

MCV-720
Vertical
Machining Center

DMV-800
Traveling Column
Vertical
Machining Center

MCV-2100
Vertical Machining
Center

MCH-630
Horizontal
Machining Center

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DAHLIH®
The Latest and Best Quality Machinery.



DCM • series

DCM-2213
DCM-3213

DOUBLE COLUMN MACHINING CENTER

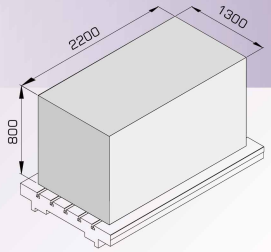
Double Column Machining Center

Built on Dah Lih's Extensive Experience-
A New Standard in Heavy Cutting Capability

- Extra massive and stable machine structure presents unmatched heavy cutting capability and efficiency.
- Major structural parts of the machine are manufactured from high quality Meehanite cast iron, featuring outstanding dynamic rigidity, maximum cutting stability and vibration absorption.

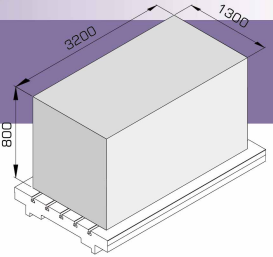


DCM-2213



X-axis Travel 2,200 mm.
Y-axis Travel 1,300 mm.
Z-axis Travel 800 mm.
Max. Table Load 4,000 kgs
Spindle Speed 6,000 RPM

DCM-3213

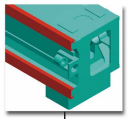


X-axis Travel 3,200 mm.
Y-axis Travel 1,300 mm.
Z-axis Travel 800 mm.
Max. Table Load 5,000 kgs
Spindle Speed 6,000 RPM

Oversized, Maximum Stability, Maximum Rigidity Machine Structure.

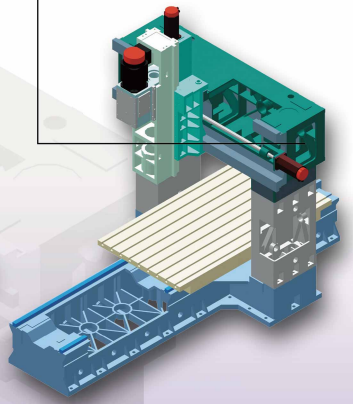
Based on their extensive experience, Dah Lih engineers have extraordinary know-how in the design of machine structure. This outstanding experience, combined with advanced Finite Element Analysis (FEA) for design of structure, has enabled Dah Lih's engineering team to achieve the perfect structure for the Dah Li Double Column Machining Center.

- The major structural parts are reinforced by honeycomb-type ribs which greatly upgrade structural rigidity and stability.
- Box-type spindle stock construction assures outstanding stability during heavy cutting.
- The machine is thermal symmetry constructed throughout with uniform weight distribution, making it ideal for precision machining.
- Ball screws are pretensioned to reduce thermal deformation to a minimum while ensuring lifetime feeding accuracy.
- Oversized linear guideways on X-axis.
- Box ways on Y and



Alloy Steel Covered Y-axis Slideways

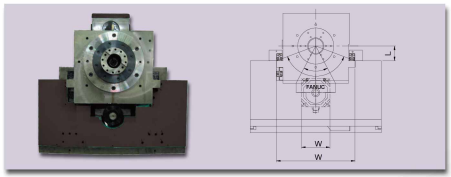
- The Y-axis is a box way structure. Slideways are covered with alloy steel for added wear resistance and longer service life.
- The Y-axis is a one-piece cast iron structure, featuring outstanding rigidity and vibration absorption capabilities.





Rigid Spindle Head

- Box type structure design provides high machining accuracy.
- The spindle head temperature is controlled by a cooling system, which effectively reduces thermal deformation. It also ensures constant temperature on the spindle head, and maintains an outstanding geometric accuracy.
- Double hydraulic cylinders counter-balance on Z-axis assure high accuracy movement of Z-axis.



Optimal Z-axis Support Guarantees the Best Possible Stability

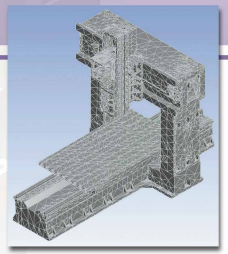
- Z-axis support is specially designed to be located at the inner side, thereby shortening the distance between the spindle center and Z-axis slideways for increased stability.
- The Z-axis center is correctly located at the center between two slideways assuring maximum structural rigidity, cutting stability and accuracy.





Extra Large, Stable Base

- The base is manufactured from high quality Meehanite cast iron, tempered and stress relieved, and honeycomb-type rib reinforced for deformation-free performance.
- The base is equipped with two extra heavy duty linear guideways combined large span design, assuring extremely firm support.



FINITE ELEMENT ANALYSIS

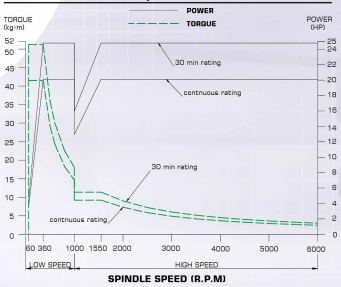
To ensure the best structural rigidity design and long machine service life, the major parts are analyzed by advanced "Finite Element Analysis."



Gear Drive Spindle: 6,000 RPM

- Two speed ranges for the spindle transmission system provide full power output and high torque output at low speed range, allowing for heavy duty machining. High speed range fully meets high speed machining requirements.
- The spindle runs on ceramic bearings to reduce spindle thermal deformation to a minimum.
- The tool unclamping on spindle features floating unclamping to avoid impact on the spindle bearings while extending bearings service time.

SPINDLE POWER / TORQUE DIAGRAM

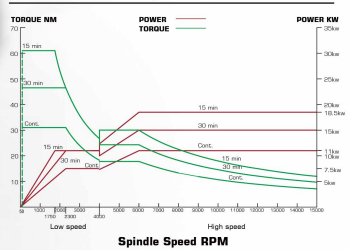


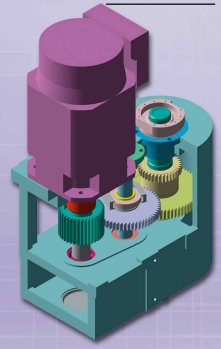


Built-in Type High Speed Spindle: 15,000 RPM

- The advanced built-in type spindle provides maximum speed up to 15,000 RPM, making it excellent for mold and precision parts machining.
- To ensure the long service life of the spindle running at high speeds, the spindle is mounted on ceramic bearings. An oil air lubrication system (15,000 RPM) is applied to directly lubricate the bearings for minimizing heat generation on the spindle.
- A heat sensor is equipped to detect the spindle temperature. Once overheating occurs, the spindle stops running automatically (optional).

SPINDLE POWER / TORQUE DIAGRAM





Gearbox for Spindle

- The gearbox provides high/low speed ranges. The wide range of speed allows for heavy cutting and fine finishing.
- All gears are precision ground for silent running.
- The gearbox employs an oil-bath lubrication system.

Long Nose Spindle (Optional)

The long nose spindle accommodates short lengths of tool, and is especially ideal for cavity machining. The spindle speed range is 50 - 6,000 RPM. Gear drive. Spindle taper is NT50.



Separately Mounted Chain-type Magazine

40-tools Standard
60-tools Optional



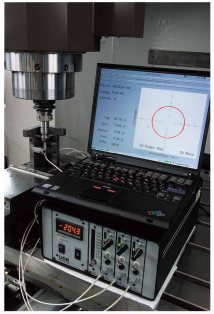
- The tool magazine is separately mounted from the machining area to prevent contamination from chips or coolant.
- The tool magazine accommodates BT50 tool shank.
- Bi-directional, random tool selection with fast tool change can be accomplished in only 6 seconds.
- Tool magazine is cam-driven for fast and reliable motion.
- The separately mounted magazine also allows for machining increased-size workpieces.

SOPHISTICATED INSPECTION INSTRUMENTS ALLOW HIGH PRECISION INSPECTIONS.



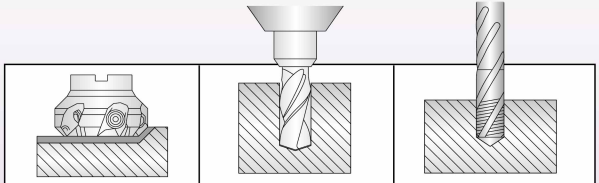
Grid Encoder Test
To assure outstanding two-dimensional contour accuracy.





Spindle Dynamic Running Accuracy Test
Sophisticated spindle running testing equipment is applied to inspect the spindle running accuracy.

MACHINING CAPABILITIES

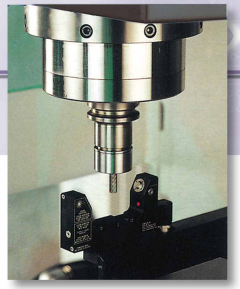


Face Milling	Tapping	Drilling
Ø125 660 cc/min 4.7 mm Depth	Ø48 F 22 mm/min 70 mm Depth	M52 X 5P F 250 mm/min 40 mm Depth

Automatic Tool Length Measuring Device (optional)



Contact Type
The tool length measuring device is used for detecting the tool wear condition while assuring machining accuracy at all times.



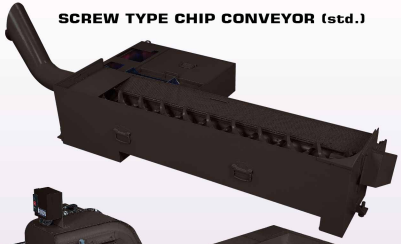
Non-Contact Type
The laser tool length measuring device is used for detecting the tool wear condition while assuring machining accuracy at all times.

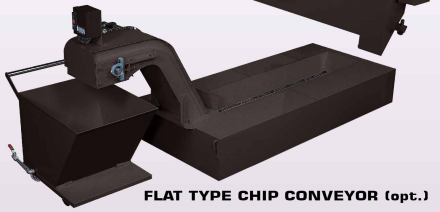


90° Angular Head (Optional)
Designed for converting vertical machining to horizontal machining, this 90° angular head accommodates NT#50 tool shank.

RECOMMENDED TYPES OF CHIP CONVEYORS

SCREW TYPE CHIP CONVEYOR (std.)





FLAT TYPE CHIP CONVEYOR (opt.)

Cutting Shape	Material	Steelbelt Chip Conveyor	Screw Type Conveyor
Metallic Chip		O	O
Cast Chip		O	
Curly Aluminum Chip		O	O
Aluminum Chip		O	O
Non-Metallic Chip		O	

Machine Specifications

MODEL	DCM-2213	DCM-3213
TABLE		
Working surface	2500 x 1350 mm	3500 x 1350 mm
T slot (size x number x distance)	22 x 9 x 150 mm	
Max. table load	4000 kgw	5000 kgw
Distance between table top and ground	905 mm	
TRAVEL		
Longitudinal travel (X)	2200mm	3200mm
Cross travel (Y)	1300 mm	
Headstock travel (Z)	800 mm	
Distance between spindle nose and table top	200 ~ 1000 mm	
Distance between columns	1400 mm	
FEED		
Cutting feed	1 ~ 10000 mm/min	
Rapid traverse	12 / 15 / 15 m/min	10 / 15 / 15 m/min
Minimum input increment	0.001 mm	
SPINDLE		
Spindle taper	NO. 50 (NO.40)	
Spindle speeds	60 ~ 6000 (15000) r.p.m.	
Spindle bearing diameter	Ø100 (Ø70) mm	
Cooling / lubrication	oil cooling / grease	
ATC (Auto. Tool Changer)		
Tool storage capacity	40 (60) tools	
Tool holder	BT50 (BBT40)	
Max. tool weight	18 (8) kgw	
Max. tool length	400 (350) mm	
Max. tool diameter	Ø125 (Ø75) mm	
Max. tool dia. of adjacent pots are empty	Ø250 (Ø130) mm	
Tool selection	Bi-direction	
MOTORS		
Spindle motor (30 min. rating/continuous rating)	18.5 / 15 (15 / 11) kw	
Drive motors (X,Y,Z-axis)	6.0 / 3 / 3 kw	
INSTALLATION REQUIREMENTS		
Power requirement	220V±10% ; 50/60 HZ ±2% ; 54 KVA	
Air pressure	5-7 bar (kgf/cm²)	
Air flowrate	100 (1000) l/min	
Floor space	4230 x 8500 mm	4235 x 11000 mm
Net weight	23000 kgw	27000 kgw
CNC CONTROLLER		
Controller	FANUC	

■ Design and specifications are subject to change without prior notice.

STANDARD ACCESSORIES:

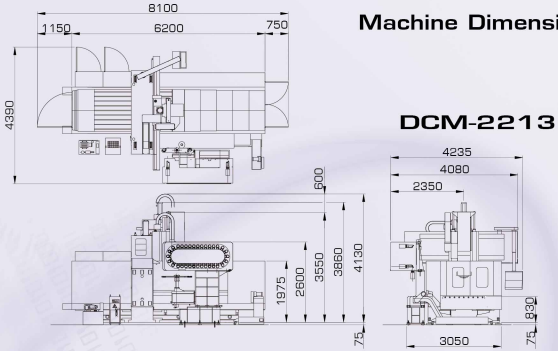
- Spindle cooling device
- Coolant around spindle
- Heat exchanger
- Removable manual pulse generator
- Screw type chip conveyor + chip wagon
- Screw type chip conveyor
- Call light
- Work light
- Enclosed splash guard
- Tool kit
- Coolant and air gun

OPTION ACCESSORIES:

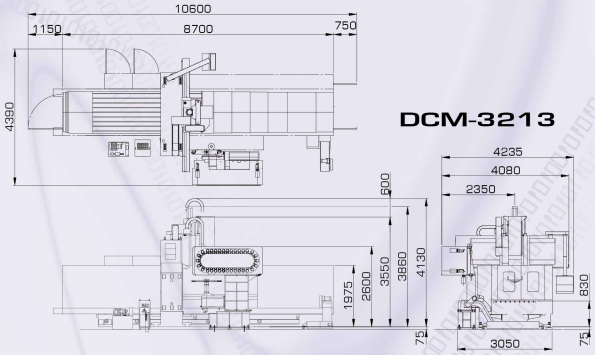
- BT50 10000 r.p.m. direct drive spindle
- BBT40 15000 r.p.m. built-in spindle
- Coolant through spindle with filter
- Oil mist device
- Flat type chip conveyor+chip wagon
- Oil skimmer
- 90° angular head
- X, Y, Z linear scale
- Automatic centering device
- Tool length measuring device
- Air conditioner
- ATC tool storage: 60 tools

Machine Dimensions

DCM-2213



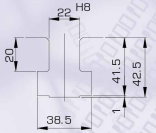
DCM-3213



TABLE



T-SLOT



SPINDLE

