MILLSTAR® Application Data

Wheel Cover Mold Test Cut

Plastic Wheel Cover Mold Demo Summary

This demonstration is to show the ability of Millstar® and Makino® to machine hardened materials. Makino's High Performance Machining Centers and Millstar's High Performance Cutting Tools utilize high cutting speeds and feeds to create shorter cycle times while producing a highly detailed work piece. Segments of mold shown at left.

Machining Process Summary

The tool paths for this mold were generated using UniGraphics V15 CAM software. The material machined was H13 (1.2344) hardened to 50 HRc. The test cut was machined on Makino's A77 Horizontal Machining Center utilizing Makino's 18,000 rpm 50 taper spindle, high speed Data Server and Super Geometric Intelligence technology.

Process Benefits

With Millstar's and Makino's High Performance Machining it is possible to produce a complex 3-D product that is highly accurate and with a superior surface finish.

Specifications

Machine Used: A77 Horizontal Machining Center
Special Options: 18K Rpm Spindle, Data Server, and SGI
Number of Programs: seven

Toolpath	Cutter	Coating	RPM	in/min	feed/tooth	Machining Time
Rough	1" Toroid EM*	TiAlN- Exalon	1528	28.	.009"	1h 28min 25s
Semi	3/4" Ball EM*	TiAlN- Exalon	10000	141.	.007"	16min 11s
Finish Face	12mm Ball EM*	TiAlN- Exalon	10000	100.	.005"	1h 23min 52s
Finish Pockets	3mm Ball EM	TiAlN	18000	90.	.0025"	27min 48s
Finish Pockets	1mm Ball EM	TiAlN	18000	32.	.0009"	27min 31s
Finish Lug Hole	12mm Ball EM*	TiAlN- Exalon	10000	102.	.005"	19min 11s
* Millstar two-effective insert tools with proprietary TiAlN-Exalon™ super hard tool coating with a built-in layer of solid lubricant to facilitate aggressive high velocity hard milling without coolant, with short cycle times and superior surface finish results.						
Total Machining Time:						4hrs 23min