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## *Building your tomorrow today*

Doosan has selected "*Building your tomorrow today*" as the corporate slogan, which is based on the conviction that companies must contribute to humankind and help to shape the future. All Doosan employees now embrace this slogan, and we continue to enhance our capabilities as a global company through our unique value and philosophy.

Doosan is working at this very moment to provide the basics necessary for improving the quality of people's lives. You are invited to watch how we are helping to shape the future for all.

# CEO Message



Extending our sincere gratitude to our shareholders and customers for their unwavering love and support for us, we pledge to be a global company that you can be proud of.

## To our esteemed shareholders and customers

Doosan, South Korea's first modern corporation, has undergone many changes over the past 123 years. In particular, in the latter part of the 1990s, we pursued rapid change through bold, unprecedented innovations, achieving remarkable growth. Doosan's global competitiveness has enabled it to establish worldwide operations with 40,000 employees in 36 countries.

Behind our great success is a venturesome, entrepreneurial spirit. This pioneering spirit that has driven us to journey into unknown territories remains deeply embedded in our DNA. For the past 123 years, Doosan has lived with great passion. Despite being the oldest company in Korea, our vibrant mindset keeps us young and unafraid of change.

Based on our solid business portfolio, Doosan has delivered robust and healthy growth. We keep a close watch on changing market trends to identify new growth engines. Furthermore, we are committed to achieving innovation and technology excellence, which will give us a strong competitive edge in the market and help us take our next great leap forward.

Doosan People impose no limits to our aspirations and possess true tenacity and drive, and therefore have the capability to utilize every available means to achieve our goals. Based on our people-oriented management philosophy, Doosan strives to become a "caring group of powerful people," who will lead the way to a brighter future for the company.

Doosan's focus on maximizing our shareholder value will remain firm. After switching to a holding company structure, Doosan has achieved greater transparency and stability in governance structure. We strive to establish a board-centric model of corporate governance throughout the entire corporation, including the holding company as well as all of its subsidiaries.

Even at this very moment, all of our employees from around the world do their utmost to maximize corporate value and deliver customer satisfaction, as we strive to become a "Proud Global Doosan." For a company with over 100 years of history, we also believe that it is our obligation to set good examples for others to follow and thereby have faithfully fulfilled our corporate social responsibilities.

We are here today thanks to the confidence and trust our shareholders and customers have in us. Our objective is to become a company that every shareholder and customer can be proud of. That is a commitment we solemnly pledge to all of you.

Thank you very much.

Chairman and CEO of Doosan Group  
**Jeongwon Park**





# About Doosan



# A History of Transformation

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## Korea's Oldest Enterprise

Doosan is Korea's oldest business organization with a proud history of 123 years. Doosan began in 1896 as Korea's first modern retail business, known then as the Park Seung-jik Store and has grown and developed for more than a century.

## A Journey of Dynamic Change and Innovation

Doosan's history represents a story of dynamic change and growth. In 1946, Chairman Too Pyung Park renamed the Park Seung-jik Store as the Doosan Mercantile Company, marking the start of our modern history. We diversified into brewing and international trade in the early 1950s and into construction, food & beverages, machinery, media and cultural services in the 1960s. By the 1970s, Doosan was well established as a leader in Korean consumer products and culture-related businesses and our construction, machinery, and electronics businesses entered high-growth stages. During the 1980s, we focused on becoming international while also venturing into publishing and advertising. In the 1990s, operations were divided into three business sectors: information & retail, consumer products, and high-tech materials.

In 1995, one year before our 100<sup>th</sup> anniversary, we began to rigorously restructure with an aim to reinvent ourselves for the 21<sup>st</sup> century. We sold flagship affiliates, including OB Beer, improved profitability by integrating 23 affiliates into 4 companies (Doosan Corporation, Doosan Engineering & Construction, Doosan Packaging and Oricom) and introduced advanced management systems.

## A Shift in the Business Portfolio

With a better financial health and improved cashflows, Doosan has accomplished remarkable change and growth through the acquisitions of new growth engines since 2000. Doosan acquired Doosan Heavy Industries & Construction (formerly, Korea Heavy

Industrial Construction), a company specializing in power generation and desalination, in 2001, followed by the Korea Development Corporation in 2004 and Infracore (formerly, Daewoo Heavy Industries & Machinery), a company specializing in construction machines and equipment, in 2005. These acquisitions allowed Doosan to extend its business portfolio from consumer goods to include industrial infrastructure, construction machinery and equipment, and production equipment.

In 2007, Doosan Infracore acquired U.S.-based Bobcat, the world's No. 1 compact construction equipment company, to emerge as a global maker of construction equipment ranging from compact to large models.

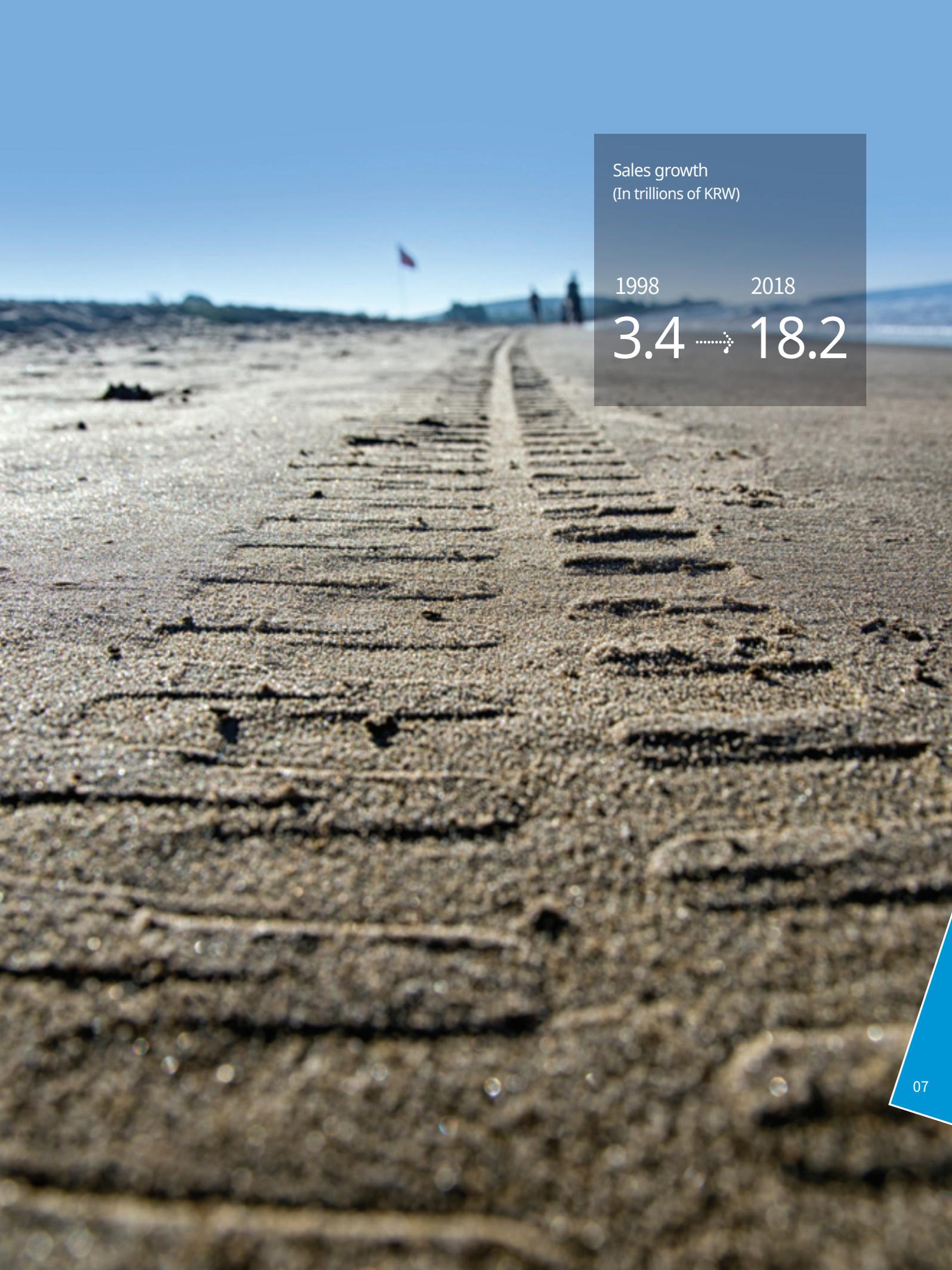
## Digital Transformation

Doosan is expanding its business domain by combining digital technology with the conventional manufacturing business. We are simultaneously paving the way for future manufacturing in preparation for the 4<sup>th</sup> industry revolution through the companywide digital transformation initiative.

## A New History as a Top-tier Global Enterprise

Having taken over several domestic and foreign companies that possess original technologies or are likely to boost synergies with its existing businesses, Doosan now operates 23 affiliates and 109 subsidiaries. Doosan generates 66% (as of 2018) of its total sales from overseas operations as it has developed markets overseas and forged technical alliances.

We vow to continue innovating without remaining complacent with our current achievements. We are also committed to offering outstanding products and services that our customers will trust and be proud of so we may grow as a global corporation collectively with customers.



Sales growth  
(In trillions of KRW)

1998

2018

3.4 → 18.2

# An Explosive Growth Record

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#### Average Annual Sales Growth : 10%

Doosan underwent a restructuring, which expanded its portfolio and achieved remarkable growth.

Sales (KRW 3.4 trillion in 2000) reached KRW 17.2 trillion in 2018, increasing at a 10 percent compound annual growth rate (CAGR). This achievement was made possible through the simultaneous pursuit of both organic and inorganic growth.

#### Exploration of Overseas Markets for Power and Water

As a global player in power and water, Doosan Heavy Industries & Construction has led the growth of Doosan Group by actively exploring overseas markets in the Middle East, India and Southeast Asia. Doosan Heavy Industries & Construction has also secured core source technologies for power plant equipment, such as boilers and turbines, by acquiring foreign businesses, including Babcock UK and Skoda Power, in the Czech Republic. We are widely recognized as the world's No. 1 in desalination technologies. Our overseas orders have been growing steadily, accounting for over 70 percent of the all new orders received by the mid-2000s. Furthermore, new orders reached a historic high of KRW 13.9 trillion in 2010.

#### Global Transition through Portfolio Diversification

Doosan Infracore has also grown remarkably through years of mergers and acquisitions. In 2007, the Company acquired Yantai Yuhua Machinery Ltd., a major Chinese wheel loader manufacturer. In the same year, Doosan Infracore also completed the acquisition of Bobcat, the global leader in compact construction equipment. This acquisition enabled us to become one of the world's major construction equipment manufacturers. Moreover, the company acquired Moxy Engineering A.S., a Norwegian articulated dump truck maker, successfully advancing into the mining equipment market.

#### Development of New Growth Engines

Doosan is committed to developing new businesses and technologies for the next 100 years. By entering the fuel cell business in 2014, which is a new and renewable energy, we are leading the global fuel cell market for power generation. We are developing new business fields such as gas turbines, offshore wind power, and battery foils in connection with Doosan's existing businesses. We are also concentrating on new businesses such as collaborative robots that work with people, and hydrogen fuel cell for drones that drastically increase the flight time of drones.

#### Transition to a Holding Company Structure for Sustainable Growth

Doosan has maintained constant growth by carrying out successful restructuring and switching its business portfolio. With the parent company -Doosan Corporation- at the center, the whole group has implemented even more transparent corporate governance, and has secured stable, longterm foundations for growth by focusing on core businesses and developing corporate values.

#### Sales (In billions of KRW)



In accordance with the Korean International Financial Reporting Standards (K-IFRS)



Annual sales growth  
rate since 2000

10%

# Global Expansion that Extends Our Reach

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### Accelerating Globalization

Our diverse business portfolio allows us to improve the lives of people around the world. Meanwhile, our drive for global expansion is accelerating, thanks to our talented workforce of 39,400 employees (as of the end of 2018) in 36 countries.

Doosan is employing 22,300 workers in 109 worksites around the world. In 2018 through global management, we created over KRW 12.286 trillion in sales, or 60% of our total sales, from overseas operations.

### Efficient Networks that Span the Globe

Doosan's production plants span the globe from the U.S. and Europe to Asia. Our production facilities are closely linked with the Korea-based headquarters and global R&D and engineering networks based in the U.S., India and Europe to ensure that customers worldwide receive top-quality products, technology and services.

### Global leader recognized by the World

Doosan is vaulting forward to become a leader in power generation, water, construction equipment, and construction.

Doosan has emerged as a global EPC contractor in the power plant segment. At the same time, Doosan is internationally recognized as the world's foremost builder of seawater desalination plants. We are now entering the multi-effect distillation (MED) segment, thereby furthering our market dominance.

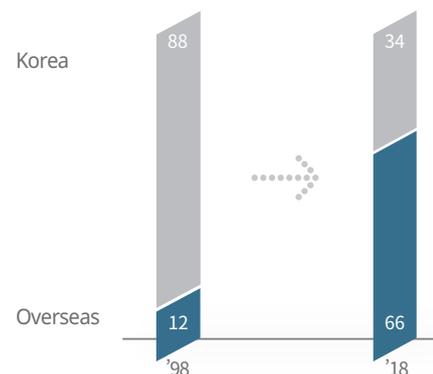
Doosan boasts a business portfolio that meets customer needs by offering a full line of products ranging from small to large-sized machines in the

construction machinery category. In particular, the Doosan Bobcat skid steer loader boasts the top steer loader in the world. The steam generators of commercial nuclear power plants and the forged-steel reinforcing rolls for thick-plate rolling mills have been selected as government-designated world-class products.

### Ongoing Investment for Stronger Competitiveness

We continue to strengthen operations and expand the business network by hiring and training globally competent talent. We are also adopting the International Financial Reporting Standards (IFRS) as part of our commitment to operating on the global stage and adhering to global standards.

Overseas vs. Korea Revenues (Unit: %)



An aerial photograph of a world map painted on a light-colored tiled floor. Two men in dark suits are walking across the map. One man is carrying a light-colored briefcase. The map shows the continents in a darker shade against the lighter tiles.

Our global workforce

39,400

in 36 countries

# The Doosan Credo

The values and philosophy that drive our growth

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## The Doosan Credo

The Doosan Credo is a set of principles that represent Doosan's philosophies and our unique way of doing business. These principles have been the foundation of Doosan's success for the past century. The Doosan Credo is integral to every aspect of our business and people, clearly guiding our decisions and the way we do business. Through the realization of these values, Doosan accomplishes its ultimate goal. The Credo consists of Doosan's "Aspiration" and "Core Values".

### Aspiration

Doosan's ultimate goal is the creation of a "Proud Global Doosan". In our Vision, each of our employees and all of our stakeholders will benefit from, and be proud of their association

with, Doosan. Every employee takes great pride in being a member of Doosan. Each customer recognizes and appreciates Doosan's high-quality goods and services. Every shareholder values our fair and high levels of profit.

### Core Values

Doosan People practice the nine core values of the Doosan Credo everywhere we operate, every day, to build a "Proud Global Doosan". These values guide the way we do business, the way we treat each other and the way we work with all of our partners. The nine core values of the Doosan Credo are as follows:

People / Cultivating People / Integrity and Transparency / Inhwa / Customers / World-class Technology and Innovation / Profit / Social Responsibility / Safety and Environment



### Strategy

Doosan's strategy is based on the principle of "2G"- Growth of Business by Growth of People. 2G is a virtuous circle in which people drive business growth, which in turn provides our people the opportunity for advancement.

Doosan believes that sustained success can only come through people. People have been the foundation of our success for the past century and will help us build our next hundred years. Such trust in our people lies at the very heart of Doosan's management philosophy.

### Doosan People

Doosan People are those who keep the Doosan Credo in their hearts and practice Doosan's distinctive traits everywhere they operate.

Traits of Doosan People are as follows:



Limitless Aspiration



Cultivating People



Inhwa



Open Communication



Tenacity & Drive



Prioritization & Focus

# Sponsorship

Promoting the Doosan brand through sports sponsorships

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## The Open

The Open is a time-honored and prestigious golf championship that was launched in 1860, making it the oldest tournament in the history of golf championships. It will celebrate its 149<sup>th</sup> anniversary this year and is one of the world's four major men's golf championships.

Since 2010, Doosan has officially sponsored The Open to promote the Doosan brand. We feature The Open-themed advertisements at the championships to promote Doosan's products and technologies, and present our slogan 'Building your tomorrow today!' to promote the Doosan brand identity and project a reliable corporate image.



## Doosan Match Play Championship

Since 2008, Doosan has held the Doosan Match Play Championship to support the development of golf in Korea. The Doosan Match Play Championship is an annual tour that is managed by the KPLGA and hosted by Doosan at the LADENA golf club in Chuncheon, Gangwon Province. The championship has been the only match play among the KPLGA tours.

The match play is conducted as the tournament type whose results come out immediately after the match, adding to excitement and easy understanding and making it greatly popular with galleries.



## Major League Baseball® (MLB®)

Since 2017, Doosan has carried out various marketing programs aimed at boosting our brand recognition in the U.S. and establishing our global market presence after signing an official sponsorship agreement with the Office of the Major League Baseball.

In addition, as a sponsor of the *New York Yankees*™, Doosan sponsors the team to carry out programs for strengthening our customer contact points. American professional baseball, which was established as a popular sport in the 1860s, is run with the participation of 15 teams in the *American League*™ and 15 teams in the *National League*™. Every year these teams play diverse matches, bringing joy and excitement to myriad fans around the world.

Major League Baseball trademarks and copyrights are used with permission of the applicable MLB entities. Visit [MLB.com](http://MLB.com)



## FC Viktoria Plzen

Doosan expands the value of its brand by supporting FC Viktoria Plzen, a prestigious football club in Europe, the home of football.

FC Viktoria Plzen is the most prestigious football club in the Czech League, and has won the Czech regular season championship and advanced to the finals of the UEFA Champions League.

Uniforms with the Doosan logo on and the exclusive stadium named 'DOOSAN Arena', the FC Viktoria Plzen is effectively advertising the Doosan brand in the European market.



# Our Businesses



# Doosan Heavy Industries & Construction

## Changing the world with cutting-edge technology and expertise

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**Korea's Leading Company in the Plant Business**  
Doosan Heavy Industries & Construction is Korea's leading producer of the machineries and equipment. We offer a wide variety of industrial products and facilities ranging from basic industrial materials such as castings and forgings to equipment and components for thermal, nuclear and wind power plants as well as transport and environmental facilities to our global customers in the plant business. Furthermore, our technologies and construction capabilities to execute plant construction, civil engineering and other largescale projects as a general contractor have been widely recognized at home and abroad.

**A Global Leader in Power and Water**  
Doosan Heavy Industries & Construction, a global leader in power and water, has received large-scale engineering, procurement and construction (EPC) projects in the Middle East, India and Southeast Asia since 2006, solidifying its position as a global EPC player in the power plant sector. Also, we have won orders for 30 desalination plants across the Middle East, including in Saudi Arabia, the UAE, Kuwait, Oman, and Qatar since 1978, enjoying the largest market share in the world. The amount of fresh water produced daily in these plants is about seven million tons, sufficient to meet the daily water requirements of 24.5 million people.

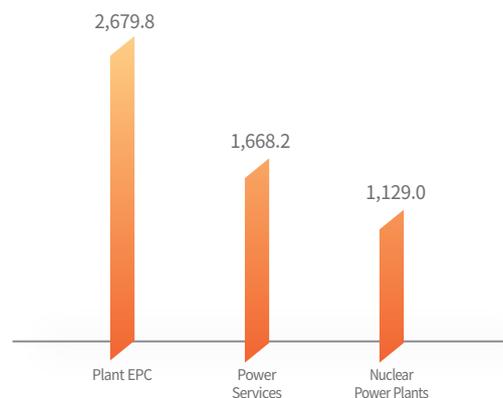
**Boost in Global Business Competencies**  
Doosan established Doosan Power Systems with Doosan Babcock in the UK and Doosan Škoda Power in the Czech Republic in a bid to go after the power plant market in Europe and the Americas. In May 2009, we completed a large-scale plant complex in the Dung Quat industrial park in Vietnam to fabricate parts for generators, material-handling systems, and water desalination facilities. To secure capacity to win new orders in the Indian market, the Company acquired Chennai Works, a maker of boilers for thermal power plants located in Chennai, the largest city in southern India, in 2011, and took over German-based Lentjes in a bid to secure proprietary technology for eco-friendly power facilities.

In 2012, Doosan purchased the water treatment specialist, Enpure, strengthening our capabilities in the reverse osmosis area and expanding our involvement in the water treatment business. And, in 2013, Doosan established global R&D centers in the UK, the Czech Republic, and Saudi Arabia to gain a competitive edge in the technology sector, and concentrated on building up the company's global technology capacity.

**Renewable Energy for Our Future Business**  
Doosan Heavy Industries & Construction continues to identify and seize new growth opportunities in the high value-added sector of power plant retrofits and services, while strengthening our core businesses at the same time. We are a leader in developing clean coal technologies, wind power generation and other next-generation energy technologies.

The Company completed a demonstration of the WinDS3000™, a 3MW-class offshore wind power generation system in 2010, and acquired international certification from DEWI-OCC, a world-renowned international wind power validation agency. Since winning the first order for a 9MW-class wind farm project in Sinan, South Jeolla Province, in 2010, the Company has successively acquired EPC projects to construct the 30MW-class Tamra offshore wind farm as Korea's first offshore wind farm project and the 24MW-class Yeongheung Wind Power Complex 2. We acquired the 5.5MW-class offshore wind power technology in 2017. We then expanded the wind power generation lineup in 2018 as we were selected as the lead entity for the state-led project to develop the 8MW large-capacity offshore wind power generation system. Additionally, the Company is making great strides in the eco-friendly, high-efficiency technology market by winning Korea's major 1000MW-class ultra-supercritical (USC) thermal power plant projects. In 2016, the Company acquired 1Energy Systems, a U.S.-based company that owns the original technology for energy storage systems (ESS), which guarantee a stable power supply from renewable energy sources. The company was then renamed Doosan GridTech.

2018 BG/BU divisional sales (In billions of KRW)



In accordance with the Korean International Financial Reporting Standards (K-IFRS)

Total power generation  
capacity

191.2<sup>GW</sup>



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## EPC

Doosan Heavy Industries & Construction has been working as an EPC contractor for power plant projects, providing a comprehensive package that includes the engineering, fabrication, procurement, installation, and commissioning processes. Doosan has laid the groundwork for expansion by winning large-scale projects in the Middle East, India and Southeast Asia . In 2016, we won orders for Vinh Tan 4 extension coal fired power plant in Vietnam, Fadhili combined-cycle power plant in Saudi Arabia, and Obra-C and Jawaharpur coal-fired power plants in India, among other big projects. In 2017, we signed a provisional agreement on the EPC provision for the Thabametsi coal-fired power plant in South Africa. In 2018, we concluded an MOU on the construction of Jawa coal-fired power plants Nos. 9 and 10 in Indonesia. We also signed an agreement to construct a Samcheok thermal power plant in the same year. All this proved Doosan to be one of the strongest players in the EPC market.

## Boilers

Doosan Heavy Industries & Construction has become a global leading company that possesses proprietary technologies and a strong track record in boilers and core power plant equipment since acquiring U.K.-based Babcock and German-based Lentjes. We enjoy world-class competitiveness in the area of thermal

power plant technology, offering solutions for cleaner, more efficient power plants. We have also made great strides in the market for environmentally-friendly technology facilities such as circulating fluidized-bed (CFB) boilers and desulfurization systems.

## Turbines & Generators

Doosan provides highly efficient, durable turbine generators to its global customers. Our technological prowess is recognized worldwide. After acquiring Škoda Power in the Czech Republic, which owns source technologies in steam turbines, we have been manufacturing and supplying proprietary steam turbines to our global customers. In 2011, we successfully tested turbine generators for the massive GHECO-One coal-fired power plant project in Thailand. The equipment was designed and fabricated exclusively with in-house technologies, paving the way for expanded exports worldwide in the future. We succeeded in the fabrication and supply of gas turbines, which is considered as requiring the most sophisticated power generation technology, for the first time in Korea. We have been making bold investments in large gas turbine development with the goal of introducing an exclusively developed gas turbine model in 2019 based on our world-class technologies. In 2017, we acquired ACT Independent Turbo Services, a U.S. gas turbine service provider, to establish Doosan Turbomachinery Services.



This acquisition has laid the foundation for us to make inroads into the global gas turbine service market, which is expected to grow to 210 GW by 2030, and has allowed us to apply ACT's gas turbine service capabilities and knowhow to our gas turbine technology development.

### Performance Improvement & Services

The plant performance improvement and services business features a wide scope of high value services—encompassing retrofits, overhaul, repair and maintenance, and fuel conversion—which are performed with the goal of increasing the reliability and efficiency of existing power plants. Compared to the new-build power plant market, which is sensitive to economic fluctuations, the services market has a bigger growth potential. Doosan Heavy Industries & Construction has identified the high growth potential of the services sector against the backdrop of ever-tightening environmental standards to regulate carbon dioxide emissions and particulate matter, and has been making efforts to nurture its power plant services business as a new growth engine for the company. Based on existing technology and capabilities, Doosan strives to further expand its technological capabilities to offer specialized power plant services that meet customers' needs as a "Total Solutions Provider".

### Nuclear Power Plants

Doosan has earned international recognition by supplying reactor vessels, steam generators and key components for nuclear power plants not only in Korea, but in the U.S. and China. In 2008, we won orders to supply six reactors in support of the first new nuclear plant construction in the U.S. in 30 years. Doosan is also participating in the UAE's nuclear power plant project - South Korea's first exports of nuclear reactors - as the main equipment supplier. In 2011, the Company successfully supplied the main equipment - including the APR1400 reactor, the new Korean standard light-water reactor, and steam generators - to Shin Kori Units 3 and 4. It also completed the development of technology for the design and production of the MMIS and RCP, which were core technologies that Korea had not hitherto developed independently, and introduced the technologies to Shin Hanul Units 1 and 2, thus achieving 100 percent domestic development and production of core facilities for nuclear power plants. In the near future, Doosan Heavy Industries & Construction will continue making strides toward becoming the global champion of the nuclear power business by successfully carrying out the production and replacement of main equipment for nuclear power plants, and expanding its service business, while stepping up efforts to develop technology for the nuclear plant decommissioning market, which is projected to be worth 440 trillion won by 2050.



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## Water

Doosan Heavy Industries & Construction is the world's No. 1 player in the seawater desalination market, and possesses fundamental technology in all three desalination methods, namely Multi-Stage Flash (MSF), Multi-Effect Distillation (MED), and Reverse Osmosis (RO), as well as a strong track record in projects based on such technologies.

In 2010, we signed an agreement to build the Ras Al Khair Phase 1 plant in Saudi Arabia, which will ultimately become the largest desalination plant in the world, with a capacity of 228 MIGD. In addition, we completed construction of the world's largest single-unit MED plant in Yanbu in 2011.

In 2016, we expanded our presence in the field of reverse osmosis (RO) desalination, as we won the contract for the first phase construction of the RO desalination plant in Doha, Kuwait.

The Company is operating R&D centers in Seoul, Changwon (Korea), Dammam (Saudi Arabia), Tampa (U.S), and Birmingham (U.K) to actively conduct water-related research and technology development.

The Company acquired Britain-based Enpure, which possesses technology for the design and production

of pre-treatment facilities in the water business in 2012, and thus laid a solid foundation to make inroads into the water treatment market. In 2015, it acquired the 'Al Ansab' sewage treatment plant project in Oman, and the Bellozanne sewage treatment plant project in the U.K. And in 2017, we signed an agreement with Korea South-East Power to supply the system designed for Zero Liquid Discharge of desulfurization wastewater (ZLD), an eco-friendly water treatment technology. We also signed an agreement to supply a water treatment plant in Birmingham, U.K. In 2018, we secured an order for a seawater desalination plant in Sharqiyah, Oman. With these projects, we are growing as a total solution provider in the water business sector.

## Castings & Forgings

Doosan boasts the world's highest capacity when it comes to castings and forgings. The company also has the technology to provide top quality materials that satisfy specifications in a number of different fields, such as power plants, steelmaking, mold steels, toolmaking, mining and cement manufacturing. In the nuclear power plant supplies market, we have further increased our competitiveness by developing



new technologies for mega-sized, mono-block castings and forgings. In 2014, we succeeded in producing 650-ton ultra-large ingots for the first time in Korea and only the third time in the world. In 2017, we constructed the world's largest 17,000-ton forging press to procure a future growth engine. Furthermore, we are exploring new business lines, including high-quality molded steel and ultra-large forging materials.

## Doosan Power Systems

Doosan Power Systems S.A. is a holding company of its subsidiary in Europe.

Doosan Power Systems offers various shared services such as finance, IP, and legal services for the operations of Doosan Babcock in the U.K., Doosan Škoda Power in the Czech Republic, and Doosan Lentjes in Germany. The Company also executes marketing and business activities in the European power generation market, including Turkey and Poland.

## Doosan Babcock

Doosan Babcock is a world-class company with almost 130 years of history in the power equipment field.

Doosan Babcock possesses proprietary technology to design, engineer and construct dust coal combustion boilers, a major product line in the world's thermal plant boiler market.

## Doosan Škoda Power

Doosan Škoda Power is a 150-year-old Czech-based company that designs and manufactures steam turbines and other power facilities. Doosan Škoda Power possesses proprietary technology in steam turbines and has provided about 2,000 units to thermal and nuclear power plants. By acquiring Doosan Škoda Power in 2009, Doosan has been able to produce boiler-turbine-generator packages.

## Doosan Lentjes

Doosan Lentjes in Germany owns numerous proprietary high-end green technologies, such as circulating fluidized bed combustion (CFBC) boilers, desulfurization systems (FGD, SCR, and filter), and waste-to-energy (WtE) plants, and is supplying facilities developed based on these technologies to customers around the world.

## Subsidiaries

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Subsidiaries

## Doosan Enpure

In 2012, Doosan acquired Enpure, a water treatment specialist. The British engineering firm is equipped with advanced design and fabrication technologies, particularly in the use of reverse osmosis for preliminary water treatment, and boasts an extensive and diverse project record. This acquisition reinforces Doosan's capabilities in the RO area and provides a platform for advancing further into the water treatment market, providing customers with distinct solutions to address their specific needs.

## Doosan IMGB

Established in 1963, Doosan IMGB is the largest forging and casting company in Romania, equipped with a 12,000-ton press and capable of producing 140,000 tons a year. We have unsurpassed competitiveness in the world market for power plant castings and forgings and mostly export our products to Europe, the Americas, China, and the rest of Asia.

## Doosan Power Systems India

Our power-related business in India has become important, and every effort is now being made to bolster our presence in this so-called "second home market." Therefore, our four Indian subsidiaries, which include Chennai Works, were merged into a single entity called Doosan Power Systems India. Following a localization strategy, DPSI's competencies are being strengthened in the production of supercritical boiler pressure parts, engineering design, project management, procurement, construction work, and process/quality control. The goal is to maximize growth and profitability by securing competitiveness in the Indian market over the mid-to-long term.

## Doosan Vina

Doosan Vina is a global production base inside the Dung Quat Industrial Complex in Vietnam completed in May 2009 after more than two years of construction. Doosan Vina has five production plants and is fully equipped with its own port and



harbor facilities. These plants produce boilers, desalination plants, and transportation facilities. Local engineers are now being cultivated and efficiency raised to match the productivity of the Changwon plant.

### Doosan HF Controls

Doosan HF Controls specializes in the design and construction of digital instrumentation and control (I&C) systems for diverse power and industrial applications. The company has obtained the U.S. Nuclear Regulatory Commission Safety Evaluation Report and Germany's TUV Safety Integrity Level-3 certification, ensuring the precise and safe control of nuclear power plants and other large-scale industrial plants.

### Doosan GridTech

In 2016, Doosan Heavy Industries & Construction established Doosan GridTech by acquiring 1Energy Systems, a U.S.-based company that owns the proprietary technology for energy storage systems

(ESS). This has enabled the Company to secure topnotch systems in the ESS industry and exclusively conduct all relevant processes ranging from the engineering to the installation and commissioning of energy storage systems.

### Doosan Turbomachinery Services

In 2017, Doosan Heavy Industries & Construction acquired ACT Independent Turbo Services, a U.S. company with advanced gas turbine service technologies, and established Doosan Turbomachinery Services. Thanks to this acquisition, the Company was able to secure a bridgehead to advance into the U.S. gas turbine service market, a 16 GW market annually. Doosan Turbomachinery Services is planning to expand into not only North American and Korean markets but also the Middle East and European markets, by leveraging its global network.

# Doosan Infracore

Leading the way in innovating the machinery industry.

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## A Global Leader in Construction Equipment

Doosan Infracore is a world-class machinery maker, providing top-quality products and services in the business areas of heavy construction equipment (such as excavators and loaders), diesel and gas engines, and attachments. Doosan Infracore is a leading innovator in the machinery industry, and continues to bolster its products competitiveness and market presence through continuous technology and quality innovation.

## Continuous Expansion of Global Market Share

Doosan Infracore's prominent technologies, high-quality products and exceptional services have raised customer satisfaction and thereby increased our global market share. In the 2019 Yellow Table Survey conducted by KHL, a U.K.-based construction-industry media group, Doosan Infracore ranked ninth in the world.

The Company is firmly leading the Korean construction equipment, and industrial diesel engine markets, and Bobcat, one of its affiliates, is maintaining the top share of the U.S. market for compact construction equipment. Together with such excellence, we continue to increase our market share in the large construction machinery in the advanced markets of North America and Europe. Also, the Company is striving to find new growth opportunities in emerging markets, including the CIS, Southeast Asia, and Africa.

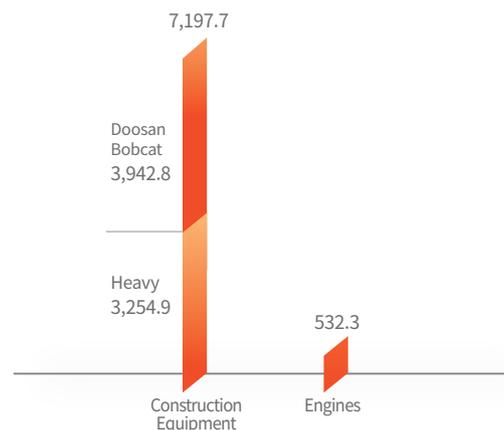
## Securing Global Technology Development Capabilities & Product Quality

In the face of the fourth industrial revolution, Doosan Infracore is making continuous investment in developing high-tech smart equipment and solutions.

The Company is working to expand the provision of solutions that use information and communication technology (ICT) and to combine construction equipment with unmanned/automated technologies, with an aim to establish a leading position in the future construction equipment market and explore new business opportunities in the ever-changing global business environment.

In 2018 in bauma CHINA, we unveiled the world's first 5G communication-based construction machine remote control technology. We demonstrated the remote control of an excavator in Incheon, about 880km away from the 5G remote control station (control center) installed at the exhibition hall in Shanghai. It was the first time in the world that a remote-control demonstration of a real construction machine of this length was executed not through virtual simulation or LAN control.

2018 BG/BU divisional sales (In billions of KRW)



In accordance with the Korean International Financial Reporting Standards (K-IFRS)

Operating profits In 2018  
(In billions of KRW)

848.1



# Doosan Infracore

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## Construction Equipment

Since its inception 40 years ago, Doosan Infracore Construction Equipment has grown into the industry leader with the biggest market share. In 1985, we launched solar excavators with our own technology. Through continuous technology development, we continue to release products that surpass the ever increasingly strengthening global environmental regulations. We are constantly exhibiting products that are equipped with a variety of solutions required by customers, and with enhanced performance, fuel efficiency, and convenience. We have proven their excellence by winning the Red Dot Award.

Doosan Infracore has large-scale manufacturing facilities in Korea, China, and Norway, with out network of sales subsidiaries, branches and dealers spanning the globe, firmly establishing Doosan Infracore as a major global player. Our global business network has been further expanded through our continued cooperation with Doosan Bobcat, a subsidiary company.

## Attachments

Geith is one of the world's leading producers of attachments. Founded in 1959 in Slane, Ireland, Geith has expertly navigated this dynamic industry ever since. The brand is recognized as a leader in the development of heavy and compact excavator, wheel loader and track loader attachments used in construction, drilling, demolition and steel scrap handling sites.

## Doosan ADT

Doosan ADT operates an R&D Center and factory in Elnesvagen, Norway. The company delivers articulated dump trucks (ADTs) in the 30- to 40-ton range to its customers worldwide, based on the proprietary technology. ADTs are indispensable at large mining sites and construction sites on difficult terrain.



## Engines

The Engine BG of Doosan Infracore started making marine diesel engines in 1958, for the first time in Korea. Since then, we have leveraged our R&D capabilities and production technology to maintain our position as the industry leader in Korea. We completed a large-scale plant for mass-producing diesel engines in 1975. Ten years later, we developed a diesel engine model with our own technology, thereby strengthening our front-running position in the industry.

We completed development of a low-emission diesel engine model in 1995, followed by a CNG engine for commercial vehicles in 1998. In the 2000s, we developed and supplied LNG engines for power generators, common rail diesel engines, Euro 6 CNG engines and Tier 4 Final engines for construction equipment.

In 2012, we constructed a small G2 engine factory that is capable of producing 100,000 units a year.

The Doosan G2 engine boasts eco-friendly, high fuel efficiency, high performance, and low-cost features,

meeting all requirements, and it is being mounted on Bobcat equipment and Doosan forklifts.

In 2017, we signed an agreement with a forklift company in Germany, home to engines, to supply the G2 engine. At the end of 2017, we established a joint venture with the no. 1 company in agricultural machinery industry in China. In 2018 we signed MOUs with an agricultural machinery company in Italy, a forklift company in China, and a defense company in Indonesia. This established our position as a global engine corporation.

We develop new products to respond to the increasingly strengthening regulations on exhaust emissions in each nation.

In 2016 we launched the DX-9C series in response to China's enforcement of tier 3 exhaust regulations. DX-9C boasts more than 15% higher fuel efficiency compared to the existing models, and outstanding durability. At the end of 2016, we successfully developed the Euro 6 engine that met the strongest requirements among the EU's regulations on diesel gas emissions. Our Euro 6 engine offers 10~19% higher fuel efficiency compared to other engines, and boasts an enhanced output with the removal of the exhaust gas recirculation (EGR) system.

# Doosan Bobcat

## Leading the world in compact construction equipment market

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### A global leader in compact construction equipment market

Doosan Bobcat is the world's leading company of compact construction equipment, with its R&D, sourcing, production and sales units headquartered in North Dakota in the U.S. and Dobris in the Czech Republic. Its products are widely used in various areas, including construction, industry, landscaping and agriculture. Doosan Bobcat has maintained its leadership position in the compact construction equipment market, based on its extensive network of over 1,000 dealers that sell tough, versatile products that can be paired with over 450 attachments.

Doosan Bobcat is always trying to be a trustworthy company through close communications with its customers and excellent services that exceed customer needs.

### Market-leading competitiveness

We pledge to be a global leader in the compact equipment industry. Based on its extensive networks and on the outstanding capabilities of its dealers with a wide range of knowledge of its products, Doosan Bobcat has long been a leader in the compact construction equipment market. To secure competent dealers, the company recruits new dealers every year based on its market coverage roadmap, and provides dealer incentive programs and various marketing activities, which have led to greater market share. It is also planning to introduce differentiated dealer management programs, such as big data analysis tools and dashboards for construction equipment industry data analysis.

Its product competitiveness involves not only the strong performance of its products but also the versatility offered by attachments. There are more than 450 attachments available in over 100 categories. The Bobtach technology offers an attachment interface that allows for the easy exchange of attachments, providing great efficiency.

The outstanding competitiveness has been crucial in the success of Doosan Bobcat's major products, including skid-steer loaders, compact track loaders,

mini excavators, all-wheel steer loaders, mini track loaders, and Toolcats, which have been leading the global market.

### Diversification of regions and product portfolio

Doosan Bobcat has established and is implementing marketing strategies for the expansion of its compact equipment markets so that we may add to emerging markets such as China and India, as well as to its existing principal business regions of North America and Europe by establishing production bases in Suzhou, China and in Chennai, India.

In 2017 we successfully launched Earthforce, a Skid Steer Loader (SSL) product specific to the market in China. In 2018, we acquired a backhoe loader plant in Chennai, India. As such, in order to pioneer new markets in emerging market regions with high growth potential and to expand our market share, we are strengthening our product line-up. In addition, we are concentrating on securing new growth engines by expanding the product coverage in the North American and European markets with existing competitive advantages.

Our steady investment in the innovation of products resulted in the continuous production of new products such as the R-series. We are poised to launch various new products such as the compact tractor, small articulated loader (SAL), and the compact wheel loader (CWL) to strengthen our market leadership.

### A global leader in technology development and product innovation

As one of the global leaders in compact equipment, Doosan Bobcat strives to develop future-oriented, innovative technologies in preparation for ever-changing business environment and global mega-trends. We are focusing on portfolio diversification for products and regions to ensure sustainable growth centering around the Acceleration Center, which is North America's R&D hub, and around the Czech Innovation Center, which is the hub of Europe and Middle East markets. We are also concentrating on developing new products that incorporate various new technologies such as unmanned technology.

No.1 market share in the global compact construction equipment market

# No. 1



# Doosan Engineering & Construction

Moving forward to build a better world, a brighter future

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## A general construction company with a 59-year history

Since its establishment in 1960, Doosan Engineering & Construction has been growing in parallel with the history of Korea's construction industry. The Company has made astonishing achievements in the building works, civil engineering and plant engineering sectors by banking on its extensive know-how and outstanding technology, while striving to emerge as a leader of Korea's construction industry.

## A Competitive Professional in Housing Projects

Doosan E&C's flagship brand, "Doosan We've" continues to grow to become a leading apartment brand of Korea in the 21<sup>st</sup> century thanks to the unwavering support of its customers, and is gaining stronger ground in urban redevelopment and apartment complex reconstruction projects on the back of its robust brand power. Doosan E&C has successfully executed mega-scale projects to construct high-end commercial-residential building complexes not only in the Seoul metropolitan area but also in major metropolitan cities such as Busan and Daegu. Notably, the 80-story Haeundae Doosan We've the Zenith, Korea's tallest residential building located in Haeundae, Busan, has demonstrated once again Doosan E&C's technological excellence to the world.

## An infrastructure solutions provider that is creating a better world

Doosan Engineering & Construction is strengthening its position by accumulating construction achievements based on its abundant experiences in the civil engineering field, its ability to design and plan, and its ability to construct. The Company has built the longest high-speed rail lines in Korea and has a proven track record in constructing subway lines across the country. Most notably, Doosan constructed Section 909 of Seoul's Subway Line 9 using a large diameter shield for the first time in Korea, opening a new chapter in the country's construction history. Furthermore, Doosan E&C boasts a strong competitive edge in Korea's construction industry in the privately funded project field. The Company took part in the construction of the Shinbundang Line, Korea's first metro project proposed by a private sector, and implemented the entire project from construction to route planning and operation of the line, consolidating its leading position in the transportation infrastructure sector.

## Creating a Beautiful Future

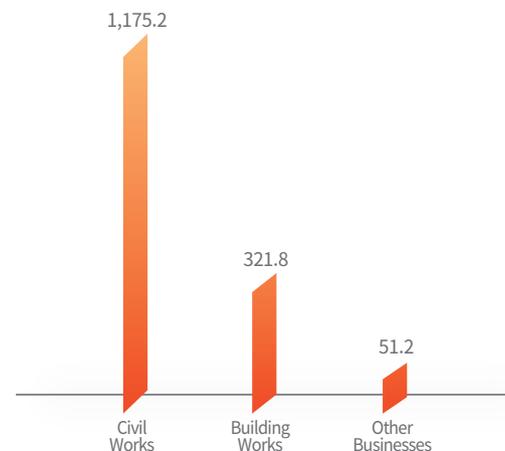
Doosan E&C faithfully fulfills its corporate social responsibility, which has become an increasingly important duty for any business operation, as well as for our own business. We are enhancing transparency in every aspect of our business and promoting win-win partnerships with our suppliers, and conducting fair trade based on mutual trust.

In addition, we continuously conduct various activities such as support and raising awareness for the treatment of children with cancer, as well as the Habitat Campaign, which utilizes the advantages of the construction industry to ensure the sustainable development and future competitiveness of the community. In doing so, we are creating a better society.

## Business Portfolio

|                |   |
|----------------|---|
| Civil Works    | roads, highways, railways, subways, tunnels, ports, airports, environmental plants                  |
| Building Works | office buildings, commercial facilities, public facilities, hotels, resorts, residential facilities |

## 2018 Sales by Business (In billions of KRW)



In accordance with the Korean International Financial Reporting Standards (K-IFRS)

2023 Sales target  
(In trillions of KRW)

2.9



# Doosan Engineering & Construction

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## Civil Works

Doosan E&C carries out engineering, construction, repair and maintenance work for a wide range of civil engineering projects, including high-speed rail lines, subway lines, expressways, bridges, industrial complex site preparation, landfills, and port facilities. Based on its experience and technical expertise gained from carrying out large-scale projects, Doosan E&C is leading the way to preserve the environment and enrich the future for everyone.

The company has played a vital role in building safe and convenient transport systems in Korea, including subways, which essentially serve as the legs and feet of the people; high-speed trains, which guarantee faster and more pleasant trips; and tunnels, which significantly reduce traveling time and distance. With its record of building the longest high-speed rail extension in Korea, Doosan E&C has established itself as Korea's leading company in the civil engineering industry.

Doosan E&C also boasts a wealth of experience and capabilities in the engineering, planning and execution of Privately-Funded Infrastructure (PFI) projects as a leader of the PFI sector. Some of the company's most successful PFI projects that are either ongoing or completed include the Shinbundang rail line, which is the first privately-funded metro project in the Seoul metropolitan area, the Gangnam Beltway and the upgrade of the West Suwon-Euiwang Expressway. With its outstanding civil works, the company has contributed to the development of the national economy and helped improve the overall quality of life for everyone.

Furthermore, we have performed various environment and industry infrastructure projects based on EPC and possess second-to-none capabilities in the field. Based on our high-quality services in project planning, design, construction and operations, we plan to broaden the scope of our environment-related business.



## Building Works

Blending its advanced technological prowess, superb creativity and exquisite aesthetic styling, Doosan E&C creates spaces of high artistic value while ensuring its buildings harmonize with the surrounding environment to make the world a more beautiful place. In the Intelligent Building System (IBS) field, which constitutes state-of-the-art technology, Doosan E&C has constructed a number of landmark buildings ranging from hotels, resorts and public facilities with artistic value, to large-space culture and sports facilities that have changed the urban skyline and landscape, based on its outstanding technology and execution capability. Combined with the experience it has accumulated in the course of executing such projects, Doosan Engineering & Construction is striving to transform our cities into pleasanter, ever more habitable environments.

*Doosan We've*, a leading apartment brand in Korea, has gained a strong competitive edge in urban redevelopment and apartment reconstruction projects and built high-rise residential and commercial buildings in major provincial cities such as Busan and Daegu as well as in the Seoul metropolitan area. Notably, Haeundae Doosan We've the Zenith, an 80-story commercial-residential building with a height of 300 meters, and the Ilsan We've the Zenith, Korea's largest commercial residential building complex housing a total of 2,700 households, have further elevated the stature of Doosan E&C as the front-runner of mega-skyscraper projects.

# Holding Company and Other Affiliates

## Enhancing corporate value through advanced corporate governance

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Doosan has established a more transparent and advanced governance structure to ensure compliance with global standards and deliver business continuity. The Doosan Group's parent company, Doosan Corporation, is generating profits through its seven businesses including Electronics, Industrial Vehicles, Mottrol, Fuel Cell, Distribution, Biotechnology, and Digital Innovation.

To enhance the competitiveness of its existing business lines, Doosan Corporation acquired the Luxembourg-based electrodeposited copper foil manufacturer Circuit Foil and the U.K.-based Rushlift forklift rental service in 2014, while it sold SRS Korea (KFC) and Doosan Dong-A. It also acquired ClearEdge Power and established its Fuel Cell business through a merger with Fuel Cell Power.

Doosan Electro-Materials is producing high-quality copper clad laminate (CCL), a core material for printed circuit boards (PCB), which are used in smart devices, semiconductors, automobiles and electronic appliances, as well as core electronic materials for OLED displays, and is supplying them to the world.

Doosan Industrial Vehicle is recognized as a leader in the forklift truck market, while its next-generation forklift truck was awarded the grand prize for its ergonomic design.

Doosan Mottrol has achieved world-leading competitiveness in the markets for travel and swing devices for heavy construction equipment and hydraulic pumps.

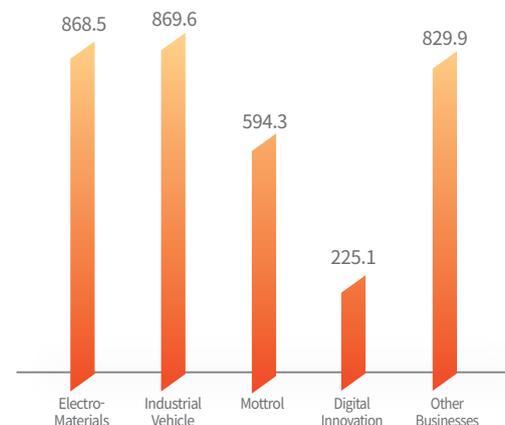
Doosan Fuel Cell is making concerted efforts to become the world leader in the fuel cell market for residential, mid-to large-sized buildings and power generation applications, by overcoming the limitations of traditional power generation methods and increasing energy efficiency based on its excellent technological capabilities.

The Doota Duty Free store opened at Doota, a landmark of the Dongdaemun area in Seoul, in the first half of 2016. It provides an exciting shopping experience to customers, and it is leading the development of Dongdaemun.

We are striving to develop new businesses such as Doosan Robotics, which manufactures collaborative robots in the era of the 4th industrial revolution, and Doosan Mobility Innovation that enables long-distance drone flight based on fuel cell technology.

In the service sector, Doosan maintains close contact with its customers through Oricom, Korea's foremost specialist in brand management; Doosan Magazine, Korea's leading publisher of trendsetting magazines; Doota Mall, a fashion shopping center; the Doosan Bears, a professional baseball team; Doosan Mecatec, a chemical process equipment manufacturer; and Neoplux, a leading investment firm in Korea that employs top-notch financial experts and exceptional methods to raise corporate value; and Doosan Cuvex, which specializes in deluxe golf resorts and provides facility management and maintenance services.

2018 BG/BU divisional sales (In billions of KRW)



In accordance with the Korean International Financial Reporting Standards (K-IFRS)



# Doosan Corporation

Offering innovative solutions and differentiated values

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## Electro-Materials

Dominant Leader in Electronic Parts

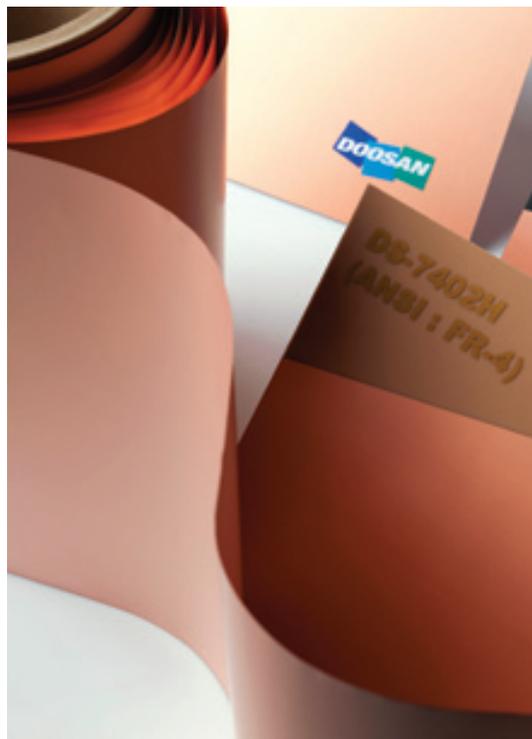
Doosan Corporation Electro-Materials supplies high-quality copper clad laminate (CCL), the core material of printed circuit boards (PCB) and OLED displays, worldwide. Its main products include flexible CCL for use in handsets, tablets and other high-performance mobile devices; eco-friendly CCL for use in computers, LCD, handsets and other digital devices; CCL for PKG in semiconductors; and CCL for the network boards of servers and other items of communication equipment. Our customers include handset manufacturers such as Samsung, Apple, LG, and Xiaomi; the world's best memory semiconductor companies including Samsung and SK Hynix; and the world's leading electronic companies such as Qualcomm, Cisco, and Sony.

Domestically, we operate manufacturing plants and research centers in Jeungpyeong, Gimcheon, Iksan, and Yongin, while overseas we operate a manufacturing

plant in Changshu, China, as well as local subsidiaries and branch offices in the U.S., Japan, Hong Kong, Singapore, Vietnam, China and Taiwan.

In July 2014 we acquired Circuit Foil Luxembourg based in Luxembourg, completing the whole process including the manufacture of copper foil, the core raw material of diverse devices. This has enabled us to make a coordinated response to the procurement of raw materials, the production of our products, and even customer services.

Doosan's CCL products have obtained not only certifications such as the Korean KS, U.S. UL, British BSI, Canadian CSA, German VDE, and Japanese JET, but also ISO 9001 and ISO 14001, attesting to their excellent quality around the world. We use the technologies and capabilities we have accumulated in our flexible CCL, package CCL and other high-end businesses to expand into the energy sector and other new business areas.



We are committed to further consolidating our market position as an electronic material manufacturer in line with the growth of global companies and markets for mobile communication handsets, computers and digital electronic appliances, and sophisticated networks, thus increasing the demand for copper clad laminate (CCL) and OLEDs.

Copper foil is an essential raw material for the production of CCLs, for which demand is rising amid the increasing high-performance of smartphones and other electronics.

Doosan Corporation uses the copper foils of Circuit Foil with high technological prowess to boost the value-added of its CCL products.

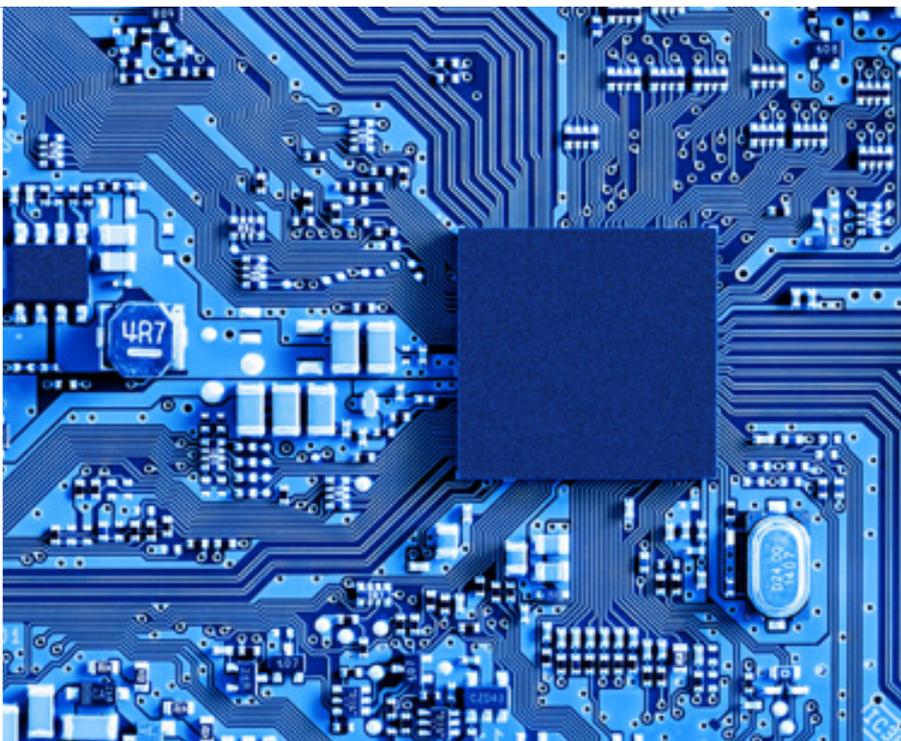
Further, we will complete the construction of a plant in Hungary in 2020 in order to mass produce the copper-foil cell foil for use in electric car batteries, one of Circuit Foils' products.

In Europe, global major battery manufacturers such as LG Chem and Samsung SDI are investing heavily in production lines.

Upon completing our cell foil plant in Hungary, we will emerge as the only cell foil manufacturer in Europe, and we will be able to respond quickly to the rapidly growing demand among electric car battery makers with production bases in Europe.

Furthermore, we produce fuel cell electrodes, a core part of the fuel cell that produces electricity and heat through an electrochemical reaction between hydrogen and oxygen in the air.

In 2018, we began mass producing electrodes for industrial and commercial fuel cell systems which require high efficiency and long-term stable performance. We supply electrodes to Doosan Corporation Fuel Cell, boosting our business synergy.



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## Industrial Vehicle

### High-performance Material Handling Equipment

Doosan Industrial Vehicle BG is Korea's leading material handling equipment maker. We started to produce the nation's first forklifts in 1968 and have since grown into a global player with production facilities in Korea, Germany and China, and sales subsidiaries in the U.S., Belgium and the UK. We are now exporting forklifts to over 100 countries. In particular, the company has consolidated its domestic market leadership with over 50% market share.

We place the highest importance on customer satisfaction and top-tier quality. We have established a quality control system that has received ISO 9001 certification for rigorous quality control and used this system to build a quality assurance infrastructure and help our partners produce higher quality parts.

In addition, we are committed to improving the design capabilities of our research and development staff and developing pioneering technologies to deliver reliable and excellent quality to our customers.

Thanks to these efforts, in 2018 we exhibited our products at the Design Awards organized by Korea Association of Industrial Designers (KAID), winning awards in the categories of Best of Best (BR18S-9, electronic stand-up type forklift) and Pin-up Best 100 (GC25S-9, LPG engine forklift). In 2019, both the GC25S-9 and BR18S-9 won the IF Winner Awards simultaneously at the IF Design Awards in Germany, proving excellence of our product.

To achieve the vision of "Total Logistics Solution Provider," Doosan Industrial Vehicle is continuously pushing for operational innovation, proactive development of eco-friendly technology, and expansion of downstream businesses (rental/used products/service).



## Mottrol

### Globally-recognized Parts Maker

Doosan Mottrol boasts a history of more than forty years and is Korea's best specialist manufacturer of hydraulic parts, with the monthly production capacity of over 30,000 travel and swing devices, main hydraulic pumps, and main control valves for construction heavy equipment. It has obtained world-class quality and Environment, Health, and Safety (EHS) management systems, including the ISO 9001 Quality Management System, KSD 0050-9000 Defense Quality Management System, AS 9100 Aerospace Quality Management System, ISO 14001 Quality Management System, and OHSAS 18001 Safety and Health Management System.

Its excavator travel device was selected by the Ministry of Industry and Energy as a "World-Class

Product." The company has significantly contributed to enhancing the nation's defense capabilities with its modernized defense equipment, by developing hydraulic devices and systems.

While pursuing operational excellence based on its stable management structure, the company is operating a R&D Center with the aim of securing leading advanced technology. And it founded Doosan Hydraulic Machinery Limited China in 2011 to expand its production base globally.

Doosan Mottrol is channeling its capabilities to present a new vision in the hydraulic parts sector. The company's goal is to strengthen its business competitiveness based on its world-best quality, price, and R&D competencies so as to emerge as a global top-tier producer of hydraulic parts.



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## Fuel Cell

A Technological Leader in Eco-Friendly  
Power Fuel Cells

Doosan Fuel Cell, which boasts the original technology of fuel cells for power-generation, buildings, and households, engages in manufacturing eco-friendly power-generation equipment. Doosan Corporation started the fuel cell business in 2014 by securing the original technology.

Fuel cells are an eco-friendly power generation source with high power generation, heat efficiency, and outstanding stability. They do not emit air pollutants such as SOx, NOx, and fine dust, which pose a serious social issue. In addition, fuel cells are a small-scale, highly efficient power generation source suitable for the trending distributed power generation. They can produce clean energy in cities without additional installation of transmission lines. In particular, Doosan phosphoric acid fuel cells (PAFC) can quickly keep up

with loading despite the large capacity. It is also the best eco-friendly power generation technology that can compensate for unstable systems of renewable energy generation forms such as solar and wind power.

Doosan has established fuel-cell automation production bases in South Windsor, Connecticut, USA and in Iksan, Jeollabuk-do, South Korea to respond to the continuously growing fuel cell market. Doosan Fuel Cell, which is the No. 1 player in the power-generation fuel cell market, is also aiming for the market leader in polymer electrolyte membrane fuel cells (PEMFC) for households and buildings.

Doosan Fuel Cell vows to help achieve self-independence in the securing of energy and foster small and medium-sized firms, as well as to lead the way in promoting the global fuel cell market based on its outstanding technology for fuel cells, as it embraces government policy.



## Retail

### The K-Wave Shopping Hub in Korea

Based on their wide experience and deep understanding of multinational customers, the Doota Duty Free store and Doota Mall—major shopping and tourist destinations in Dongdaemun that make your lifestyle much more enjoyable—look beyond the district to the global market.

The Doota Duty Free store, which is operating over 700 brands at Doota, a landmark of the Dongdaemun area, pursues a distinctive concept reflecting the unique local features of Dongdaemun and the changing needs of duty-free customers.

The Doota Duty Free store provides a pleasant and trendy shopping experience to customers by offering the benefits of great prices in a

convenient shopping environment as well as young, sophisticated K-style products and thematic zones.

Doota Mall, Korea's leading fashion mall, is visited by some eight million local and foreign shoppers annually. The seven-story fashion mall houses over 300 various boutique stores that sell a wide range of products, providing a perfect onestop shopping experience. As a trendy, premium fashion powerhouse, Doota Mall is always trying to provide the most pleasant and efficient shopping environment by keeping facilities up to date to deliver the highest level of customer satisfaction.

Doota Mall aims to provide customer satisfaction through its innovative business strategies: Doota Mall became the first fashion mall to offer a fixed-price system, install information centers for foreign visitors and deploy floor managers.



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## Bio Specialized in Functional Biotechnology Materials

Doosan Corporation Bio is a time-honored company, with a history of 123 years. We focus on producing and selling functional biotechnology materials.

Bio develops and supplies various new bio materials, including those for pharmaceutical applications, functional foods and cosmetics using our specialized technological capability in the field of functional materials.

Of note, we have established a stable business foundation by focusing on the Chinese market, spurred by our specialty in lipids, such as an emulsifier for medical use (PL95) which was selected as a world-class product for the next generation

by the Ministry of Knowledge and Economy in December 2008. Since the completion of the Chengdu joint venture in June 2013, we have been accelerating our business expansion in China.

In addition, we seek to keep enhancing our major products, including functional cosmetic materials (ceramides), functional foods (PS) proven to be effective in cognitive ability improvement, and natural lecithin derived from soybeans (Soy PC), to further expand our business in overseas markets such as Europe and the U.S.

High growth will be maintained by enhancing the competitiveness of core businesses and constantly developing high value-added business lines and new products. We will leverage the optimal business portfolio to become one of the world's top biotechnology companies, providing differentiated value to customers.



## Doosan Digital Innovation

The IT service supplier that leads the way in promoting digital transformation

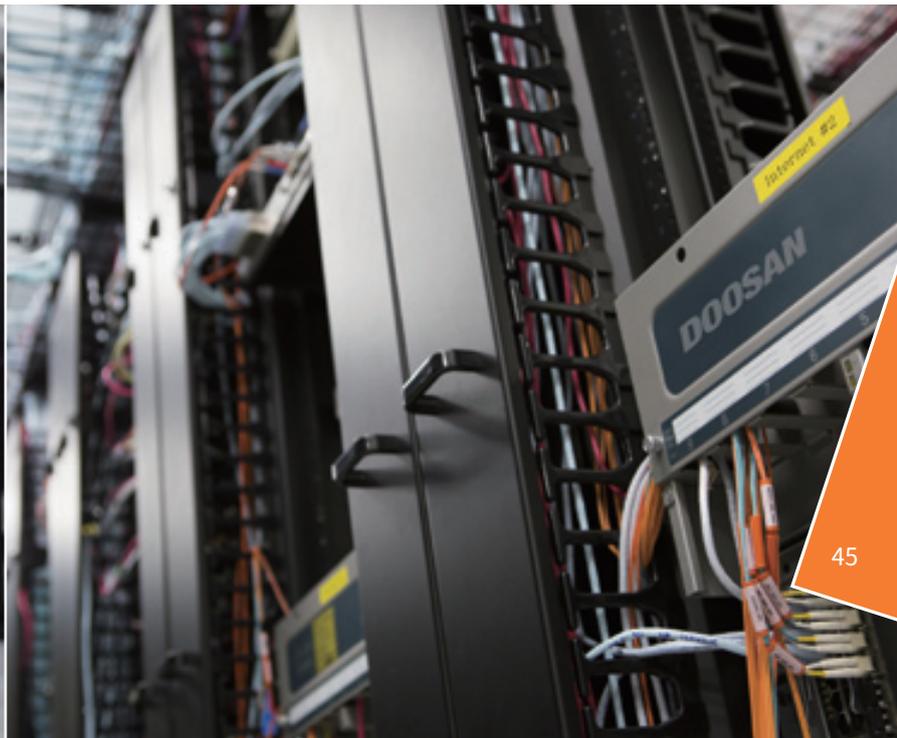
Doosan Digital Innovation offers total IT services to the affiliate companies of Doosan Group, including digitalization service, development and operation of applications, and construction and operation of platforms and IT infrastructure.

We are also developing infrastructure and fostering professional manpower to support the digital transformation of Doosan affiliates.

We are striving to offer IT services designed to effectively help boost customer values. Through WOW (Way of Working), we pledge to provide services from the viewpoint of customer experience and design. We also vow to offer new technological

services such as AI, Deep Learning, and RPA to help accelerate the digital transformation of Doosan affiliates. We will continue our efforts to bolster technological capabilities and field services, as well as to improve customer satisfaction.

It has established three global IT centers, in the Americas (DDI America in 2011), China (DDI China in 2011) and Europe (DDI Europe in 2014), consolidated the Group's IT workforces and infrastructure, and created maximized customer value by elevating the global competitiveness of the affiliates as it transforms into a global integrated IT provider.



# Doosan Robotics

## A Leading Company in the Collaborative Robot Market

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Doosan Robotics is a manufacturer of collaborative robots (cobots). With the advent of Industry 4.0, the collaborative robot market is expected to see substantial growth in the coming years.

Unlike conventional industrial robots, cobots can work alongside humans without barriers, allowing humans and robots to perform their tasks in the most efficient way, and thus increase productivity.

In addition, the robots' compact and lightweight features make it easier to automate the manufacturing process without the need to make major changes to the production layout. By using a smart device called a teach pendant, users can easily install and program the robots, thereby maximizing their benefits while working side by side with them.

Doosan Robotics developed its cobots' hardware and software in-house, incorporating the professional knowledge of prominent scholars and

experts in the industry. Doosan's cobots are capable of world-class performances—demonstrated by the robotic arms' maximum work envelope of 1.7 meters, a payload of 15 kilograms, and an efficient collision detection sensor that guarantees the safety of nearby humans.

In addition, the robots' high-performance, multi-axis torque sensors make the machines suitable for carrying out more sensitive processes that previously required the dexterity of human hands. Doosan's cobots received the Red Dot Design Award two years in a row—in the "Interface & User Experience" category in 2017 and the "Product Design" category in 2018.

Doosan Robotics is firmly committed to establishing a leading position in the market through its continuous R&D efforts and investments, and to lead the growth of the market.



## Doosan Mobility Innovation

Specializing in hydrogen fuel cells for mobility

When Doosan Mobility Innovation was established in 2016, it developed the hydrogen fuel cell power pack using hydrogen for drones, offering high efficiency energy.

The aforementioned hydrogen fuel cell power pack for drones uses hydrogen for high-density energy, enabling drones to make a longer flight compared to the existing battery-powered drones. Furthermore, we constructed the hydrogen supply network to ensure the uniform supply of hydrogen, otherwise it will be very difficult for customers to refuel the hydrogen. As such, we are carrying out the hydrogen business by placing a high value on customer satisfaction at the forefront.

The drones equipped with the hydrogen fuel cell power pack can fly for more than 2 hours, being able to perform jobs in various industries that battery-powered drones cannot. This long endurance flight boosts work efficiency and industrial growth. Furthermore, it is eco-friendly because it uses hydrogen, which is an alternative raw material for clean energy.

We vow to continue our efforts to research and develop innovative products, and to become a reliable enterprise for customers. We are further committed to enabling customers to gain easier access to hydrogen, thus leading the way in further developing the mobility industry involving the hydrogen economy and drones.



## Doosan Mecatec

Global top tier CPE Fabricator possesses the state-of-the-art technologies.

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Established in 1964, Doosan Mecatec supplies the total range of static equipment; from pressure vessels, reactors, towers and heat exchangers to oil, gas and petrochemical plants. Based on its world-class manufacturing facilities and accumulated fabrication technologies, Doosan Mecatec has been standing firmly as a leading CPE fabricator in the market.

Doosan Mecatec is leading the static equipment market as a preferred partner of global EPCs and major energy/oil/gas companies in MENA, North America, Asia and Europe. Through its proven

technology skills and know-how earned by over 50 years of experience, Doosan Mecatec has an extensive track record of delivering hydroprocessing reactor made of vanadium modified alloy steel as well as the world's heaviest and longest pieces of static equipment.

Doosan Mecatec is also expanding its business area in a critical equipment sector of the petrochemical plant market which is primarily dominated by a few fabricators, and shall make its utmost endeavor to improve its technology and services.



# Neoplux

## Your Best Partner for Greater Corporate Value

Neoplux, established in April 2000, has become a leading investment firm in Korea by employing top-notch financial experts and exceptional methods for raising corporate value. The firm boasts particularly strong competitiveness in venture capital PE (Private Equity) projects both inside and outside Korea. In the venture capital area, it seeks out startups and small companies endowed with innovative and creative technologies but lacking in capital, and provide them with capital. Neoplux offers them business consulting and help them establish a quality management system along the business development path, so that they can enhance their competitiveness and growth prospects.

The private equity business entails the acquisition of equity stakes or controlling interests in medium-sized or large corporations in order to boost their

value and help them grow. Neoplux enhances their corporate value by leveraging its tried-and-tested business knowhow and its global competence. One of Neoplux's key investment principles has been to seek win-win partnership with its portfolio companies in the long-term perspective, rather than focusing on short-term investment results. Its top priority is to create greater value for investors and portfolio companies based on Inhwa and open communication with stakeholders.

Neoplux, backed by a team of top-notch professionals and world-class investment competencies, continues to raise its goals and advance, thereby building trust in partnerships. It is also committed to fulfill its role and responsibility as a trusted investment company that is honest and transparent and that maximizes corporate value.



## Oricom

An emerging General Content Group, IMC IDEA group

Oricom was established in 1967 as Korea's first general advertising company. The Company has been elevating the brand values of domestic companies by providing Integrated Marketing Communication (IMC) services such as advertising through the four major mass media channels - media, promotion, brand consulting and digital marketing.

Oricom is an IMC IDEA group with a vision to become a "general content group." Our capabilities to provide differentiated, optimal marketing solutions and communication ideas based on integrated ideas have been widely recognized in the market.

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## Hancomm

General advertising company that boasts strengths in organizing large-scale events and digital advertising

Hancomm, established in 1983, is a major general advertising company that, along with Oricom, has led the development and growth of Korea's advertising industry. It became an affiliate of Doosan Group in 2015.

Hancomm has been recognized not only for its advertising capabilities on the four major mass media channels, but also for digital advertising and the organization of large-scale events, including the Seoul International Fireworks Festival, an annual event held in October in the Yeouido area, and energy and automobile exhibitions held locally and globally.

## Doosan Magazine

Trend-Setting Media Company in Korea

Doosan Magazine is a publisher of high-end magazines that present new perspectives on trends and styles through top-rated media brands in the fields of fashion, beauty, and lifestyle. Doosan Magazine publishes four magazines - Vogue, GQ, Allure and W - under an exclusive license agreement with Condé Nast, a world-famous media group.

It also creates various types of content optimized for websites, mobile, social media and other digital platforms. Doosan Magazine provides integrated communications solutions that can help raise one's brand values, based on its advanced capabilities for content creation and its audience, expanding beyond its traditional role as a media company.





## Doosan Bears

### Korea's Favorite Professional Baseball Club

The Doosan Bears team was crowned the Korean baseball champion in the first season of the professional baseball league in 1982. They have won five championship titles (1982, 1995, 2001, 2015, and 2016), maintaining their reputation as a prominent baseball team in Korea. In the 2016 regular season, the team won 93 games, and in the same year, they won the Korean Series in four consecutive games—setting a new record in Korea's professional baseball history.

Doosan's support for prospective baseball talents includes the completion of Bears Park in Icheon in 2014, where they can concentrate on developing their baseball skills. In addition, communication with fans is now possible via such media as the club homepage, smartphone applications and social networks. All members of the Doosan Bears Club—coaches, players, and staff—are actively involved in numerous community service activities.

## Doosan Cuvex

### High-Quality Leisure Culture and Facility Management and Maintenance Services

Doosan Cuvex (Golf Club), located in Chuncheon, the city of lakes, operates the Ladena Resort Golf Club, a prestigious golf resort that opened in 1990, the Club Mow Country Club, and the Changwon Dormitory and the Guest House of Doosan Heavy Industries & Construction.

The word 'Ladena' is a combination of 'lake,' 'garden,' and 'nature.' The Ladena Resort Golf Club boasts scenic views and the highest quality field services.

The business of Doosan Cuvex IBS is comprised of two areas: FM business that offers buildings and facility management services for business facilities, factories, distribution facilities, traffic facilities, research facilities, sports facilities, and cultural facilities; and BS business that provides client companies with general affairs, salaries and wages, employee benefits, and purchasing services, leveraging its expertise and economy of scale.

Doosan Cuvex will continue to provide quality services and customer satisfaction based on its know-how and expertise accumulated over the years.



# Corporate Social Responsibility



# Doosan's CSR

Doosan's CSR is both a steppingstone for Doosan to achieve growth for another 100 years and a promise to society. Doosan will keep its promise by growing in harmony with all stakeholders

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## Outline

CSR (corporate social responsibility) refers to management activities designed to help build long-term win-win relationships between corporations and societies in major areas, including organizational governance, human rights, labor, environment, process operation, consumers, and the development of local communities.

Doosan is dedicated to fulfilling its social responsibilities while catering to stakeholder needs. Based on the core requirements of ISO 26000, the international CSR standard, Doosan has built its CSR governance and strategic structure in the areas of CSR integration, human rights, labor practices, the environment, fair operating practices, consumer issues, community involvement and development. In addition, Doosan has publicly demonstrated its commitment to carrying out CSR activities by joining the UN Global Compact.

## Strategy

Doosan's CSR strategy is established and operated based on its management strategy. Our CSR strategy includes the goal of becoming one of the world's 100 leading CSR companies by 2025, the mission of supporting responsible and sustainable growth, four CSR pillars, and 10 CSR priorities.

The CSR pillars are as follows: first, "developing people" which is based on Doosan's strategic focus on people's growth that leads to the company's growth; "reliable operation" which pursues fair profits; "responsible engagement" which reflects responsible corporate citizenship; and lastly, "CSR value creation" which seeks co-growth of the company and society. These pillars entail 10 priorities: building a culture of respect for people; fair employment; building a safe working environment; enhancing fair operation and supplychain CSR; green management and

response to climate change; improving product and service accountability; advancing CSR activities that reflect the value of work; enhancing CSR promotion activities; implementing CSR value creation projects; and advancing CSR performance monitoring. The performances and future plans of such CSR activities are available to all stakeholders via CSR reports and other documents made public.

## Code of Conduct

Doosan has revised its Code of Conduct and reinforced its whistleblowing system. The Code of Conduct is a set of rules outlining the core values that all Doosan People are required to comply with to become a "Proud Global Doosan".

The Code of Conduct has the following core values: Inhwa, honesty and transparency, fair competition, customer orientation, innovation and growth, community involvement, and safety and environmental protection. Based on the Code of Conduct, detailed guidelines are provided to employees to create a healthy corporate culture, promote honest and transparent work processes, eradicate bribery, prevent conflicts of interest among employees and more.

All Doosan employees embrace the core values in providing products and services that enhance the quality of life. Thus, our transparent and honest way of doing business based on trust built with our stakeholders helps us fulfill our corporate social responsibilities.

Pursuant to the new Code of Conduct, all stakeholders, including Doosan employees, can report any violation of internal regulations or the law, as well as other inappropriate activities. Doosan abides by the principle of confidentiality and protection of reporters to handle reported contents in a speedy and fair manner.



“CSR includes the responsibilities that companies are obligated to fulfill as well as activities that are necessary to attain sustainable growth.”

Chairman & CEO Jeongwon Park  
in his inaugural speech

# Major CSR Activities

Doosan aims to establish long-term win-win relationships with the community through steady activities in such key areas as governance structure, human rights, labor, environment, health, safety, fair operation, customers (consumers), and community involvement

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## Governance Structure

Doosan has established a sound governance structure to cater to shareholder interests and carry out transparent business operations.

The board of directors is the highest decision-making organ that deals with the execution of business operations, matters stated in the legal statutes and articles of incorporation, decisions made by the general shareholders meeting and more. Doosan appoints external directors to ensure checks and balances between the internal management and external directors. Furthermore, under the board of directors, there are three subordinate committees, including the audit committee, composed entirely of external directors. The board of directors promptly provides

business information by immediately disclosing key decisions of general shareholders meetings.

A part from the board of directors, Doosan operates the CSR Committee to further enhance its transparency and accountability. It is chaired by the CEO and composed of directors in charge of human rights, labor, environment, customer and product management, fair operations, corporate involvement and more.

In addition, Doosan conducts an annual CSR assessment of its affiliates inside and outside Korea in their respective fields to identify necessary improvements, which are then reflected as priority tasks and carried out according to the plans established subsequently.



## Human Rights and Labor Practices

Doosan's CSR policies concerning human rights and labor comply with the Labor Standards Act, the policies of the International Labour Organization (ILO), and the principles of the UN Global Compact. According to the global principles of human rights, Doosan prohibits forced or child labor, and discrimination on the basis of age, gender or other personal attributes with regard to its recruitment, employment, promotion, pay, or welfare and benefits. Doosan encourages its employees to maintain a work and life balance.

To promote open communication, Doosan has formed a variety of labor-management consultative bodies, through which employees can file complaints

or receive counseling services. A meeting is held every quarter to address the issues and enhance the corporate welfare programs. More recently, an added emphasis was placed on creating a respectful work environment by promoting gender equality and human rights.

Doosan's pursuit of talent cultivation is based on its corporate philosophy—"Growth of people leads to growth of business." Employees develop a plan to enhance their capabilities, and the company provides a wide range of training programs catering to their professional needs and ranks.

Leaders and employees regularly assess and give feedback to each other to monitor whether such efforts are contributing to "growth through work."



# Major CSR Activities

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## EHS (Environment, Health & Safety)

Doosan developed and implemented an Environment, Health & Safety (EHS) management system based on the recognition that respect for life and the environment is its responsibility and a core value for its employees, families and society at large.

We firmly believe that giving utmost priority to environmental, safety and health issues will ultimately increase the value of a company. To this end, Doosan strives to conform to global standards for environmental protection and business management. Doosan is making its best efforts to ensure the safety of all its employees and business sites, as well as to society at large. The company will continue to provide safe and environmentally-friendly products and services, in order to put its EHS philosophy into practice.

## EHS Policy

With EHS as our core management value, Doosan is committed providing products and services that improve the quality of life for people and communities around the world.

To achieve this we shall :

1. Minimize the impact of EHS on management activities by establishing an EHS management system and complying with applicable legal and other requirements.
2. Place the highest priority on the health and safety of all employees and suppliers, for which the best working environment and operational capabilities shall be secured and maintained.
3. Improve the quality of life for customers and contribute to environmental preservation by developing eco-friendly technologies, products and services.
4. Actively take part in the environmental protection efforts of local communities, fulfill social responsibilities, and engage in open communication with interested parties based on integrity and transparency.
5. Ensure all employees and suppliers are aware of and participate in our efforts toward achieving full compliance with our EHS policy.



## Fair Operating Practices

Doosan has enacted and enforced its Code of Conduct, implemented programs for voluntary compliance with fair trade regulations, and supported programs for win-win growth with its partners. It has declared its detailed policies and regulations concerning ethical norms, including those concerning integrity, transparency, and fair competition.

It reconfirms companywide compliance with these norms and standards by requiring all of its employees to submit a sworn statement on their compliance with its Code of Conduct.

In June 2004, Doosan introduced a compliance program that ensures voluntary compliance with the prevailing fair trade regulations by monitoring

the compliance of its employees with the statutes concerning subcontracting. It also conducts on- and off-line education for both its officers and employees and those of its partner companies so as to maintain fair transactional relations.

In addition, Doosan believes that the competitiveness of its suppliers builds its own competitiveness. With that belief in mind, it has established a “virtuous partnership cycle” through which Doosan’s provision of assistance for the growth of its partners ultimately results in its own growth.

It has performed diverse activities aimed at promoting “Benefit Sharing” for joint technology development and cost reduction projects, and securing the financial soundness of its partners by raising win-win growth funds while providing them with customized innovation methods.



# Major CSR Activities

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## Customer Issues

Our customers are the reason Doosan exist. Doosan makes diverse efforts to satisfy or exceed its customers' expectations while listening to and respecting their opinions.

Doosan enhances communication with its customers through diverse channels, including but not limited to its Internet website, call center and customer satisfaction survey. The customers' requests and suggestions are actively reflected in quality improvement and product development as well as in immediate actions such as its after-sales service. Further, it has strengthened its product accountability program in order to provide customers with safe and reliable products of outstanding quality. Safety and quality-related matters are treated as top priority

from the initial product design stage to delivery of the final product to the customers. These activities are a key element of the product accountability program, which is designed to enhance customer satisfaction while securing the safety of the customers, the end-users of the products.

Doosan has developed and operated an information security policy to prevent possible leakages of the personal information of its customers and thereby protect them from potential damages. It conducts an annual education program designed to enhance the security awareness of its officers and employees to protect customer-related information, and encourages them to practice their information security awareness routinely through periodic checks of performance. Doosan's customer information protection system maintains all of its customers' personal information in



an encrypted form in a database. Doosan attempts to block information leaks at the very source by pre-emptive monitoring for any acts which are suspected as potential leaks of information, including unauthorized access to, abuse or misuse of personal information.

## Corporate Community Involvement (CCI)

As a corporate citizen, Doosan is fully committed to fulfilling its corporate social responsibilities to help build a happy and prosperous future. We develop and implement CSR programs that satisfy two core elements: "Commitment to People" and "Contribution to the Community," which have remained unaltered and uncompromised throughout Doosan's 123-year history.

Doosan's CCI goal is to ensure that the communities to which the Company belongs enjoy a far higher standard of living through our CCI activities as we look to make a long-term investment into the future. Doosan has also established the basis on which employees and all its stakeholders can continually grow through diverse CSR activities, under its mission to "enhance the future competitiveness of the community and corporate value through strategic CCI activities" and "Doosan Community Blueprint," its CCI brand.



## Doosan's Community Involvement creates a better life together!

Doosan Corporation has continued to stage diverse CSR activities that enable the Company to grow together with the community.

Doosan conducts an annual "Doosan Day of Community Service" event in which employees from around the world identify and implement tasks that will benefit local communities. Thus far, some 59,000 employees in over 20 countries have participated in a wide range of volunteer programs. We made furniture for donation in South Korea, and donated toys and books for children in the U.S. In the U. K. and across Europe, we conducted activities to improve facilities in the community. In India, Vietnam, and other countries, we engaged in remodeling and repairing schools and welfare facilities. As such, we carried out various community outreach activities across the world. We have regularly conducted these events since 2014, and is now the established CSR culture of Doosan.

'Doosan Tomorrow Lab' is a program designed to help youth cultivate creativity and problem-solving techniques. In middle school, students learn the latest technologies through the free semester-long class, and consider products needed for the future using the technology, freely expanding their imagination. In high school, students explore social issues for a sustainable society, and craft products to help solve issues collectively with Doosan employees.

The 'Fire Crew Family Care' program is designed to help pre-school children of fire officers who were killed on duty or retired due to injuries on duty. Under the program, we conduct the screening of beneficiaries to offer a yearly child rearing expense of up to KRW 4 million until the child graduates from primary school. We also support professional psychological counseling for children and their caregivers, when necessary. In particular, we provide support for family members to bond by arranging summer camps and year-end parties.

In addition, other flagship programs of Doosan affiliates designed to help future talents include the "Infant Mental Health" project, a customized educational program for nursing teachers and parents to ensure proper development of healthy minds of children, the "Youth Energy" project, a youth assistance program tailored for various growth phases ranging from childhood to adolescence to young adulthood, the "Dream School" mentoring program by the employees for teenagers, and the "Time Traveler" program, which aims to promote healthy emotional development of teenagers through photography. With the belief that our community's growth is the very growth of our own, Doosan extends their service to the needy to create a positive society.





Doosan also seeks to improve access to health care and education for people living in our communities through various CSR programs. Since 2001, Doosan has established 34 “Doosan Hope Elementary Schools” for children living in remote areas in China. Under the “Wish Tree” program, we have forged sisterhood relationships with elementary schools in India with an aim to improve the educational environment for children in need. In North Dakota, in the U.S., we have funded a STEM (Science, Technology, Engineering, Mathematics) scholarship program. In Vietnam, we provide free medical services for patients, including children suffering from cleft lip and palate, help improve the nutritional condition of infants, and support the Quang Nam Central General Hospital, the largest medical institution in the Quang Nam region of Vietnam, under the Q Health program.



Doosan has continued with its efforts to meet the needs of the community by reflecting the characteristics of its business. Accordingly, the Company provided water purification facilities in Cambodia in 2006, and donated seawater desalination facilities to An Binh Island in Vietnam in 2012. The Company is also making efforts to provide disaster relief aid for people living in affected areas. The Company extended support for recovery from the 2004 Indian Ocean earthquake and tsunami, and assisted victims of Hurricane Katrina in the U.S. in 2005, the 2008 Sichuan earthquake in China, and the Fukushima nuclear disaster in 2011. The Company was the first to offer a helping hand to Sichuan Province, China, after another earthquake struck the region in 2013. It urgently dispatched its excavators and service personnel through its dealerships in areas around the province, and helped repair damaged roads to enable rescue workers to access the disaster site promptly.



Since 1991, Doosan has delivered the warmth of tea to soldiers of front-line military units under the "Love Tea Sharing" program, a longstanding CI activity that demonstrates its continued commitment to its community. The program also has led to an opportunity for Doosan to donate some Doosan Bobcat machines to front-line units in Yanggoo, Goseong, and Hwacheon in Gangwon Province, to help make their snow-removal and weeding easier. Furthermore, the Company delivers funds to diverse educational institutions and awards scholarships to outstanding students as part of its effort to make contributions to a wide range of activities carried out to help the underprivileged.



Each of the Doosan affiliates has formed teams that are solely dedicated to CSR activities, with an aim to carry them out in a more professional and systematic manner based on close relationships built with their respective communities. To encourage employees' voluntary participation in the meaningful activities, we have put in place multiple programs, including a small monthly salary deduction, a matching grant for donations made by employees, and a paid volunteer service program. We also have focused on creating more opportunities for external stakeholders to participate in and understand our CSR activities by actively communicating with them.

## Community Involvement Activities of the Foundation

Doosan helps cultivate future leaders, support young artists and grow together with local businesses of Dongdaemun in partnership with Chung-Ang University, the Doosan Yonkang Foundation and the Dongdaemun Future Foundation

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### Participating in the Management of Chung-Ang University

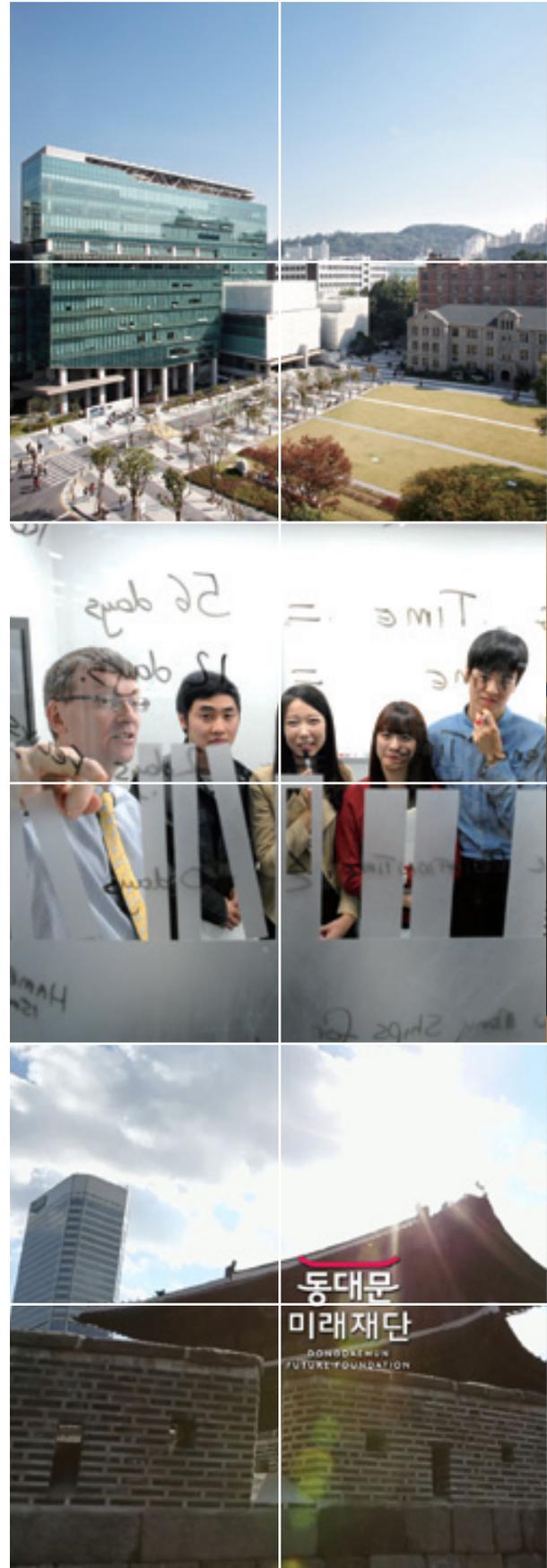
Ever since its participation in the management of Chung-Ang University in 2008, Doosan has been proactively providing support to enable the educational institution to join the ranks of prestigious world-class universities. Since 2009, Doosan has continuously pushed for structural reforms of academic units, thereby not only achieving specialization of each college and department, but seamlessly ensuring interdisciplinary convergence.

With the merger with the Red Cross College of Nursing in 2011, Chung-Ang University Red Cross College of Nursing was launched as the largest nursing education institution in Korea.

Doosan is also stepping up its efforts to strengthen university infrastructure necessary to boost Chung-Ang University's educational and research capacities. Thanks to the renovation of the Central Library building and the construction of the College of Pharmacy and R&D Center building as well as Dormitory 1 & 2, Chung-Ang University students and faculty can concentrate on their studies and research activities in a more pleasant environment. In particular, Chung-Ang University showcased its yet another leap forward by completing the construction of the "Centennial Hall" in 2016 and had a successful year in 2018 that marked its 100th anniversary, opening a new chapter in its history. Furthermore, Chung-Ang University is fostering "creative future leaders who can contribute to human society" with its new vision CAU2030 and bolstering its position in the world with the goal of becoming a global top-tier university.

### Dongdaemun Future Foundation

The Dongdaemun Future Foundation was established in 2015 with an aim of systematically promoting the development of the Dongdaemun area and achieving "shared growth" with small local businesses through a public-private-academic partnership. Under its vision of creating a "global top tier" creative tourism cluster that will achieve the advancement of the Dongdaemun fashion and tourism industry and the





balanced growth of the local economy, various programs are being prepared to realize the balanced development of Dongdaemun and the value of sharing in order to ensure co-prosperity and more effective management of the community.

### Doosan Yonkang Foundation

The Doosan Yonkang Foundation was established in 1978 to honor the late first Chairman Doobyung Park, who believed that education is the driving force of national development. The Foundation contributes to society through scholarships, academic support, and cultural programs.

Our other programs include the scholarship support programs for fostering the future leaders of the nation, including the Doosan Yonkang Scholarship, Doosan Dream Tree Scholarship, and a multicultural scholarship, the teachers overseas academic observation tour program for supporting teachers who are responsible for fostering the future human resources, the academic research support program to support basic studies as the foundation of national development, academic research activities, and book distribution programs for schools in remote areas.

The Doosan Art Center for Mecenat activities operates Yonkang Hall, Space111, Doosan Gallery Seoul / New York, and Doosan Residency New York. The Doosan Art Center is a multicultural space where performances, exhibitions, music, and other cultural activities are held. As such, the Center operates the DAC Artist program, Doosan Residency program, Doosan Art Lab and Doosan Yonkang Art Awards to explore and support young artists in various artistic genres such as musicals, plays, music, and fine art.

#### Major Activities of Doosan Art Center

- **DAC Artist**  
Selecting young performing artists under the age of 40 to support their art activities.
- **Doosan Art LAB**  
Supporting young artists under the age of 40 in their new experiments through various forms such as showcases, readings and workshops.
- **Doosan Residency New York**  
Supporting talented artists and their creative activities during six-month stays in New York.
- **Doosan Curator Workshop**  
Supporting three new curators with potential.
- **Doosan Artist Awards**  
Supporting artists under the age of 40 with potential for growth in the areas of fine arts and performing arts.



# Financial Review



# Summary Financial Review

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Since 2000, Doosan has achieved remarkable growth as it has expanded its businesses through a business portfolio conversion and increased sales by an average of 10% per year.

This review will provide an overview of Doosan's business performance for 2018.

In 2018, Doosan reported KRW 18.1722 trillion in sales and KRW 1,215.9 billion in operating profits. Sales were up 7.4% YoY and operating profits up 4.1% YoY.

In particular, since 2017, we have achieved an operating profit of KRW 1 trillion for two consecutive years.

As 66% of Doosan's total sales come from overseas, sales are relatively sensitive to global economic conditions. In the short term, our sales performance may be affected by fluctuations in exchange rates, technical license maintenance, costs associated with new technology developments and technology application time, and difficulty of sales associated with regulatory environments.

Doosan invests a great deal of resources in R&D which is a critical factor for long-term outcomes.

In 2018, many of Doosan's affiliates continue to grow through these dynamic changes. The following are examples of Doosan's success achieved in 2018.

## Doosan Heavy Industries & Construction

- Signed an MOU for the construction of thermal power plant, Units 9 and 10, in Jawa, Indonesia
- Received an order for the construction of the Samcheok Thermal Power Plant, worth KRW 1.8 trillion
- Received an order for the fuel conversion of the Yeongdong Thermal Power Plant Unit 2
- Selected to lead the development of 8MW offshore wind power systems as part of a state-led project
- Received an order for a desalination project in Sharqiyah, Oman

## Doosan Infracore

- Ranked 9<sup>th</sup> place in global construction machinery sales (based on 2019 Yellow Table)
- Unveiled the world's first 5G super-long-distance remote control technology at bauma CHINA 2018
- DoosanCONNECT won the grand prize at the IOT Innovation Award
- Selected as a supplier of engines for Baoli, the leading forklift truck maker in China
- Supplied diesel engines to ARBOS, an Italian tractor producer

## Doosan Bobcat

- Global leader in compact construction equipment
- Acquired a backhoe loader plant in India
- Signed a contract with Dae dong Industrial to conduct joint development of compact tractors in North America
- Successful readjustment of interest rates on borrowing

Despite the difficult business environment at home and abroad, Doosan is recognized for its excellent technology and competitive edge.

Doosan Heavy Industries & Construction has emerged as a global leader in the power generation and water markets.

Doosan Infracore is continuing its earnings growth with record operating profits in 2018.

We have bolstered our R&D program, secured proprietary technologies through acquisitions that provide Doosan with greater competitiveness, and are more customer-focused than ever.

We are continuously investing to find new business opportunities, while building outstanding business systems and programs for nurturing talented individuals with global competencies.

Having met all our short-term goals of the past several years, we are now focused on the future. Our true strengths lie in our diverse business portfolio as well as our ability to manage every aspect of every business with imagination and rigorous attention to detail. We know we can always improve, shape our business plans even more strategically, continue to give back while doing well and continue to build upon the support and respect of valued employees and customers.

## The Road Ahead

Doosan will continue to strengthen our competitive advantages by securing proprietary technologies and pursuing new business opportunities to aggressively transform ourselves. Consolidated under the 2G strategy—"the growth of business through the growth of people"—Doosan endeavors to become one of the leading companies in the world.

As we set new milestones as a way to measure our success, Doosan endeavors to create the maximum value for our customers by delivering the best products and services in all of our business areas, encompassing power plants, desalination plants, construction equipment, engines and construction of bridges and highways as well as duty free, advertising, magazine publishing and leisure.

Doosan is undergoing a dynamic transformation even at this very moment. Doosan will continue renewing its efforts to develop into a dynamic global company that will keep growing while recording outstanding achievements in all its business areas.

# Financial Statement 2017

(In millions of US\$)

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| Companies                              | Total Assets  | Total Shareholder's Equity | Sales         | Operating Income |
|--|---------------|----------------------------|---------------|------------------|
| Doosan Corporation*                    | 5,971         | 3,121                      | 3,135         | 245              |
| Doosan Heavy Industries & Construction | 13,750        | 5,583                      | 5,080         | 168              |
| Doosan Infracore                       | 9,591         | 2,962                      | 5,808         | 584              |
| Doosan Bobcat                          | 5,772         | 3,199                      | 2,997         | 349              |
| Doosan Engineering & Construction      | 2,656         | 901                        | 1,358         | 52               |
| <b>Grand Total**</b>                   | <b>26,852</b> | <b>7,097</b>               | <b>14,956</b> | <b>1,033</b>     |

Sales and operating income figures are based on average F/X rate of KRW 1,130.84/US\$.

Asset and equity figures are based on year-end F/X rate of KRW 1,071.4/US\$.

\* Doosan Corporation: Doosan Corporation on a separate basis; Tower, Oricom, Neoplux, Bears on a consolidated basis.

\*\* Grand Total: Doosan Corporation as a holding company on a consolidated basis; the numbers in the columns do not add up to the Grand Total.

# Financial Statement 2018

(In millions of US\$)

| Companies                              | Total Assets  | Total Shareholder's Equity | Sales         | Operating Income |
|--|---------------|----------------------------|---------------|------------------|
| Doosan Corporation*                    | 5,808         | 2,846                      | 3,496         | 195              |
| Doosan Heavy Industries & Construction | 12,113        | 3,893                      | 4,978         | 187              |
| Doosan Infracore                       | 9,864         | 3,417                      | 7,025         | 771              |
| Doosan Bobcat                          | 5,765         | 3,345                      | 3,609         | 417              |
| Doosan Engineering & Construction      | 2,146         | 329                        | 1,407         | 47               |
| <b>Grand Total**</b>                   | <b>25,830</b> | <b>6,390</b>               | <b>16,516</b> | <b>1,105</b>     |

Sales and operating income figures are based on average F/X rate of KRW 1,100.3/US\$.

Asset and equity figures are based on year-end F/X rate of KRW 1,118.1/US\$.

\* Doosan Corporation: Doosan Corporation on a separate basis; Tower, Oricom, Neoplux, Bears on a consolidated basis.

\*\* Grand Total: Doosan Corporation as a holding company on a consolidated basis; the numbers in the columns do not add up to the Grand Total.

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