

# JOHNSON ELECTRIC HOLDINGS LIMITED

**FY2012/13**

**Interim Results**

November 2012

---

**Group Overview**

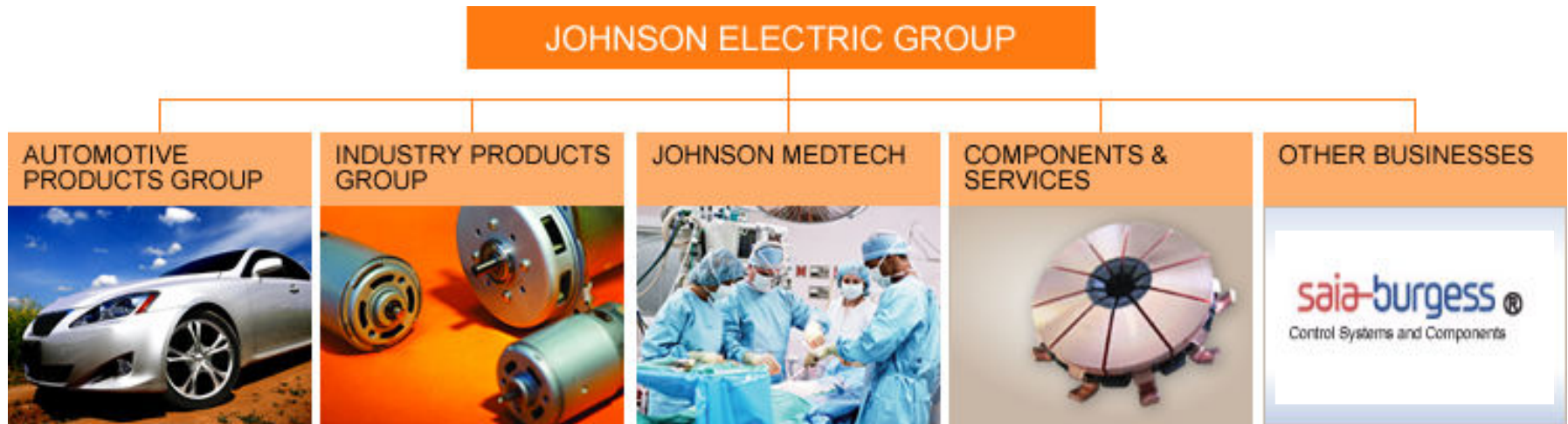
**Key Financial Highlights**

**Operational Results**

**Outlook**

**Appendix**

# JOHNSON ELECTRIC GROUP OVERVIEW



*Johnson Electric is a global leader in motion products, control systems and flexible interconnects. We serve a broad range of industries including automotive, home technologies, domestic appliances, power tools, office products, industrial equipment, consumer goods, medical devices and infrastructure automation.*

*Established in 1959, Johnson Electric ships its products to more than 30 countries for use in hundreds of different product applications. Innovation and product design centers are located in Hong Kong, China, Switzerland, Germany, Italy, Israel, Japan, the UK and the USA. We employ more than 38,000 including contract employees in over 23 countries.*

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

# 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

**Power Train Cooling**

- Cooling Fan Module

**Steering**

- Steering Wheel Lock

**HVAC**

- HVAC Blower
- Climate Control
- Climate Control Actuator

**Window Lift & Sunroof**

- Window Lift
- Sunroof Control

**Power Closure Systems**

- Door Close Assist
- Latching / Cinching
- Switch
- Power Lift Gate

**Washer / Wipers**

- Headlamp Washer
- Washer Pump
- Windscreen Wiper

**Mirrors**

- Mirror Actuator
- Mirror Adjuster
- Power Folder

**Door Lock**

- Central Door Lock
- Child Lock

**Lighting**

- Electronic Speed Control
- Circulation Pump
- Adaptive Front-lighting
- Headlamp Adjuster

**Braking**

- Electric Parking Brake
- Anti-lock Braking System

**Engine Management**

- Electronic Throttle Control
- Exhaust Gas Recirculation
- Air Pump
- Fuel Pump

**Suspension**

- Suspension Leveling

**Seating**

- Headrest Adjuster
- Seat Adjuster
- Lumbar Support

**Transmission**

- Automatic Manual Transmission
- Dual Clutch Transmission

# 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**



---

Group Overview

**Key Financial Highlights**

Operational Results

Outlook

Appendix

## HIGHLIGHTS

---

- ✓ Group sales US\$1,043 million – down 7% compared to the first half of prior financial year. Excluding foreign currency effects and non-recurring items, sales increased by approximately 1%
- ✓ Gross profit margin improved to 28.4% from 27.2%
- ✓ EBITDA excluding nonrecurring items US\$153 million – down 9%
- ✓ Net profit attributable to shareholders down 16% to US\$85 million or 2.37 US cents per share on a fully diluted basis
- ✓ Debt to total capital ratio of 10% and cash reserves of US\$347 million as at 30th September 2012
- ✓ Interim dividend of 3 HK cents per share (0.38 US cents per share)



# FINANCIAL HIGHLIGHTS

<i>US\$ million</i>	First half of FY2012/13	First half of FY2011/12
Sales	1,042.7	1,118.1
Gross profit	296.4	303.6
<i>Gross margin</i>	<i>28.4%</i>	<i>27.2%</i>
Profit attributable to shareholders	85.3	101.6
Diluted earnings per share (US Cents)	2.37	2.78
Free cash flow from operations <sup>1</sup>	42.3	75.0
EBITDA excluding nonrecurring items <sup>2</sup>	152.5	167.4
<i>EBITDA margin</i>	<i>14.6%</i>	<i>15.0%</i>
<i>US\$ million</i>	30th Sep 2012	31st Mar 2012
Cash	346.9	385.1
Total debt (borrowings)	(161.9)	(205.4)
Net cash	185.0	179.7
Enterprise value <sup>3 &amp; 4</sup>	2,179.2	2,075.6
Enterprise value to EBITDA <sup>5</sup>	6.9	6.3
Credit Quality - Financial Ratios <sup>5</sup>	30th Sep 2012	31st Mar 2012
Free cash flow from operations (annualised) to debt	82%	81%
Total debt to EBITDA (annualised)	0.5	0.6

1. Net cash generated from operating activities plus interest received, less CAPEX net of proceeds from disposal of fixed assets

2. Earnings before interest, taxes, depreciation and amortisation ("EBITDA") excluding the impact of insourcing a European distribution channel

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

4. Market Capitalisation is calculated by multiplying the outstanding number of shares with the closing share price (HK\$5.07 as of 30th September 2012 and HK\$4.83 as of 31st March 2012) converted at the closing exchange rate

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

---

**Group Overview**

**Key Financial Highlights**

**Operational Results**

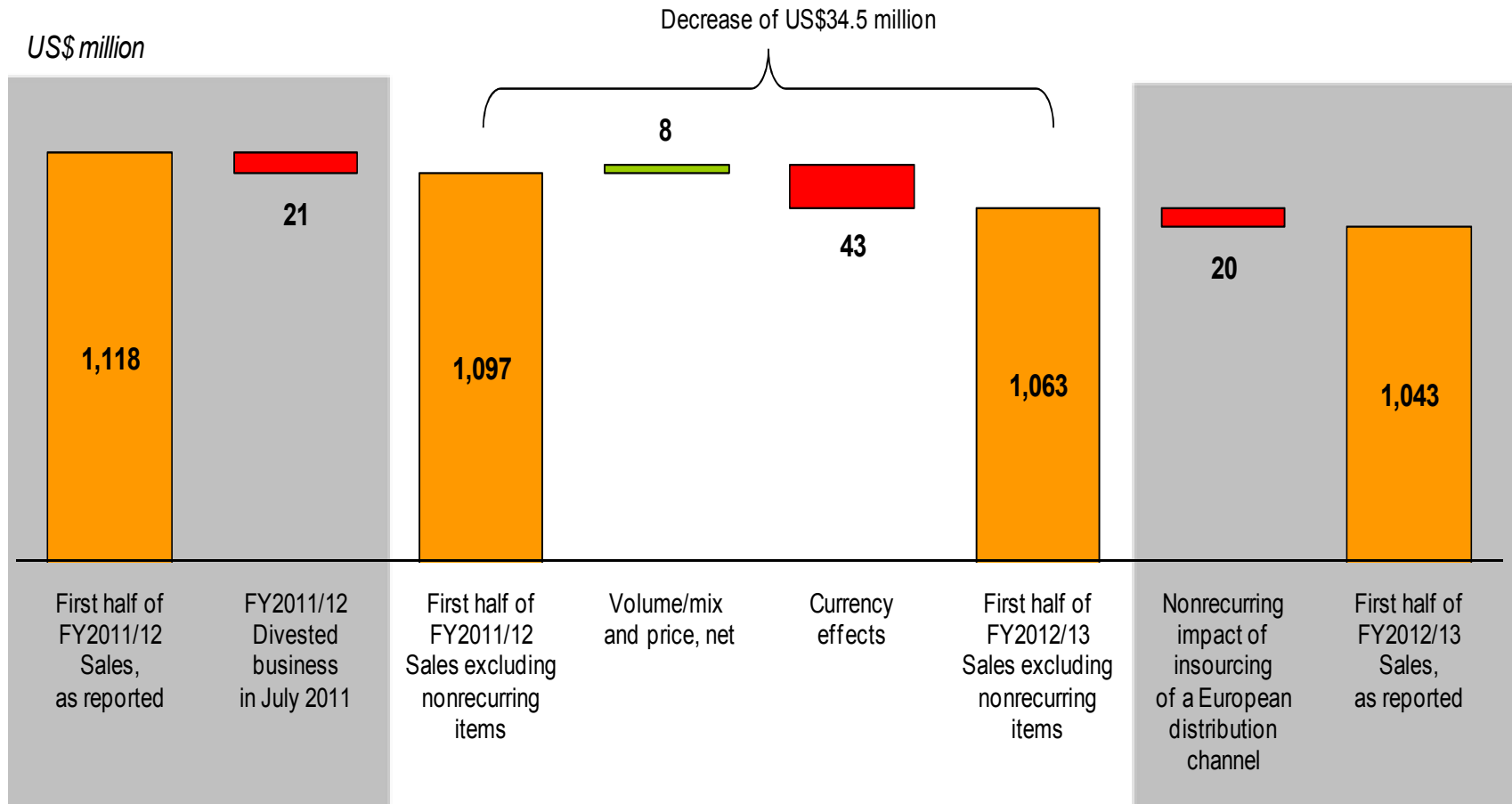
**Outlook**

**Appendix**

## PROFIT & LOSS – 1H FY2012/13 vs 1H FY2011/12

<i>US\$ million</i>	First half of FY2012/13	First half of FY2011/12	Increase/ (decrease) in profit
Sales	1,042.7	1,118.1	(75.4)
Gross profit	296.4	303.6	(7.2)
<i>Gross margin %</i>	28.4%	27.2%	
Other income and gains	1.3	2.8	(1.5)
Selling and administrative expenses ("S&A")	(197.8)	(187.7)	(10.1)
<i>S&amp;A %</i>	19.0%	16.8%	
Operating profit	99.9	118.7	(18.8)
<i>Operating margin %</i>	9.6%	10.6%	
Net interest income/(expense)	2.4	(1.3)	3.7
Share of profits of associate	0.2	0.2	-
Profit before income tax	102.5	117.6	(15.1)
Income tax expenses	(14.5)	(16.1)	1.6
<i>Effective tax rate</i>	14.1%	13.7%	
Profit for the period	88.0	101.5	(13.5)
Non-controlling interests	(2.7)	0.1	(2.8)
Profit attributable to shareholders, as reported	85.3	101.6	(16.3)

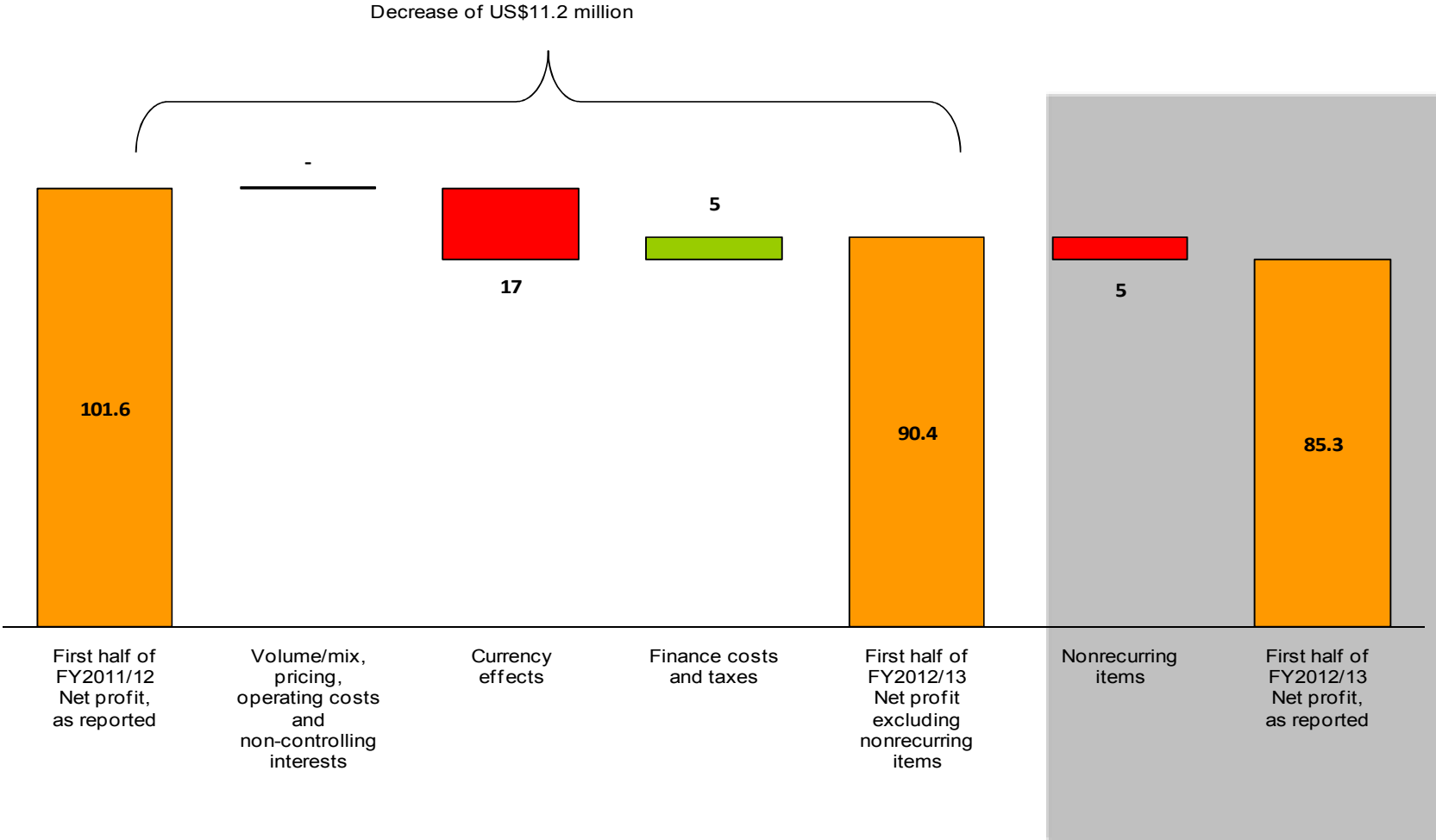
# SALES CHANGES – 1H FY2012/13 vs 1H FY2011/12



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

# CHANGES IN PROFIT ATTRIBUTABLE TO SHAREHOLDERS

US\$ million

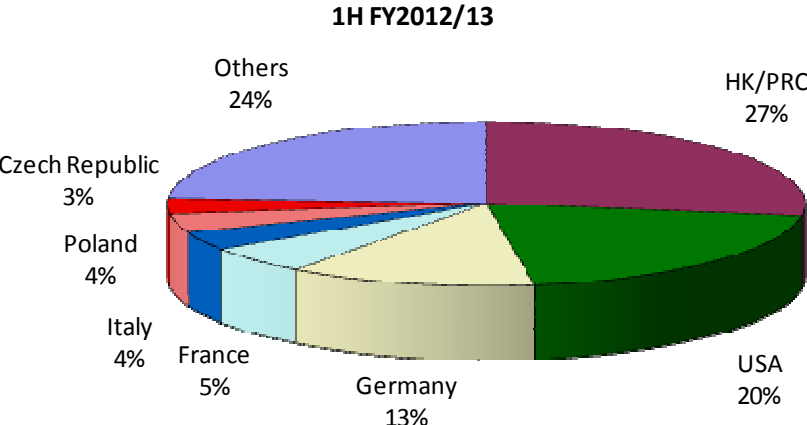
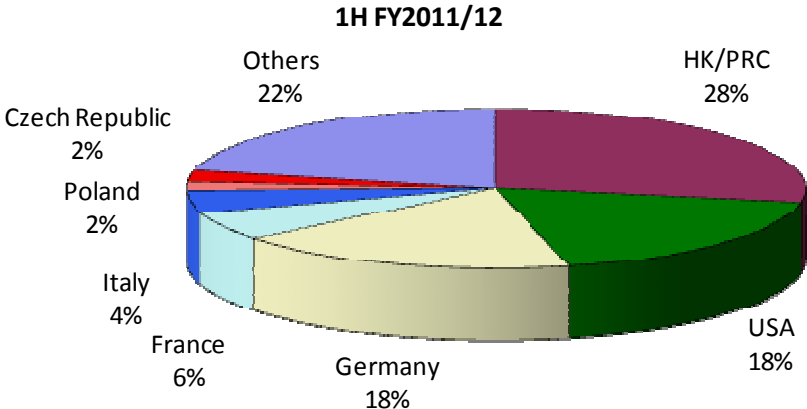
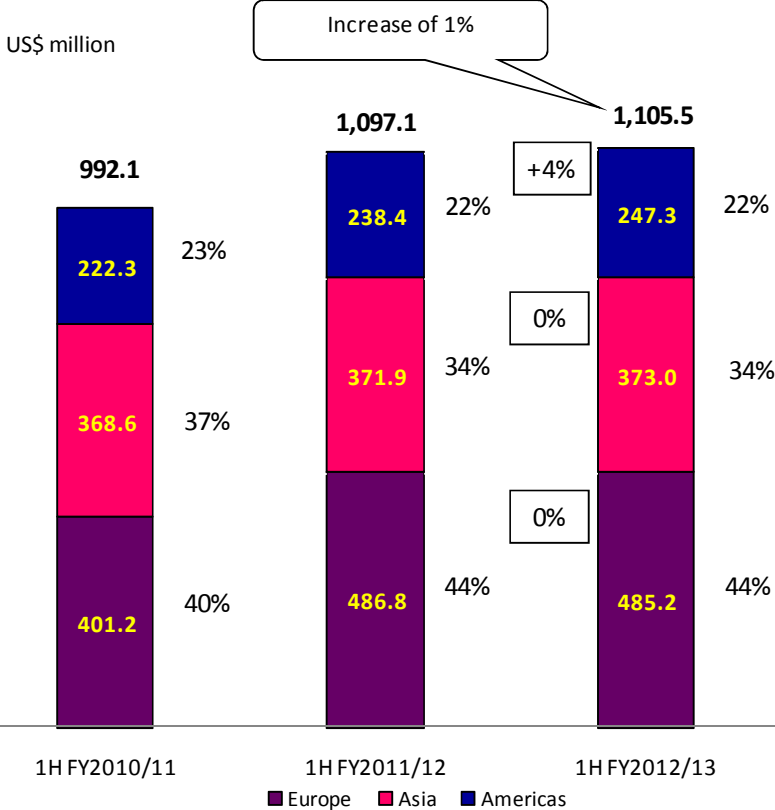


Note: Numbers do not add across due to the effect of rounding

The tax effect of nonrecurring items of US\$0.7 million has been considered under "Finance costs and taxes"

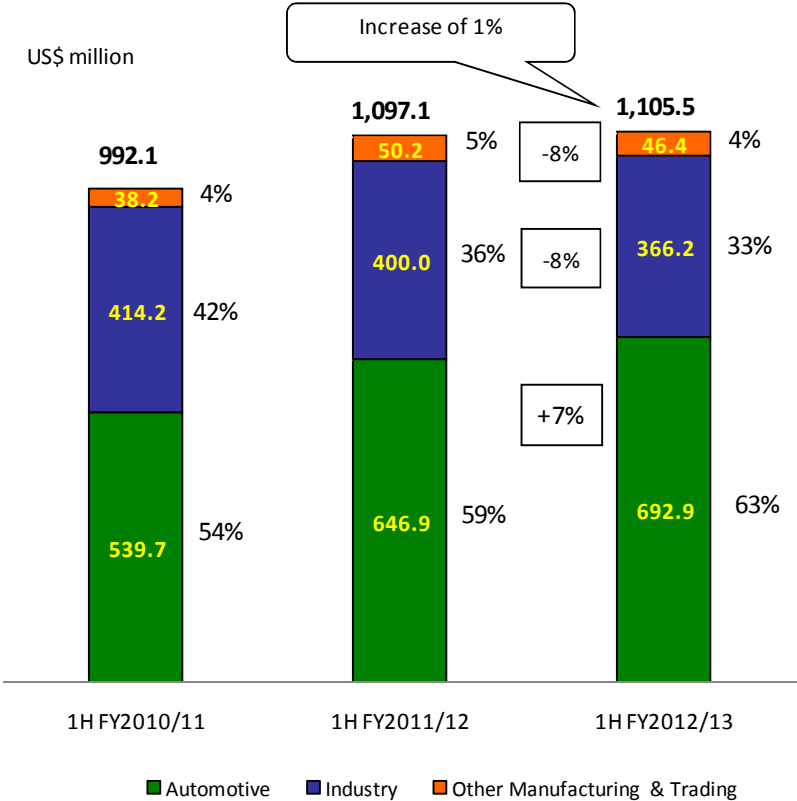
# GROUP SALES BY GEOGRAPHY

Group Sales Excluding Nonrecurring Items & Currency Effects by Geography

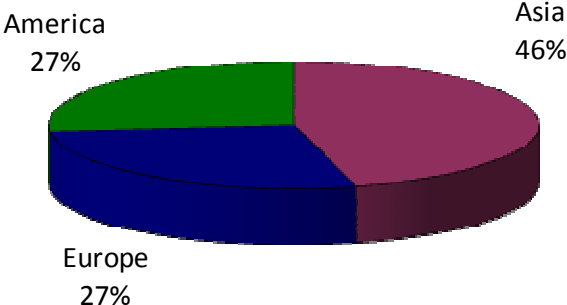


# GROUP SALES BY BUSINESS

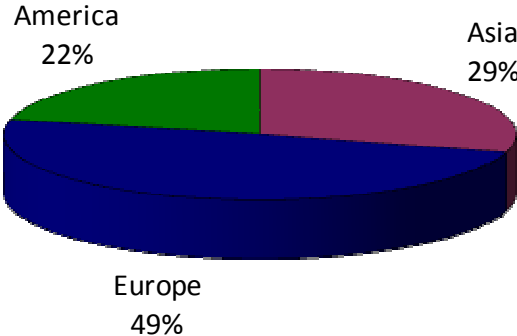
Group Sales Excluding Nonrecurring Items & Currency Effects by Line of Business



IPG sales by Geography



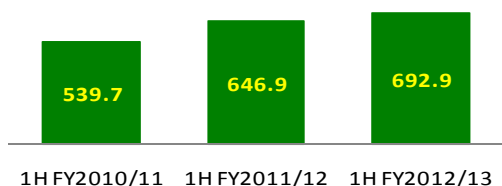
APG sales by Geography



# SALES OVERVIEW

US\$ million

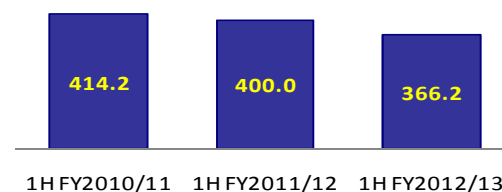
## APG Sales



- ◆ Sales (excl nonrecurring items & currency effects) grew by 7% YOY (By region: Asia +15%, Europe +3%, Americas +6%). Mainly benefitted from new platform launches and growth of targeted customers
- ◆ Cooling fan modules business comprised 21% of total sales, grew 10% YOY.
- ◆ Business experienced strong sales from powertrain cooling, air management and sunroofs products.
- ◆ Increased sales for power-lift gates and window-lift applications.

US\$ million

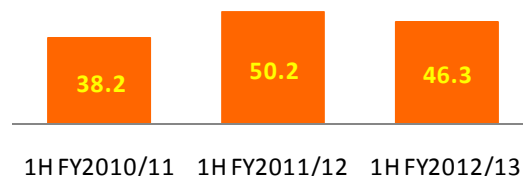
## IPG Sales



- ◆ Sales declined due to lower demand for games and toys products, exit from some low margin applications as well as continued economic uncertainty in Europe adversely affected sales.
- ◆ It was partially offset by increased demand in products for domestic appliances , ventilation, food & beverage, solenoid products, high-end floor care applications and haptic response systems.
- ◆ Focused on developing differentiated, energy efficient and leading-edge products and subsystems.

## Other Businesses Sales

US\$ million



- ◆ Sales in other businesses mainly from SB Controls unit.
- ◆ The majority of Controls sales are in the European market and were therefore impacted by the recent economic downturn.
- ◆ This was partly offset by sales growth in the Americas.



innovating motion

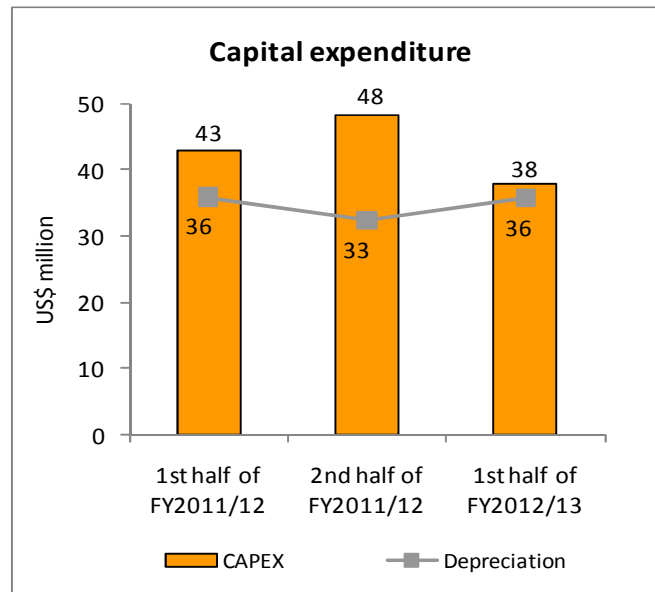
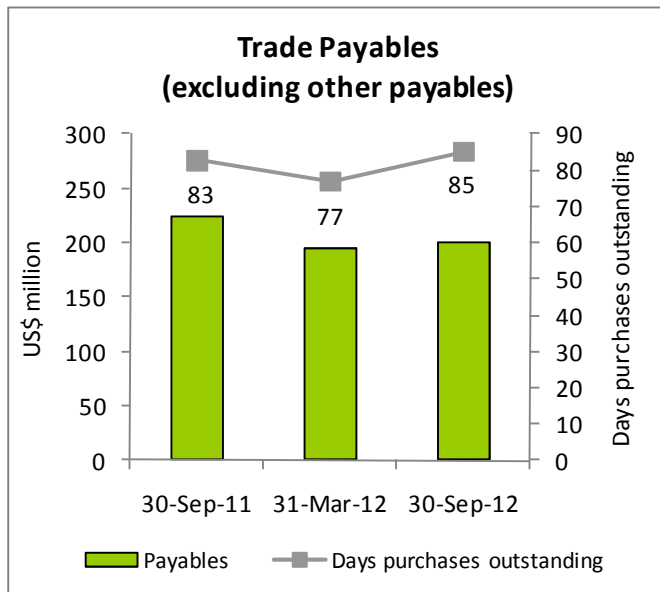
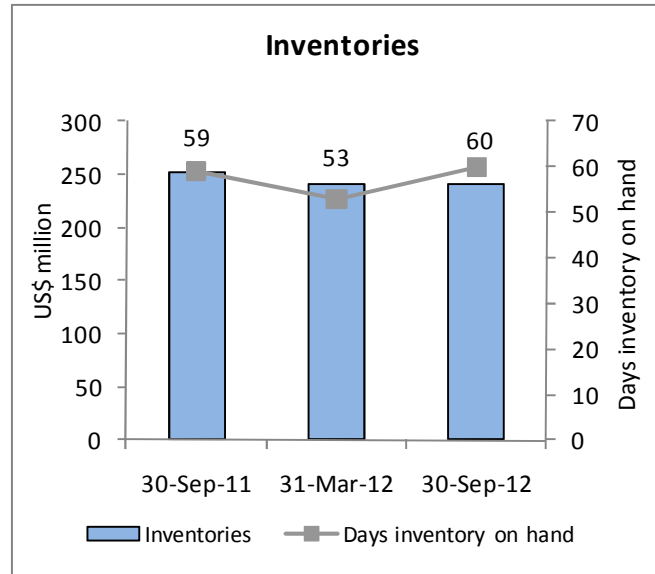
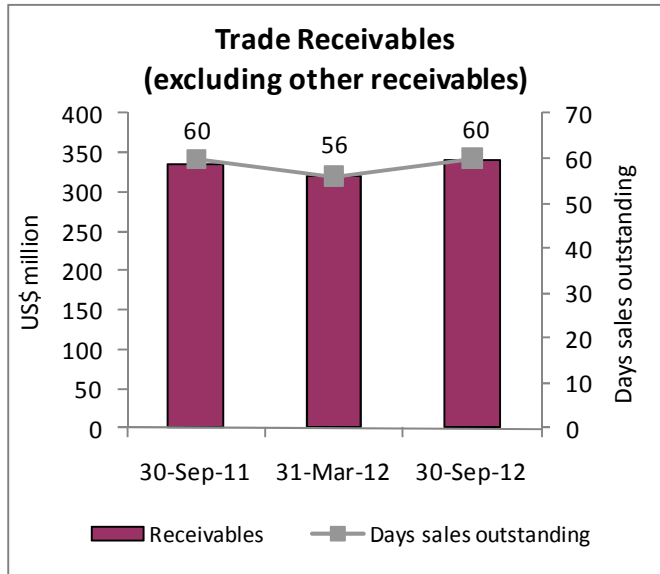


## FREE CASH FLOW FROM OPERATIONS

<i>US\$ million</i>	First half of FY2012/13	First half of FY2011/12	Change
Operating profit*	100.2	118.7	(18.5)
Depreciation and amortisation	47.2	48.7	(1.5)
<b>EBITDA</b>	<b>147.4</b>	<b>167.4</b>	<b>(20.0)</b>
Other non-cash items in profit before taxes	2.6	0.7	1.9
Working capital change			
- Insourcing of a European distribution channel	(49.5)	-	(49.5)
- Other working capital change	(13.4)	(48.2)	34.8
Interest paid	(1.5)	(3.6)	2.1
Income taxes paid	(11.7)	(13.7)	2.0
<b>Net cash generated from operating activities</b>	<b>73.9</b>	<b>102.6</b>	<b>(28.7)</b>
Capital expenditure	(37.9)	(42.9)	5.0
Proceeds from disposal of fixed assets	2.3	12.3	(10.0)
Interest received	4.0	3.0	1.0
<b>Free cash flow from operations</b>	<b>42.3</b>	<b>75.0</b>	<b>(32.7)</b>

\* Includes dividend received from associate of US\$0.3 million for first half of FY2012/13  
(first half of FY2011/12: nil)

# WORKING CAPITAL & CAPEX



---

**Group Overview**

**Key Financial Highlights**

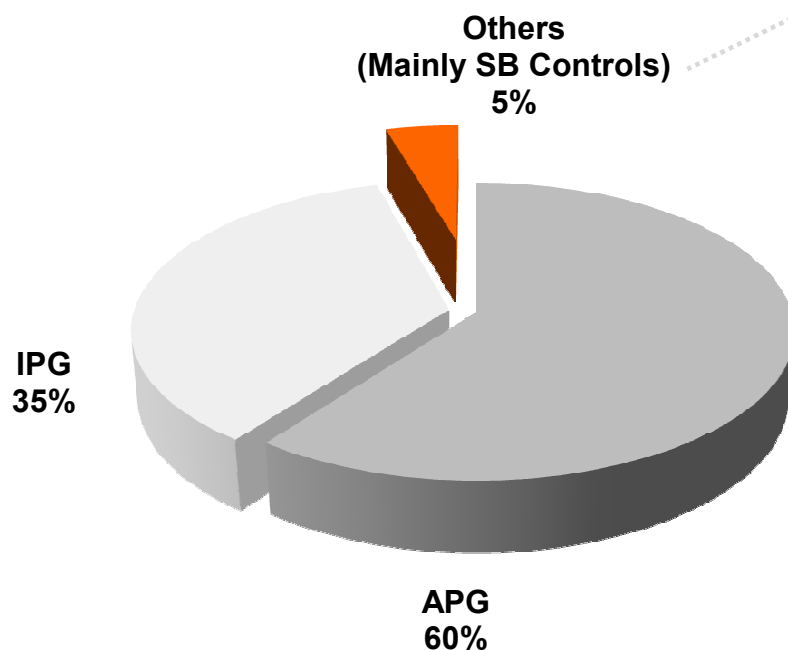
**Operational Results**

**Outlook**

**Appendix**

# DISCLOSEABLE TRANSACTION

**Group Sales % by Business  
FY 2011/2012**



### 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

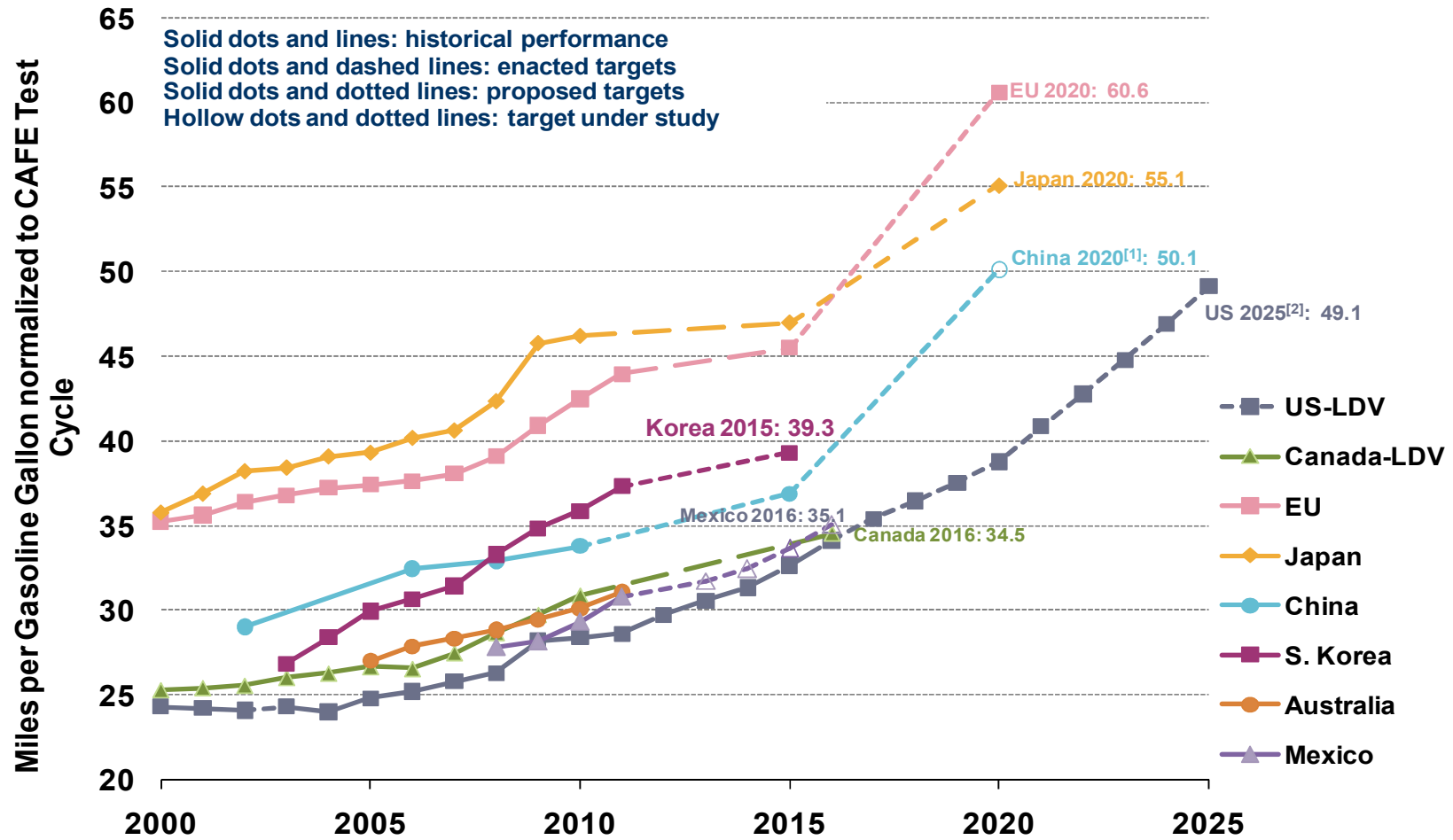
Consideration:	Euro 100M
Business Disposed:	SB Controls*
Agreement Date:	24th Oct 2012
Completion:	Within 9 months After Agreement Date

Estimated Gain on Disposal: US\$12M-24M

SB Controls	FY2011/12 US\$M	FY2010/11 US\$M
Sales	93.1	78.6
% of Total Sales	4%	4%
Net Profit Before Tax	11.1	7.7
Net Profit After Tax	8.8	6.1

\* The disposing 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.

# 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, August 2012.



# TRENDS IN INDUSTRIAL AND DOMESTIC APPLIANCES

---

## Global Trends

- ◆ Develop and promote differentiated leading-edge products and subsystems that offer reduced noise & weight and increase power efficiency. It enables us to satisfy increasingly stringent regulations in several key markets.
  
- ◆ Examples of our innovative products are
  - ✓ Variable flow gear pumps for beverage market segment
  - ✓ Energy saving & double-disconnect switches for white goods market segment
  - ✓ Breakable conductors for financial security segment

## OUTLOOK FOR JOHNSON ELECTRIC

---

- ◆ Near-term growth inevitably be tempered by continued concerns about the health of the global economy
- ◆ Current trading patterns overall are broadly similar to the first half of FY2013
- ◆ Business strategy drives long-term value
  - Research and new product development focus on understanding and responding to the underlying needs of end-users
  - Reshape the global manufacturing footprint to enhance responsiveness, reliability and competitive economics

---

**Group Overview**

**Key Financial Highlights**

**Operational Results**

**Outlook**

**Appendix**



## 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

# APG – COOLANT VALVE ACTUATORS

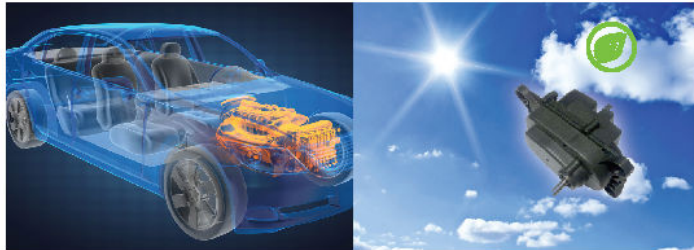


## "Technology Leadership"

- Low weight and power budget
- Fuel efficiency and reduced CO<sub>2</sub> emissions
- High vibration and temperature resistance
- High reliability for extended operating cycles

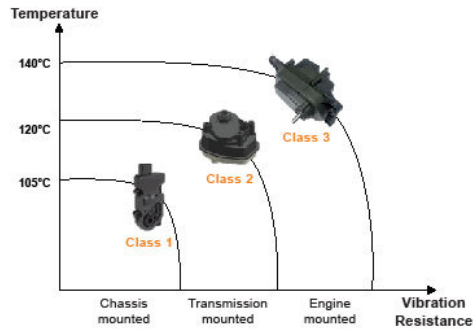
## "The Safe Choice"

- 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



# APG – ESC MOTORS

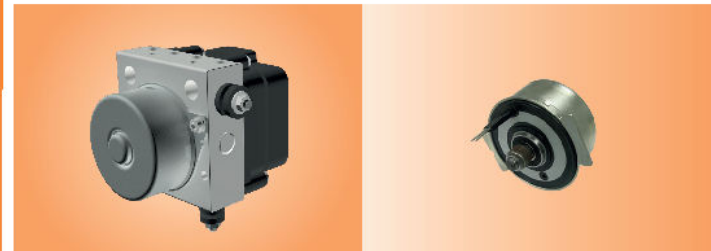


## "Technology Leadership"

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

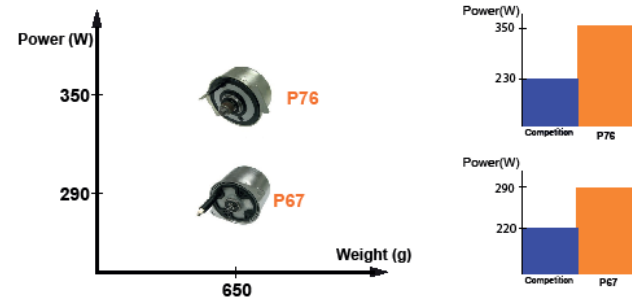
## "The Safe Choice"

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



Highest Power Density ESC Motors

JOHNSON MOTOR



# APG – ETC MOTORS



### "Technology Leadership"

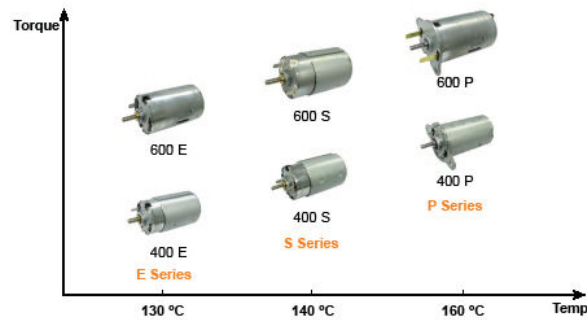
- High torque for fast response
- High vibration resistance
- High temperature range
- Low detent torque
- High EMC suppression

### "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



# IPG – SOLENOIDS

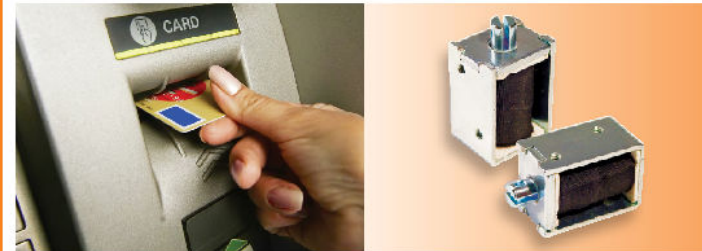


### "Technology Leadership"

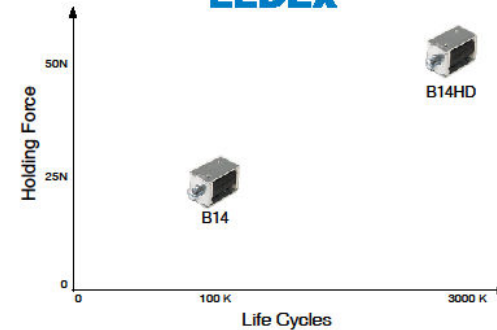
- Life to 3 million cycles
- Most powerful solenoid
- Custom interface flexibility

### "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 – SHIELDED FLEXIBLE CIRCUITS

# IPG – PAYMENT TERMINAL SECURITY



### "Technology Leadership"

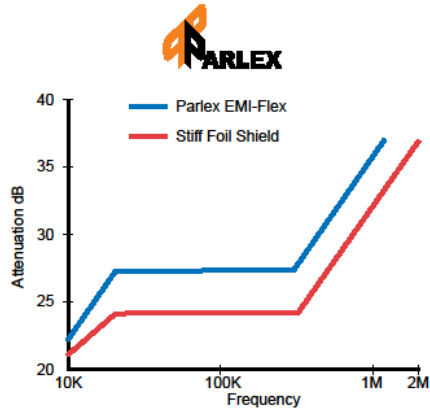
- EMI attenuation
- Flexible and conformable
- Lightweight and compact
- Conductive coating technology

### "The Safe Choice"

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



Parlex EMI-Flex™ Shielded Flexible Circuits



### "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



# IPG – NSF GEAR PUMP



### "Technology Leadership"

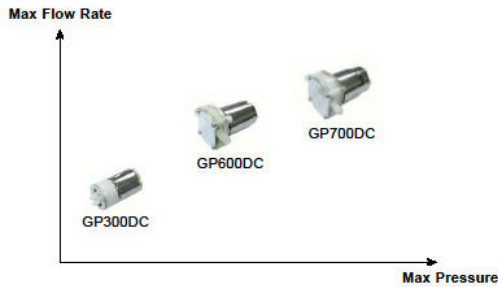
- High flow rate liquid dispenser
- Variable flow rate
- Hot brewed drinks deliverable
- Cold fridge drinks deliverable

### "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 – SHUT-OFF SWITCHES



### "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



innovating motion

# 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



Smart Metering



Multi pin-out options

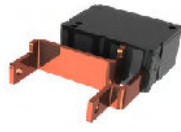


**Disconnect Relay for Smart Meters**  
**LEDEX-EM**




**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





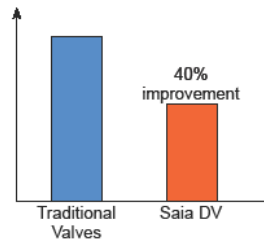
Smart Metering





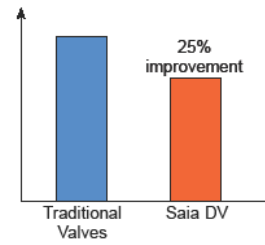
**Diverter Valves for Combi Boilers**  
**saia DV**

**Noise Level**



Valve Type	Noise Level
Traditional Valves	High
Saia DV	40% improvement

**Pressure Drop**




Valve Type	Pressure Drop
Traditional Valves	High
Saia DV	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



**Smart Metering**


**sala Shut-off Valve for Smart Gas Metering**

Features




**sala GMI**

- ▶ Valve + Sensor
- ▶ Integrated control



**sala GMS**


- ▶ Valve + Sensor
- ▶ Position detection



**sala GMC**

- ▶ Compact ball valve
- ▶ Zero pressure drop

System Integration


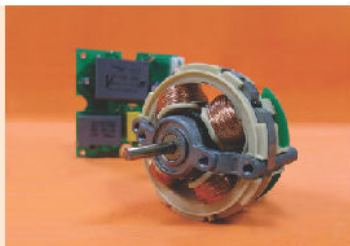


**“Technology Leadership”**


- 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

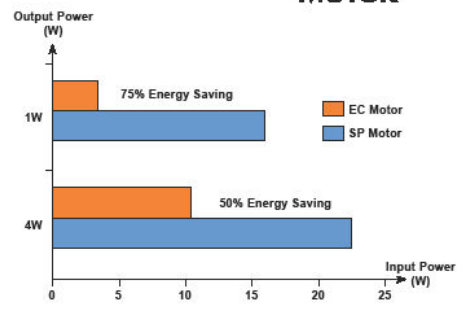



**Energy Saving Bathroom Exhaust Fan Motors**






Integrated Electronics



Output Power (W)	EC Motor Input Power (W)	SP Motor Input Power (W)	Energy Saving (%)
1W	~10	~17.5	75%
4W	~12	~24	50%



Discrete Electronics

# IPG – SOLENOIDS

# IPG – HAND BLENDER MOTORS


**JOHNSON ELECTRIC**

**"Technology Leadership"**

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

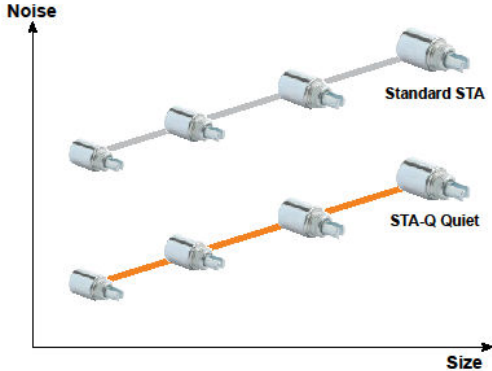
**"The Safe Choice"**

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



**Quietest Solenoid Product Line**

**LEDEX STA-Q**



**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 – RANGE HOODS MOTORS

# IPG – TIPPMATIC SWITCHES



### "Technology Leadership"

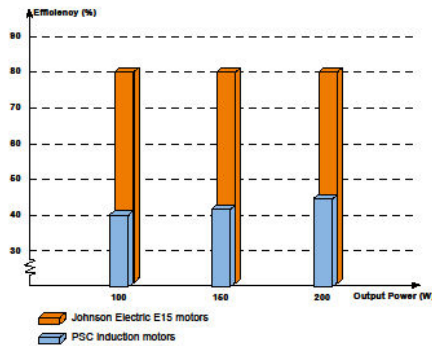
- Automatic speed adjustment for constant air flow
- Powerful extraction and high efficiency at all speeds
- Low noise for all day ventilation

### "The Safe Choice"

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



## Energy Efficient & Quiet Motors for Residential Range Hoods



### "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

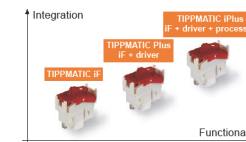
- Ideal for filter type coffee machines



### 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 – MOWER STARTER

# IPG - LEAF BLOWERS



**"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





**PowerPod™ - WB**

**Cost Effective Starter Design without Battery for Walk Behind Mower**



<p><b>Walk Behind</b></p>  <p><b>PowerPod - WB</b></p> <ul style="list-style-type: none"> <li>● Walk Behind Mower</li> </ul>	<p><b>Medium Duty</b></p>  <p><b>PowerPod - MD</b></p> <ul style="list-style-type: none"> <li>● Ride on Mower</li> </ul>	<p><b>Heavy Duty</b></p>  <p><b>PowerPod - HD</b></p> <ul style="list-style-type: none"> <li>● Ride on Mower</li> </ul>
---	---	--





**"Technology Leadership"**

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

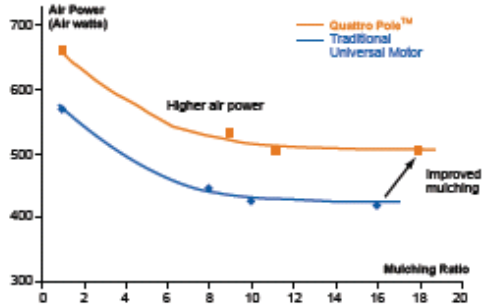
**"The Safe Choice"**

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


**Quattro-Pole™ UH7340**

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



Mulching Ratio	Quattro Pole™ (Air watts)	Traditional Universal Motor (Air watts)
2	~650	~550
8	~550	~450
10	~520	~430
16	~510	~420
18	~510	~420

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

# IPG – ENGINE STARTER



**"Technology Leadership"**

- Posi-Pinion™ technology
- More cranks per battery charge
- High power density
- Smaller battery

**"The Safe Choice"**

- Jam free starting
- Robust & long life
- Rigorous application testing
- Assurance of supply





**PowerPod™ - HD**

**Jam Free Starter for Heavy Duty Operation & Battery Efficiency**




The graph plots Power (Y-axis) against the number of Starts (# Starts, X-axis). Four PowerPod models are shown as data points, increasing in both power and number of starts from bottom-left to top-right:

- PowerPod - LD** (Walk Behind Mower)
- PowerPod - SB** (Snow Blower)
- PowerPod - MD** (Ride on Mower, ATV & Snowmobile)
- PowerPod - HD** (Ride on Mower, Generators)

# 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

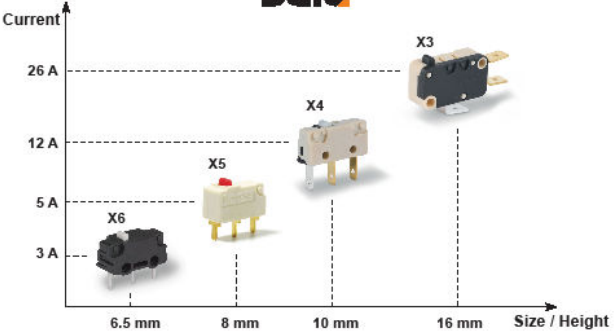
**"The Safe Choice"**

- 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	Life (hours)	Average Traffic	High Traffic	Fast
Universal Motor Technology	U82	1000	Normal Life		
	U82	2000	Long Life		
Brushless Motor Technology	E16 Blower	5000	Extreme Life		
	E16 Blower	5000	Extreme Life	15-20	5-10

# IPG – DRILL MOTOR

# IPG – DISHWASHER DRAIN PUMP






**"Technology Leadership"**

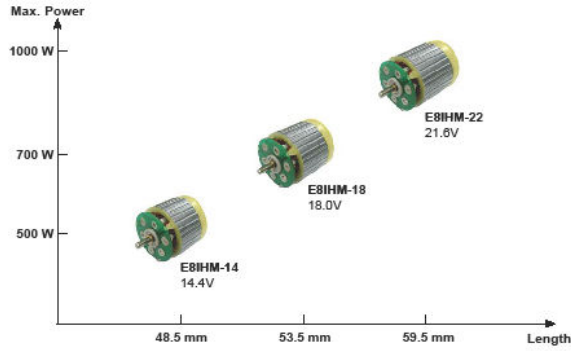
- Highest Efficiency Drill Motor
- High Power Brushless Motor
- Construction (Magnetics, Cooling, Sealing)

**"The Safe Choice"**

- Robust Performance Design
- Rigorous Application Testing
- Assurance of Supply

 **Compact EC™ Motors for Best Battery Run Time and Fastest Job Completion**






**"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 - HAIRDRYERS



## "Technology Leadership"

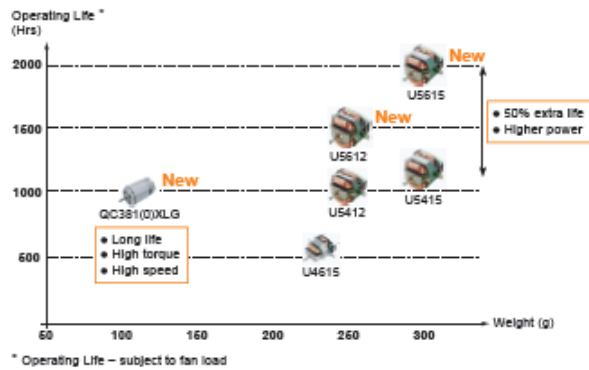
- More power and longer life in new AC motors
- Low weight DC motor with professional performance
- Full product line for high power, long life & low weight

## "The Safe Choice"

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



## Long Life, Lightweight & Powerful Motors for Hairdryers



# IPG – BLENDER MOTORS



## "Technology Leadership"

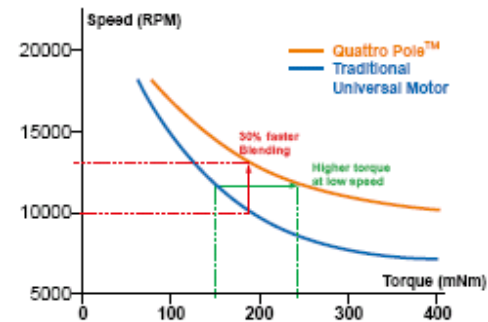
- Higher power and torque for kitchen blenders
- Faster blend time for bar blenders
- Smaller footprint with improved power

## "The Safe Choice"

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




## Powerful & Efficient Quattro-Pole Motors for Faster Blending





# 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)

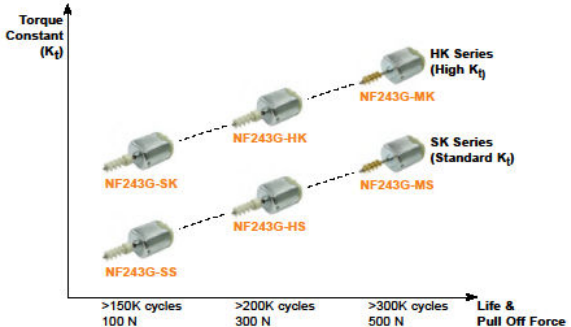
**"The Safe Choice"**

- 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**





Series	Model	Life & Pull Off Force
HK Series (High $K_t$ )	NF243G-MK	>300K cycles, 500 N
SK Series (Standard $K_t$ )	NF243G-MS	>200K cycles, 300 N
Other Series	NF243G-SK, NF243G-HS, NF243G-SS	>150K cycles, 100 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	Weight	Sound Level
Compact Lite™	Low	Low
Traditional	High	High

# APG – GRILL SHUTTERS

# APG – BATTERY COOLING FAN

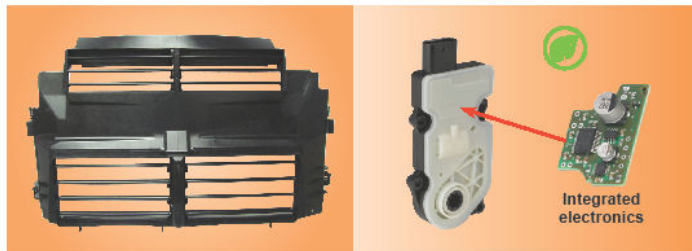


### "Technology Leadership"

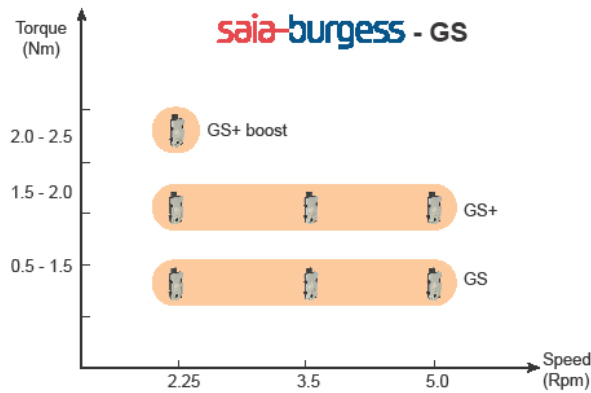
- Highest torque to overcome mud or ice
- Custom designs for different platforms
- Lowest power consumption
- Compact design

### "The Safe Choice"

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



### High Performance Actuators for Automotive Grill Shutters

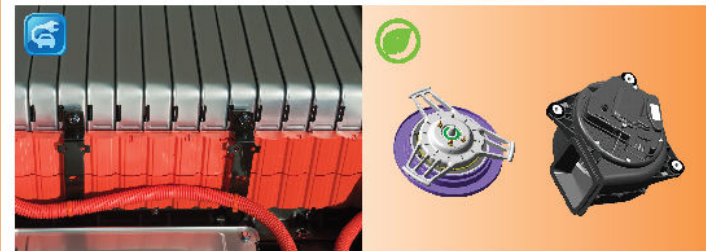


### "Technology Leadership"

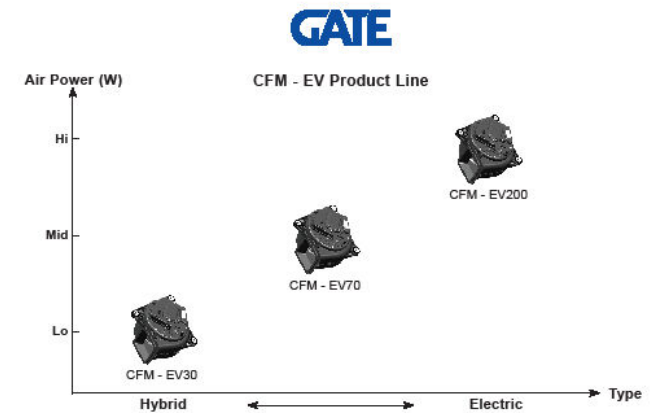
- Variable air power
- Quiet operation
- Light weight in compact package

### "The Safe Choice"

- Longest life
- Water proof
- Shock resistant



### Battery Cooling Fan Module for Hybrid & Electric Vehicles



# APG - STEERING WHEEL LOCKS

# APG – WINDOW LIFT



**"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



Standard DC Series  
OD 24 mm



Compact DC Series  
OD 20 mm



Standard DC Series  
OD 27 mm

45 rpm

80 rpm

Torque



**"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**



Sound Level



Weight

Standard+

Compact Lite™

# APG - WASHER PUMPS

# APG - LUMBAR SUPPORT



**"Technology Leadership"**

- Customized motion solutions
- High efficiency pump platforms
- Advanced EMC suppression

**"The Safe Choice"**

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




**The Motor Technology Standard in Automotive Washer Pumps**



**Washer Pump Motor Platforms**



**Customized Washer Pumps**





**"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 - ACTUATORS



### "Technology Leadership"

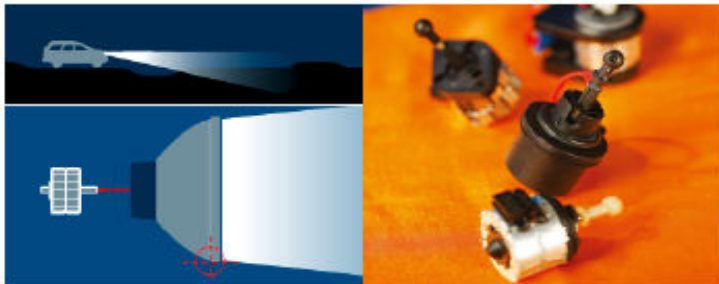
- Technology standards
- Compact performance
- Low noise

### "The Safe Choice"

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



saia-burgess Actuators for Climate Control



saia-burgess Actuators for Adaptive Lighting

# 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

GATE



■ Brushless Motors



■ Standard Motors



■ High Power Density Motors



innovating motion

# APG - SEAT MOTORS

**JOHNSON ELECTRIC**

**"Technology Leadership"**

- Fuel saving (low weight)
- High power density
- Wide torque range

**"The Safe Choice"**

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



**High Power Density Motors for Seating Systems**

**JOHNSON MOTOR**



■ Motors





■ Systems

# APG - ABS MOTORS

**JOHNSON ELECTRIC**

**"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)**


**JOHNSON MOTOR**



■ Standard  
Weight: 950 g



■ Compact  
Weight: 650g



■ Power Density  
Weight: 168g

## 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.*