

## Value Creation by the NGK Group

# Using Advanced Technology to Power a Unique “Value Creation Engine”

Thanks to the unique ceramics technology it has cultivated over many years, the NGK Group is able to develop a wide variety of high-quality products that it seeks to offer in a growing range of overseas markets. As a result, the NGK Group creates diverse value, which helps to address social problems.

| Social problems                           |  |
|---|--|
| Development of electricity infrastructure | Spread and expansion of renewable energy |
| Environmental pollution prevention        | IT innovation                            |

| Input (fiscal 2017)             |  |
|---------------------------------|--|
| Financial capital               |  |
| • Total assets                  | 836.3 billion yen                              |
| • Cash and cash equivalents     | 169.9 billion yen                              |
| Manufactured capital            |  |
| • Capital investment            | 71.7 billion yen                               |
| • Fixed assets                  | 363.9 billion yen                              |
| Intellectual capital            |  |
| • Investment in R&D             | 21.1 billion yen                               |
| • Number of patents held        | 4,186  |
| Human capital                   |  |
| • Employees                     | 19,000 people                                  |
| Social and relationship capital |  |
| • Consolidated subsidiaries     | Domestic 21 companies<br>Overseas 37 companies |
| Natural capital                 |  |
| • Electricity                   | 880,000 MWh                                    |
| • Gas                           | 142 million Nm <sup>3</sup>                    |
| • Oil                           | 2.25 million liters                            |
| • Raw materials                 | 192,000 metric tons                            |
| • PRTR-listed substances        | 707 metric tons                                |
| • Water                         | 4.32 million m <sup>3</sup>                    |

## Value creation engine of the NGK Group



## Output

### Power business



Insulators

NAS<sup>®</sup> batteries

### Ceramic products business



Ceramics for purifying automobile exhaust



NOx sensors

### Electronics business



Ceramics for electronic and electrical devices



Beryllium-copper products

### Process technology business



Ceramics for semiconductor manufacturing equipment



Industrial machinery and devices

## Results

(fiscal 2017)

### Consolidated net sales

451.1 billion yen

### Profit attributable to owners of parent

45.8 billion yen

### ROE

10.4%

### Total sales of products contributing to environmental protection

245.6 billion yen

### Social contribution spending

0.3 billion yen

### Avoided NOx emissions

4 million metric tons per year

Note: Assumes exhaust systems are equipped on new automobiles that do not have equivalent systems.

## Values provided by the NGK Group

Ensure access to affordable, reliable, sustainable, and modern energy for all

- Insulators are indispensable to stable power supply
- NAS batteries allow stable supply of renewable energy
- Ceramics for purifying automobile exhaust make exhaust gas clean, thus enabling clean usage of fossil fuels



Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

- Ceramics used in electronics make ICT cheap and ubiquitous
- Ceramics used in semiconductor manufacturing equipment let the semiconductor industry be the foundation for modern daily life
- Metal products are widely used in mobile phones, automobiles, industrial equipment, and other devices that undergird modern life



Take urgent action to combat climate change and its impacts

- NAS batteries aid in the fight against climate change by allowing stable supply of renewable energy



Make cities and human settlements inclusive, safe, resilient, and sustainable

- NAS batteries enable innovation in urban energy management for the creation of sustainable cities



Ensure healthy lives and promote well-being for all at all ages

- Ceramics for purifying automobile exhaust make exhaust gas clean



Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

- Ceramic membrane filters purify wastewater to prevent marine pollution



Ensure availability and sustainable management of water and sanitation for all

- Ceramic membrane filters provide highly safe water
- Ceramic membrane filters purify wastewater

