

MULTIPLEX II

S E R I E S

4200-II

6200-II

6200-IIY

6300-II

6300-IIY

Symmetrical machine design with double spindles and double turrets makes unique multiplex processing possible

Continuous / simultaneous machining by both spindles thanks to automatic workpiece transfer from one spindle to the other

2-Spindle, 2-Turret CNC Turning Centers

MULTIPLEX 4200-II

A CNC lathe with symmetrically located spindles and turrets finishes a workpiece in every cycle.

MULTIPLEX 4200-II equipped with MAZATROL MATRIX 2 CNC, ensures higher productivity



2-Spindle, 2-Turret Multi-tasking CNC Turning Centers

MULTIPLEX 6200-II 6300-II

In addition to the 4200-II turning operation, 6200-II and 6300-II ensure high-accuracy machining in drilling and mill contouring.



(Shown above is MULTIPLEX 6200-II)

2-Spindle, 2-Turret Multi-tasking CNC Turning Centers

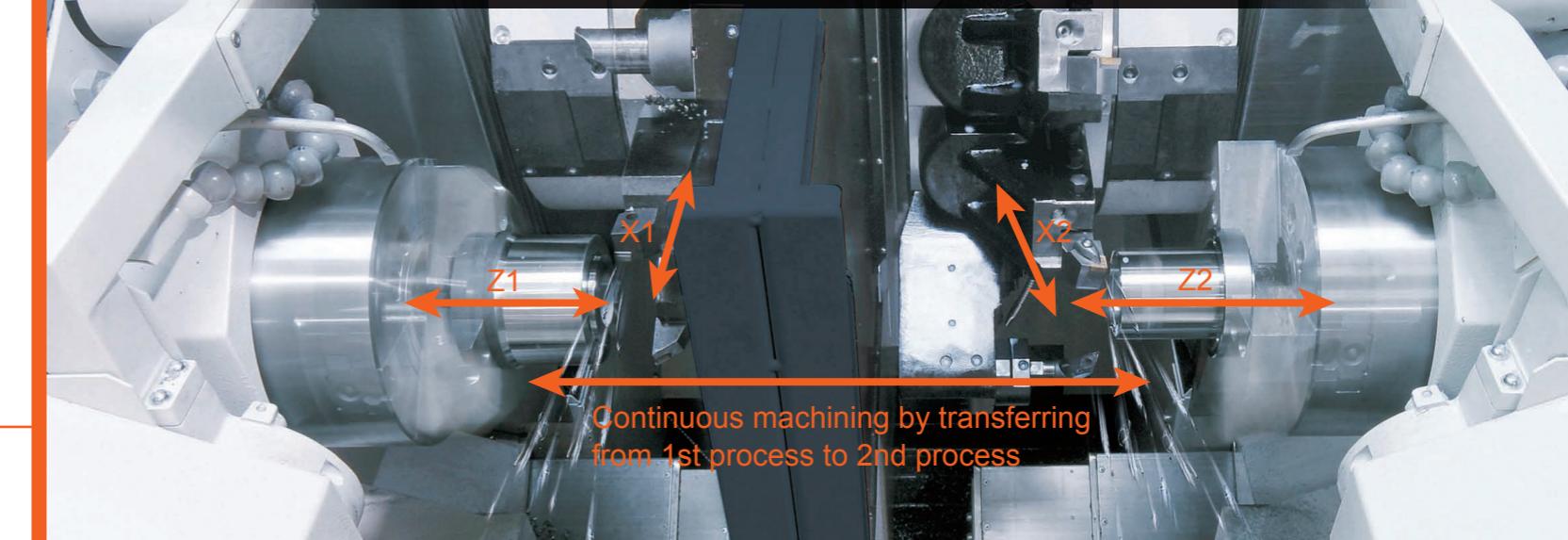
MULTIPLEX 6200-IIY 6300-IIY

In addition to the turning and X/Z milling operations, 6200-IIY and 6300-IIY ensure high precision finish machining of keyways by Y-axis.

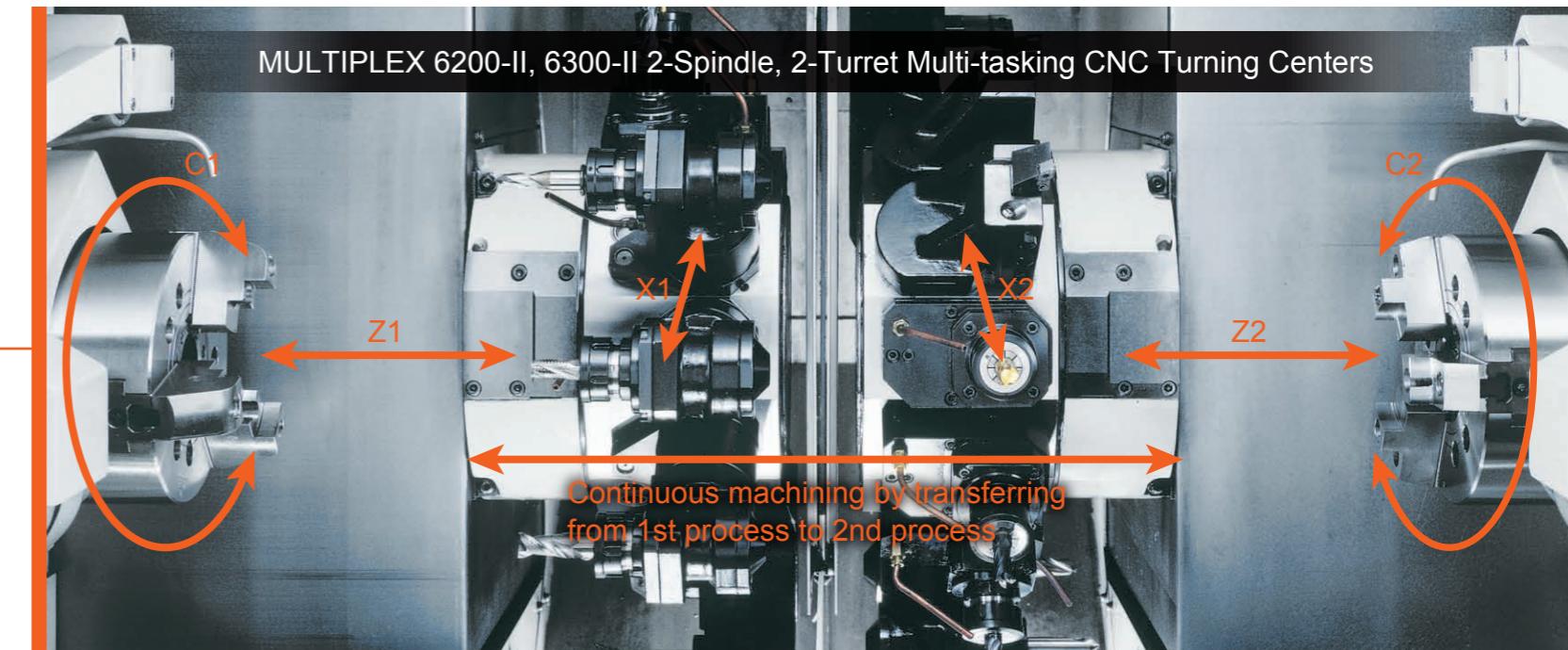


(Shown above is 6200-IIY equipped with gantry loader)

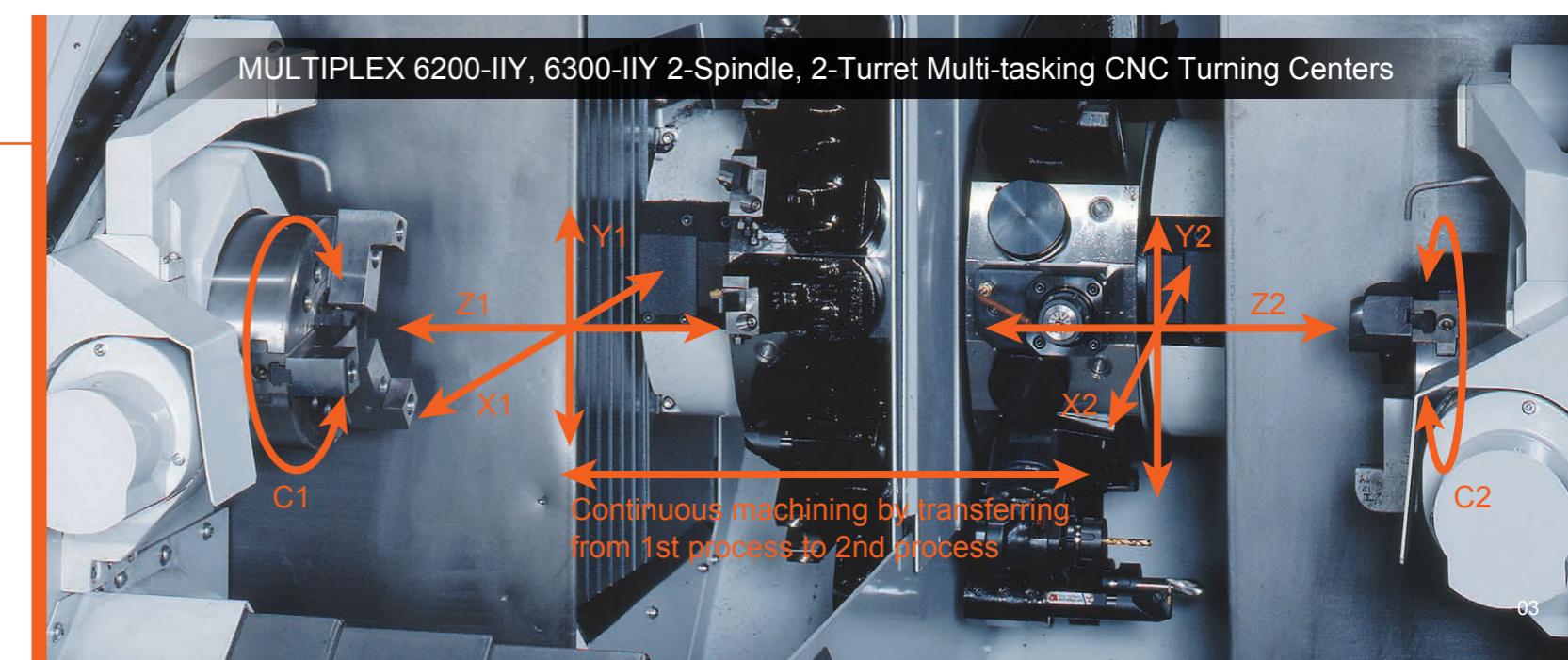
MULTIPLEX 4200-II 2-Spindle, 2-Turret CNC Turning Center



MULTIPLEX 6200-II, 6300-II 2-Spindle, 2-Turret Multi-tasking CNC Turning Centers

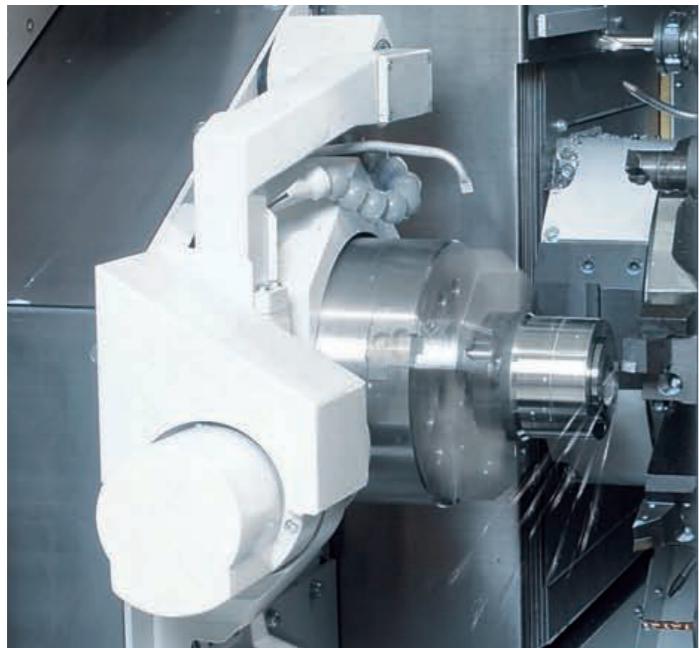


MULTIPLEX 6200-IIY, 6300-IIY 2-Spindle, 2-Turret Multi-tasking CNC Turning Centers



Higher Productivity

High performance integral spindle / motors for high-speed, high-torque turning



Both the main and second spindles supported by large diameter bearings for higher rigidity. Spindle vibration improved and high quality surface finishes/roundness ensured over wide range of spindle speeds

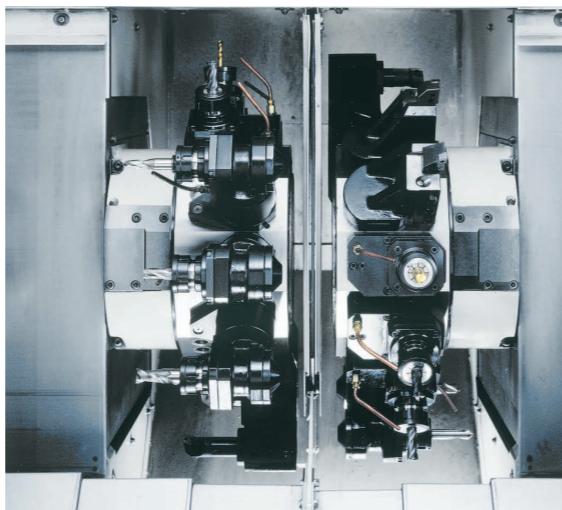
	MULTIPLEX 4200-II MULTIPLEX 6200-II, 6200-IIY
Chuck size	8"
Spindle speed	5000 rpm
Spindle motor	AC22 kW { 30 HP } (30 min. rating) AC15 kW { 20 HP } (Cont. rating)
Max. spindle torque	467 N·m (344 ft·lbs) (25 % ED)
	MULTIPLEX 6300-II, 6300-IIY
Chuck size	10"
Spindle speed	4000 rpm
Spindle motor	AC22 kW { 30 HP } (30 min. rating) AC19.5 kW { 26 HP } (Cont. rating)
Max. spindle torque	600 N·m (442.54 ft·lbs) (30 min. rating)

Turret with unsurpassed efficiency

High speed indexing non-lift turret located on left/right for both side equipped with VDI-type tool holder. The VDI-type holders can quickly be loaded/unloaded on the turret by tightening/loosening a single bolt with minimum tool setup time. (4200-II, 6200-II, 6200-IIY, 6300-II, 6300-IIY)

Both turrets can mount either turning or milling tools on each of the 12 positions for convenient setup. (6200-II, 6200-IIY, 6300-II, 6300-IIY)

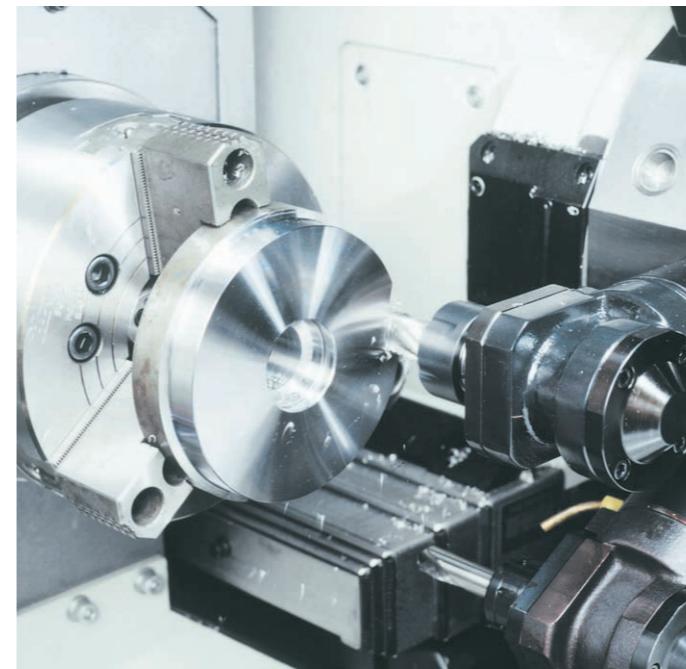
In addition, 16D turrets are optionally prepared for 6200-II and 6200-IIY.



	4200-II, 6200-II, 6200-IIY	6300-II, 6300-IIY
Tool storage capacity	12	12
Tool size	Tool for outer dia. □ 25 mm × 150 mm (1.0"×6.0")	□ 25 mm × 150 mm (1.0"×6.0")
	Boring bar Ø 40 mm (1.5")	Ø 50 mm (2.0")
Indexing method	Shortest path (Automatic)	Shortest path (Automatic)
	Manual-selectable	Manual-selectable
Turret indexing time	0.2 sec / 1 step	0.3 sec / 1 step
Turret clamping force	32.63 kN (7336 lbs)	80.8 kN (18165 lbs)

Milling spindle

The milling spindle provides versatile performance from powerful face milling to high speed drilling. (except 4200-II)



MULTIPLEX 6200-II, 6200-IIY(standard)	
Spindle speed	4500 rpm
Spindle motor	AC 3.7 kW { 5 HP } (10 min. rating)
Max. spindle torque	35.3 N·m (26.04 ft·lbs) (10 min. rating)
Drill	Ø20 mm (0.79")
Cutting capability	End mill Ø20 mm (0.79")
Tap	M12 (1/2-13 UNC)

MULTIPLEX 6200-II, 6200-IIY(option)	
Spindle speed	6000 rpm
Spindle motor	AC 5.5 kW { 7.5 HP } (5 min. rating)
Max. spindle torque	23.5 N·m (17.33 ft·lbs) (5 min. rating)
Drill	Ø20 mm (0.79")
Cutting capability	End mill Ø20 mm (0.79")
Tap	M12 (1/2-13 UNC)

MULTIPLEX 6300-II, 6300-IIY	
Spindle speed	4000 rpm
Spindle motor	AC 7.5 kW { 10 HP } (4 min. rating)
Max. spindle torque	95.5 N·m (70.44 ft·lbs) (4 min. rating)
Drill	Ø25 mm (0.98")
Cutting capability	End mill Ø25 mm (0.98")
Tap	M24 (1 UNC)

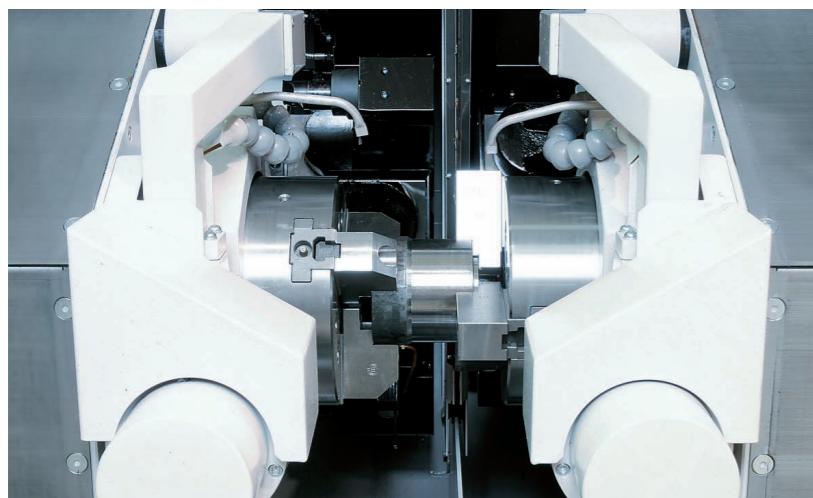
Y-axis for process integration and higher productivity (6200-IIY, 6300-IIY)



Large 100 mm / 154 mm (3.94"/6.06") Y-axis stroke for a wide variety of cutting, such as milling flats and drilling off-center.
(6200-IIY / 6300-IIY)

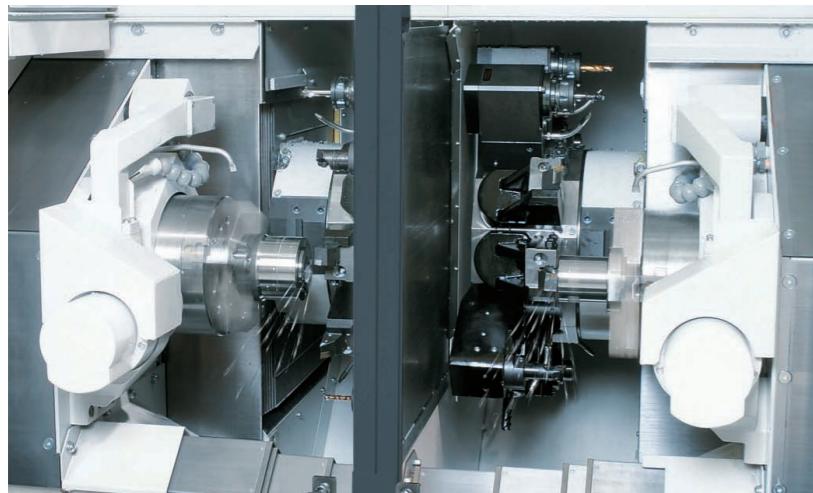


Higher Productivity



High accuracy and high speed workpiece transfer

Workpieces can be transferred from the left to right with high accuracy and high-speed thanks to automatic in-phase C-axis orientation of both spindles.



Center Partition

The center partition keeps machined chips and coolant contained allowing the Multiplex to be used as two separate machines. Setups can be performed as well as workpiece loading/unloading on one spindle while machining is being performed on the other.

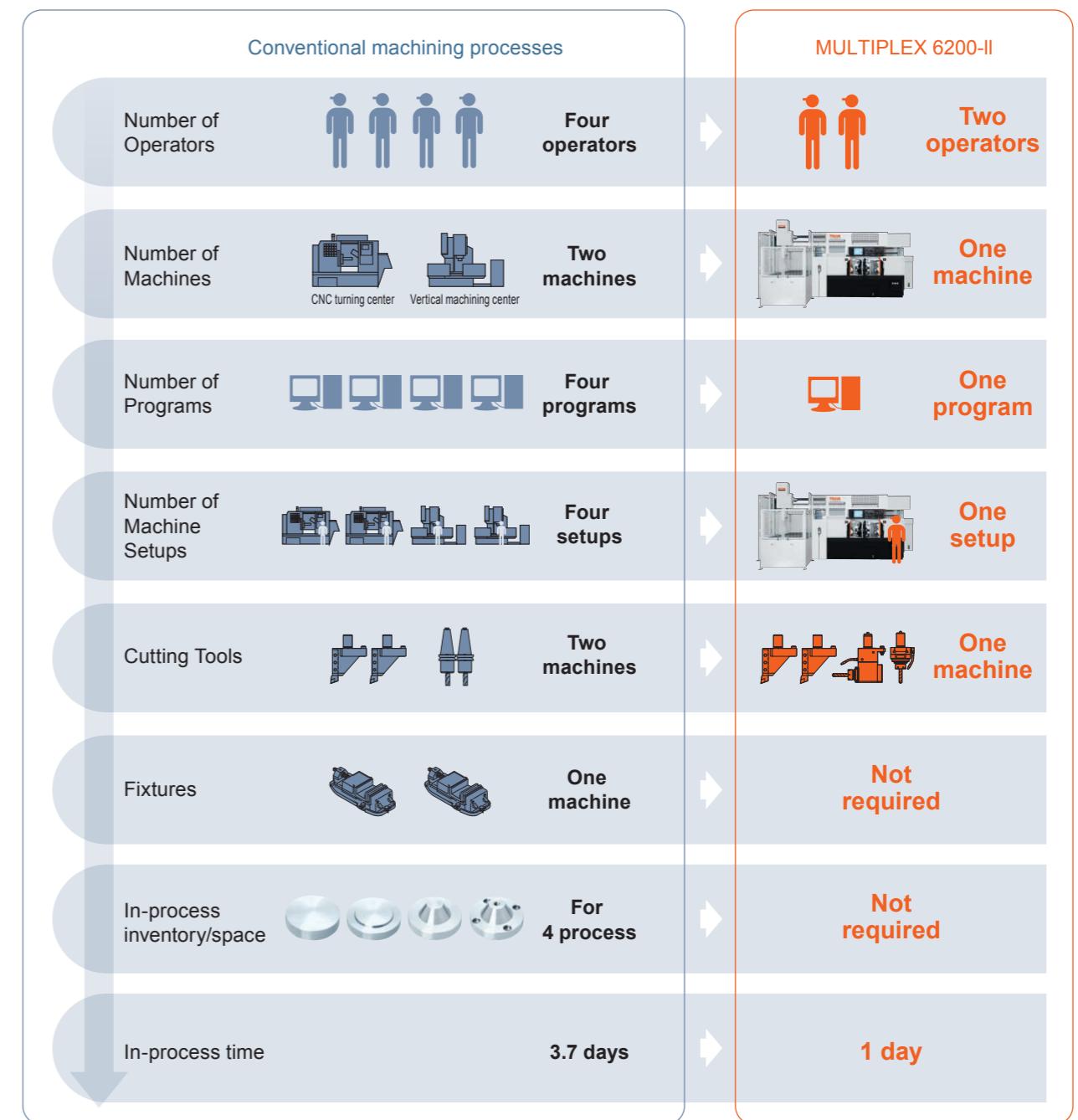


Long shaft machining

By synchronizing the rotation of both spindles and Z-axis, long shaft workpieces can be machined.

75% reduction of machining procedure and 72% reduction of in-process time

The MULTIPLEX II series is designed to reduce production lead time, improve machining accuracy, reduce floor space and initial cost, lower operating expenses, reduce operator requirements and to improve the work environment.



INTELLIGENT MACHINE

Intelligent Functions provides incomparable operator support for exceptional ease of operation and the optimum machine efficiency

Yamazaki Mazak has developed a variety of functions for the improvement of productivity, high accuracy machining and operator support. A variety of unique technologies has been developed that incorporate the expertise of experienced machine operators that realizes unsurpassed productivity and higher accuracy machining.



Heat Displacement Control **INTELLIGENT THERMAL SHIELD**

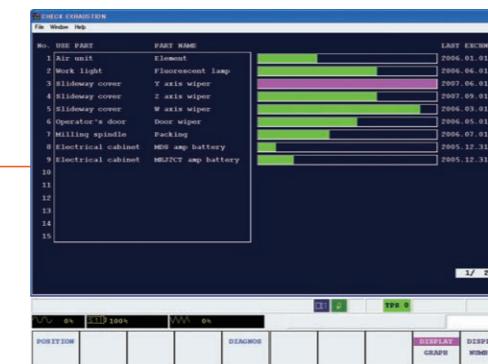
ITS

Unique Mazak heat displacement compensation system.

Comprehensive Maintenance Monitor **INTELLIGENT MAINTENANCE SUPPORT**

IMS

Useful information for improved preventative maintenance to prevent unexpected machine downtime.



Verbal Message System **MAZAK VOICE ADVISER**

MVA

Verbal support for machine setup and safe condition confirmation.



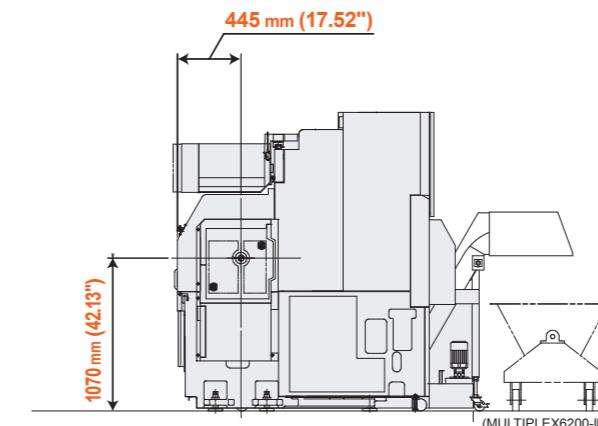
Ergonomics

Convenient operation and maintenance thanks to the ergonomic machine design

ergonomics

Excellent accessibility

The MULTIPLEX II series has unsurpassed access to the spindle for convenient workpiece loading / unloading.



Large window

The large front door window allows the operator to easily monitor workpiece machining.



Movable CNC operation panel

The CNC operation panel is easily adjusted to the operator's desired position.

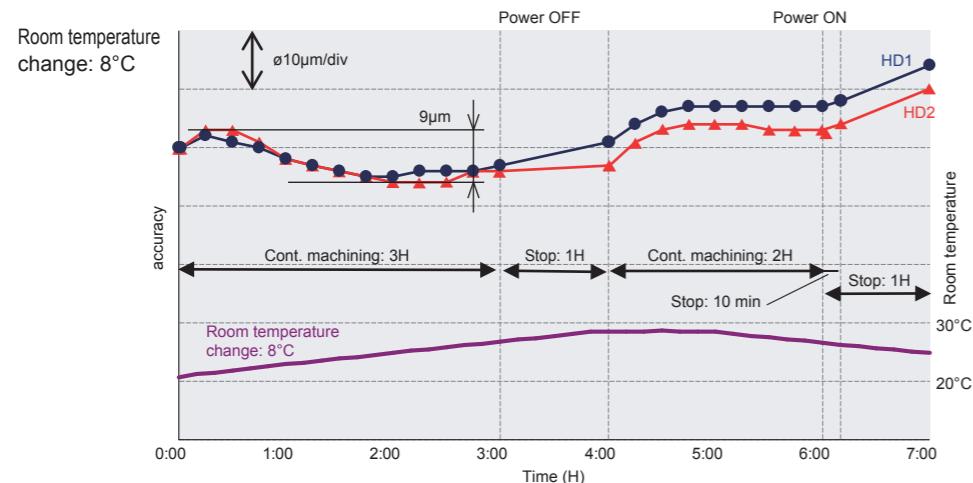
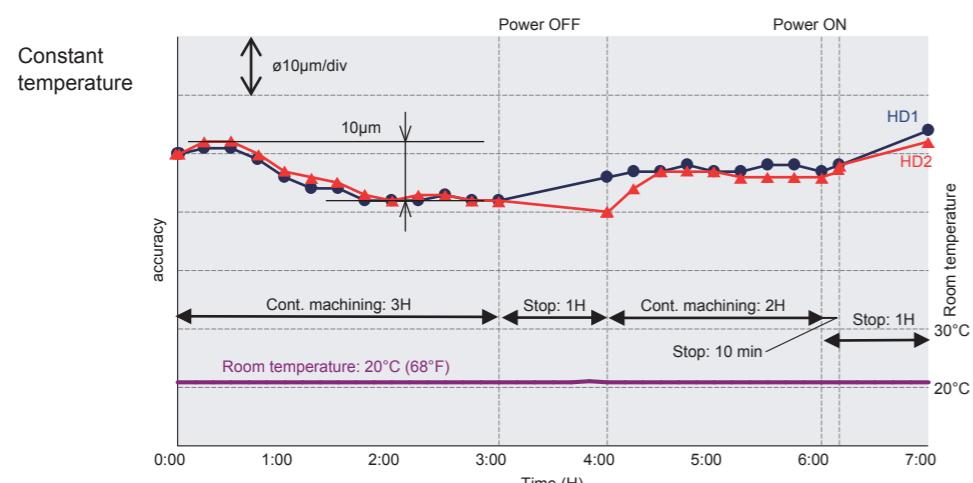


Higher Accuracy

Continuous machining accuracy

The MULTIPLEX II series is equipped with automatic compensation for room temperature changes, the INTELLIGENT THERMAL SHIELD, as standard equipment to realize enhanced continuous machining accuracy. Mazak has performed extensive testing in a variety of environments in a temperature controlled room and has used the results to develop a control system that automatically compensates for temperature changes in the machining area.

Heat displacement of the MULTIPLEX 6200-IIY



Results may not be duplicated under different conditions (room temperature, workpiece materials, tool materials, cutting conditions and other factors)

Ease of Programming

Equipped with MAZATROL MATRIX 2 CNC



Ability to use both conversational programming and EIA / ISO program format - standard

Multiple surface processing can be performed by conversational programming or EIA/ISO programs that are conventionally prepared.

EIA/ISO programming

```
N000 G00 G97 G98;
N001 G28 U W;
N100 G109 L1;
N101 T01T01;
N102 M901;
N103 M200;
N104 M203 S800;
N105 X102.Z-50.C0;
N106 G87 Z-50.H30.X70.R5.Q5000 P.2 F200 M210;
N107 G80;
N108 M950;
N109 M30;
N200 G109 L2;
N201 T0222;
N202 M902;
```

Mazatrol programming

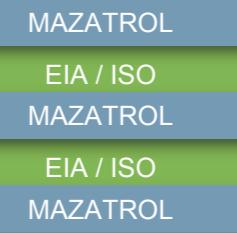
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MAZATROL TEST
N000 G00 G97 G98;
N001 G28 U W;
N100 G109 L1;
N101 T01T01;
N102 M901;
N103 M200;
N104 M203 S800;
N105 X102.Z-50.C0;
N106 G87 Z-50.H30.X70.R5.Q5000 P.2 F200 M210;
N107 G80;
N108 M950;
N109 M30;
N200 G109 L2;
N201 T0222;
N202 M902;
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- 2 processes in one program – Machining programs for 1st and 2nd spindles can be combined in one program
- Cross machining control axis designation - 2nd spindle axes can be controlled during the 1st spindle machining

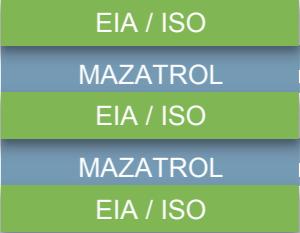
Combined use of both MAZATROL and EIA/ISO programs

MAZATROL programs can have EIA/ISO programs as sub-programs and vice-versa.

MAZATROL main program



EIA/ISO program



Factory Automation

Unmanned operation systems for improved productivity

Gantry loader system

Integral FLEX GL series for unmanned operation over extended periods of time.



MULTIPLEX 6200-IIY with Gantry loader system

High-speed transferring of heavy workpieces

Automatic loading/unloading of workpieces —
10 kg (22 lbs) ×2 by double hand. (GL-100F)

Option

Chuck jaw air blast

Gantry loader
(D3 hand, pitch-feed conveyor / rotary conveyor)

Work conveyor

Available with pitch-feed conveyor or rotary conveyor.

Pitch-feed conveyor



Rotary conveyor



Workpiece unloading system

Finished workpieces are automatically unloaded the workpiece conveyor outside of the machine.

Option

Chuck jaw air blast

Workpiece unloader

Work conveyor

Workpiece stand

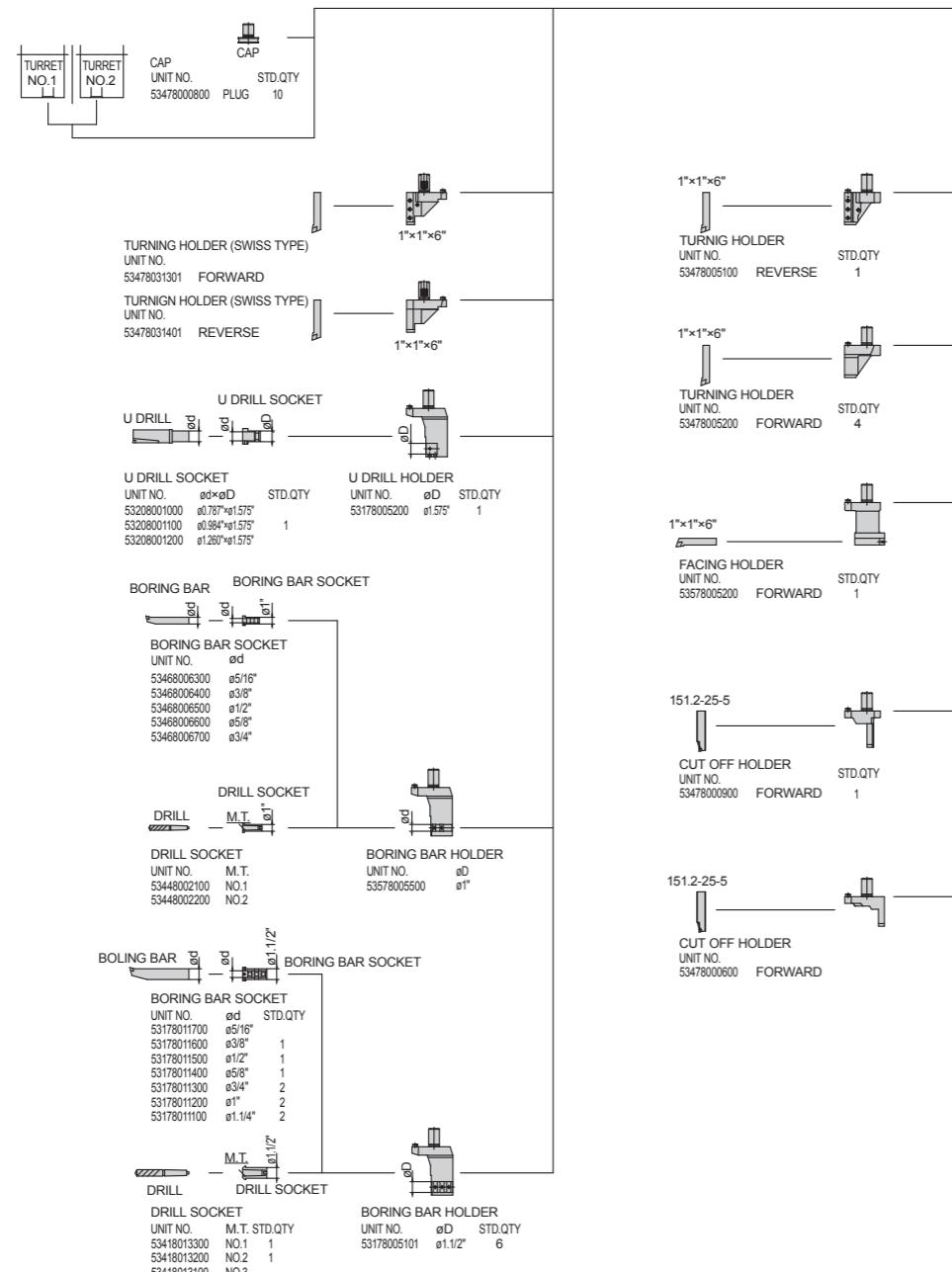


Machine	4200-II, 6200-II, 6200-IIY	6300-II, 6300-IIY		
Type of Gantry loader	GL-100F	GL-200F	GL-300F	GL-400F
Workpiece dia.	Ø20~200 mm (Ø0.79"~Ø7.87")	Ø50~300 mm (Ø1.97"~Ø11.81")	Ø50~350 mm (Ø1.97"~Ø13.78")	Ø50~350 mm (Ø1.97"~Ø13.78")
Max. load weight	10 kg (22 lbs) × 2	20 kg (44 lbs) × 2	30 kg (66 lbs) × 2	40 kg (88 lbs) × 2

		4200-II, 6200-II, 6200-IIY	6300-II, 6300-IIY
Workpiece unloader	Max. dia	Ø15.875 mm ~ Ø210 mm (Ø0.63" ~ Ø8.27")	Ø75 mm ~ Ø260 mm (Ø2.95" ~ Ø10.24")
	Max. length	20 mm ~ 152.4 mm (0.79" ~ 6")	25 mm ~ 225 mm (0.98" ~ 8.86")
	Max. load weight	Max. 7.5 kg (17 lbs)	Max. 10 kg (22 lbs)

Tooling system

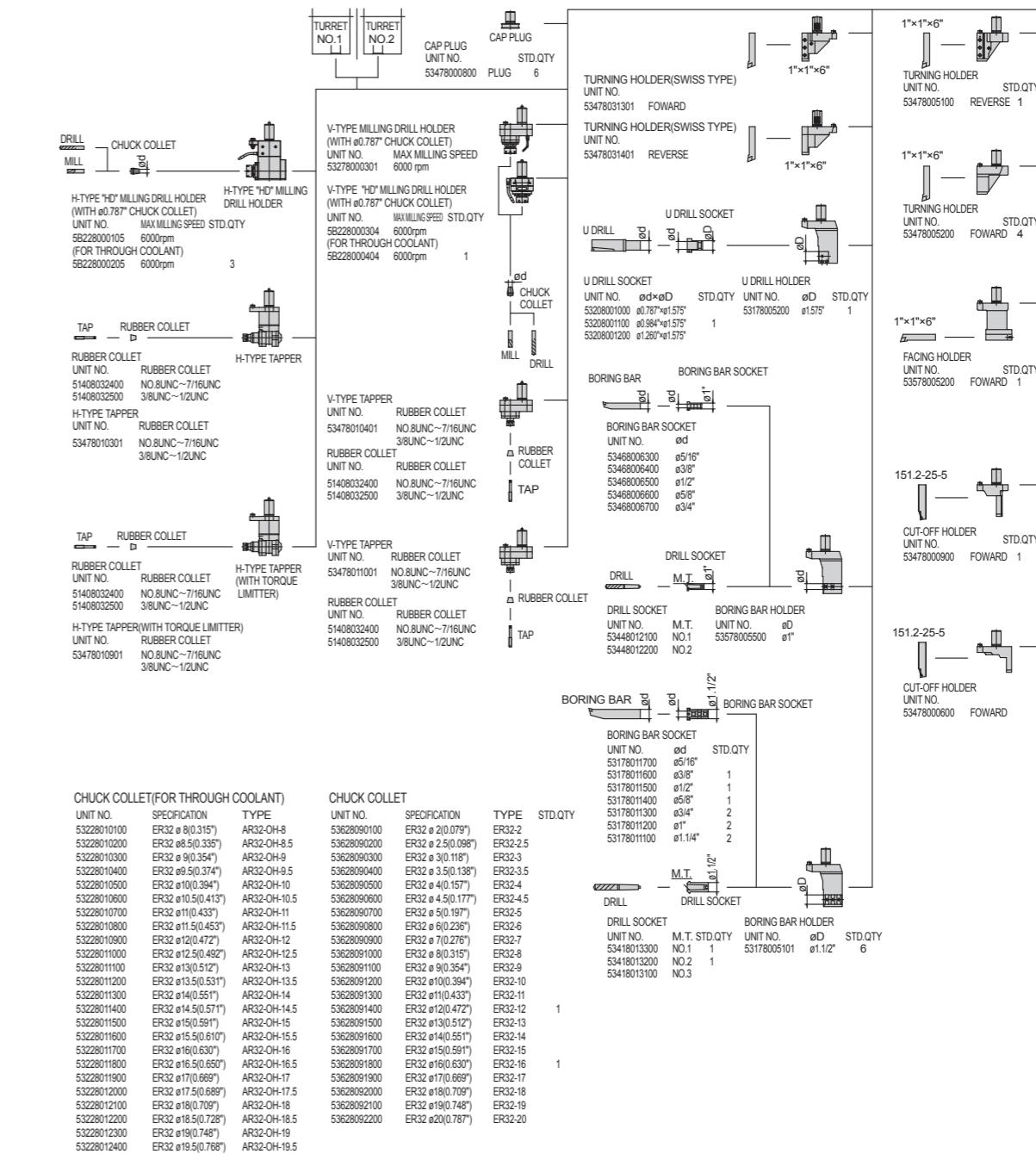
MULTIPLEX 4200-II



inch

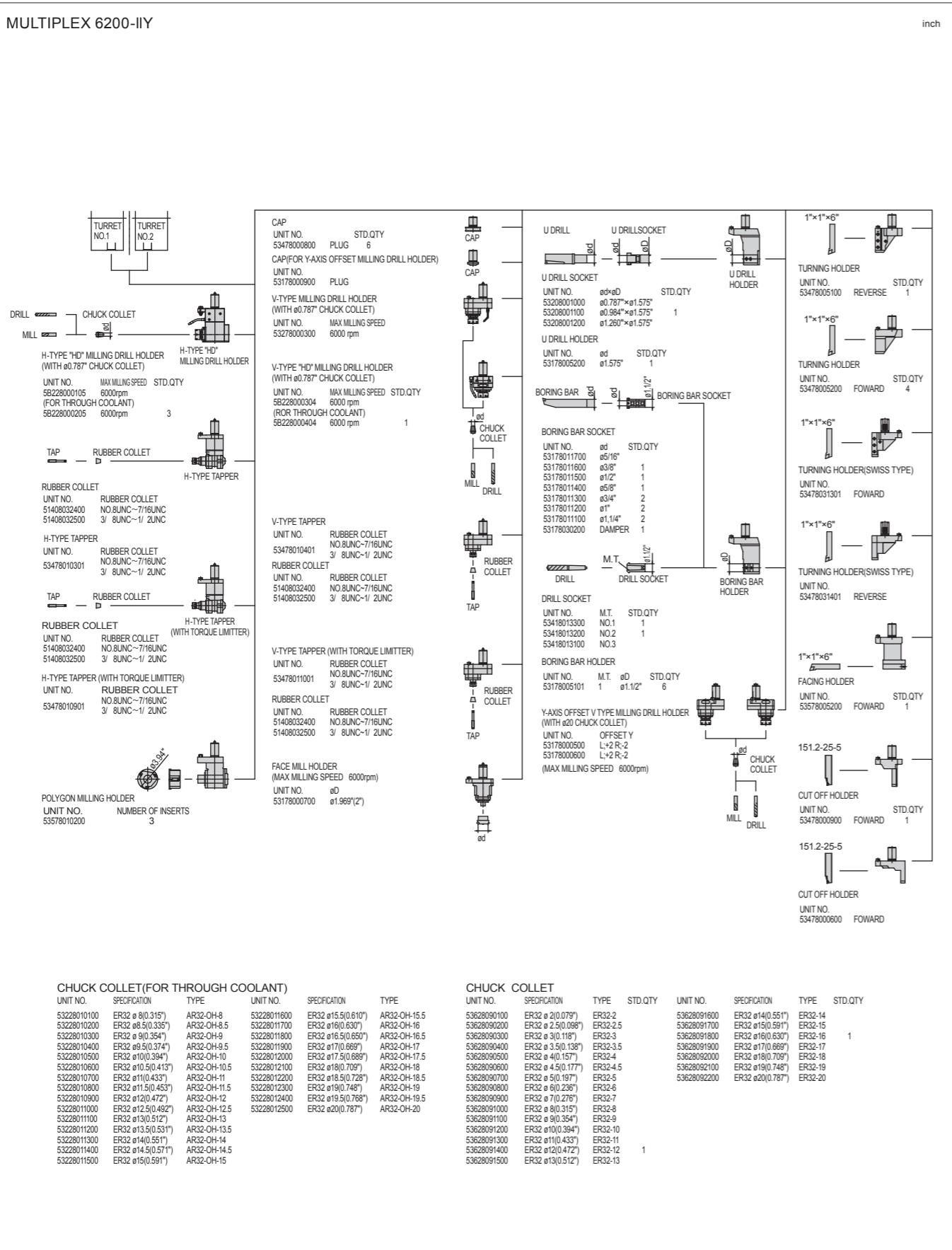
Tooling system

MULTIPLEX 6200-II

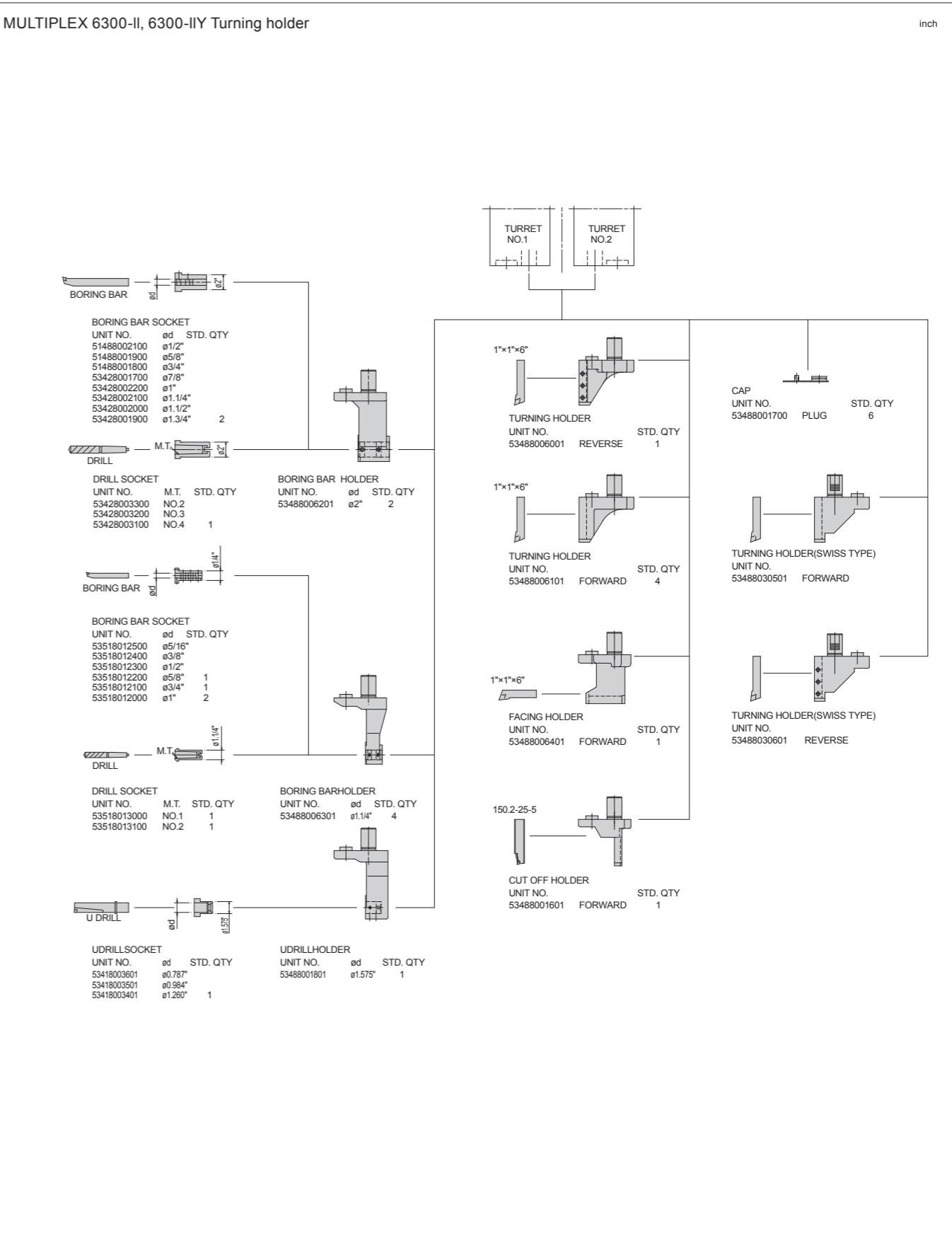


inch

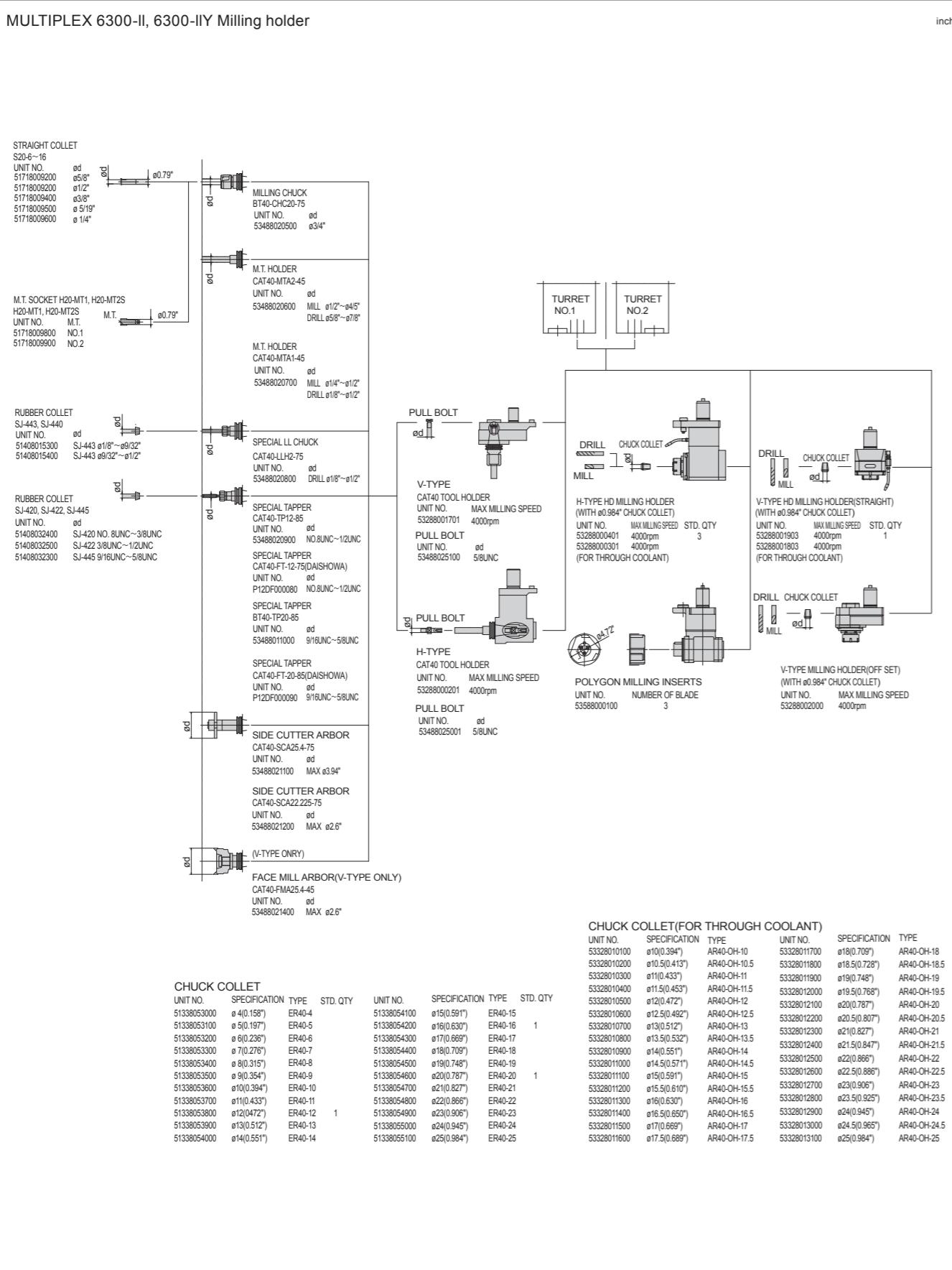
Tooling system



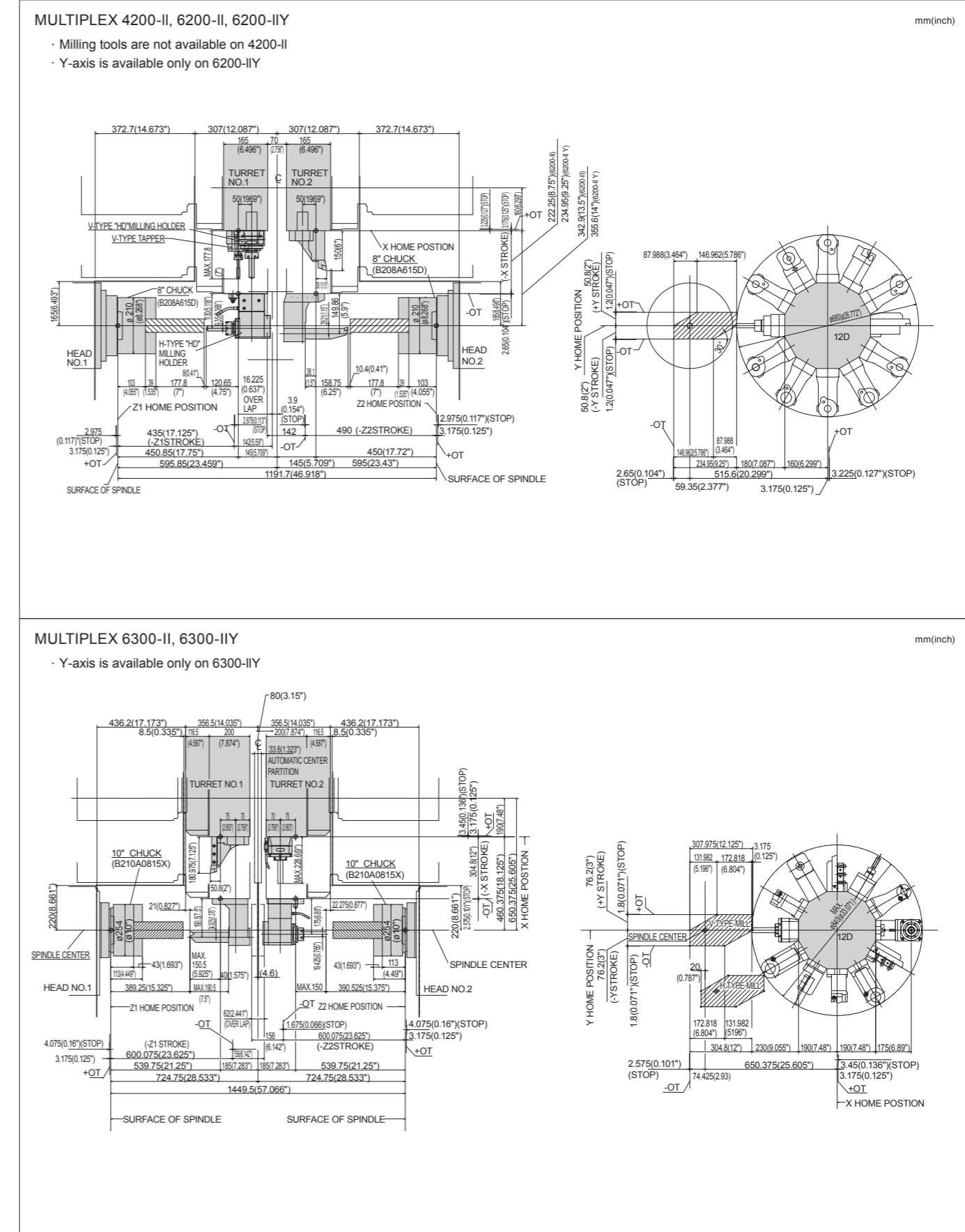
Tooling system



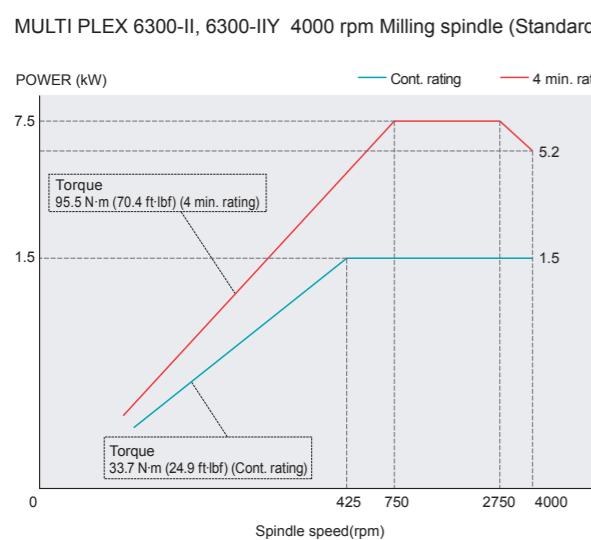
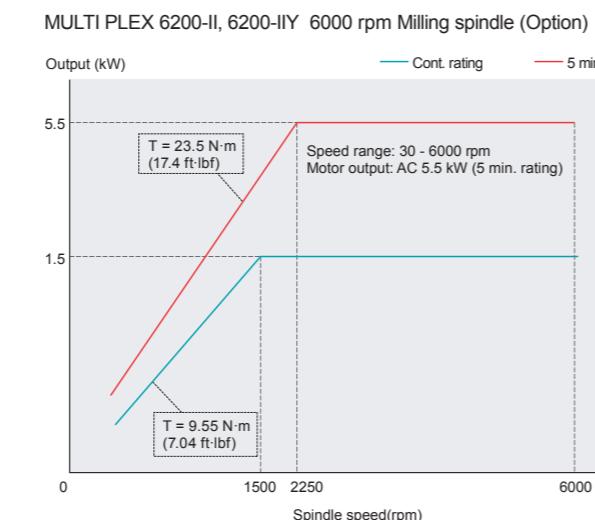
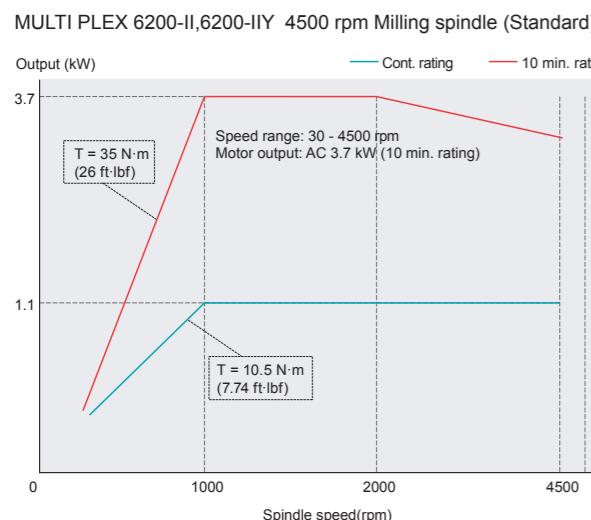
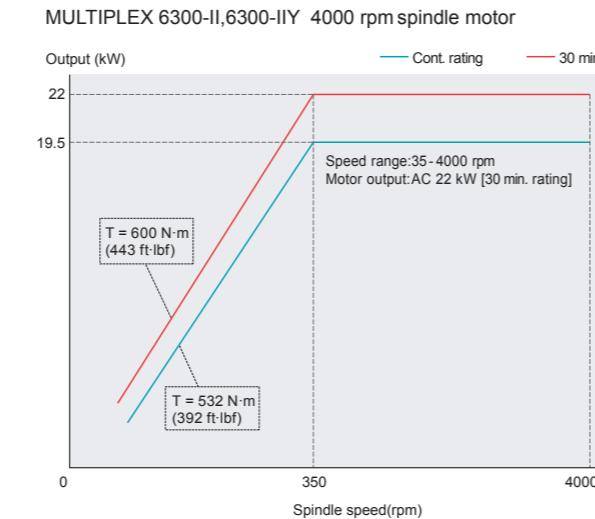
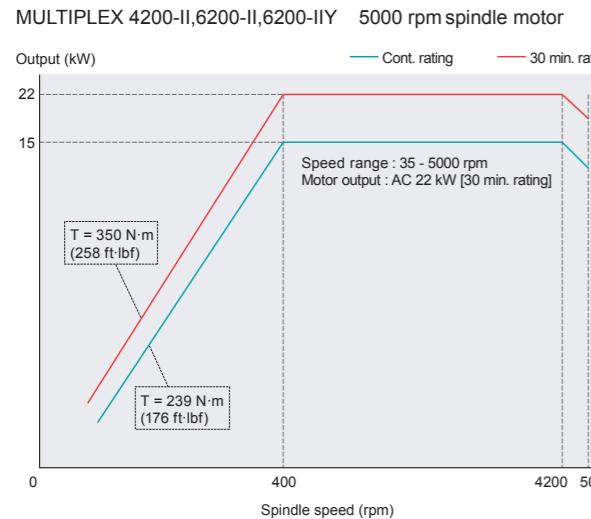
Tooling system



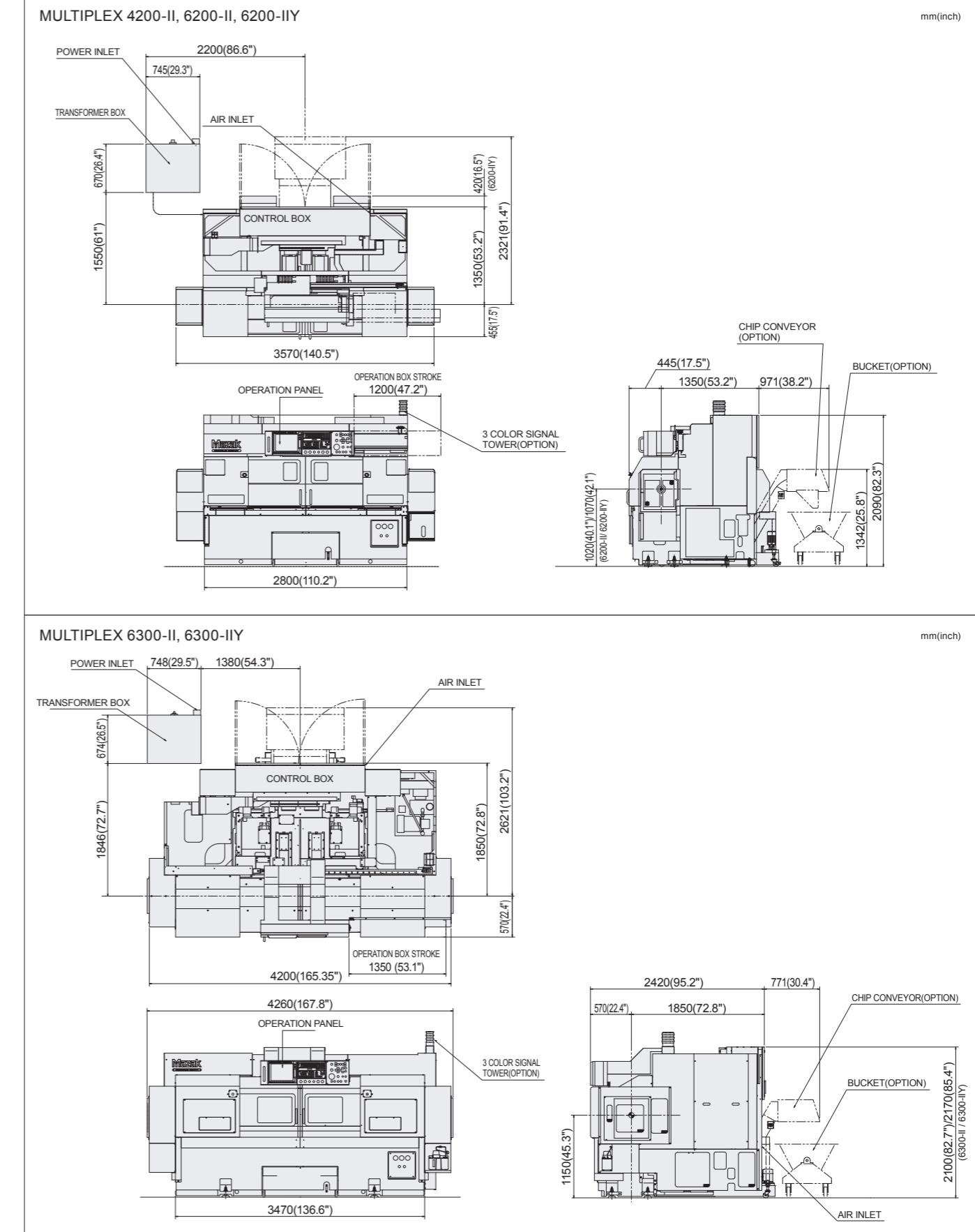
Stroke Diagram



Output Diagram



Machine Dimensions



Standard Machine Specifications

	MULTIPLEX 4200-II	MULTIPLEX 6200-II	MULTIPLEX 6200-IIY	MULTIPLEX 6300-II	MULTIPLEX 6300-IIY
Capacity	Maximum swing/ Swing over cross slide	ø320 mm (ø12.6")		ø430 mm (ø16.93")	
	Maximum machining diameter	ø320 mm (ø12.6")		ø430mm (ø16.93")	
	Distance between spindles at Z-axis home positions	1190 mm (46.85")		1450 mm (57.09")	
	Maximum weight*1 : Chuck workpiece	300 kg (660 lbs)		450kg (992 lbs)	
	Bar work capacity*2	ø51 mm (ø2")		ø77 mm (ø3.03")	
Travel	X-axis travel (Turret back and forth motion)	230 mm (9.06")	240 mm (9.37")	310 mm (12.20")	
	Y-axis travel (Turret up and down motion)	—	100 mm(4") [±50 mm(2")]	—	154 mm(6.06") [±77 mm(3.03")]
	Z-axis travel (Spindle right and left motion)	440 mm (17.25") / 495 mm (19.37")		605 mm (23.82") / 605 mm (23.82")	
	C-axis travel	—	360°	360°	
Spindle	Chuck size	8"		10"	
	No. of spindles	2		2	
	Spindle speed*3	5000 rpm		4000 rpm	
	Number of spindle speed ranges	1- Stepless		1- Stepless	
	Spindle nose/ spindle bore	A2-6 / ø61 mm (ø2.4")		JIS A2-8 / ø88 mm (ø3.46")	
Turret	Minimum spindle indexing increment	—	0.0001°	0.0001°	
	No. of turrets	2		2	
	Tool shank type	VDI		VDI	
	Number of tools	12 × 2		12 × 2	
	Tool shank height	25 mm (1")		25 mm (1")	
Rotary tool spindle	Boring bar shank diameter	40 mm (1.5")		50 mm (2")	
	Turret indexing time	0.2 sec. / 1 step		0.3 sec. / 1 step	
	Spindle speed	—	4500 rpm	4000 rpm	
	Milling capacity	—	Drill : ø20 mm (ø0.79"), End mill: ø20 mm (ø0.79"), Tap: M12 × 1.75 (1/2-13 UNC)	Drill : ø25 mm (ø0.98"), End mill: ø25 mm (ø0.98"), Tap: M24 (1 UNC)	
Feedrate	Rapid traverse rate: X-axis	30500 mm/min(1201 IPM)		24000 mm/min(945 IPM)	
	Rapid traverse rate: Y-axis	—	10000 mm/min (394 IPM)	—	10000 mm/min (394 IPM)
	Rapid traverse rate: Z-axis	33000 mm/min (1299 IPM)		24000 mm/min (945 IPM)	
	Rapid traverse rate: C-axis	—	555 rpm	555 rpm	
Motors	Spindle motor (30 min. rating/ Cont. rating)	22 kW [30 HP] / 15 kW [20 HP]		22 kW [30 HP] / 19.5 kW [26 HP]	
	Turrets rotary tool Spindle motor (10 min. rating)	—	3.7 kW [5HP]	7.5 kW [10 HP]	
	Coolant pump motor	0.18 kW × 2		0.52 kW × 2	
Power requirement	Required power capacity (Cont. rating)	54.4 kVA	55.8 kVA	73.1 kVA	75.1 kVA
	Air source	0.5 MPa (71 PSI), 400 L/min (14 ft³/min)		0.5 MPa (71 PSI), 400 L/min (14 ft³/min)	
Coolant	Tank capacity	250 L (66 gal)	220 L (58 gal)	270 L (71 gal)	
	Machine size	Height 2090 mm (82.28")		2100 mm (82.7") 2170 mm (85.4")	
	Required floor space	3570 mm × 1795 mm (140.55" × 70.67")	3570 mm × 1995 mm (140.55" × 78.54")	4260mm×2420mm (167.72" × 95.28")	
	Machine weight	7900 kg (17417 lbs)	8400 kg (18519 lbs)	11600 kg (25573.19 lbs)	

*1 Chuck weight is included.

*2 Maximum bar work capacity varies according to type of chuck.

*3 Spindle speed and maximum machining length depend on chuck specifications.

MAZATROL MATRIX 2 CNC standard specification

	MAZATROL	EIA/ISO
Number of controlled axes	Max. 8 axes (simultaneous 4 axes)	*Max. 8 axes (simultaneous 4 axes)
Least input increment	0.0001mm,0.00001inch,0.0001°	
Max. programmable value	±99999.9999mm,±9999.9999in,±9999.9999°	
High precision control	Smooth high gain control, *Scale feedback, Absolute position detection	
Interpolation	Positioning (Independent axes control, Linear interpolation, *Synchronized milling spindle tapping) — Polar coordinate interpolation, *Cylindrical coordinate interpolation, Helical interpolation, *Polygon cutting, *Hobbing, Thread cutting (equal pitch, variable pitch)	
Feed function	Rapid traverse, Cutting feed (Per revolution, Per minute), Feedrate clamp, Override (Rapid traverse, Cutting feed, External override, 2nd override, Override cancel) Automatic acceleration/deceleration feedrate (Linear acc./dec., Time constant), Constant tangential speed control, Dry run	
Multi-tasking machine control	Continuous control of second spindle, Phase matching, Axes torque control	
Program registration	256,*512,*960 2 MB (5300 m), *8 MB (user area 7.7 MB, 20000 m)	
Display	15 inch color TFT	
NC display languages	English, German, French, Italian, Spanish, Dutch, Norwegian, Swedish Finnish, Danish, Portuguese, Turkish, Polish, Czech, Romanian Chinese (simplified), Chinese (traditional), Korean, Slovakian, Russian, Hungarian, Bulgarian, Japanese, (simplified language switching)	
Windows languages	English, Chinese (simplified / traditional), Korean, Russian, Japanese (Selection)	
Data Input / Output	USB, CF card	
Protocol	*MAZAK protocol, Net work protocol	
Interface	Card BUS, Ethernet (1000BASE-TX), *PROFIBUS-DP, *EtherNet / IP, *SPRINT I/F, *CC-Link	
Spindle function S code	S code output (8-digit binary output, Analog output, Actual revolution speed binary output), Spindle revolution control (RPM clamping, High speed RPM confirm/speed change detection, Rotary speed display), Spindle override (0 - 150 %)	
Tool function	T code output (8-digit binary data, Next tool, Used tool), Tool life monitoring Spare tool exchange, Tool management (Group number)	
Tool compensation	Tool length compensation, Tool diameter compensation, Tool tip R compensation, Tool wear compensation	
Number of registered tools	Max. 4000	
Tool offset pairs	4000	
Miscellaneous functions	M code output (M3 - digit), Simultaneous output of four 3-digit M codes, Second miscellaneous functions (B 3-digit output), High speed MSTB interface	
Coordinate system control	MAZATROL coordinate system Machine coordinate system (Machine coordinate system, Machine coordinate system shift, Zero point shift)	Work coordinate system (Work coordinate system, Work coordinate system shift)
Manual operation	Rapid traverse, Cutting feed, Handle feed, Zero point return, Manual control (machine lock, gear shift, barrier cancel), Manual spindle control (spindle start, stop, reverse, jogging)	
Automatic operation	Memory operation, MDI operation, Cycle start, NC reset, Single block, Feed hold, Single process Optional block skip, Optional stop, Machine lock, Barrier cancel, Feed override, Spindle control, Dry run, Manual handle control, Tool path storage (TPS) — Hard disc memory operation, *Ethernet operation, *IIC memory card operation	
Background functions	During automatic operation (Programming, Data input / output, Tool path check)	
Machine compensation	Backlash compensation, Pitch error compensation, Rotational axis pitch error compensation, Thermal displacement compensation	
Protection functions	Emergency stop, Over travel, Barrier (stored stroke limit, chuck barrier, 2nd spindle chuck barrier, tailstock barrier, tool barrier), Interlock (cutting start, axis interlock), Alarm, Mazak Voice Adviser	
Measuring functions	Manual measurement (Tool set measurement, Workpiece offset measurement), Automatic measurement (Workpiece measurement, Tool measurement, External measurement), Measurement data printout	

* : option

Standard Equipment / Optional Equipment

Machine	High-power coolant (520 W)	○	Chucks	Automatic chuck jaws open/close	●
	High-power coolant (1.1 kW)	○		Double foot pedal switch for chuck	○
	High-power coolant (15 kW)	○		Additional spindle coolant nozzle	○
	Chip conveyor	○		Chuck air blast	○
	Chip conveyor CONSEP 2000IIWS	○		Transfer air blast	●
	Chip bucket	○		Spindle air blast	○
	6000 rpm rotary tool spindle	○ (6200-II,6200-IIY)	High-accuracy	High-accuracy package	○
	16 tool drum turret	○ (6200-II,6200-IIY)	Safety equipment	Overload detection system	○
Chucks	Non through-hole chuck	○	Factory automation	Hydraulic pressure interlock	●
	Through-hole chuck	●		Barfeeder interface	○
	Collet chuck	○		Barfeeder system	○
	Filler tube	○		Shaft work feeder	○
	Chuck open/close confirmation	●			

Factory automation	Shaft work puller	○	Factory automation	Machining completion buzzer	○
	Shaft work puller - finished workpiece stocker	○		Workpiece automatic measurement	○
	Workpiece output system	○		Automatic center partition	●
	Workpiece conveyor	○		Warm up by calendar timer	○
	Workpiece stocker	○		High/low chuck pressure switch	○
	Preparation for gantry loader	○		Turret air blast	○
	Gantry loader	○		Coolant temperature control	○
	Tool eye	●		Mist collector	○
	Automatic open/close front door (left side only)	○		Spindle coolant	○
	Automatic open/close front door (left and right)	○		Additional M-code	○
	Automatic power off	○	NC	EIA/ISO	●
	Absolute positioning system	●			
	Machine status indicator light (single/3-color)	○			

● : standard ○ : option

Mazak

YAMAZAKI MAZAK CORPORATION

1-131 Takeda, Oguchi-cho, Niwa-gun, Aichi-pref., Japan
TEL : +(81)587-95-1131 FAX : +(81)587-95-2717

www.mazak.com

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- Specifications are subject to change without notice.
 - This product is subject to all applicable export control laws and regulations.
 - The accuracy data and other data presented in this catalogue were obtained under specific conditions.
 - They may not be duplicated under different conditions.
(room temperature, workpiece materials, tool material, cutting conditions, etc.)