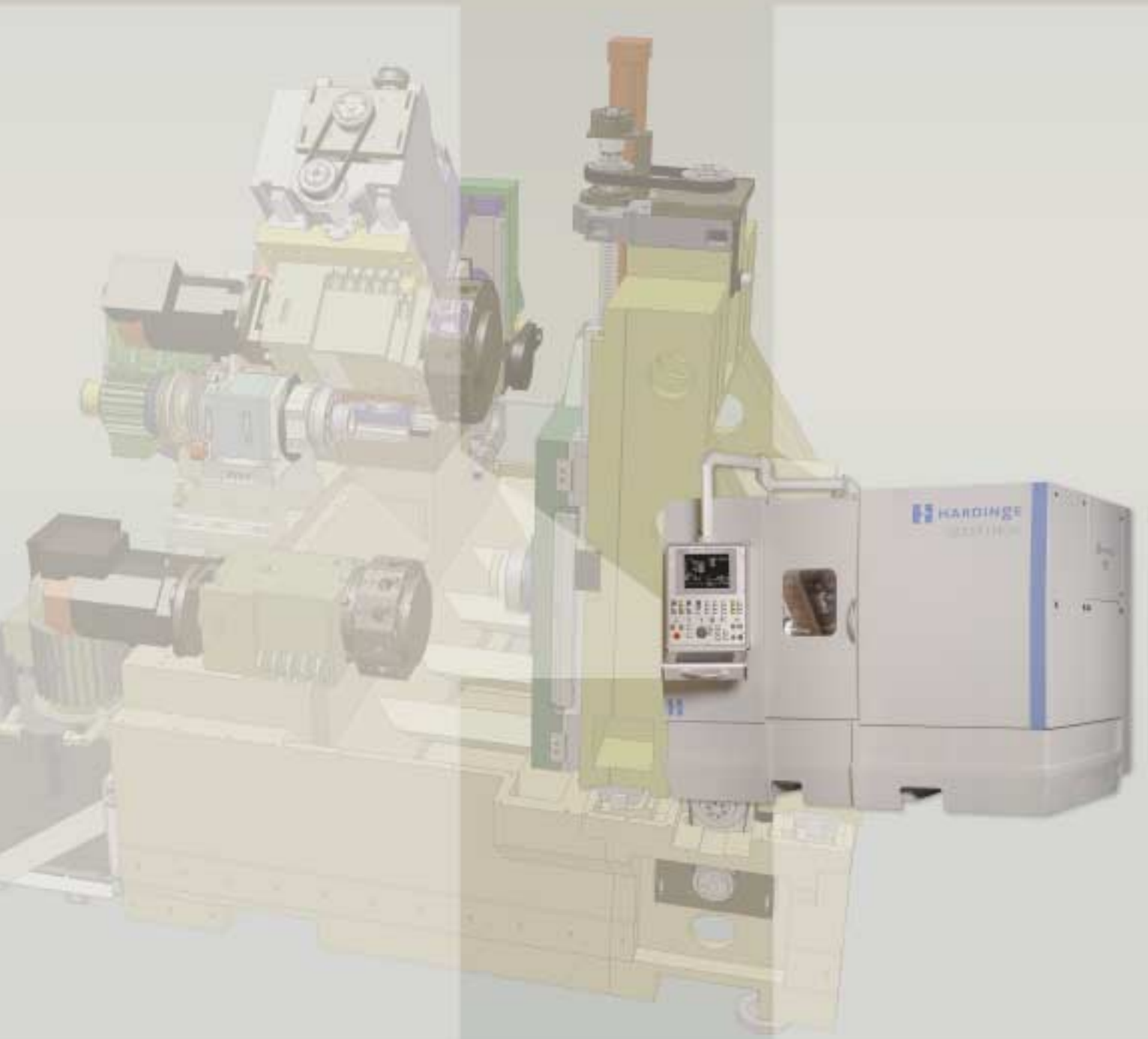


TURN/MILL

QUEST® LMC42  
Lean Manufacturing Cell



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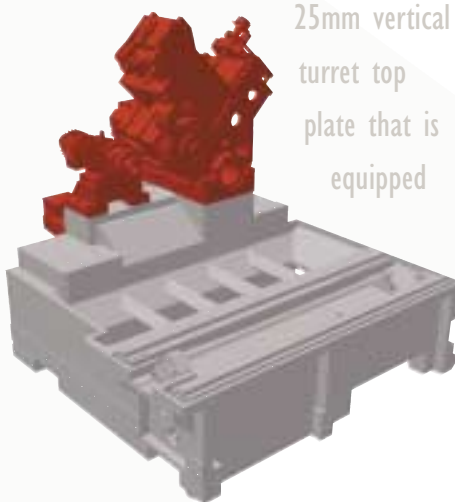
# The QUEST® LMC42 Lean Manufacturing Cell

Not your traditional machine tool.

The QUEST LMC42 is unlike any other machine tool. It is a self-contained manufacturing cell with four distinct cutting zones that perform a multitude of machining operations. There is an abundance of tooling and spindle configurations all aimed at providing basic and demanding manufacturing solutions. Selecting the desired configurations will allow the user to run one-piece lots, high-volume production, transference of bars or slugs for completing parts in one setup. Simply put, the LMC provides a unique, revolutionary combination of machining alternatives with speed and power for an unlimited variety of part configurations. So whether you are a job shop or OEM (original equipment manufacturer), the LMC will allow you to reduce operating expenses, minimize job setup, minimize crash potential, reduce human intervention and waste, resulting in improved flexibility and throughput. Let the LMC make significant advancements in the implementation of Lean principles in your manufacturing process.

## ZONE 1: Fixed Head Bar/Chucking Spindle

The fixed headstock supports bar work up to 1<sup>5</sup>/<sub>8</sub>" (42mm) in diameter with collets and up to 4" (101.6mm) in diameter with step chucks for traditional lathe machining. The Zone 1 headstock comes paired with a 16-station VDI



25mm vertical turret top plate that is equipped

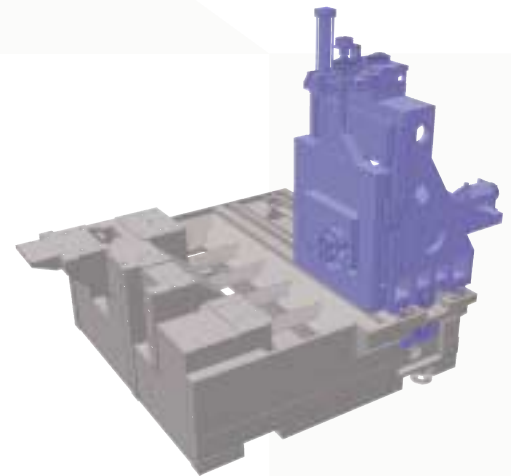
with live tooling on all stations. C-axis is standard; Y-axis is available as an option.

### Zone 1 Specifications:

16C, A2-5 Spindle (B42 Spindle optional)	
Power.....	10hp/7.5kW
Max. Speed .....	6,000rpm
Torque.....	35ft-lb/47.6Nm
VDI 25 Turret Top Plate	
Stations.....	16
Tools.....	3/4" Sq / 1/4" Rd
Travels (X/Y/Z) .....	7.45"/3.00"/8.75"
.....	189.2mm/76.2mm/222.3mm
Traverse Rates (X/Y/Z) .....	1260/787/1260ipm
.....	32/20/32m/min
16-Station Live Tooling .....	6,000rpm
L/T Power.....	3.3hp/2.5kW

## ZONE 2: 3-Axis Spindle

The Zone 2 chucking spindle can be used for primary or secondary operations. As a primary spindle, with its unique 3-axis movement, it can perform a wide variety of machining operations. Customized automation can provide load/unload capabilities. When used as a secondary spindle, the part is transferred from the Zone 1 spindle for finishing operations. Machining with the 3-axis spindle takes place in Zones 3 and 4.



### Zone 2 Specifications:

B-42 Spindle (16C, A2-5 Spindle optional)	
Power.....	10hp/7.5kW
Max. Speed .....	6,000rpm
Torque.....	26ft-lb/35.4Nm
Motions	
Travels (X/Y/Z) .....	8.00"/40.25"/17.00"
.....	203.2mm/1022.4mm/431.8mm
Traverse Rates (X/Y/Z) ..	1575/2100/1260ipm
.....	40/53/32m/min

**Get into the zone.**  
**Four distinct cutting zones**  
**that outperform the competition.**



The Zone 2 spindle uses B-42 stationary Dead-length<sup>®</sup> collets with gripping capacity up to 1½” (42mm) in diameter and includes C-axis as standard equipment.

**ZONE 3: Additional Tooling & Customization**

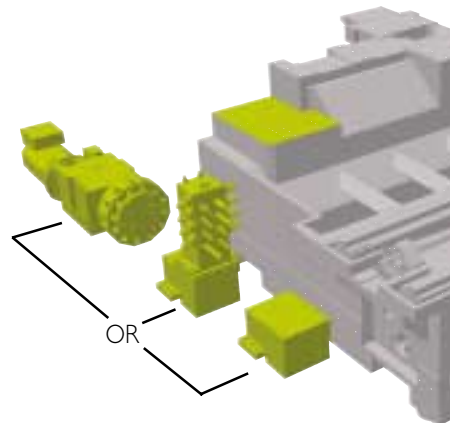
Zone 3 is designed specifically for flexibility and ease of configuration. This zone can be equipped with either a turret, a high-density tool plate (HDTP), or a blank mounting surface for customized applications.

The turret top plate is the same configuration as in Zone 1 and can utilize a full range of turning, milling, and drilling tools (live tooling is included on all stations).

The fixed-position, interchangeable HDTP accepts eight round shank tools up to 1” diameter and eight KM-32

modular quick-change tooling units. Integral ports channel coolant through the HDTP to the tool in the cut.

Hardinge or the user can custom fit machining solutions on the blank mounting plate (B-axis, grinding, etc.).



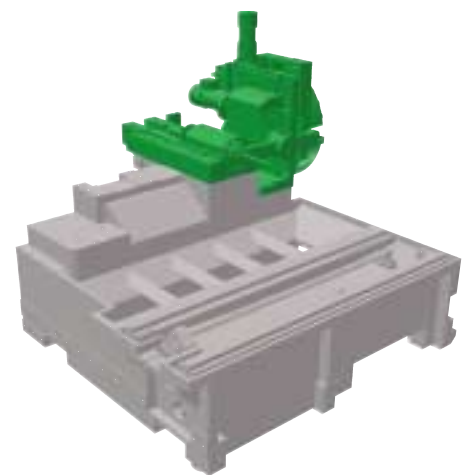
Zone 3 Specifications:

VDI 25 Turret Top Plate	
Stations .....	16
Tools .....	¾” Sq / 1¼” Rd
16-Station Live Tooling .....	6,000rpm
L/T Power .....	3.3hp/2.5kW
High-Density Tool Plate (HDTP)	
Tool Positions .....	16
Tools .....	1” Rd and KM-32 (8 each)

**ZONE 4: Horizontal Machining**

KM-40 quick-change modular tooling is automatically loaded by the tool change arm from the 24-tool carousel into either the static tool station or the optional live spindle.

The Zone 4 static tool station is used for traditional turning, drilling and boring operations. The live spindle option not only provides traditional machining operations, but also extensive milling capabilities.



Zone 4 Specifications:

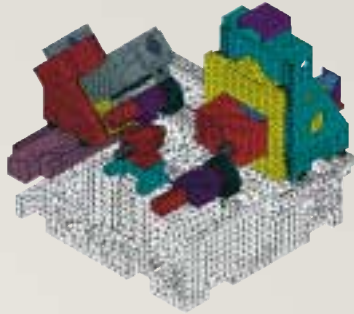
Automatic Tool Changer (ATC)	
Style .....	Swing Arm
Positions .....	24
Tools .....	KM-40
Tool-to-Tool Change Time .....	2.5 Sec.
Live Spindle Option	
Power .....	5hp/3.7kW
Max. Speed .....	8,000rpm

The QUEST LMC42 is not your traditional machine tool. It has more than enough static and live tools for machining simple and complex parts complete. The LMC also has the ability and flexibility to mill and hard turn your parts. And fast cycle times with quick changeovers is a bonus. The LMC will exceed your machining requirements...truly the best machine for today’s Lean manufacturing requirements!



The GE Fanuc 31i-based CNC control features a PC front-end touch screen and is available with the following options: 15-inch display, Windows XP, 20-GB hard drive, spare PCI slot, mouse port, keyboard port, USB ports, and Ethernet card.

The “Hardinge Open Vision System” is the human machine interface software within the PC front-end. Customized Hardinge software will provide a unique and operator-friendly environment.



Advanced design tools and Finite Element Analysis (FEA) techniques were used to develop this rigid, structurally-balanced machine. The cast iron base is strategically filled with HARCURETE® polymer composite for optimum thermal stability and dynamic stiffness. This assures the user of improved rigidity and damping for fine surface finishes and exacting part tolerances.

Nominal Work Size (OD×L)	
w/Collet .....	1½×8"/42×203mm
w/Step Chuck .....	4×6"/102×152mm
Machine Dimensions	
Length .....	107.5"/2731mm
Depth .....	108.0"/2743mm
w/chip conveyor ...	142.0"/3607mm
Height (top of control pendent) .....	98.0"/2489mm

Hardinge has everything you need when it comes to precision lathes and turning centers, lean manufacturing cells, grinding machines, VMCs, Bridgeport knee mills, workholding products, and turnkey automation. Expect more from your Hardinge products. Choose Hardinge precision and reliability for increased productivity and value!

**Call us today, we've got your answer.**