

KEY TAKEAWAYS



Specially-designed systems at each work station to communicate up-to-date, real time, repair status information to global operations



Quality engineering processes and Q/A systems that analyze and measure process variations and implement corrective actions



Clear, concise, and repeatable procedures are used to ensure reliable, accurate results



Certified technicians partner with skilled engineering team to provide “Best-in-Class” repair and manufacturing solutions

ENGINEERING SERVICES

Introduction

A need has been expressed by DEX clients for engineering support, including reverse engineering, failure analysis, and root cause analysis. This support spans a vast range of product categories comprised of high-tech IT & consumer electronics, medical equipment and renewable energy electrical and electromechanical components.

Many of DEX clients require innovative methodologies for processing repaired products. In cases where products have reached or exceeded end-of-product-life, and subsequently have no documentation available, DEX Engineers utilize reverse engineering proficiencies to determine how a product or component works. They use this detailed analysis to develop accurate, effective repair solutions, and as a roadmap to develop product upgrades or to design next-generation products.

DEX develops customized engineering solutions to meet each client's requirements including reporting failure symptom trends, epidemic failures, third party module issues, and evidence of design quality and reliability issues. DEX Engineers provide expert recommendations for design changes and alternatives that enable clients to improve product reliability and performance while reducing costs.

History

DEX was founded in 1980 with a focus on high-tech equipment repair and a philosophy that repair is successfully accomplished through the collaboration and partnership of engineers and technicians.

DEX engineering and depot repair core competencies have exceedingly evolved over the years allowing DEX to effectively support OEMs, resellers, retail partners and owner/operators (wind farms).

DEX has maintained a dedicated staff of highly accomplished Engineers specializing in electrical, electronic, process, mechanical and quality engineering. These Engineers closely partner with in-house A+ certified technicians providing them with concise and accurate repair procedures that ensure quick turnaround of repaired products — all within ISO 9001-2000, ISO 13485:2003 and ISO 14000 certified facilities.

Engineers & Repair Competencies

The core of DEX's repair competencies derive from the vast skills, knowledge and expertise of DEX Engineers.

Electrical Engineers. DEX's electrical engineers develop processes for high-tech products. These Engineers analyze, and modify when necessary, the service processes and documentation for all new products received for repair or other services. They utilize this compiled data to provide failure analysis on returned units and convey quality improvement recommendations to OEMs.

Mechanical Engineers. DEX's mechanical engineers provide a high level of mechanical issue resolution within DEX's mechanical model shop. Many of DEX's proprietary, internally fabricated test systems are designed and constructed within the in-house engineering laboratory. Using these test systems, the mechanical engineers provide failure analysis for field return units and mechanical products. This data is communicated to OEMs and clients to facilitate advancements in their next generation processes and products.

Process Engineers. DEX's process engineers analyze product flows for efficiency and throughput capabilities. They develop new processes, in addition to project engineering and troubleshooting, focusing on design, operation, and maintenance. These engineers are responsible for multiple facets of new product introductions including spare parts and materials assessment, packaging design, tooling and software validation, and process validation. They collaborate with client engineering teams to obtain process approvals.

Quality Engineers. DEX's quality engineers audit all operations and deploy Six Sigma quality procedures. They perform post-production testing to circumvent potential issues and ensure improved product reliability.

Software Engineers. DEX's software engineers develop diagnostic tools that enable them to test a wide variety of products.



Repair Expertise & Scope

DEX's engineering team provides worldwide support, across numerous verticals, and covering a wide variety of products, technologies and services. This broad range of capabilities includes electrical, mechanical, and cosmetic repair.

DEX electrical repair capabilities spans a large array of products, from board and Field/Factory Replaceable Unit (FRU) swap, to whole unit and component level repair. Multi-layer, through-the-hole, surface mount, and BGA technologies are supported with X-ray verification of BGA board repair. In addition, DEX provides expertise in optical systems repair including optical drive laser alignment and DLP engine support.

Mechanical and cosmetic services include frame and chassis repair, metal and plastic case repair, refurbishment and repainting.

Reverse Engineering

DEX provides reverse engineering solutions for end-of-life or obsolete products when component parts needed to perform repairs are not available or when documentation does not exist to create a repair process. The cost savings the client realizes through DEX reverse engineering a repair is often one-fourth to one-third the cost of buying new product.

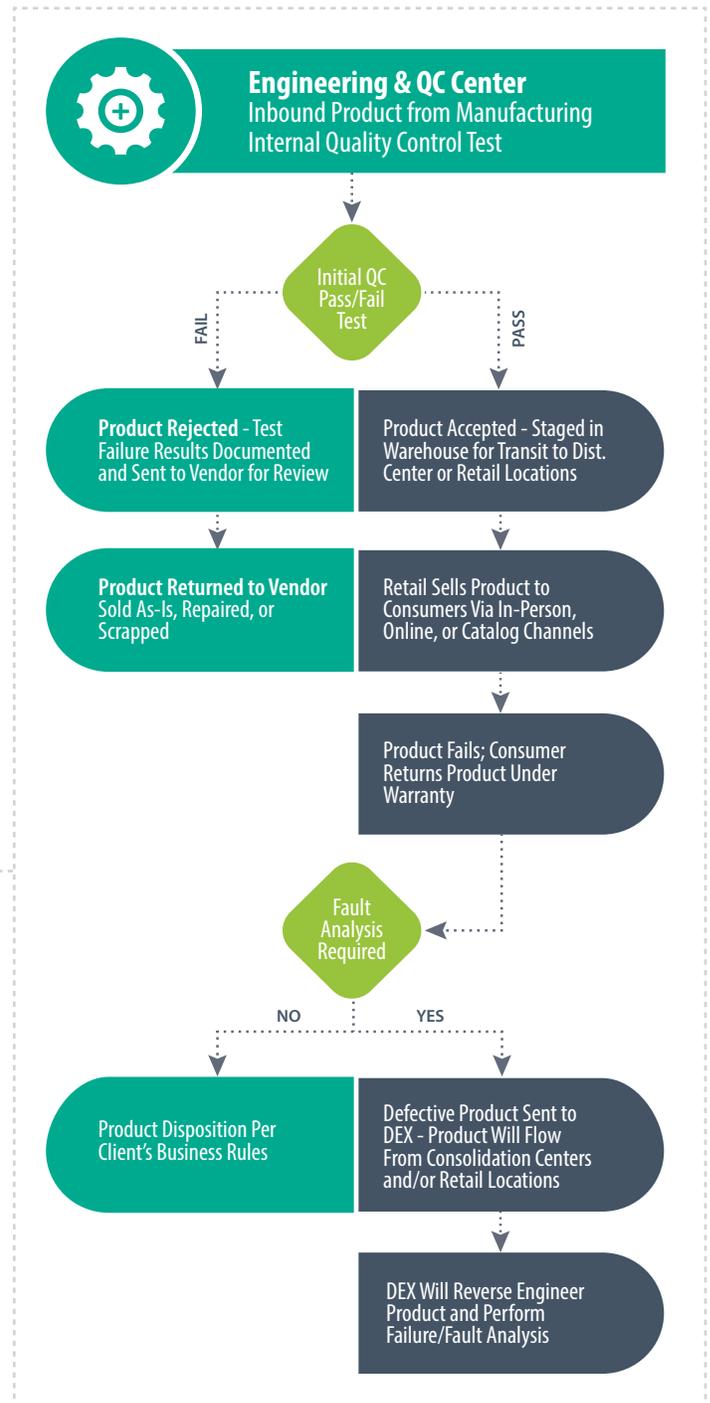
The diagram on the right illustrates the engineering process, including test procedures, failure, and fault analysis reports.

Tech Stations

DEX's technicians use specially-designed work stations, called Tech Stations, to communicate up-to-date, real time repair status information to all DEX global operations. This data visibility significantly reduces repair times and accelerates the return of repaired products to clients.

Tech Stations track the time spent on each function of the process. This assists DEX management in determining if technician training is required, provides detail for accurate transactional billing of functions, and captures parts, used during repair, for client material cost forecasting.

Testing procedures and any other documentation, such as checklists, are uploaded to DEX's Oracle® database and made available electronically to floor personnel via Tech Stations. Online checklists provide a system of "forced routing," which ensures that the technician follows a strict process flow on every product, every time.



Defect-Free Products & Services

DEX's quality engineering processes and best-in-class quality assurance systems were designed to measure and analyze process variations and implement corrective actions to ensure defect-free services and products are delivered.

All DEX ISO certified facilities employ Six Sigma quality practices within each repair operation to monitor assigned metrics and warranty returns.

DEX applies DMAIC (Define, Measure, Analyze, Improve, and Control) and RCA (Root Cause Analysis) methodologies for effective performance improvement processes.

DEX manages quality, beyond the repair process, to include product design and client field related issues. Continual advancements in DEX quality standards and processes ensure that the latest innovative solutions are implemented with every repair.

Guaranteed Product Performance

DEX engineers deliver clear, concise and repeatable procedures. They collaborate with clients to adjust repair procedures resulting from Engineering Change Orders (ECOs) and/or Engineering Change Numbers (ECNs) received from the client or developed by DEX/client engineering partnership.

ECOs and ECNs are immediately available to technicians during the repair process through a desktop Thin Client software application. As part of the process, the Thin Client requires technicians to check and confirm all required ECO, ECN and testing steps with interactive responses and confirmations. Additionally, the Thin Client is a secure environment that prohibits access to retrieve, copy, or remove confidential information.

Environmental Initiatives

DEX's European facility adheres to WEEE (Waste Electrical and Electronic Equipment) standards, applying WEEE tags to products that require labels for WEEE compliant waste management disposal. Each DEX operations employee follows standardized procedures to ensure WEEE and RoHS compliance.

End-of-Life Support

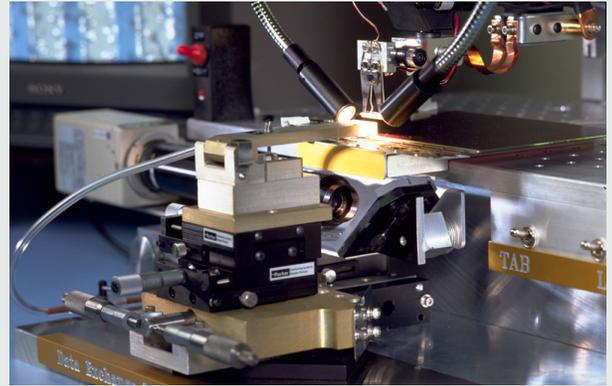
DEX provides product support to clients with products entering their End of Life (EOL). DEX's engineering staff regularly assists customers in the selection and qualification of replacement components for products approaching EOL. DEX engineering options include design upgrades and manufactured alternatives.



Summary

DEX's engineering and repair core competencies are an essential factor for meeting after-market service requirements. These customizable solutions adapt to strategic and tactical business guidelines, and work to extend product lifespans, improve reliability, and reduce overall costs, giving clients a competitive advantage in the markets they serve.

As a result, clients spend less time managing reverse tactics, enabling them to focus on what matters most, revenue-producing strategies and growth.



Business Benefits

DEX's engineering core competency offers numerous advantages including:

Repair Expertise and Capability. DEX Engineers are experienced in performing repairs on a wide range of products.

Tech Stations. Specially-designed systems at each work station to communicate up-to-date, real time, repair status information to global operations

Quality Engineering. Quality engineering processes and Q/A systems that analyze and measure process variations and implement corrective actions to achieve defect-free products and services

Product Performance Guarantee. Clear, concise, and repeatable procedures are used to ensure reliable, accurate results

A+ Certified Technicians. Certified technicians partner with skilled engineering team to provide "Best-in-Class" repair and manufacturing solutions

Key Services

*EOL Manufacturing
Contract Manufacturing
Remanufacturing
Product Design & Development*

*Assemblies & Upgrades
Reverse Engineering
Test Development
Failure Analysis & Reliability*



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