Matsuura

Vertical Machining Center

VX-660

MAXIA
Innovation by Matsuura

Matsuura

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- Product specifications and dimensions are subject to change without prior notice.
- The photos may show optional accessories.

This product is subject to all applicable export control laws and regulations

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VX-660 *Vertical Machining Center*

Introducing the *VX-660* ; Assured Machining Performance, Compact Footprint

Cost effective, versatile 3 axis VMC with spacious machining enclosure,
***Matsuura* – pioneers of the VMC**

Wide Y-axis Travel 550mm

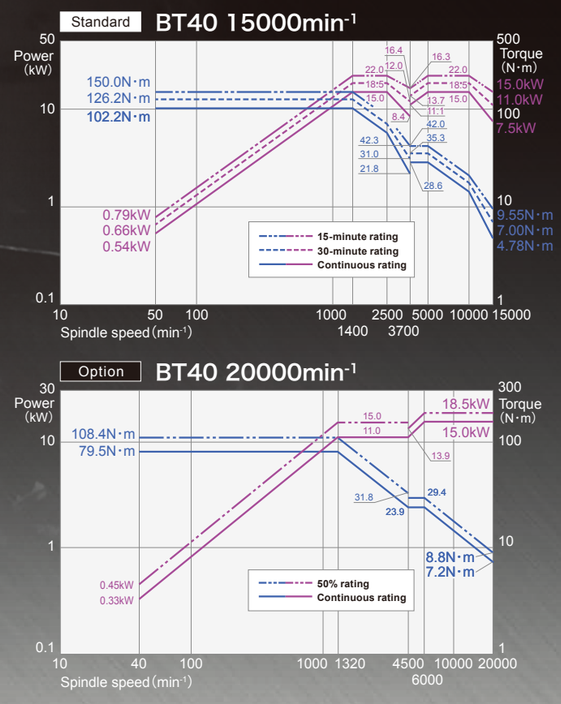
Applicable in various applications in combination with table size 940mm x 550mm

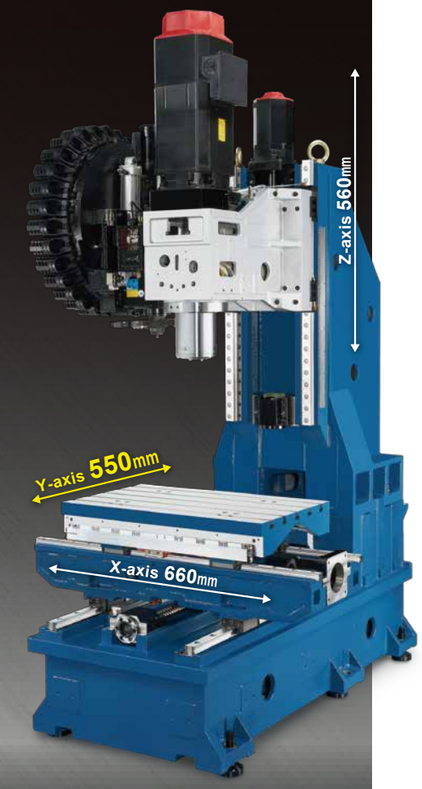
Travel (XYZ)	660 / 550 / 560 mm
Table Size	940 x 550 mm
Loading Capacity	500 kg
Spindle Speed	BT40 15000 min^{-1} Standard
	BT40 20000 min^{-1} Option
Rapid Traverse (XYZ)	48 / 48 / 48 m/min

VX-660 *High Rigidity Spindle & MC Design*

MAXIA BT40 15000min^{-1} Spindle as standard – for machining a vast array of materials, from Aluminum to Cast Iron, to Titanium

The *VX-660* MAXIA Spindle is designed with Ø80mm ceramic bearings – for greater performance and longevity. *Matsuura*'s many decades of VMC design expertise have culminated in the highly rigid structure of our state of the art *VX Series* VMCs





Machining test results BT40 15000min^{-1}

	Work material	Tool	Cut width Cut depth	Spindle rotation speed	Cutting feed rate	Cutting amount
Face mill	Aluminum	Ø80mm (3.14) 3 blades	W=70mm (2.75) D=5mm (0.19)	5500 min^{-1}	8000 mm/min (314.96)	2800 cc/min
	Steel	Ø80mm (3.14) 5 blades	W=70mm (2.75) D=3mm (0.11)	1120 min^{-1}	2800 mm/min (110.23)	588 cc/min
End mill	Aluminum	Ø25mm (0.98) 2 blades	W=22mm (0.86) D=8.5mm (0.33)	12000 min^{-1}	10000 mm/min (393.70)	1870 cc/min
	Steel	Ø20mm (0.78) 4 blades	W=3mm (0.11) D=35mm (1.37)	5500 min^{-1}	5500 mm/min (216.53)	578 cc/min

	Work material	Tool	Spindle rotation speed	Cutting feed rate	Cutting amount
Drill	Aluminum	Ø35mm (1.37)	1500 min^{-1}	700 mm/min (27.55)	673 cc/min
	Steel	Ø35mm (1.37)	1300 min^{-1}	330 mm/min (12.99)	317 cc/min
Tap	Aluminum	M36 ×P4.0	120 min^{-1}	480 mm/min (18.89)	–
	Steel	M30 ×P3.5	100 min^{-1}	350 mm/min (13.77)	–

VX-660 *Swarf Management / Cutting Ability*

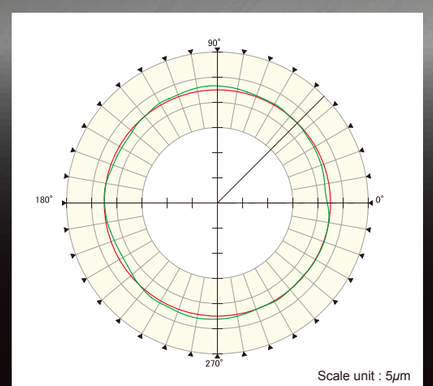
Better by design; high metal removal rates require the swift evacuation of the *VX-660* machining enclosure of chips and swarf.

Standard

- Lift-up conveyor
- Chip flush/ Chip flow
- Work cleaning gun
- Air Blow for chip removal

Option

- Spiral conveyor
- Coolant through 2MPa
- Lift-up conveyor with drum filter



Scale unit : 5μm

High Accuracy

Thermal Displacement Compensation

Standard

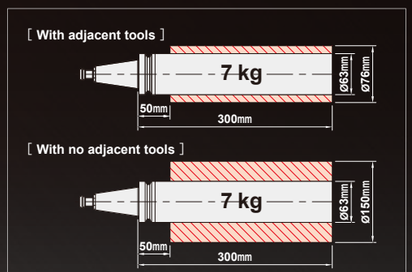
The spindle's thermal displacement compensation function eliminates dimensional error due to thermal displacement. Stable machining accuracy over long periods is assured.

VX-660 *ATC / NC Control*

Tool Specification; Max. Tool Diameter : Ø150mm Max. Tool Length : 300mm

Standard Drum magazine for 30 tools

Option Chain magazine for 48/60 tools



Type of tool shank : JIS B 6339 40T

Matsuura G-Tech 31i

MIMS

Matsuura Intelligent Meister System

Combining craftsmanship, skill and ingenuity

***Matsuura*'s original interface with uncompromising pursuit of utility**

VX-660

[Specification / Equipment]

Standard Machine Specifications

Movement and Ranges			
X-Axis Travel		[mm (in.)]	660 (25.98)
Y-Axis Travel		[mm (in.)]	550 (21.65)
Z-Axis Travel		[mm (in.)]	560 (22.05)
Table Surface to Spindle Gauge Line		[mm (in.)]	100 - 660 (3.93 - 25.98)
Table Center to Column Guideway		[mm (in.)]	342 - 892 (13.46 - 35.12)
Spindle Center to Column Guideway		[mm (in.)]	617 (24.29)
Table			
Working Surface		[mm (in.)]	940×550 (37.01×21.65)
Loading Capacity		[kg (lb.)]	500 (1100)
Working Surface Configuration (width×number×pitch)		[mm (in.)]	18×5×100 (11/16×5×4)
Table Height (from floor)		[mm (in.)]	900 (35.43)
Spindle			
Spindle Speed Range		[min^{-1}]	50 - 15000 (Grease Lubrication)
Spindle Speed Change Command			S5-digit Direct Command
Spindle Taper			7/24 Taper JIS BT40 (Double Contact Type)
Spindle Bearing Inner Dia.		[mm (in.)]	80 (3.14)
Max. Spindle Torque		[N·m]	150 / 1400min^{-1}
Spindle Air Blow			
Spindle Orientation			Electrical
Tool Clamping Force		[kN]	12.0
Feedrate			
Rapid Traverse Rate	X / Y / Z	[mm/min]	48000 / 48000 / 48000
Feedrate	X / Y / Z	[mm/min]	1 - 48000
Min. Movement Increment	X / Y / Z	[mm (in.)]	0.001 (0.000039)
Automatic Tool Changer			
Type of Tool Shank			JIS B 6339 Tool Shank 40T
Type of Retention Knob			JIS B 6339 Pull Stud 40P
Number of Tools		[tools]	30
Max. Tool Diameter		[mm (in.)]	76 (2.99)
Max. Tool Diameter		[mm (in.)]	150 (5.91) (When the pockets on both side are empty)
Max. Tool Length		[mm (in.)]	300 (11.81)
Max. Tool Mass		[kg (lb.)]	7 (15.4)
Tool Selection			Memory Random
Tool Change Arm			Double Grip Type
Tool Pocket Pitch		[mm (in.)]	81.41 (3.21)
Motors			
Spindle Motor		[kW]	AC 15 / 22 (low-speed winding: continuous/15 min) AC 15 / 22 (high-speed winding: continuous/15 min)
Feed Motors	X-Axis	[kW]	AC 3.0
	Y-Axis	[kW]	AC 3.0
	Z-Axis	[kW]	AC 4.0
Coolant Pump Motor		[kW]	AC 0.76 / 1.17 (50Hz / 60Hz)
Oil Cooler Pump Motor		[kW]	AC 0.2 / 0.33 (50Hz / 60Hz)
Chip Flush Pump Motor		[kW]	AC 0.44 / 0.73 (50Hz / 60Hz)

Power Supply		
Electrical Power Supply	[kVA]	26 (varies with option configuration)
Power Supply Voltage	[V]	AC 200 / 220 ± 10% Transformer required if supply voltage is other than above
Power Supply Frequency	[Hz]	50 / 60 ± 1
Compressed Air Supply	[MPa]	0.54 - 0.93
Volume of Compressed Air	[NL/min]	370
Tank Capacity		
Coolant Tank Capacity	[L]	350
Oil Cooler Tank Capacity	[L]	15
Machine Size		
Machine Height (from floor)	[mm (in.)]	2983 (117.44)
Required floor space (including maintenance area)	[mm (in.)]	3650W×4798D (143.70W×188.90D) (varies with option configuration)
Mass of Machine	[kg (lb.)]	5615 (12378) (include NC Equipment and ATC Magazine)
NC System		
Control system		***Matsuura G-Tech31i***
Standard Accessories		
Total Enclosure Guard		With Top Side Cover
ATC Magazine Guard		
CE Markings		
Synchronized Tapping Function		
Spindle Oil Cooler		
External Manual Pulse Generator		
Lift-up Conveyor (Scraper)		
Air Blow for Chip Removal		
Workpiece Cleaning Gun		
2MPa,supporting through-spindle coolant system		
Spindle Thermal Displacement Compensation, 15k, BT40, Temperature Monitor Type		
Chip Flush System		
MIMS (Matsuura Intelligent Meister System)		
AD-TAP function		
IPC function		
Spindle overload protection		
M code counter (9 types)		
Spindle runhour meter		(within the ***MIMS*** screen)
Automatic operation runhour meter		(within the ***MIMS*** screen)
Coolant System		back side discharge
Auto Oil Supply Unit for Feed Axes		Greasing Points with Female Ball Screws (X/Y/Z)
Work Light		
3color Signal Light (red,yellow,green from top)		
Tools and Tool Box		
Machine Color Paint		
Leveling Bolts and Leveling Plates		Not for Foundation
Memory card program operation and editing		CD-ROM

* 2 years spindle warranty

Option List of Fittings

Type of Tool Shank
HSK-A 63
Spindle
20000min^{-1} (BT40 Grease Lubrication)
ATC
48 Tools (#40 Chain Magazine)
60 Tools (#40 Chain Magazine)
Chip Removal
Spiral Conveyor (Right & Left)
Chip Bucket
Scale Feedback System
Scale Feedback System X/Y/Z (HEIDENHAIN)
Mist Separator
Mist Separator (without fire damper)
Coolant Unit
Lift-up Conveyor with Drum Filter

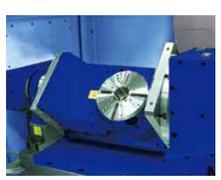
Coolant-through Spindle System
7MPa, supporting through-spindle coolant system
Coolant-through Spindle System 2MPa with Pump
Oil Temperature Controller with 5MPa Coolant-through System of Mono-block Construction
Coolant Temperature Controller
Coolant Temperature Controller with 100-litter Tank
Coolant Temperature Controller with 200-litter Tank
Automatic Measurement, Tool Breakage Detection
Automatic Measurement / Automatic Alignment(Optical)
Tool Breakage / Full Automatic Tool Length Measurement (Contact)
Tool Breakage / Full Automatic Tool Length Measurement (Laser)
Rotary Wiper
Rotary Wiper

Chain magazine for 60 tools

Tool Breakage (Laser)

Tool Breakage (Contact)

Automatic Measurement



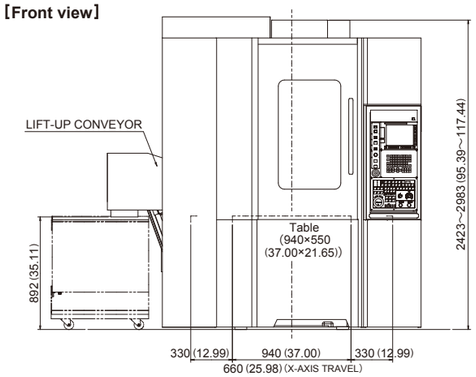
4/5th Rotary Table

Spiral Conveyor (Right & Left)

VX-660 External view

Unit : mm (in.)

【Front view】



【Right side view】

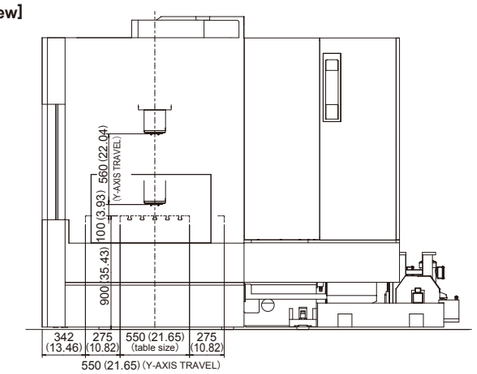
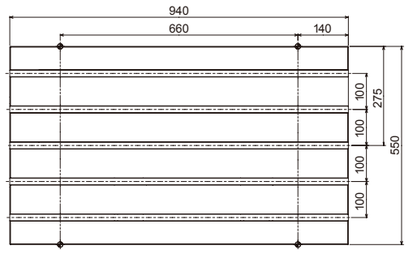
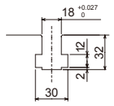


Table top view

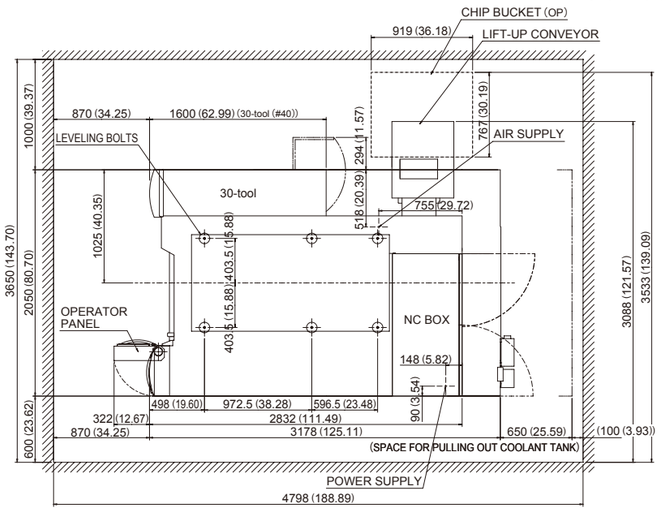
Unit : mm





Floor plan

Unit : mm (in.)



VX Series

Cost Effective
Heavy Duty Performance

		VX-1000	VX-1500
Movement and Ranges (XYZ)	[mm (in.)]	1020 (40.15) / 610 (24.01) / 610 (24.01)	1524 (60.00) / 700 (27.55) / 610 (24.01)
Working Surface	[mm (in.)]	1200 x 600 (47.24×23.62)	1700 x 700 (66.92×27.55)
Loading Capacity	[kg (lb.)]	500 (1100)	2000 (4400)
Spindle	[min^{-1}]	BT40 15000 min^{-1} Standard BT40 20000 min^{-1} Option	BT40 15000 min^{-1} Standard BT50 15000 min^{-1} Option
Rapid Traverse Rate (XYZ)	[m/min]	40/ 40/ 36	36/ 36/ 36
Number of Tools	[tools]	30 Standard 48 / 60 Option	BT40 48 Standard / 60 Option BT50 30 Option