



Manufacturers of Value-Added Components

1-800-626-6116 / info@islproducts.com

ISL Products International Ltd.

www.islproducts.com

[DC Motor Assemblies for Electronic Locks](#) – Case Study



Overview: A global leader in the security industry approached us regarding a couple of different DC motor assemblies that are incorporated into a series of their electronic locks. Our customer manufactures high precision security solutions for safes, rooms, buildings, vaults, shipping containers and a variety of other electronic combination locks. These particular [motor assemblies](#) are used to drive the electronic lock's deadbolt. ISL was tasked with offering a more cost-effective and reliable solution.

Challenge: Our customer was purchasing a common, off the shelf, miniature DC motor and assembling a custom cam, blocker and spring onto the motor, in-house. This assembly process wasn't very efficient because the customer was doing the assembly on their own production line. The annual usage for these particular motors is very high and the assembly tolerances are very tight. ***The die cast cam needs to be made to very tight tolerances of +0/-0.0002" to assure the correct press on force and the torque withstand resistance.* There are three different motor assembly configurations, but they all utilize the same mini DC motor.

Solution: ISL was able to manufacture and supply all three different DC motor assembly variations. We deliver a fully assembled, plug and play solution including lead wires and connectors. We used a similar mini DC motor and tooled for and manufactured all of the additional components that get added to the output shaft (cams, blockers, springs, etc.).

ISL suggested that it would be more efficient and cost effective to have ISL manufacture the custom cam, blocker and spring and then assemble these components onto the motor directly at our factory opposed the customer assembling it during final assembly at their facility.

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Using the customer's initial design, ISL recommended additional features to improve the longevity of the motor assembly. One of the improvements we made was to add a flatted "D" style, stainless steel shaft. We also made some unique application tools for the cam assembly process onto the motor shaft, because the press on force could potentially destroy the cam.

Our customer was accepting of our design and manufacturing considerations. ISL has been manufacturing and assembling all parts of these motor assemblies for over 15 years. ISL is still a valued member of the customer's supply chain.