting, capital market conferences and roadshows, analyst and investors’ meetings, financial ratings, financial communications, investor relations online portal and capital markets days
 EMPLOYEES	CEO letters, personal meetings, employee surveys, internal media, dialog and information events, annual management conferences, employee suggestion program, employee newsletters, works council committees and seminars
 SUPPLIERS	Supplier meetings, supplier conferences, supplier development, supplier audits and supplier surveys
 MEDIA	Press releases, press conferences, meetings with representatives of the financial and trade press, internet, social media channels, trade shows and factory tours
 KNOWLEDGE AND RESEARCH	Group research projects, grants for research projects, partnerships with colleges, award of master’s theses, lectures/discussions at colleges, foundation professorships and participation in conferences
 SOCIETY	Press information, discussions with financial and trade press, internet, social media, participation in surveys and studies, answering individual queries and dialog with rating agencies on corporate social responsibility in the Rheinmetall Group, participation in events and conferences in the region, and personal meetings
 POLICY AND ADMINISTRATION	Parliament evenings, political discussions, background discussions, factory tours and trade shows
 ASSOCIATIONS AND ORGANIZATIONS	Meetings and committees, forums and events

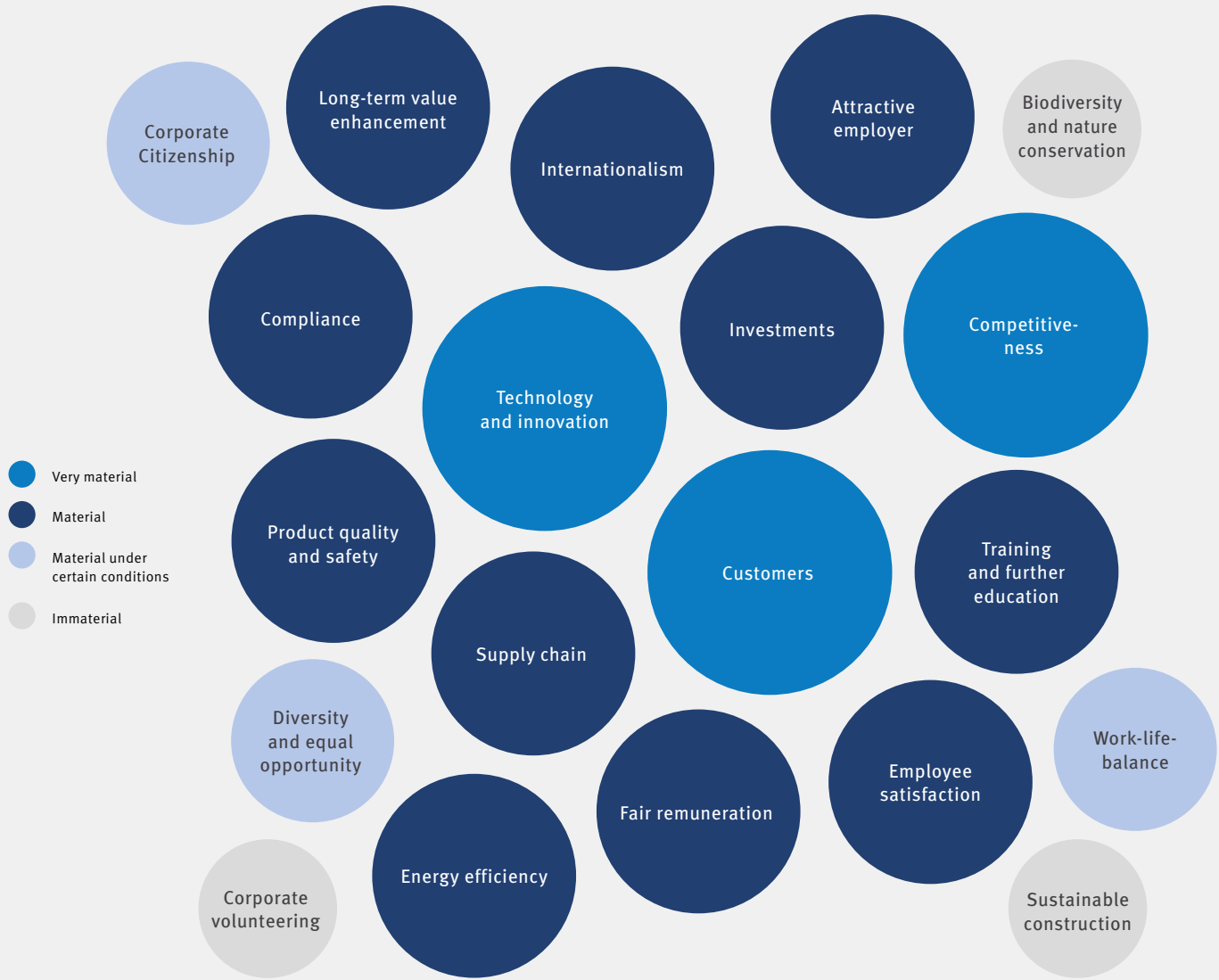
MATERIALITY ANALYSIS

Since October 2011, the Rheinmetall Group has reported on its activities in the area of sustainability on its website. In 2014, we reorganized our Corporate Responsibility area due to ongoing developments in this segment. The Corporate Responsibility Panel, comprised of managers from all divisions and the management holding, is working to expand the sustainability activities within the Rheinmetall Group. The topic areas are Corporate Governance, Corporate Citizenship and Corporate Social Responsibility, focusing on economic, environmental and social issues. As an issue that affects all aspects of our Group, sustainability is the direct responsibility of the CEO of Rheinmetall AG.

The materiality analysis serves to determine the significance of various sustainability aspects for the Rheinmetall Group. The aim is to continuously improve our sustainability management. This report takes account of the company’s internal viewpoint and evaluations. First, internal workshops were held to determine the key aspects, indicators and related issues for our company, identify the stakeholders of the Rheinmetall Group and analyze their interests and expectations. Information from meetings with our stakeholders was then added to these results for a comparison. In the next step, the sustainability aspects that were identified and evaluated in terms of their relevance to the Rheinmetall Group were prior-

itized and rated in an online survey of the top 282 managers of the Rheinmetall Group. The chart belows shows the results of this survey. Then, the effects of the identified sustainability aspects were rated as having an impact “internally” or “externally” or “internally and externally.” It was found that most of the 20 aspects had an internal and external impact. Details can be found on page 152.

RESULTS OF THE MATERIALITY ANALYSIS



CONSISTENT CUSTOMER FOCUS – THE CUSTOMER COMES FIRST!

It is Rheinmetall’s philosophy to be present in the relevant markets, to live and work there and to understand and fulfill customers’ requirements. In a complex world, cooperation and open dialog are becoming increasingly important. Trustful, in-depth and successful business relationships with customers are an important criterion for enhancing products and processes. Customers are informed regarding development projects at an early stage and involved in the development. The outcomes of personal conversations are decisive for bringing about optimum product solutions and technical innovations.

With a strong presence at the key industry trade fairs and informative customer events, we remain in dialog with our customers and initiate new contacts. Responsible actions create trust and open up new business opportunities.

In 2017, Rheinmetall Automotive will take part in 11 trade shows and Rheinmetall Defence will take part in 40 national and international trade shows. Along with Auto Shanghai in April, the 2017 International Motor Show (IAA) in Frankfurt am Main is of particular importance to Rheinmetall Automotive. The main areas of focus for the Defence sector are the industry meetings in Abu Dhabi (IDEX), London (DSEI) and Washington (AUSA).

Furthermore, in addition to around 2,200 brochures, posters and product and service information sheets, customer information is available to the mobility and security segments in the form of multimedia presentations, image films and animations. In addition, around 300 advertisements were placed in specialist media in 2016.

2016 RHEINMETALL LAND FORCES SYMPOSIUM

Highly mobile, combative and mechanized battalions and infantry firepower are still the core of current land forces and were the focus of the 2016 Rheinmetall Land Forces Symposium. Rheinmetall Defence welcomed six hundred participants from all continents to this prestigious event at the Rheinmetall testing center in Unterlüß, Lüneburger Heide. The center has a long tradition and played

host to all of the past infantry symposiums in Unterlüß as well. The goal of the symposium was not limited to our presentation as a defense technology system supplier and reliable partner for the armed forces of Germany, NATO and allied countries. Rather, we were designed as a forum for interaction among international stakeholders with Rheinmetall Defence and its partners, and a communication platform for industry, armed forces and other professionals. This is also a chance for us to obtain external opinions and innovation suggestions. The agenda of the 2016 Land Forces Symposium included all aspects of mounted and dismounted vehicle combat, including weapons from small caliber weapons to high energy lasers.

PROMOTERS: A MEANS TO ENHANCE CUSTOMER LOYALTY AND SATISFACTION

To enhance customer loyalty and satisfaction, Motorservice is using promoters in more and more countries. As brand ambassadors and communication multipliers, they help make Motorservice a success in the international aftermarket segment on a local level. In February 2017, the first training event was held with all worldwide promoters in Neuenstadt. Promoters are technically trained, local employees of Motorservice abroad. They are fluent in the national language, know the culture, and can provide optimal advice to repair shops and dealers on location. However, they are not only assistants and problem-solvers; they also present the latest products and services of Motorservice, Kolben-schmidt and Pierburg directly to the customers.



INTERESTING FACTS

Germany’s 2016 customer champions

In a company competition held in May 2016 by market research and consulting company forum! and Deutsche Gesellschaft für Qualität e.V., MS Motorservice International took second in the category of “SMEs with up to 500 employees.”

CAPITAL MARKET COMMUNICATIONS

Providing up-to-date information and ensuring continuity and transparency when preparing reports, as well as credibility and reliability, form the basis for our direct dialog and trusting relationships with institutional investors, private shareholders, potential investors and analysts. The aim of investor relations work is to provide information on all market-relevant developments to the capital market in a transparent, comprehensive and proactive manner and thereby to lay the groundwork for a fair and realistic assessment of the Rheinmetall share.



Regular conferences with and roadshows for institutional investors and analysts ensure a continuous exchange of information with the financial and capital markets. The management and the investor relations team stay in close contact with participants in the capital market and visit the major financial centers in Europe and North America, including Frankfurt am Main, London and New York, as well as Paris, Milan, Edinburgh, Stockholm, Helsinki and Zurich.

Numerous individual meetings are also held during investor visits and telephone conferences. The investor relations team – in many cases with the direct involvement of the Executive Board – not only provides comprehensive information on the economic environment and the current business situation, but also discusses issues such as current trends, the potential of products and technologies, growth opportunities and risks and existing and future challenges for the Rheinmetall Group with national and international business partners.

Other important events in the investor relations calendar include telephone conferences on the quarterly reports and the accounts press conference and analyst conference in mid-March each year, at which the results for the previous fiscal year are presented. The relevant presentations are available on the website in the “Investor Relations” section.

The Annual General Meeting is an important platform for dialog with private investors, who can also contact the Investor Relations department with questions by telephone, in writing or by e-mail all year round.

In 2016, Rheinmetall continued its successful Capital Markets Days at the Group’s headquarters in Düsseldorf. The Executive Board and representatives from the management of both sectors gave the large number of analysts and investors who had traveled

to the event a comprehensive overview of market developments and trends, the operating business, strategies and prospects. The participants made full use of the opportunity to hold in-depth discussions with the Executive Board.

Up-to-date information concerning Rheinmetall shares can be found on our website at www.rheinmetall.com in the Investor Relations section. Annual and in-

terim reports, analysts’ current estimates and presentations for roadshows, conferences and capital markets days are published here, among other things.

Since October 2016, our investor relations website has also provided an overview of capital market expectations for the Rheinmetall Group’s key indicators. The assessments issued by financial analysts regarding the future performance of our Company following evaluation of published business results are collated by Vara Research, an established independent service provider that is well known in the industry, to form a consensus that is updated at regular intervals.

Along with equity investors, Rheinmetall maintains the same high level of contact with bond and promissory note investors and the lending banks. We place great emphasis on long-term, sustainable business relationships, in order to ensure Rheinmetall’s financial stability even when economic conditions are challenging.

INTERESTING FACTS

Germany’s
2016 employee
champions

In May 2016, market research and consulting company forum! and Deutsche Gesellschaft für Qualität e.V. gave MS Motorservice International a special award for the best employee relationships.

EMPLOYEES IN FOCUS

The Automotive and Defence sectors operate in highly competitive markets that are shaped by rapid change and increasingly complex technologies, processes and products.

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With their knowledge, skills and dedication, the 23,044 employees of the Rheinmetall Group play an important part in the achievement of corporate targets and in helping to secure and expand the Rheinmetall Group’s economic success on a sustainable basis in the long term. They identify with a unique corporate culture that emphasizes trust, respect, openness, professional achievements, initiative, personal responsibility and shared values and work together in a spirit of partnership across functional, divisional and national boundaries.

Our employees are an important stakeholder group for us. We attach great importance to keeping our employees informed on a continuous and open basis and use various communication channels and dialog formats to do this – meetings with line managers, works meetings and town hall meetings at other locations, bulletin notices, our print and online staff newspapers, information and newsletters, the intra-

net and e-mail circulars. For example, in two issues of the CEO letter in 2016 the CEO addressed employees in Germany and abroad and updated them on the business performance and position of our Company.

However, we would like not just to send, but also to receive. Our employees’ opinions are important to us. We also like to get a picture of the current mood, which is why we are conducting a survey in 2017 and inviting all our employees to give feedback on Rheinmetall, its corporate culture, its values and the leadership qualities of the management in the first Group-wide online survey, which is planned for mid-year. Participation is voluntary and confidentiality and anonymity are assured.

However, many employees do not lose touch with Rheinmetall upon retirement. Some remain in contact with one another and the company they worked for, such as during factor tours or visits to open houses.

Once a year, the Works Council of Rheinmetall AG invites former and current employees with more than 25 years of service to an “oldtimers’ tour.” Before the event begins, a member of the Executive Board in Düsseldorf welcomes the approximately 150 participants.



Rheinmetall has many faces – with more than 23,000 employees around the world

SUPPLY CHAIN MANAGEMENT

The quality of our products depends largely on the quality of the raw materials, parts and components supplied. We expect high quality from our suppliers, as ensured by internationally recognized standards like ISO 9001, TS 16949 and AQAP 2110/-2210.

Suppliers are chosen taking account of quality, performance, suitability and price of the products or services offered. International purchasing activities, annual supplier reviews, quality and reliability checks for suppliers and possible alternative suppliers ensures compliance with strict requirements and standards.

We also expect our suppliers to share our principles of responsible, fair conduct with employees, customers, suppliers and the public, and to live up to their responsibility. We expressly support and encourage our business partners to apply and account for the principles defined in our Code of Conduct by way of their own company policies; we feel this is a good basis for future business relationships.

In close cooperation with the Automotive divisions of Mechatronics, Hardparts and Aftermarket, the “Supplier Portal: SupplyOn“ project was launched globally for Rheinmetall Automotive in 2016. SupplyOn is a group supply chain collaboration platform for a growing number of global companies, especially from the areas of Automotive and Aerospace. This platform makes business processes between customers and suppliers more transparent and secure – regardless of continent.

In the first phase, three modules have already been configured and implemented; these are transferring current purchasing processes into an optimized online format:



Purchasers have already been trained and the suppliers are in the onboarding process. Possible expansions, for instance in the areas of logistics (web EDI) and quality (complaints process and supplier evaluation) are currently being considered.

The supply chains in the defense industry have very complex structures. For instance, the supply chains in Rheinmetall Waffe Munition and Rheinmetall Landsysteme can easily have up to eight steps. The large amount of special materials and processes along with a wide product portfolio tends to result in a high volume of single and sole sourcing (as is typical for this industry), for instance because only a few companies around the world completely manufacture and manage these very specific products and processes.

In the defense industry, changing to a new supplier is very complicated in financial and scheduling terms. Product qualification by the military authorities depends not only on the products themselves but also the manufacturing process, manufacturing location, and the suppliers. Thus, changing suppliers automatically results in high costs for new qualification or new shelling tests.

Procurement in the area of ballistic protection is project-like in nature, i.e. manufacturing with our supplier is non-continuous. This demands a high level of quality control measures.

Moreover, procurement in the defense industry is subject to special laws, such as the War Weapons Control Act, the Foreign Trade and Payments Act, and International Traffic in Arms Regulations (ITAR), to name only a few. Only a relatively small supplier group can meet these industry-specific requirements and standards.

2016 RHEINMETALL DEFENCE TALKS

Nearly 30 trade journalists from the international defense press traveled to Berlin in October 2016 for the Rheinmetall Defence Talks. This established event offers not only current and first-hand information on activities from all three divisions, but also exclusive excursions to locations with a military history. This trip was to Kummersdorf, about 30 km south of Berlin. The focus was on the first tests by rocket and aerospace pioneer Wernher Freiherr von Braun in the 1930s. The second day focused on current topics from the Defence sector. The first segment featured large equipment such as the current state of development in the main armaments for battle tanks. A



second set of presentations were on the expanded definition of “security,” which included products for police and security forces. Projects in the area of public security and protection of critical infrastructure were also discussed. We also provided information on cooperation between the Simulation and Training unit with Embraer. The Brazilian company – the world’s third largest airplane manufacturer – hired us to develop and deliver training and simulation technology for the new KC-390 transport plane. After providing an update on the

Gladius and Argus soldier systems, we reported on the airplane defense missiles Cheetah and RADshield, a drone detection system. This will soon be used to protect correctional facilities.

AUTOMOBILE JOURNALISTS GET A CLOSE-UP OF MILITARY TRUCKS

Before the leading show for transport and logistics, IAA Commercial Vehicles, was held in September 2016, Rheinmetall Automotive held a press conference for trade journalists from the automobile industry at Rheinmetall MAN Military Vehicles Österreich (RMMV) in Vienna in August 2016. The event presented current technical highlights and gave participants the opportunity to drive the military trucks from the joint venture between Rheinmetall and MAN themselves on a closed test track.



Presentations were held on current trends in engine design and on the contribution that Rheinmetall Automotive is making to meet the stricter CO₂ targets in the commercial vehicle segment in future. Lively Q&A sessions during the presentations showed that the press was very interested in all of the topics. Finally, the guests were shown the Vienna plant. This is where highly mobile and protected military trucks by MAN are developed and produced, so that they can be used to protect against mines or in crisis regions. The plant specializes in the assembly of highly complex vehicles with a wide variety and special developments.



DEFENSE TECHNOLOGY LIVE – WITH TRIPS IN THE LEOPARD 2 BATTLE TANK

Rheinmetall Automotive had invited journalists to a press conference in the previous year before IAA International Motor Show 2015. At the Rheinmetall plant in Unterlüß, surrounded by Lüneburger Heide, the trade audience learned about trade show highlights, new products and technical innovations with great interest. This includes, but is not limited to the latest generation of divert air valves, lightweight pistons, high performance plain bearings coatings and lightweight structural parts made of aluminum. However, the focus was not only on state of the art automobile technology. The press guests took a trip on the Leopard 2 battle tank to see defense technology up close and personal. Also part of the program were a guided forest tour on the approx. 50 square kilometer testing grounds of Rheinmetall Defence and an off-road trip with current vehicle models.

The world is undergoing constant change, which significantly shapes the environment in which Rheinmetall and its customers operate and thus also the general conditions for business activities. We are present where representatives from politics, business and society meet to discuss and make decisions and represent our stakeholders in an open and transparent manner. We are constructively involved in finding viable solutions together with politicians and governing authorities and representatives from associations and trade unions. In the Defence sector we have representative offices in Berlin and Koblenz. We are also engaged on a European level in Brussels.

HIGH MILITARY VISIT AT THE DEFENCE LOCATION IN BREMEN

In February 2017, lieutenant general Frank Leidenberger from Army Command in Strausberg visited the Rheinmetall Defence site in Bremen. He was accompanied by two field officers from the command’s planning department. The visit focused on the latest developments and trends in defense. Our presentation titled “Rheinmetall as a technology partner for the German army” included speeches and a weapons exhibition to highlight our full range of services and technologies from the Electronic Solutions, Vehicle Systems and Weapon and Ammunition divisions. Networking, digitalization and communications were also featured.

STRATEGY MEETING WITH THE GERMAN ARMY

On two days in January 2016, the strategy meeting was held between members of the Management Board of Rheinmetall Defence and high-ranking officials from the army in Unterlüß. The inspector of the army, his two deputies and the head of office for army development took a comprehensive look at the wide range of products and new technologies of Rheinmetall Defence as a leading European

systems supplier for army technology. Following specialist lectures and discussions about current areas of action and future technologies from the areas of tactical wheeled vehicles, tracked vehicles, weapons and munition and electronic solutions, the military guests learned about all of the main product innovations for the German army at the Unterlüß site.



INDUSTRY IS AN ESSENTIAL PART OF BERLIN AS A BUSINESS HUB

In May 2016, Berlin mayor Michael Müller came for an informational visit to Pierburg’s Berlin plant on Scheringstrasse, which was founded in 1909. During his two-hour visit, the mayor was less interested in the long Berlin history of the automobile sup-

plier and much more in current issues relating to industry policy. The mayor’s tour was rounded out by a look behind the scenes in production, which gave him an idea of the wide product range at this location.

MINISTER AT THE IAA STAND



In September 2016, Baden-Württemberg’s minister for economic affairs, employment and housing construction, Dr. Nicole Hoffmeister-Kraut, visited Rheinmetall Automotive’s stand at the IAA Commercial Vehicles Motor Show. While touring the stand, she learned about innovations from KS Kolbenschmidt such as low friction piston systems and technologies to reduce emissions from Pierburg.

MINISTER OF ECONOMIC AFFAIRS VISITS THE NIEDERRHEIN PLANT

NRW’s minister of economic affairs, energy, industry, SMEs and trade, Garrelt Duin, visited Pierburg in Neuss in February 2016. The visitor delegation learned about the foundry along with mechanical engineering of exhaust gas recirculation systems and assembly of solenoid valves.



JAPANESE DELEGATION VISITS RMMV IN MUNICH

During the 52nd Munich Security Conference in 2016, Japanese defense minister Kenji Wakamiya visited the headquarters of Rheinmetall MAN Military Vehicles GmbH. During the approximately four-hour visit, the delegation learned about the comprehensive product range of the Vehicle Systems division.



The close relationship to MAN Truck & Bus in the truck segment was then underscored by a tour of the adjacent civil truck production plant. The 11-person Japanese delegation was truly impressed by the MTB test track, where they could experience military trucks not just during a parade; the guests were invited to ride along on a challenging terrain and experience the products’ outstanding features for themselves.

VISIT FROM THE BENDLERBLOCK

In March 2016 Rheinmetall CEO Armin Papperger welcomed Dr. Katrin Suder, secretary in charge of Bundeswehr armament projects for the Ministry of Defense, to Unterlüß. She learned about the current status of the Puma infantry fighting vehicle. During the visit, the prestigious delegation got a look at the complex manufacturing behind the Puma at Rheinmetall’s renowned and historic plant.

A BRIEF VISIT TO KASSEL

In February 2016, German Parliamentary Commissioner for the Armed Forces, Hans-Peter Bartels (SPD), visited the Kassel plant of the Rheinmetall Defence’s Vehicle Systems division and observed production in Building M42, the assemblies for heavy equipment in Building M41 and the wheeled vehicle portfolio with Boxer, Fuchs, AMPV and Survivor R in Building M45.

CELLER TRIALOG – A NATIONAL SECURITY FORUM ON THE RISE

“Celler Trialog“ is the security policy event held for the sixth time in Celle in mid-October 2016. Henning Otte, the defense policy representative of the CDU/CSU fraction for the German Bundestag was the

host to 160 attendees. Among the prestigious guests and defense policy community who traveled from all over Germany, were defense policymakers from the CSU, the Social Democrats and Bündnis90/Die Grünen, along with top managers from the defense industry such as the CEO of Rheinmetall AG, Armin Papperger, representatives of defense policy associations, allied and national top military members and many journalists active in the security policy segment. Among the keynote speakers were the Federal Minister of Defense, Dr. Ursula von der Leyen, and the Chief of Staff of the Bundeswehr, General Volker Wiekert. In the panel discussions that followed, participants examined the event agenda of the Celler Trialog at length: “Diplomacy, Defense, Inner Security.”

PARLIAMENT EVENING IN BERLIN



Politics, administration, media and military: The Rheinmetall Defence Parliament Evening in September 2016 was again a prestigious and popular event. At the former Reichstag presidential palace on Ebert Platz, Armin Papperger, CEO of Rheinmetall AG, welcomed more than 130 representatives from politics, the military and media, including parliamentary state secretary at the Ministry of Defense Markus Grübel, nearly 30 members of the Bundestag, four active three-star generals from the Bundeswehr,

attachés from ten nations, other high-ranking officials from the military sector and representatives of the Berlin press. The guest speaker was the assistant secretary general for Defense Policy and Planning at NATO, lieutenant general Horst-Heinrich Brauß, who spoke on the topic of “NATO after Warsaw.” This was the 32nd time our Defence sector hosted the event in the historical building.

The Hamburg neighborhood of Ottensen near the river Elbe is changing. The same can be said of the entire Altona district. Numerous conversion, demolition and new construction projects have been the subject of public discussion for many years.

These discussions mostly revolve around the construction or preservation of affordable or subsidized social housing and the related changes to the urban landscape. However, safeguarding inexpensive space for small business operators is also an issue in up-and-coming urban areas. Catchwords such as “gentrification”, “selling out” and “yuppification” are examples of the dissatisfaction and fears of many residents with regard to the future of their city. Numerous initiatives demand to be involved and are making their voices heard through protest. Successful urban development becomes a challenge against this tense backdrop – not only for politicians and authorities, but also for real estate developers and investors who wish to realize projects cost-effectively.

“FRIEDENSALLEE 128” PROPERTY

The closure of the Hamburg Kolbenschmidt plant in 2009 was a decisive turning point. And simultaneously the start of a transition and new beginning. The site in the northeast of Ottensen had been in industrial use for over 100 years. Kolbenschmidt had been producing aircraft and ship pistons and later also passenger car pistons and piston pins at this site since as early as the 1930s. The crooked red brick plant buildings and halls still tell of days gone by.

Following the relocation of production, Rheinmetall Immobilien, which is responsible for property owned by the Rheinmetall Group, took over the site with the task of taking the area of around 36,000 square meters into the future. This was a complex task for our real estate specialists.



COURSE SET AT AN EARLY STAGE

Construction projects in urban areas are controversial. Exceptionally so in Hamburg and particularly in Ottensen. Anyone who wishes to build here successfully must be familiar with the local circumstances and engage with them. Rheinmetall Immobilien analyzed the local environment thoroughly in advance and sought advice from local partners. These extensive preliminary considerations flowed into an internal model for the development of the property. The guiding principle: Only a development that has grown out of and with the neighborhood can be successful on a lasting basis.

Planning, approval and realization take many years. A long period, in which sites and buildings lie dormant and fall into disrepair. The solution? An intermediate use. Local workshops and creative artists found affordable space and a new home. They brought a brand new, colorful and creative flair to Friedensallee 128. Within a few years, a lively business location and numerous cultural events had sprung up. What was intended as a transitional solution turned into something more. Kolbenhof e.V., the association of the interim tenants in residence, attracted a great deal of attention and support for its aim of maintaining inexpensive space for workshops, art and culture on the site.

ENGAGING IN DIALOG INTO THE FUTURE

How can the differing interests be incorporated into the development of the property? How can we ensure an attractive mix of uses for the site which is also still economically viable? And how could noisy workshops live alongside housing in the future quarter? These are complicated questions that in our opinion can only be answered in dialog with the stakeholders on site. For this reason, we decided in favor of an involvement process that went far beyond the requirements of the Baugesetzbuch (BauGB – German Building Code).

A NEW PURPOSE FOR THE 36,000 SQUARE METER PLANT SITE

The “Friedensallee Dialog Workshop” started in 2013. In a process carried out over several stages, residents were able to obtain information about the project on site and online and contribute their ideas for the design of the site. In parallel to this, we launched an urban planning competition in cooperation with the district of Altona. The target of equal distribution of residential and commercial use at a ratio of 50:50 was agreed in relation to the developed floor space.

Ten architectural offices entered the competition and submitted ideas for developing

the former plant site. These were presented to interested members of the public as part of a “glass workshop” and subsequently assessed by a judging panel. The high level of public involvement and the urban planning competition ensured that the designs met the complex urban planning requirements for developing the area on the one hand and took account of the ideas contributed by the residents during the course of the process on the other.

THE KOLBENHÖFE

As a result, a design was selected that provided for a combination of commercial and residential use in an accomplished mix of historic and new buildings. Old and new buildings will be connected to open courtyards. The existing central square will be developed into a public center for the quarter. The commercial aspect is focused in the northwest. The existing Hall 7 is to accommodate local workshops. Two models are under discussion: Hall 7 is either to be transferred to a cooperative of current interim users at a subsidized price or leased to the small business operators on preferential terms. Both solutions offer them long-term future prospects on the site. Structurally connected to this will be a flowing passage characterized by offices, retail outlets, restaurants and hybrid residential and commercial areas. This development entails a level of noise, as it can sometimes get a little louder during the day whenever screws, saws and hammers are involved. Further residential areas that strive to accommodate a variety of different

building types and living arrangements are envisaged for the south and southeast. Around 420 apartments are to be created here by 2021/2022, a third of which will be social housing in line with the “Hamburg one third mix.”

STATUS QUO AND OUTLOOK

Together with the adjoining Henkel Schwarzkopf site to the northeast, the Kolbenhöfe are the subject of the “Ottensen 66” development plan. The related process is shortly to be concluded. And a lot is already happening on the site, too. The site and existing buildings are cur-

rently being prepared for their future use. The stakeholder dialog will continue consistently beyond the development plan process. Events and an on-site information point as well as the website www.kolbenhoe.de will accompany the project until its completion. With the Kolbenhöfe, we will realize a new urban quarter by 2021/2022 that will address different requirements through its mix of uses and fit into Ottensen thanks to its architecture and diversity.



A look at the future Hall 7:
Local tradespeople mingle among
offices and apartments

Photo / Illustration: © coido architects, Hamburg

Social acceptance is an important requirement for economic success. Many of our companies can reflect on a long, proud tradition. They are strongly rooted in the local community – after all, this is where their customers, employees and business partners live. For us, vibrant, healthy environments at our business locations are essential. We define ourselves as a partner. In our corporate environment, we cooperate in specific educational initiatives and research partnerships, contribute to sports and culture and support social projects and non-profit organizations.

SHOWING
COMMITMENT.
**PROVIDING
OPPORTUNITIES.**

CORPORATE VOLUNTEERING IN THE USA

For ten years, employees of Rheinmetall Automotive in Auburn Hills have volunteered with non-profit organization “Habitat for Humanity,” which helps disadvantaged families purchase their own home at a low cost. In the last two years, their creative fund raising campaigns have brought in more than \$60,000 to build a house. As if that weren’t enough, the Rheinmetall Automotive staff helped build the house from the ground up, for instance by clearing the construction site and helping to erect the walls. When the new house is completed this year, the future owner, a veteran, will move in.



All hands on deck for “Habitat for Humanity” in Macomb County

WORKING FOR A GOOD CAUSE

The foundation “Große Hilfe für kleine Helden“ (Big Help for Little Heroes) helps sick children and their families during and after a stay at the children’s hospital in Heilbronn. Rheinmetall Automotive employees in Neckarsulm donated the proceeds of their waffle baking event, which were increased by company management to €2,500, to the non-profit organization. In the previous year, the award money from the Steel Innovation Prize of the Steel Board was donated.

The proceeds from selling concessions at a volleyball tournament, organized by trainees at KS Gleitlager in St. Leon-Rot, were donated to the children’s hospice Sterntaler e.V. in Dudenhofen, which has housed and counseled critically ill children and their families since 2009. With some help by management, €2,500 was donated.

Employees, retirees and management of KS Gleitlager in Papenburg supported the “helpful Kinderhospiz e.V. Papenburg,” which cares for terminally ill children and their families, by donating approximately €3,700.

Trainees at Rheinmetall Waffe Munition in Oberdorf sold sausages at work and donated the €350 in proceeds to the Oberndorfer Tafel food pantry.

The “Underwater Big Band“ from Atlas Elektronik and Rheinmetall Defence played two benefits in September 2016, collecting €11,000 for music therapy at the Professor-Hess children’s clinic, which helps children express their emotions. The musicians also gave a Christmas concert on two evenings in December 2016 at the Obere Halle of Bremen’s city hall on behalf of the Professor-Hess children’s clinic.

“Aktion Luftballon“ by the Förderverein der Kinderklinik im Lukaskrankenhaus e.V. in Neuss received €2,000 in donations for the hospital’s children’s clinic. In exchange for a donation, trainees and dual students at Pierburg gave their colleagues a sweet lunchtime treat on Valentine’s Day in 2017 with homemade waffles!

€6
million DONATED
FROM 2006 TO 2016

RESPECT!

Rheinmetall Automotive and the employee representatives are participating in the project launched by IG Metall, “Respect! No place for racism” and has been implementing this initiative since 2015 at the Automotive locations in Germany.

“Respect!” is not focused on racism alone; it also wants to promote general tolerance for different viewpoints and transcend the boundaries of origin, age and gender. In this spirit, the initiative wants to foster peaceful and successful relationships. To signal alliance with the initiative, “Respect!” signs are displayed at the entrances of all plants. There are many other signs of respect: Ten Pierburg trainees renovated a playground near the plant for the city of Neuss. Trainees at KS Gleitlager in St. Leon-Rot created a sculpture that now stands in the company’s main entrance. It is titled “Hand in hand” and shows hands from various materials and in different colors. This artwork stands for human diversity.



The “Hand in hand” sculpture as a symbol of human diversity

LOCAL INVOLVEMENT

Rheinmetall is also committed to promoting interest in technology, science and craft in the areas where it is located. Understand technology and try it out for yourself. This is the slogan under which young people are given the opportunity – as part of school partnerships, for example – to get to know technology through hands-on tasks and develop a better understanding of links between technology and commerce by gaining an early insight into the industry.

For instance, we support the schoolchildren’s scholarship from the Roland Berger Foundation, which sponsors gifted children and youths from disadvantaged families. Scholarship winners receive an individual support plan and are assisted by volunteer mentors in preparation for their high school diplomas.

SCHOOL PARTNERSHIPS IN UNTERLÜSS

Since November 2016, Rheinmetall Waffe Munition and Rheinmetall Landsysteme in Unterlüß have cooperated with the Hermannsburg school. Along with internships in various areas that offer a look at vocational fields, the pupils can take guided plant tours or take part in practice interviews, which helps them decide on and prepare for a profession.



Proud winners of the d-elina award

DIGITAL LEARNING BY APP

The Q&A Lern-App from benntec Systemtechnik, located in Bremen, received the Deutsche E-Learning Innovations and Nachwuchs-Award (d-elina Award) from industry association BITKOM in the “Professional” category at LEARNTEC 2015. The award honors concepts, solutions and ready-made products that integrate digital media into schools, universities, companies or public administration in an exemplary manner. The

learning game is based on the quiz format from “Who Wants To Be A Millionaire.” Students answer questions from various subject areas to test their knowledge solo or in a head-to-head match. Instructors can create questions at any time on a PC, for custom lesson planning or follow-up. The game offers variety, fun, and motivation while enhancing learning achievements.

LABS AND SCHOLARSHIPS

In May 2016, our South African company Rheinmetall Denel Munition (RDM) donated two fully equipped labs for natural sciences and chemistry to Sonyongwana High School near Creighton in rural KwaZulu-Natal (Madzikane District). Forty computers were purchased for a separate computer room. RDM is also paying the salary of two teachers

who are setting up and overseeing an e-learning platform. Moreover, pupils from grades 10 to 12 receive high quality calculators. For the next three years, RDM will also award scholarships for high performing pupils in need of assistance who are seeking degrees in natural sciences, technology, mechanical engineering and math.



Teaching in the new science laboratory at the Sonyongwana High School

WE INVEST IN THE NEXT
GENERATION WITH DEDICATION,
TIME, EXPERTISE AND
FINANCIAL RESOURCES

“SPEED DATING” FOR TRAINEES

In October 2016, Rheinmetall Waffe Munition took part in a “Trainee speed dating” event organized by the Employment Agency at Berufsbildende Schule 1 in Celle, for which 110 pupils signed up. They were given 15 minutes to demonstrate their skills to the Rheinmetall employees in attendance. Ten minutes were used for introductions and a one-on-one conversation, and five minutes could be used for feedback.

LEARNING ABOUT TECHNOLOGY – UP CLOSE AND PERSONAL

The Wilhelm-Maybach school in Stuttgart is a commercial vocational and technical school that focuses on vehicle technology, metal technology and casting, along with technical model construction. For many years, Rheinmetall Automotive has held an information event every two years featuring current technologies and a related product exhibition.

EDUCATIONAL AMBASSADORS IN
RHEIN-KREIS NEUSS

Ten Pierburg trainees took part in the “Educational ambassadors” project by the Chamber of Commerce and Industry, Mittlerer Niederrhein. They visited schools to share how they chose their training profession, gave tips on the application and interview process, and talked about their day-to-day experiences at the workplace.



RHEINMETALL SCHOLARSHIP PROGRAM

Back in 2012, Rheinmetall joined the “German Scholarship” initiative by the Federal Ministry of Education and Research. Under this program we are currently sponsoring five students from the Technical University of Munich, two from Otto-von Guericke University of Magdeburg, four from Leibniz

University of Hanover and five from Bremen University of Applied Sciences. The scholarship students also benefit from the specific support, counseling, and training program developed by Rheinmetall exclusively for this project.

GIRLS’ DAY OFFERS A LOOK AT TECHNICAL
AND SCIENTIFIC PROFESSIONS



Full concentration

Ten companies from the Automotive and Defence sectors took part in the 2016 Girls’ Day. We designed this special event to provide girls with career perspectives. It offers them a look at technical and scientific courses of study, which may inspire them to choose a career in these fields – particularly engineering.

PRISONER OF WAR MEMORIAL

About a kilometer from the Bergen-Belsen memorial is the Hörsten cemetery for prisoners of war, the final resting place for some 20,000 prisoners of war. These graves were dug as mass graves, without markers or names, mostly in the winter of 1941/42. To restore some identity and dignity to the the deceased prisoners of war, some time ago a school project was started with the help of the German War Graves Commission and the Bergen-Belsen committee. School classes made signs with the names of the dead, to be displayed at the cemetery. After an initial cooperation in 2014, Rheinmetall Waffe Munition was

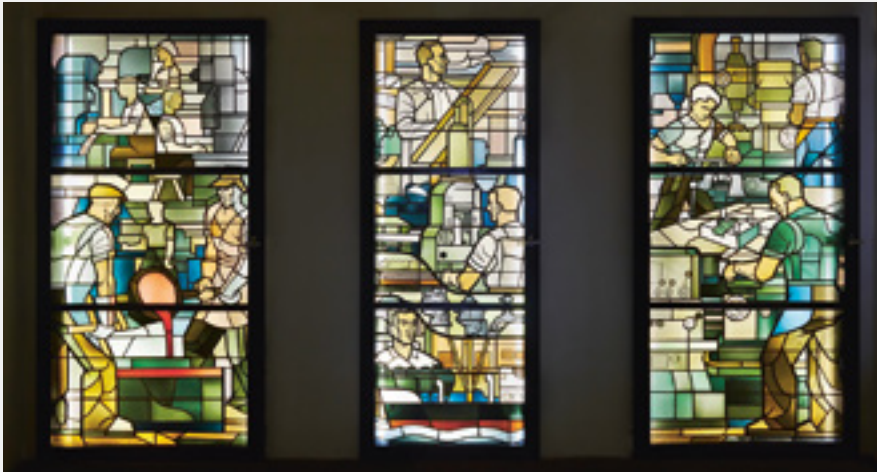
pleased to take part in this project for a second time. Special metal frames were needed to place the pupils’ clay signs on the wall that surrounds the cemetery. Ten trainees at the training workshop in Unterlüß made five of these special clay sign frames to display the signs with the names of the Soviet prisoners of war.



PIERBURG DONATES ARTIST’S WINDOWS

After the merger of the Neuss and Nettetal locations into the Niederrhein plant, an arrangement of three artistic scenes from Hinsbeck painter Hans Füsser, showing typical workplace activities, remained at the closed Nettetal site. This precious gem was

donated to the city of Nettetal and can now be admired in the city hospital. These valuable mementos of an important part of Nettetal’s industrial history are thus safe and sound.



EXHIBITION ON THE HISTORY OF THE
HARTHA LOCATION

For nearly a quarter century, Pierburg has been continuing the tradition of electric engine construction at Hartha. It began in the 1920s, when businessman Erich Oemig and engineer Gustav Richard Sander founded Sander & Oemig on February 15, 1922. Back then it had 25 employees to manufacture small electric engines.



For the exhibition, Pierburg converted an old building on its site. In carefully curated rooms, visitors can see interesting exhibits relating to the plant’s past and the history of electric engine construction in Hartha. Some of the exhibits are on loan from the city of Hartha, which had to close its own museum of industry. On request, interested parties can tour the industrial history of electric engines in this small Saxon town. The museum will also have open house days and be accessible to school classes; naturally Pierburg will use the exhibition for its own employees and visiting customers.

CLASSIC CARS RE-LOADED – HISTORIC VEHICLES FROM ALL AUSTRIAN AUTOMOBILE MANUFACTURERS ARE ALSO RESTORED, HOUSED, MAINTAINED AND DRIVEN AT THE RHEINMETALL MAN MILITARY VEHICLES PLANT IN VIENNA



PUTTING A SHINE ON OLD TREASURES

Since 1999, Liesing (Vienna) has been home to the “Verein zur Förderung der historischen Fahrzeuge der österreichischen Automobilfabriken” (“Association for the promotion of historical vehicles from Austrian automobile factories”). Its mission is to maintain the classic cars from the now defunct ÖAF-Gräf & Stift AG, which was the predecessor to Rheinmetall MAN Military Vehicles (RMMV), and other former Austrian manufacturers. The association has some 280 members and 25 vehicles, eight of which are on display in our Rheinmetall Defence plant in Vienna. The association owns passenger cars, trucks, buses and fire trucks, along with vehicles from other long-forgotten companies.

The heads of the association are aware of only 24 passenger cars from Gräf & Stift around the world, five of which the association owns. Of course, the most valuable piece is the famous “Kaiserwagen” which is not located at the Liesing plant but in the Wagenburg, on the Schönbrunn Palace grounds.

Along with RMMV management, which provides an old production building for work on the classic cars and the plant’s infrastructure in Liesing, employees of RMMV also provide financial support to the association.

During open house events, the classic cars are presented to interested visitors and employees even get to take a ride in them around the premises during special employee events. Events like these bring RMMV’s history, and the development of Austrian automobile construction, to life.

The historic Kaiserwagen – the automobile of Emperor Charles, the last emperor of Austria and King of Hungary, was built in 1914 by Gräf & Stift. The vehicle is now on display in the Wagenburg of the Art History Museum in Schönbrunn.

PISTONS FOR THE WINNERS OF THE VORARLBERG CLASSIC CARS COMPETITION

Rheinmetall Automotive took part in the 2015 Silvretta Classic Oldtimer Rally – and not just with working engine parts for many classic cars on the parkours. The winners of this renowned classic car competition in Vorarlberg, which got its start in 1998, received pistons made by KS Kolbens Schmidt for their driving pleasure. The top trophies for the rally sponsored by magazines auto motor und sport and Motor Klassik were prizes for the Paul Pietsch Classic, Silvretta Classic and Sachsen Classic. The top-rated competitors received a piston with the name of the respective rally in an elegant black wooden box. One of these now has a place of honor in Hans-Joachim Stuck’s trophy cabinet too.

The 400 pistons manufactured by our company in Neckarsulm are ring carrier pistons for the Audi V-8 turbo engine. It is available as a series product on the market and can be found in the S6, S7, RS 6 and the Bentley. The piston is designed for up to 404 kW and in some cases up to 440 kW. It meets the latest emissions standards and EU-6.



The historic Kaiserwagen – the automobile of Emperor Charles, the last emperor of Austria and King of Hungary, was built in 1914 by Gräf & Stift. The vehicle is now on display in the Wagenburg of the Art History Museum in Schönbrunn

THE ENTREPRENEUR CITY – DISTRICT DEVELOPMENT IN DÜSSELDORF

As one of the oldest companies in Düsseldorf, Rheinmetall has been closely linked to the city for over 125 years. Following the relocation of defense technology production from Düsseldorf-Derendorf to Unterlüß in 1993, the long-term process of transforming the urban landscape began on the plot between Ulmen Straße, Heinrich-Ehrhardt-Straße and Rather Straße, which covers approximately 9 ha. We initiated this development and have actively monitored it over the years.

The “entrepreneur city” is a centrally located new urban quarter which is easy to reach and has created a unique mix of tradition of office buildings, media agencies,

fashion showrooms, attractive city apartments and lofts, a hotel, two restaurants and a number of leisure facilities. Thanks to our approach of maintaining assets and using existing structures in a well-thought-out manner, we realized an innovative overall concept that has gradually and sensitively combined a variety of architectural solutions and traditional buildings with one another in a fascinating way. The development of the urban quarter was completed after 15 years when our Group headquarters was relocated to a new building on the last available plot of land in spring 2016. We firmly believe that this lively landscape of services and housing is an asset for Düsseldorf and provides a model for other projects.

>€500 million FOR INVESTMENTS IN THE ENTREPRENEUR CITY

17 BUILDINGS

90,000 m² PLOT SIZE

158,000 m² GROSS FLOOR AREA



1 Rheinmetall headquarters (1999)
2 Hall 29 (2005)
3 Inside Premium Hotel (2008)
4 Loft 12 (2008)
5 Living Office II (2009)
6 Cuore (2010)
7 Lighthouse (2010)
8 doubleU (2011)
9 Hall 30 (2011)
10 casa altra (2011)
11 Delta » D (2016) with new Rheinmetall headquarters

PROMOTING INTEGRATION: FUTURE PROSPECTS FOR 100 REFUGEES.

No sooner said than done. Rheinmetall has been integrating young refugees into the Rheinmetall Automotive and Rheinmetall Defence training programs since fall 2016. We take our social responsibility seriously and invest in the future of young people out of conviction.

This applies both to our own employees as well as, in particular, to refugees, who would largely have no opportunities on the employment market without assistance from businesses. In addition to creating 50 training positions at short notice, we also enabled 50 young refugees to take internships within the Rheinmetall Group. Some of these interns have already qualified for our training program thanks to this starter opportunity. This initiative for refugees places us among the pioneers in the German economy.

Our objective is to offer refugees who have a prospect of remaining in Germany a real professional opportunity as part of our society. The decision to create 100 additional training and internship positions especially for refugees was taken back in the fall of 2015 at the peak of the refugee wave. The bureaucratic hurdles were initially very high and intensive preparation was needed to put the plan into action. When realizing the project we drew on our many years of experience in the area of international vocational training. For example, from 2012 to 2014

An instructor explains the profession of vehicle mechanic and the differences between vehicle and truck technology

around 200 junior and skilled Algerian employees received training and further education at the Kassel site.

This cooperation project with Algeria is approved by the German government and is part of a long-term technology partnership. Algeria, a major client for the Fuchs 2 wheeled tank, received support with developing its own Fuchs production as well as with an extensive training program. This too was about opening up professional opportunities for young people – albeit locally in their home country in this case.

We therefore view our commitment to refugees not as a one-off campaign to provide assistance, but rather as an expression of our international orientation and the culture of openness at Rheinmetall. We firmly believe that investing in training and intensive support for young refugees is worthwhile for our Company. However, we also expect openness and commitment from the applicants.

WE, TOO, WERE MOVED BY THE DIFFICULT SITUATION OF THE PEOPLE WHO FLED TO GERMANY IN TIMES OF CRISIS. THIS IS WHY WE ARE DOING OUR PART TO INTEGRATE REFUGEES INTO SOCIETY. THE BEST WAY TO DO THIS AS A COMPANY IS TO OFFER YOUNG PEOPLE A TRAINING PERSPECTIVE AND CAREER OUTLOOK AS EARLY AS POSSIBLE



A trainer explains the basics of engine technology

A requirement for acceptance onto the program is a residence and employment permit for Germany. In order to meet the sensitive security requirements in the Defence sector, the applicants were very thoroughly checked in terms of suitability, talents and skills. The range of training occupations and qualification measures is aimed at training the applicants both for applications at Rheinmetall and the free market, as well as giving them key professional and social skills that will have a positive effect on their ongoing (professional) life. With demographic trends in mind, Rheinmetall has also selected professions that are forecast to be in greater demand in the coming years.

DIFFERENT METHODS, ONE GOAL: SUCCESSFUL INTEGRATION

The two Rheinmetall sectors take different approaches when specifically designing training: Defence will train vehicle mechatronics and welding engineers centrally in a training center specially created for such training in Kaufungen, near Kassel. In contrast, the vocational training programs offered in the Automotive sector are organized on a decentralized basis so that the trainees can be deployed wherever required in different production plants around Germany.

Here, the first refugees are currently learning industrial training occupations, including electronics technician for manufacturing technology, industrial and machining mechanic and toolmaker. In both sectors the young men go through the same processes as their German colleagues in terms of subject matter, with content and objectives related to their respective training occupation. However, the refugees receive more intensive supervision so that rapid, targeted support is possible in unfamiliar situations.

Language acquisition is especially important and targeted support is provided both at the Company as well as through additional language school visits.

The aim of learning together at vocational school is to promote integration and the mutual exchange of ideas. And for both sectors it is also important to impart key social values, such as team building, professionalism, independence, fairness and tolerance, alongside technical expertise. We firmly believe that integration can succeed in this way.

50
TRAINING PLACES
FOR REFUGEES

50
INTERNSHIPS FOR
REFUGEES

PARTICIPANTS FROM

AFGHANISTAN
ALGERIA
IRAN
YEMEN
MOROCCO
MOLDOVA
PAKISTAN
SYRIA

The principles of tool handling



Performing work orders on a training vehicle



GOALS AND PROGRAMS 2017 – 2018

01

Conducting the first employee satisfaction survey at the Rheinmetall Group's locations (2017)

02

Conducting a health day at all of the Rheinmetall Group's European locations (2017)

03

Adopting a new Code of Conduct (2017)

04

Signing the Diversity Charter (2017)

05

Diversity Policy passed for the Rheinmetall Group (2017)

06

UN Charter for the "Universal Declaration of Human Rights" – signing of the statement of principle that Rheinmetall will fulfill its responsibility to observe human rights (2017)

07

Donations and Sponsorships policy introduced (2017)

08

Broadening of stakeholder dialog based on the materiality analysis (2017 – 2018)

09

Continuing the development of online reporting on corporate social responsibility topics (2017 – 2018)

10

Further increasing employees' awareness of sustainability topics (2017 – 2018)

11

Negotiating and adopting social responsibility principles (2017 – 2018)

12

Increasing the proportion of female employees and women in management positions within the German Rheinmetall Group companies (2017 – 2018)

13

Increasing the international focus of employer branding (2017 – 2018)

14

Preparing and implementing the second Intrapreneur Awards (2017 – 2018)

15

Expanding certification of the ISO 50001 energy management system (2017 – 2018)

16

Expanding certification of the ISO 14001 environmental management system (2017 – 2018)

17

Reducing energy requirements for operating buildings (2017 – 2018)

18

Responsibility in the supply chain:
Enhancing and expanding systematic supplier screening (2017 – 2018)

19

Continuing the integration project for refugees (2017 – 2018)

20

Participation in the carbon disclosure project (2018)

DATA AND FACTS

REPORT PROFILE

With this first sustainability report, the Rheinmetall Group intends to give an account of its corporate responsibility. We provide information on our contributions, document key figures along with goals and activities from 2017 to 2018. The report content pertains to the Rheinmetall Group unless otherwise indicated. 83 of 178 companies were included in the sustainability indicators. The reporting period is the 2016 fiscal year (January 1 to December 31). The report was produced in conformity with version 4.0 of the Global Reporting Initiative rules, as currently applicable, based on the “Core” option. However, due to the local organizational structure of the Rheinmetall Group and specific country conditions, it is not possible to report in full on all performance indicators required by the GRI. We conducted a materiality analysis in order to prepare this report. The topics prioritized in the analysis determine the content of this report. We will work on the further improvement and formalization of our systems, processes and internal controls for our environmental reporting in order to achieve continuous improvements to data quality.

Editorial note: To improve readability, the masculine form has mainly been used in this report where gender-specific terms appear. The editorial deadline was March 31, 2017. At present, a reporting cycle of two years is planned. The corporate social responsibility report is available in German (original version) and English (non-binding translation). Both versions can be accessed at rheinmetall.com. The figures presented in the report have been rounded in some cases in order to improve readability.

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G4-7 SHAREHOLDER STRUCTURE RHEINMETALL AG AS OF DECEMBER 31 (IN % OF COMMON STOCK)

	2016	2015
Institutional investors	70	66
Europe	45	37
North America	24	29
Rest of world	1	0
Private shareholders	17	17
Rheinmetall Treasury Stocks	2	2
Other	6	8
Not identified	5	7

G4-10 RHEINMETALL GROUP EMPLOYEES BY CATEGORY (PERSONS)

	2016	2015
Employees	23,044	22,640
Men	18,476	18,066
Women	4,568	4,573
Trainees	747	822
Domestic	392	480
Foreign	355	342
Part-time staff	938	898

G4-10 HEINMETALL GROUP EMPLOYEES BY REGION (PERSONS)

	2016	2015
Total	23,044	22,640
Domestic	11,536	11,323
Foreign	11,508	11,317
EU excluding Germany	5,498	5,402
North America	2,171	1,321
South America	1,168	2,176
Asia	1,235	1,167
Africa	1,268	1,132
Australia	168	119
Ratio abroad %	49.9	50.0

G4-10 RHEINMETALL GROUP GERMANY EMPLOYEES BY CATEGORY (PERSONS)

	2016	2015
Pay scale employees	8,797	8,898
Non-pay scale employees	1,351	1,370
Managers	230	238

G4-10 FEMALE EMPLOYEES RHEINMETALL GROUP (PERSONS)

	AUTOMOTIVE		DEFENCE		HOLDING + SERVICE COS.		RHEINMETALL GROUP	
	Number	%	Number	%	Number	%	Number	%
2016	2,558	21.7	1,900	17.3	80	41.5	4,568	19.8
2015	2,662	22.2	1,833	17.5	78	42.2	4,573	20.2

G4-10 RHEINMETALL GROUP EMPLOYEES BY SEGMENT (PERSONS)

	2016			2015		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Rheinmetall Automotive	4,949	6,964	11,913	4,854	7,125	11,979
Rheinmetall Defence	6,394	4,544	10,938	6,284	4,192	10,476
Rheinmetall Holding and service companies	193	0	193	185	0	185
Rheinmetall Group	11,536	11,508	23,044	11,323	11,317	22,640

G4-10 RHEINMETALL GROUP EMPLOYEES BY GENDER, DOMESTIC AND FOREIGN (PERSONS)

	2016			2015		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Women	2,290	2,278	4,568	2,253	2,321	4,574
Men	9,246	9,230	18,476	9,070	8,996	18,066
Rheinmetall Group	11,536	11,508	23,044	11,323	11,317	22,640

G4-10 EMPLOYEES BY EMPLOYMENT RELATIONSHIP, RHEINMETALL GROUP (PERSONS)

	2016		2015	
Full time	22,106	96%	21,742	96%
Part time	938	4%	898	4%
Rheinmetall Group	23,044	100%	22,640	100%

G4-10 EMPLOYEES BY CONTRACT TYPE, RHEINMETALL GROUP (PERSONS)

	2016		2015	
Indefinite	21,930	95.2%	21,555	95.2%
Temporary	1,114	4.8%	1,085	4.8%
Rheinmetall Group	23,044	100.0%	22,640	100.0%

G4-EC1 RHEINMETALL GROUP REVENUES BY REGION (million €)

	2016		2015	
Germany	1,315		1,361	
North & South America	1,748		1,806	
Americas	766		698	
Asia	1,196		1,084	
Other regions	577		234	
Rheinmetall Group	5,602		5,183	

G4-EC1 PERSONNEL EXPENSES RHEINMETALL GROUP

	2016		2015	
	million €	%	million €	%
Personnel expenses	1,465	26	1,390	27
	€ '000		€ '000	
Personnel expenses/employee	64		61	
Sales/employee	243		229	

G4-EC1 DONATIONS AND SPONSORSHIPS, RHEINMETALL GROUP (€)

	2016		2015	
Donations	576,210		482,849	
Sponsorship	803,557		653,565	
Rheinmetall Group	1,379,767		1,136,414	

G4-EC3 PENSION PROVISIONS, RHEINMETALL GROUP (million €)

	2016		2015	
Rheinmetall Group	1,186		1,128	

G4-EN1 RAW MATERIALS USED, RHEINMETALL GROUP (t)

	2016		2015	
Steel	17,001		17,936	
Aluminum	4,923		5,235	
Aluminum alloy	25,413		28,017	
Lead	356		391	
Copper	1,581		1,730	
Copper alloy	9,272		9,658	

G4-EN3 ENERGY CONSUMPTION RHEINMETALL GROUP WITHIN THE ORGANIZATION BY ENERGY SOURCE (MWh)

	2016		2015	
Electricity (purchased from third parties)	1,094,584		992,175	
District heating	83,571		81,692	
Heating oil	87,680		85,041	
Diesel	317,713		342,836	
Natural gas	1,779,715		1,583,503	
Coal	16,237		11,151	
Liquefied petroleum gas	12,978		12,506	
Renewable energies	876,505		723,835	
Rheinmetall Group	4,268,983		3,832,739	

Data is based on meter readings or invoices (if available) and estimates by the companies

G4-EN8 WATER CONSUMPTION, RHEINMETALL GROUP (m³)

	2016		2015	
Fresh water	3,108,291		3,038,305	

Data is based on meter readings or invoices (if available) and estimates by the companies

G4-EN15 DIRECT GREENHOUSE GAS EMISSIONS (SCOPE 1) RHEINMETALL GROUP (t CO₂)

	2016		2015	
Heating oil	5,347		8,801	
Diesel	45,377		44,887	
Natural gas	198,583		199,702	
Liquefied petroleum gas	2,982		2,889	
Rheinmetall Group	252,289		256,279	

Data is based on meter readings or invoices (if available) and estimates by the companies

G4-EN16 INDIRECT ENERGY-RELATED GREENHOUSE GAS EMISSIONS (SCOPE 2) RHEINMETALL GROUP (t CO₂)

	2016		2015	
Electricity (purchased from third parties)	486,939		455,205	
District heating	9,728		11,620	
Rheinmetall Group	496,667		466,825	

Data is based on meter readings or invoices (if available) and estimates by the companies

G4-EN17 FURTHER INDIRECT GREENHOUSE GAS EMISSIONS, RHEINMETALL GROUP GERMANY (SCOPE 3)

	2016		2015	
	km	t CO₂	km	t CO₂
Air travel	70,813,000	10,346	66,683,000	9,573

CO₂ emissions according to Verband Deutsches Reisemanagement e.V. (German Travel Management Association) without the Radiation Forcing Index (RFI)

G4-EN22 WASTEWATER DRAINAGE RHEINMETALL GROUP (m³)

	2016	2015
Wastewater	1,242,717	1,257,203
Data is based on meter readings or invoices (if available) and estimates by the companies		

G4-EN23 WASTE VOLUME RHEINMETALL GROUP UNDER ART (t)

	2016	2015
Non-hazardous waste for disposal	4,879	5,354
Non-hazardous waste for recycling (without scrap)	25,372	22,919
Scrap for recycling	19,547	21,171
Hazardous waste for disposal	6,013	4,915
Hazardous waste for recycling	5,898	6,884
Rheinmetall Group	61,709	61,243

G4-LA1 HIRES RHEINMETALL GROUP BY CATEGORY PERSONS (PERSONS)

	2016			2015		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Transfers within the group	202	70	272	98	67	165
External labor market	724	1,423	2,147	825	1,531	2,356
Trainees taken on	103	52	155	117	51	168
Rheinmetall Group	1,029	1,545	2,574	1,040	1,649	2,689

G4-LA1 DEPARTURES RHEINMETALL GROUP BY REASON (PERSONS)

	2016			2015		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Employer-based	37	22	59	Not measured	Not measured	Not measured
Employee-based	148	462	610	145	470	615
Other reasons	510	848	1,358	567	917	1,484
Rheinmetall Group	695	1,332	2,027	712	1,387	2,099

G4-LA3 EMPLOYEES ON PARENTAL LEAVE, RHEINMETALL GROUP GERMANY (PERSONS)

	2016	2015
Male employees	210	67
Female employees	109	84
Rheinmetall Group	319	151
number of whom returned part-time	34	43

G4-LA6 OCCUPATIONAL AND COMMUTING ACCIDENTS, RHEINMETALL GROUP GERMANY (NUMBER)

	2016	2015
Occupational accidents on site	636	548
Commuting accidents not on site	99	84
Incidents	735	632

G4-LA6 ABSENCES, RHEINMETALL GROUP GERMANY (HOURS)

	2016	2015
Rheinmetall Group	3,659,609	3,539,472

G4-LA6 ILLNESS RATE, RHEINMETALL GROUP GERMANY (%)

	2016	2015
Rheinmetall Group	5.6	5.2

G4-LA9 FURTHER TRAINING RHEINMETALL GROUP

	2016	2015
Further training measures	3,996	3,392
share of further specialist training	2,521	2,294
share of further general training	945	919
share of further management training	530	179
Further training days	20,177	17,273
Participants	11,690	9,451
share of women	2,065	1,818
share of men	9,625	7,633
Costs	5.7	4.7
Share of personnel expenses	0.4	0.3

G4-LA12 RHEINMETALL GROUP MANAGEMENT LEVEL BY GENDER (PERSONS)

	2016		2015	
	Men	Women	Men	Women
Executive Board of Rheinmetall AG	3	0	3	0
Executive Board Rheinmetall Automotive	3	0	3	0
Management Board Defence	6	0	6	0
Level 1 – Management/business unit management	110	3	89	4
Level 2 – Main department management	358	36	305	25
Level 3 – Department management	834	101	755	86
Level 4 – Team management	902	107	789	51

G4-LA12 COMPOSITION OF SUPERVISORY BOARD, RHEINMETALL AG

	2016	2015
< 30 years	0	0
30 to 50 years	2	2
> 50 years	14	14

G4-LA12 COMPOSITION OF SUPERVISORY BOARD, RHEINMETALL AG BY GENDER (PERSONS)

	2016	2015
Female members	4	4
Male members	12	12
Total	16	16

G4-LA12 AGE STRUCTURE RHEINMETALL GROUP

	2016	2015
≤ 24 years	805	837
25 to 29 years	2,076	2,045
30 to 39 years	5,619	5,440
40 to 49 years	5,619	5,629
50 to 59 years	5,900	5,890
≥ 60 years	1,927	1,789
Rheinmetall Group*	21,946	21,630

* Entire staff minus various employee groups, such as trainees

KEY GLOBAL CHALLENGES

Global challenge	Description	Relevance for the Rheinmetall Group	Significant GRI aspect	Aspect has an impact *	Classification of CR pillars
CLIMATE CHANGE	The Federal Environment Agency estimates that by 2100, the average global temperature will rise between 1.8 and 4.0 Celsius. A temperature change of this kind would be bigger than any natural temperature fluctuations seen in the last centuries. It is rising faster than in the last 10,000 years. If greenhouse gases are not reduced, it is very likely that temperatures will rise by 0.2 degrees Celsius per decade for the next 30 years.	The automobile industry among others must reduce its CO ₂ emissions and other greenhouse gases along with nitrous gases and other pollutants. The development and use of alternative drives take high priority. Rheinmetall Automotive is already working on mobility of the future; its products help to comply with CO ₂ limits.	Energy	●	Production
			Emissions	●	Product solutions
			Transport	●	
TENSE SECURITY SITUATIONS AND NEW THREATS	Blurred boundaries between peace and war, latent trouble spots, the outbreak of unresolved conflicts and their unintentional or intentional military escalation, military interventions, the spread of terrorism, shifts of power between major regional players, migration flows on an unprecedented scale, new possibilities to influence opponents' domestic politics due to digitalization, organized crime as a transnational threat and the consequences of the collapse of state structures in countries in geopolitically sensitive regions, call for new answers to the significantly heightened challenges and constant risks associated with external and internal security and new and/or extended and powerful capabilities for international efforts to maintain stability, security and peace.	All development, production and service activities of Rheinmetall Defence are geared towards ensuring the best possible protection for soldiers on deployment. Whether it is for requirements specific to different branches of the armed forces or overall requirements, whether it is for external or internal security, Rheinmetall Defence has a wide product portfolio of platforms and components, which are offered as individual and networked system solutions. This makes Rheinmetall Defence a strong and reliable partner to the German armed forces, their allies and friendly armies, along with civil national security forces.		●	Product solutions
SCARCE RESOURCES	Natural resources such as water, energy and land for development, along with raw materials, are needed for lifeand industry. The excessive use of resources leads among other things to a shortage of drinking water, desertification and erosion, along with rising costs of commodities and materials.	As a production company, the Rheinmetall Group is also affected by a potential shortage of resources. This could endanger a steady supply of commodities and materials. The finite nature of fossil fuels also requires the development of alternative drives.	Materials	●	Production
					Product solutions
ENVIRONMENTAL POLLUTION	It is predicted that in 2025, more than six million tons of waste will be generated per day. The global rise in waste has an extreme impact on humans, flora and fauna. Apart from the fact that each year, more than five million people die from waste-related illnesses, our oceans are drowning in garbage with more than ten million tons of waste per year. They have caused the deaths of tens of thousands of marine animals.	Rheinmetall Group endeavors to limit the environmental impact of its business activities. This include the continuous reduction of waste volume where possible.	Waste	●	Production
			Compliance with environmental regulations (Compliance)	●	

* Aspect boundaries



Within the company



Outside the company



Both

Global challenge	Description	Relevance for the Rheinmetall Group	Significant GRI aspect	Aspect has an impact *	Classification of CR pillars
URBANIZATION	We are on the verge of a new phase in urbanization. For the first time in human history, more than half of the world's population lives in cities – and the trend continues. Although cities account for only 2% of the earth's surface, they use 75% of global energy and produce 80% of all greenhouse gas emissions. These are huge challenges, including with regard to mobility concepts.	Living in large cities and metropolitan areas requires efficient transport solutions along with intelligent mobility in order to provide a good quality of life and protect the environment. In this regard, the Rheinmetall Group's Automotive sector has engine systems and components to help reduce fuel consumption and the emission of pollutants. Rheinmetall Automotive also works intensively on drives for the electric and hybrid vehicles of the future.	Transport	●	Product solutions
		Transnational organized crime, uncontrolled illegal migration, a rise in violence, new forms of terrorism – as the population grows in mega cities, we are seeing new and increased risks. Among other things, this requires changes in equipment for armed forces that protect internal security. Rheinmetall Defence also provides a comprehensive product line in the area of public security to equip security forces in the best possible manner.	Emissions	●	Product solutions
DEMOGRAPHIC CHANGE	Global population growth in general, low birth rates in industrialized nations, rising life expectancy thanks to better medical care and a change in working conditions, greater prosperity in many countries – demographic change is having a permanent impact on society. These trends also impact the composition of workforces.	In view of demographic factors and the anticipated skills shortage in many places, the recruitment and advancement of employees, talented management trainees and experienced specialist and managerial staff in line with current and future requirements is a key factor in the successful achievement of the Rheinmetall Group's ambitious growth targets and its future viability. This is why we continually invest large sums in further training for our approximately 23,000 employees.	Further education	●	Employees
HEALTH	Physical strain, a lack of exercise and psychological problems such as stress, overwork and burnout are major challenges with regard to health and place a burden on the insurance systems in our society. Environmental pollution can also cause health problems.	As an industrial company with production sites, the topic of occupational health and safety have always been a priority at the Rheinmetall Group. We maintain and promote our employees' health, performance and work satisfaction through continual improvements to the work environment, appropriate resources such as ergonomic aids and protective equipment and a variety of preventive programs and health-promoting measures.	Occupational health and safety	●	Employees
DIVERSITY AND EQUAL OPPORTUNITY	We consider diverse cultures and languages, ethnic and social backgrounds, skills, talent and opinions to be an advantage for our corporate culture and collaboration.	As an international, cosmopolitan company, it is a matter of course that we treat all employees equally. Our corporate culture is designed to ensure that each and every employee can incorporate their personal qualities, skills, expertise and commitment and contribute to the long-term achievement of our corporate goals.	Training and further education	●	Employees
	Regardless of gender, origin, age, disability or sexual orientation, everyone must be treated equally.		Diversity and equal opportunity	●	

RESULTS OF MATERIALITY ANALYSIS - EFFECTS

	Effect			Impact
	Internal	Internal/External	External	
Very material				
Technology and innovation		●		Forward-looking focus of technologies, systems and products; long-term corporate success
Customers		●		High customer retention; long-term corporate success
Competitiveness		●		Long-term corporate success
Material				
Long-term value enhancement		●		Long-term corporate success
Compliance		●		Transparent business processes; long-term corporate success
Internationalism		●		Reinforcement of competitive strength; use of growth opportunities; long-term corporate success
Product quality and safety		●		Assured compliance with standards; high customer retention
Capital expenditures		●		Secured technological skills; reinforcement of operational strength; improvements to efficiency; long-term corporate success
Supply chain		●		Transparent business processes
Energy efficiency		●		Improved resource conservation; low environmental impact
Fair remuneration	●			Long-term employee retention; reinforcement of employer brand
Employee satisfaction	●			Long-term employee retention; reinforcement of employer brand
Training and further education	●			High employee skill levels at all locations
Attractive employer		●		Strengthening of employer brand
Material under certain conditions				
Corporate citizenship		●		Assumption of corporate responsibility
Diversity and equal opportunity	●			Reinforcement of intercultural skills
Work/life balance	●			Greater employee retention
Immaterial				
Corporate volunteering		●		Assumption of corporate responsibility
Biodiversity and nature conservation		●		Assumption of corporate responsibility
Sustainable construction		●		Assumption of corporate responsibility

CERTIFICATE

Certificate type	Standard	Rheinmetall Automotive	Rheinmetall Defence	Rheinmetall AG
Quality management	DIN EN ISO 9001	23	35	1
Environmental management	DIN EN ISO 14001	27	11	0
Quality management system for series and replacement parts production in the automobile industry	ISO/TS 16949	34	0	0
Requirements for skills at testing and calibration labs	ISO/IEC 17025	0	3	0
IT – service management	ISO/IEC 20000-1	0	0	1
Information security management	ISO/IEC 27001	18	0	1
Energy management	DIN EN ISO 50001	6	8	0
Occupational safety management	BS OHAS 18001	4	4	0
NATO quality assurance requirements	AQAP 2110	0	5	0
NATO quality assurance requirements	AQAP 2120	0	1	0
NATO quality assurance requirements	AQAP 2130	0	1	0
NATO quality assurance and supplemental requirements	AQAP 2110/2210	0	7	0
Quality requirements for defense technology products	DIN 2303 Q1, Q2	0	3	0
Quality requirements for defense technology products	DIN 2303 Q3	0	2	0
Quality requirements for fusion welding	DIN EN ISO 3834-2	0	3	0
Rheinmetall Group		112	83	3

ASSOCIATION MEMBERSHIPS

List (not exhaustive)
BCM – Berufsverband der Compliance Manager (German Professional Association of Compliance Managers)
BDSV – Bundesverband der Deutschen Sicherheits – und Verteidigungsindustrie e.V. (Federal Association of the Security and Defence Industry)
DGAP – German Council on Foreign Relations
DWT – DEUTSCHE GESELLSCHAFT FÜR WEHRTECHNIK e.V. (German Defence Technology Society)
Deutsche Oper am Rhein
DIRK – Deutscher Investor Relations Verband E.V. (German Investor Relations Association)
DICO e.v. – Deutsches Institut für Compliance e.V. (German Institute for Compliance)
Association of the German Army
Forum Luft- und Raumfahrt e.V. (Aerospace Forum)
Gesellschaft der Freunde und Förderer der Tonhalle Düsseldorf e.V. (Friends and Patrons of Tonhalle Düsseldorf)
NUMOV – German Near and Middle East Association
Regional member associations of M+E Gesamtmetall at various locations
TRACE International, Inc.
VDA – German Automotive Industry Association
Verein zur Förderung des Kunst- und Kulturraumes Hombroich e.V. (Art and Cultural Promotion Society, Hombroich)

GRI CONTENT INDEX

GRI Indicator	General Standard Disclosures	Page	Reference	UNGC
Strategy and analysis				
G4-1	Statement by the CEO	004		
G4-2	Effects of business activity and risks and opportunities		084 2016 Annual Report	
Organizational profile				
G4-3	Name of organization	011	024 2016 Annual Report	
G4-4	Brands, products and services	052; 067 et seq.	Website, Rheinmetall Group	
G4-5	Location of the organization's headquarters	011	024 2016 Annual Report	
G4-6	Countries of business activity	018	024 2016 Annual Report	
G4-7	Nature of ownership and legal form	011	024 2016 Annual Report	
G4-8	Markets served	011	024 2016 Annual Report	
G4-9	Scale of organization	014	024 2016 Annual Report	
G4-10	Employee statistics	100	058 2016 Annual Report	6
G4-11	Number of employees under a collective bargaining agreement		Not reported	3
G4-12	Supply chain	122	026 2016 Annual Report	
G4-13	Changes during the reporting period		None	
G4-14	Precautionary approach		084 2016 Annual Report	
G4-15	Support for charters, principles, initiatives		Not reported	
G4-16	Association memberships	153		
Identified material aspects and boundaries				
G4-17	Companies in the consolidated annual financial statements	144	179 2016 Annual Report	
G4-18	Definition of report content	118		
G4-19	Key aspects	118; 145		
G4-20	Aspect boundaries within the organization	145; 152		
G4-21	Aspect boundaries outside the organization	145; 152		
G4-22	Effect of restatement of information		N/A	
G4-23	Changes from previous reporting periods		N/A	
Stakeholder engagement				
G4-24	Stakeholder groups engaged	118		
G4-25	Identification and selection of stakeholders	118		
G4-26	Stakeholder dialog	118		
G4-27	Key topics for stakeholders	118		
Report profile				
G4-28	Reporting period	144		
G4-29	Date of last report		N/A	
G4-30	Reporting cycle	144		
G4-31	Contact point for questions on the report	158		
G4-32	GRI Index	154		
G4-33	External assurance for the report		Not externally reviewed	
Governance				
G4-34	Governance structure	013	024 2016 Annual Report	
G4-35	Delegation of authority		106 2016 Annual Report	
G4-36	Responsibility for economic, environmental and social topics		108 2016 Annual Report	
G4-37	Consultation process		106 2016 Annual Report	
G4-38	Composition of the highest governance body		006 2016 Annual Report	
G4-39	Chair of highest governance body		006 2016 Annual Report	
G4-40	Nomination and selection processes		110 2016 Annual Report	
G4-41	Conflicts of interest		111 2016 Annual Report	
G4-42	Role of highest governance body in defining the organization's goals, values and strategy		025 2016 Annual Report	
G4-43	Collective knowledge		007 2016 Annual Report	
G4-44	Performance evaluation		Not reported	
G4-45	Highest governance body's role in risk management		007 2016 Annual Report	
G4-46	Review of effectiveness		010 2016 Annual Report	
G4-47	Frequency of review		010 2016 Annual Report	
G4-48	Review and approval of sustainability report	118	025 2016 Annual Report	
G4-49	Reporting process to the highest governing body		108 2016 Annual Report	
G4-50	Report on nature and type of critical concerns		007 2016 Annual Report	
G4-51	Remuneration policy		124 2016 Annual Report	
G4-52	Determination of remuneration		124 2016 Annual Report	
G4-53	Accounting for stakeholders' views		107 2016 Annual Report	
G4-54	Ratio of total annual compensation		Not reported	
G4-55	Total annual compensation		Not reported	
Ethics and integrity				
G4-56	Values, principles, standards and norms	012	121 2016 Annual Report	10
G4-57	Helplines, advice lines	028	120 2016 Annual Report	10
G4-58	Reporting mechanisms		120 2016 Annual Report	10

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GRI Indicator	General Standard Disclosures	Page	Reference	UNGC
Standard economic disclosures / EC1-EC9				
	Economic performance			
EC1	Economic value generated and distributed	130	049 2016 Annual Report	
EC2	Financial implications, risks and opportunities of climate change	150		7
EC3	Coverage of the defined benefit plan obligations		155 2016 Annual Report	
EC4	Financial assistance received from government		Not reported	
	Market presence			
EC5	Ratio of standard entry level wage to local minimum wage		Not reported	6
EC6	Proportion of senior management hired from the local community at significant locations of operation		Not reported	6
	Indirect economic impacts			
EC7	Development and impact of infrastructure investments and services supported	137		
EC8	Significant indirect economic impacts	036		
	Procurement			
EC9	Spending on local suppliers at significant locations of operation		Not reported	
Standard economic disclosures / EN1-EN34				
	Materials			
EN1	Materials used	147		7;8
EN2	Percentage of materials used that are recycled		Not reported	8
	Energy			
EN3	Energy consumption within the organization	147		7;8
EN4	Energy consumption outside the organization		Not reported	8
EN5	Energy intensity		Not reported	8
EN6	Reduction of energy consumption	106		8;9
EN7	Reductions in energy requirements of products and services		Not reported	8;9
	Water			
EN8	Water withdrawal by source	147		7;8
EN9	Water sources affected by water withdrawal		Not reported	8
EN10	Water recycled and used		Not reported	8
	Biodiversity			
EN11	Operational sites in or near protected areas	110		8
EN12	Impact on biodiversity	110		8
EN13	Protected or restored habitats	110		8
EN14	Red list species	113		8
	Emissions			
EN15	Direct greenhouse gas emissions (scope 1)	147		7;8
EN16	Indirect greenhouse gas emissions (scope 2)	147		7;8
EN17	Other indirect greenhouse gas emissions (scope 3)	147		7;8
EN18	Greenhouse gas emissions intensity		Not reported	8
EN19	Reduction of greenhouse gas emissions		Not reported	8;9
EN20	Emissions of ozone-depleting substances		Not reported	7;8
EN21	NOX, SOX and other significant air emissions		Not reported	7;8
	Effluents and waste			
EN22	Water discharge by quality and destination	148		8
EN23	Waste by type and disposal method	148		8
EN24	Significant spills		089 2016 Annual Report	8
EN25	Hazardous waste		Not reported	8
EN26	Water bodies and related habitats affected by discharges of water and runoff		N/A	8
	Products and services			
EN27	Mitigation of environmental impacts of products and services	63;81		7;8;9
EN28	Products sold and reclaimed		N/A	8
	Compliance			
EN29	Fines and sanctions for non-compliance with environmental laws		Not available	8
	Transport			
EN30	Significant environmental impacts of transport activities		Not available	8
	Overall			
EN31	Environmental protection expenditures		Not reported	7;8;9
	Supplier assessment			
EN32	Screening of suppliers using environmental criteria		Not reported	8
EN33	Environmental impacts in the supply chain		Not reported	
	Grievance mechanisms			
EN34	Grievances		Not available	

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GRI Indicator	General Standard Disclosures	Page	Reference	UNGC
Social standard disclosures: Labor practices and decent work / LA1-LA16				
	Employment			
LA1	New hires and employee turnover	148	061 2016 Annual Report	6
LA2	Benefits to full-time employees	94 – 95; 100		
LA3	Return to work after parental leave	148	062 2016 Annual Report	6
	Labor/management relations			
LA4	Minimum notice periods regarding operational changes	101		3
	Occupational health and safety			
LA5	Management-worker health and safety committees	100		
LA6	Type and rates of injury	148		
LA7	Incidence or risk of diseases		Not reported	
LA8	Health and safety topics covered in formal agreements with trade unions	100		
	Training and education			
LA9	Hours of training	092	060 2016 Annual Report	6
LA10	Skills management and lifelong learning	092	060 2016 Annual Report	
LA11	Employee performance reviews		060 2016 Annual Report	6
	Diversity and equal opportunity			
LA12	Composition of governance bodies and breakdown of employees by diversity indicator	149	110 2016 Annual Report	6
	Equal remuneration for women and men			
LA13	Ratio of basic salary and remuneration of women to men		No difference	6
	Supplier assessment			
LA14	Suppliers screened using labor practices criteria		Not reported	
LA15	Impacts on labor practices in the supply chain		Not reported	
	Grievance mechanisms			
LA16	Grievances about labor practices		Not available	
Social standard disclosures: Human rights / HR1-HR12				
	Investment			
HR1	Human rights aspects in investment agreements		Not reported	2
HR2	Training on human rights policies		Not reported	1
	Non-discrimination			
HR3	Incidents of discrimination		Not reported	6
	Freedom of association and collective bargaining			
HR4	Freedom of association and collective bargaining	101		3
	Child labor			
HR5	Risk of child labor		Not reported	5
	Forced or compulsory labor			
HR6	Risk of forced or compulsory labor		Not reported	4
	Security practices			
HR7	Training of security personnel		Not reported	1
	Indigenous rights			
HR8	Violations of rights of indigenous peoples		Not reported	1
	Assessment			
HR9	Assessments of operations		Not reported	1
	Supplier assessment			
HR10	Assessments of suppliers		Not reported	2
HR11	Impacts on human rights in the supply chain		Not reported	2
	Grievance mechanisms			
HR12	Grievances		Not reported	1

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GRI Indicator	General Standard Disclosures	Page	Reference	UNGC
Social standard disclosures: Society / S01-S011				
	Local communities			
S01	Implemented community engagement	130 – 139		1
S02	Impacts on local communities	130 – 139		1
	Anti-corruption			
S03	Operations assessed for risks of corruption	027	118 2016 Annual Report	10
S04	Communication and training on anti-corruption	027	120 2016 Annual Report	10
S05	Incidents of corruption		Not reported	10
	Public policy			
S06	Political contributions		Not reported	10
	Anti-competitive behavior			
S07	Legal actions for anti-competitive behavior or monopoly practices		Not reported	
	Compliance			
S08	Fines and sanctions for non-compliance with laws		Not reported	
	Supplier assessment			
S09	Assessments of suppliers		Not reported	
S010	Impacts on society in the supply chain		Not reported	
	Grievance mechanisms			
S011	Grievances		Not reported	
Social standard disclosures: Product responsibility / PR1-PR9				
	Customer health and safety			
PR1	Assessment of impacts of products and services on health and safety	034		
PR2	Non-compliance with regulations	034		
	Product and service labeling			
PR3	Product labeling	034		
PR4	Non-compliance with regulations	034	118 2016 Annual Report	
PR5	Customer satisfaction	119		
	Marketing communications			
PR6	Sale of banned or disputed products		Website, Rheinmetall Group	
PR7	Non-compliance with regulations	034	118 2016 Annual Report	
	Customer privacy			
PR8	Grievances		Not reported	
	Compliance			
PR9	Fines		Not reported	

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DESIGN

BrandsOnSpeed, Stuttgart

We want your feedback!

With our 2017 Sustainability Report we are offering a full and separate overview of our activities in the areas of business, environment and society for the first time as a complement to our online content. However, the information is not exhaustive. Not all topics can be covered in full, and of course we wish to keep improving in the area of sustainability. Your feedback can help us do that.

Please e-mail us at csr@rheinmetall.com.
Thanks very much in advance for your comments and suggestions.

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