



Pump Shaft Grinding Cell



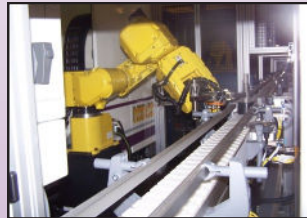
Master Cell Controller with Allen Bradley PLC



Dual Spindle Center Grinder



High-Speed CBN Peel Grinder



Powered Conveyor and Puck Return



Post-Process Inspection Gage



Formed Wheel Plunge Grinder



PARTS

Customer:	Hydraulic Component Manufacturer						
Application:	Pump Shaft Grind (8620; Rc 58-62)						
Cell Components:	<ul style="list-style-type: none"> • Master cell controller with Ethernet connection to each machine and final gage • Flexlink powered conveyor and puck return system • Marposs post-process inspection gage with SPC capability • Weldon dual spindle center grinding machine • Weldon 320A MIDAS high-speed CBN peel grinder • Weldon 120A MIDAS formed wheel plunge grinder • (4) FANUC LRMate 6-Axis machine tending robots 						
Process:	Operator loads raw parts on top conveyor. Parts are conveyed (in-line) to station #1 for center grinding; station #2 for “customer end” CBN peel grinding; station #3 for “pump-end” ALOX formed wheel plunge grinding; station #4 for post process gaging. Finished parts are unloaded manually and pucks are automatically returned to the load station on the bottom conveyor. All stations are tended by FANUC LRMate 6-axis robots.						
Attributes:	<table> <tr> <td>Diameter tolerance</td> <td>+/- .0001” to +/- .00015”</td> </tr> <tr> <td>Surface finish</td> <td>16 Ra (max)</td> </tr> <tr> <td>SPC</td> <td>1.67 Cpk</td> </tr> </table>	Diameter tolerance	+/- .0001” to +/- .00015”	Surface finish	16 Ra (max)	SPC	1.67 Cpk
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Notable:	Weldon turnkey of machines, tooling, process, machine tending robots, safety guarding, conveyor system, and post process gaging. Cell addresses approximately 20 part configuration variations with minimal change-over.						