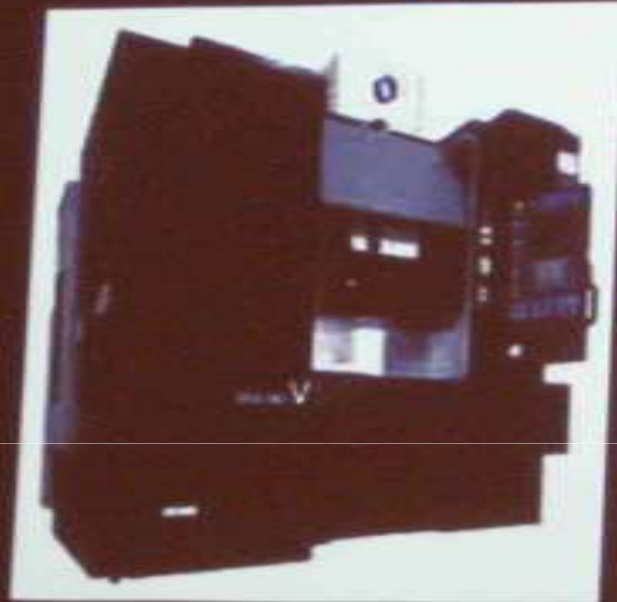


Material from March 2009 Meeting

Single Source Technologies / Makino

Cutting to Zero and Negative Stock



**Integrating New Technologies and Processes
in Die Manufacturing**

FORWARD MOTION



Tool & Die Production Reduction in Time (8-10 Weeks) Example of Large Mold (Bumper)



FORWARD MOTION







Case Study: Made in the Shade!

The Results

Mold Cost Analysis Summary

Cost Element	Traditional Approach	New Approach
Mold Base	\$2,000	\$2,000
Accessories	\$400	\$400
Material	\$300	\$300
Heat Treat	\$350	\$350
Wire EDM	\$6,000	\$2,250
3D Machining*	\$4,500	\$2,100
Benching	\$4,500	\$0
Lens (hand lapping)	\$7,500	*
Lens (plate & turning)	*	\$3,500
Assembly	\$11,000	\$11,000
Hand fitting	\$4,000	\$0
Total	\$40,550	\$21,900
* \$75/hour + cutter costs		
Savings		\$18,650 45.99%

FORWARD MOTION



Cutting to Zero and Negative Stock

Streamline your die/mold build process and you will improve your business.



SST — your Single Source for die/mold Technologies.



WHERE NEW THINKING TAKES SHAPE.

At Makino we're applying machining technology to help our customers shape the future and the tools to help get them there. We're doing this by creating a new paradigm of manufacturing that turns out the things people need to get on with their lives. We're doing this by creating a new paradigm of manufacturing.

MAKINO'S UPCOMING SEMINARS AND WEBINARS

DATE	TOPIC/TITLE	LOCATION
Jan 10, 2012	Advanced Machining Technology for the Future	Las Vegas, NV
Jan 10, 2012	Advanced Machining Technology for the Future	Las Vegas, NV
Feb 2, 2012	Advanced Machining Technology for the Future	Las Vegas, NV
Feb 2, 2012	Advanced Machining Technology for the Future	Las Vegas, NV
Feb 2, 2012	Advanced Machining Technology for the Future	Las Vegas, NV
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For more information on our seminars and webinars, visit us at www.makino.com

FORWARD MOTION





SINGLE SOURCE TECHNOLOGIES

Case Study Report #02-15-2005

Machine Make & Model: Makino, V56
Company: SST Work Shop
Part Description: Mold Core Insert
Workpiece Size: 125 x 200 x 300mm
Material & Hardness: H-13, Hrc 50-54



MACHINING PROCESS	TOOLING	SPINDLE SPEED	FEEDRATE	MACHINING TIME
Rough · Main	25 x R5 Button Cutter	2500	3000mm/m	4 hrs. 08 min.
Finish · Main	20 x R5 CBN Button Cutter	15000	6000mm/m	1 hr. 4 min.
Rough · Lifter	10 x R.85 Trigaworx	5700	6000mm/m	26 min.
Finish · Lifter	10 x R3.5 Bull Nose	7500	3000mm/m	29 min.
Rough · Cavity	10 x R.85 Trigaworx	5700	6000mm/m	5 min.
Semi · Cavity	6 x R3 Ball End Mill	10000	6000mm/m	3 min.
Finish · Cavity	6 x R3 Ball End Mill	13000	2400mm/m	8 min.
Ribs	1.5 x R.75 x 16mm Rib Tool	30000	3000mm/m	5 hrs. 24 min.
				Total:11hrs 23min.