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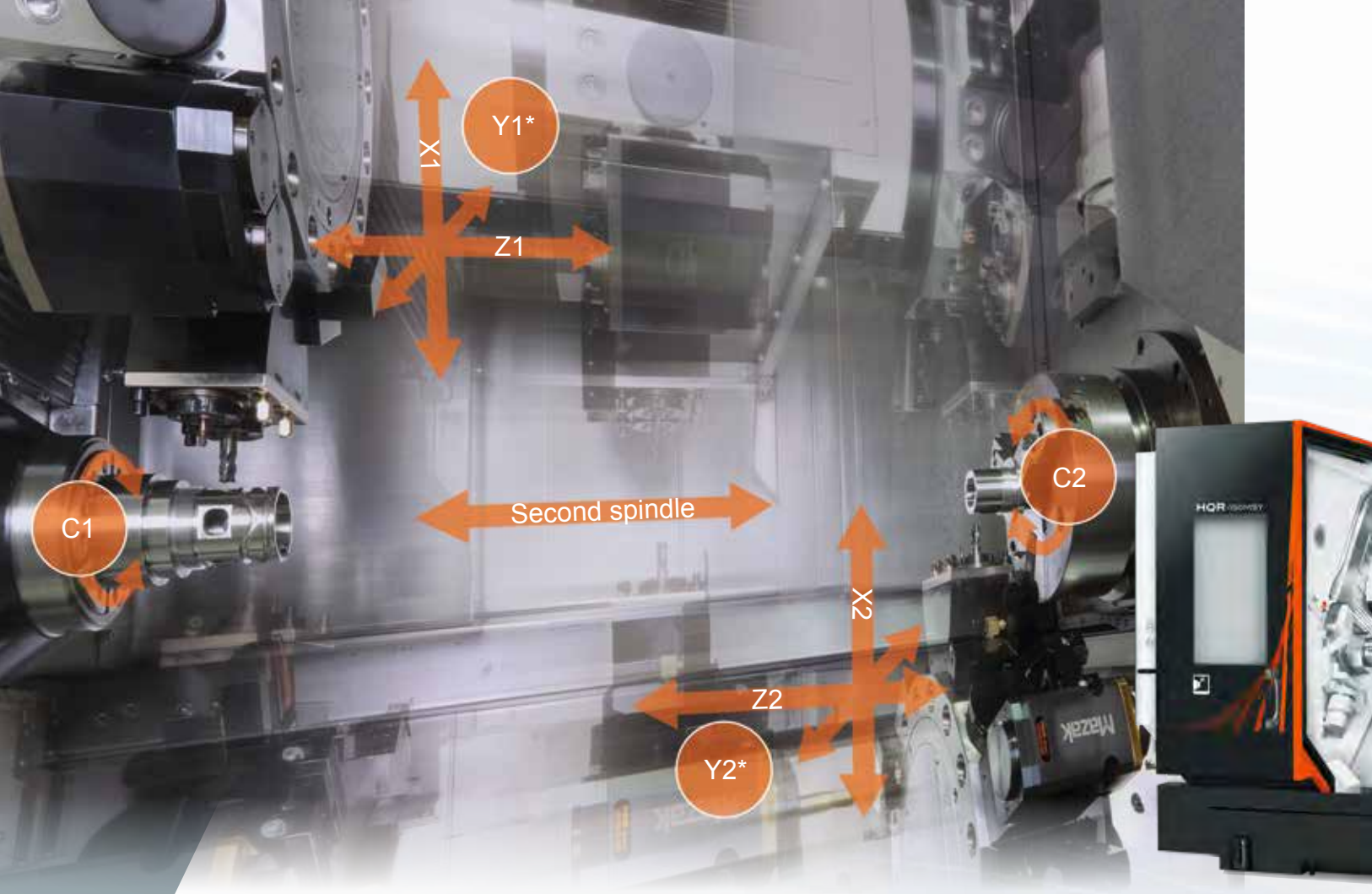
# Mazak

# HQR

SERIES

[High-Efficiency 2-Turret/2-Spindle CNC Turning Center]





\*Y1 and Y2 are only on 100MSY, 150MSY, 200MY, 200MSY, 250MY and 250MSY

## High productivity in a space-saving design

- 2-turret/2-spindle machine construction for reduced cycle time
- High-efficiency integral spindle/motors in both left and right headstocks perform powerful turning and high-accuracy C-axis indexing in  $0.0001^\circ$  increments
- In addition to the standard 12-position drum turret, a 24 indexing-step 12-position drum turret and 16-position drum turret are available as options
- High accuracy milling thanks to the rotary tool spindle on both turrets and long Y-axis stroke (MY, MSY)
- A variety of optional automation equipment such as bar feeders, workpiece unloaders and robots is available

High efficiency 2 turret /2 spindle CNC turning centers

# HQR SERIES



HQR-150MSY  
(Shown with optional status light,  
tool eye and work unloader)

HQR-200MSY 850U  
(Shown with optional status light, tool eye,  
work unloader, auto parts catcher and chip conveyor)

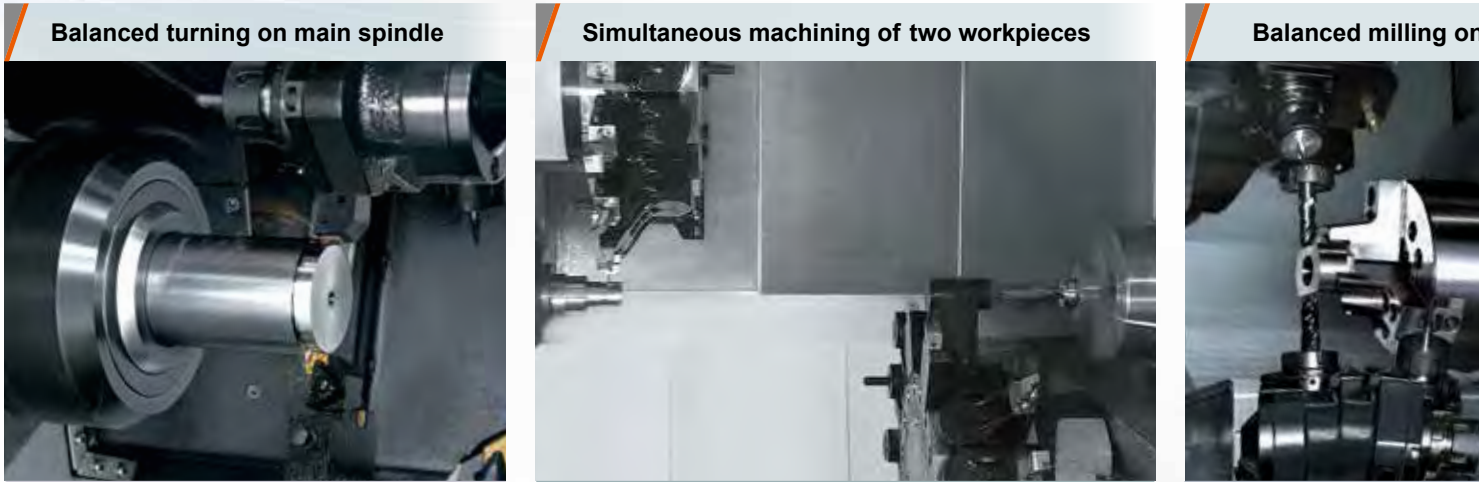
	<b>Main Spindle</b> Max. spindle speed Output (30-min. rating) Chuck size	<b>Second Spindle</b> Max. spindle speed Output (30-min. rating) Chuck size	<b>Turret</b>	<b>Rotary tool spindle</b> Max. spindle speed Output (30-min. rating)	<b>Universal</b>
<b>100MSY</b>	6000 rpm 11 kW (15HP) 6"	6000 rpm 11 kW (15HP) 6"	12D (VDI)	6000 rpm 5.5 kW (7.5HP)	600U
<b>150MSY</b>	5000 rpm 15 kW (20HP) 6"	6000 rpm 11 kW (15HP) 6"		6000 rpm 11 kW (15HP)	
<b>200MS</b>	5000 rpm 22 kW (30HP) 8"	5000 rpm 22 kW (30HP) 8"	12D (VDI)	6000 rpm 5.5 kW (7.5HP)	850U
<b>200MSY</b>		5000 rpm 22 kW (30HP) 8"	16D (VDI)	6000 rpm 11 kW (15HP)	1300U
<b>250MS</b>	4000 rpm 26 kW (35HP) 10"	5000 rpm 22 kW (30HP) 8"	12D (VDI)	6000 rpm 5.5 kW (7.5HP)	850U
<b>250MSY</b>		4000 rpm 26 kW (35HP) 10"	16D (VDI)	6000 rpm 11 kW (15HP)	1300U
<b>200MY</b>	5000 rpm 22 kW (30HP) 8"	Tailstock MT No.4 Built-in center	12D (VDI)	6000 rpm 5.5 kW (7.5HP)	700U
<b>250MY</b>	4000 rpm 26 kW (35HP) 10"		16D (VDI)	6000 rpm 11 kW (15HP)	

Standard Option

# Concept

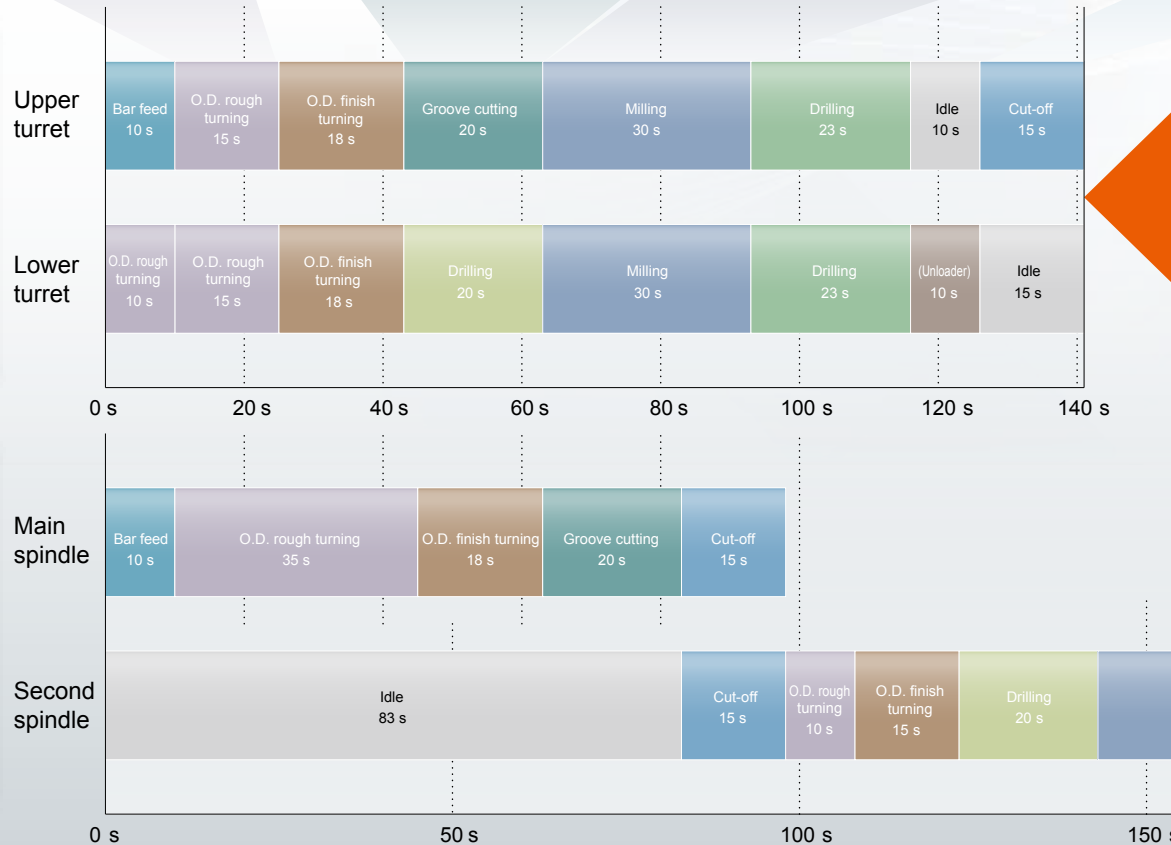
## 2-turret/2-spindle machine design for reduced cycle times

Using the upper and lower turrets, the HQR series can perform high-efficiency cutting such as simultaneous 1st and 2nd operations and balanced cutting.



HQR-150MSY  
with bar feeder  
and unloader

1-turret  
2-spindle  
CNC turning  
center



# Sample workpieces

By synchronized machining of both turrets, balance cutting that minimizes workpiece displacement can be performed. Additionally, simultaneous turning reduces cycle time.

second spindle



Cut-off



- Workpiece: Pulley
- Material: Aluminum
- Cutting time: 5 min



- Workpiece: Sleeve
- Material: Carbon steel
- Cutting time: 4.5 min



- Workpiece: Machine component
- Material: Carbon steel
- Cutting time: 10 min



- Workpiece: Piston housing
- Material: Carbon steel
- Cutting time: 3.9 min

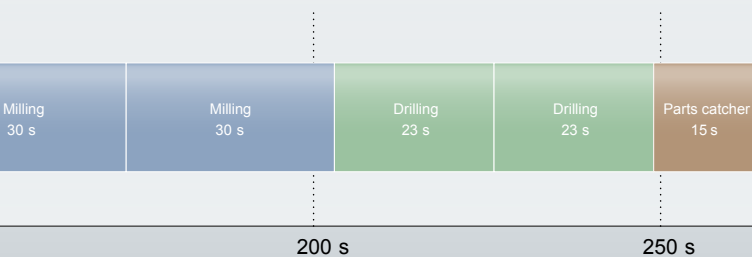


- Workpiece: Shaft
- Material: Carbon steel
- Cutting time: 4 min



Cycle time reduced by **47%**

Cycle time  
**141 sec**



Cycle time **264 sec**

# Higher productivity

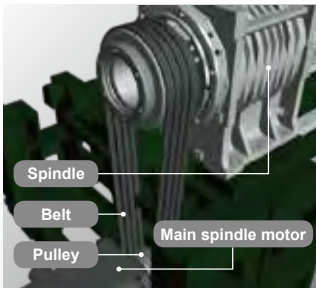
## High-efficiency integral spindle/motors in both headstocks



This design minimizes vibration during high-speed operation to ensure exceptional surface finishes and maximum tool life. Because no transmission with belts, pulleys or gears is used, the higher efficiency of the integral spindle/motor delivers more power to the tool tip to be used for cutting. The spindle C1 axis and C2 axis\* can be indexed by 0.0001° increments and can also perform contouring.

\*0.0001° indexing on C2-axis is optional

### Conventional belt drive

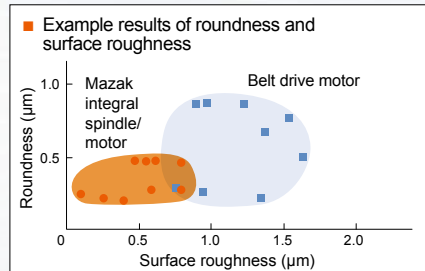


Vibration increases with faster speed

### HQR integral spindle/motor



Minimum vibration produced by integral spindle/motor



## Bar work capacity (MS, MSY)

Because both the main spindle and second spindle have large spindle bores, bar material can be efficiently machined.

Machine(s)	Main spindle	Second spindle
HQR-100MSY	ø51 mm (ø2.01")	ø51 mm (ø2.01")
HQR-150MSY	ø65 mm (ø2.56")	ø51 mm (ø2.01")
HQR-200MS, 200MSY	ø65 mm (ø2.56")	ø65 mm (ø2.56")
HQR-250MS, 250MSY	ø80 mm (ø3.15")	ø65 mm (ø2.56")
HQR-250MS, 250MSY <b>OPTION</b>	ø80 mm (ø3.15")	ø80 mm* (ø3.15")

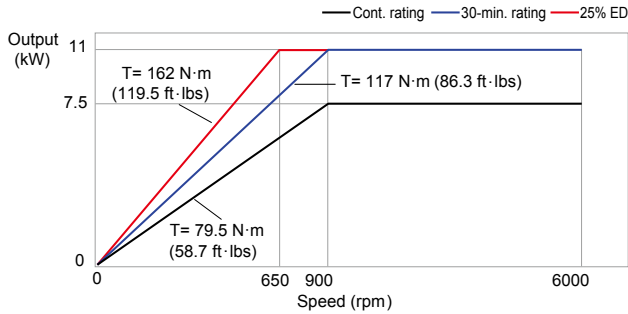
\* Spindle speed is 4000 rpm.

## Spindle output/torque diagram

### 6000 rpm 11 kW (15 HP) spindle

HQR-100MSY main spindle/second spindle  
HQR-150MSY second spindle

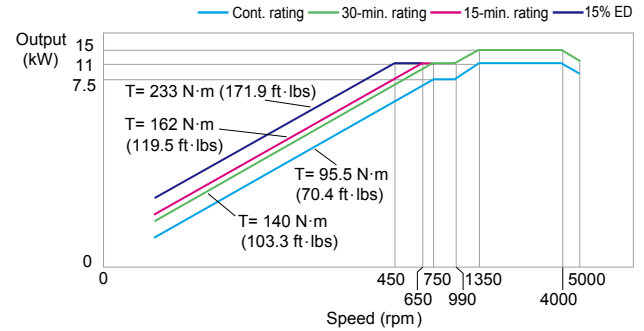
Output (30-min. rating/cont. rating)	11 kW/7.5 kW
Torque (25% ED)	162 N·m (119.5 ft·lbs)
Spindle bore	ø61 mm (ø2.4")



### 5000 rpm 15 kW (20 HP) spindle

HQR-150MSY main spindle

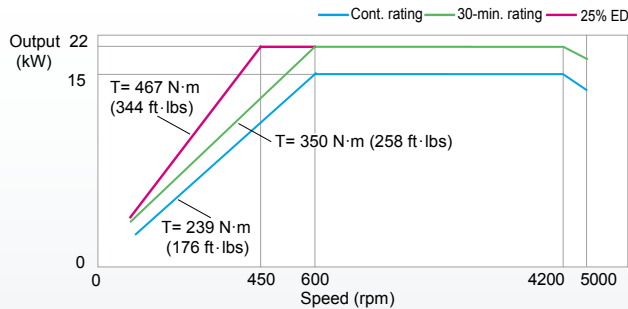
Output (30-min. rating/cont. rating)	15 kW/11 kW
Torque (15% ED)	233 N·m (171.9 ft·lbs)
Spindle bore	ø76 mm (ø2.99")



### 5000 rpm 22 kW (30 HP) spindle

HQR-200MS, 200MSY main spindle/second spindle  
HQR-200MY main spindle

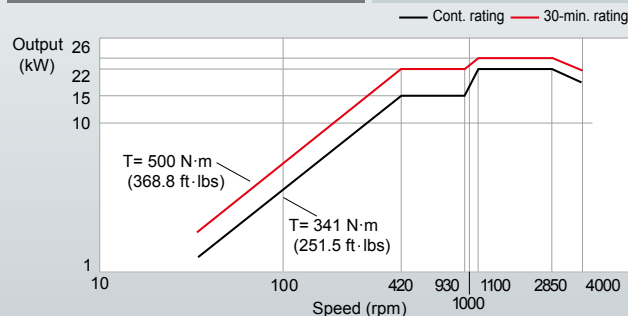
Output (30-min. rating/cont. rating)	22 kW/15 kW
Torque (25% ED)	467 N·m (344 ft·lbs)
Spindle bore	ø76 mm (ø2.99")



### 4000 rpm 26 kW (35 HP) spindle

HQR-250MS, 250MY, 250MSY main spindle  
HQR-250MS, 250MSY second spindle (ø91 mm bore: OPTION)

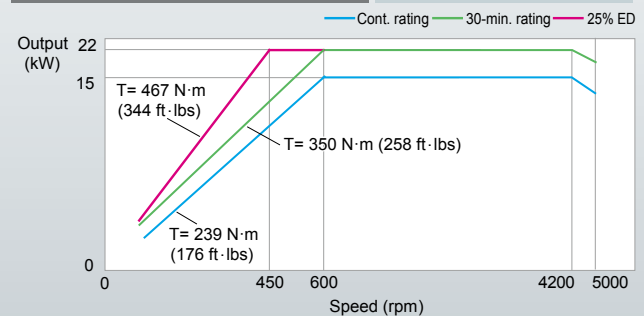
Output (30-min. rating/cont. rating)	26 kW/22 kW
Torque (40% ED, 30-min. rating)	500 N·m (368.8 ft·lbs)
Spindle bore	ø91 mm (ø3.58")



### 5000 rpm 22 kW (30 HP) spindle

HQR-250MS, 250MSY second spindle

Output (25% ED/cont. rating)	22 kW/15 kW
Torque (25% ED)	467 N·m (344 ft·lbs)
Spindle bore	ø76 mm (ø2.99")



# Higher productivity

## High-performance non-lift turret

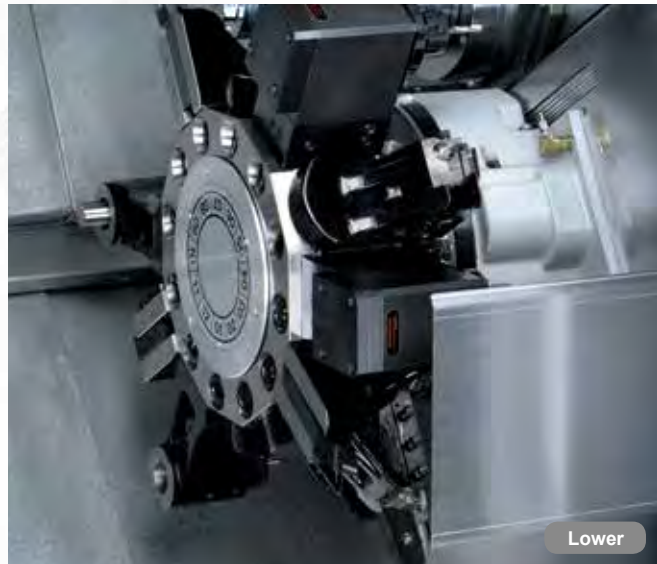
### 12-position drum turret

Both the upper and lower 12-position drum turrets can mount either turning or milling tools on each of the 12 positions for convenient setup. Optional 24 indexing-step 12 position drum turret is available for the HQR 200, 250 series.

Turning tool shank	□20 mm (3/4") [100MSY, 150MSY]	□25 mm (1") [200, 250 series]
Boring bar shank diameter	∅32 mm (∅1-1/4") [100MSY, 150MSY]	∅40 mm (∅1-1/2") [200, 250 series]



Upper



Lower

### Rotary tool spindle

From powerful face milling to high-speed drilling, the 6000 rpm, AC 5.5 kW (7.5 HP) milling spindle provides performance comparable to that of a small machining center.

Rotary tool spindle output/torque diagram



#### Milling capacity

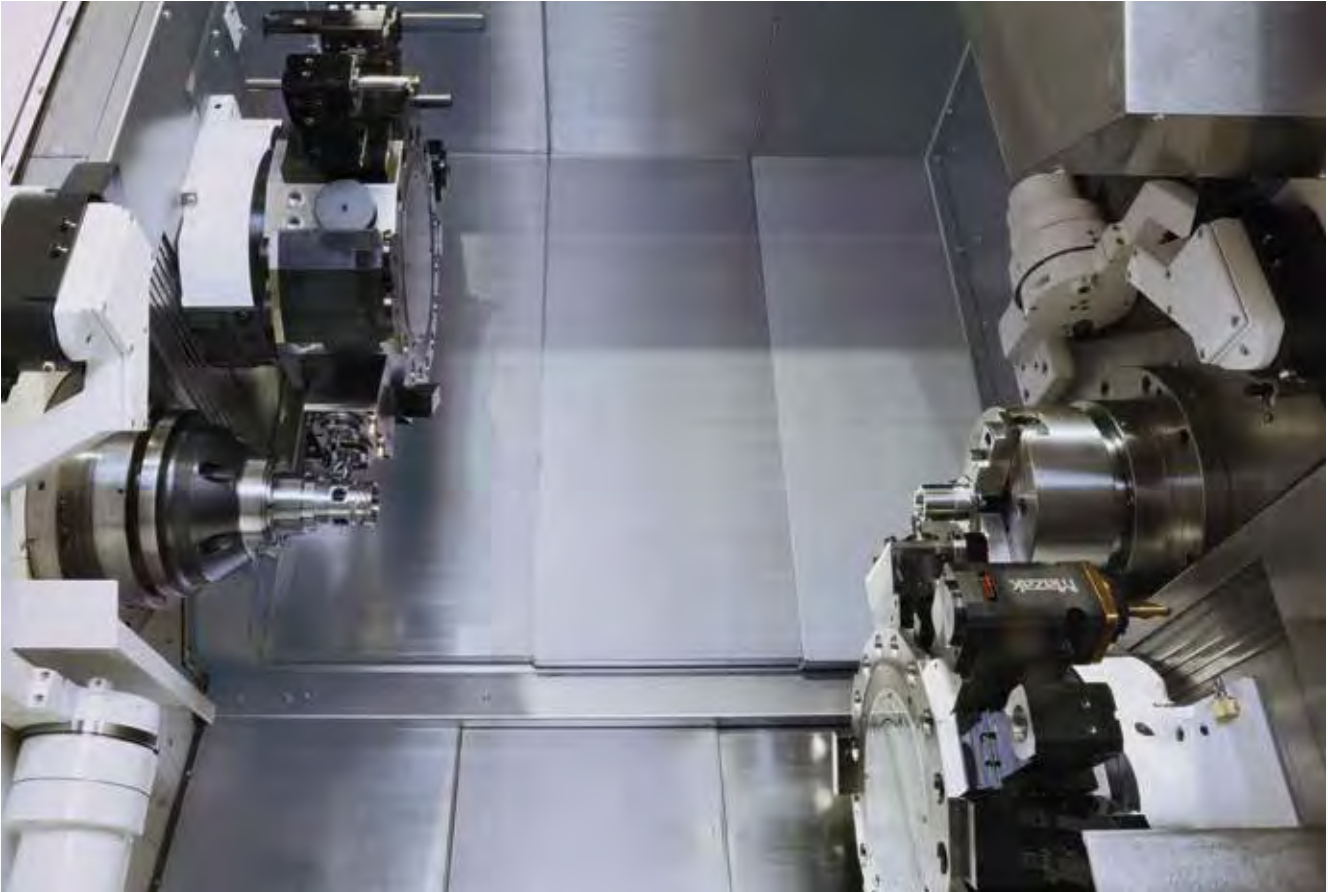
12-position drum turret		
100, 150 series	Drill ∅16 mm (∅0.63") Tap M16 × 2.0	Endmill ∅16 mm (∅0.63")
200, 250 series	Drill ∅20 mm (∅0.79") Tap M20 × 2.5	Endmill ∅20 (∅0.79")
16-position drum turret		
200, 250 series	Drill ∅16 mm (∅0.63") Tap M16 × 2.0	Endmill ∅16 mm (∅0.63")



## 16-position drum turret (200, 250 series)

OPTION

Turning tool shank	□20 mm (3/4")
Boring bar shank diameter	∅32 mm (∅1 - 1/4")



## VDI turret for convenient tool setup

The 12 position drum turret and 16 position drum turret\* use VDI tool holders for ease of tool setup. For fast tool setup changes, turn one bolt to mount tools easily on the turret.

\*200 and 250 series only



# Higher productivity

## Upper/lower turret Y-axis (MY, MSY)

The Y-axis stroke (upper turret: 100 mm (4"), lower turret: 100 mm (4")) makes it possible to perform a wide variety of machining.

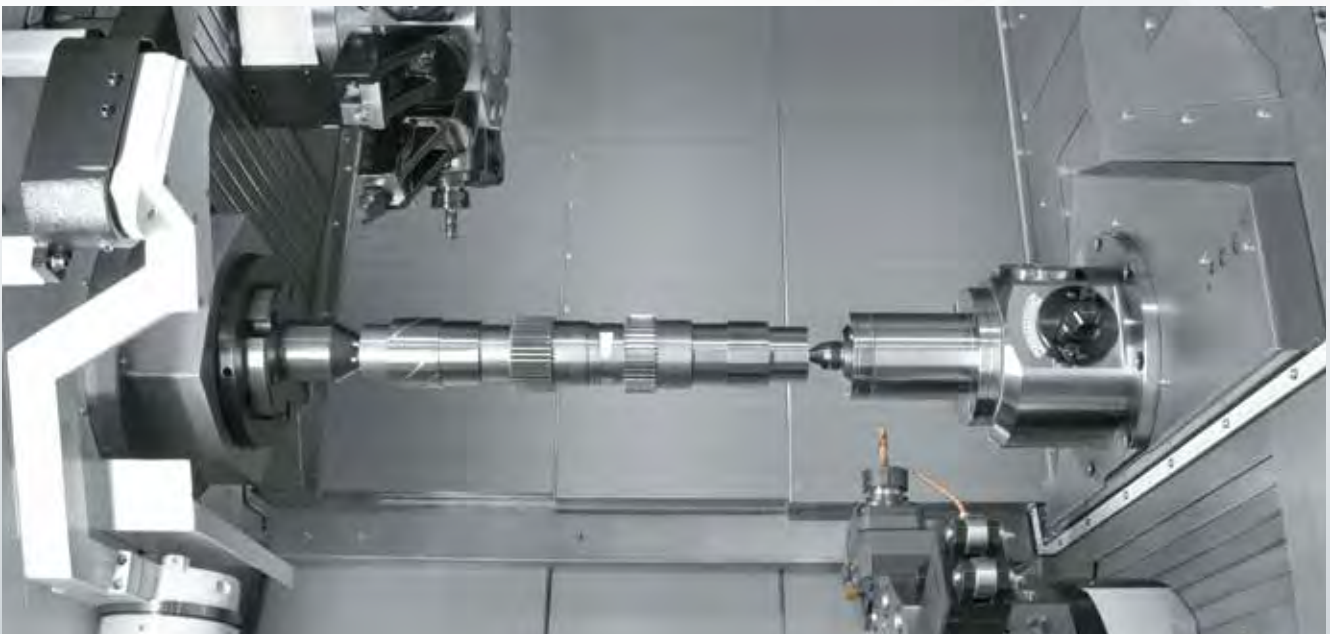


## Tailstock (MY)

The HQR-200MY and 250MY are equipped with a tailstock. Servo-motor controlled tailstock movement and thrust allow automation of shaft workpiece machining.

Thrust	7 kN
Tailstock center	No. 4 Built-in center (standard) No. 5 Dead center (option)

**Example: face driver on main spindle for complete machining of a shaft workpiece**



HQR-250MY shown

# Higher accuracy

## Heat Displacement Control – THERMAL SHIELD

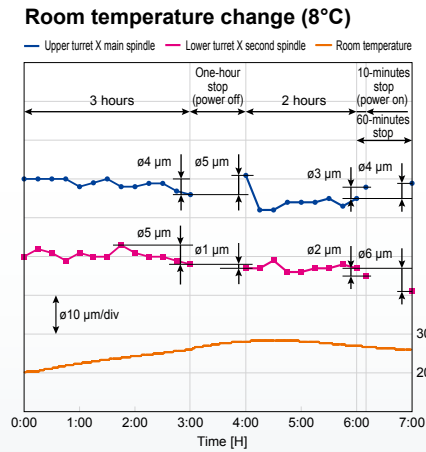
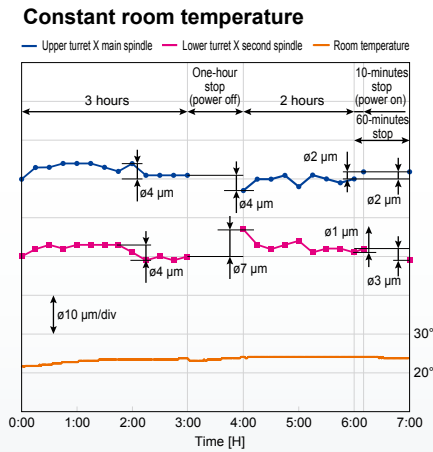
The THERMAL SHIELD is an automatic compensation for room temperature changes, which realizes enhanced continuous machining accuracy. Mazak has performed extensive testing in a variety of temperature-controlled environments and has used the results to develop a control system that compensates automatically for temperature changes in the machining area. Changes in the room temperature and compensation data are shown visually.

Temperature and compensation are displayed on the MAZATROL SmoothG screen. The operator can adjust compensation by looking at the data.



## Heat displacement of HQR-150MSY

Chuck size 6", max. machining diameter  $\phi 300$  mm ( $\phi 11.81$ " ), distance between chuck jaws 620 mm (24.41")

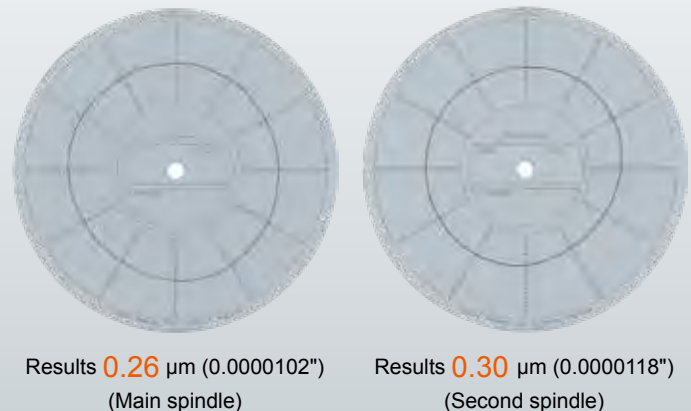


## Roundness

### HQR-150MSY test results

The inspection is conducted according to ISO-230 on a recommended foundation with room temperature controlled to  $22^{\circ}\text{C} \pm 1^{\circ}\text{C}$  ( $71.6^{\circ}\text{F} \pm 1.8^{\circ}\text{F}$ ) after machine has reached operating temperature.

Material	Brass JIS C3604
Spindle speed	3000 rpm
Machining conditions	Feedrate 0.03 mm/rev (0.001181"/rev) D.O.C 0.02 mm (0.000787402")
Tool	Diamond tool (DA2200) Nose R 0.4 mm (0.015748")



# Factory automation

A wide variety of optional equipment is available for the HQR series

## Bar feeder and workpiece unloader

Effective operation from bar material to finished workpiece.

The unloader hand is designed to prevent any marring of the finished workpiece surface.

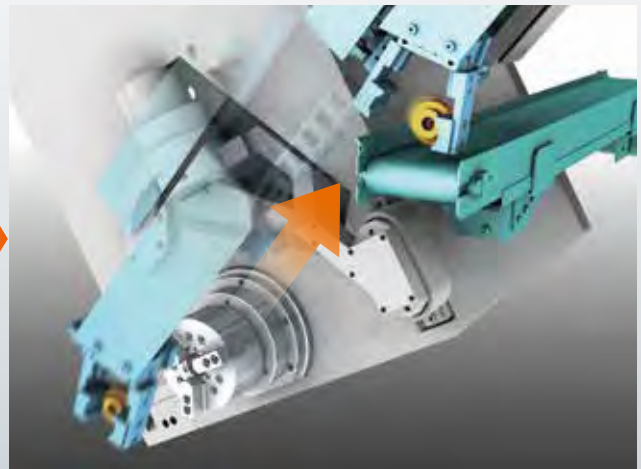
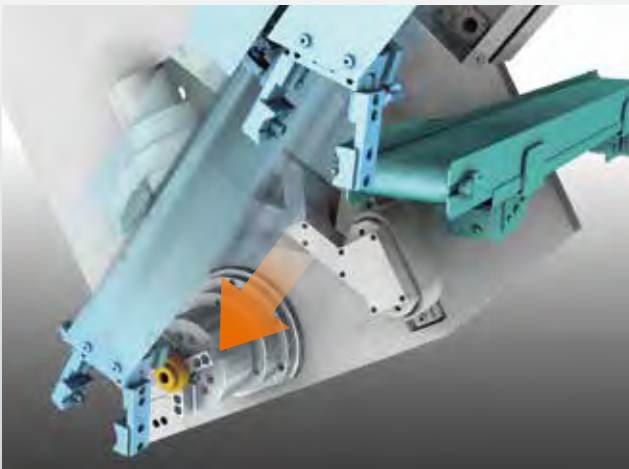


Workpiece unloader hand



## Workpiece unloader

The unloader removes the workpiece from the chuck and transfers it outside the machine without damaging machined surfaces. (Workpiece unloader is not available for the HQR-200MY and 250MY)



## Automatic operation system ROBOT LOADER 100

Chuck work can be automated by utilizing the work loader robot and conveyor.  
 Operation can be performed over extended periods of time to realize high productivity.



HQR-200MSY

### Automation for chuck workpieces

- Easy setup by MAZATROL
- Minimum floor space requirements
- Large pallet storage
- Safe operation

Standard hand	Double hands with 3 jaws for chuck workpieces (D3)
Max. workpiece weight	10 kg (22 lbs) × 2
Max. diameter	ø20 mm ~ ø150 mm (ø0.79" ~ ø5.91")
Workpiece length	20 mm ~ 100 mm (0.79" ~ 3.94")

Loading material



Unloading finished workpiece



Transferring workpiece to pallet



# MAZATROL CNC System



19" touch panel

USB port

SD card slot

Operation switches

Dials

Unsurpassed ease of operation  
with touch screen

MAZATROL **SMOOTHG**

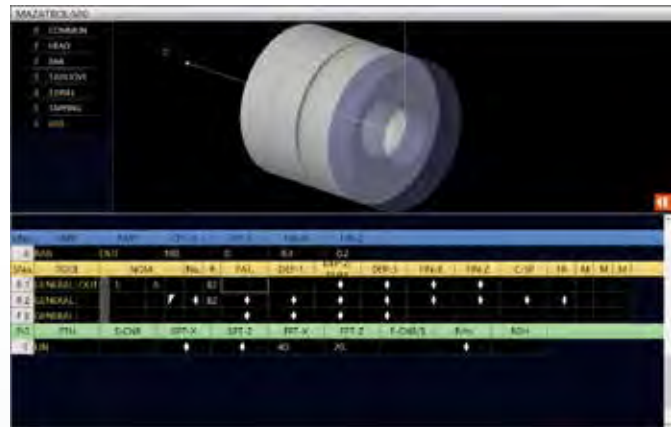
## 5 process home screens

Programming, confirmation, editing and tool data registration



### MAZATROL SmoothG CNC system – conversational programming for machining with upper and lower turrets

By simply selecting requirements for machining – such as workpiece material and surface finish – from the conversational menu and inputting data, cutting conditions and the tool path are made automatically. By combining these units, the entire machining program is easy to make with the MAZATROL SmoothG. Unlike standard EIA/ISO programs, the feedrate for each axis movement does not have to be determined and input. As a result, the number of program lines is reduced considerably.



Both upper and lower turrets are easily operated by conversational programs. To use the lower turret, all that is required to input is the lower turret mark [ ] for the respective tool in the program. Additionally, programs are easy to make for separate machining of both spindles by the upper and lower turrets, with simultaneous machining and balanced machining of both turrets thanks to the MAZATROL SmoothG conversational programming.



Select the turret to be used for machining

### Convenient balance cut programming

The balance cut program can be made conveniently just by selecting "balance cut" on the turning program unit.

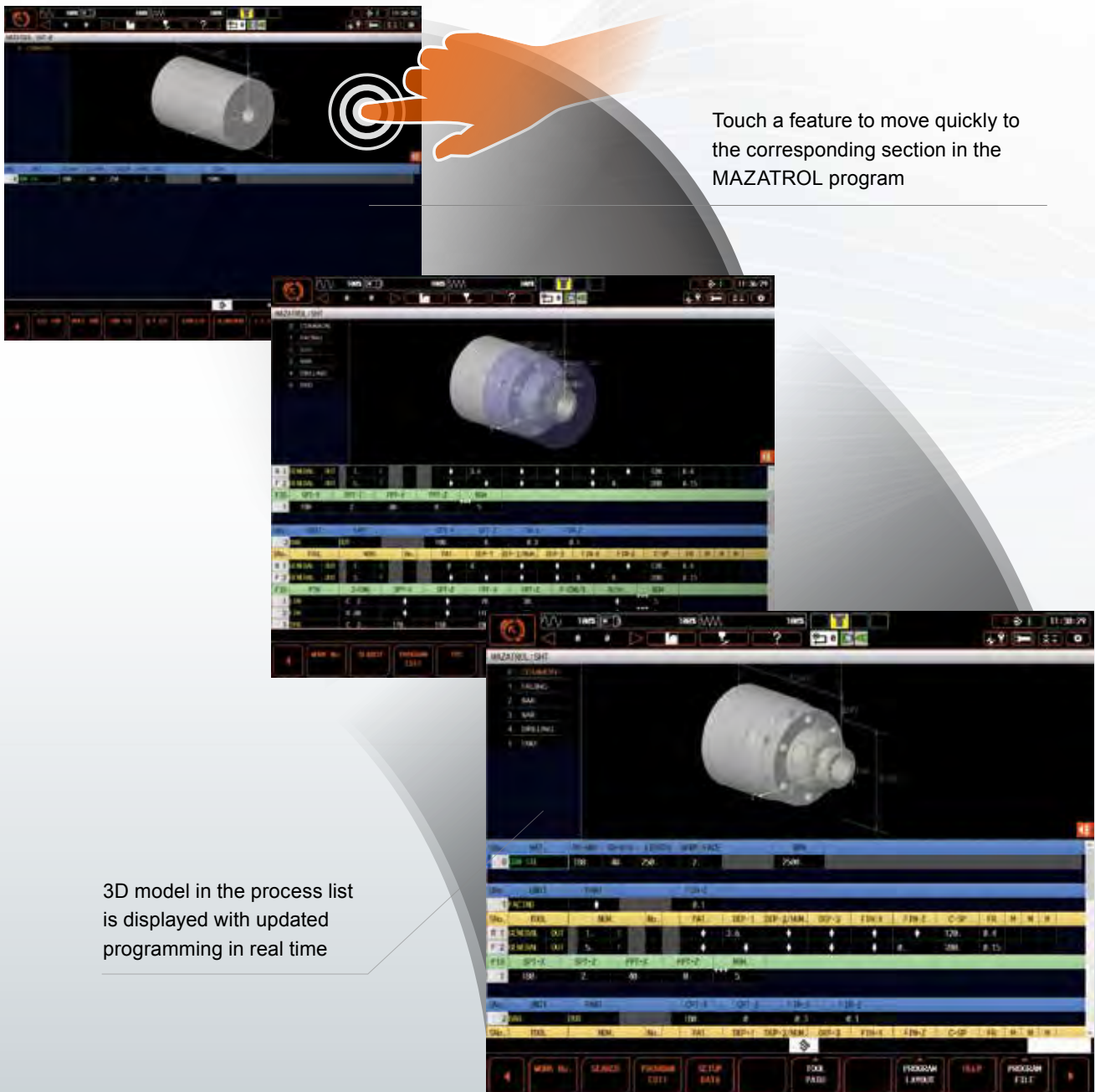


# Ease of programming

Programming screen links tool path, workpiece shape and programming to reduce programming time

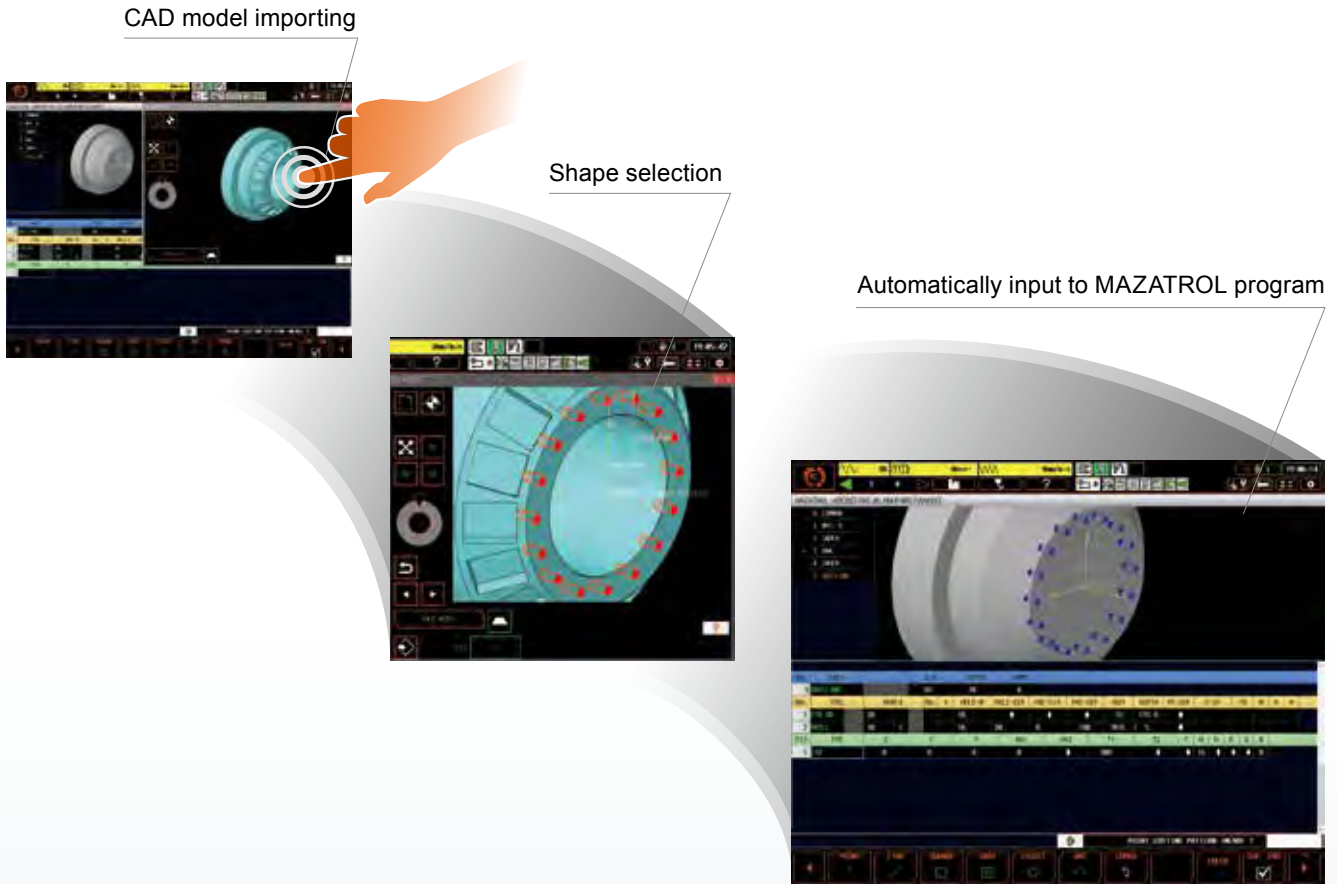
## QUICK MAZATROL

MAZATROL program, unit list and 3D workpiece shape are linked to each other. After defining a machining unit in a MAZATROL program, the 3D shape is displayed immediately to check for any programming error easily and quickly.



### 3D ASSIST

Workpiece and coordinate data can be imported from 3D CAD data to a MAZATROL program. No coordinate value inputs are required. This can reduce input errors and time for program checking.



### QUICK EIA

Program, process list and 3D tool path display are linked to each other. Visible search on touch screen can reduce the time for program checking.

Selecting tool path by touching the screen

Moving to the corresponding EIA program line



# MAZATROL SmoothG Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2~4 axes	
Minimum input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High speed, high precision control	Shape compensation, Smooth corner control, Rapid traverse overlap	
Interpolation	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Cylindrical interpolation, Polar coordinate interpolation, Constant lead threading, Re-threading*, Thread start point compensation*, Thread cut-speed override*, Synchronous tapping	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Constant lead threading, Variable lead threading, Helical interpolation, Constant lead threading, Variable lead threading, Threading (C-axis interpolation type), Cylindrical interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Re-threading*, Thread start point compensation*, Thread cut-speed override*, Synchronous tapping*
Feedrate	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (time/rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate limitation, G0 slope constant*	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (time/rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate limitation, Time constant changing for G1, Variable acceleration control, G0 slope constant*
Program registration	Number of programs: 256 (Standard)/960 (Max.) Program memory: 2MB, Program memory expansion: 8MB*, Program memory expansion: 32MB*	
Control display	Display: 19" touch panel, Resolution: SXGA	
Spindle function	S code output, Spindle speed limitation, Spindle speed override, Spindle speed reaching detection, Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Spindle speed range setting	
Tool functions	Number of tool offset: 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces), Tool life monitoring (wear)	Number of tool offset: 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces), Tool life monitoring (wear)
Miscellaneous functions	M code output, Simultaneous output of multiple M codes	
Tool offset functions	Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool nose shape offset, Tool wear offset, Fixed amount offset, Simple wear offset	Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool wear offset, Fixed amount offset, Simple wear offset
Coordinate system	Machine coordinate system, Work coordinate system, Local coordinate system, MAZATROL coordinate system, Additional work coordinates (300 set)	
Machine functions	-	Polygonal machining*, Hobbing*
Machine compensation	Backlash compensation, Pitch error compensation	
Protection functions	Emergency stop, Interlock, Pre-move stroke check, Barrier, SAFETY SHIELD (manual mode), SAFETY SHIELD (automatic mode)*, VOICE ADVISER	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, EtherNet operation*
Automatic operation control	Optional stop, Dry run, Manual handle interruption, MDI interruption, TPS, Restart, Single process, Machine lock	Optional block skip, Optional stop, Dry run, Manual handle interruption, MDI interruption, TPS, Restart, Restart2, Collation stop, Machine lock
Manual measuring function	Tool-setting data teach, Tool length teach, Touch sensor coordinates measurement, Workpiece offset measurement, Tool eye measurement	Tool-setting data teach, Tool length teach, Tool offset teach, Touch sensor coordinate measurement, Workpiece offset measurement, Tool eye measurement
Automatic measuring function	Workpiece measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection	
Interface	PROFIBUS-DP*, EtherNet I/P*, CC-Link*	
Memory	SD card interface, USB	
EtherNet	10M/100M/1Gbps	

\*Option

## 3D machine model

A 3D machine model is available to perform program interference checks with other CAD/CAM simulation software.



## Machine Specifications

		HQR-100MSY	HQR-150MSY
Capacity (upper/lower turret)	Max. swing	ø320 mm/ø270 mm (ø12.6"/ø10.63")	
	Max. machining diameter	ø300 mm/ø172 mm (ø11.625"/ø6.77")	
	Distance between chuck jaw faces (both spindles)	620 mm (24.375")	
	Bar work capacity*1	ø51 mm (ø2")	ø65 mm (ø2.56")
Travel (upper/lower turret)	X axis	175 mm/111 mm (6.875"/4.3125")	
	Y axis	100 mm (±50 mm)/70 mm (+20 ~ -50 mm) (4" [±2"]/2.75" [+0.75" ~ -2"])	
	Z axis	520 mm/580 mm (20.375"/22.75")	
Main spindle	Spindle speed**	6000 rpm	5000 rpm
	Spindle nose	A2-5	A2-6
	Spindle bore	ø61 mm (ø2.4")	ø76 mm (ø2.99")
	Rapid traverse rate : C-axis	555 rpm	
Second spindle	Spindle speed**	6000 rpm	
	Spindle nose	A2-5	
	Spindle bore	ø61 mm (ø2.4")	
	Second headstock stroke (W axis)	625 mm (24.5")	
	Second headstock positioning speed (W axis)	30000 mm/min (1181 IPM)	
	Rapid traverse rate: C axis	555 rpm	
Upper/lower turret	Turret type	12-position drum turret (VDI)	
	Number of tools	12 tools	
	Turning tool shank	□20 mm (3/4")	
	Boring bar shank diameter	ø32 mm (ø1-1/4")	
	Turret indexing time	0.2 s / 1 step	
Rotary tool spindle	Spindle speed	6000 rpm	
	Milling capacity	Drill: ø16 mm (ø0.63"), Endmill: 16 mm (0.63"), Tap: M16 × 2.0	
Feedrate (upper/lower turret)	Rapid traverse rate: X axis	30000 mm/min/24000 mm/min (1181 IPM / 945 IPM)	
	Rapid traverse rate: Y axis	26000 mm/min/20000 mm/min (1024 IPM / 787 IPM)	
	Rapid traverse rate: Z axis	40000 mm/min/40000 mm/min (1575 IPM / 1575 IPM)	
Motors	Main spindle (30-min. rating/cont. rating )	11 kW (15 HP)/7.5 kW (10 HP)	15 kW (20 HP)/11 kW (15 HP)
	Second spindle (30-min. rating/cont. rating )	11 kW (15 HP)/7.5 kW (10 HP)	
	Rotary tool spindle (10-min. rating)	5.5 kW (7.5 HP)	
Power requirement	Required power capacity (cont. rating)	34.2 kVA	39.2 kVA
	Air supply	0.5 MPa (72.5 PSI), 500 L/min (17.7 ft <sup>3</sup> /min)	
Coolant tank capacity	Tank capacity	251 L (66 gal)	
Machine size	Height	2413 mm (95")	
	Floor space requirement*2	2862 mm × 2290 mm (112.68" × 90.16")	
	Machine weight	9040 kg (19930 lbs)	9100 kg (20062 lbs)

\*1 Depends on chuck specifications

\*2 Operation panel and chip conveyor not included

# Machine Specifications

		HQR-200MS		HQR-200MY	HQR-200MSY	
		850U	1300U	700U	850U	1300U
Capacity (upper/lower turret)	Max. swing	ø370 mm/ø320 mm (ø14.6"/ø12.6")				
	Max. machining diameter	ø344 mm/ø212 mm (ø13.5"/ø8.35")				
	Distance between chuck jaw faces (both spindles)	860 mm (33.9")	1325 mm (52.2")	860 mm (33.9")	1325 mm (52.2")	
	Bar work capacity*1	ø65 mm (ø2.6")				
Travel (upper/lower turret)	X axis	207 mm/141 mm (8.2" / 5.5625")				
	Y axis	-		100 mm (±50 mm)/100 mm (±50 mm) (4" [±2] / 4" [±2])		
	Z axis	760 mm/815 mm (29.875"/32.125")	1225 mm/1280 mm (48.25"/50.5")	760 mm/815 mm (29.875"/32.125")	1225 mm/1280 mm (48.25"/50.5")	
Main spindle	Spindle speed*1	5000 rpm				
	Spindle nose	A2-6				
	Spindle bore	ø6 mm (ø2.99")				
	Rapid traverse rate: C axis	555 rpm				
Second spindle	Spindle speed*1	5000 rpm		-	5000 rpm	
	Spindle nose	A2-6				
	Spindle bore	ø76 mm (ø2.99")				
	Second headstock stroke (W axis)	865 mm (34.075")	1330 mm (52.375")	-	865 mm (34.075")	1330 mm (52.375")
	Second headstock positioning speed (W axis)	30000 mm/min (1181 IPM)		-	30000 mm/min (1181 IPM)	
	Rapid traverse rate: C axis	555 rpm		-	555 rpm	
Tailstock	Travel	-		705 mm	-	
	Tailstock center	-		No. 4 built-in center	-	
Upper/lower turret	Turret type	12-position drum turret (VDI)				
	Number of tools	12 tools				
	Turning tool shank	□25 mm (1")				
	Boring bar shank diameter	ø40 mm (ø1-1/2")				
	Turret indexing time	0.2 s/1 step				
Rotary tool spindle	Spindle speed	6000 rpm				
	Milling capacity	Drill: ø20 mm (ø0.79"), Endmill: 20 mm (0.79"), Tap: M20 × 2.5				
Feedrate (upper/lower turret)	Rapid traverse rate: X-axis	30000 mm/min/24000 mm/min (1181 IPM/945 IPM)				
	Rapid traverse rate: Y-axis	-		26000 mm/min/20000 mm/min (1024 IPM/787 IPM)		
	Rapid traverse rate : Z-axis	36000 mm/min/36000 mm/min (1417 IPM/1417 IPM)				
Motors	Main spindle (30-min. rating/cont. rating)	22 kW (30 HP)/15 kW (20 HP)				
	Second spindle (30-min. rating/cont. rating)	22 kW (30 HP)/15 kW (20 HP)		-	22 kW (30 HP)/15 kW (20 HP)	
	Rotary tool spindle (10-min. rating)	5.5 kW (7.5 HP)				
Power requirement	Required power capacity (cont. rating)	58.3 kVA		37.9 kVA	59.4 kVA	
	Air supply	0.5 MPa (72.5 PSI), 500 L/min (17.7 ft <sup>3</sup> / min)				
Coolant tank capacity	Tank capacity	310 L (82 gal)	400 L (106 gal)	310 L (82 gal)	400 L (106 gal)	
Machine size	Height	2497 mm (98.31")				
	Floor space requirement*2	3510 mm × 2641 mm (138.19" × 103.98")	4670 mm × 2701 mm (183.9" × 106.34")	3510 mm × 2641 mm (138.19" × 103.98")		4670 mm × 2701 mm (183.9" × 106.34")
	Machine weight	12200 kg (26896 lbs)	14200 kg (31305 lbs)	12400 kg (27337 lbs)	12600 kg (27778 lbs)	14700 kg (32407 lbs)

\*1 Depends on chuck specifications

\*2 Operation panel and chip conveyor not included

## Machine Specifications

		HQR-250MS		HQR-250MY	HQR-250MSY	
		850U	1300U	700U	850U	1300U
Capacity (upper/lower turret)	Max. swing	ø370 mm/ø320 mm (ø14.6"/ø12.6")				
	Max. machining diameter	ø344 mm/ø212 mm (ø13.5"/ø8.35")				
	Distance between chuck jaw faces (both spindles)	860 mm (33.86")	1325 mm (52.17")	860 mm (33.86")	1325 mm (52.17")	
	Bar work capacity** (main spindle/second spindle)	ø80 mm (ø3.15")/ø65 mm (ø2.6")				
Travel (upper / lower turret)	X axis	207 mm/141 mm (8.2"/5.5625")				
	Y axis	-		100 mm (±50 mm)/100 mm (±50 mm) (4" [±2"] / 4" [±2"])		
	Z axis	760 mm/815 mm (29.875"/32.125")	1225 mm/1280 mm (48.25"/50.5")	760 mm/815 mm (29.875"/32.125")		1225 mm/1280 mm (48.25"/50.5")
Main spindle	Spindle speed**	4000 rpm				
	Spindle nose	A2-8				
	Spindle bore	ø91 mm (ø3.58")				
	Rapid traverse rate: C axis	555 rpm				
Second spindle	Spindle speed**	5000 rpm		-	5000 rpm	
	Spindle nose	A2-6				
	Spindle bore	ø76 mm (ø2.99")				
	Second headstock stroke (W axis)	865 mm (34.075")	1330 mm (52.375")	-	865 mm (34.075")	1330 mm (52.375")
	Second headstock positioning speed (W axis)	30000 mm/min (1181 IPM)		-	30000 mm/min (1181 IPM)	
	Rapid traverse rate: C axis	555 rpm		-	555 rpm	
Tailstock	Travel	-		705 mm	-	
	Tailstock center	-		No. 4 built-in center	-	
Upper/lower turret	Turret type	12-position drum turret (VDI)				
	Number of tools	12 tools				
	Turning tool shank	□25 mm (1")				
	Boring bar shank diameter	ø40 mm (ø1-1/2")				
	Turret indexing time	0.2 s/1 step				
Rotary tool spindle	Spindle speed	6000 rpm				
	Milling capacity	Drill: ø20 mm (ø0.79"), Endmill: 20 mm (0.79"), Tap: M20 × 2.5				
Feedrate (upper/lower turret)	Rapid traverse rate: X axis	30000 mm/min/24000 mm/min (1181 IPM/945 IPM)				
	Rapid traverse rate: Y axis	-		26000 mm/min/20000 mm/min (1024 IPM/787 IPM)		
	Rapid traverse rate: Z axis	36000 mm/min/36000 mm/min (1417 IPM/1417 IPM)				
Motors	Main spindle (30-min. rating/cont. rating)	26 kW (35 HP)/22 kW (30 HP)				
	Second spindle (30-min. rating/cont. rating)	22 kW (30 HP)/15 kW (20 HP)		-	22 kW (30 HP)/15 kW (20 HP)	
	Rotary tool spindle (10-min. rating)	5.5 kW (7.5 HP)				
Power requirement	Required power capacity (cont. rating)	68.5 kVA		48.6 kVA	69.6 kVA	
	Air supply	0.5 MPa (72.5 PSI), 500 L/min (17.7 ft <sup>3</sup> / min)				
Coolant tank capacity	Tank capacity	310 L (82 gal)	400 L (106 gal)	310 L (82 gal)		400 L (106 gal)
Machine size	Height	2497 mm (98.31")				
	Floor space requirement**	3510 mm × 2641 mm (138.19" × 103.98")	4670 mm × 2701 mm (183.86" × 106.34")	3510 mm × 2641 mm (138.19" × 103.98")		4670 mm × 2701 mm (183.86" × 106.34")
	Machine weight	12600 kg (27778 lbs)	14600 kg (32187 lbs)	12800 kg (28219 lbs)	13000 kg (28660 lbs)	15100 kg (33289 lbs)

\*\* Depends on chuck specifications

\*\* Operation panel and chip conveyor not included

# Optional equipment

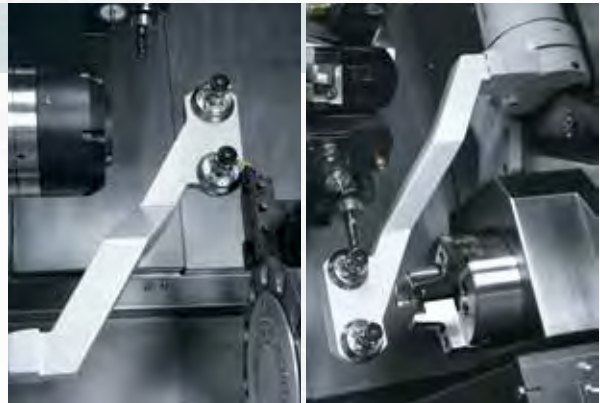
## Automatic opening/closing front door

The automatic opening/closing front door operates in 3 speed steps. If an operator inadvertently places a hand in the opening, operation will stop automatically on contact.



## Tool eye

The tool eye can be programmed for automatic tool measurement and compensation as well as inspection for tool breakage. In addition, because tool setup is done by simply bringing the tool tip into contact with the tool eye, tool setup time is considerably reduced.



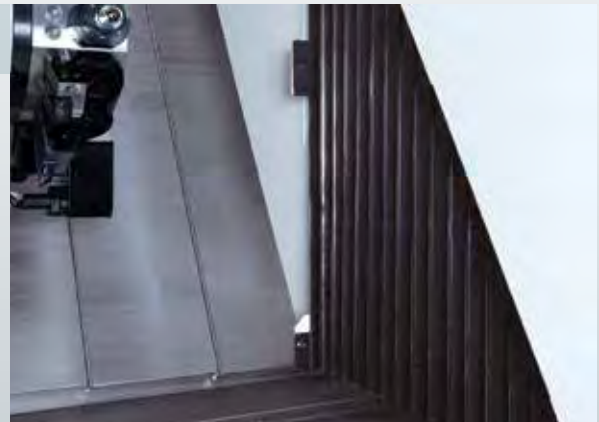
## Auto parts catcher

Auto parts catcher automatically moves workpieces to outside of the machine. By using a bar feeder and work conveyor, automatic operation can be performed.



## Area separator (1300U)

Thanks to the area separator, workpiece loading/unloading can be performed even during machining on the other side.



# Standard and Optional Equipment

		● : Standard ○ : Option - : N/A						
		100MSY	150MSY	200MS 850U	200MS 1300U	200MY 700U	200MSY 850U	200MSY 1300U
Machine	16 position drum turret (VDI)	-	-	○	○	○	○	○
	Rotary-tool spindle speed 6000 rpm/5.5 kw	●	●	●	●	●	●	●
	Rotary-tool spindle speed 6000 rpm/11 kw	○	○	○	○	○	○	○
	Absolute position detection	●	●	●	●	●	●	●
	Work light	●	●	●	●	●	●	●
	Double foot-pedal switch	○	○	○	○	○	○	○
	Foundation kit	●	●	●	●	●	●	●
Chuck	Through-hole chuck (B-206)	○	○	-	-	-	-	-
	Through-hole chuck (BB-06)	○	○	-	-	-	-	-
	Through-hole chuck (B-208)	-	-	○	○	○	○	○
	Through-hole chuck (BB-208)	-	-	○	○	○	○	○
	Collet chuck (SAD-50)	○	○	-	-	-	-	-
	Collet chuck (SAD-50, CB65-ND-A)	○	○	-	-	-	-	-
	Collet chuck (CB65-ND-A)	-	-	○	○	○	○	○
	Second spindle through-hole chuck (B-206)	○	○	-	-	-	-	-
	Second spindle through-hole chuck (BB-06)	○	○	-	-	-	-	-
	Second spindle through-hole chuck (B-208)	-	-	○	○	-	○	○
	Second spindle through-hole chuck (BB-208)	-	-	○	○	-	○	○
Safety equipment	Front door interlock	●	●	●	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●	●	●	●
	Overload detection	○	○	○	○	○	○	○
Factory automation	Automatic chuck jaw open/close	●	●	●	●	●	●	●
	Chuck open/close confirmation	●	●	●	●	●	●	●
	Coolant temperature control system	○	○	○	○	○	○	○
	Machining end buzzer	○	○	○	○	○	○	○
	Spindle orient	○	○	○	○	○	○	○
	Second spindle C-axis contouring (0.0001°)	○	○	○	○	-	○	○
	Calendar-type automatic power ON/OFF + warm-up operation	●	●	●	●	●	●	●
	Tool eye (main/second spindle)	●	●	●	●	● <sup>*1</sup>	●	●
	Workpiece measurement (upper turret)	○	○	○	○	○	○	○
	High/low chuck pressure (main/second spindle)	○	○	○	○	○*	○	○
	Main spindle chuck jaws air blast	○	○	○	○	○	○	○
	Second spindle chuck jaws air blast	●	●	●	●	-	●	●
	Turret air blast (upper/lower turret)	○	○	○	○	○	○	○
	Automatic front door open/close	○	○	○	○	○	○	○
	Area separator	-	-	-	○	-	-	○
	Mist collector	○	○	○	○	○	○	○
	Preparation for mist collector	○	○	○	○	○	○	○
	Automatic power off	●	●	●	●	●	●	●
	Status light (3 colors)	○	○	○	○	○	○	○
	Status light (1 color)	○	○	○	○	○	○	○
Workpiece supporter	○	○	○	○	○	○	○	
Tail center attachment	○	○	○	○	○	○	○	
Bar feeder interface	○	○	○	○	○	○	○	
Filler tube	○	○	○	○	○	○	○	
Workpiece unloader + workpiece conveyor	○	○	○	○	-	○	○	
Robot interface	○	○	○	○	○	○	○	
Robot system	-	-	○	○	○	○	○	
Scale feedback (X1, X2)	○	○	○	○	○	○	○	
Scale feedback (Z1)	○	○	○	○	○	○	○	
Coolant/ chip disposal	Splash guard	●	●	●	●	●	●	●
	Coolant tank (251 L (66 gal))	●	●	-	-	-	-	-
	Coolant tank (310 L (82 gal))	-	-	●	-	●	●	-
	Coolant tank (400 L (106 gal))	-	-	-	●	-	-	●
	Coolant system	●	●	●	●	●	●	●
	Powerful coolant 1.1 kW	○	○	○	○	○	○	○
	High pressure coolant 1.5 kW	○	○	○	○	○	○	○
	Additional coolant (main/second spindle)	○	○	○	○	○ <sup>*1</sup>	○	○
	Chip conveyor (side/rear discharge)	○	○	○	○ <sup>*2</sup>	○	○	○ <sup>*2</sup>
	Chip bucket (fixed/rotary type)	○	○	○	○	○	○	○
Oil skimmer	○	○	○	○	○	○	○	
Other	Adjustment tools	●	●	●	●	●	●	●
	One set of manuals	●	●	●	●	●	●	●
	Standard tooling package	●	●	●	●	●	●	●

\*1: Not on second spindle side

\*2: Side discharge chip conveyor only for 1300U

The above specifications are for the North American market. Standard and optional equipment vary by market.

# Standard and Optional Equipment

●: Standard ○: Option -: N/A

		250MS 850U	250MS 1300U	250MY 700U	250MSY 850U	250MSY 1300U
Machine	16 position drum turret (VDI)	○	○	○	○	○
	Rotary-tool spindle speed 6000 rpm/5.5 kw	●	●	●	●	●
	Rotary-tool spindle speed 6000 rpm/11 kw	○	○	○	○	○
	4000 rpm second spindle bore ø91 mm	○	○	-	○	○
	Absolute position detection	●	●	●	●	●
	Work light	●	●	●	●	●
	Double foot-pedal switch	○	○	○	○	○
Foundation kit	●	●	●	●	●	
Chuck	Through-hole chuck (B-208)	-	-	○	-	-
	Through-hole chuck (BB-208)	-	-	○	-	-
	Through-hole chuck (BB-210)	○	○	-	○	○
	Collet chuck (CB65-ND-A)	-	-	○	-	-
	Second spindle through-hole chuck (B-208)	○	○	-	○	○
	Second spindle through-hole chuck (BB-208)	○	○	-	○	○
Second spindle through-hole chuck (BB-210)	○	○	-	○	○	
Safety equipment	Front door interlock	●	●	●	●	●
	Hydraulic pressure interlock	●	●	●	●	●
	Overload detection	○	○	○	○	○
Factory automation	Automatic chuck jaw open/close	●	●	●	●	●
	Chuck open/close confirmation	●	●	●	●	●
	Coolant temperature control system	○	○	○	○	○
	Machining end buzzer	○	○	○	○	○
	Spindle orient	○	○	○	○	○
	Second spindle C-axis contouring (0.0001°)	○	○	-	○	○
	Calendar-type automatic power ON/OFF + warm-up operation	●	●	●	●	●
	Tool eye (main/second spindle)	●	●	● <sup>*1</sup>	●	●
	Workpiece measurement (upper turret)	○	○	○	○	○
	High/low chuck pressure (main/second spindle)	○	○	○ <sup>*1</sup>	○	○
	Main spindle chuck jaws air blast	○	○	○	○	○
	Second spindle chuck jaws air blast	●	●	-	●	●
	Turret air blast (upper/lower turret)	○	○	○	○	○
	Automatic front door open/close	○	○	○	○	○
	Area separator	-	○	-	-	○
	Mist collector	○	○	○	○	○
	Preparation for mist collector	○	○	○	○	○
	Automatic power off	●	●	●	●	●
	Status light (3 colors)	○	○	○	○	○
	Status light (1 color)	○	○	○	○	○
	Workpiece supporter	○	○	○	○	○
	Tail center attachment	○	○	○	○	○
	Bar feeder interface	○	○	○	○	○
	Filler tube	○	○	○	○	○
	Workpiece unloader + workpiece conveyor	○	○	-	○	○
	Robot interface	○	○	○	○	○
	Robot system	○	○	○	○	○
Scale feedback (X1, X2)	○	○	○	○	○	
Scale feedback (Z1)	○	○	○	○	○	
Coolant/ chip disposal	Splash guard	●	●	●	●	●
	Coolant tank (251 L (66 gal))	-	-	-	-	-
	Coolant tank (310 L (82 gal))	●	-	●	●	-
	Coolant tank (400 L (106 gal))	-	●	-	-	●
	Coolant system	●	●	●	●	●
	Powerful coolant 1.1 kW	○	○	○	○	○
	High pressure coolant 1.5 kW	○	○	○	○	○
	Additional coolant (main/second spindle)	○	○	○ <sup>*1</sup>	○	○
	Chip conveyor (side/rear discharge)	○	○ <sup>*2</sup>	○	○	○ <sup>*2</sup>
	Chip bucket (fixed/rotary type)	○	○	○	○	○
Oil skimmer	○	○	○	○	○	
Other	Adjustment tools	●	●	●	●	●
	One set of manuals	●	●	●	●	●
	Standard tooling package	●	●	●	●	●

\*1: Not on second spindle side

\*2: Side discharge chip conveyor only for 1300U

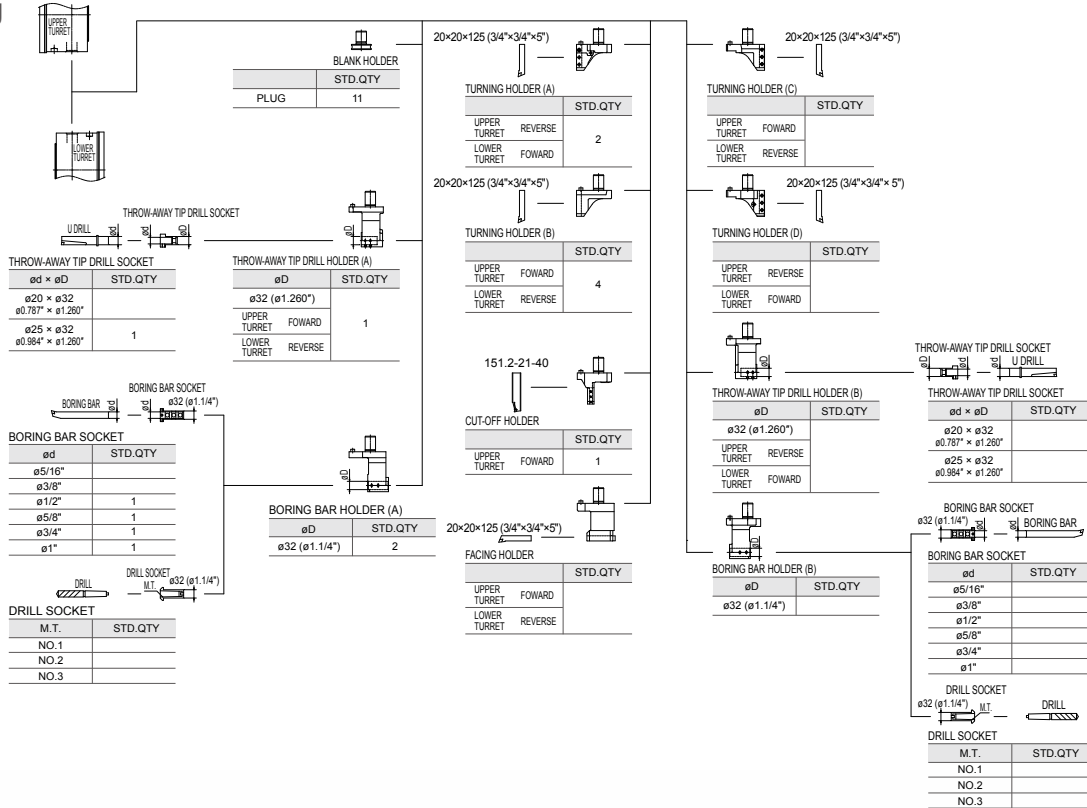
The above specifications are for the North American market. Standard and optional equipment vary by market.

# Tooling System

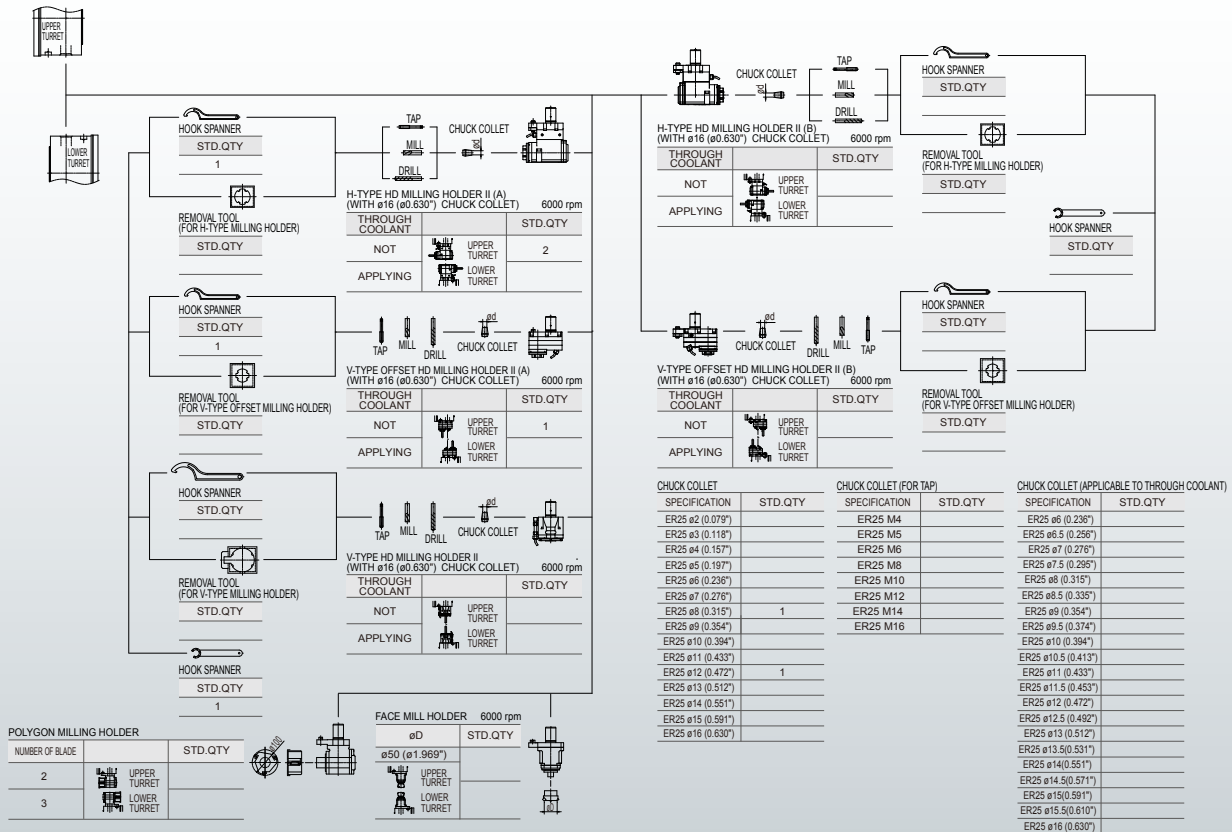
Unit: mm (inch)

## HQR-100, 150 series 12 position upper/lower turret

### Turning



### Milling



## HQR-200 series 12 position upper/lower turret

### Turning

**BLANK HOLDER**

CAP	STD.QTY	
	MSMSY	MY
PLUG	11	11

**TURNING HOLDER (A)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	REVERSE	2	1
LOWER TURRET	FORWARD		

**TURNING HOLDER (B)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	FORWARD	4	2
LOWER TURRET	REVERSE		

**TURNING HOLDER (C)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	FORWARD		1
LOWER TURRET	REVERSE		

**TURNING HOLDER (D)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	REVERSE		2
LOWER TURRET	FORWARD		

**THROW-AWAY TIP DRILL SOCKET**

ød × øD	STD.QTY	
	MSMSY	MY
ø20 × ø40 (ø0.787" × ø1.575")	1	1
ø25 × ø40 (ø0.984" × ø1.575")		
ø32 × ø40 (ø1.260" × ø1.575")		

**THROW-AWAY TIP DRILL HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø40 (ø1.575")	1	1
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**BORING BAR SOCKET**

ød	STD.QTY	
	MSMSY	MY
ø5/16"		
ø3/8"		
ø1/2"		
ø5/8"	1	1
ø3/4"	1	1
ø1"	1	1
ø1.14"	1	1

**BORING BAR HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø40 (ø1.125")	2	1
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**CUT-OFF HOLDER**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	FORWARD	1	

**FACING HOLDER**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	REVERSE		
LOWER TURRET	FORWARD		

**THROW-AWAY TIP DRILL HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø40 (ø1.575")		
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**BORING BAR HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø1.1/2"	1	
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

## HQR-250 series 12 position upper/lower turret

### Turning

**BLANK HOLDER**

CAP	STD.QTY	
	MSMSY	MY
PLUG	11	11

**TURNING HOLDER (A)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	REVERSE	2	1
LOWER TURRET	FORWARD		

**TURNING HOLDER (B) \*CHUCK SIZE OF THE SECONDARY SPINDLE**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	FORWARD	4	3
LOWER TURRET	REVERSE		2

**TURNING HOLDER (C)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	FORWARD		1
LOWER TURRET	REVERSE		

**TURNING HOLDER (D)**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	REVERSE		2
LOWER TURRET	FORWARD		

**THROW-AWAY TIP DRILL SOCKET**

ød × øD	STD.QTY	
	MSMSY	MY
ø20 × ø40 (ø0.787" × ø1.575")		
ø25 × ø40 (ø0.984" × ø1.575")	1	1
ø32 × ø40 (ø1.260" × ø1.575")		

**THROW-AWAY TIP DRILL HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø40 (ø1.575")	1	1
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**BORING BAR SOCKET**

ød	STD.QTY	
	MSMSY	MY
ø5/16"		
ø3/8"		
ø1/2"		
ø5/8"	1	1
ø3/4"	1	1
ø1"	1	1
ø1.14"	1	1

**BORING BAR HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø40 (ø1.125")	2	1
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**CUT-OFF HOLDER**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	FORWARD	1	

**FACING HOLDER**

		STD.QTY	
		MSMSY	MY
UPPER TURRET	REVERSE		
LOWER TURRET	FORWARD		

**THROW-AWAY TIP DRILL HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø40 (ø1.575")		
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**BORING BAR HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø1.1/2"	1	
UPPER TURRET	REVERSE	
LOWER TURRET	FORWARD	

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

**DRILL SOCKET**

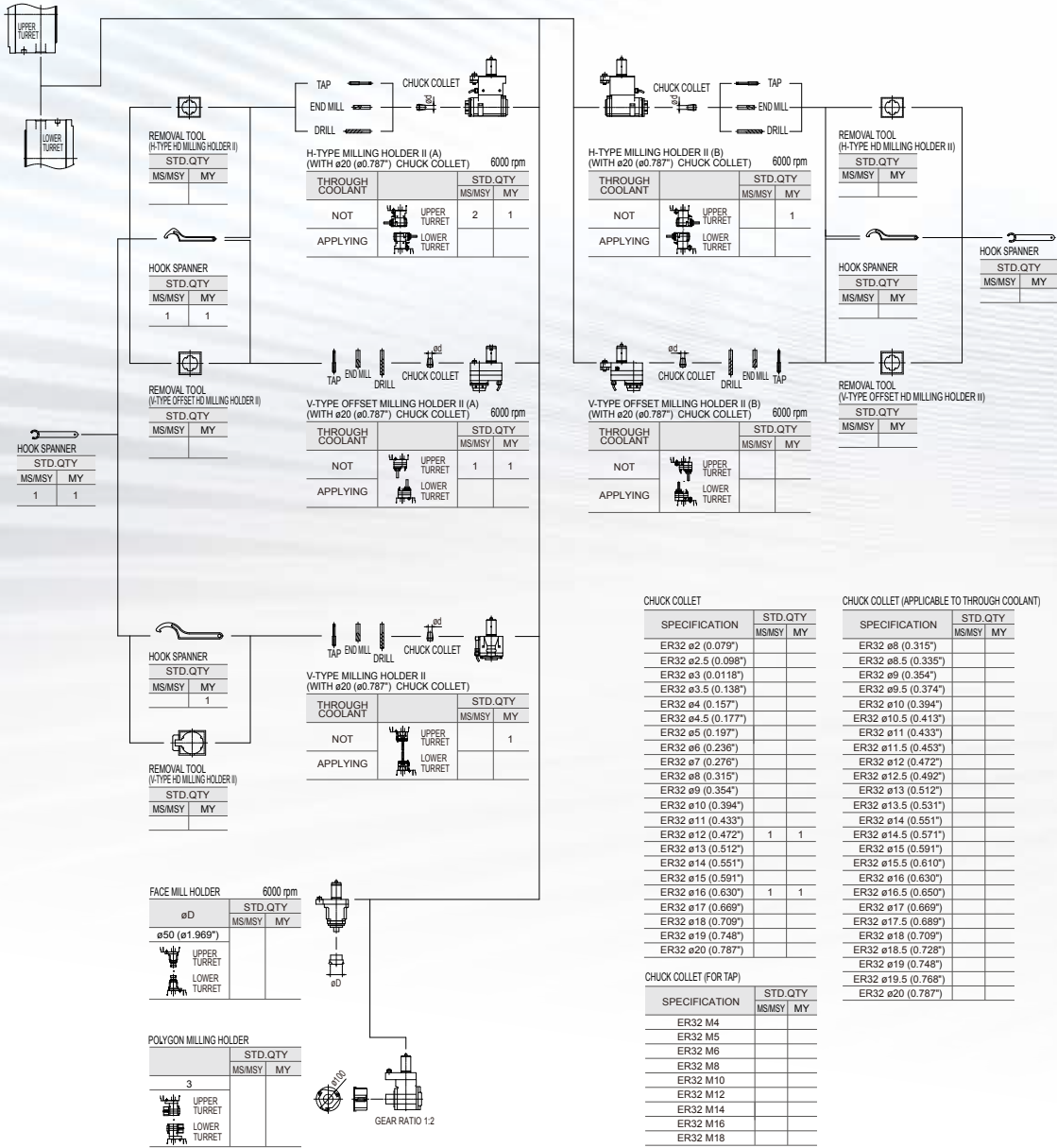
M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

Unit: mm (inch)

# Tooling System

## HQR-200, 250 series 12 position upper/lower turret

### Milling



#### CHUCK COLLET

SPECIFICATION	STD.QTY	
	MSMSY	MY
ER32 ø2 (0.079")		
ER32 ø2.5 (0.098")		
ER32 ø3 (0.118")		
ER32 ø3.5 (0.138")		
ER32 ø4 (0.157")		
ER32 ø4.5 (0.177")		
ER32 ø5 (0.197")		
ER32 ø6 (0.236")		
ER32 ø7 (0.276")		
ER32 ø8 (0.315")		
ER32 ø9 (0.354")		
ER32 ø10 (0.394")		
ER32 ø11 (0.433")		
ER32 ø12 (0.472")	1	1
ER32 ø13 (0.512")		
ER32 ø14 (0.551")		
ER32 ø15 (0.591")		
ER32 ø16 (0.630")	1	1
ER32 ø17 (0.669")		
ER32 ø18 (0.709")		
ER32 ø19 (0.748")		
ER32 ø20 (0.787")		

#### CHUCK COLLET (APPLICABLE TO THROUGH COOLANT)

SPECIFICATION	STD.QTY	
	MSMSY	MY
ER32 ø8 (0.315")		
ER32 ø8.5 (0.335")		
ER32 ø9 (0.354")		
ER32 ø9.5 (0.374")		
ER32 ø10 (0.394")		
ER32 ø10.5 (0.413")		
ER32 ø11 (0.433")		
ER32 ø11.5 (0.453")		
ER32 ø12 (0.472")		
ER32 ø12.5 (0.492")		
ER32 ø13 (0.512")		
ER32 ø13.5 (0.531")		
ER32 ø14 (0.551")		
ER32 ø14.5 (0.571")		
ER32 ø15 (0.591")		
ER32 ø15.5 (0.610")		
ER32 ø16 (0.630")		
ER32 ø16.5 (0.650")		
ER32 ø17 (0.669")		
ER32 ø17.5 (0.689")		
ER32 ø18 (0.709")		
ER32 ø18.5 (0.728")		
ER32 ø19 (0.748")		
ER32 ø19.5 (0.768")		
ER32 ø20 (0.787")		

#### CHUCK COLLET (FOR TAP)

SPECIFICATION	STD.QTY	
	MSMSY	MY
ER32 M4		
ER32 M5		
ER32 M6		
ER32 M8		
ER32 M10		
ER32 M12		
ER32 M14		
ER32 M16		
ER32 M18		

## HQR-200 series 16 position upper/lower turret (OPTION)

### Turning

**BLANK HOLDER**

STD.QTY	
MSMSY	MY
12	12

**THROW-AWAY TIP DRILL HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.260")	1	1

**THROW-AWAY TIP DRILL SOCKET**

ød × øD	STD.QTY	
	MSMSY	MY
ø20 × ø32 ø0.787" × ø1.260"	1	1
ø25 × ø32 ø0.984" × ø1.260"		

**BORING BAR SOCKET**

ød	STD.QTY	
	MSMSY	MY
ø5/16"		
ø3/8"		
ø1/2"	1	1
ø5/8"	1	1
ø3/4"	1	1
ø1"	1	1

**BORING BAR HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.14")	4	2

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

**TURNING HOLDER (A)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET REVERSE	4
LOWER TURRET FORWARD	2

**TURNING HOLDER (B)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	5
LOWER TURRET REVERSE	3

**TURNING HOLDER (C)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	2
LOWER TURRET REVERSE	

**TURNING HOLDER (D)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET REVERSE	2
LOWER TURRET FORWARD	

**CUT-OFF HOLDER** 151.2-21-40

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	1

**FACING HOLDER** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	1
LOWER TURRET REVERSE	

**TURNING HOLDER (E)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	1
LOWER TURRET REVERSE	1

**BORING BAR HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.14")	2	

**THROW-AWAY TIP DRILL HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.260")		

**THROW-AWAY TIP DRILL SOCKET**

ød × øD	STD.QTY	
	MSMSY	MY
ø20 × ø32 ø0.787" × ø1.260"		
ø25 × ø32 ø0.984" × ø1.260"		

**BORING BAR SOCKET**

ød	STD.QTY	
	MSMSY	MY
ø5/16"		
ø3/8"		
ø1/2"		
ø5/8"		
ø3/4"		
ø1"		

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

## HQR-250 series 16 position upper/lower turret (OPTION)

### Turning

**BLANK HOLDER**

STD.QTY	
MSMSY	MY
12	12

**THROW-AWAY TIP DRILL HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.260")	1	1

**THROW-AWAY TIP DRILL SOCKET**

ød × øD	STD.QTY	
	MSMSY	MY
ø20 × ø32 ø0.787" × ø1.260"	1	1
ø25 × ø32 ø0.984" × ø1.260"		

**BORING BAR SOCKET**

ød	STD.QTY	
	MSMSY	MY
ø5/16"		
ø3/8"		
ø1/2"	1	1
ø5/8"	1	1
ø3/4"	1	1
ø1"	1	1

**BORING BAR HOLDER (A)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.14")	4	2

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

**TURNING HOLDER (A)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET REVERSE	4
LOWER TURRET FORWARD	2

**TURNING HOLDER (B)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	5
LOWER TURRET REVERSE	3

**TURNING HOLDER (C)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	2
LOWER TURRET REVERSE	

**TURNING HOLDER (D)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET REVERSE	2
LOWER TURRET FORWARD	

**CUT-OFF HOLDER** 151.2-21-40

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	1

**FACING HOLDER** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	1
LOWER TURRET REVERSE	

**TURNING HOLDER (E)** 20"×20"×125" (3/4"×3/4"×5")

STD.QTY	
MSMSY	MY
UPPER TURRET FORWARD	1
LOWER TURRET REVERSE	1

**BORING BAR HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.14")	2	

**THROW-AWAY TIP DRILL HOLDER (B)**

øD	STD.QTY	
	MSMSY	MY
ø32 (ø1.260")		

**THROW-AWAY TIP DRILL SOCKET**

ød × øD	STD.QTY	
	MSMSY	MY
ø20 × ø32 ø0.787" × ø1.260"		
ø25 × ø32 ø0.984" × ø1.260"		

**BORING BAR SOCKET**

ød	STD.QTY	
	MSMSY	MY
ø5/16"		
ø3/8"		
ø1/2"		
ø5/8"		
ø3/4"		
ø1"		

**DRILL SOCKET**

M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

**DRILL SOCKET** ø32 (ø1.14")

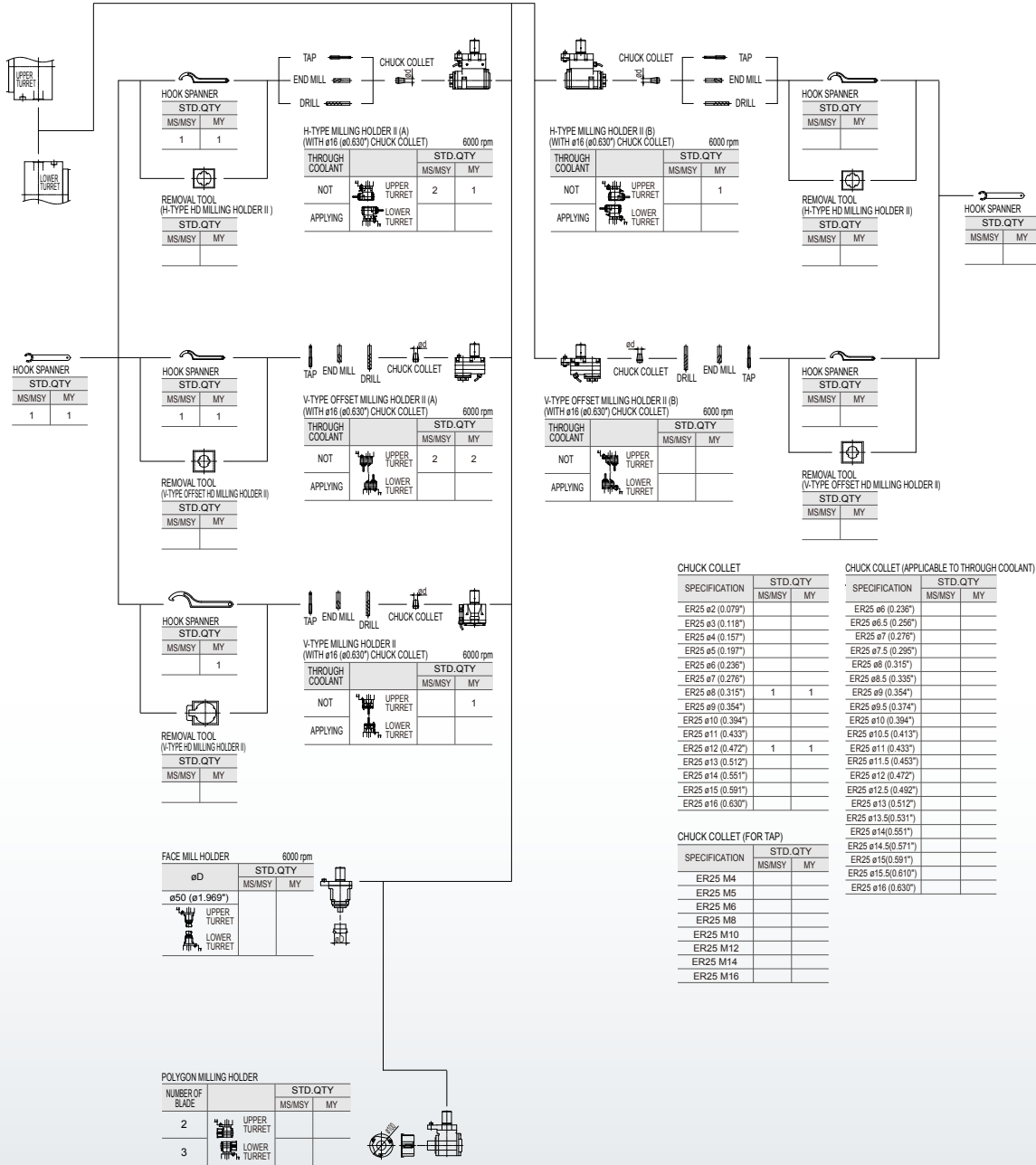
M.T.	STD.QTY	
	MSMSY	MY
NO.1		
NO.2		
NO.3		

# Tooling System

Unit: mm (inch)

## HQR-200, 250 series 16 position upper/lower turret (OPTION)

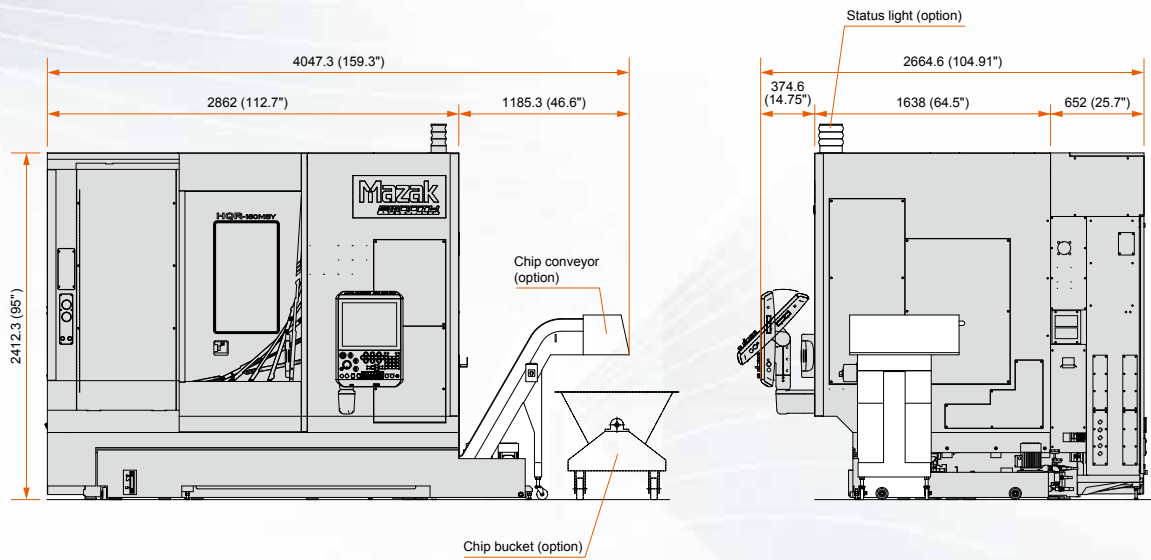
### Milling



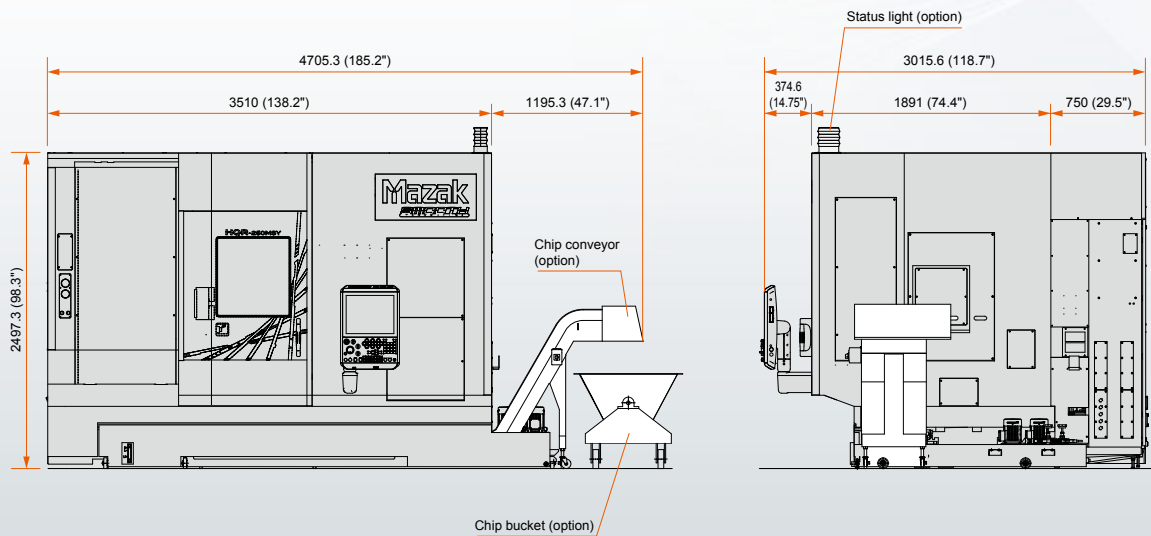
# Machine Dimensions

Unit: mm (inch)

## HQR-100MSY, 150MSY



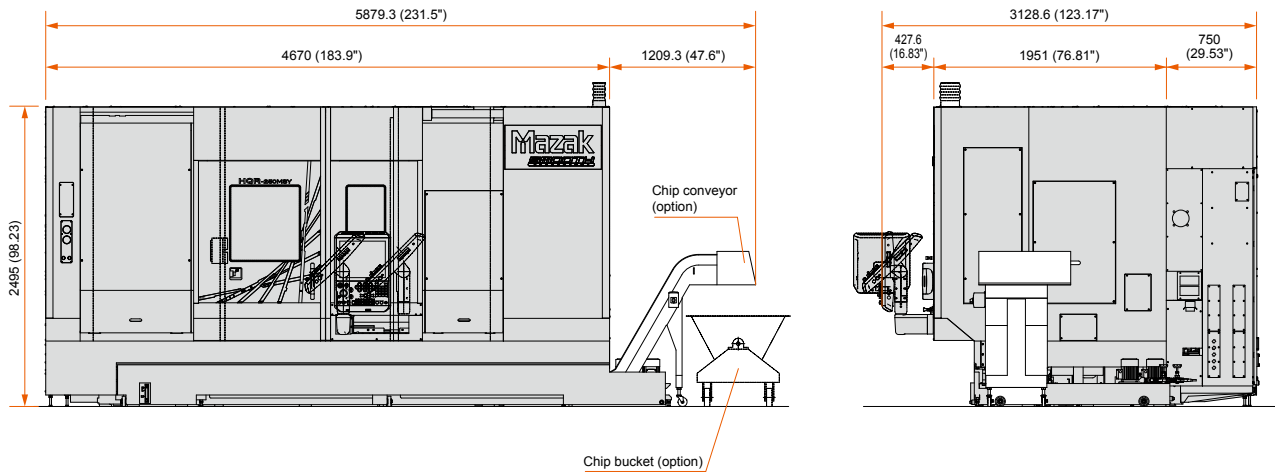
## HQR-200MS, 200MSY, 250MS, 250MSY 850U HQR-200MY, 250MY 700 U



# Machine Dimensions

Unit: mm (inch)

## HQR-200MS, 200MSY, 250MS, 250MSY 1300U



# Mazak

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