

Automotive Aluminum Piston Machining

Kira HPC30Vb-2AQC Vertical CNC Production Center

Key Features

- One machine to perform vertical and horizontal drilling
- Simple solution to a complex part process

Aluminum Piston



PRODUCTION CHALLENGE:

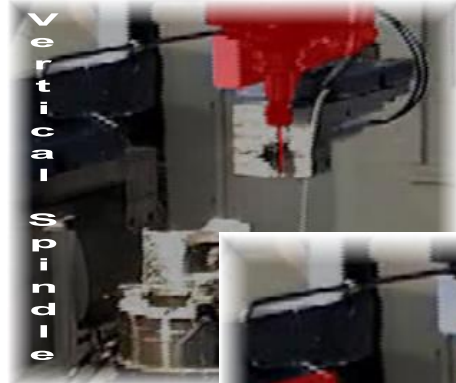
- Machine an aluminum piston with a total cycle time of 12 seconds
- Use one machine to drill holes in both the vertical and horizontal planes
- Low budget; Minimal floor space; Short cycle time

SOLUTION:

- Start with a standard HPC30Vb-2AQC 3 axis traveling column vertical production center
- Remove the tool changer assembly; Replace this assembly with an out-rigger bracket to hold two (2) 50,000RPM spindles
- Add an indexer to rotate the part

RESULTS:

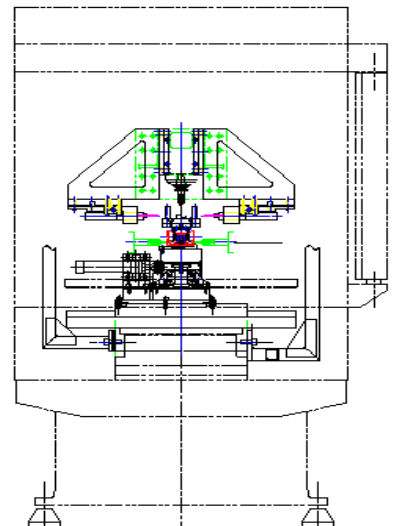
- Cycle time achieved with consistent repeatability
- Vertical and horizontal machining accomplished with one machine; Minimal floor space used
- Automatic part orientation and part clamping
- Part loading/unloading during machining; Can be expanded for robot load/unload
- Price fits within customers limited budget



Horizontal Spindles



"3 Spindle" Layout



KIRA

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MACHINE SPECIFICATIONS	HPC 30Vb-350S-2APC
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TRAVEL

X axis stroke	13.8" (350mm)
Y axis stroke	11.4" (290mm)
Z axis stroke	12.6" (320mm)

SPINDLE POWER

Standard	15,000RPM - 5HP
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DISTANCE BETWEEN SPINDLES

Standard	n/a
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AUTOMATIC PALLET CHANGER

Pallet dimensions (each pallet)	19.7"x11.8" (500mmX300mm)
Pallet change time	2.4sec
Table load capacity (each pallet)	220lbs (100kg)
Rotation	180°

FEED RATE

Rapid traverse

X axis	2205 IPM (56,000mm)
Y axis	2205 IPM (56,000mm)
Z axis	2205 IPM (56,000mm)

Cutting feed rate

X axis	394 IPM (10,000mm)
Y axis	394 IPM (10,000mm)
Z axis	394 IPM (10,000mm)

THROAT DIMENSIONS

Spindle nose to table top	7.1"-19.7" (180mm-500mm)
Cutting center line to column surface	14.1" (357mm)

TOOL SHANK

Standard	BT30
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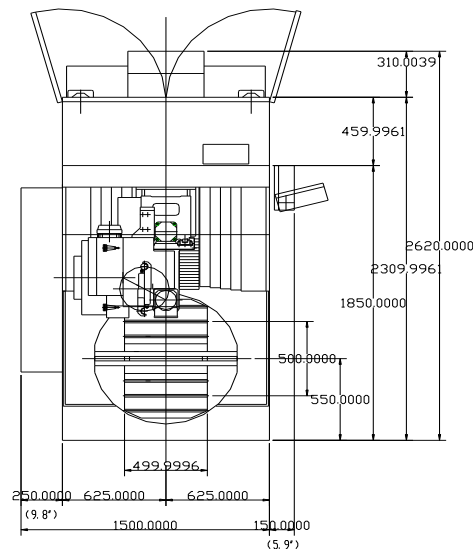
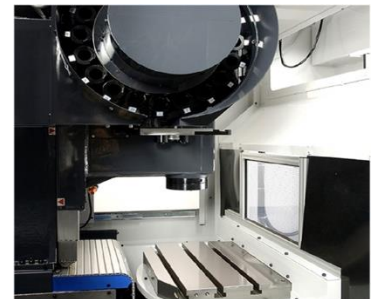
TOOL CHANGER

Number of tools	20
Tool selection	Random
Tool change time (T-T)	0.7sec
Tool change time (C-C)	1.7sec
Maximum tool diameter	3.1" (80mm)
Maximum tool length	7.9" (200mm)
Maximum tool weight	6.6 lbs (3kg)

ACCURACY

Positioning accuracy (X, Y & Z axis)	0.0002" (0.005mm)
Positioning repeatability (X, Y & Z axis)	±0.0001" (0.003mm)

All specifications are subject to change without notice.



"Small Footprint"

