

Why Manufacturers Are Over-Paying for Electromechanical Assemblies

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For OEMs making and inventorying electromechanical assemblies, wire harnesses, cable assemblies or even box-builds in-house, holding too tightly to every aspect of production can be a costly mistake. The intended benefits of doing all the work in-house must be measured against its costs—higher facility overhead including additional required inventory, manufacturing space, equipment and trained labor as well as engineering and purchasing resources.

Too often, such in-house work is not actually the OEM's area of expertise, but instead a low-margin activity that can consume precious corporate resources to little effect. When the in-house work performed is outside an OEM's core competency, too costly or cumbersome, strategic domestic outsourcing can cut costs, improve quality and even speed delivery.

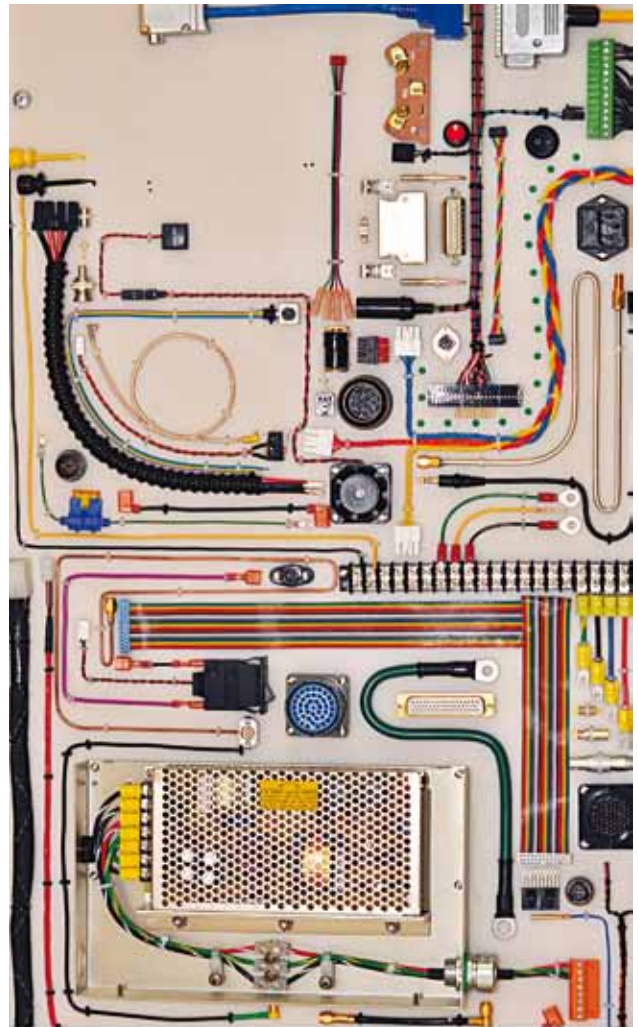
For Example...

To focus on its core competency of system design, **Evoqua Water Technologies** domestically outsourced a junction box electromechanical assembly and wire harness to power its line of industrial water purification modules, according to **Rahoul Bhagat**, Engineering and Quality Assurance Manager at its Lowell, MA, USA, facility. The company is a wastewater treatment products, systems and service provider for industrial and municipal customers.

"With lower overhead, inventory, equipment, manufacturing space and labor training compared to doing all the junction box work in-house, we realized a 20% overall cost savings and gained the ability to go straight from sub-assembly to finished product," said Bhagat. "The streamlined process helped us meet demand for the product line, which grew over 50% last year."

Overcoming In-House Challenges

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"We didn't have the in-house infrastructure to build every component and sub-assembly from scratch," said Bhagat. "We would've had to expand our existing facility or add an off-site location and buy additional production equipment as well as hire and train specialized labor. Building all that extra in-house infrastructure would have been too costly and inefficient."

Technical electrical expertise can be a barrier to doing such work in-house. In fact, it has been shown that 44% of electronic failures are the result of poor quality control. Electronic failures due to faulty solder joints, improper wire crimps, nicked or cut wire strands, wrong wire gauges or unauthorized material substitutions can not only impact the final assembly's quality, reliability and durability, but also cause delays, taint reputation and even create serious liability.



With lower required overhead, inventory, equipment, manufacturing space and labor training compared to doing all the junction box work in-house, Evoqua Water Technologies realized about a 20% overall cost savings and gained the ability to go straight from the sub-assembly to the finished product. The streamlined process helped it meet demand for its product line, which grew over 50% last year.

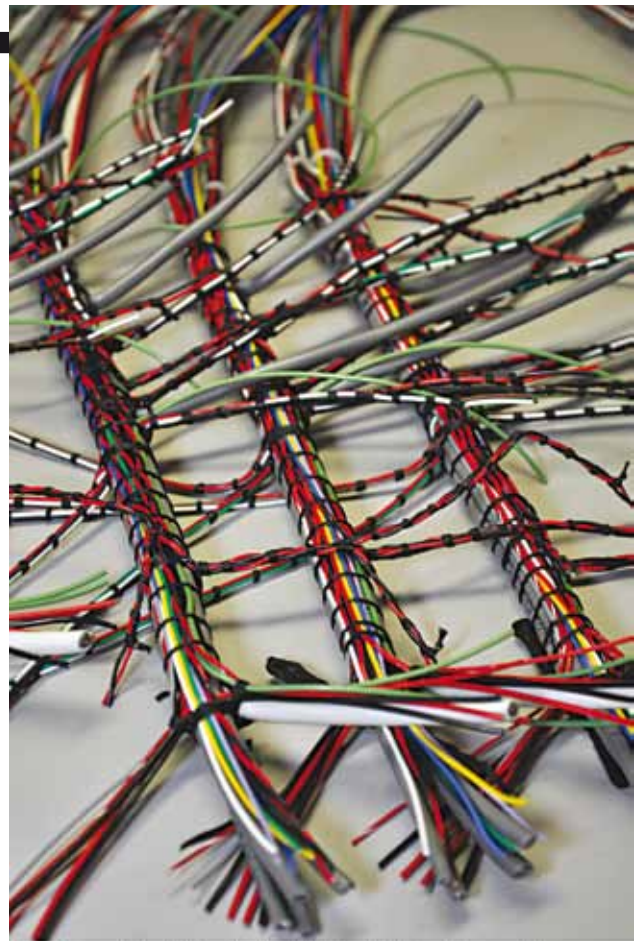
“Quality and durability in the field was critical,” said Bhagat. “If the wire was the wrong size, too thin, improperly rated or had a poorly rated terminal block, it could compromise the junction box assembly, which is unacceptable.”

Outsourcing the Assembly Was the Answer

Evoqua domestically outsourced the junction box electromechanical assembly and wire harness to power its line of industrial water purification modules to **Electro-Prep**, Wareham, MA, USA, a turnkey and consignment contract manufacturer of wire harnesses, cable and electromechanical assemblies and box-builds.

In looking for a capable supplier of electrical components, it is important not only to choose one that maintains industry-standard internal quality assurance and auditing programs, but also one that is subject to regular on-site inspections and outside audits.

“A key element in ensuring quality is assuring the supplier has its *ISO 9001:2008* certification (quality and strong process controls),” said **Skip Sullivan**, President of Electro-Prep. “Combine this with *IPC/WHMA-A-620* training and certification (industry assembly standards) as well as *J-STD-001* training and



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certification (soldering certification), and you have a good idea that your supplier is a true professional that takes its partnership with you seriously.”

Sullivan added that **UL** listing in the USA, **CSA** certification in Canada as well as **RoHS** (and **nonRoHS**) capabilities are also increasingly vital designations for electrical components.

According to Bhagat, “When used as intended, we’ve had no junction box failures on our industrial water purification module since we put it in the field six years ago.”

Bhagat credits his supplier for cooperating with Evoqua to produce an improved design.

“Electro-Prep offered a number of ideas for improvement that we incorporated into our design,” explained Bhagat. “For instance, the company helped to secure a din rail in the terminal block, preventing a potential quality issue during assembly. This helped with quality control and manufacturability.”

According to Bhagat, his domestic contract manufacturer has a significant delivery advantage over offshore outsourcers. By working with the company, he avoids the long shipping lead times of typical overseas outsourcing. He also resolves any issues more quickly,



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with easier logistics and coordination within the same time zone, language and culture.

For OEMs looking to expedite delivery on outsourced electromechanical assemblies, wire harnesses, cable assemblies or even box-builds, working with a flexible partner can be important. Sullivan, for instance, suggests that OEMs work with a supplier that offers flexible delivery options such as JIT, rush deliveries, third-party drop ships and Kanban (for very short turnaround for ongoing requirements) as well as pull-ins or push-outs (without additional charges).

“While Electro-Prep typically turns product around

for us in four to five weeks, the company will rush us product if needed and can supply on a JIT basis,” said Bhagat. “We’re not relying on JIT delivery now, but it could be useful if we have a further surge in demand or want to further expedite our delivery. We’ve never run out of parts that Electro-Prep has supplied us.”

Domestic outsourcing to a trusted partner helps Evoqua stay in control of its process. By focusing on system design and working on modules rather than individual components, it leverages its core competency and out-sources what’s not core.” www.electroprep.com **WHCC**

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