



Smart solutions.  
Strong relationships.

# BUILDING ON STRENGTH

CG POWER AND INDUSTRIAL SOLUTIONS LIMITED  
(formerly Crompton Greaves Limited)

80TH ANNUAL REPORT 2016-2017



AVANTHA  
GROUP COMPANY

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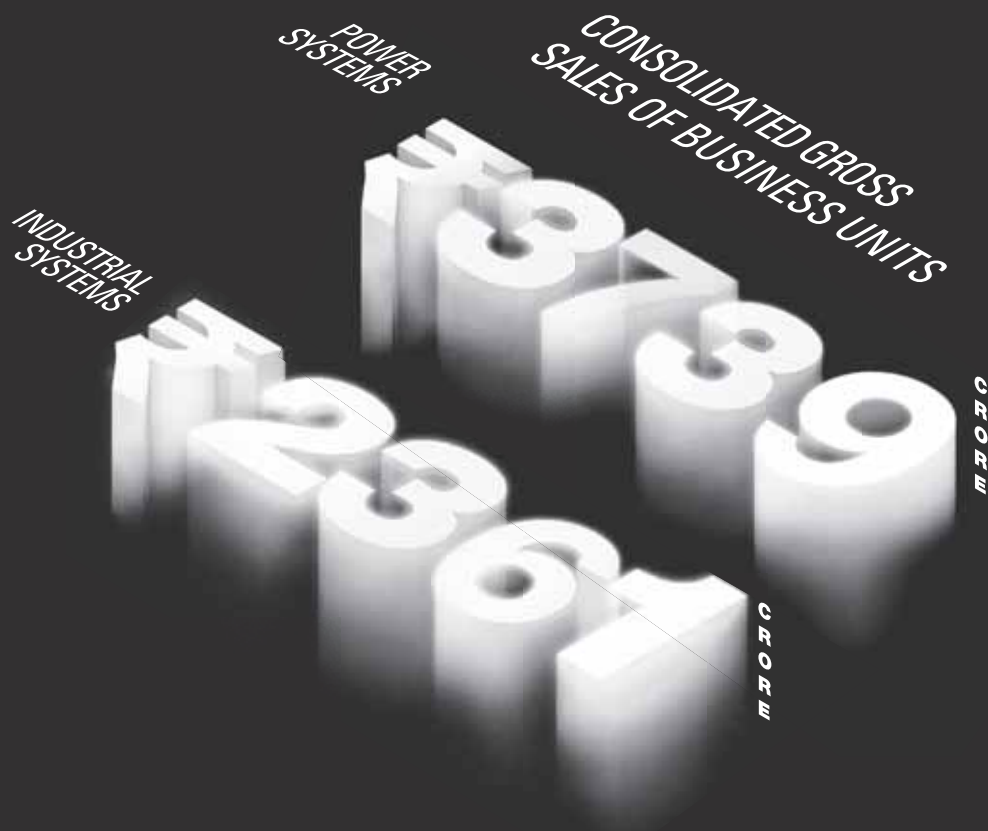
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**228**

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**₹539**  
**CRORE**

**EBIDTA FROM  
CONTINUING  
OPERATIONS**

Earning before Interest,  
Depreciation, Taxes &  
Amortisation, including  
Other Income

**₹6,120**  
**CRORE**

**GROSS SALES AND  
SERVICES FROM  
CONTINUING  
OPERATIONS**

**₹127**  
**CRORE**

**PROFIT BEFORE  
TAXES FROM  
CONTINUING  
OPERATIONS**

**₹110**  
**CRORE**

**PROFIT/ (LOSS)**

After taxes, Minority  
Interest & Share  
of Associates and Joint  
Ventures (Net)

**8.1**  
**PERCENT**

**ROCE FROM  
CONTINUING  
OPERATIONS**

Return on Capital  
Employed

**-11.9**  
**PERCENT**

**RONW ON TOTAL  
OPERATIONS**

Return on Net Worth

# CONSOLIDATED FINANCIAL HIGHLIGHTS

# BUILDING ON STRENGTH

**₹300+**  
**CRORE**

OPPORTUNITY FOR CG TRANSFORMERS OVER THE NEXT 2 YEARS IN THE SOLAR SECTOR

**₹1,100+**  
**CRORE**

OPPORTUNITY IN THE UHV SEGMENT ANNUALLY FOR CG

Maintaining an unwavering focus on India as the core market, CG has developed capabilities to address the changing needs of the country, industries and customers. Be it new product development or leveraging potential markets, for CG it has been all about moving to the next level of growth, thus increasing its reach and expanse. CG has retained its market position and growth by not only building on its core competencies, but also by pushing the envelope and gearing up for the future possibilities.



Building on strength is about bettering and maximising our performance, while staying focussed on our core capabilities—manufacturing expertise, skilled manpower and technological evolution

**₹200  
CRORE**

ANNUAL MARKET  
OPENED BY NEW  
LVRM PRODUCTS

**₹3,500  
CRORE**

ESTIMATED BUSINESS  
PROSPECT FOR THE NEXT  
3-4 YEARS IN RAILWAYS

CG's approach across its businesses has been that of moving one level up in product development with better and more complex equipment that cater to not just demands of the existing market, but also addresses the ones with potential. CG's offerings cover the growing needs of Nuclear Power, UHV T&D, Renewable Energy, Railways and several Industrial sectors.

## GROWING OUR PRODUCT PORTFOLIO

## EXPANDING OUR MARKET REACH

Complementing its existing market position, CG is entering niche segments, developing alternate markets and nurturing new opportunities, thus helping bolster growth and expand its reach. CG's way forward has it focussing and leveraging on its strengths to enter new markets and segments, while developing more complex and efficient products.

## ADDRESSING THE GREEN NEEDS

Recognizing the imperative and the obligation of making the world a greener place by using sustainable energy, CG has developed products that contribute to this objective.

Focussing on solar applications, CG has designed, manufactured and supplied distribution transformers for this sector. Transformers for solar applications, have complex requirements as they need to be effective for variable frequency, variable voltage and are subject to harmonic distortions. The solutions are technically challenging due to the combined effect of AC and DC devices being integrated into the same system. CG's immense experience, technological competence and in depth analysis of various solar installations has enabled it to successfully overcome these technical hurdles and manufacture and supply state of the art transformers for use in solar applications.

In addition, CG has developed dedicated drive solutions "SURAJ" for Solar power driven pumping applications. Solar pumps offer an energy efficient, eco-friendly and economical option to traditional grid power driven or diesel power driven pumps. They also provide a readily available solution to regions where accessibility to grid power is lacking. CG drives for this application have been designed with built-in, self-adaptive, maximum power point tracking algorithm with an easy to use interface, allowing for optimum water flow output.

## SUPPORTING THE NUCLEAR SECTOR

CG has aligned with NPCIL's vision of indigenously building a nuclear power plant that would provide added impetus to the "Make in India" strategy and be a proof of India's potential of becoming a nuclear power manufacturing hub. In a breakthrough order, NPCIL codeveloped with CG a motor to operate inside the reactor dome, making CG one of the only two companies in India to have this capability. The 6MW vertical motor will be used on the primary coolant pump for the 700 MW Rajasthan Atomic Power Project (RAPP) reactors 7 & 8 in Rawatbhata, Rajasthan. CG has also supplied a shutdown cooling pump motor to NPCIL.

CG has also executed a package order for the high specification IEEE 650 complaint Variable Frequency Drives (VFD) for RAPP and for the Kakrapar Atomic Power Project (KAPP) reactor 3 & 4 in Gujarat. This drives system qualifies CG to offer this product for other NPCIL projects.

In addition, CG's switchgear division too has been approved by NPCIL for supply of Medium Voltage Switchgear panels and has supplied these to both the projects in Rajasthan and Gujarat.

The approval and supply of these high specification and quality products to NPCIL opens up a large market for CG products in this critical segment.

**₹350  
CRORE**

APPROXIMATE MARKET  
FOR CG'S MV MOTORS  
IN THE NUCLEAR SECTOR  
OVER THE NEXT 4-5 YEARS

**₹6  
CRORE**

APPROXIMATE MARKET OPENED  
FOR CG DRIVES IN THE NUCLEAR  
SECTOR IN THE NEXT 1 YEAR

**₹200  
CRORE**

POTENTIAL FOR CG SWITCHGEAR  
IN THE NUCLEAR SECTOR IN  
INDIA OVER NEXT 3 YEARS

**10  
NEW**

NUCLEAR REACTORS TO BE BUILT BY  
THE GOVERNMENT OF INDIA GIVING  
FILLIP TO THE DOMESTIC INDUSTRY  
CATERING TO NUCLEAR POWER

**7,00,000  
SOLAR PUMPS**

TO BE INSTALLED BY  
2020 CREATING  
ADDITIONAL SCOPE FOR  
CG DRIVES SOLUTION

## DRIVING INDUSTRY GROWTH

CG has been at the forefront of developing products and technology to drive industry growth. With the launch of higher output alternators from 1250kVA to 2250kVA, CG has not only provided a high quality product to the industry but also gained additional access to the Diesel Generating set market of ₹150 Crore. Another benefit of this has been the access to the nascent mini turbine driven power generation market, showing signs of gradual growth. The introduction of special Smoke spill motors, used to extract smoke in tunnels and confined commercial places, has opened the ₹50 Crore Air ventilation market in India. CG's brake series range of motors for hazardous areas has helped consolidate and acquire new customers in the pharmaceuticals and petrochemicals sector, while the larger output AC and DC motors have helped make deep inroads into the sugar, steel and infrastructure industries, resulting in greater market share and topline growth.

## POWERING THE GRID

CG has been actively involved in addressing the requirements in the UHV segment. Its UHV products namely, Transformers, Reactors, Current Transformers, Capacitive Voltage Transformers, Instrument Transformers, Circuit Breakers and Surge Arresters, are already in use for various projects of the national utilities. In addition, CG's recent successes in securing orders from POWERGRID for 765kV breakers, throws open an opportunity to garner a bigger share of the T&D equipment requirement in the coming years. The significant order for 765kV SF6 Gas Circuit Breaker (GCB) from POWERGRID for its various substations, connecting the grids in various states of India, reinforces CG's existing leadership in the UHV T&D segment in India.



**₹150  
CRORE**

MARKET ACCESSIBLE  
TO CG WITH THE NEW  
HIGHER RANGE ALTERNATOR  
DEVELOPED THIS YEAR

## GROWING OUR PRODUCT PORTFOLIO

Building on our manufacturing potential, we are addressing niche product requirements, leveraging new opportunities and evolving technologically

**₹50  
CRORE**

APPROXIMATE ANNUAL  
REQUIREMENT FOR 765KV  
BREAKERS IN INDIA

## CONSOLIDATING THE SOUTH EAST ASIAN MARKET

**USD 154**  
**MILLION**

ALL TIME HIGH  
ORDER INPUT FOR  
INDONESIAN ENTITIES

An all-time high order input of USD 154 million for CG's Indonesia business in FY16-17 is validation that CG's Indonesian operations are becoming even stronger and advanced. CG won a significant order of USD 105 million from PT PLN in FY16-17 for supply of transformers that will be installed across their transmission network, spread over a group of islands in the Indonesian archipelago. In addition to CG's lead in the transformer business in Indonesia and Malaysia, CG is expanding in the region by setting up a Switchgear factory in Indonesia, in joint venture with the biggest state utility PT PLN. This further endorses CG's commitment to playing a vital role in the growing South East Asian market, and enabling it to access an additional minimum USD 120 million in the region.

**USD 120**  
**MILLION**

ADDITIONAL SEAP  
MARKETS ACCESSIBLE  
ANNUALLY TO CG

## SOLAR POWERING THE FUTURE

CG has aligned with the nation's green energy needs and has focussed on the niche market of renewables. India has an ambitious target of 175 GW of renewable power by 2022. This includes 100 GW of Solar power and 60 GW from wind power, with the balance from biomass and small hydro power. The Solar sector has shown phenomenal growth from 2GW in 2014 to over 12GW by March 2017. This year the country's solar capacity is expected to be 89 percent higher than 2016, making it the third-largest global solar market. Thus this segment is beyond doubt the future of electrical energy and CG has seized this opportunity.

## EXPANDING OUR MARKET REACH

Using our strong base to grow  
and reach further into markets  
with potential

**50**  
**SOLAR PARKS**

TO BE COMMISSIONED BY  
GOVERNMENT OF INDIA BY  
2019-20 AT AN INVESTMENT  
OF ₹8100 CRORE

**₹6,00,000**  
**CRORE**

INDIA'S INVESTMENT PLAN  
TO INCREASE SOLAR POWER  
CAPACITY TO 100 GW BY 2022



The SEAP region is also one of the core export markets for India and that makes the SEA manufacturing hub synergetic to CG 's growth strategy. CG would hence further leverage the synergies between the Indonesian and Indian operations, to grow the SEAP market.

Renewable energy has been a huge positive for CG's transformer business. This compounded with the Government's push has resulted in a sectoral momentum that has opened up a new alternate market for CG, a niche segment led by solar power and expanding to other renewable sectors such as wind power.

## MODERNISATION OF THE INDIAN RAILWAYS

Railway business at CG has been growing consistently over the years. Of the nearly 100% growth in order input in CG's Industrial Systems business this year, a significant portion of it has come from the Railways and secures a higher revenue stream going forward. One can attribute this to CG's consistent focus in aligning its product portfolio with the requirements of Indian Railways. During 2016-17, CG achieved an order intake of ₹625 Crore from Railways, a major part of which came from new products.

Besides catering to the regular and conventional equipment needs of Indian Railways in the field of rolling stock products like Traction Equipment, Loco Transformers, Converters/Inverters, Control Electronics (Train Management System), Integrated Propulsion Solutions, Signalling Equipment like Relays and Point Machines and Gears etc., CG is also keenly working to meet the new technologically advanced emerging needs of Railways.

In the new expanding area of AC EMU/ MEMU, CG can serve the propulsion system market of about 200 Power Cars comprising of Traction Electronics Controls, Transformer, Traction Motors that throws open an opportunity of around ₹700 Crore annually. CG's Propulsion System will help Railways in running trains at higher speed with less consumption of energy.

CG's Electronic Interlocking System under development for Indian Railways according to RDSO specification will provide the operator with total control over the yard for ensuring safe movement of trains. CG's Electronic Interlock would be in compliance to International standards and to meet the highest Safety Integrity Level requirement.

**₹625  
CRORE**

ORDER INTAKE FROM  
RAILWAYS FOR  
THE YEAR 2016-17

**₹700  
CRORE**

APPROXIMATE MARKET  
OPPORTUNITY FOR CG IN THE  
PROPULSION SYSTEM MARKET

**₹150  
CRORE**

ANNUAL OPPORTUNITY  
FOR CG IN ELECTRONIC  
INTERLOCKING SYSTEM

CG is a pioneering leader in the UHV Power  
Equipment segment in India

# CORPORATE INFORMATION