



The Project:

Fine Pitch Electrical Connector

Matrix Tool received a transfer tool from an existing customer requesting a feasibility assessment on a LCP component that pushed the traditional molding boundaries. In particular, our customer wanted to increase this product line from 100 to 150 positions which was challenging given the significant increase in both flow length and intricate thin walled features. The previous molding vendor was unable to mold product with proper quality or consistency as they fought the common molding adage of having “either nofills or flash”. In other words, a tool with a narrow process window.

The Overview:

This project was a perfect fit for Matrix Tool's technical capabilities and advanced molding equipment. Specifically, if Matrix Tool was not able to solve this challenging molding and tooling puzzle, our customer was going to discontinue development and drop the extended positions as product offerings to their customers. Upon tool receipt, we were tasked with completing a comprehensive evaluation on how practical it was to consistently mold a 150 position, double row connector. If successful, this would be the first connector body of its kind in our customer's catalog so we were eager to put our motto “Solving Your Most Difficult Molding and Tooling Challenges” to the test.

The Challenge:

As anticipated, the tooling and molding complexities of this project resulted in a very narrow process window that traditional injection molding machines (IMM) typically struggle with. This often times results in additional, yet unnecessary, conditioning loops in order to increase the process window due to shot-to-shot differences seen in the plasticizing, check ring and reciprocating screw variables. We knew our technical ‘know how’ in regards to high precision tool conditioning and advanced processing techniques of our specialized IMM's would play an integral role in our ability to be successful.

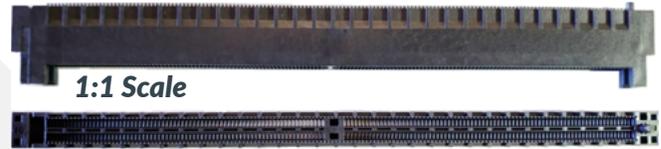


Fig 1: 150 Position .5mm Centerline Connector

The Solution:

Our initial focus was to sample and provide our customer with feedback on how practical it would be to consistently mold a complex 150 position, double row, end gated connector body. After the initial sample and tool evaluation, we quickly notified the customer that it is possible to mold this intricate component. However, additional high precision tooling work tailored to take advantage of our exact dosing molding machines would be required. Our degreed Plastics Engineers then worked in conjunction with our Tool Conditioning staff and technical customer contacts to incorporate both tooling and process enhancements. This work resulted in Matrix Tool being able to successfully and consistently produce the 150 position part.

The Benefits:

Our customer was able to relocate an existing tool that was unable to produce acceptable product from another molding vendor. More importantly, this enabled our customer to salvage a lucrative product line they otherwise would have discontinued. In fact, we have since notified our customer that positions above 150 are now possible. As our customers push the industry envelope, we appreciate the faith placed in Matrix Tool to help them achieve success even when the challenge seems impossible.

Through continued investment in its specialized equipment, its technology, and its highly skilled workforce, Matrix Tool is positioned to stay competitive and offer a niche service few are able to match. We continue to pride ourselves in having the ability to solve our customer's toughest manufacturing challenges!

For a quotation or additional information, contact Matrix Tool Inc: