

# Contract Manufacturing



## Excellence in Contract Manufacturing of Complex Systems

As one of the world's leading technology companies, Delphi is uniquely poised to offer contract manufacturing services on virtually any project, including complex systems for medical, commercial and other industries.

A long heritage in the automotive industry has provided us with a wealth of experience in a wide variety of disciplines and markets – all of which have enabled us to develop a comprehensive range of services and capabilities to help address your manufacturing challenges:

- System integration
- Mechanical motion
- Fluidics
- Optics
- Printed circuit assembly
- Material manufacturing operations
- Custom test solutions

Taking advantage of Delphi contract manufacturing services can help give your products a real competitive edge, and we can help support your manufacturing and business initiatives. Working with Delphi provides access to:

- Vast global resources
- Broad engineering and manufacturing expertise
- Leading-edge materials and technologies

Delphi's capabilities and global resources are ready to help you produce a result greater than the sum of its parts.

# DELPHI

## Our Expertise Yields Success

Working with Delphi – and through Delphi – can help get your next product to market quickly and successfully. Starting with the industrial design of your product, Delphi is at your side, right through aftermarket support. That means fewer management issues inherent when dealing with multiple companies, allowing you to focus more on your core competencies.

With the world-class resources of a global company, Delphi maintains a small company feel. As the first to develop focused factory cells, we are committed to a team approach ideal for smaller volume production runs. All of our processes are designed to ensure your project gets the attention it needs to run smoothly.

Delphi contract manufacturing capabilities are the key to your success. From disposables to complete electromechanical systems, we maintain the highest manufacturing standards.

## Leverage Our Intellectual Property

With more than 6,000 active patents, Delphi is a global technology leader. Contract manufacturing projects can leverage that portfolio to take advantage of several vital technologies, including:

- Sensors
- Wireless communications
- Precision molded components
- Connection systems
- Power and thermal management
- Fluid handling
- Human interface
- Control and safety
- Micro-electro-mechanical systems (MEMS)

## Best Practices

Delphi dedicates project teams tailored to individual program requirements to offer:

- Advanced product design and manufacturability analysis – design for manufacturability, design for serviceability, and material cost reduction
- Design completion services
- Document development and control
- Lean manufacturing
- Short time to market
- Integrated management systems
- Total quality systems – design and test verification
- Continuous improvement
- Use of critical metrics
- Collaborating for competitiveness
- Manufacturing product compliance (UL, CSA, TÜV, QSR, FDA, MDD)
- Life cycle database management



## Adding Value at Every Stage

An extensive range of capabilities and processes helps Delphi tailor a program to the production of virtually any complex system. Our focus on moderate-volume, high-complexity assemblies provides us

with the specific competencies required to meet our customers' specific needs. As a Delphi contract manufacturing customer, you can access these areas of our expertise:

System Integration	<ul style="list-style-type: none"> <li>• Integration of standard and custom components in rack or custom enclosures</li> <li>• Complex wiring and cable harness installation</li> <li>• Software loading, system test, and burn-in</li> <li>• Customized packaging and crating</li> <li>• Yield and component failure analysis</li> </ul>
Mechanical Motion	<ul style="list-style-type: none"> <li>• High-speed and precision linear and rotary motion</li> <li>• Custom and off-the-shelf robotic systems</li> <li>• Contact-based measurement systems</li> <li>• Accuracy and repeatability test development</li> </ul>
Fluidics	<ul style="list-style-type: none"> <li>• Experience with a variety of sensors, valves, and pumps</li> <li>• Leak detection, flow rate, and dispense volume testing</li> <li>• Application engineering support</li> <li>• Sensor calibration</li> </ul>
Optics	<ul style="list-style-type: none"> <li>• Integration of lasers in imaging and other products</li> <li>• Dense wave division multiplexing (DWDM) and optical alignment</li> <li>• Class 10,000, 1,000, and 100 clean room capability</li> <li>• Fiber optic handling, splicing, and connecting</li> </ul>
Relevant Capabilities	<ul style="list-style-type: none"> <li>• Documentation development and control</li> <li>• Custom component sourcing through our qualified supply base</li> <li>• Design support and manufacturability analysis</li> <li>• Major subassembly builds</li> <li>• Complete product-level assembly of complex products</li> <li>• Web-hosted product order fulfillment worldwide</li> </ul>
Printed Circuit Assembly	<ul style="list-style-type: none"> <li>• Flexible assembly operations enable efficient changeover for low- to medium-volume production</li> <li>• Lead-free printed circuit assembly processing</li> <li>• SMT placement capabilities from 0201s through BGAs</li> <li>• Solder assembly standards defined by IPC 610 Class II, with capabilities that extend to Class III</li> <li>• Board-level functional test and Agilent 3070 ICT</li> </ul>
Quality	<ul style="list-style-type: none"> <li>• Approved manufacturing location for agencies such as UL, CSA, TÜV, ETL</li> <li>• ISO 13485:2003, ISO 9001:2000, QSR (GMP), MDD, CMDCAS</li> <li>• FDA registered</li> </ul>



## Global Resources, Local Successes

As one of the world's most advanced technology companies, Delphi offers its customers superb resources and a global knowledge of markets, leading materials, and technology. By choosing Delphi, you can leverage Delphi's purchasing power and global footprint. You'll enjoy significant market differentiation as Delphi works with you to engineer quality and innovation in every device. Delphi offers:

- Industry leadership in complex system manufacturing
- Materials management expertise
- Engineering strength
- Design partnerships
- Extensive supply base and competitive pricing
- Customer-centric culture
- Focus on quality and system reliability
- Market differentiation in product design
- Program cost reduction capability

### Global Presence

Delphi can be found in 36 countries around the world.

- 159 manufacturing sites
- 33 technical centers
- 17,000 engineers
- \$14 billion in goods and services worldwide

### Processes and Procedures Generate Results

More than a century of experience making our customers successful has allowed us to develop a set of processes and procedures that help ensure successful project development.

- Certified to ISO 9001:2000, ISO 13485:2003, CMDCAS, and QSR compliant
- eFill (secure, customer-managed order fulfillment and tracking system)
- eHub (integrates procurement, product planning, collaboration, and customer relationship management into the supply chain)
- Agile™ software (enhances efficient product life cycle management)
- Cutting-edge industrial design team and human factors lab



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