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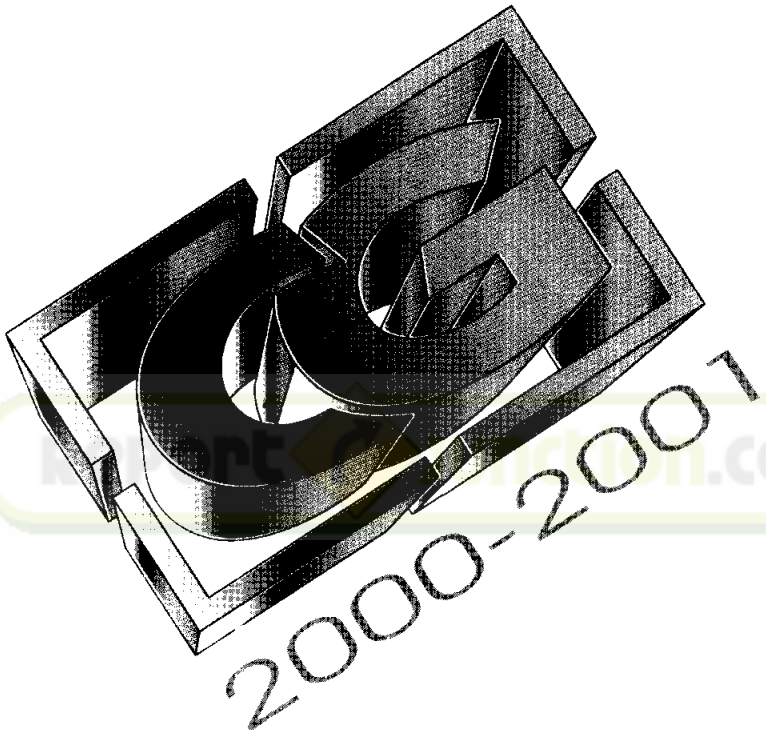
Crompton Greaves



Report & Accounts 2000 - 2001

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Crompton Greaves Limited

CONTENTS

Directors' Report	3
Report on Corporate Governance	10
Management Discussion and Analysis Report	18
Auditors' Report	24
Profit & Loss Account	28
Balance Sheet	29
Schedules	30
Cash Flow Statement	50
CG Capital & Investments Limited	53
CG - PPI Adhesive Products Limited	67
CTR Manufacturing Industries Limited	91

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Annual General Meeting on Tuesday, 24th July, 2001
at 4.00 pm at Patkar Hall, Mumbai

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Board of Directors

K. K. Nohria
Chairman

S. M. Trehan
Managing Director

S. Crowther
P. C. Gupta
D. C. Sanghi
J. Shaw
G. Thapar
K. Thapar
L. M. Thapar

Company Secretary

W. Henriques

Registered Office

1, Dr. V. B. Gandhi Marg,
Mumbai 400 01

Auditors

Sharp & Tannan

Solicitors

Crawford Bayley & Co.

Bankers

ABN - Amro Bank N. V.
Bank of Baroda
Bank of India
Bank of Maharashtra
BNP Paribas
Canara Bank
Citibank N.A.
Corporation Bank
Deutsche Bank
HDFC Bank Limited
HSBC Limited
Standard Chartered Grindlays Bank Ltd.
State Bank of India
Vijaya Bank
Union Bank of India

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DIRECTORS' REPORT FOR THE YEAR ENDED 31ST MARCH, 2001

To,

The Members,

The Directors present their Sixty-fourth Report with the audited accounts for the year ended 31st March, 2001.

OPERATIONS

The year under review has been another unsatisfactory year for the Company. A detailed review of the operations and performance of the Company is contained in the Management Discussion & Analysis Report, which forms a part of the Annual Report.

DIVIDEND

In view of the adverse financial results and accumulated losses, the Directors regret their inability to recommend a dividend for the year under review.

RESERVES

The Reserves at the beginning of the year were Rs.348.19 crores. The Reserves at the end of the year are Rs.272.46 crores.

DIRECTORATE

Mr KK Nohria retires by rotation at the forthcoming Annual General Meeting, and being eligible, offers himself for re-appointment to the Board.

Mr LM Thapar retires by rotation at the forthcoming Annual General Meeting, and although eligible for re-appointment, has conveyed his desire not to seek re-appointment to the Board. Whilst regretfully acceding to his request, the Directors place on record their gratitude and appreciation for his immense contributions, and for always sharing with the Board the benefits of his experience during his long association with the Company as a Director.

Mr AS Green, Mr D Herbert and Mr BM Suri have relinquished their Directorships. The Board places on record its gratitude and appreciation for their dedication, involvement and valuable contributions during their tenure as Directors.

Mr G Thapar and Mr J Shaw were appointed to the Board to fill the casual vacancies caused by the resignations of Mr S Datta and Mr AS Green respectively. Pursuant to the provisions of Section 262 of the Companies Act, 1956, these Directors hold office upto the date of the forthcoming Annual General Meeting and are eligible for appointment. Mr Thapar is a nominee of the Thapar Group and Mr Shaw is a nominee of the Company's foreign promoter, Invensys plc.

Mr Thapar and Mr Shaw are eligible for appointment and a proposal in this regard is being submitted for your approval.

Mr S Crowther has been appointed to the Board to fill the casual vacancy caused by the resignation of Mr D Herbert. Pursuant to the provisions of Section 262 of the Companies Act, 1956, he will hold office upto the date of the Annual General Meeting to be held in the year 2002. Mr Crowther is a nominee of the Company's foreign promoter, Invensys plc.

In terms of Clause 49 of the Listing Agreement with the Stock Exchanges, the details of Directors to be appointed are contained in the accompanying Notice of the forthcoming Annual General Meeting.

QUALITY STANDARDS & ACHIEVEMENTS

During the year, two of the Company's divisions have been awarded the ISO 9001 Certification. In all, 31 divisions of the Company are accredited with ISO 9001 Certification and 3 divisions are accredited with ISO 14001 Certification.

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RESEARCH AND DEVELOPMENT

The Research and Development Centre of the Company continues its support to the development of the Company's business in which it has made significant progress. In addition to the patents received as at last year, patents that have been received during the year, are detailed in the Annexure to this Report in the format required by the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, 1988.

SUBSIDIARY COMPANIES

Pursuant to Section 212 of the Companies Act, 1956, the Annual Reports of the subsidiary companies – CG Capital & Investments Ltd, CG-PPI Adhesive Products Ltd and CTR Manufacturing Industries Ltd for the year ended 31st March, 2001 are annexed. Consequent to transfer of investments, CG-PPI Adhesive Products Ltd and CTR Manufacturing Industries Ltd have become subsidiaries of CG Capital & Investments Ltd; however, in terms of the provisions of the Companies Act, 1956, these companies also continue as the Company's subsidiaries.

JOINT VENTURES

The brief particulars of the Joint Ventures that the Company has as at 31st March, 2001, are annexed as information to the Members.

CONSERVATION OF ENERGY, TECHNOLOGY ABSORPTION AND FOREIGN EXCHANGE EARNINGS AND OUTGO

As required by the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, 1988, the relevant data pertaining to conservation of energy, technology absorption and foreign exchange earnings and outgo are given in the prescribed format as an Annexure to this Report.

PARTICULARS OF EMPLOYEES

The statement of particulars required pursuant to Section 217(2A) of the Companies Act, 1956, read with the Companies (Particulars of Employees) (Amendment) Rules, 2000, forms a part of this Report. However, as permitted by Section 219(1)(b)(iv) of the Companies Act, 1956, the Report and Accounts are being sent to all Members and other entitled persons excluding the above statement. Those interested in obtaining a copy of the said statement may write to the Company Secretary at the Registered Office and the same will be sent by post. The Statement is also available for inspection at the Registered Office during working hours upto the date of the Annual General Meeting.

AUDITORS' REPORT & CERTIFICATE

The Company's explanations to the Auditors' observations in their Report have been detailed in Note Nos. 1, 26, 27, 32 and 34 in the Notes on Accounts contained in Schedule B to the Accounts, which forms part of the Annual Report. The Auditors have certified the Company's compliance of the requirements of Corporate Governance in terms of Clause 49 of the Listing Agreement and the same forms part of the Report on Corporate Governance.

DIRECTORS' RESPONSIBILITY STATEMENT

The Directors would like to assure the Members that the financial statements for the year under review conform in their entirety to the requirements of the Companies Act, 1956.

The Directors confirm that:

- the Annual Accounts have been prepared in conformity with the applicable Accounting Standards;
- the Accounting Policies selected and applied on a consistent basis, give a true and fair view of the affairs of the Company and of the loss for the financial year;
- sufficient care has been taken that adequate accounting records have been maintained for safeguarding the assets of the Company; and for prevention and detection of fraud and other irregularities;
- the Annual Accounts have been prepared on a going concern basis.

AUDITORS

The Company's Auditors, Sharp & Tannan, hold office upto the conclusion of the forthcoming Annual General Meeting and, being eligible, are recommended for re-appointment on terms to be negotiated by the Audit

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Committee of the Board of Directors. They have furnished the requisite certificate to the effect that their re-appointment, if effected, will be in accordance with Section 224(1B) of the Companies Act, 1956.

FIXED DEPOSITS

1008 persons had not claimed repayment of their matured deposits amounting to Rs.96.06 lacs as at 31st March, 2001. At the date of this Report, an amount of Rs.28.43 lacs therefrom has been claimed and repaid and/or renewed. Effective 1st February, 2001, the Company has appointed Sharepro Services as its Registrars to deal with all matters relating to the Fixed Deposit Scheme of the Company. Investors are requested to address their queries, if any, in this regard, to the Registrars at the address mentioned in the Report on Corporate Governance annexed hereto.

LISTING ARRANGEMENTS

The Company's shares are listed on the Mumbai, Delhi, Calcutta and Madras Stock Exchanges as well as on the National Stock Exchange. The Company's Global Depository Receipts are listed on the London Stock Exchange. The Listing fees to all the Stock Exchanges have been paid upto date.

ACKNOWLEDGMENTS

The Directors wish to place on record their appreciation to the shareholders, dealers, customers, suppliers, bankers and other business associates for their forbearance, understanding and support to the Company, and also to the employees at all levels for their untiring efforts, which will contribute to bringing the Company back on track.

On behalf of the Board of Directors

KK NOHRIA
Chairman

Mumbai, 28th May, 2001.

JOINT VENTURES

Financial Year 2000-2001

(Rs. Crores)

SR NO	NAME OF COMPANY	TURNOVER	P B T	SUBSCRIBED CAPITAL	CG % HOLDING
1	CG GLASS LTD.	36.63	(14.48)	18.02 (Equity)	28.75
				10.00 (Pref.)	100.00
2	CG NEWAGE ELECTRICAL LTD.	72.14	12.79	2.00	38.00
3	CG LUCY SWITCHGEAR LTD.	9.69	2.29	1.20	50.00
4	PAXONET COMMUNICATIONS INC., USA + $	4.83	(23.04)	5.09	27.00
5	HITACHI CG MOTOR ENGINEERING LTD.	0.34	0.03	1.60	49.00
6	CG ELIN POWER SYSTEMS LTD.	26.19	(1.55)	12.50	50.00
7	BROOK CROMPTON GREAVES LTD.	29.53	3.28	16.00	49.00
8	POWER EQUIPMENT LTD., DUBAI + ** $	2.15	(2.34)	2.37	40.00

$ Unaudited

+ Investment in US $ @ 1 US $: Rs. 46/-

** 1st July, 2000 (date of commercial production) to 31st March, 2001.

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ANNEXURE TO DIRECTORS' REPORT

Under Section 217(1)(e) of the Companies Act, 1956

A. CONSERVATION OF ENERGY

(a) ***Energy Conservation Measures taken:***

- Continuation of energy audits and periodic monitoring to reduce wastage of power in different areas of operations.
- Progressive use of piped natural gas in lieu of LPG/Electrical heaters.
- Progressive usage of energy saver devices such as electronic ballasts and timer switches for lighting and air-conditioners.
- Progressive installation of switched capacitor banks with automatic power factor controller.
- Continued emphasis on usage of soft starters for paint booth motors and main compressors.
- Minimisation of idle running time of machinery & equipment.
- Progressive installation and modification to improve the energy efficiency of ovens.
- Re-arrangement and relocation of lighting systems for reduced energy consumption.
- Co-ordinated rescheduling of compressors.

(b) ***Additional investments and proposals, if any, being implemented for reduction of consumption of energy:***

- Installation of pressure vessel for compressors to reduce compressor running time.
- Load balancing of transformers.
- Modification of product design in respect of low tension metallised polyproplyene film capacitor to eliminate need for autoclave.
- Exhaust fans in hangars to minimize use of air conditioners.

(c) ***Impact of the measures at (a) and (b) for reduction of energy consumption and consequent impact on the cost of production:***

The above measures have enabled reduction in energy consumption and contributed to savings in costs. Efforts continue to further reduce the consumption of energy and its impact on cost of production.

B. TECHNOLOGY ABSORPTION

Research and Development (R & D)

1. Specific areas of significance in which R&D is carried out by the Company:

The thrust continues to achieve superior technology status in the industry and for greater customer satisfaction. These endeavours have also contributed to product diversification, reduction of material costs, improvement of processes and productivity and enhancement of core competencies in various business areas.

These include:

- Development of energy efficient motors.
- Development of dry insulation system for transformers.
- Noise level reduction for motors and transformers.
- Improvement to power quality.
- Processes for improving properties of materials.
- Improvement in product aesthetics.
- Reduction in throughput time through improved processes.
- Adaptation of imported technology to suit application & site conditions.
- Analytical techniques for design optimisation.
- Condition monitoring of transformers.
- Special purpose manufacturing machines & test systems for improved productivity and process consistency.
- Digital multi access rural radio systems based on TDMA principle.

2. Benefits derived as a result of the above R&D:

Introduction of new products and processes:

Power Systems

Transformers

- Transformers with vacuum load tap changer for US market.
- Barge mounted 120 MVA transformers.
- 87.5 MVA, largest rating in 132 kV Delta connected transformer.
- 320 MVA, 3 phase transformer – largest generator transformer built and exported from the country.
- 100 MVA indoor transformers suitable for multiple terminations viz., cable box, air bushings & SF6 terminations.
- Special purpose machines developed for manufacture of amorphous metal core transformers
  - CNC core cutting and wrapping line, together with auxiliary machines for forming and lacing of cores.
  - CNC HV coil winding machine
  - Edge conditioning machine for LV coils
  - Foil winding machine for LV coils

Switchgear

- 7.2 kV, 400 amps vacuum contactor
- 245 kV, 40 kA gas circuit breaker with spring mechanism.
- 36 kV 3150 amps, 40 kA, SF6 gas circuit breaker.
- 170 kV condenser bushing.
- 36 kV, 200 VA, class 0.2 inductive voltage transformers.

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- 420 kV, 3150 amps, Current transformers.
- 40 kV surge suppressor capacitor with polymer concrete bushings with 250 kV impulse withstand capability.

Industrial Systems

HT Motors

- GD range compact 6.6 kV, high efficiency motor in TEFC construction - 315 kW, 4 pole, Frame 355.
- Large 4.5 MW, 4 pole motor for boiler feed pump application in 210 MW power plants.

LT Motors

- Full range of standard 3 phase LT motors of improved efficiency class to European standard of CEMEP & the new Industry standard in India IEEMA standard 19:2000
- LT Invertor duty motors with IC 416 construction for full torque even at low speeds.
- Special LT motors for niche applications - Marble cutting heavy duty, cane unloader, cane cutter, etc.
- Motors with complete blower units for cooling traction motors and transformer oil in electric locomotives.
- Compact 6 pole crane duty motors with upgraded outputs.

FHP Motors

- Improved fractional horse power motor model in Frame B56.

DC Motors

- Vertical laminated yoke motors for sugar centrifuge application in frames 315 and 250.
- Horizontal motors – Frame 280 for paper mill; Frames 355 & 400 for film extruder & wire drawing.
- AISE steel plant standard motors – Frame 816 in laminated yoke .

Alternators

- Extension of slip-ring alternator range from 15 to 82.5 kVA.
- Compact, lightweight alternator in Aluminium Frame - AL series
- High speed (3000 RPM) alternator in the range 15 to 22.5 kVA
- Frames 132/160 & 200, 380 Volt, 60 Hz models with single bearing for export.
- High voltage brushless alternators: New Frame BASM 50 – 3.3 MW, 11 kV, 6 pole; 2.5MW, 6.6 kV, 8 pole for Hydel power plants.

Traction Electrics

- Complete electrics for diesel electric tower car - traction motors, brushless alternator with engine, motor, alternator, driver controls & all accessories.
- Complete electrics for 8 wheeler OHE car with underslung arrangement - first time in India
- Class H, 240 volt , 30 kW motor for main drive of electric bus

Consumer Products

Fans & Appliances

- Ceiling Fans - "Aura"; "Gold Air" and "Whirl-wind"
- Table Fans - "Galaxy"; "Galaxy Smart" and "SDX Smart".
- Pedestal Fans - "Golden Lark" and "SDX Smart"
- Exhaust Fan - "TransAir"
- Mixer Grinder – "SM 550"

Lighting

- "Medilux" clean room application lighting fixture for pharmaceutical and biotech Industries.
- 1000W MH and HPSV floodlighting system.
- Indirect light mirror optics for software industry
- "Paragon" – landscape/street lighting with CFL.
- "Topaz" – architectural floodlighting luminaire for façade and hoardings.
- Modern fixture for Indoor & Outdoor lighting – "Olympia", "Pixel", "Mirage", "Dreamlite" etc.,
- Electronic & Magnetic energy saving ballast.

Pumps

- 4" submersible pumps – 9 ratings in economical range.
- Openwell submersible pumps – 5 new ratings.
- 1 Phase centrifugal pump – 4 new ratings.
- Multistage jet pump in 1.5 HP
- Self-priming centrifugal pump in 1 HP

Digital

- Network synchronization equipments for C-DoT MAX-XL and SBM switches.
- HDSL systems with E1 Interface.
- 2/34 Mbps optimux system with regenerator
- 2/8 Mbps Optimux in (1+0) & (1+1) mode
- Single PCB Model of telephone instrument.
- EPABX for SME & SOHO.
- Coral ISBX Exchanges for call centre applications.

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Technology Competence Achieved

- Manufacturing process for copper foil 4 in tandem (4 axially, 2 radially) winding with round core for dry type transformer.
- Step lap core process for power transformers.
- Methodology for noise level reduction in medium power transformers to 50 db
- Methodology for noise level reduction to 55 db in dry type transformers upto 2 MVA
- Optimisation of insulation content in power transformers with the use of FEM analysis.
- Contra-shield winding for 400 kV class transformers.
- 3D CAD packages for manufacturing drawings of power transformer.
- Design & manufacturing of medium power transformers to meet short circuit test requirements
- Use of copper foil for LV, and layer winding for HV in dry type transformers.
- Substitution of steel components with plastics
- Processing of powder metallurgy components
- Characterisation and processing of electrical steel for improved magnetic characteristics
- Design analysis using solid modelling & FEM
- Solid insulation system for medium voltage power apparatus
- Reliability establishment of electronic products
- Rapid prototyping
- Controlled chopping facility for impulsive voltage testing upto 1500 kV.
- Transmission & access products

Patents

The Company continues to register Patents in respect of the improvements and developments of its products & processes. Several of these have already been patented. In addition to the 6 patents received and reported in last year's report, the details of the patents received during the year and those filed are as under :

Patent Received During the Year

- Fluorescent tube packing machine

Patents Filed & Pending Registration

- Electric fan suspension shackle
- Single phase traction transformer for AC electric locomotive and methodology for manufacture.
- Fractional horsepower centrifugal pump.
- Computerised Numerical Control (CNC) machine for cutting accurately and smoothly two and/or three dimensional profiles of soft material such as polystyrene foam (thermocole sheets).
- Methodology for making polystyrene foam patterns particularly for use in lost foam technique metal castings.
- Compact efficient and inexpensive transformerless power conversion system and a method of transformerless bidirectional conversion of power from a voltage source *with* inversion.
- Compact efficient and inexpensive transformerless power conversion system and a method of transformerless bidirectional conversion of power from a voltage source *without* inversion.
- Design of Ceiling Fan with aero blades.

3. Future Plan of Action

The Company's Research & Development efforts will continue to provide the Company's businesses with a continuous flow of relevant processes and products. The thrust will be on products with improved features and product ranges with sustainable customer benefits.

4. Expenditure on R & D

		31st March, 2001 Rs. Crores
(a)	Capital	0.38
(b)	Revenue	8.71
(c)	Total (a + b)	9.09
(d)	Total R & D expenditure as a percentage of total turnover	0.66%

Technology Absorption, Adaptation and Innovation:

1. Efforts, in brief, made towards technology absorption, adaptation and innovation:

Innovation and modernisation of product range to meet the requirements of the market through extensive R&D, involvement with technical collaborators and experts, research laboratories, academic institutions and specialised training in technical and managerial aspects to achieve optimum absorption and adaptation to meet customer needs.

2. Benefits derived as a result of the above efforts:

Product innovation and enhancement of specifications, reduction in costs, improvement in quality of products and processes, expansion of customer base and strengthening of the competitive position.

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3. Imported Technology :

Year of Import	Product	Imported From	Status of Absorption
1996-97	13 Watt and 35 Watt Fluorescent lamps	VNIIIS, Russia	absorbed.
1996-97	High Voltage Induction Motors	Hitachi Ltd., Japan.	absorbed.
1996-97	Small Alternators	Eurogen, Italy.	absorbed.
1996-97	Industrial DC Motors	Siemens Ltd., Germany.	absorbed.
1997-98	36kV Indoor Gas Circuit Breakers	Mitsubishi Electric Corpn., Japan.	absorbed.
1997-98	245kV Gang Operated Gas Circuit Breakers.	Mitsubishi Electric Corpn., Japan.	absorbed.
1998-99	7.2kV GCB type 6SFG 40A	Mitsubishi Electric Corpn., . Japan.	absorbed.
1998-99	Metalclad Switchgear Panel, Type EX	Mitsubishi Electric Corpn., Japan.	absorbed.

C. FOREIGN EXCHANGE EARNINGS AND OUTGO

(a) Activities relating to exports; initiatives taken to increase exports; development of new export markets for products and services; and export plans:

The Company's activities and initiatives relating to Exports are contained in the Management Discussion and Analysis Report which forms a part of the Annual Report.

(b) Total Foreign Exchange Earned and Used:

	Rs. Crores
Total Foreign Exchange Earned	152.52
Total Foreign Exchange Used	98.18

On behalf of the Board of Directors

KK NOHRIA
Chairman

Mumbai, 28th May, 2001

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