

JOHNSON ELECTRIC HOLDINGS LIMITED

FY2012/13

Annual Results

May 2013

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Group Overview

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JOHNSON ELECTRIC GROUP OVERVIEW

Johnson Electric is the global leader in custom designed motion subsystems, including motors, solenoids, switches and flexible interconnects. We serve a broad range of industry segments including automotive, building automation and security, business machines, security and aerospace, food and beverage equipment, home appliances, HVAC, industrial equipment, medical devices, personal care, power equipment and power tools.

Established in 1959, Johnson Electric designs and produces custom motion solutions throughout the world for use in a broad range of product applications. Innovation centers are located in Hong Kong, China, Switzerland, Germany, Italy, Israel, Japan and the UK and the USA. Total global headcount including contract staff stands at approximately 36,000 people.

The annual production capacity are over one billion motor and actuators and manufactures products in more than a dozen countries on four continents.

Johnson Electric has been listed on The Stock Exchange of Hong Kong Limited since 1984.

COMPANY VISION AND BRAND PROMISE



Company Vision

To be the world's **definitive** provider of innovative and reliable motion systems

































Brand Promise

“Technology Leadership”

“The Safe Choice”



APG APPLICATIONS

<p>Powertrain Cooling</p>  <p>Cooling Fan Module</p>  <p>Battery Cooling</p>  <p>Grill Shutter</p>	<p>Lighting</p>  <p>Headlamp Adjuster</p>  <p>Headlamp Adjuster</p>  <p>LED Lighting</p>	<p>HVAC</p>  <p>Actuator</p>  <p>Actuator</p>	<p>Door Locks</p>  <p>Door Lock</p>	<p>Window Lift & Sunroof Drive</p>  <p>Window Lift Drive</p>  <p>Sunroof Drive</p>	<p>Power Closure Systems</p>  <p>Latching / Clenching</p>  <p>Power Lift Gate</p>  <p>Switch</p>  <p>Door Closure Assist</p>
		<p>Washer Pumps</p>  <p>Washer Pump</p>  <p>Washer Pump</p>  <p>Headlamp Washer</p>	<p>Mirrors</p>  <p>Mirror Adjuster</p>  <p>Power Folder</p>		
				<p>Power Seat</p>  <p>Seat Adjuster</p>  <p>Seatbelt Pretensioner</p>  <p>Headrest Adjuster</p>  <p>Lumbar Support</p>	
<p>Steering</p>  <p>Electric Power Steering</p>  <p>Electric Steering Column Lock</p>	<p>Engine Management</p>  <p>Electronic Throttle Control</p>  <p>Exhaust Gas Recirculation</p>  <p>Fuel Pump</p>  <p>Valve Actuators</p>			<p>Braking</p>  <p>Electronic Stability Control</p>  <p>Anti-lock Braking System</p>  <p>Electric Parking Brake</p>	<p>Transmission</p>  <p>Automated Manual Transmission</p>  <p>Dual Clutch Transmission</p>

IPG APPLICATIONS



Power Tools



Camera and Optical



Home Entertainment & Gaming



Home Technologies



Personal Care



Food & Beverages



Lawn & Garden



HVAC



Building Automation & Security



Business Machines



Industrial Automation



ATM



Medical Devices



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HIGHLIGHTS

- ✓ **Sales** increased by 1% excluding currency effects and divested businesses.
 - APG sales increased by 6% - driven by innovation and the growth of our targeted customers.
 - IPG sales decreased by 8% - due to weak demand in home entertainment and gaming , and across Europe , as well as our exit from certain low-margin applications.

- ✓ **Gross margin** improved to 28.0% from 27.3% YOY.

- ✓ **Operating profits** excluding divestitures and non-recurring items were US\$188 million or 9.1% of sales.

- ✓ **Net profit attributable to shareholders** increased 2.5% to a record US\$191 million.

- ✓ Full year recommended **dividend** of HK\$0.11 per share, a 10% increase over prior year (HK\$0.10 per share)

- ✓ The **Saia-Burgess Controls** business was divested on 1 February 2013 for gross consideration of EUR100.0 million.

FINANCIAL HIGHLIGHTS

<i>US\$ million</i>	FY2012/13	FY2011/12
Sales	2,059.7	2,140.8
Gross profit	577.7	584.4
<i>Gross margin</i>	28.0%	27.3%
Profit attributable to shareholders	191.3	186.7
Diluted earnings per share (US Cents)	5.33	5.15
EBITDA	304.3	314.3
<i>EBITDA margin</i>	14.8%	14.7%
Free cash flow from operations ¹	161.4	166.0
<i>US\$ million</i>	31 Mar 2013	31 Mar 2012
Cash	480.9	385.1
Total debt (borrowings)	(125.0)	(205.4)
Net cash	355.9	179.7
Enterprise value ²	2,320.5	2,075.6
Enterprise value to EBITDA ³	7.6	6.6
Credit Quality - Financial Ratios ³	31 Mar 2013	31 Mar 2012
Free cash flow from operations (annualised) to debt	129%	81%
Total debt to EBITDA (annualised)	0.4	0.7

1. Net cash generated from operating activities plus interest received, less Cap-Ex net of proceeds from disposal of fixed assets. FY2012/13 excludes cash outflow due to insourcing a European distribution channel

2. Enterprise value calculated as market capitalisation plus non-controlling interests plus total debt less cash

3. EBITDA and free cash flow from operations were annualised using last twelve months' results

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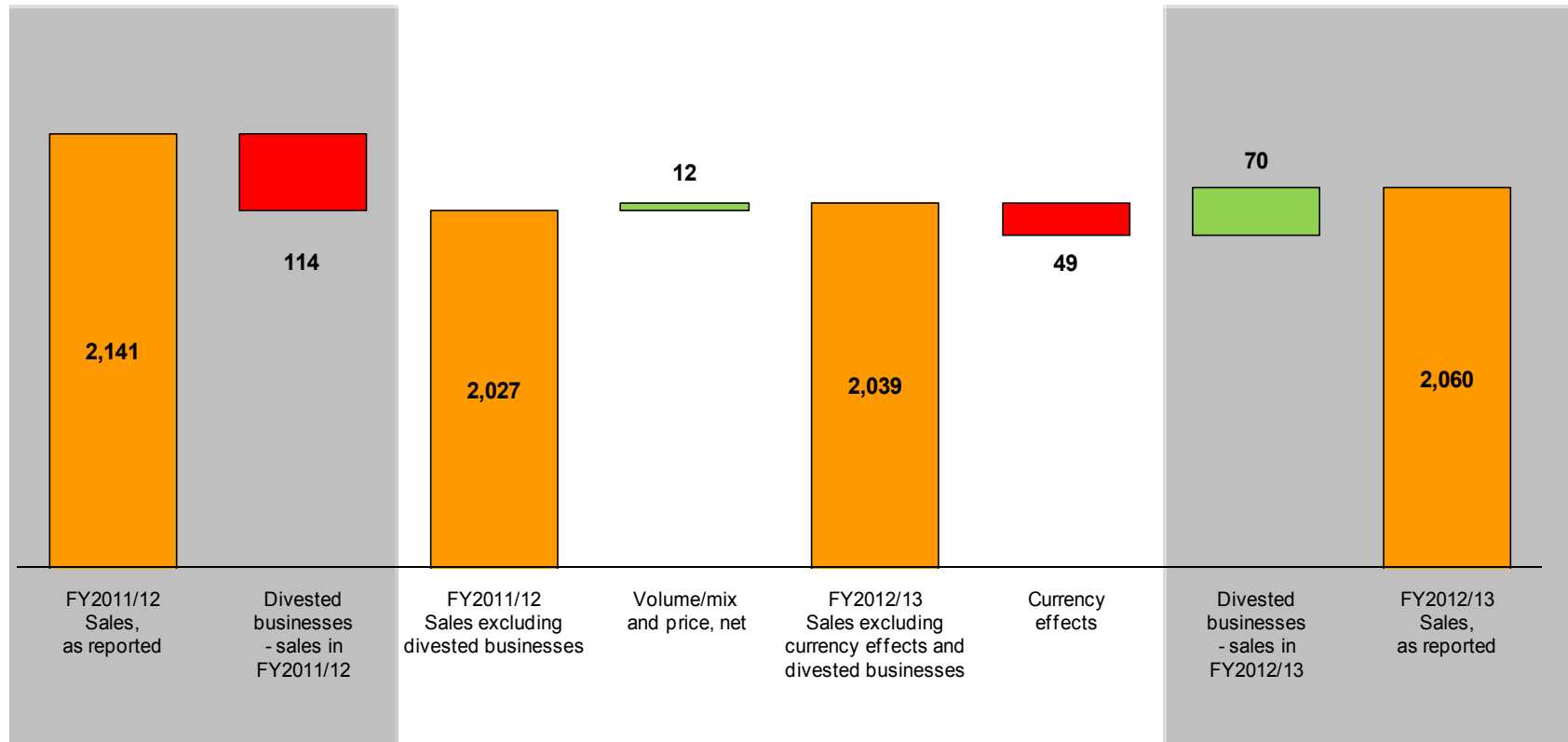
Appendix

PROFIT & LOSS – FY2012/13 vs. FY2011/12

<i>US\$ million</i>	FY2012/13	FY2011/12	Increase/ (decrease) in profit
Sales	2,059.7	2,140.8	(81.1)
Gross profit	577.7	584.4	(6.7)
<i>Gross margin %</i>	28.0%	27.3%	
Other income and gains, net	28.4	18.3	10.1
Selling and administrative expenses ("S&A")	(393.2)	(368.6)	(24.6)
<i>S&A %</i>	19.1%	17.2%	
Restructuring and other costs	-	(13.0)	13.0
Operating profit	212.9	221.1	(8.2)
<i>Operating margin %</i>	10.3%	10.3%	
Net interest income/(expense)	4.8	(1.1)	5.9
Share of profits of associate	0.3	0.5	(0.2)
Profit before income tax	218.0	220.5	(2.5)
Income tax expense	(21.1)	(31.6)	10.5
<i>Effective tax rate</i>	9.7%	14.3%	
Profit for the year	196.9	188.9	8.0
Non-controlling interests	(5.6)	(2.2)	(3.4)
Profit attributable to shareholders, as reported	191.3	186.7	4.6

SALES CHANGES – FY2012/13 vs. FY2011/12

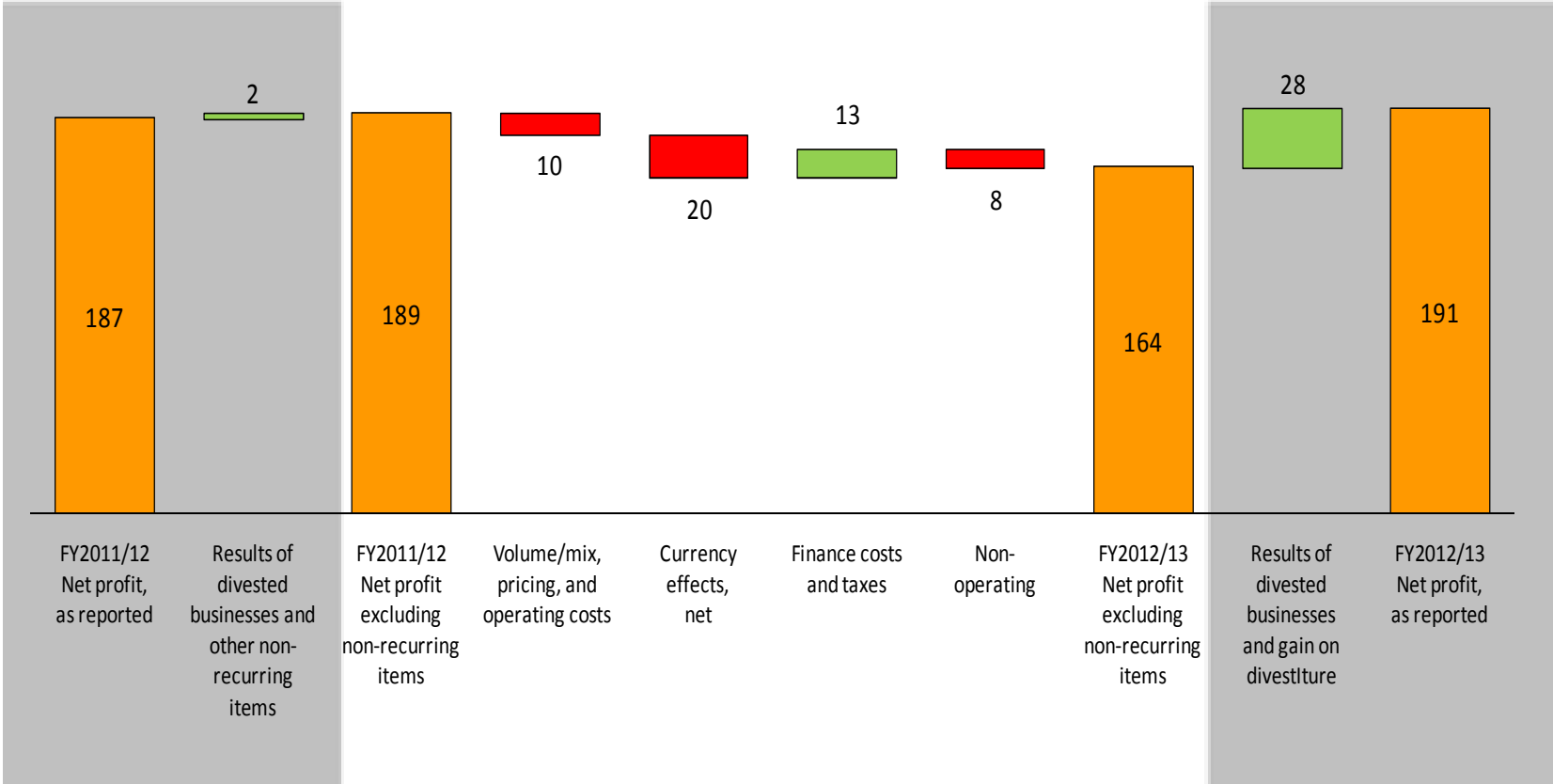
US\$ million



Note: Numbers do not add across due to the effect of rounding

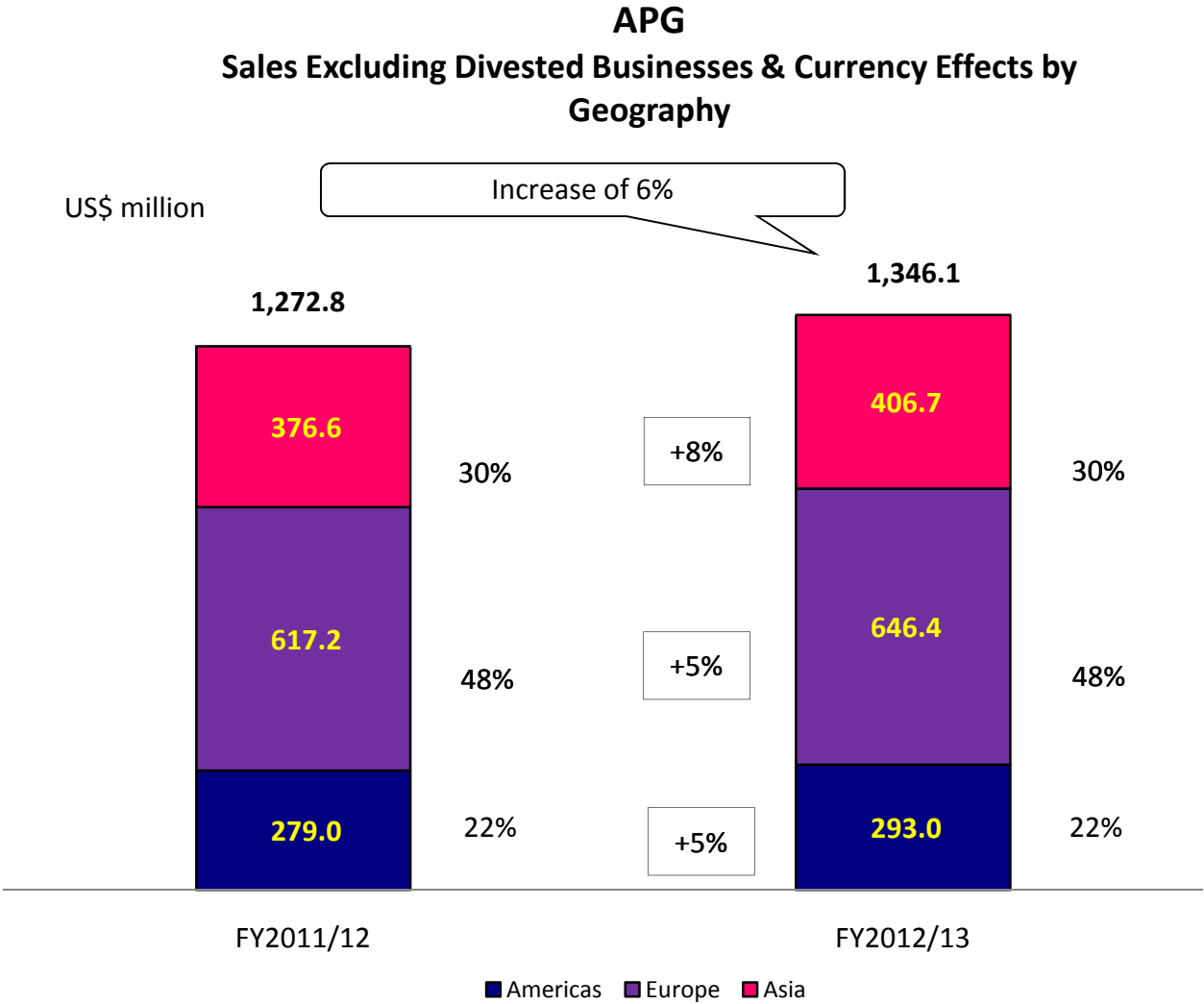
CHANGES IN PROFIT ATTRIBUTABLE TO SHAREHOLDERS

US\$ million



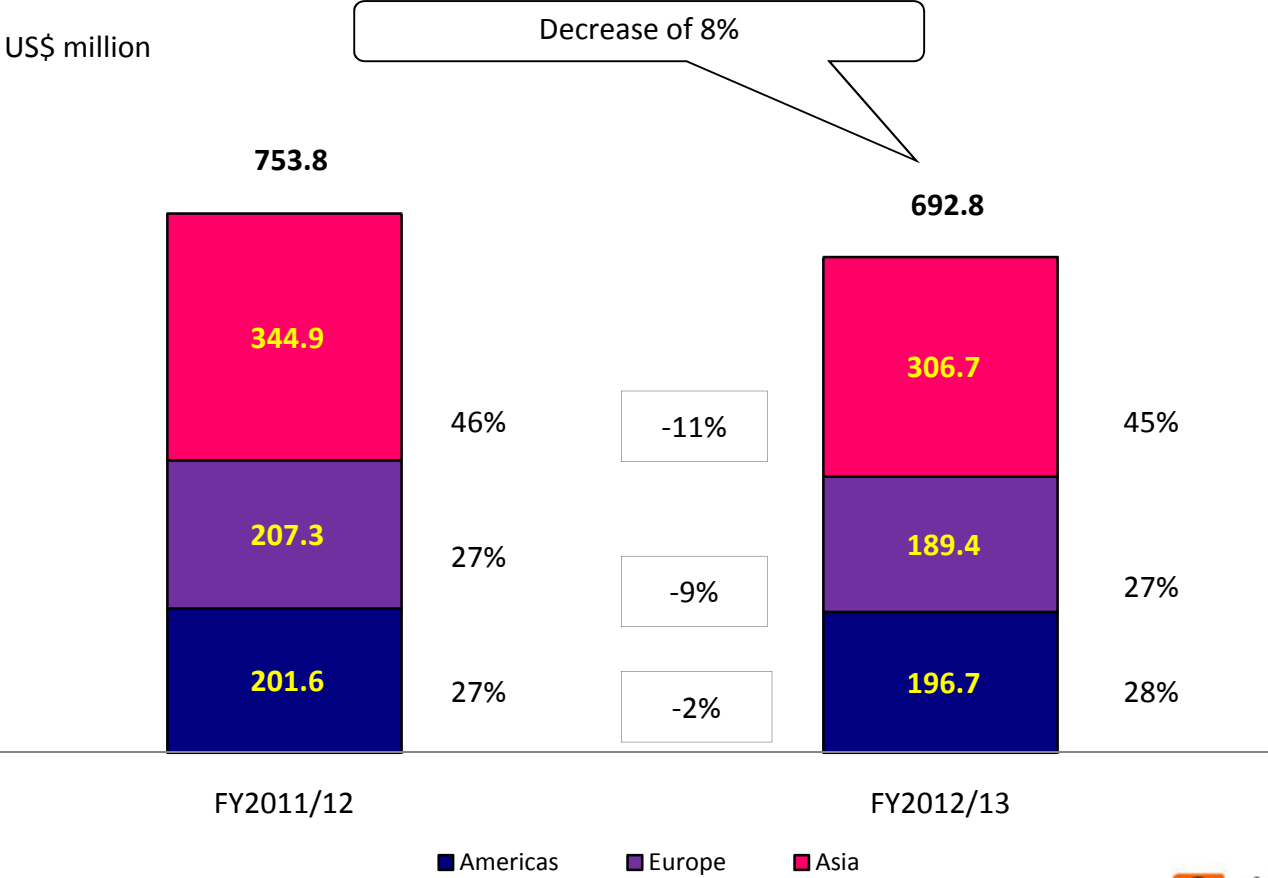
Note: Numbers do not add across due to the effect of rounding

GROUP SALES BY BUSINESS - APG



GROUP SALES BY BUSINESS - IPG

IPG
Sales Excluding Divested Businesses & Currency Effects by Geography



FREE CASH FLOW FROM OPERATIONS

<i>US\$ million</i>	FY2012/13	FY2011/12	Change
Operating profit *	213.4	221.4	(8.0)
Depreciation and amortisation	90.9	92.9	(2.0)
EBITDA	304.3	314.3	(10.0)
Other non-cash items in profit before taxes	(17.8)	(5.2)	(12.6)
Working capital changes	(37.8)	(42.4)	4.6
Interest paid	(2.5)	(6.0)	3.5
Income taxes paid	(29.4)	(27.6)	(1.8)
Net cash generated from operating activities	216.8	233.1	(16.3)
Capital expenditure	(82.6)	(91.3)	8.7
Proceeds from disposal of fixed assets	19.7	18.4	1.3
Interest received	7.5	5.8	1.7
Free cash flow from operations excluding insourcing	161.4	166.0	(4.6)
Working capital change due to insourcing a European distribution channel	(49.5)	-	(49.5)
Free cash flow from operations including insourcing	111.9	166.0	(54.1)

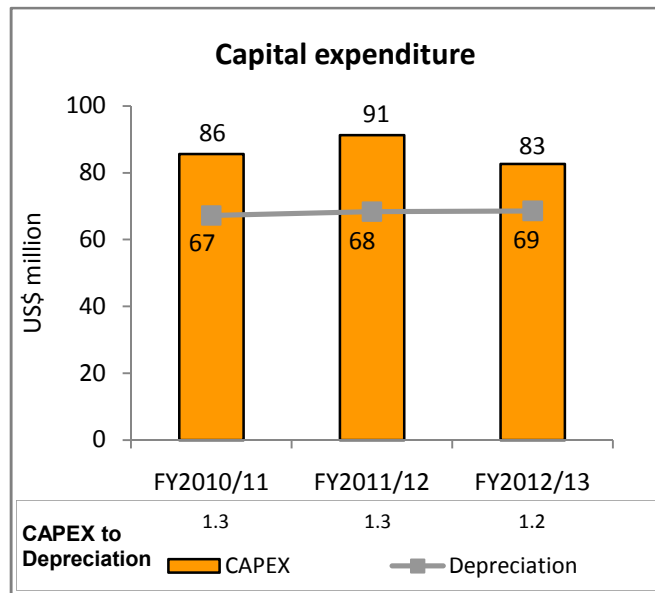
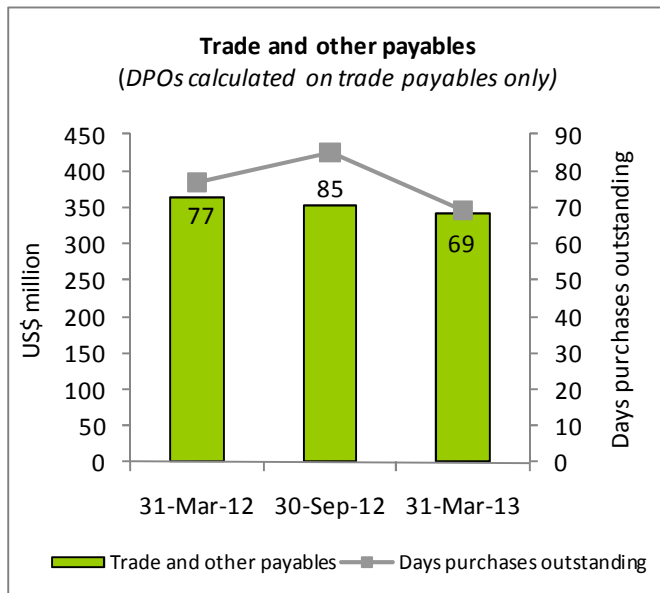
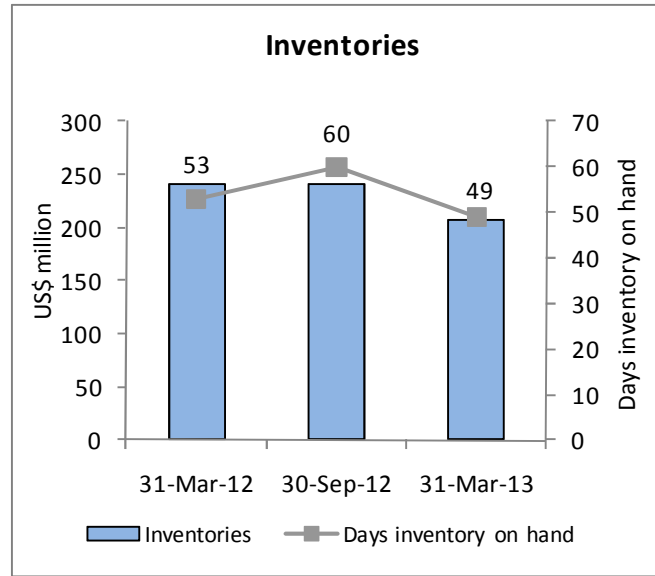
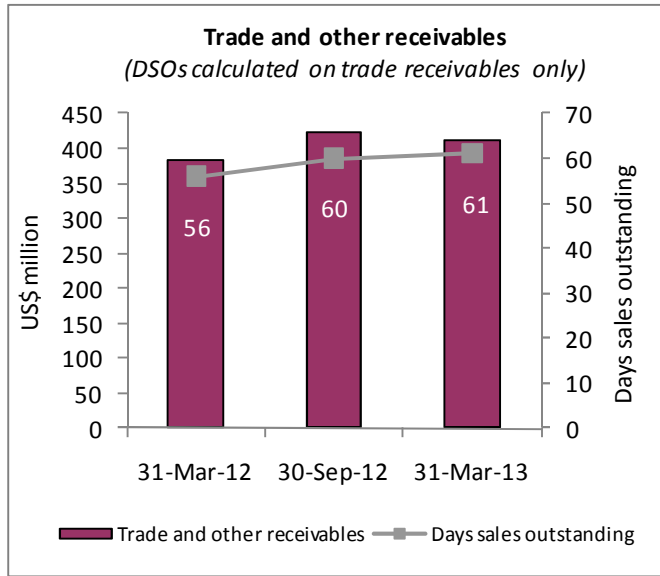
* Operating profit as reported plus dividend received from associate of US\$0.5 million for FY2012/13
(FY2011/12: US\$0.3 million)

OTHER CASH FLOWS

<i>US\$ million</i>	FY2012/13	FY2011/12	Change
Free cash flow from operations	111.9	166.0	(54.1)
Acquisition	(11.1)	-	(11.1)
Proceeds from divestiture of non-core businesses	137.8	28.9 *	108.9
Purchase of shares for cancellation of issued capital	(19.9)	(31.9)	12.0
Purchase of shares held for Long-Term Incentive Share Scheme	-	(2.6)	2.6
Other investing activities	3.7	5.1	(1.4)
Dividends paid	(46.0)	(41.9)	(4.1)
Other financing activities	(2.8)	-	(2.8)
Total cash flow (excluding changes in borrowings)	173.6	123.6	50.0

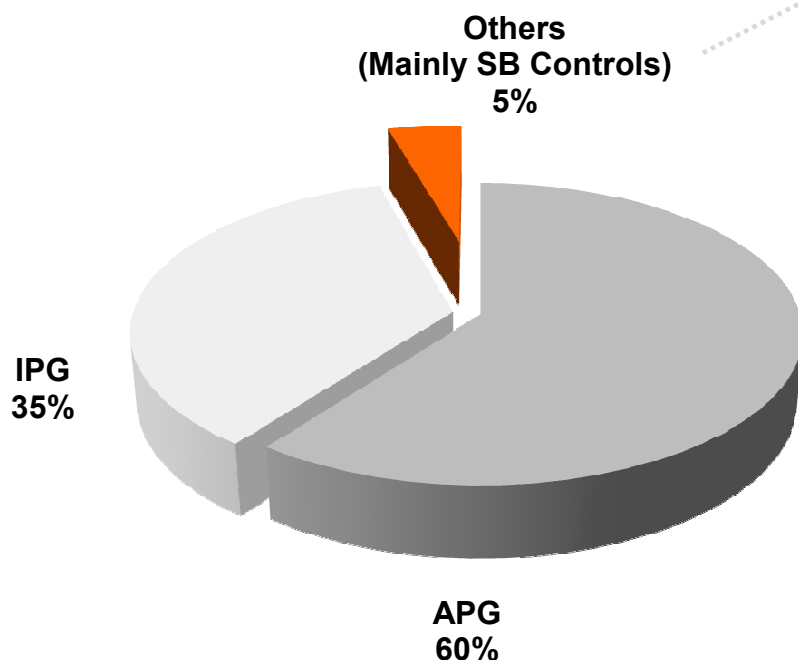
** FY2011/12 US\$28.9 million comprised cash consideration of US\$32.2 million, net of cash divested US\$3.3 million. Debt of US\$9.6 million owed by the divested subsidiary was also deconsolidated.*

WORKING CAPITAL & CAPEX



DIVESTITURE OF SAIA-BURGESS CONTROLS BUSINESS

**JE Group Sales %
by Business
FY 2012**



Reasons for Disposal:

- ◆ To divest a non-core asset operating outside JE's core business
- ◆ Disposal terms are fair and reasonable, thus in the best interests of JE and its shareholders
- ◆ To apply proceeds from disposal towards investments in JE's core business

Disposal Summary

Net Consideration:	US\$128.8M
Agreement Date:	24th Oct 2012
Completion	1st Feb 2013

Net Gain on Disposal After Tax :	US\$24.6M
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Post-closing adjustments for the divestiture of Saia-Burgess Controls will result in cash outlays in FY2014.

* The SAIA-BURGESS CONTROLS business represented the smallest of three operating divisions that comprised the business of Saia-Burgess Electronics Holding AG (since renamed Johnson Electric International AG, the Vendor), a company acquired by the Group in 2005.

Group Overview

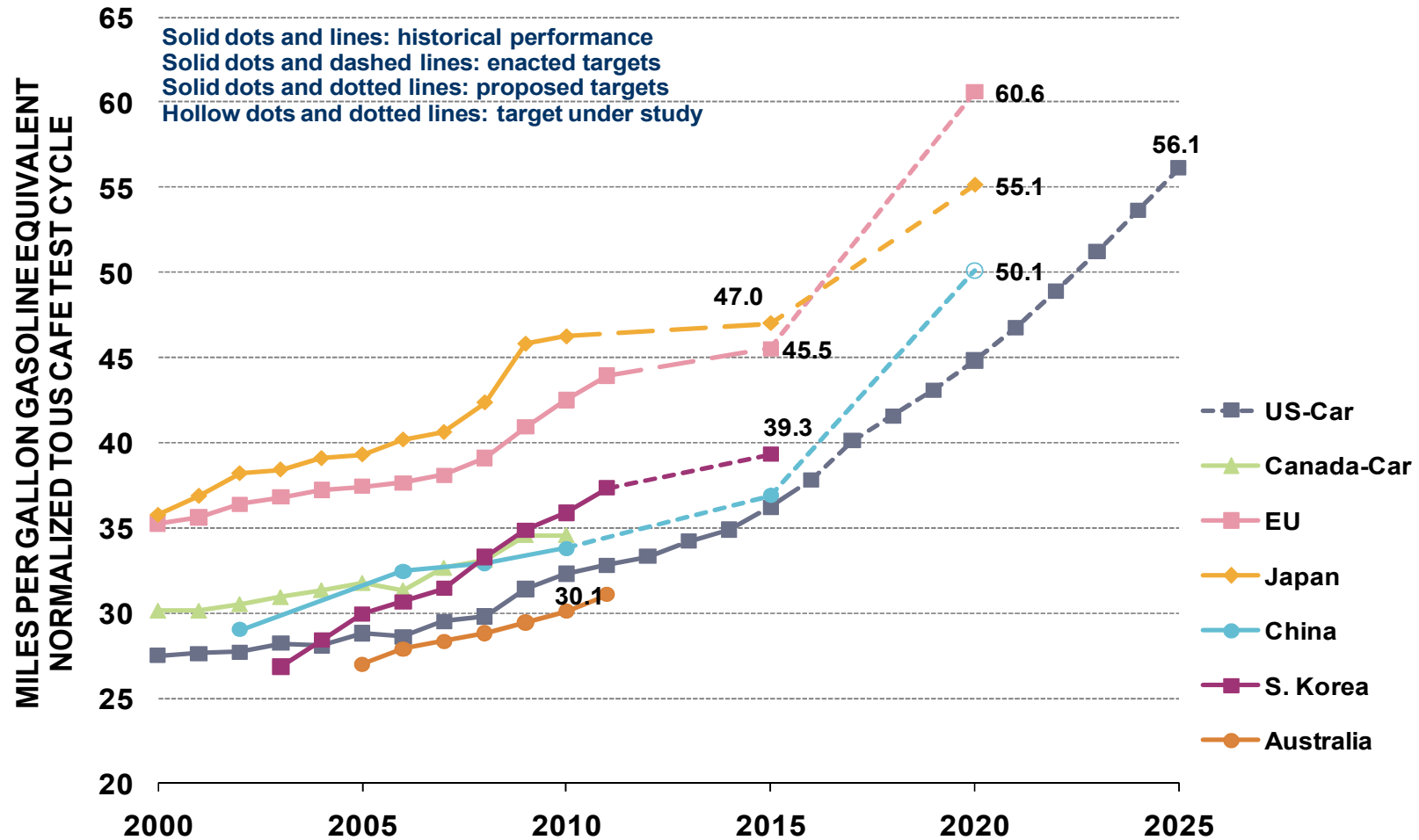
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TRENDS IN AUTOMOTIVE



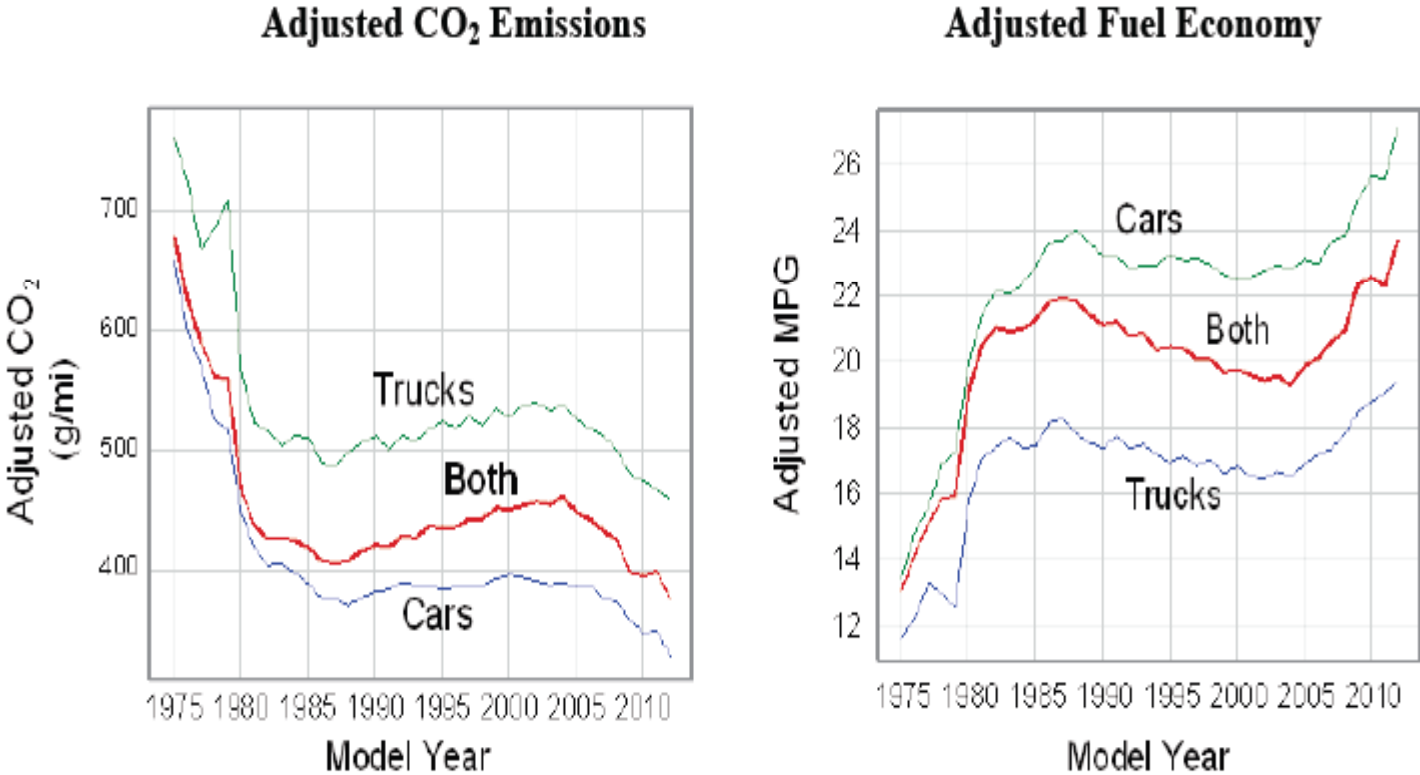
[1] China's target reflects gasoline vehicles only. The target may be higher after new energy vehicles are considered.
 [2] US, Canada, and Mexico light-duty vehicles include light-commercial vehicles.

Source: International Council on Clean Transportation, Feb 2013.



EPA Research – CO² Emission and Fuel Economy Trends

CO₂ emission rates and fuel economy values reflect a very favorable multi-year trend, beginning with MY 2005.



Source from: <http://www.epa.gov/otaq/fetrends.htm#report>

Examples of Products - APG

Fuel Economy – Engine Air Management, Engine Fuel Management, Chassis and Transmission

JE Products Launched Recently:


JOHNSON ELECTRIC

"Technology Leadership"

- High torque for fast response
- High vibration resistance
- High temperature range
- Low detent torque
- High EMC suppression

"The Safe Choice"

- Industry leader in Electronic Throttle Control motor
- Robust for high temperature and vibration environment
- High reliability
- Rigorous testing
- Assurance of supply and delivery



High Torque ETC Motor Product Line

JOHNSON MOTOR

JOHNSON ELECTRIC

"Technology Leadership"

- Exceeds Euro 6 requirements
- Higher torque with same size
- High temperature operation (160°C)
- High vibration tolerance (50G)
- High EMC suppression

"The Safe Choice"

- Industry leader in engine management applications
- Best vibration and temperature performance
- Rigorous application and environmental testing
- Johnson Electric Production System
- Assurance of supply and delivery



EGR Motor Product Line for Euro 6

JOHNSON MOTOR

JOHNSON ELECTRIC

"Technology Leadership"

- Low weight and power budget
- Fuel efficiency and reduced CO₂ emissions
- High vibration and temperature resistance
- High reliability for extended operating cycles

"The Safe Choice"

- Engine actuator industry leader
- Reliable in broad temperature range
- Global manufacturing and engineering
- Vertical integration for TQC



Valve Actuators for Automotive Coolant & Refrigerant Circuits

saia-burgess - VA

TRENDS IN IPG

Global Trends

- ◆ New products trends that variously address market needs for energy efficiency, precision and improved functionality.
- ◆ Shifting the focus of IPG towards serving distinct market applications which demand the type of precision motor and motion subsystem solutions that Johnson Electric is uniquely placed to deliver.
 - Recently launched platform of disconnect relays designed for residential electricity meters. This patent-protected technology delivers a **safe** and **highly durable** disconnect function to “**smart**” meters that enables utility operators to manage customer connections remotely and more efficiently.

Examples of Products - IPG

JE Products Launched Recently:

JOHNSON ELECTRIC

"Technology Leadership"

- Highest grid efficiency with zero pressure drop
- Highest resistance to shock & vibration
- Tamper proof & Compact plug-in solution
- Very low leakage

"The Safe Choice"

- Safe restart during valve opening
- Minimum 15 years operation
- ATEX zone 1 and 2
- Double position indication



sala Shut-off Valve for Smart Gas Metering



sala GMI
Valve + Sensor
Integrated control

sala GMS
Valve + Sensor
Position detection

sala GMC
Compact ball valve
Zero pressure drop

JOHNSON ELECTRIC

"Technology Leadership"

- Industry-leading contact performance
- Shortest contact bounce
- Most compact with multi pin-out options
- Unique bi-stable rocker actuation

"The Safe Choice"

- Best lifetime performance
- UC3 compliant (EN 62055-31)
- Highest magnetic tamper resistance
- Industry-leading MTBF



Disconnect Relay for Smart Meters
LEDEX-EM

Multi pin-out options



EMR
Straight terminals
Multiple control pins

EMC
Custom terminals
Multiple control pins

EMS
Custom terminals with shunt
Multiple control pins

Smart Metering – Applications for Gas & Electricity

Home Technology –
Applications require Energy Saving, Highly Reliable and No Electricity Waste in Stand-by Mode.

JOHNSON ELECTRIC

"Technology Leadership"

- Zero stand-by power
- Exceeds EUP requirements
- Resistant to shock & vibration
- Programmable control option

"The Safe Choice"

- Automatic double disconnect power-off
- Industry leader in auto power off switches
- Continuous product innovation
- Internationally approved



Energy Saving Power Shut-Off Switches for Washing Machines & Dishwashers



TIppMATIC® iF interface version



TIppMATIC® iFD interface + double disconnect


JOHNSON ELECTRIC

"Technology Leadership"

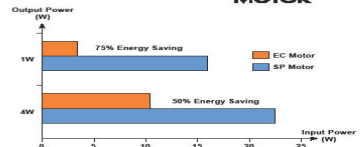
- Meets European energy saving regulations
- High system efficiency
- Innovative EC (brushless) motor design
- Integrated or Discrete Electronics
- Low noise operation

"The Safe Choice"

- Industry leader in EC technology
- Extremely long life
- Rigorous environmental testing
- High reliability
- Assurance of supply and delivery



Energy Saving Bathroom Exhaust Fan Motors



JOHNSON MOTOR

Output Power (W) vs Input Power (W)

Input Power (W)	EC Motor Output (W)	SP Motor Output (W)
1W	~0.25W (75% Energy Saving)	~0.75W
4W	~1.2W (30% Energy Saving)	~2.8W

Integrated Electronics vs Discrete Electronics

OUTLOOK FOR JOHNSON ELECTRIC

- ◆ Satisfactory overall performance in FY2012-13
- ◆ Current sales levels are broadly stable
- ◆ Visibility on overall demand much beyond the first quarter is low
- ◆ Business strategy on track
 - Pipeline of new products stronger than ever
 - Global and flexible manufacturing footprint
 - Strong balance sheet with over US\$480m in cash

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GLOBAL SALES & SUPPORT OFFICES & ENGINEERING CENTERS

- ◆ Argentina
- ◆ Austria
- ◆ Belgium
- ◆ Brazil
- ◆ China
- ◆ France
- ◆ Germany
- ◆ Hong Kong
- ◆ India
- ◆ Italy
- ◆ Israel
- ◆ Japan
- ◆ Korea
- ◆ Netherlands
- ◆ Singapore
- ◆ Switzerland
- ◆ UK
- ◆ USA



WORLDWIDE MANUFACTURING

- ◆ Argentina
- ◆ Brazil
- ◆ China
- ◆ France
- ◆ Germany
- ◆ Hungary
- ◆ India
- ◆ Italy
- ◆ Israel
- ◆ Mexico
- ◆ Poland
- ◆ Switzerland
- ◆ UK
- ◆ USA



APPENDIX – NEW PRODUCTS

IPG – WASHING MACHINES DRIVES

IPG – TOUCH SCREEN HAPTICS



"Technology Leadership"

- Flux Multiplier™ motor technology
- Best washing performance with belt drive
- Widest speed range washing machine drive
- Industry's highest energy efficiency drive motor

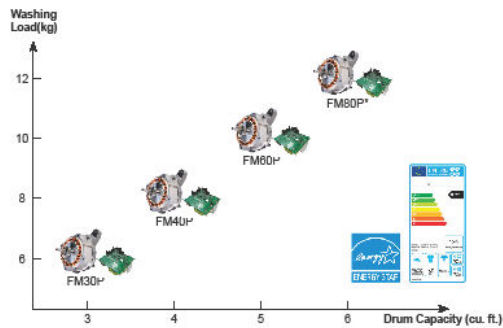
"The Safe Choice"

- No Rare-Earth magnets
- Long life product
- High reliability
- Assurance of supply and delivery



Flux Multiplier Drive for the Best Washing Performance

JOHNSON MOTOR



"Technology Leadership"

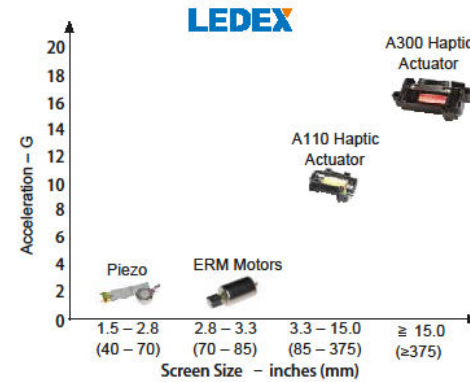
- Low frequency for optimized human response
- Faster response time
- Acceleration to 20 G
- Haptic feedback for screens >375 mm

"The Safe Choice"

- Life >60 M cycles
- Controllable feedback for variety of stimuli
- Johnson Electric Production System
- Assurance of supply



Actuators for Touch Screen Haptics



IPG – PROF HAIR DRYERS MOTORS



"Technology Leadership"

- High air power
- Light weight
- Long life and reliability
- Professional product line

"The Safe Choice"

- Market leader in hairdryer motors
- Rigorous application testing
- Johnson Electric Production System
- Assurance of supply and delivery



Motors for Professional Hairdryers



IPG – RESIDENTIAL ELECT METER DISCONNECT RELAYS



"Technology Leadership"

- Patented latching 200A relay technology
- 12 VDC, 24 VDC and 230 VAC modules
- Low power, low resistance and low self heating design
- Standard and prepayment remote disconnect

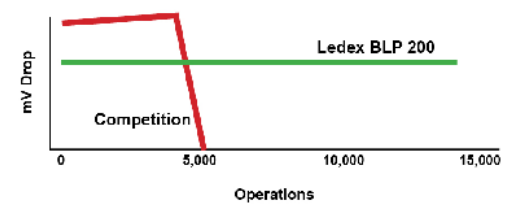
"The Safe Choice"

- 15k electrical cycles guarantees service life
- No switch failures at nominal short circuit test
- Fail safe after extreme short circuit fault
- Maintained metrology accuracy over meter life



High Reliability and Safety for Smart Meter Disconnect

LEDEX -BLP 200



IPG – DISCONNECT RELAYS

APG – POWER SEAT ADJUSTMENT MOTORS

NEW



"Technology Leadership"

- Low power consumption
- 230 VAC; 100 A single contact latching relay
- 6, 12, 24 and 48 VDC
- Compact package size

"The Safe Choice"

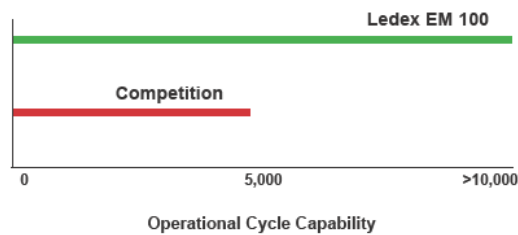
- Exceed IEC 62055 UC3
- High resistance to shock and vibration
- UL 94-V0 rated materials
- 1M cycle mechanical life



Long Life Disconnect Relay for Pre-Pay Smart Meters

LEDEX-EM 100

Full-Load Electric Endurance



NEW

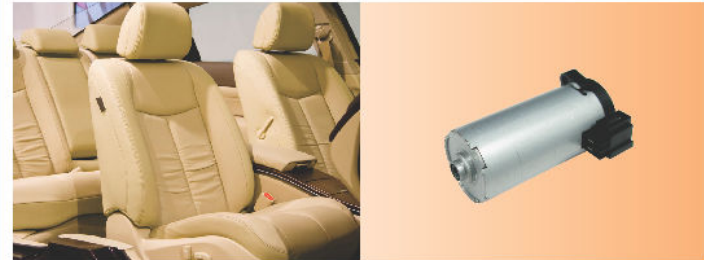


"Technology Leadership"

- Low weight
- Compact size
- Clear and consistent ripple count signal
- Advanced EMC suppression

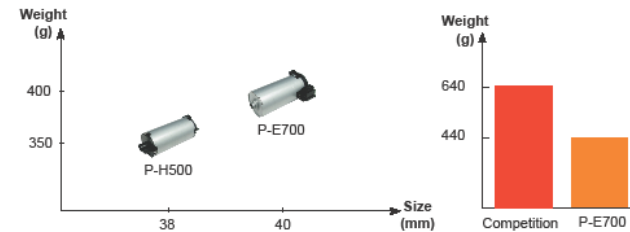
"The Safe Choice"

- No rare earth magnet
- Industry leader for power seat applications
- Rigorous application and environmental testing
- Johnson Electric Production System (JEPS)



Compact & Lightweight Seat Adjustment Motors

JOHNSON MOTOR



APG – AUTO EMISSION CONTROLS MOTORS

APG – POWER LIFT GATE MOTOR

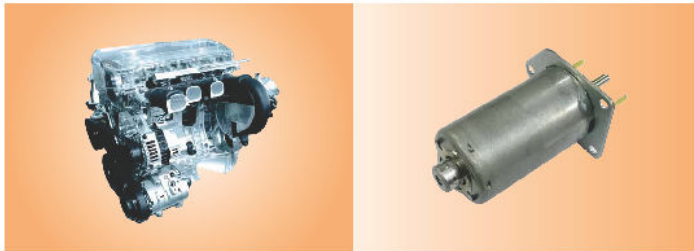


"Technology Leadership"

- Exceeds Euro 6 requirements
- Higher torque with same size
- High temperature operation (180°C)
- High vibration tolerance (50G)
- High EMC suppression

"The Safe Choice"

- Industry leader in engine management applications
- Best vibration and temperature performance
- Rigorous application and environmental testing
- Johnson Electric Production System
- Assurance of supply and delivery



EGR Motor Product Line for Euro 6



"Technology Leadership"

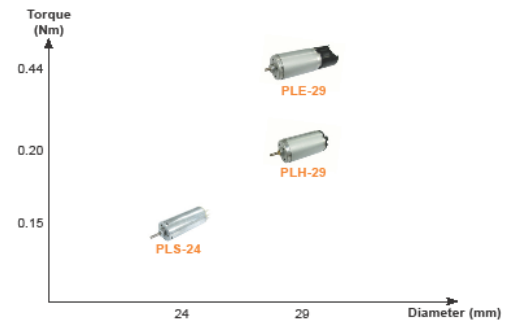
- Small diameter
- Higher drive torque
- High cogging torque
- Advanced EMC suppression
- Position sensor integrated to motor

"The Safe Choice"

- No rare earth magnet
- Industry leader for power liftgate motors
- Rigorous application and environmental testing
- Johnson Electric Production System (JEPS)
- Assurance of supply and on-time delivery



Compact & High Torque Power Liftgate Strut Motors



APG – COOLANT VALVE ACTUATORS

APG – ESC MOTORS

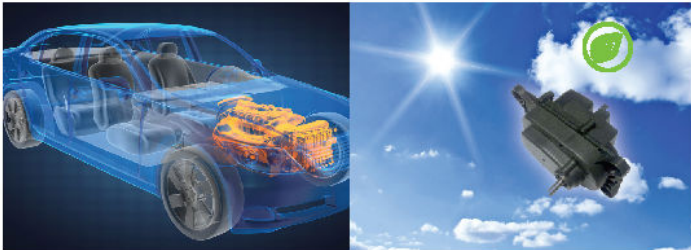


"Technology Leadership"

- Low weight and power budget
- Fuel efficiency and reduced CO₂ emissions
- High vibration and temperature resistance
- High reliability for extended operating cycles

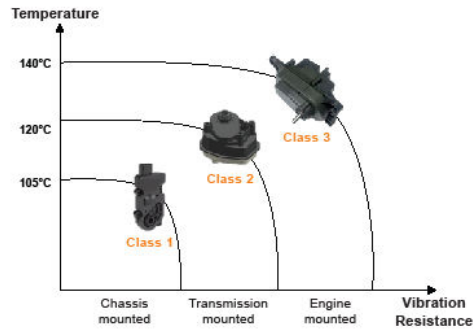
"The Safe Choice"

- Engine actuator industry leader
- Reliable in broad temperature range
- Global manufacturing and engineering
- Vertical integration for TQC



Valve Actuators for Automotive Coolant & Refrigerant Circuits

saia-burgess - VA



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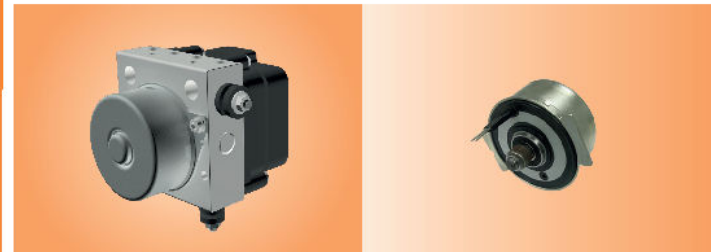


"Technology Leadership"

- Fast actuation
- 10% lower weight
- 15% longer life
- 8% shorter

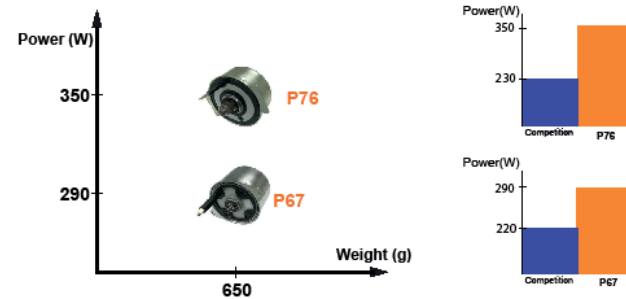
"The Safe Choice"

- Reliability designed-in
- Rigorous testing
- Johnson Electric Production System
- Assurance of supply and delivery




Highest Power Density ESC Motors

JOHNSON MOTOR



APG – ETC MOTORS

IPG – SHUT-OFF SWITCHES





"Technology Leadership"


- High torque for fast response
- High vibration resistance
- High temperature range
- Low detent torque
- High EMC suppression


"The Safe Choice"

- Industry leader in Electronic Throttle Control motor
- Robust for high temperature and vibration environment
- High reliability
- Rigorous testing
- Assurance of supply and delivery





High Torque ETC Motor Product Line







600 E
E Series




600 S
S Series




600 P
P Series



400 E
E Series



400 S
S Series




400 P
P Series

130 °C

140 °C

160 °C

Temp


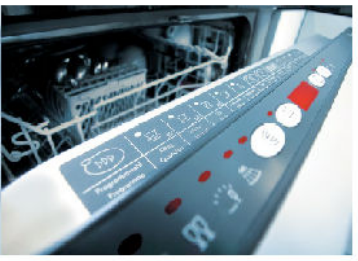



"Technology Leadership"

- Zero stand-by power
- Exceeds EuP requirements
- Resistant to shock & vibration
- Programmable control option

"The Safe Choice"


- Automatic double disconnect power-off
- Industry leader in auto power off switches
- Continuous product innovation
- Internationally approved




**Energy Saving Power Shut-Off Switches
for Washing Machines & Dishwashers**

TIPPMATIC® iF
interface version



TIPPMATIC® iFD
interface + double disconnect



IPG – SOLENOIDS

JOHNSON ELECTRIC

"Technology Leadership"

- Quietest solenoid 45dBA
- Longest life tubular (25M cycles)
- Industry standard sizes and mounting
- Complete product range

"The Safe Choice"

- Consistent, reliable operation
- Extensive application experience
- Solenoid industry leader
- Assurance of supply



Quietest Solenoid Product Line

LEDEX STA-Q



IPG – HAND BLENDER MOTORS

JOHNSON ELECTRIC

"Technology Leadership"

- Best continuous run time
- High power density HVDC motor
- High torque for more accessories

"The Safe Choice"

- Lower operating temperature
- High reliability
- Rigorous application testing




Hand Blender Motors for Best Continuous Run Time



IPG – SHIELDED FLEXIBLE CIRCUITS

IPG – PAYMENT TERMINAL SECURITY




JOHNSON ELECTRIC

"Technology Leadership"


- EMI attenuation
- Flexible and conformable
- Lightweight and compact
- Conductive coating technology

"The Safe Choice"

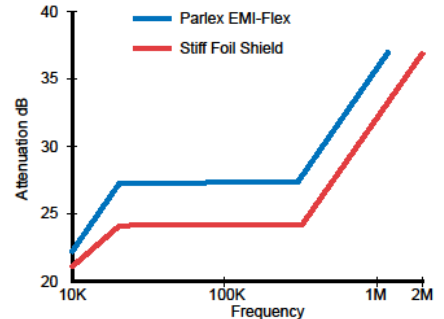
- 360° shielding
- Reliable & durable
- Flex circuit industry leader
- Medical & Defense supplier



Parlex EMI-Flex™ Shielded Flexible Circuits



PARLEX



Frequency	Parlex EMI-Flex (dB)	Stiff Foil Shield (dB)
10K	~22	~21
100K	~27	~24
1M	~37	~34
2M	~38	~36



JOHNSON ELECTRIC

"Technology Leadership"

- Maximum payment terminal security protection
- Best protection vs peeling tampering
- Best protection vs intrusion tampering
- Industry's only random security pattern option

"The Safe Choice"

- Industry's highest security against tampering
- Exceeds PCI PTS v3 standard
- Industry leader in flexible circuit technology
- Johnson Electric Product Development System



Secure-Flex™ for Maximum Payment Terminal Security



PARLEX



- Patented security system for Point of Sales products
- Random patterns increase security
- Potential intruders unaware of circuit layout

IPG – NSF GEAR PUMP



"Technology Leadership"

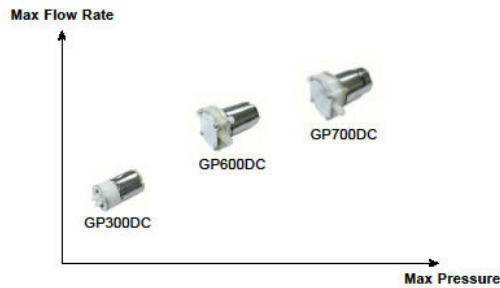
- High flow rate liquid dispenser
- Variable flow rate
- Hot brewed drinks deliverable
- Cold fridge drinks deliverable

"The Safe Choice"

- Certified by NSF international
- Low voltage operation
- High reliability, rigorously tested
- Assurance of supply and delivery



NSF Gear Pump for Beverage Dispensing



IPG – SOLENOIDS

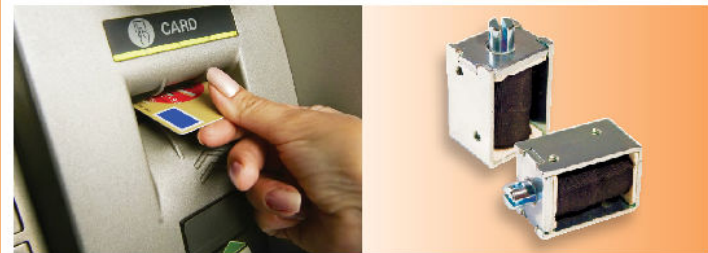


"Technology Leadership"

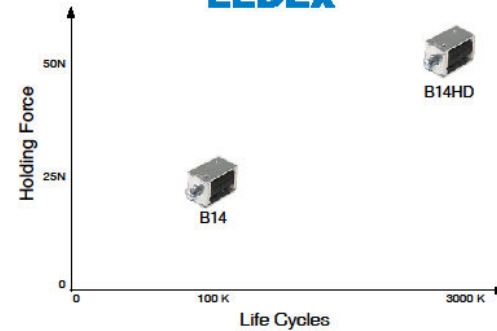
- Life to 3 million cycles
- Most powerful solenoid
- Custom interface flexibility

"The Safe Choice"

- Industry leader in solenoid technology
- Extensive application experience
- Johnson Electric production system



Long Life Open Frame Solenoids for Applications Demanding High Efficiency and High Force



IPG – DISCONNECT RELAY

IPG – DIVERTER VALVES



"Technology Leadership"

- Industry-leading contact performance
- Shortest contact bounce
- Most compact with multi pin-out options
- Unique bi-stable rocker actuation

"The Safe Choice"

- Best lifetime performance
- UC3 compliant (EN 62055-31)
- Highest magnetic tamper resistance
- Industry-leading MTBF




Multi pin-out options





EMR

- Straight terminals
- Multiple control pins




EMC

- Custom terminals
- Multiple control pins



EMS

- Custom terminals with shunt
- Multiple control pins





"Technology Leadership"


- Lowest pressure drop
- Energy saving
- Low noise valve
- No water hammer

"The Safe Choice"

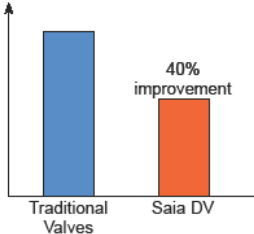
- Extensive valve design experience
- Industry leader valve actuation
- Vertical integration for quality
- Assurance of supply

Diverter Valves for Combi Boilers

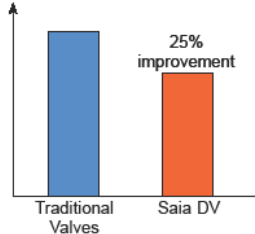


Noise Level



40% improvement

Pressure Drop



25% improvement

IPG – GAS METER VALVE

IPG – EXHAUST FAN MOTORS



“Technology Leadership”

- Highest grid efficiency with zero pressure drop
- Highest resistance to shock & vibration
- Tamper proof & Compact plug-in solution
- Very low leakage

“The Safe Choice”

- Safe restart during valve opening
- Minimum 15 years operation
- ATEX zone 1 and 2
- Double position indication





sala Shut-off Valve for Smart Gas Metering

Features



Model	Features
sala GMI	Valve + Sensor, Integrated control
sala GMS	Valve + Sensor, Position detection
sala GMC	Compact ball valve, Zero pressure drop


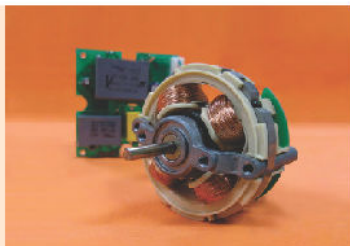


“Technology Leadership”

- Meets European energy saving regulations
- High system efficiency
- Innovative EC (brushless) motor design
- Integrated or Discrete Electronics
- Low noise operation

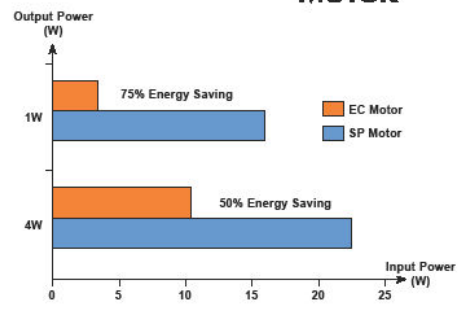
“The Safe Choice”

- Industry leader in EC technology
- Extremely long life
- Rigorous environmental testing
- High reliability
- Assurance of supply and delivery





Energy Saving Bathroom Exhaust Fan Motors


Output Power (W)



Output Power (W)	EC Motor Input Power (W)	SP Motor Input Power (W)	Energy Saving
1W	~3.5	~13.5	75%
4W	~10.5	~21	50%




Integrated Electronics



Discrete Electronics

IPG – PROFESSIONAL TOOLS MOTORS

IPG – DISHWASHER DRAIN PUMP





"Technology Leadership"


- Highest torque
- Highest power
- Smallest size
- Longest battery run time

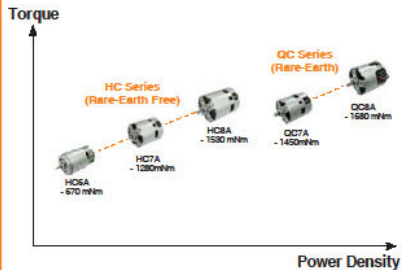
"The Safe Choice"

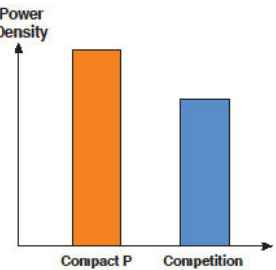
- Industry leader in professional power tool motors
- Johnson Electric Product Development System
- Rigorous application testing
- Johnson Electric Production System

Compact P™ Motors for Professional Tools









"Technology Leadership"

- Pump noise minimized by proprietary hydraulic design
- Elimination of cavitation noise
- High efficiency EC motor for carbon footprint reduction

"The Safe Choice"

- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery




Low Noise & Energy Saving Dishwasher Circulation & Drain Pumps






EC Circulation Pump



EC Drain Pump

IPG – RANGE HOODS MOTORS






"Technology Leadership"

- Automatic speed adjustment for constant air flow
- Powerful extraction and high efficiency at all speeds
- Low noise for all day ventilation

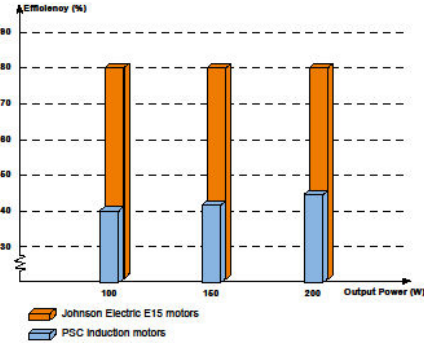
"The Safe Choice"

- Quality designed-in
- Continuous product innovation
- Assurance of supply and delivery








Energy Efficient & Quiet Motors for Residential Range Hoods



Output Power (W)	Johnson Electric E15 motors (%)	PSC Induction motors (%)
100	~80	~40
150	~80	~40
200	~80	~40

IPG – TIPPMATIC SWITCHES





"Technology Leadership"

- Energy saving for compliance with Europe's EuP directive
- Designed for wide range of coffee machines
- Customizable for ease of integration with any coffee machines

"The Safe Choice"


- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery



Energy-Saving TIPPMATIC® Switches for Coffee Machines to Ensure EuP Compliance

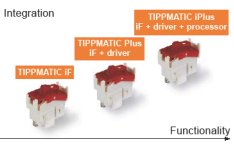
■ Ideal for filter type coffee machines



TIPPMATIC® Timer

- Auto power-off switch with integrated electronics
- Complete range of shut-off times to meet any requirements

■ Ideal for fully automatic coffee machines



TIPPMATIC® iF

- Auto power-off switch with integrated interface
- Shut-off signal from coffee machine's control unit

TIPPMATIC® Plus


- Auto power-off switch with internal drive & interface
- Shut-off signal from coffee machine's control unit

TIPPMATIC® iPlus

- Integrated microprocessor, internal drive unit & interface
- Custom features supported

IPG – MICROSWITCHES

IPG – HAND DRYER BLOWERS





"Technology Leadership"


- Highest current at smallest package
- Highest reliability for circuit breakers
- Resistant to environmental conditions
- Custom engineered solutions

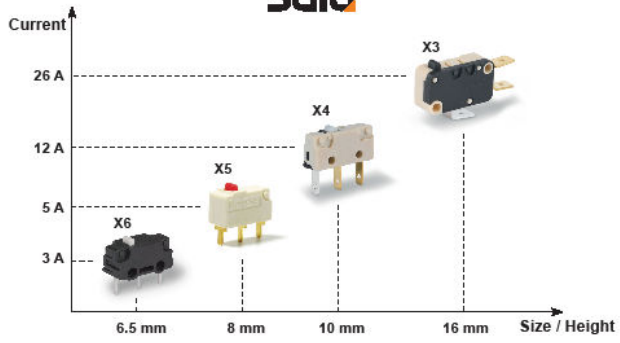
"The Safe Choice"

- 25 years Circuit Breaker experience
- Application specific designs
- Assurance of supply and delivery

Microswitch Product Line for Circuit Breakers





Model	Size / Height (mm)	Current (A)
X6	6.5 mm	3 A
X5	8 mm	5 A
X4	10 mm	12 A
X3	16 mm	26 A



"Technology Leadership"

- Unique blower design increases air flow rate
- Half the drying time
- High energy efficiency and longer blower life

"The Safe Choice"

- Dryer hands & dryer floors
- High performance & reliability
- Assurance of supply & delivery




Fast Drying & Long Life Hand Dryer Blowers



Motor Technology	Model	Air Speed (km/hr)	Flow Rate (L/s)	Drying Time (s)	Life (hours)
Universal Motor Technology	U82	250	22	15-20	1000 (Normal Life)
	U82 (NEW)	250	22	15-20	2000 (Long Life)
Brushless Motor Technology	E16 Blower	325	26	5-10	5000 (Extreme Life)
	E16 Blower (NEW)	390	31	5-10	5000 (Extreme Life)

IPG – MICROSWITCHES



"Technology Leadership"

- Environmental sealed IP 67
- Best in class electrical rating
- Robust design for industrial use

"The Safe Choice"


- Experienced in material handling industry
- Long life in forklift application
- Assurance of supply and delivery



Switch Product Line for Forklift Trucks

E-Stop		<ul style="list-style-type: none"> ■ Compact installation ■ EN 60947 approval ■ Longest life 	<ul style="list-style-type: none"> ■ E-Stop in Dashboard ■ External E-Stop
V3		<ul style="list-style-type: none"> ■ Highest current ■ Longest life ■ IP67 protection 	<ul style="list-style-type: none"> ■ Brake light ■ Stop brake
V4		<ul style="list-style-type: none"> ■ Long overtravel ■ Compact size ■ IP67 protection 	<ul style="list-style-type: none"> ■ Seat interlock ■ Tiller head

IPG – BLENDER MOTORS




"Technology Leadership"

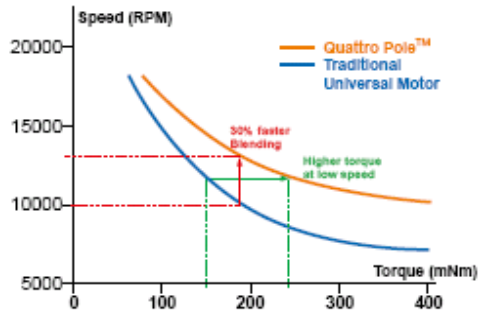
- Higher power and torque for kitchen blenders
- Faster blend time for bar blenders
- Smaller footprint with improved power

"The Safe Choice"

- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery



Powerful & Efficient Quattro-Pole Motors for Faster Blending



Torque (mNm)	Quattro Pole™ Speed (RPM)	Traditional Universal Motor Speed (RPM)
100	~18000	~15000
200	~13000	~10000
300	~10000	~8000
400	~8000	~7000

IPG – MOWER STARTER



"Technology Leadership"

- Easy to start
- No effort for pull string
- No battery
- Improved first time start
- Low starting noise

"The Safe Choice"

- Stress injury avoidance
- Robust design
- Water proofing
- Rigorous application testing
- First time starting



Cost Effective Starter Design without Battery for Walk Behind Mower

PowerPod™

Walk Behind



PowerPod - WB
• Walk Behind Mower

Medium Duty



PowerPod - MD
• Ride on Mower

Heavy Duty



PowerPod - HD
• Ride on Mower

IPG - LEAF BLOWERS



"Technology Leadership"

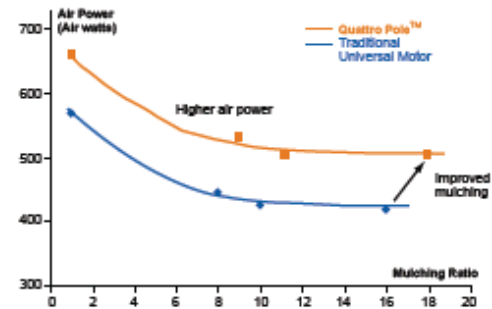
- Higher power in a lower weight package
- Higher air power with improved mulching / shredding
- Energy efficiency

"The Safe Choice"


- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery



Powerful & Lightweight Quattro-Pole Motors for More Efficient Leaf Blowers



APG – DOOR LOCK GEAR MOTORS





"Technology Leadership"


- Non-metallic alternative to metal worm-gear motors
- High performance plastic gear motor replacing D-out shaft motor
- Improve plastic worm-gear motor performance
- Improved life, pull off force, torque and TIR
- Low power budget product line (high torque constant)

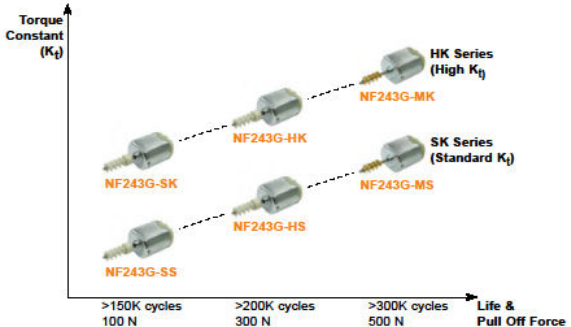
"The Safe Choice"

- Industry and technology leader for door lock motors
- Rigorous application and environmental testing
- Johnson Electric Production System for quality and reliability
- Assurance of supply and on-time delivery

New Hybrid Worm Gear for Long Life and Lowest Power Budget





Motor Series	Life & Pull Off Force
NF243G-SS	>150K cycles 100 N
NF243G-SK	>200K cycles 300 N
NF243G-HS	>200K cycles 300 N
NF243G-HK	>200K cycles 300 N
NF243G-MS	>300K cycles 500 N
NF243G-MK	>300K cycles 500 N
HK Series (High K_t)	>300K cycles 500 N

APG – SUNROOF DRIVES



"Technology Leadership"

- Lowest weight sunroof drive
- Low noise and improved sound quality
- Slim design
- "Curve" technology motor

"The Safe Choice"

- Rare earth free for cost volatility control
- Rigorous testing process
- High reliability
- Assurance of supply and on-time delivery




Compact Lite™ Low Noise Sunroof Drives






Motor Type	Sound Level	Weight
Compact Lite™	Low	Low
Traditional	High	High

APG – GRILL SHUTTERS

APG – BATTERY COOLING FAN


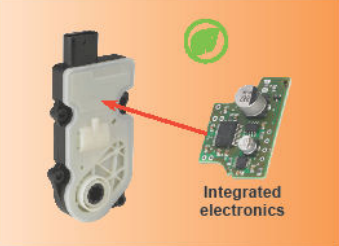


"Technology Leadership"


- Highest torque to overcome mud or ice
- Custom designs for different platforms
- Lowest power consumption
- Compact design

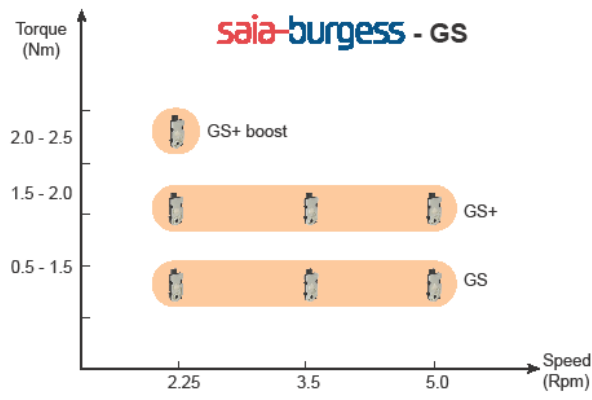
"The Safe Choice"

- Extensive reliability testing
- Proven actuator designs
- Global manufacturing & engineering
- Vertical integration for TQC





High Performance Actuators for Automotive Grill Shutters





Model	Speed (Rpm)	Torque (Nm)
GS+ boost	2.25	2.0 - 2.5
GS+	2.25, 3.5, 5.0	1.5 - 2.0
GS	2.25, 3.5, 5.0	0.5 - 1.5

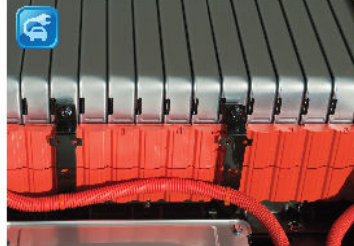



"Technology Leadership"


- Variable air power
- Quiet operation
- Light weight in compact package

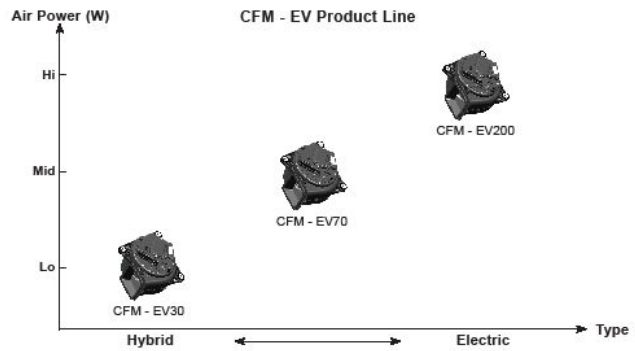
"The Safe Choice"

- Longest life
- Water proof
- Shock resistant

Battery Cooling Fan Module for Hybrid & Electric Vehicles





Model	Type	Air Power (W)
CFM - EV30	Hybrid	Lo
CFM - EV70	Hybrid	Mid
CFM - EV200	Electric	Hi

APG - STEERING WHEEL LOCKS



"Technology Leadership"

- High power density for compact package
- Quiet operation
- High stall torque for all working conditions

"The Safe Choice"

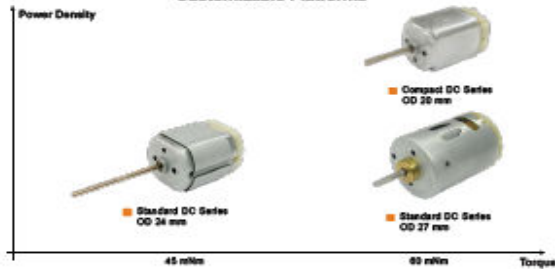
- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery



High Power Density Motors for Steering Wheel Locks



Customizable Platforms



APG – WINDOW LIFT



"Technology Leadership"

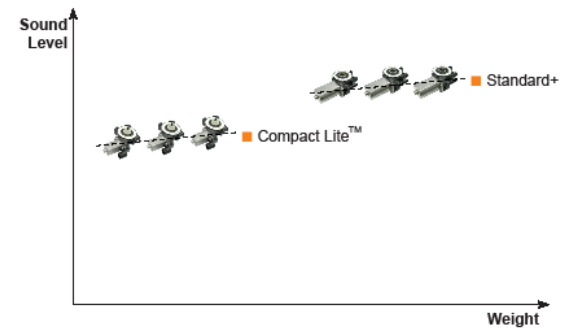
- Fuel saving (low weight)
- Compact design and low noise
- Low power budget

"The Safe Choice"

- Reliability designed-in
- Rare earth free magnets
- Assurance of supply and delivery




High Performance Window Lift Drive Product Line



innovating motion

APG – WINDSHIELD WASHER PUMP

APG - LUMBAR SUPPORT





"Technology Leadership"


- High efficiency
- High pressure
- Low current consumption
- Advanced EMC suppression

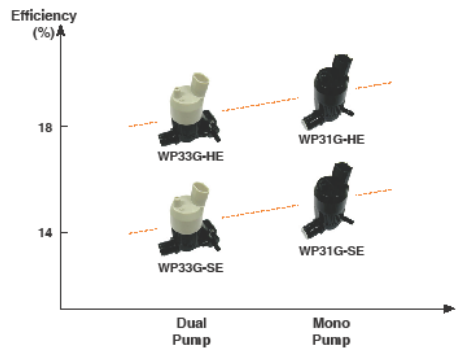
"The Safe Choice"

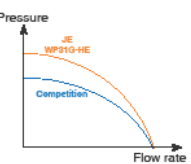

- Industry leader in washer pump applications
- Rigorous application based testing
- Johnson Electric Production System (JEPS)
- Assurance of supply and delivery

High Efficiency Pump for Windshield Washers







"Technology Leadership"

- Customizable motion platforms (Power & Pneumatic)
- High power density for compact packaging
- Advanced EMC suppression

"The Safe Choice"

- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery




Compact Motor Designs for Lumbar Support Systems





Customizable Platforms



APG - ABS MOTORS



Technology Leadership

- Fuel saving (low weight)
- Compact design
- Wide performance range

The Safe Choice

- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery



The Safe Choice for Anti-Lock Braking Systems (ABS)



■ Standard
Weight: 950 g

■ Compact
Weight: 650g

■ Power Density
Weight: 168g

APG - CFM + MOTORS



Technology Leadership

- Fuel saving (low weight)
- Efficient engine cooling (variable speed)
- Long life (electronic commutation)

The Safe Choice

- Reliability designed-in
- Continuous product innovation
- Assurance of supply and delivery



Fuel Efficient & Long Life Cooling Fan Modules



■ Brushless Motors



■ Standard Motors



■ High Power Density Motors



DISCLAIMER

This presentation contains certain forward looking statements with respect to the financial condition, results of operations and business of Johnson Electric and certain plans and objectives of the management of Johnson Electric.

Words such as “outlook”, “expects”, “anticipates”, “intends”, “plans”, “believes”, “estimates”, “projects”, variations of such words and similar expressions are intended to identify such forward-looking statements. Such forward looking statements involve known and unknown risk, uncertainties and other factors which may cause the actual results or performance of Johnson Electric to be materially different from any future results or performance expressed or implied by such forward looking statements. Such forward looking statements are based on numerous assumptions regarding Johnson Electric’s present and future business strategies and the political and economic environment in which Johnson Electric will operate in the future.