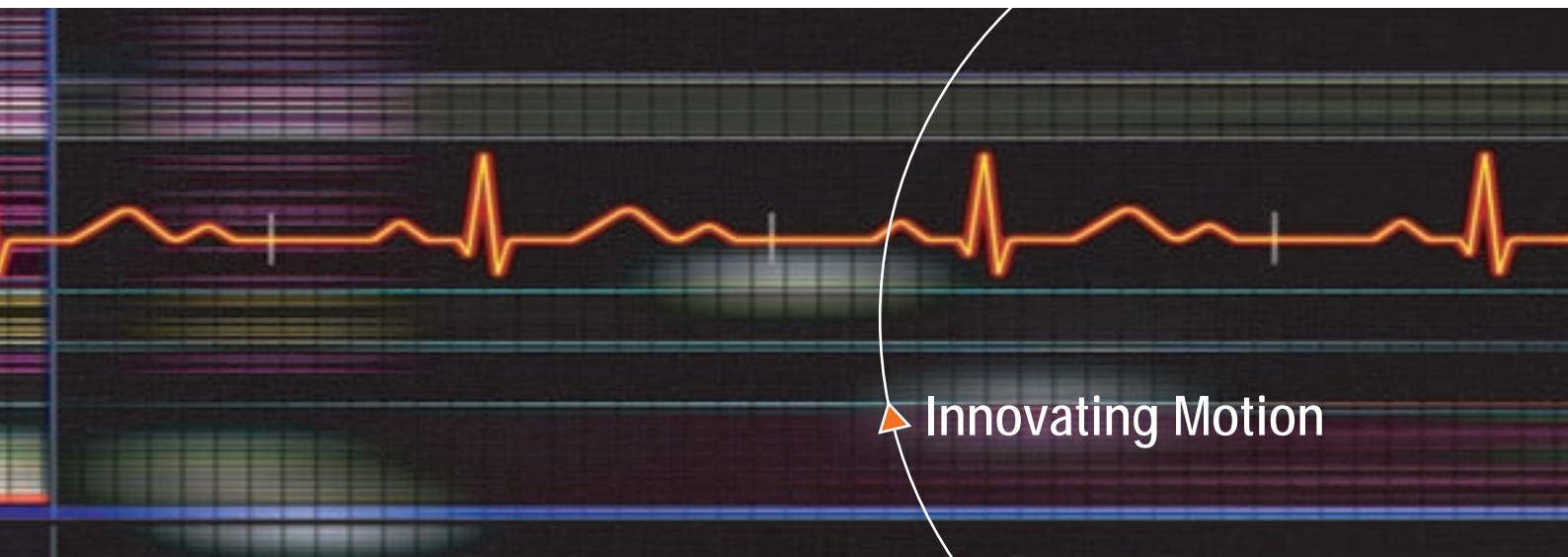


# Medical Device & Sensor Solutions



▲ Innovating Motion



# **ERMEC**

[www.ermec.com](http://www.ermec.com)

**Distribución de componentes  
eléctricos y electrónicos**

[www.jemedtech.com](http://www.jemedtech.com)



# JE Value Innovation Program – Medical Devices

## Fastest Time To Market!

Customers are invited to join Johnson Electric's development engineers in the VIP Center, to create designs and rapid prototypes. In parallel with this process, the design for manufacturability process is underway.

Each design is broken down into process "gates" with deliverables and timelines defined. Any non-compliance with the timeline is immediately addressed with all responsible staff from JE and the customer. The result is up to 50% reduction in overall project duration, giving significant time to market advantages.



JE/Customer Teams



VIP Project Management Center

## Information Security Management

The JE design process is highly secure to ensure that intellectual property and proprietary information is protected. JE is the safe choice for your medical device project.

# JE Value Proposition – Product Launch on Time

JE will deliver projects with the fastest time to market. This results in competitive advantage to the customer and cost effective product development for both parties.

## Medical Focus

Project teams are dedicated to support key customers and deliver products on time

## Commitment

Unrelenting commitment to project success and to the ultimate attainment of zero defects in all areas of our business

## Design Partnerships

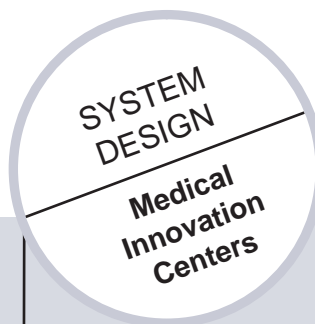
JE has a unique project management process to ensure that collaboration with customers yields the fastest time to market

## Global Footprint

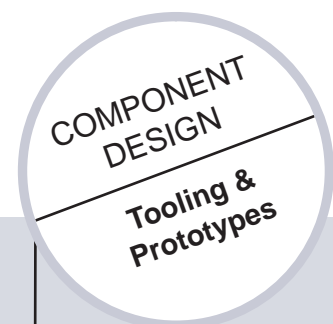
A global company that provides “local” sales and technical support to customers 24/7



- VIP Laboratories dedicated to key projects
- Collaboration on-site with innovative customers – rapid new product development and prototyping
- Leverages Johnson Electric's and customers' capabilities
- Creates leadership in strategic projects



- USA
  - Methuen, MA
  - Vandalia, OH
- EUROPE
  - Murten, Switzerland
  - Dresden, Germany
  - Halver, Germany
  - Haifa, Israel
- ASIA
  - Hong Kong, China
  - Shajing, China
  - Saku, Japan



- Micro Component capability
- Vertical integration
- Finite Element Analysis: Structural Magnetic, Computational Fluid Dynamics
- Rapid Prototyping: SLS Technology Plastic Parts, SLA Technology Parts, KelTool Technology Parts, Vacuum Casting Technology Parts

# The End to End Solution

**JE provides an end to end solution with system and component design, tooling and mold making capability, component manufacturing and assembly in a vertically integrated manufacturing complex known as Johnson City.**

## Assurance of Supply

50 years in electro-mechanical systems with a history of financial strength and long-term relationships with customers and supply chain partners

## Engineering Expertise

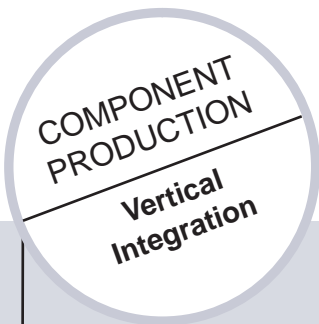
Proven and reliable technology with an application focus that enables JE to create best in class solutions

## Scale & Speed

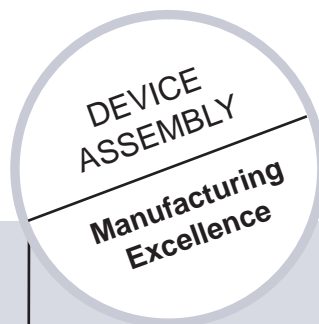
Constantly leveraging the benefits of scale and speed to ensure first mover advantage to our customers

## Unrivalled Technology & Capabilities

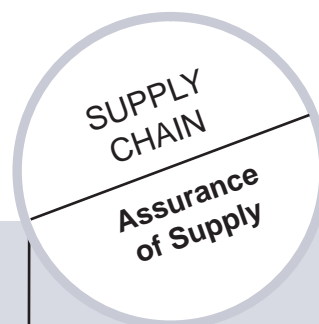
An array of leading product brands and capabilities that span tooling and molds, micromotors, solenoids, actuators, precision gears, precision plastics, flexible circuits, switches & sensors



- Microcomponents
- Precision Plastic
- Metal Machining
- Metal Stamping
- Magnets
- Flexi-Circuits
- Gears
- Piezo-Ceramic
- Die Casting
- Sintered Metal
- Over-Molding



- 40,000 employees and subcontract workers worldwide
- Capacity: Greater than 4 million subsystems a day
- High degree of vertical integration: in-house components & equipment
- Unique JE Production System guarantees quality and reliability



- Extensive global supplier quality organization
- Customer Supply Chain Integration with customers' existing manufacturing system
- JE one-stop-shop for supply chain management

## Medical Innovation Centers Worldwide

The challenge of designing, prototyping and bringing Medical Devices to market has never been more time critical. Johnson Electric's customers can leverage our worldwide technical expertise and manufacturing excellence to bring products to market faster than ever before.



Isle of Wight, UK



Methuen, MA



Vandalia, OH



Murten, Switzerland  
European HQ



Everyday, JE's global teams design and manufacture millions of motion subsystems and sensors for a wide variety of precision applications.



Dresden, Germany



Shajing, China  
VIP Center



Yokneam, Israel



Hong Kong Global HQ

# The Power of “Johnson City”



- 5 million square feet
- 30,000 workers
- 26 air-conditioned manufacturing buildings

- Tooling design and manufacturing
- Precision component production
- High volume components and final assembly

## STATE-OF-THE-ART FACILITIES



EDM



Injection Molding



CNC Milling



Precision Grinding



Clean Room



Johnson City features extensive laboratory facilities to ensure that the performance of JE products meet stringent medical requirements



**WORLD CLASS PRODUCT ASSURANCE FACILITIES**

Environmental Laboratory



Materials Laboratory

## Medical Device Solutions

*“Only JE Can Do!”*

---

**Johnson Electric offers a unique combination of technology, engineering and manufacturing resources to ensure the market success of our customers projects.**

---

Johnson Electric is an engineering and manufacturing powerhouse with a vertically integrated supply chain to ensure quality and just-in-time performance worldwide. Every component in our medical device subsystems is manufactured in-house to drive attainment of our ultimate goal of zero defects. Within our products, we utilize our own leading brands for critical components.

The Johnson Electric family of brands is the safe choice for medical device and life science applications.



#1 in precision sensors and flexi circuits



#1 in precision microswitches



#1 in precision high performance solenoids



#1 in ceramic (piezo) servo motors and stages



#1 in precision micro motors and gears

## Device Development

---

**Johnson Electric offers a full-range of services to get products to the market faster. From concept to production, JE will work collaboratively with its customers' engineers to create solutions for any medical device.**

---

The JE Value Innovation Program is a unique medical device development process. It unifies all of the management processes involved in creating medical device subsystems.

Timelines for “process” gates are established with the customer and the design team. Any deviation from the schedule is responded to immediately.

The JE design team includes customer personnel and every engineering discipline from within JE. All of these specialists collaborate in a laboratory where prototyping services are available 24 hours a day. The result is a highly reliable and manufacturable product.

The parallel involvement of JE manufacturing engineers, tool makers and component engineers with the product design team, results in significant time saving and first yield benefits.

- ▶ Program Management
- ▶ Product Design
- ▶ Rapid Prototyping
- ▶ Mold Design & Fabrication
- ▶ Plastic Injection Molding
- ▶ Fixture Design & Fabrication
- ▶ Metal Stamping & Forming
- ▶ Precision Gear Design
- ▶ Reliability Testing
- ▶ Precision Machining
- ▶ Contract Manufacturing
- ▶ Supply Chain Management

# Hospital Equipment & Patient Mobility Solutions



## JE Subsystems





# Imaging Solutions



## JE Subsystems



**ERMEC**  
www.ermec.com  
ERMEC, S.L. BARCELONA  
C/ Francesc Teixidó, 22  
E-08918 Badalona  
(Spain)

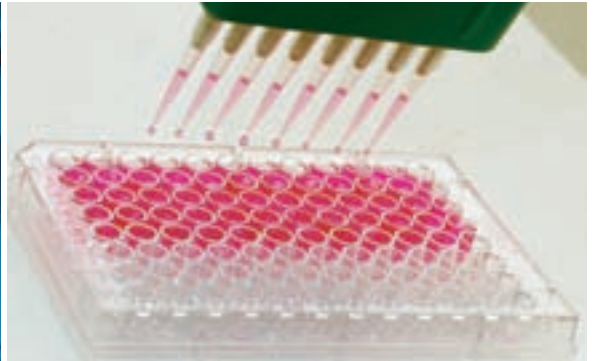
Tel.: (+34) 902 450 160  
Fax: (+34) 902 433 088  
[info@ermec.com](mailto:info@ermec.com)  
[www.ermec.com](http://www.ermec.com)

ERMEC, S.L. MADRID  
C/ Sagasta, 8, 1ª planta  
E-28004 Madrid  
(Spain)

PORTUGAL  
[portugal@ermec.com](mailto:portugal@ermec.com)  
BILBAO  
[bilbao@ermec.com](mailto:bilbao@ermec.com)



# Clinical Measurement & Laboratory Solutions



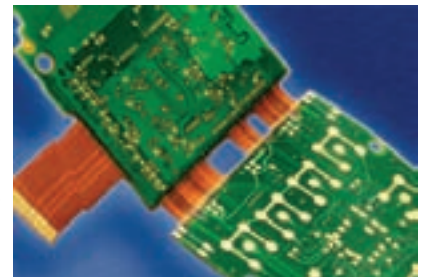
## JE Subsystems



# Respiratory Solutions



## JE Subsystems



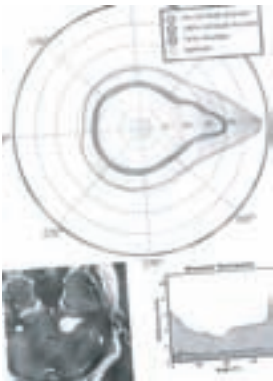
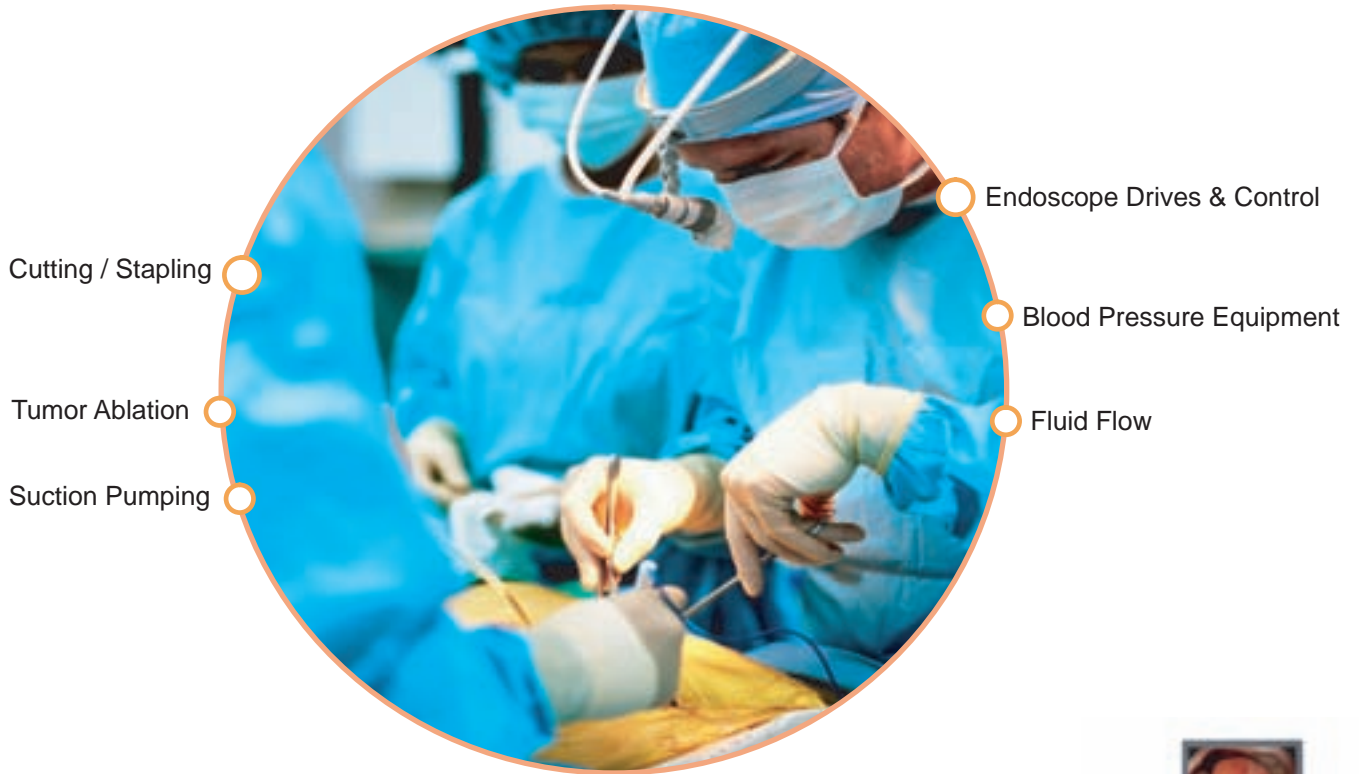
**ERMEC**  
 www.ermec.com  
 ERMEC, S.L. BARCELONA  
 C/ Francesc Teixidó, 22  
 E-08918 Badalona  
 (Spain)

Tel.: (+34) 902 450 160  
 Fax: (+34) 902 433 088  
[info@ermec.com](mailto:info@ermec.com)  
[www.ermec.com](http://www.ermec.com)

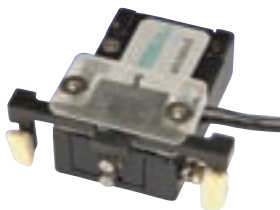
ERMEC, S.L. MADRID  
 C/ Sagasta, 8, 1ª planta  
 E-28004 Madrid  
 (Spain)

PORTUGAL  
[portugal@ermec.com](mailto:portugal@ermec.com)  
 BILBAO  
[bilbao@ermec.com](mailto:bilbao@ermec.com)

# Surgery



## JE Subsystems



**ERMEC**  
www.ermec.com  
ERMEC, S.L. BARCELONA  
C/ Francesc Teixidó, 22  
E-08918 Badalona  
(Spain)

Tel.: (+34) 902 450 160  
Fax: (+34) 902 433 088  
[info@ermec.com](mailto:info@ermec.com)  
[www.ermec.com](http://www.ermec.com)

ERMEC, S.L. MADRID  
C/ Sagasta, 8, 1ª planta  
E-28004 Madrid  
(Spain)

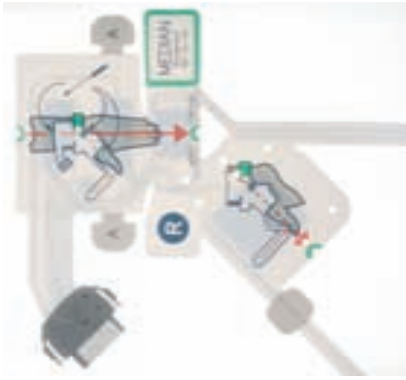
PORTUGAL  
[portugal@ermec.com](mailto:portugal@ermec.com)  
BILBAO  
[bilbao@ermec.com](mailto:bilbao@ermec.com)



# Sensors



Examples of some of the solutions that we provide:



Neuro



EKG



Cardio



EEG



Glucose

## Sensors

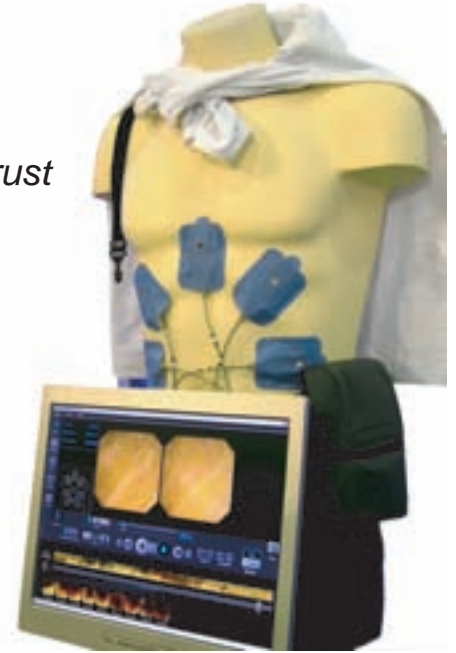
### Parlex Medical and Life Science Products

*From idea to commercialization....*

*Fast, dependable results from a partner you can trust*

### Complete medical electronics contract services for medical sensors, disposables & circuits

- Design & Development
- Prototyping
- Component Manufacturing
- Finished product assembly and packaging



### Parlex Technologies for medical device contract manufacturing

#### Polymer Thick Film Circuits

- Ideal for medical disposables & non-invasive sensors
- Easy design & manufacture
- Cost effective, fast turn-around

#### Copper Flexible Circuits

- Rigid flex circuits for high reliability connections
- Single-sided circuits for dependable flexibility
- Double-sided circuits for increased miniaturization
- Roll-to-roll formats for automated assembly

#### Flat Flexible Cables

- Ideal choice to connect medical devices & displays
- Shielding & impedance control for reliability in use
- Easily integrated with any project





*Contact us now to discuss your Medical Device development plans!*

- *System & component design*
- *Tooling and prototyping*
- *Component & subsystem manufacturing*
- *Supply chain assurance*

*Email to:*  
*jemedtech@johnsonelectric.com*

*Or register at:*  
*www.jemedtech.com*

*Our medical solutions team will be in touch with you!*

Johnson Electric Holdings Limited  
Johnson Building  
6-22 Dai Shun St.  
Tai Po, New Territories  
Hong Kong  
Tel. + 852 2663 6188  
Fax + 852 2897 2054



# **ERMEC**

[www.ermec.com](http://www.ermec.com)

**Distribución de componentes  
eléctricos y electrónicos**



**ERMEC**  
www.ermec.com

**ERMEC, S.L. BARCELONA**  
C/ Francesc Teixidó, 22  
E-08918 Badalona  
(Spain)

Tel.: (+34) 902 450 160  
Fax: (+34) 902 433 088  
[info@ermec.com](mailto:info@ermec.com)  
[www.ermec.com](http://www.ermec.com)

**ERMEC, S.L. MADRID**  
C/ Sagasta, 8, 1ª planta  
E-28004 Madrid  
(Spain)

**PORTUGAL**  
[portugal@ermec.com](mailto:portugal@ermec.com)  
**BILBAO**  
[bilbao@ermec.com](mailto:bilbao@ermec.com)