DAHLIH

Machines That Create Value

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The Latest and Best Quality Machinery.

DAHLIH®

VERTICAL
MACHINING CENTER

MCV-1050

BOX WAY SERIES

DAHLIH

DAH LIH MACHINERY INDUSTRY CO., LTD.

Box Ways On Three Axes
The X, Y, Z axis slideways are designed with extra wide box ways, featuring outstanding heavy cutting resistance.

Perfectly Designed Machine Structure Exhibits High Structural Strength and Maximum Stability!

A VMC That Combines Cutting Power, High Rigidity and Ultra-high Accuracy In One.

» Twin chip augers and one-piece casting structure.

» Extra wide slideways combined with large span between ways provide stable, fast and heavy cutting capabilities.

Table Fully Supported Over The Entire Travel
The entire travel of the table in right/left direction reduces the table overhang problem while avoiding damage to the Turcite-B during machining.

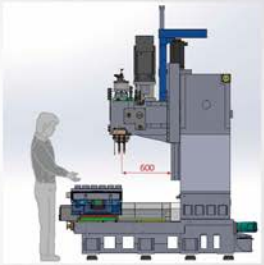
Spindle Head Support More Stable
The span between slideways on the Z-axis is enlarged and that helps to dramatically upgrade the stability of the spindle head support.

Robust Column
The column is a reversed 'Y' shape. symmetrical structure with features of superior balance and extraordinary structural rigidity.

Ball Screws
X, Y, Z-axis feeds are transmitted through large diameter ball screws with features of high rigidity, high feed accuracy, low backlash, and low thermal deformation.

Box Type Strucure
The column and base are a box type symmetrical construction combined with scientific cross ribs reinforcement. This results in greater structural rigidity while reducing thermal deformation to a minimum.

Oversized Base Design



600mm Throat Depth
The distance between the spindle center and slideway surfaces on the column is 600 mm, combined with highly rigid spindle head design. These features help to reduce the spindle vibration to a minimum when performing heavy cutting.

Easy Access
The distance between the machine table and the front of the machine has been reduced. This improvement allows improved easy access to the machine table creating far less fatigue for the machine operator during the working day.

Extra Large Column Base
The span of the column bottom reaches 1350 mm which represents outstanding structural rigidity. The exceptional design not only ensures minimum vibration but also allows the machine accuracy to be maintained for a longer period.

8000 PRM Gear-Drive Spindle

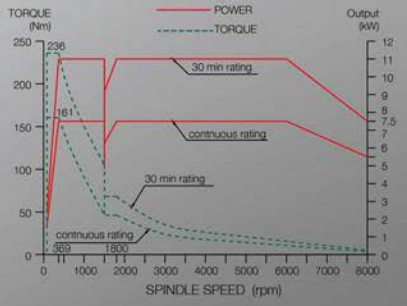
High Rigidity, Stable Structure & Life Time Accuracy

- The spindle transmission system is designed with all-gear two-step speed change, which provides high torque output to ensure high cutting performance.
- The spindle housing is a box type structure with high rigidity.
- The coolant jets around the spindle can quickly remove heat from the cutting tool and the workpiece, which effectively upgrades machining accuracy.
- The spindle transmission system employs gear-drive with two-step speed change.
- Maximum spindle speed is 8000 rpm.

MCV-1050 SPINDLE POWER/TORQUE DIAGRAM

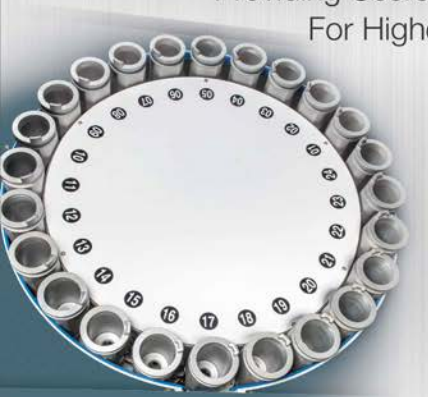
GEAR DRIVE SPINDLE # 50 8000RPM

SPINDLE MOTOR (FANUC) αi8/8000i



- The spindle provides two speeds ranges. The wide speed design makes the machine suitable for various machining requirements.
- The low-speed range provides high torque output for heavy cutting.
- The high-speed range is suitable for high-speed machining applications.

Providing Users With A Perfect Solution For Higher Quality And Efficiency



Cam Type Tool Magazine
The cam type tool magazine rotation is driven by a motorized cam for fast tool change and dependable performance. It accommodates BT40 or BT50 tool shanks. Random tool selection provides efficient tool changing.

Enclosed Tool Magazine
The tool magazine is mounted on the side of the machine to avoid interference. It is guarded by the enclosed sheet metal that prevents cutting fluid or chips from contaminating the cutting tool.

STANDARD EQUIPMENT

Chip Auger
During machining, chips are flushed and fall down to the chip auger for delivery to the chip conveyor. Chips are then expelled from the machine. This design effectively removes chips, which not only prevents chip heat from affecting the structural accuracy, but also always keeps the working area clean.

Work Light
The machine is equipped with a work light which provides optimal illumination of the working area.

Nitrogen Gas Counter – Balance (Optional)
- The counter balancing system employs an accumulator which does not require additional power.
- No noise, extremely stable motion, no resonance and greatly upgrades machining efficiency.
- Easy to adjust servo parameters.

OPTIONAL EQUIPMENT


Air conditioner


Automatic workpiece measuring device


Automatic tool length measuring device (Dah Lih, Renishaw or Blum)


4th axis rotary table


Paper filter


Coolant through spindle device (20,30,50,70 kgs)


Coolant through tool (tool not included)


Coolant wash device

Chip shape	Material	Steel belt chip conveyor	Screw type conveyor
Metallic chip		○	○
Cast chip			○
Curly Aluminum chip		○	
Aluminum Chip			○
Non-Metallic chip		○	○

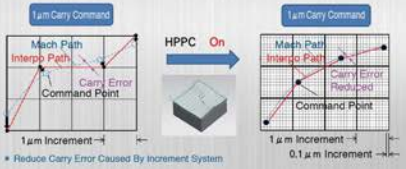

Flat type chip conveyor


Lift up type chip conveyor

Fine Surface Control (FSS) A Combination of Speed, Accuracy, and Quality

HIGH PRECISION PROGRAM COMMAND (HPPC)

The increase of program accuracy may reduce pitch errors, which in turn upgrades the smoothness of curve connection, reduces level difference on machining surface, while keeping the same machining time.

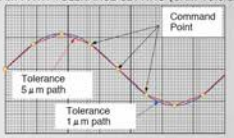


* Reduce Carry Error Caused By Increment System

SMOOTH TOLERANCE CONTROL (STC)

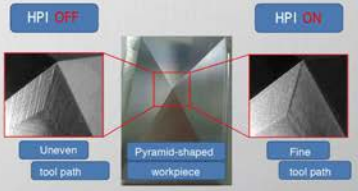
The poor machining surface caused by tool path usually consists of many short lines. Now with the use of the Smooth Tolerance Control function of the CNC, smoother surface effects can be achieved. The STC Function offers the operator a choice , either by selecting the tolerance of 5μm – this provides the fastest cycle time or with the tolerance 1μm provides the best profile with a smoothed tool path.

PROGRAM PATH TOLERANCE SETTING (CAM Tolerance)



HIGH PRECISION INTERPOLATION (HPI) (An Optional Function for Mold Machining Equipment):

The submicron command control technology in combination with high resolution program path planning can reach the optimal tool path grain on surfaces, which aids in dramatically upgrading the machining surface quality.



Advanced CNC Controller

This machine is possible to be equipped with various controllers, such as FANUC, HEIDENHAIN or other brands of CNC controllers.

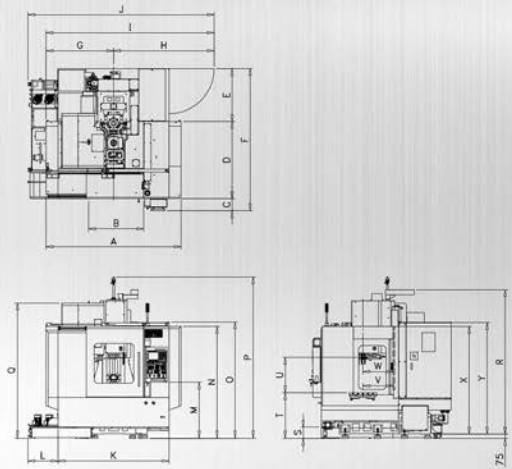
Outstanding Machining Capacity

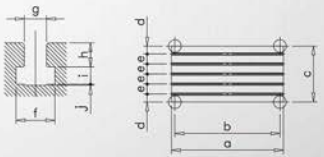
* The spindle motor required for the above machining examples is 15-18.5 kw

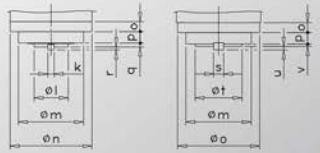
Machine Dimensions

Unit: mm

MCV-1050







BBT 40 spindle nose sizes **BBT 50 spindle nose sizes**

EXTERNAL DIMENSIONS

Model	MCV-1050	
Unit	mm	inch
A	2700	106.30
B	1100	43.30
C	242.3	9.54
D	1545	60.83
E	1053	41.46
F	2840.3	111.82
G	1350	53.15
H	2010	79.13
I	3360	132.28
J	3722.2	146.54
K	2220	87.40
L	602.2	23.71
M	1113	43.82
N	2228	87.72
O	2317	91.22
P	3218	126.69
Q	2446/2696	96.30/106.14
R	2887	113.66
S	212.8	8.38
T	900	35.43
U	150-710	5.91-27.95
V	320-880	12.60-34.65
W	600	23.62
X	2155	84.84
Y	2231.5	87.85

TABLE & T-SLOT

Model	MCV-1050	
Unit	mm	inch
a	1120	44.09
b	1050	41.34
c	560	22.05
d	80	3.15
e	100	3.94
f	31.5	1.24
g	18	0.71
h	20	0.87
i	13.5	0.53
j	1	0.04
k	15.9	0.63
l	85	3.35
m	163	6.42
n	205	8.07
o	25	0.98
p	29	1.14
q	9.98	0.39
r	7	0.28
s	25.4	1
t	117	4.61
u	9	0.35
v	5.48	0.22

Note: 1. Gear head #40 or #50
2. 24 tools cam type ATC

Specifications, Accessories and Dimensions

SPECIFICATIONS

MODEL	UNIT	MCV-1050
TABLE		
Table surface area	mm	1120 x 560
Max. table load	kg	1000
T-slots (W x No.)	mm	18 x 5
Distance from table to floor	mm	900
TRAVEL		
X-axis travel	mm	1050
Y-axis travel	mm	560
Z-axis travel	mm	560
Distance from spindle center to column surface	mm	600
Distance from spindle nose to table surface	mm	150 ~ 710
SPINDLE		
Spindle nose taper		N.T.40 / N.T. 50
Range of spindle speeds	r.p.m	80 ~ 8000
Spindle motor		α 8 / 8000i
Spindle speed steps		Two-step gear drive
FEED		FEED
Cutting feed rates (X, Y, Z-axis)	mm/min	1~10000
Rapid traverse rates (X, Y, Z-axis)	m/min	30 / 30 / 18
Minimum input increment	mm	0.001
AUTOMATICC TOOL CHANGE (ATC)		
Tool magazine capacity	tools	24
Tool shank type		BT40 BT50
Max. tool dia. x length	mm	Ø76 × 300, Ø105 × 300
Max. tool weight	kgw	7 / 15
Max. tool dia. (without adjacent tool)	mm	Ø150 / 200
Tool selection		Random
MOTOR		
Spindle motor (30 min./cont.)	kw (hp)	7. 5kw (10 hp) /11 kw (14.7 hp)
X-axis servo motor	kw	2.5
Y-axis servo motor	kw	2.5
Z-axis servo motor	kw	3.0
INSTALLATION REQUIREMENT		
Space occupied (X/Y axis)	mm	3730 × 3105
Machine weight	kg	8000

■ Specifications are subject to change without prior notice.

» STANDARD

1. Heat exchanger for electrical cabinet
2. Fully enclosed splash guard
3. Automatic lubrication equipment
4. Automatic power off
5. Toolbox and tool kits
6. RS-232 interface
7. Spindle cooler
8. Coolant jets around spindle
9. Rigid tapping
10. Call light
11. Work light
12. USB port and embedded ethernet

» OPTIONS

1. Air conditioner for electrical cabinet
2. Coolant and air gun
3. Coolant through spindle device
4. Automatic tool length measuring device
5. Automatic workpiece measuring device
6. Flat type chip conveyor
7. Lift up type chip conveyor
8. Oil fluid separator
9. Coolant wash device
10. Linear scale
11. 4th axis