



ACUFLEX 400S

Multi Task CNC Lathe with single turret and Y axis

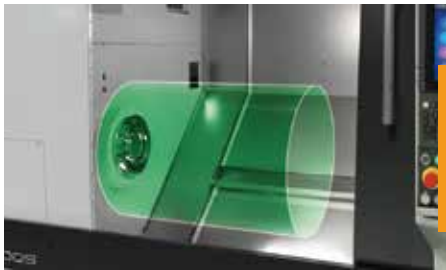


Three features of ACUFLEX 400S that are superior to competitor machines

✓ World class workpiece swing diameter

Up to a 15 inch chuck can be mounted on the left spindle.
The space inside the machine is made large as much as possible in order to make the swing large, and large workpieces can be handled.

Swing over bed: **φ790**



Maximum machining diameter
Left spindle φ460
Right spindle φ460

Workpiece length: **Max 750 mm**



✓ BMT style live tool holders from various manufactures can be attached

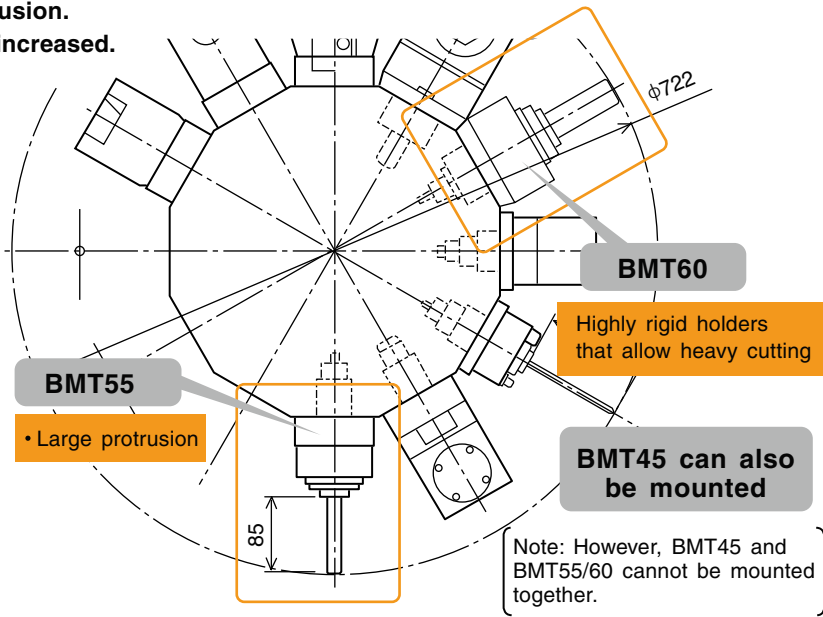
Multitasking allows selection according to intended use such as highly rigid live tools and maximizing the protrusion.
Availability of multifunctional live tools has been increased.

Live tools from various manufactures can be supported by selecting various spacers

- Effective utilization of assets for other manufactures' machine tools
- Expansion of holder manufacturer options



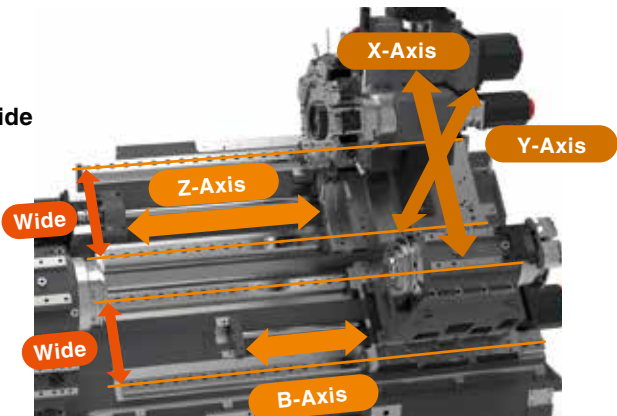
Some holders cannot be mounted.



✓ Slide-ways designed to maintain exceptional rigidity, speed, and accuracy - Right spindle equivalent to the left spindle that allows heavy cutting

Note: PAT. P.

Roller guides are used for the Z-axis slide and B-axis slide with a wide mounting pitch



Highly rigid boxway slides are used for the X axis and Y axis close to the machining point



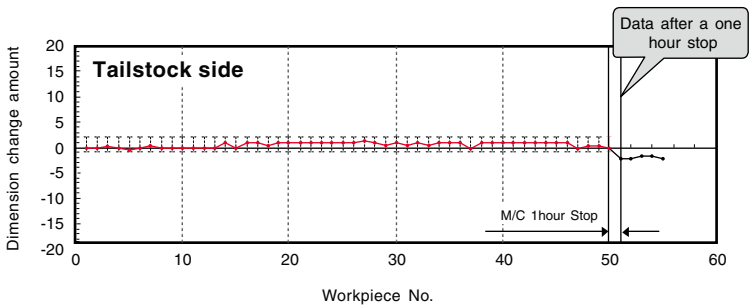
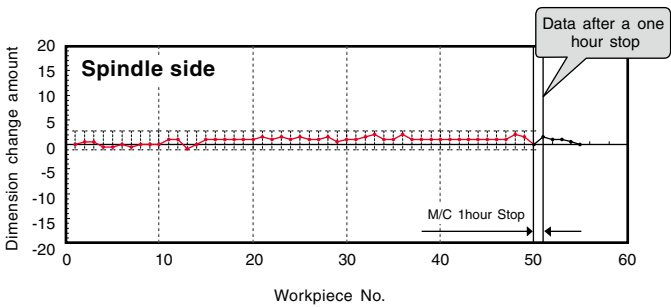
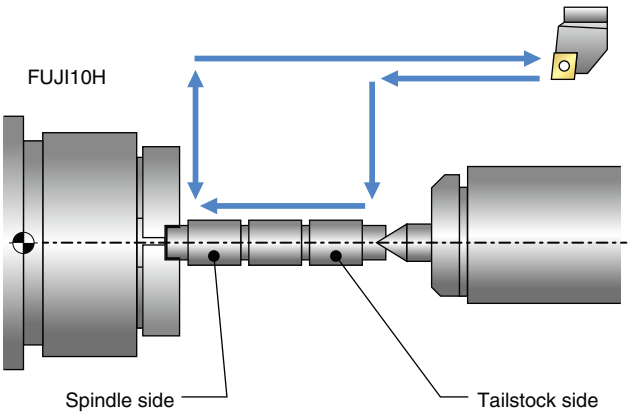
■ Machining dimension changes over time

Machining ability and adjacent error ability

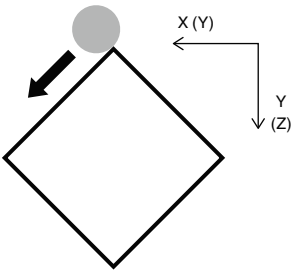
		Spindle side	Tailstock side
Machining ability	50 consecutive	3.96 μm	2.88 μm
Adjacent error		2.85 μm	2.11 μm
Dimension change after a one hour stop		1.5 μm	-2 μm

Cutting conditions

	Cold start
Rotation speed	2000 min ⁻¹
Feed	0.1 mm/rev
Cutting depth	0.05 mm
Workpiece size	φ42 x 10
Workpiece material	Aluminum



■ Synchronous machining accuracy: Linear machining



Measurement results

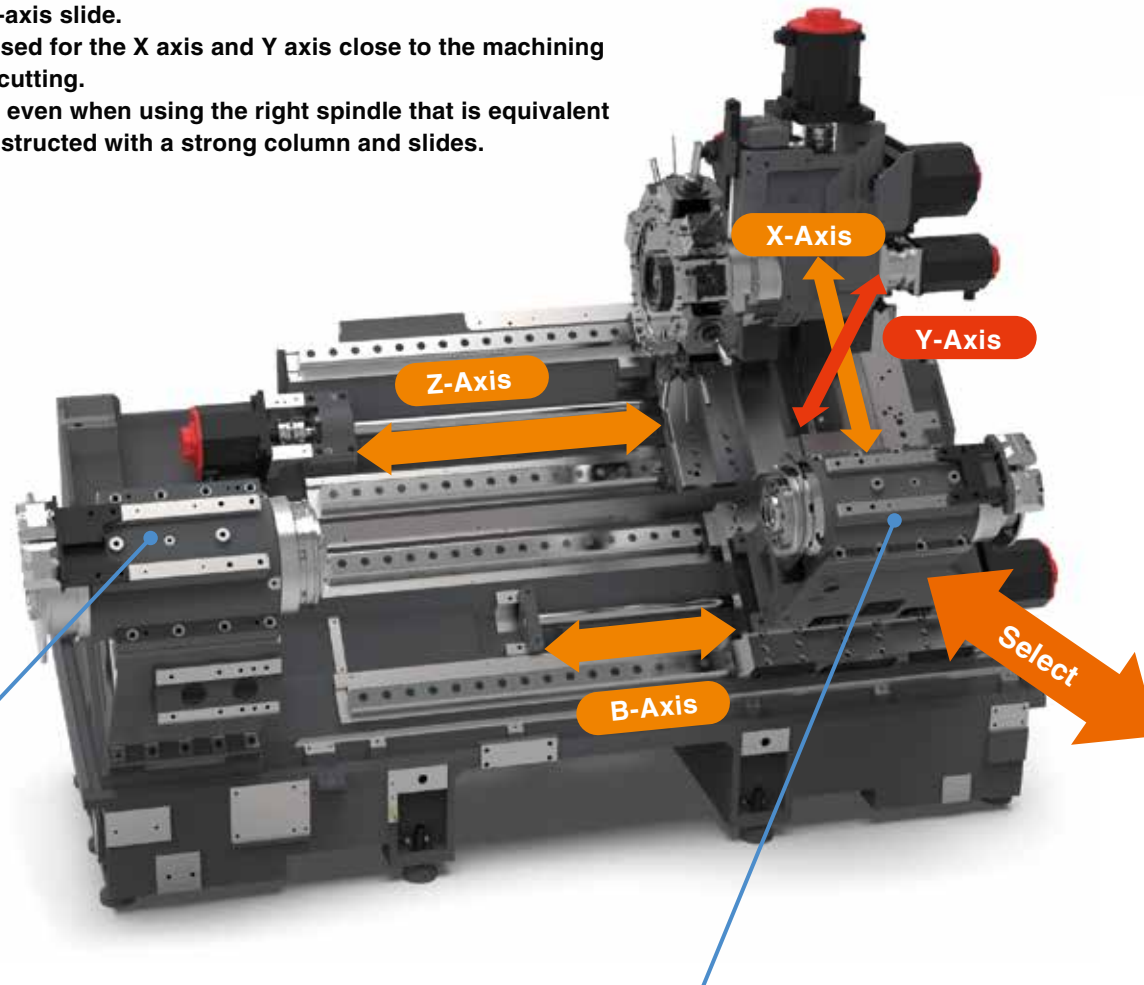
		Simultaneous two axes
Axial tool (XY movement)	Straightness	2 μm
	Parallelism	4 μm
	Right angle	8 μm
Radial tool (YZ movement)	Straightness	2 μm
	Parallelism	2 μm
	Right angle	2 μm

Cutting conditions

Rotation speed	4000 min ⁻¹
Feed	0.131 mm/rev
Cutting depth	0.1 mm
Workpiece size	□70 x 40
Workpiece material	Aluminum

Highly rigid column and slides

Using roller guides with a wide mounting pitch achieves both high rigidity and speed for the Z-axis slide and B-axis slide. Highly rigid boxway slides are used for the X axis and Y axis close to the machining point in consideration of heavy cutting. Heavy cutting can be performed even when using the right spindle that is equivalent to the left spindle with 400S constructed with a strong column and slides.



Left spindle

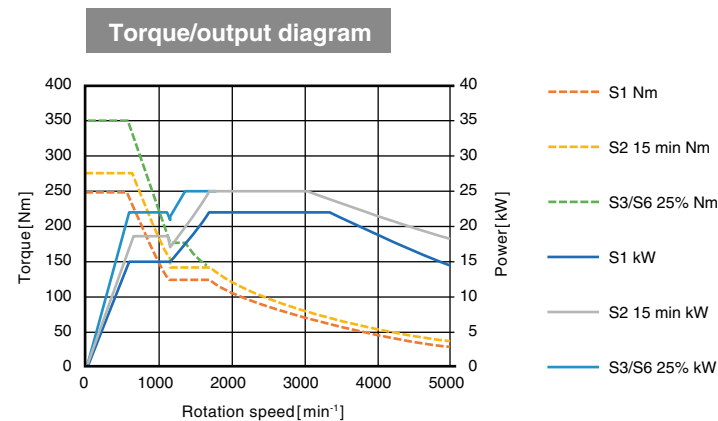
Standard $\phi 120$ mm

Spindle motor	22/15 kW (Low speed winding) 25/22 kW (High speed winding) (25% ED/continuous)
Bar material machining ability	$\phi 65$
Spindle rotation speed	5,000 min ⁻¹

Option $\phi 100$ mm

Spindle motor	22/15 kW (25% ED/continuous)
Bar material machining ability	$\phi 30$
Spindle rotation speed	6,000 min ⁻¹

《 $\phi 120$ mm spindle 》

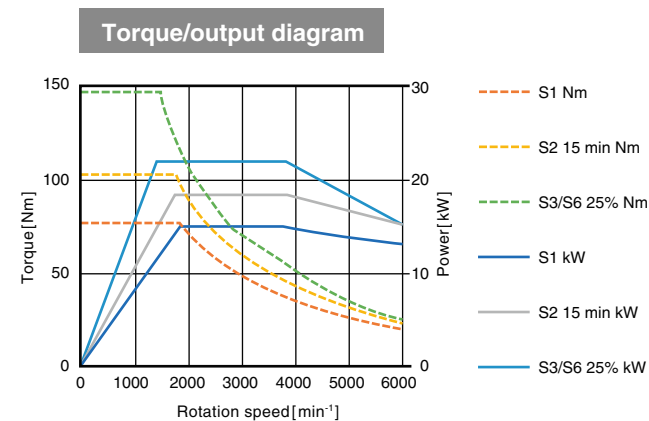


Right spindle

Option $\phi 100$ mm

Spindle motor	22/15 kW (25% ED/continuous)
Bar material machining ability	$\phi 30$
Spindle rotation speed	6,000 min ⁻¹

《 $\phi 100$ mm spindle 》



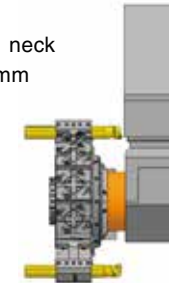
Turret

Note: PAT. P.

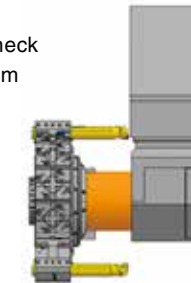
It is possible to select from the following two types: a highly rigid short neck and a long neck with flexibility for right spindle tooling.

Protrusion amount of the boring bar

Short neck
93 mm

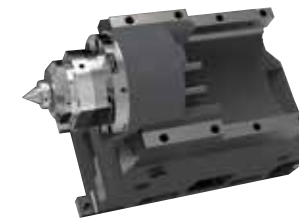


Long neck
179 mm



Note: The above values are from the right end of the tool holder.

A 12 station turret is the standard specifications. The 20 station turret specifications will be added in the future.



Tailstock

Optional tailstock

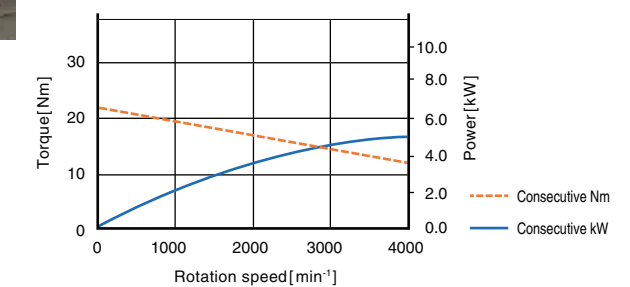
Drive system	Servo motor
Tapered hole shape	Built-in center: MT.4
Stroke	830 mm
Maximum thrust	6,600 N

Live tool



Output	5.0 kW
Spindle rotation speed	4000 min ⁻¹
Torque	22 Nm

Torque/output diagram



Milling ability

《 Endmill 》

Chip removal amount
= **200** cm³/min

Cutter	$\phi 20$ 7 blades
Cutting speed	200 m/min
Feed	0.7 mm/rev
Cutting depth	4.5 mm
Workpiece material	S45C

《 Drill 》

Chip removal amount
= **72** cm³/min

Drill	$\phi 20$
Cutting speed	65 m/min
Feed	0.22 mm/rev
Workpiece material	S45C

《 Tap 》

Spiral tap **M20** P=2.5
Rolling tap **M12** P=1.75

Workpiece material	S45C
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Reducing loads on operators

Note: PAT. P.

The door can be opened/closed to the right and left. This makes it possible to access the right and left spindles in the shortest distance. In addition, the door open/close assist function (option) reduces loads on operators.



Parts catcher

This receives the completed workpieces inside the machine and unloads them outside the machine. The receiving method for completed workpieces can be selected from the V-nest type and bucket type.

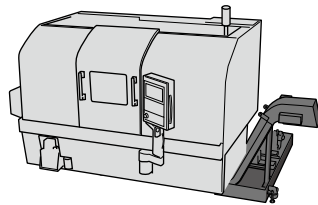


Supported workpiece size: Max $\phi 65$

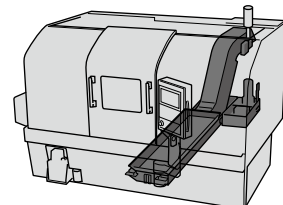
Chip conveyor

The discharge direction of the chip conveyor can be selected from the right side or rear side according to the work contents and factory space.

Right side discharge

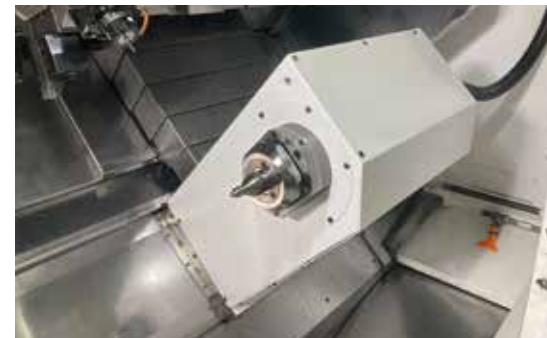


Rear side discharge



Digital tailstock

A highly rigid digital tailstock that drives the tailstock by a servo motor contributes to reducing the workload and changeover time.



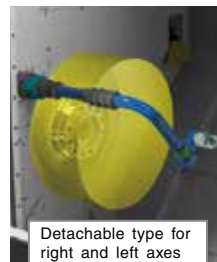
Tool sensor

Tool sensors can be attached as an option. It is possible to select from the retractable type or detachable type.

Retractable type
For mass production, automation



Detachable type
For low-volume production, countermeasures for chip accumulation



Detachable type for right and left axes

(Two-branch sensor is used) Common to right and left

Bar feeder

A bar feeder can be attached. Max $\phi 65$



Large operation panel

Usability has been improved by placing a full keyboard in the center of the operation panel.



Original header screen



This is Fuji's original operation support screen. It is possible to check the status of the machine and operate the machine while displaying the FANUC screen.

Alarm message screen



Quick recovery for the machine is supported just by the screen display without checking instruction manuals because operation guidance is provided when an error occurs.

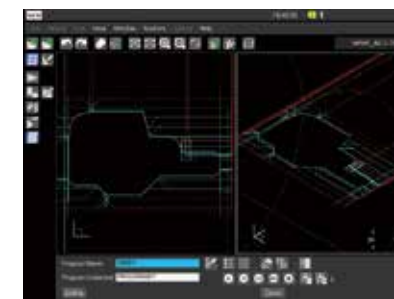
Tool management screen



Up to eight tools can be specified for one station in the turret. The screen can be filtered to only display the tools being used.

Interactive programming software

- Easy programming by simply creating the shape of the material and workpiece
- Various methods for creating the shape (symbolic input, CAD data input, CAD drawing)
- Possible to create programs for multi task processing (turning, drilling, milling)
- Supports the two spindle machine configuration
- Reduces the time for creating programs by automatically determining processes



Machine specifications

Swing over bed		mm [inch]	φ790 [31.1]
Maximum machining diameter	Left spindle	mm [inch]	φ460 [18.1]
	Right spindle	mm [inch]	φ460 [18.1]
Maximum machining length		mm [inch]	750 [29.5]
Left spindle	Chuck size	inch	12,10 (15) [※①10,8 (12)]
	Bar material machining ability	mm [inch]	φ65 [φ2.6] (※①φ30 [φ1.2])
Right spindle	Chuck size	inch	10,8 (12)
	Bar material machining ability	mm [inch]	φ30 [φ1.2]
Left spindle	Spindle diameter	mm [inch]	φ120 [φ4.7] (※①φ100 [φ3.9])
	Spindle end shape		A2-8 (※①A2-6)
	Spindle bore diameter	mm [inch]	φ76 [φ3.0] (※①φ42 [φ1.7])
	Spindle rotation speed	min ⁻¹	5000 (※①6000)
	Spindle motor	kW [hp]	22/15 [30/20] (Low speed winding) 25/22 [34/30] (High speed winding) (25% ED/continuous) [*1: 22/15 [30/20] (25% ED/continuous)]
	Minimum spindle indexing angle	degree	0.001
Right spindle	Spindle diameter	mm [inch]	φ100 [φ3.9]
	Spindle end shape		A2-6
	Spindle bore diameter	mm [inch]	φ42 [φ1.7]
	Spindle rotation speed	min ⁻¹	6000
	Spindle motor	kW [hp]	22/15 [30/20] (25% ED/continuous)
	Minimum spindle indexing angle	degree	0.001
Tailstock	Stroke	mm [inch]	830 [32.7]
	Tapered hole shape		Live center : MT.5 Built-in center : MT.4
Turret type	Number of tool holders	Station	12
	Turret indexing mechanism		3-piece coupling
	Turret mount size		BMT 55 (※① 45、60)

Turret type	Tool type	mm	Square shank : □25
	Turret indexing time	sec	Boring bar : φ40 ※③ 0.8
Live tool	Rotation speed	min ⁻¹	4000 (※④ 6000)
	Motor	kW	5.0 [6.7]
Slide method	X		Boxway
	Y		Boxway
	Z		Roller guide
	B		Roller guide
Slide stroke	X	mm [inch]	295 [11.6]
	Y	mm [inch]	±50 [±2.0]
	Z	mm [inch]	886 [34.9] (*5: 800 [31.5])
	B	mm [inch]	830 [32.7]
Rapid traverse	X	m/min [inch/min]	24 [945]
	Y	m/min [inch/min]	12 [472]
	Z	m/min [inch/min]	38 [1496]
	B	m/min [inch/min]	36 [1417]
Servo motor	X	kW [hp]	4.3 [5.8]
	Ys	kW [hp]	3.8 [5.1]
	Z	kW [hp]	4.3 [5.8]
	B	kW [hp]	4.3 [5.8]
NC unit			FANUC 0i-TF Plus
Footprint		mm x mm [inch x inch]	Right side discharge: 4330 x 2400 [170 x 94]
			Rear side discharge: 3220 x 3090 [127 x 122]
Machine height		mm [inch]	2130 [83.9]
Machine weight		kg [lb.]	7000 [15433]
Power capacity		kVA	65

*1: When φ100mm [φ3.9inch] spindle is selected

*2: BMT55 is the standard

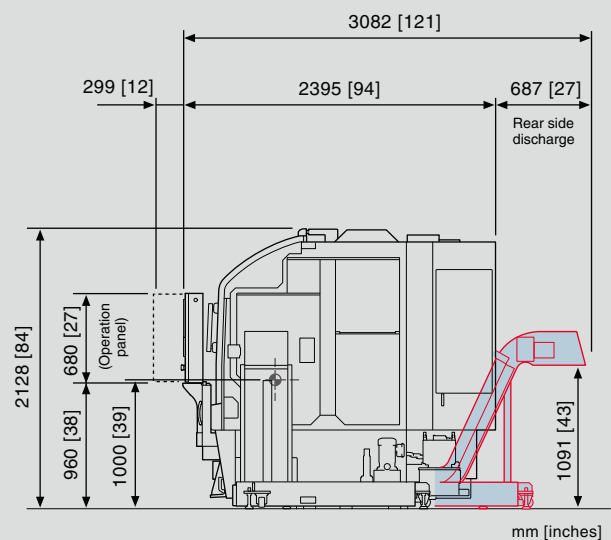
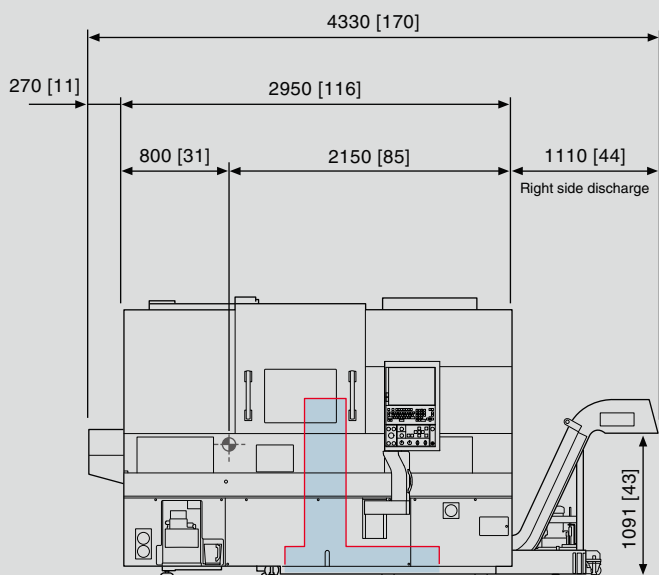
(BMT45/60 are supported when they are selected as an option)

*3: When the total weight of cutting tools is 80 kg [177lb] or less

*4: 6000 min⁻¹ is supported as an option

*5: When equipped with a long neck turret

Machine Overview



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- Specifications are subject to change without notice.
- The photos include options.
- The mentioned data on this catalog is actual value, but not a performance guarantee.

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