HS-T140-R3.5-20151006

Hi-TECH 550BB

High Rigid Big Bore Turning Center

HYUNDAI WIA

THE Hi-TECH 550BB OF BOX-WAY, GEAR-BOX BIG BORE TURNING SOLUTIONS

High Rigid Big Bore Turning Center

Hi-TECH 550BB is designed for most demanding industrial applications. These tough, highly precise machines employ extra-scale through-spindles, and the two heavy duty air chucks in front and rear of the spindle guarantee perfect results, every time. The 45-degree tilt unibody bed equipped in each model is ideal for most demanding hard-turning jobs, and the Hi-TECH 550BB employ the box way design in all guide surfaces for maximum stability and precision after hours of prolonged operation. And the gear-transmission spindle assembly provides both low torque and high speed turning to make you more productive.

※Main Features

1. Large Through Hole Spindle for Pipe Machining

- Through Spindle Hole Dia.: Ø195mm
- Spindle Motor: 37/30kW(50/40HP)
- Type of Spindle Nose: ASA A2-15

2. Rotary Tool Spindle

- Option1: 7.5/5.5kW(10/7.5HP), 4000rpm
- Option2: 11/7.5kW(15/10HP), 3000rpm
- C-Axis Indexing degree: 0.001˚

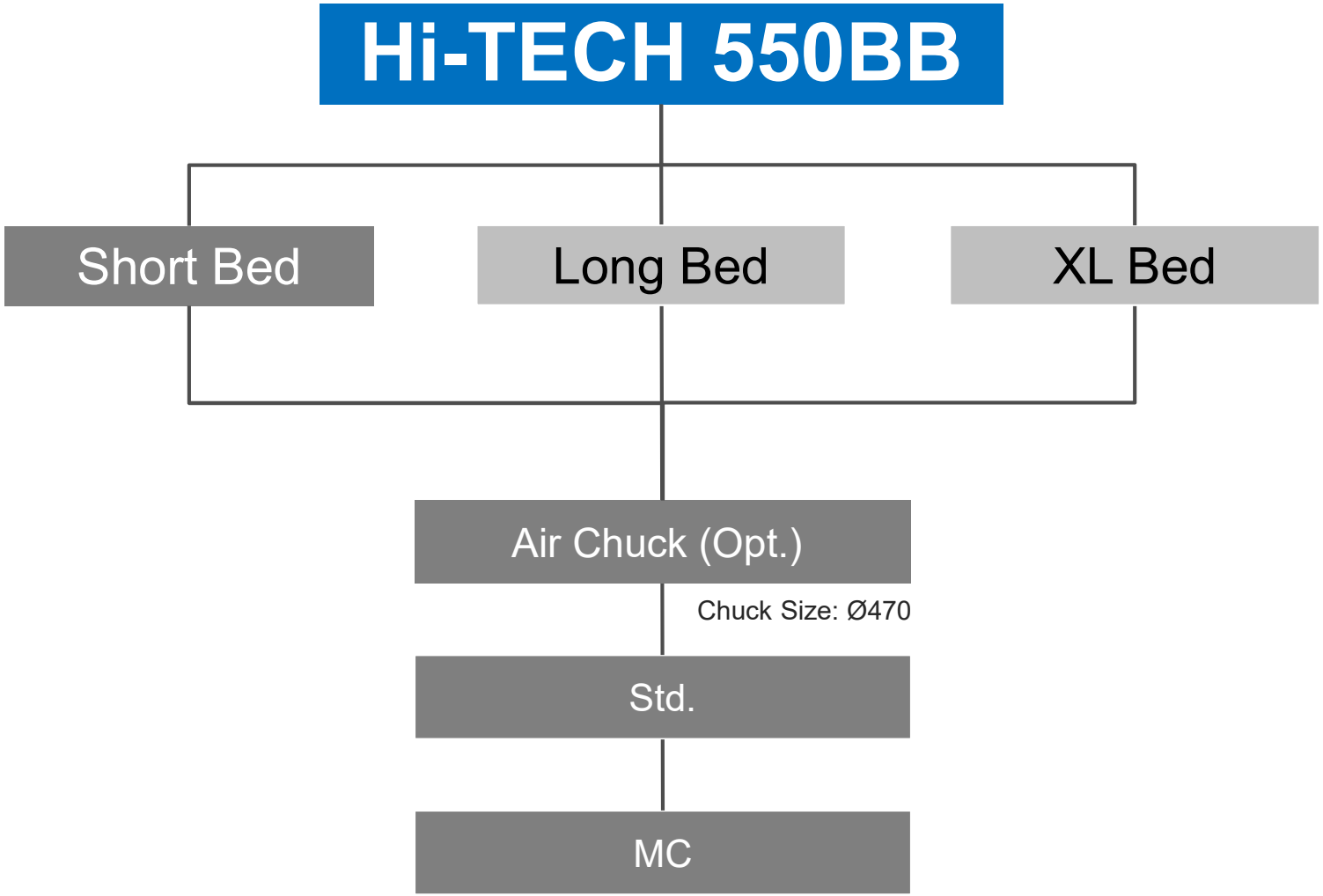
3. Tailstock (MT #5)

- Quill Diameter : 120mm

4. Multi Function

- Adapted Rotating Pendant Arm
- Air Chuck (Opt.)
- Automatic Tool Presetter (Opt.)

Various Line-up



Hi-TECH 550BB

550BB/MC

550BBL

550BBL/MC

550BBXL

550BBXL/MC

Ref. **1) Std.:** with Tailstock **2) MC :** Turnmill (C-axis, 0.001˚) **3) L:** Long Bed **4) XL:** Extra Long Bed

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Machine Specification 【Hi-TECH 550BB】

Item		Hi-TECH 550BB	Hi-TECH 550BB/MC	Hi-TECH 550BBL	Hi-TECH 550BBL/MC	Hi-TECH 550BBXL	Hi-TECH 550BBXL/MC
● Capacity							
Swing over Bed	mm(inch)	**Ø800** (Ø31.50”)					
Max. Cutting Diameter	mm(inch)	**Ø590** (Ø23.23”)					
Standard Cutting Diameter	mm(inch)	**Ø275** (Ø10.83”)					
Chuck Size (Opt.)	mm(inch)	**Air Chuck Ø470** (Ø18.5”)					
● Spindle							
Type of Spindle Nose	ASA	**A2-15**					
Max. Spindle Speed	rpm	**1,500**					
Through Spindle Hole Dia.	mm(inch)	**Ø195** (Ø7.68”)					
Max. Bar Size	mm(inch)	**Ø190** (Ø7.48”)					
Spindle Bearing Inner Dia.	mm(inch)	**Ø240** (Ø9.45”)					
Spindle Motor	kW(HP)	**37/30** (50/40)					
● Turret							
Number of Tool Station	ea	**12**					
Tool Size	mm(inch)	□ **32** × **Ø60** (□1.25” × Ø2.5”)					
Turret Indexing Time	sec./step	**0.2**					
● Axes							
Rapid Speed (X/Z)	m/min.	**20/24**		**20/20**		**20/10**	
Max. Stroke (X/Z)	mm(inch)	**345/1,150** (13.58”/45.28”)		**345/2,150** (13.58”/84.65”)		**345/3,250** (13.58”/127.95”)	
Feed Motor (X/Z)	kW(HP)	**4/4**(5.4/5.4)		**4/7**(5.4/9.5)		**4/7**(5.4/9.5)	

HWACHEON

Machine Specification 【Hi-TECH 550BB】

Item		Hi-TECH 550BB	Hi-TECH 550BB/MC	Hi-TECH 550BBL	Hi-TECH 550BBL/MC	Hi-TECH 550BBXL	Hi-TECH 550BBXL/MC
• Tailstock							
Quill Diameter	mm(inch)	**Ø120** (Ø4.72")					
Quill Stroke	mm(inch)	**150** (5.91")					
Quill Taper	MT	**# 5**					
● Turnmill (Opt.)							
Spindle Motor	kW(HP)	—	**7.5/5.5** (10/7.5)	—	**7.5/5.5** (10/7.5)	—	**7.5/5.5** (10/7.5)
Max. Spindle Speed	rpm	—	**4,000**	—	**4,000**	—	**4,000**
Max. Drill/Tap Size	mm(inch)	—	**Ø32**(Ø1.26")/**M20**	—	**Ø32**(Ø1.26")/**M20**	—	**Ø32**(Ø1.26")/**M20**
Min. Index Angle	°(deg.)	—	**0.001**	—	**0.001**	—	**0.001**
● Tank							
Lubrication	ℓ(gal)	**12**(3.17)					
Hydraulic	ℓ(gal)	**50**(13.21)					
Coolant	ℓ(gal)	**250**(66)		**380**(100)		**580**(153)	
● Power Sources							
Electrical Power Supply	kVA	**75**					
● Dimension							
Height	mm(inch)	**2,400** (94.49")		**2,450** (96.46")		**2,660** (104.72")	
Floor Space (L×W)	mm(inch)	**4,590 x 2,450** (180.71" x 96.46")		**5,590 x 2,450** (220.08" x 96.46")		**6,890x2,600** (271.26"x102.36")	
Weight	$Kg_f(lb_f)$	**10,000** (22,046)	**10,500** (23,148)	**12,500** (27,558)	**13,000** (28,660)	**16,000** (35,274)	**16,500** (36,376)
● NC Controller		**Fanuc 0i-TF (Opt.: Fanuc 31i-B)**					

NC Specification 【Fanuc 0i-TF】

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※ — : Not available **S**: Standard **O**: Option

Item	Specification	STD	MC
● Controlled axis			
✓Controlled axis (Cs axis)	2-axes	2-axes	3-axes
✓Simultaneously controlled axes	2-axes	2-axes	3-axes
✓Least input increment	0.001mm, 0.001deg, 0.0001inch	S	S
✓Least input increment 1/10	0.0001mm, 0001deg, 0.00001inch	O	O
✓Inch/metric conversion	G20, G21	S	S
✓Stored stroke check 1		S	S
✓Stored stroke check 2,3		S	S
✓Chamfering on/off		S	S
✓Backlash compensation		S	S
● Operation			
✓Automatic & MDI operation		S	S
✓Program number search		S	S
✓Sequence number search		S	S
✓Dry run, single block		S	S
✓Manual handle feed	1unit	S	S
✓Manual handle feed rate	x1, x10, x100	S	S
● Interpolation function			
✓Positioning	G00	S	S
✓Linear interpolation	G01	S	S
✓Circular interpolation	G02, G03	S	S
✓Dwell (Per seconds)	G04	S	S
✓Polar coordinate interpolation	G12.1/G13.1	—	S
✓Cylindrical interpolation	G7.1	—	S
✓Threading	G32	S	S
✓Multiple threading		S	S
✓Threading retract		S	S
✓Continuous threading		S	S

Item	Specification	STD	MC
● Interpolation function			
✓Variable lead threading	G34	S	S
✓Ref. position return 1st	G28	S	S
✓Ref. position return check	G27	S	S
✓2/3/4th Ref. position return	G30	S	S
✓Arbitrary Speed Threading		O	O
● Feed function			
✓Rapid traverse override	F0, F25, F50, F100	S	S
✓Feed per minute (mm/min)	G98	S	S
✓Feed per revolution (mm/rev)	G99	S	S
✓Rapid traverse bell-shaped acceleration /deceleration		S	S
✓Feedrate override	0-150%	S	S
✓Jog feed override	0-1,260 mm/min	S	S
● Program input			
✓Tape code	EIA / ISO	S	S
✓Optional block skip	9ea	S	S
✓Program number	O4-digits	S	S
✓Sequence number	N8-digits	S	S
✓Decimal point programming		S	S
✓Coordinate system setting	G50	S	S
✓Coordinate system shift		S	S
✓Workpiece coordinate system (G54-G59)		S	S
✓Workpiece coordinate system preset (G92.1)		S	S
✓Direct drawing dimension programming		S	S
✓G code system	A	S	S

NC Specification 【Fanuc 0i-TF】

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※ — : Not available **S**: Standard **O**: Option

Item	Specification	STD	MC
● Program input			
✓Programmable data input	G10	S	S
✓Sub program call	10 folds nested	S	S
✓Custom macro B		S	S
✓Addition of custom macro common variables	#100-#199, #500-#999	S	S
✓Canned cycles		S	S
✓Multiple repetitive cycle		S	S
✓Multiple repetitive cycle Ⅱ		S	S
✓Canned cycles for drilling		S	S
✓Manual guide I		S	S
● Spindle speed function			
✓Constant surface speed control	G96/G97	S	S
✓Spindle override	50-120%	S	S
✓Spindle orientation		S	S
✓Rigid tapping		O	S
✓Spindle synchronous control		—	—
● Tool function / compensation			
✓Tool function	T4-digits	S	S
✓Tool offset pairs	128pairs	S	S
✓Tool nose radius compensation		S	S
✓Tool geometry/wear compensation		S	S
✓Tool life management		O	O
✓Automatic tool offset	Tool Presetter option is required	O	O
✓Direct input tool offset value measured B	Tool Presetter option is required	O	O

Item	Specification	STD	MC
● Editing operation			
✓Part program storage length	1,280m(512kB)	S	S
✓Number of register able programs	400ea	S	S
✓Background editing		S	S
✓Extended part program editing		S	S
✓Play back		S	S
● Operation/Display			
✓Clock function		S	S
✓Self-diagnosis function		S	S
✓Alarm history display		S	S
✓Help function		S	S
✓Run hour and parts count display		S	S
✓Graphic function		S	S
✓Dynamic graphic display		O	O
✓Multi-language display (English, German, French, Italian, Chinese, Spanish, Korean, Portuguese, Polish, Hungarian, Swedish ,Russian)		S	S
● Data input/output			
✓Reader/Puncher interface CH1	RS232C	S	S
✓Reader/Puncher interface CH2	RS232C	S	S
✓Ethernet interface		S	S
✓USB card interface		S	S
✓Memory card interface		S	S
● Others			
✓Display unit	10.4" color LCD	S	S

NC Instruction 【Fanuc 0i-TF】

Item	Explanation
Control Axes	2 Axis (X,Z), C Axis (Opt)
Increment system	Least input increment X, Z-Axis : 0.001 mm C-Axis : 0.001°(Op.) X-Axis : 0.001 mm Least command increment X-Axis : 0.0001 mm C-Axis : 0.001°(Op.) Z-Axis : 0.0001 mm
Maximum command value	± 9999.999 mm
Program memory capacity	1,280M(512kB)
Part program edit	Part program editing as follows is possible by MDI operation. 1) Insert, Alter, Delete of word. 2) Delete of block or until the block designated. 3) Register, delete of program.
Input format	Block, word, address, format, can be altered (Inch format) N4 G2 X(U)4.3 R(C)4.3 I4.3 C(H)4.3 K4.3 F3.4 B4.3 or S4, T4(2.2) M2 or 3 P4(7) Q4
Decimal point edit	The following addresses can be used with a decimal point: X, Z, U, W, R, C, F, I, K, A, H, B
Command method	Absolute / Incremental command is possible
Positioning	Each axis can independently feed rapidly and position by G00 command
Cutting federate	Feed per minute and feed per spindle revolution is possible. G98 : Feed per minute. (mm/min) G99 : Feed per revolution. (mm/rev) Feed rate range (Feed override 0 - 150% every 10%) Feed per minute 0 - 1,260 (mm/min) Feed per revolution 0.001 - 2,000 (mm/rev)
Auto acceleration /deceleration	Rapid Feed : Linear type → acceleration/deceleration Cutting Feed : Exponential →acceleration/deceleration
Coordinate system setting	By means of this command, a certain position of the tool for example, a coordinate system whereby the tip of the cutting edge becomes (X,Z) of the coordinate system. This coordinate is called as work coordinates.

Item	Explanation
Automatic coordinate setting	By means of this command, a certain position of the tool for example, a coordinate system whereby the tip of the cutting edge becomes (X,Z) of the coordinate system. This coordinate is called as work coordinates.
Work coordinate system shift	When the coordinate system actually set by the G50 command or the automatic coordinate system setting deviate from the programmed work coordinate system, the set coordinate system can be shifted
Reference point return	1) Manual reference point return. 2) Automatic reference point return (G27, G28).
Interpolation function	Linear interpolation : Done by G01 command at feed rate code designated. Circular interpolation : Any circular arc is interpolated by G02 or G03, at feed rate F code designated. G02 : Clockwise. G03 : Counter Clockwise. When circular radius is command as R, any circular arc of 0°-180°is interpolated, and when circular radius is command as address I, K., any circular interpolation of 0°- 360°can be command
Thread cutting	Can be cut using a G32 command in addition to equal lead. 1) Straight thread. 2) Tapered thread. 3) Scroll thread
Dwell	Dwell is executed by the P, U, X commands. Setting Range 0 - 999.999 sec. Decimal point be used with P address
Back lash compensation	This function compensations for lost motion of the machine. Compensation value (0-2,550 mm) is set by parameter, for each axis (by least command increment).
MDI & LCD	All kinds of data information is input and displayed such as LCD character display, program alarm, diagnosis program, etc.,
Program No. search	Program number of 4 digit continuous to 0 is searched by MDI & LCD Panel
Sequence No. search	Sequence number in the program selected by MDI & LCD is searched. (word is also searched by the same way in edit mode.)
Miscellaneous function (M function)	By the command of 3 digit figure after the address M, ON/OFF control from the machine is possible. Only one M code can be command per block

NC Instruction 【Fanuc 0i-TF】

Item	Explanation
Spindle function (S function)	Spindle speed is commanded by the 4-digit figure to address S. When this function is used with G96,it means cutting speed. When with G97, it means rpm
Tool function (T function)	Turret position can be selected and tool position offset can be done by the command of 2 digits after the address T
Tool position offset	Designating the number of tool position offset by the 2 lower digits of the 4 digits address T, can make tool wear offset possible. Offset pairs are 128, offset amount is ranging 0 ± 999.999 mm
Dry run	Feed rate becomes jog speed (for both cutting feed and for rapid moves).
Single block	Program can be executed one step at a time
Optional block skip	Turning on the optional block skip switch ignores the block including "/" code at the beginning.
Machine lock	When the switch is set to the Machine Lock position, move command pulses are suppressed. Consequently the display is updated as specified by the program, but the tool does not move. The M, S, T and 2nd auxiliary function are executed. This function is used to check a program
Feed hold	Input/output of alarm display can be signaled by pressing alarm, DGNOS key of MDI panel
Stored stroke limit 1	An area inside the area set by parameter is deemed as prohibited area, when stroke is commanded into this area, this function makes the axis decelerate and stop than OT alarm displayed
Canned cycles	1) G90 : Cutting Cycle A --- Outer diameter/internal diameter cutting 2) G92 : Thread Cutting Cycle 3) G94 : Cutting Cycle B --- End face turning cycle
Constant surface speed control	By the direct command of surface speed by S4-digit makes the motor rpm to be controlled continuously so that cutting speed of spindle can be constant, in spite of the alteration of tool position. G96 : Constant surface speed control is executed. G97 : Constant surface speed control is not executed
Multiple repetitive cycle	(1) G70 : Finishing Cycle (2) G71 : Stock removal in turning. (3) G72 : Stock removal in facing. (4) G73 : Pattern repeating. (5) G74 : End face peck drilling cycle. (6) G75 : Outer diameter/internal diameter drilling cycle. (7) G76 : Multiple thread cutting cycle

Item	Explanation
Tool nose radius compensation	G40 : Tool nose radius compensation cancel. G41 : Moving on the left side of the programmed path. G42 : Moving on the right side of the programmed path. Maximum offset value: + 999.999 mm
Chamfering & corner R	In case of linear cutting perpendicular to or parallel with the axis, when next command is chamfering or corner R, linear cutting, chamfering or corner R cutting is accomplished by commanding one block
Portable tape reader	Program, Parameter and etc., are used for reading out of NC
Inch / Metric conversion	Inch system and Metric system are selected to input by G code cutting G20 : Inch input. G21 : Metric input
Changing of tool offset amount	Offset value can be set program command (G10).
Custom macro	Having registered macro commands as sub program, in memory. This function is able to recall at anytime the NC command program by this simple procedure
Additional program memory	Impossible (Max. 1,280M(512kB)
External tool compensation	This is the function to offset the tool offset value from out side the CNC. Offset value is automatically added to the input data of NC
Additional tool offset	This number of tool position offsets and tool nose R, compensation is maximum 128 pairs.
Tool geometry offset and tool wear offset	This is a special type of tool offset, offset value regarding tool installing position (geometry) and offset value regarding tool wear offset, both are stored and tool offset is done accordingly. Offset pairs are 128 pairs each.
Run hour display	2 items, moving time and the number of parts are displays on the position screen. Part counter : The total number of parts are displayed . . . counted by either M02, M03. Run hour : Accumulated running to hour display . . . accumulated running to hour of automatic operation. Cycle time : Cycle time display . . . Running hour display of one automatic cycle.
Solid tapping	When tapping, high speed and high accuracy tapping can be done by running the spindle and X, Z axis synchronous

Accessories 【Hi-TECH 550BB】

Standard Accessories

1) Built in Tailstock (only XL Type)
2) Coolant System
3) Door Interlock
4) Foot Switch
5) Hydraulic Unit ,40Kg_f/cm^2
6) Leveling Bolt & Plate
7) Lubrication System
8) Manual Guide i
9) Operation Manual & Parts List
10) Signal Lamp with 2 Colors (R, G)
11) Standard Turret 12 Stations
12) Tailstock, MT#5
    - Tailstock Body Program
    - Tailstock Quill Program
14) Thread Repair Function
15) Tool Kit & Box
16) Tool Holder for Long Boring Bar
17) Tooling System
18) Wide Type Turret Disk
19) Work Light
20) Gear Box
21) 10.4” Color LCD

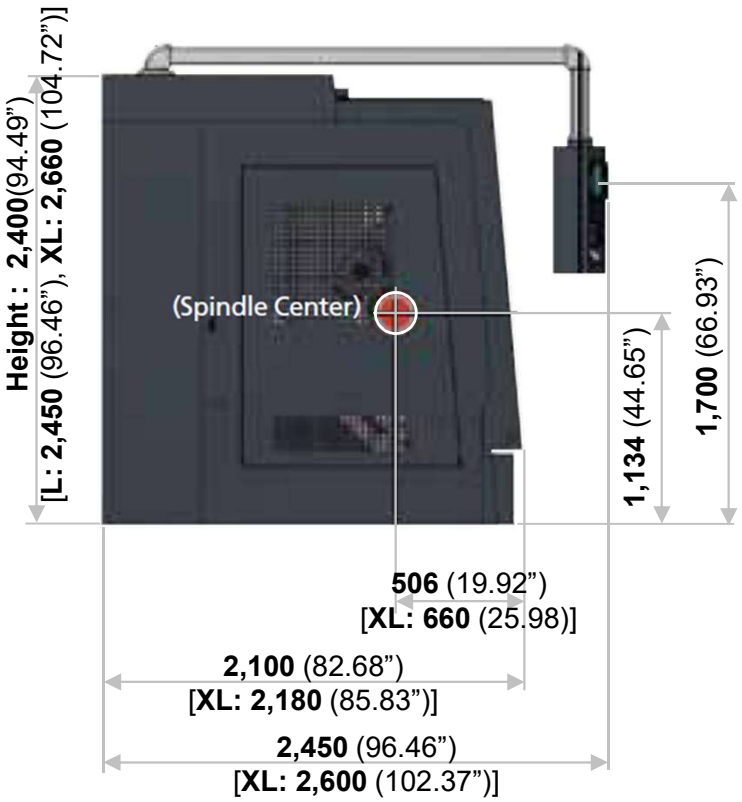
Optional Accessories

1) Air Blower
2) Air Chuck including Pneumatics Control System, SCHUNK/ SMW
3) Air Gun
4) Arbitrary Speed Threading
5) Auto Door
6) Chip Conveyor & Box, Side Type
7) Coolant Gun
8) High Pressure Coolant , 6bar/ 15bar/ 70bar
9) Hydraulic Steady Rest Base Set, Manual/ Programmable
10) Hydraulic Steady Rest Set , KHAN/ SMW
11) Lathe-Hwacheon Tool Load Detect (L-HTLD)
12) Linear Scale (X/ Z)
13) Manual Chuck, 20”
14) NC Controller Upgrade, Fanuc 31i-B
15) NC Cooler
16) Oil Skimmer
17) Signal Lamp with 3 Colors (R, G, Y)
18) Steady Rest Base SetB
19) Steady Rest Set, KHAN/SMW
20) Tool & Work Counter, External/ Internal
21) Tool Life Management
22) Tool Presetter, Automatic
23) Transformer
24) Turnmill Function including C-Axis (0.001°)
25) Turnmill Holder (Axial/ Radial)
26) Turnmill Spindle Motor Upgrade, 11/7.5kW
27) U-Drill Holder
28) 15” Color LCD(only FANUC)

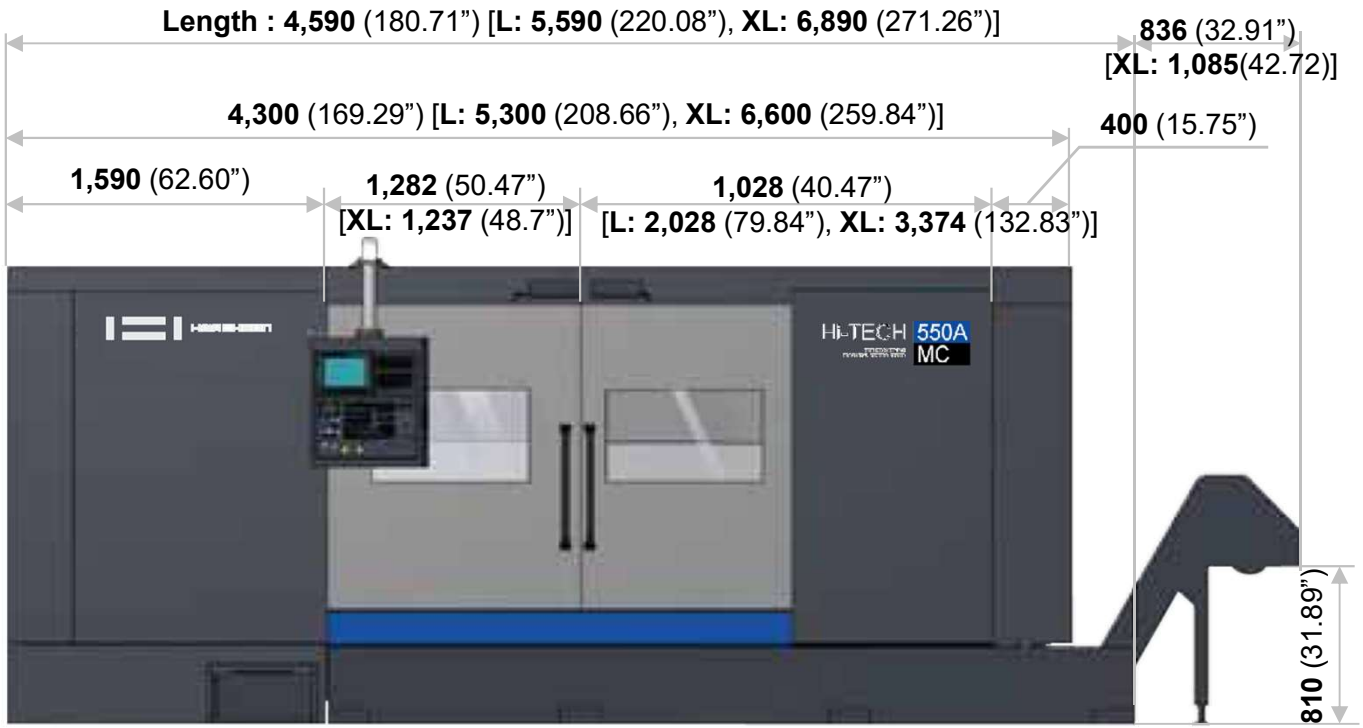
Machine Size 【Hi-TECH 550BB】

※ Unit: mm (inch)

- L: Long Bed
- XL: Extra Long Bed



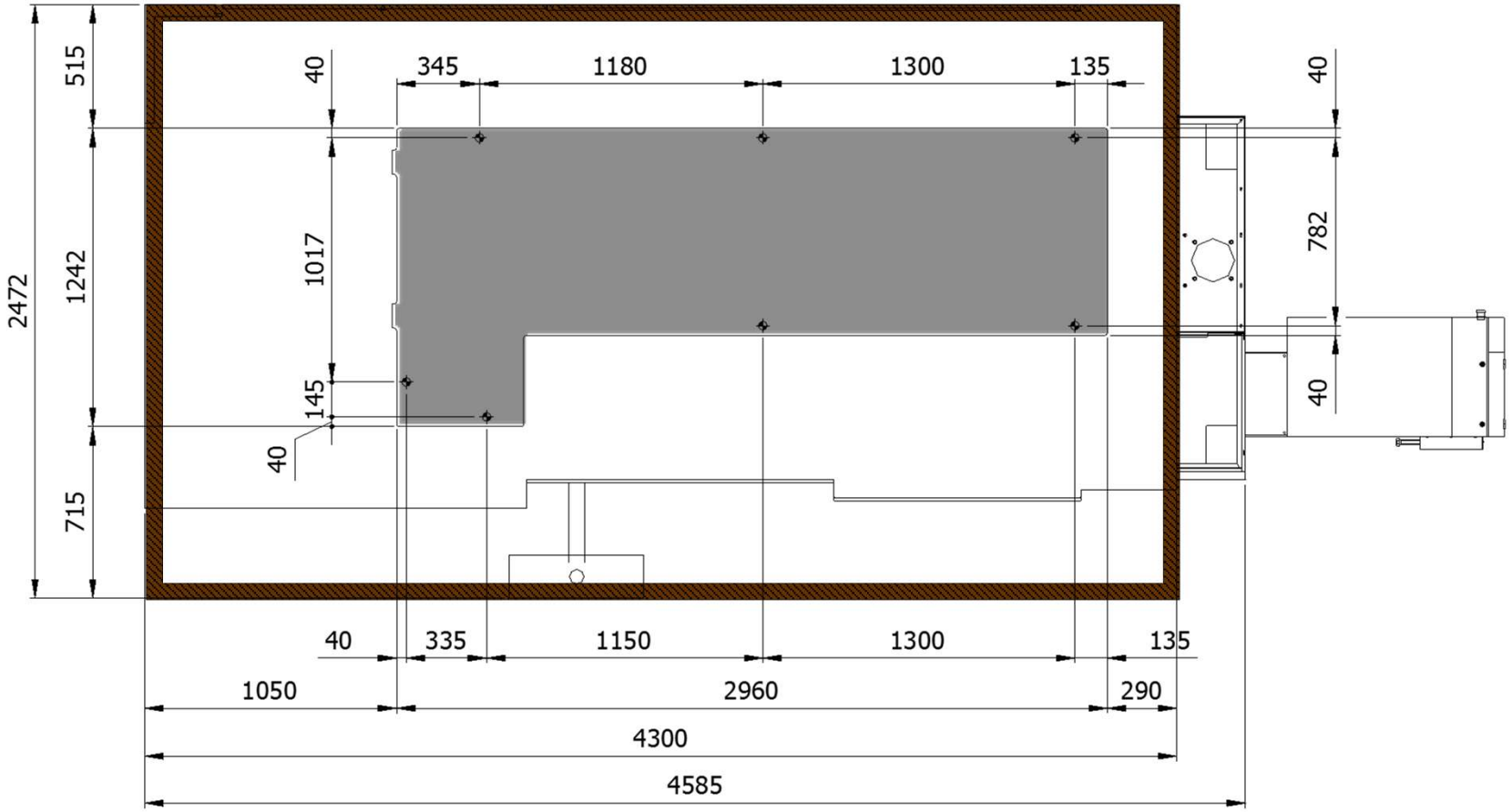
【Side】



【Front】

Foundation【Short Type】

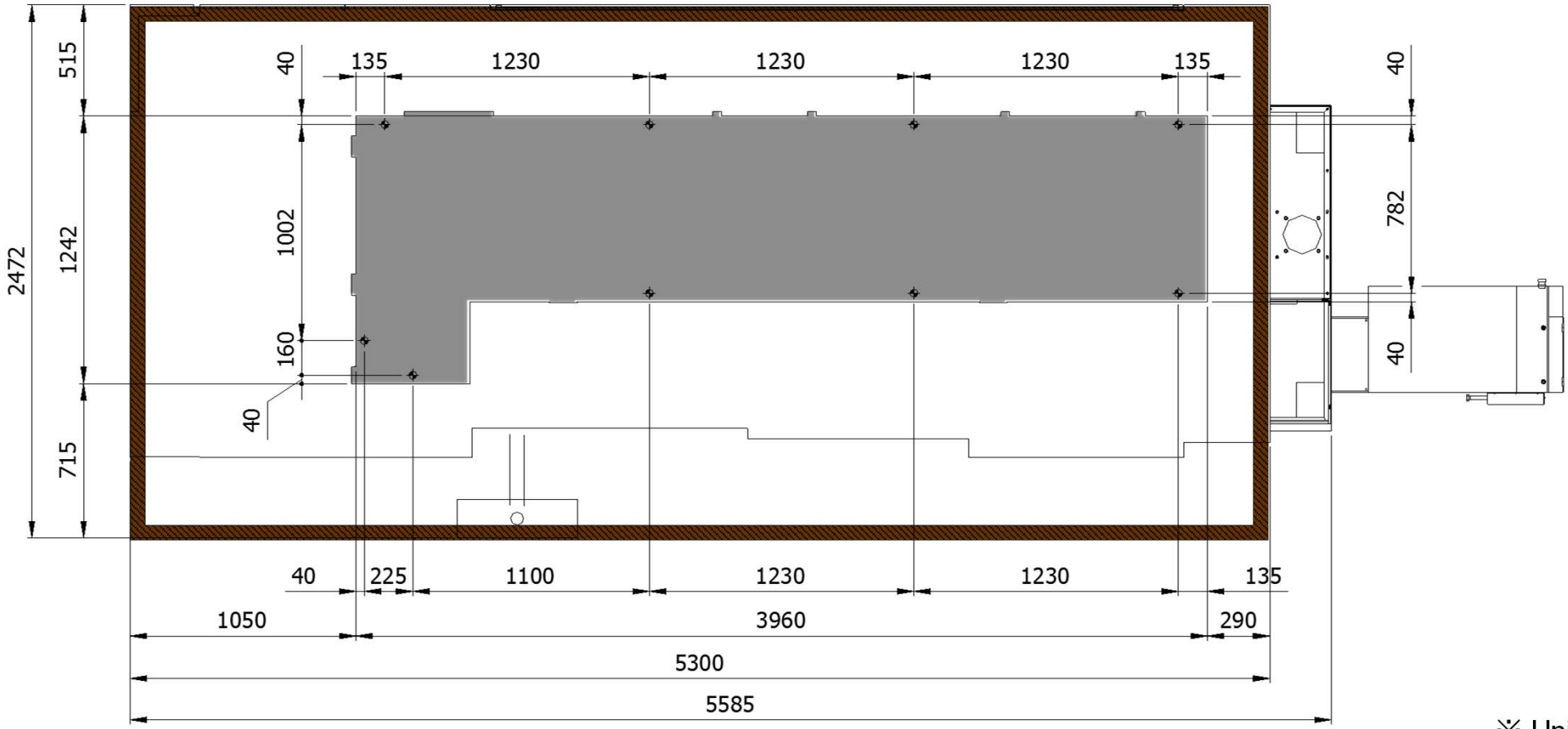
- **Machine Size (L x W x H)** → 4,590(180.71”) x 2,450(96.46”) x 2,400(94.49”) mm(inch)
- **Weight** → Std.: 10,000kg$_f$ / MC: 10,500kg$_f$
- **Electric Power (kVA)** → 75
- **Transformer (kVA)** → 75
- **Size of Power Cable** → 38 SQ



※ Unit: mm (inch)

Foundation【Long Type】

- **Machine Size (L x W x H)** → 5,590(220.08”) x 2,450(93.46”) x 2,450(96.46”) mm(inch)
- **Weight** → L: 12,500kg$_f$ / LMC: 13,000kg$_f$
- **Electric Power (kVA)** → 75
- **Transformer (kVA)** → 75
- **Size of Power Cable** → 38 SQ

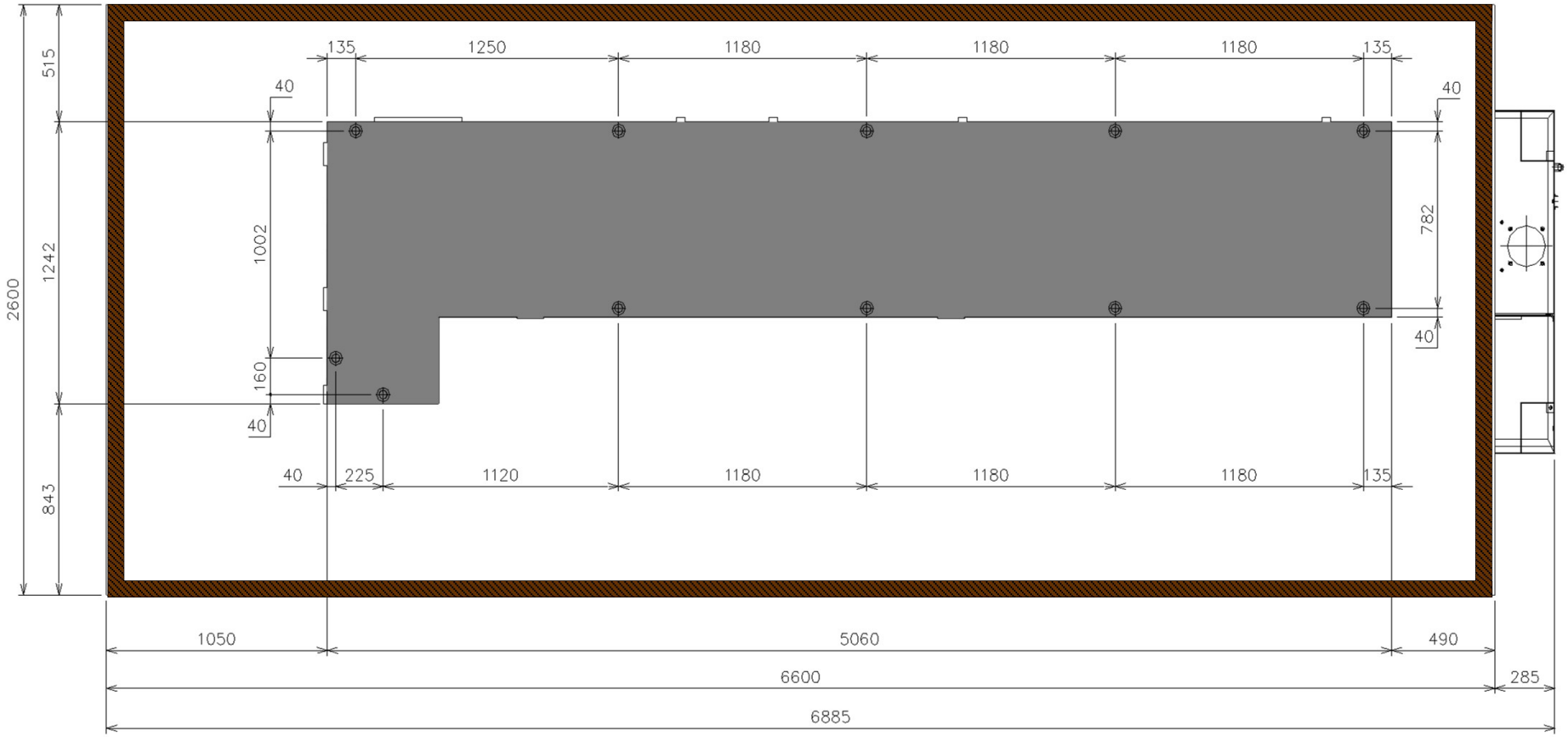


※ Unit: mm (inch)

Foundation【XL Type】

- **Machine Size (L x W x H)** → 6,890(271.26”) x 2,600(102.36”) x2,660(104.73”) mm(inch)
- **Weight** → XL: 16,000Kg$_f$ / XLMC: 16,500Kg$_f$
- **Electric Power (kVA)** → 75
- **Transformer (kVA)** → 75
- **Size of Power Cable** → 38 SQ

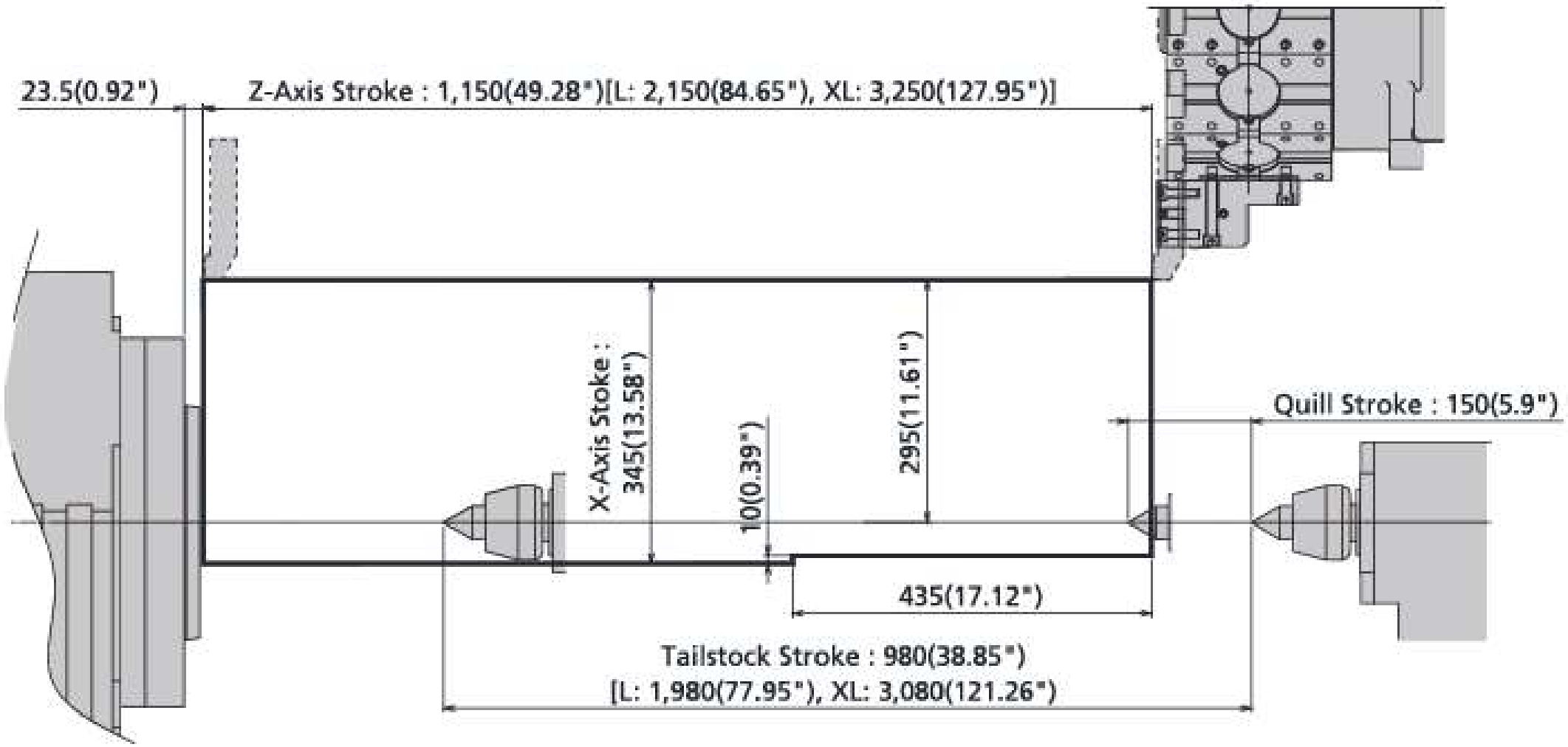
※ Unit: mm (inch)



Moving Range 【Hi-TECH 550BB】

O.D Holder

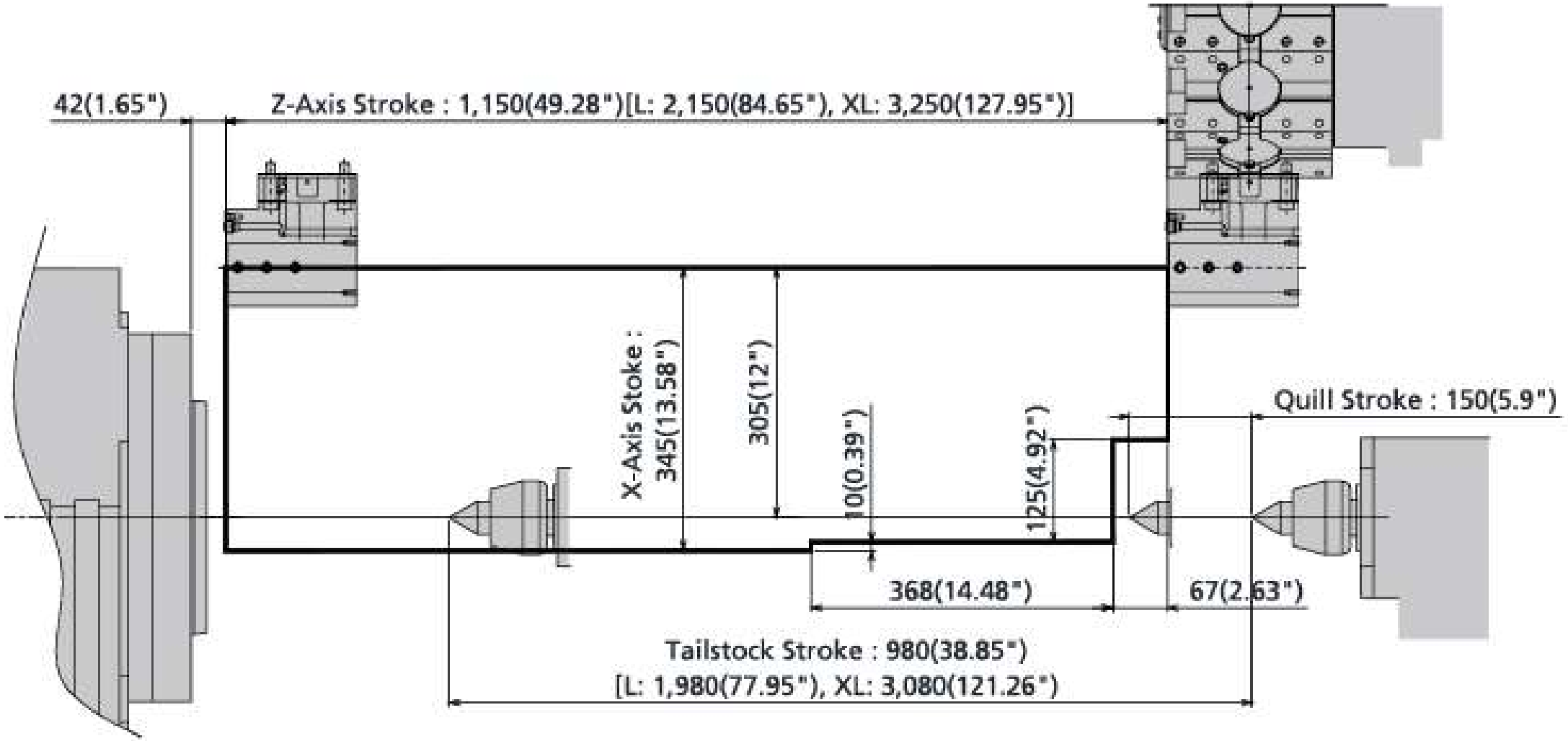
※ Unit: mm (inch)



Moving Range 【Hi-TECH 550BB】

I.D Holder

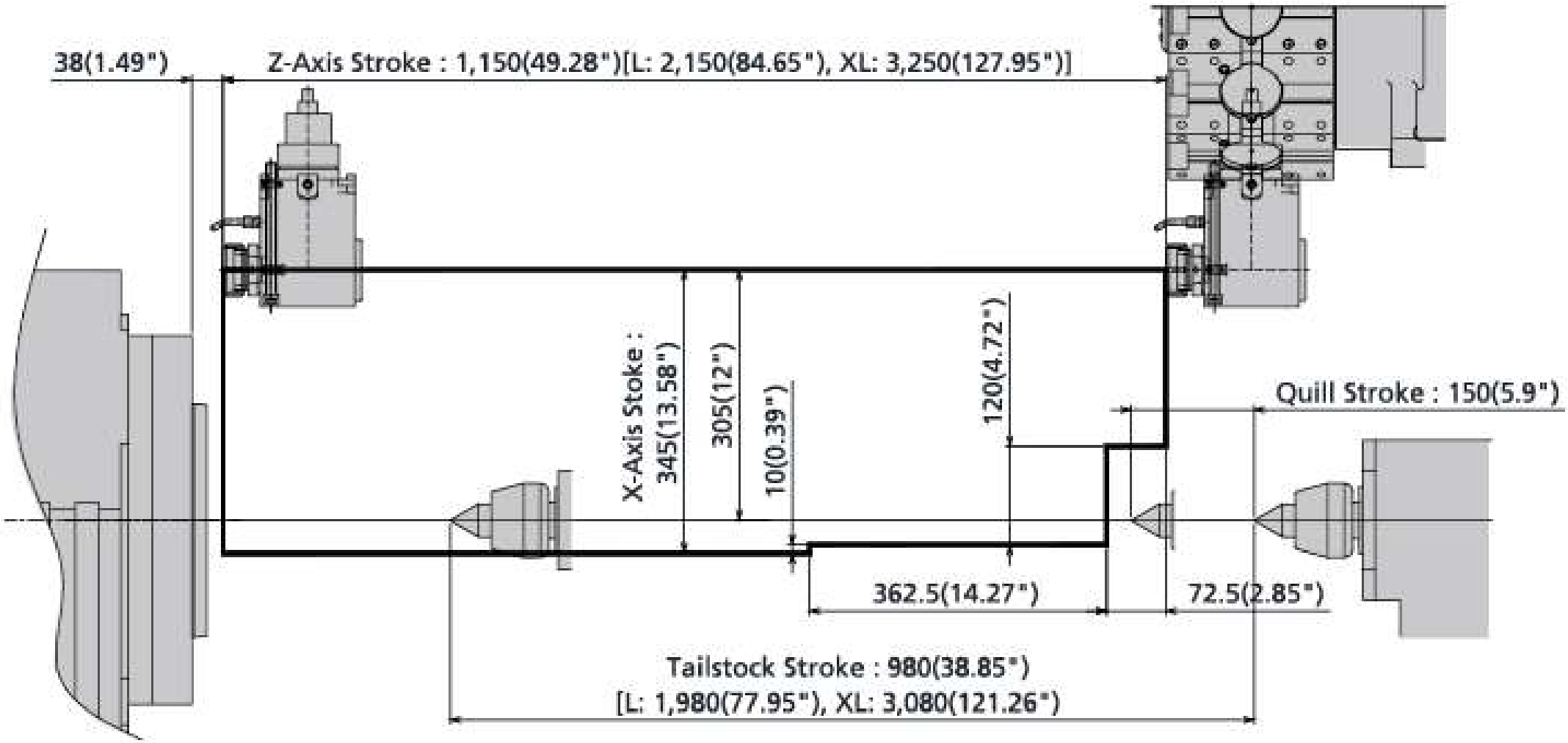
※ Unit: mm (inch)



Moving Range 【Hi-TECH 550BB/MC】

Radial Turnmill Holder

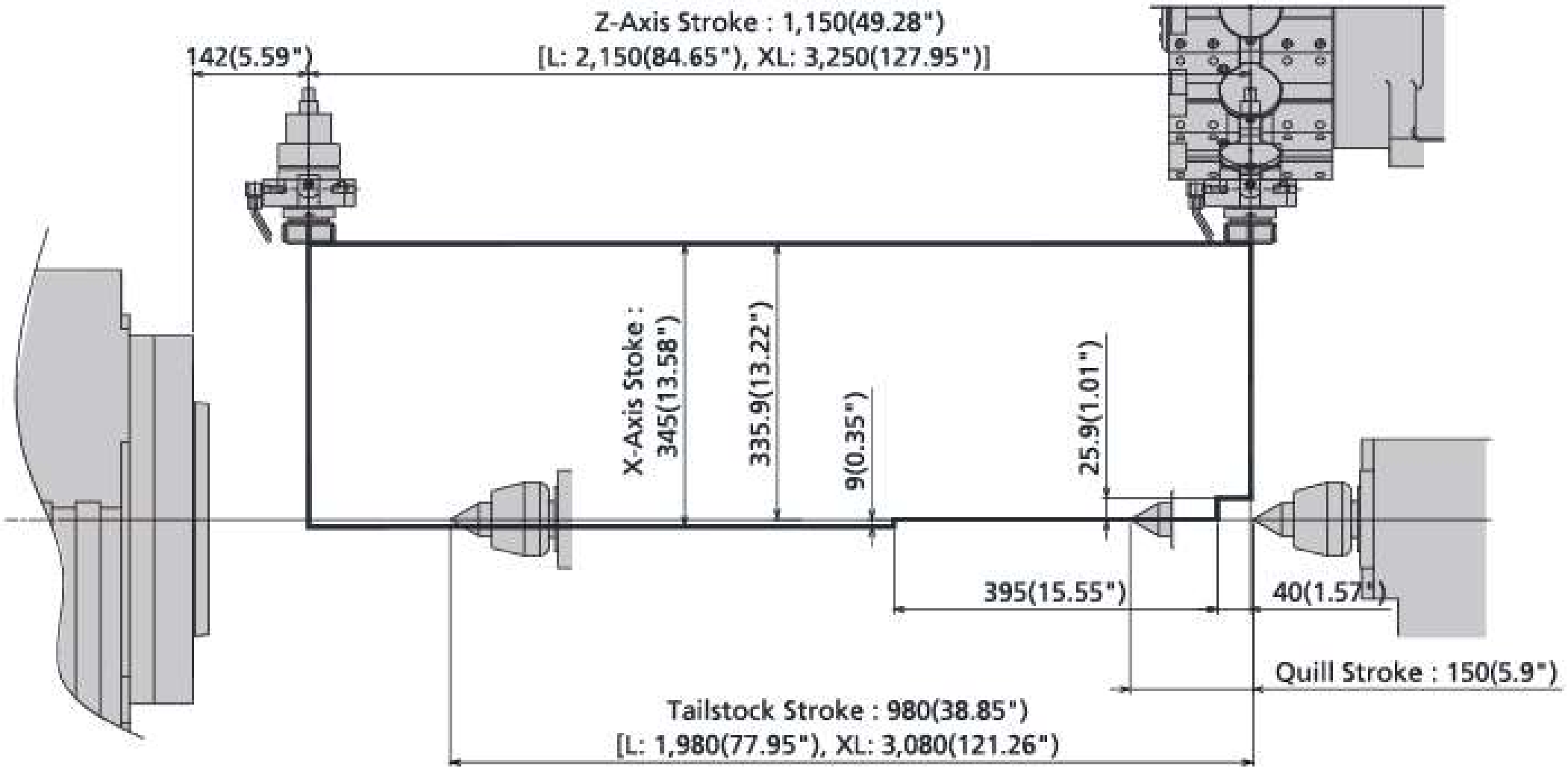
※ Unit: mm (inch)



Moving Range 【Hi-TECH 550BB/MC】

Axial Turnmill Holder

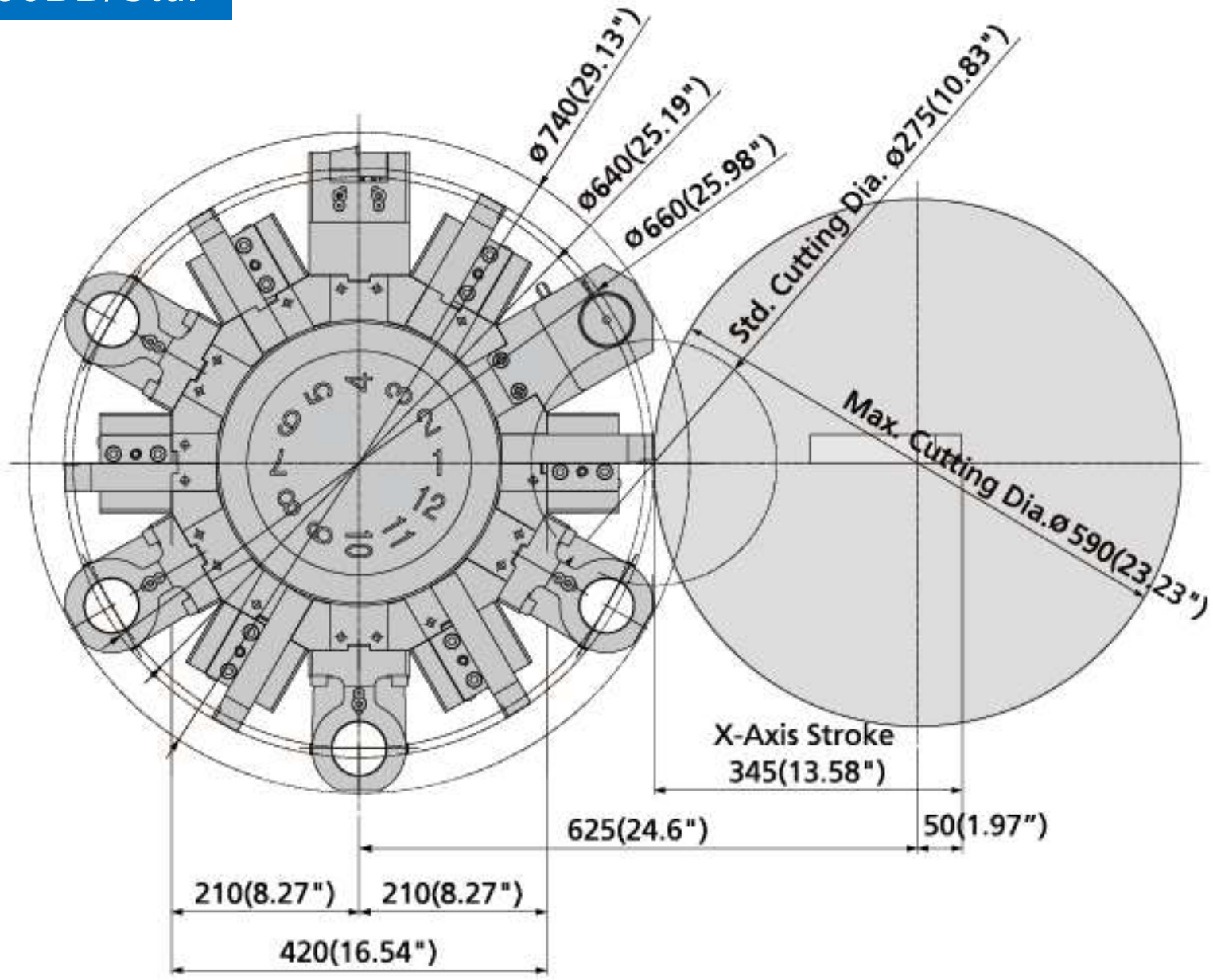
※ Unit: mm (inch)



Turret Interference Dia.

Hi-TECH 550BB/Std.

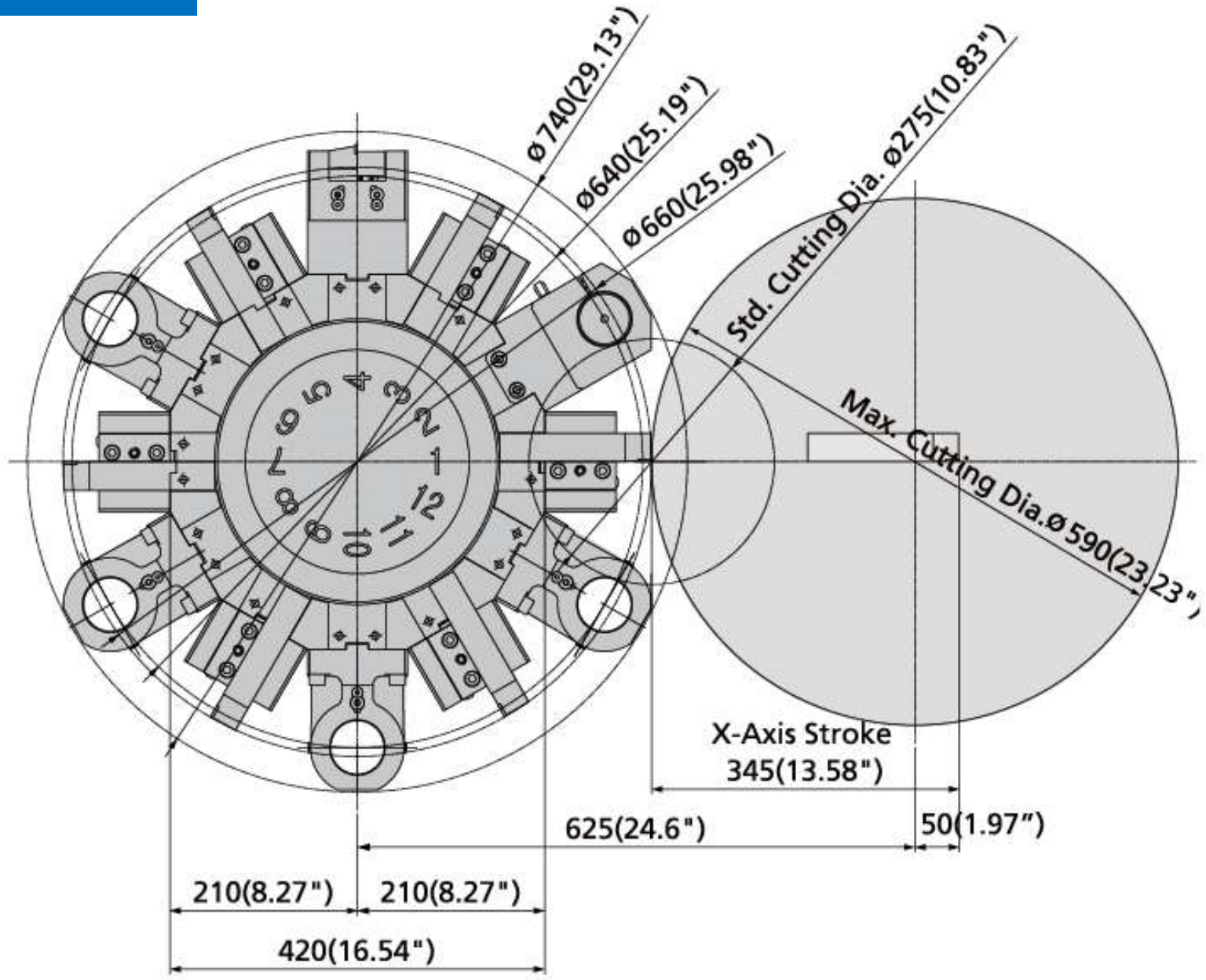
※Unit: mm(inch)



Turret Interference Dia.

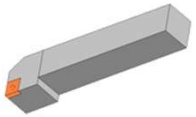
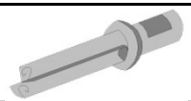
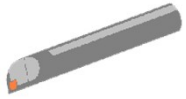
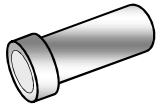
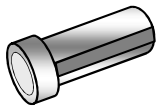
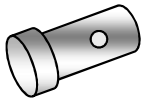
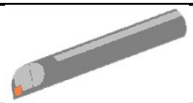
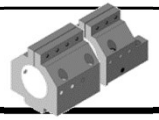
Hi-TECH 550BB/MC

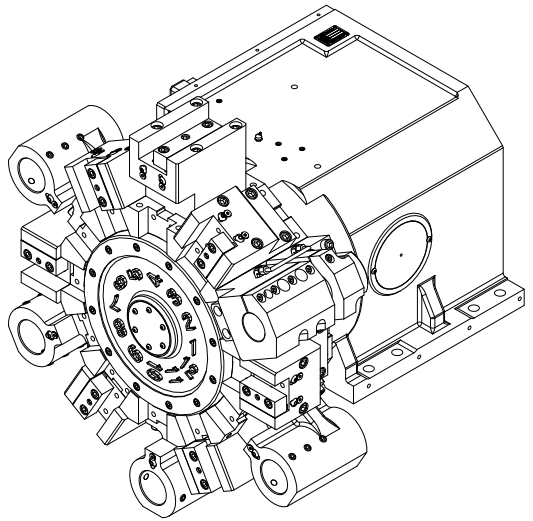
※Unit: mm(inch)



Tooling System 【Hi-TECH 550BB/Std.】

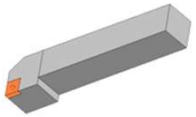
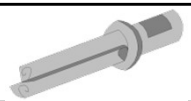
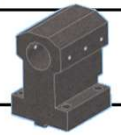
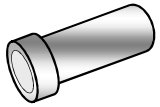
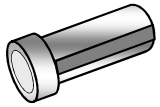
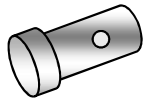
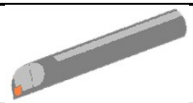
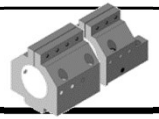
※Unit: ea

Tool	Part No.	Part name	Q'ty	Shape
 □ 32(1.25")	5A4410 (5A44101)	OD Cutting Holder	6	
	5A4412 (5A44121)	Face Holder	1	
	5A4417(5A44171)	U-Drill Holder	Option	
 Ø60(2.5")	5A4411 (5A44112)	ID Holder	4	
	5A4301 (5A43011A)	Sleeve(Ø12, 1/2")	1	
	5A4302 (5A43021A)	Sleeve(Ø16, 5/8")	1	
	5A4303 (5A43031A)	Sleeve(Ø20, 3/4")	1	
	5A4304 (5A43041A)	Sleeve(Ø25, 1")	1	
	5A4305 (5A43051A)	Sleeve(Ø32, 1 1/4")	1	
	5A4306 (5A43061A)	Sleeve(Ø40, 1 1/2")	1	
	5A4307 (5A43071A)	Sleeve(Ø50, 2")	1	
	5A4308 (5A43081A)	Socket(MT#2)	1	
	5A4309 (5A43091A)	Socket(MT#3)	1	
	5A4310 (5A43101A)	Socket(MT#4)	1	
	11V4310 (11V43101)	U-Drill Sleeve(Ø20, 3/4")	Option	
	11V4311 (11V43111)	U-Drill Sleeve(Ø25, 1")		
	11V4312 (11V43121)	U-Drill Sleeve(Ø32, 1 1/4")		
	11V4313 (11V43131)	U-Drill Sleeve(Ø40, 1 1/2")		
	11V4314 (11V43141)	U-Drill Sleeve(Ø50, 2")		
	5A4413	Long Boring Bar Holder	1	

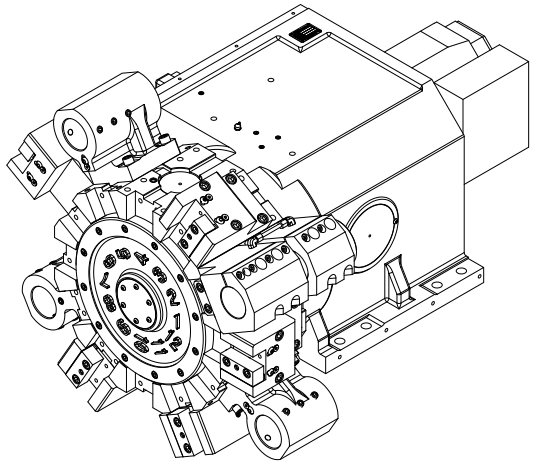


Tooling System 【Hi-TECH 550BB/MC】

※Unit: ea

Tool	Part No.	Part name	Q'ty	Shape
 ☐ 32(1.25")	5A4410 (5A44101)	OD Cutting Holder	4	
	5A4412 (5A44121)	Face Holder	1	
	5A4417(5A44171)	U-Drill Holder	Option	
	5A4411 (5A44112)	ID Holder	3	
 Ø60(2.5")	5A4301 (5A43011A)	Sleeve(Ø12, 1/2")	1	
	5A4302 (5A43021A)	Sleeve(Ø16, 5/8")	1	
	5A4303 (5A43031A)	Sleeve(Ø20, 3/4")	1	
	5A4304 (5A43041A)	Sleeve(Ø25, 1")	1	
	5A4305 (5A43051A)	Sleeve(Ø32, 1 1/4")	1	
	5A4306 (5A43061A)	Sleeve(Ø40, 1 1/2")	1	
	5A4307 (5A43071A)	Sleeve(Ø50, 2")	1	
	5A4308 (5A43081A)	Socket(MT#2)	1	
	5A4309 (5A43091A)	Socket(MT#3)	1	
	5A4310 (5A43101A)	Socket(MT#4)	1	
	11V4310 (11V43101)	U-Drill Sleeve(Ø20, 3/4")	Option	
	11V4311 (11V43111)	U-Drill Sleeve(Ø25, 1")		
	11V4312 (11V43121)	U-Drill Sleeve(Ø32, 1 1/4")		
	11V4313 (11V43131)	U-Drill Sleeve(Ø40, 1 1/2")		
	11V4314 (11V43141)	U-Drill Sleeve(Ø50, 2")		
	5A4413	Long Boring Bar Holder	1	

【BMT 75】



Axial Turnmill Holder (3504251)

(Option)

Milling Collet (ER40: Ø6~32)

Radial Turnmill Holder (3504252)

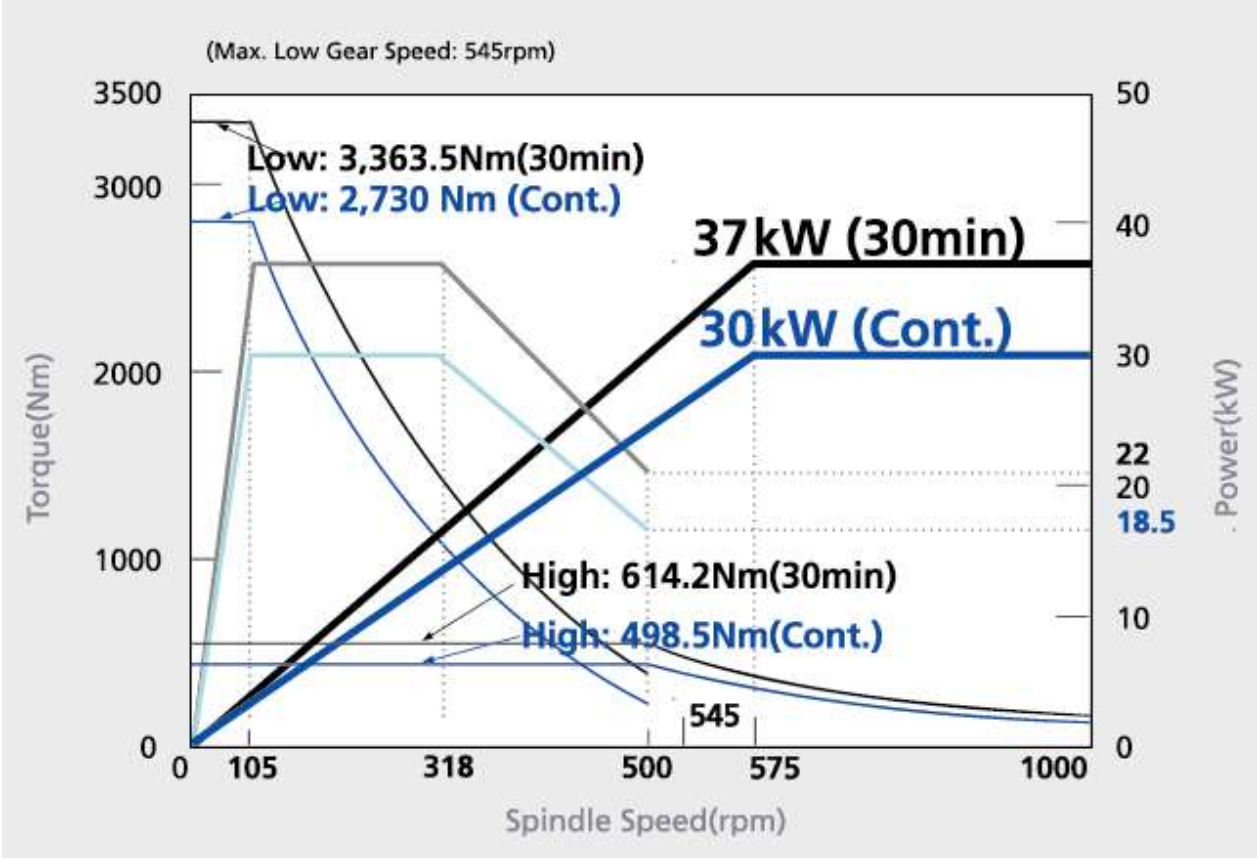
(Option)

Tap Collet (M5~M20)

Torque Diagram 【Main Spindle】

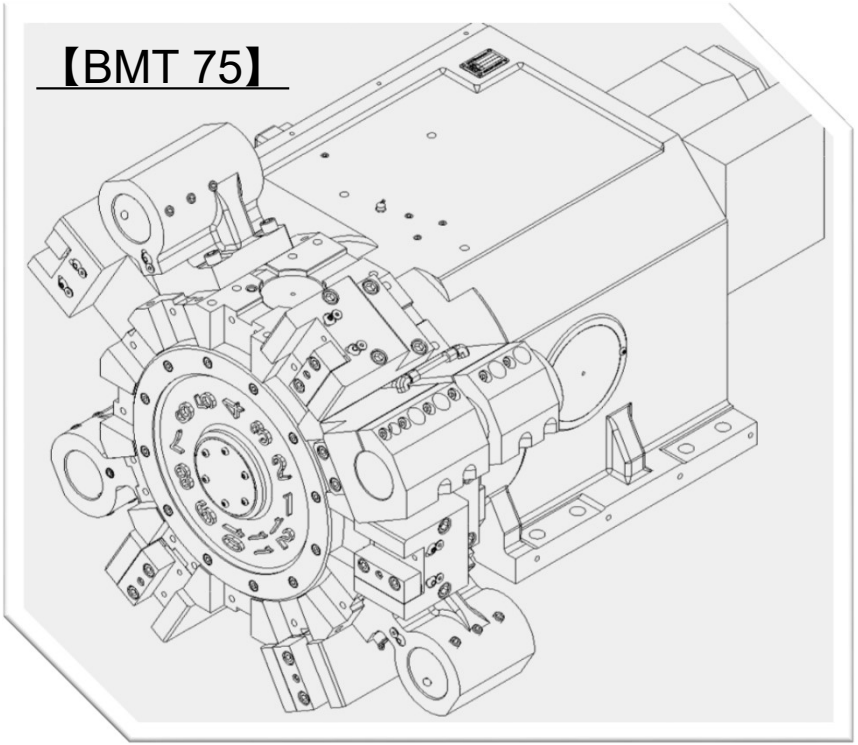
α30 / 6000i

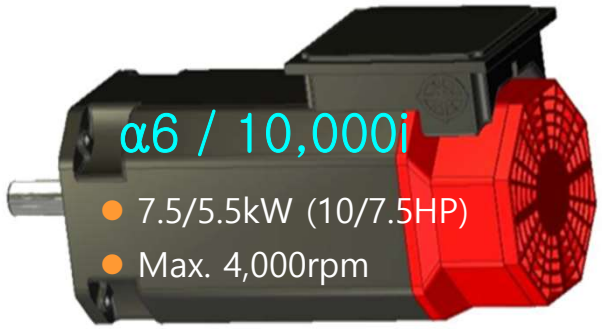
- 37/30kW (50/40HP)
- Max 1,500 rpm

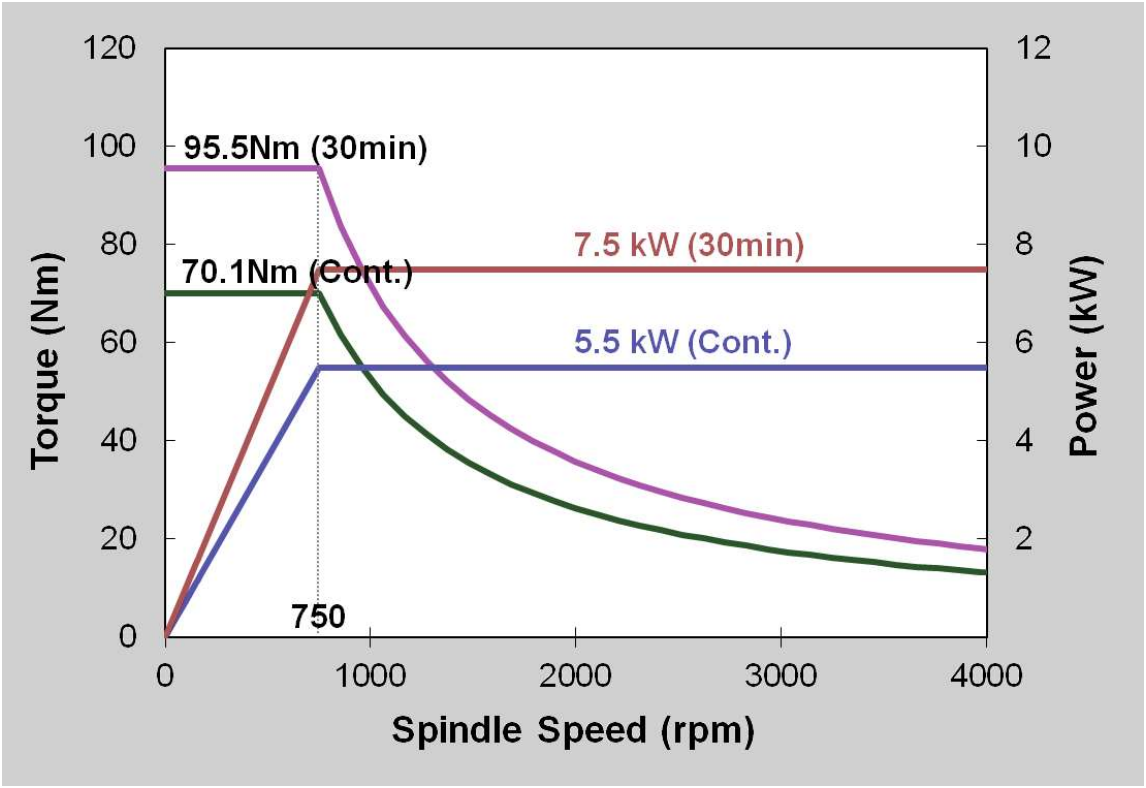


Torque Diagram 【Turnmill Spindle, Option1】

【BMT 75】

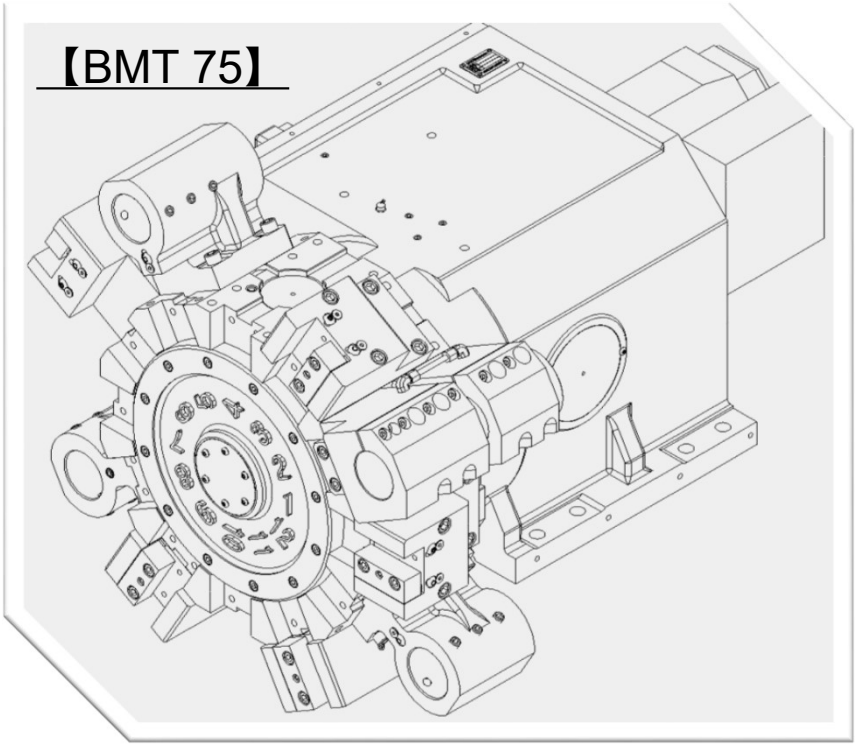


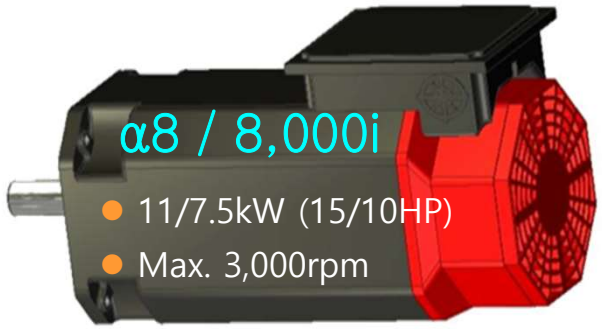


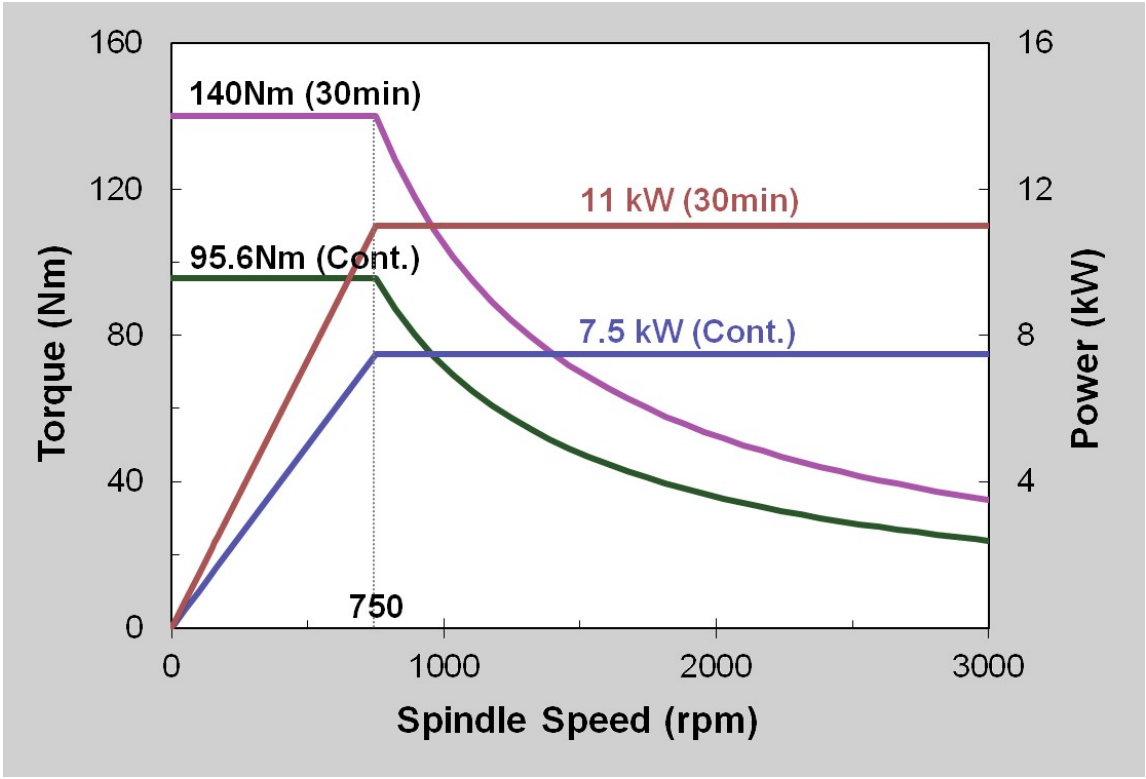


Torque Diagram 【Turnmill Spindle, Option2】

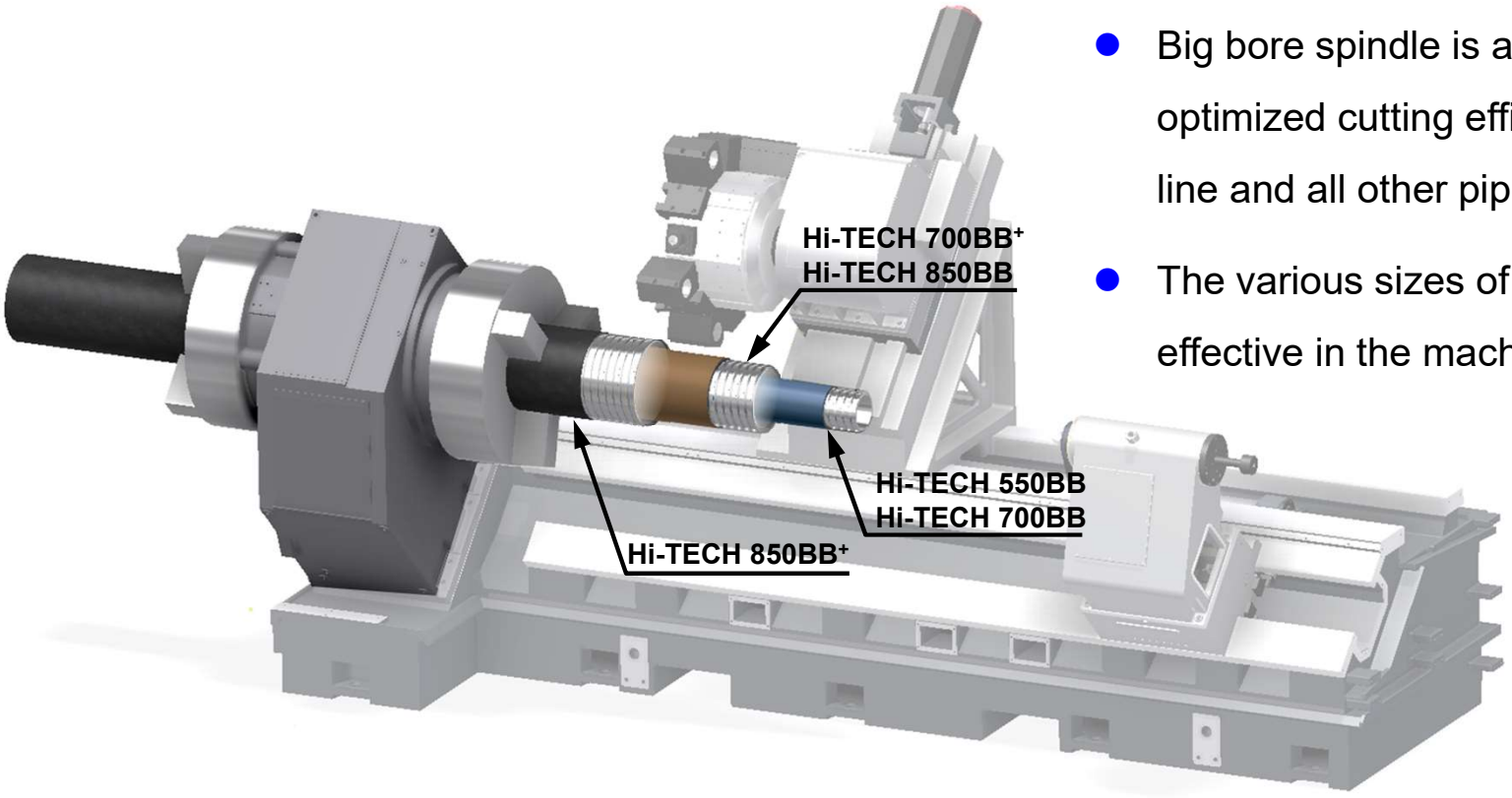
【BMT 75】







Big Bore Series



- Big bore spindle is applied to demonstrate optimized cutting efficiency when cutting oil pipe line and all other pipe kind.
- The various sizes of through spindle hole dia. are effective in the machining of the customized pipe.

※Unit: mm(inch)

Item \ Model	Hi-TECH 550BB	Hi-TECH 700BB	Hi-TECH 700BB+	Hi-TECH 850BB	Hi-TECH 850BB+
Max. Cutting Dia.	Ø590 (Ø23.23”)	Ø680 (Ø26.77”)	Ø680 (Ø26.77”)	Ø920 (Ø36.22”)	Ø920 (Ø36.22”)
Chuck Size(Opt.)	Ø470 (Ø18.5”)	Ø470 (Ø18.5”)	Ø630 (Ø24.8”)	Ø630 (Ø24.8”)	Ø850 (Ø33.47”)
Through Spindle Hole Dia.	Ø195 (Ø7.68”)	Ø185 (Ø7.28”)	Ø300 (Ø11.81”)	Ø300 (Ø11.81”)	Ø375 (Ø14.75”)
Max. Bar Size	Ø190 (Ø7.48”)	Ø180 (Ø7.08”)	Ø295 (Ø11.61”)	Ø295 (Ø11.61”)	Ø370 (Ø14.56”)

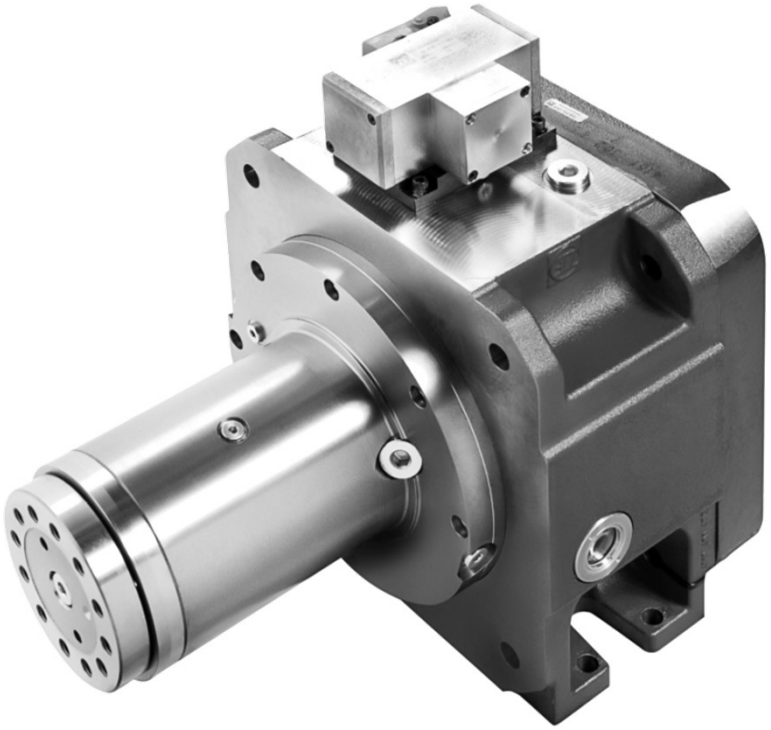
Big Bore Spindle

- Penetration diameter of Ø195mm, big bore spindle is applied to demonstrate optimized cutting efficiency when cutting oil pipe line and all other pipe kind.

Spindle Bearing Inner Dia. (Front/ Back)	**Ø240/Ø220**
Through Spindle Hole Dia.(mm)	**Ø195**
Type of Spindle Nose (ASA)	**A2-15**
Max. Spindle Speed (rpm)	**1,500**
Spindle Motor Power (kW/HP)	**37/30(50/40)**

- The powerful chucking offers the stable cutting and high precision during machining.
- The headstock and main spindle are manufactured in a temperature controlled environment then assembled and tested in our clean room.
- All spindle bearings are lubricated with semi-permanent grease.

Powerful Transmission



- **Speed Range**
  - ▶ Low Speed: 0~545rpm
  - ▶ High Speed: 0~1,500rpm

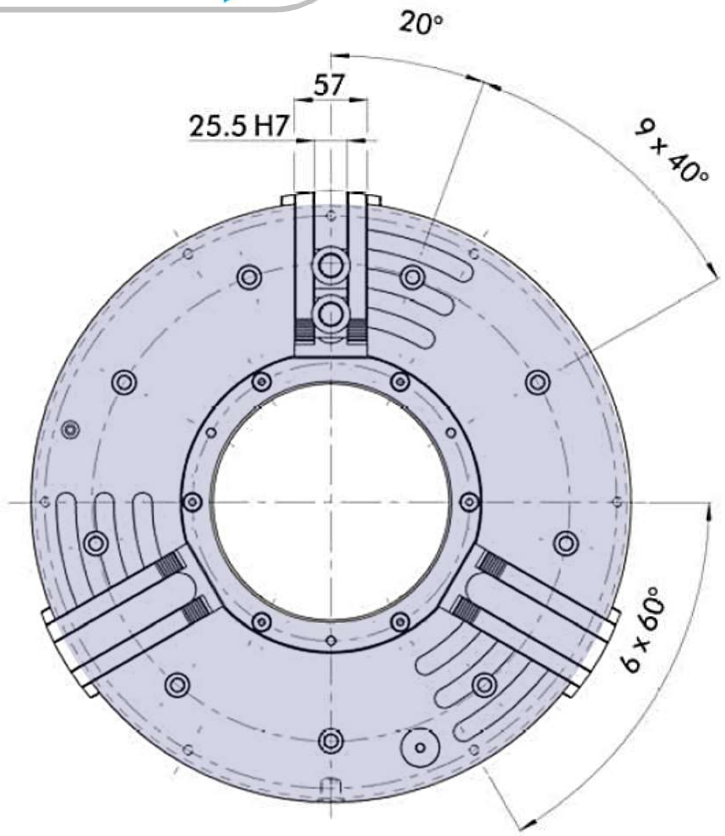
- **Programmable Gear Change**
  - ▶ Low Speed: M41
  - ▶ High Speed: M42

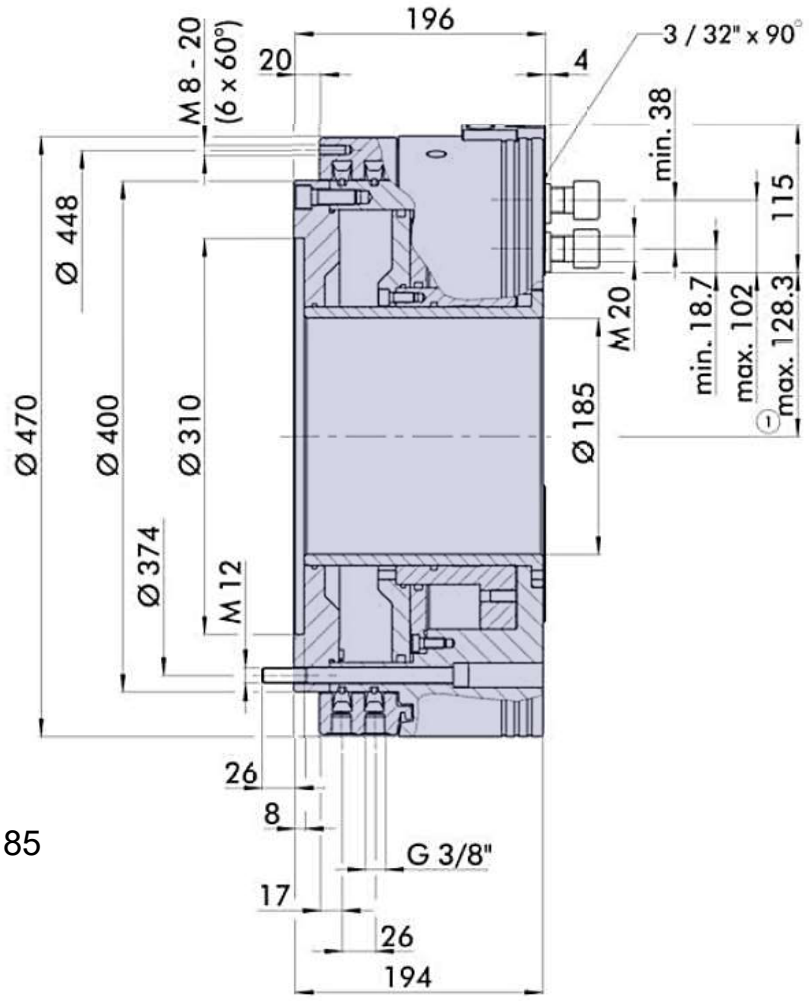
- Power is delivered to the spindle through a two speed transmission allowing high spindle speed as well as powerful low torque.
  - ☞ **Max. High Torque: 3,364Nm**

Air Chuck【Option1】

Air chucks can be fitted at the front and back of the spindle.

※Unit: mm





- **Model** : ROTA TB 470-185
- **Chuck Size** : Ø470mm
- **Through Spindle Hole Dia.**: Ø185mm
- **Jaw Stroke** : 7 mm

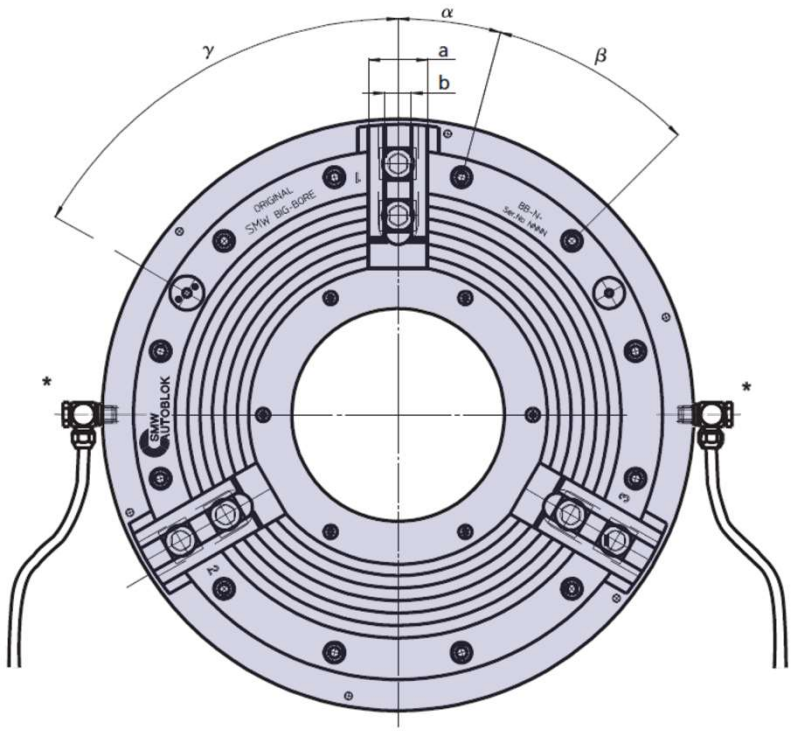
※ Including Pneumatics Control System

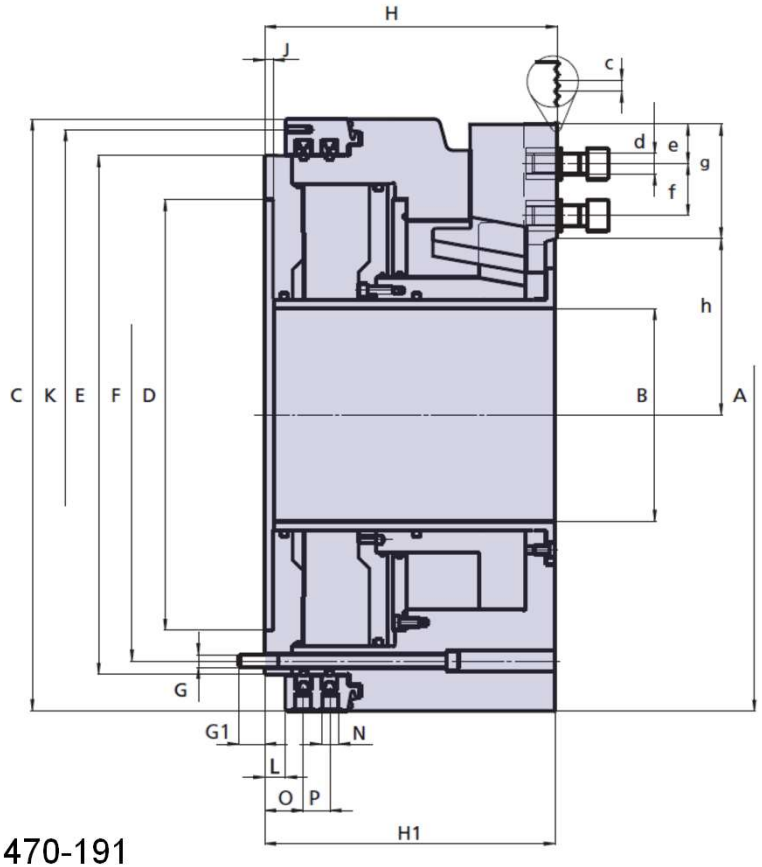
Air Chuck 【Option2】

SMW AUTOBLOK

Air chucks can be fitted at the front and back of the spindle.

※Unit: mm





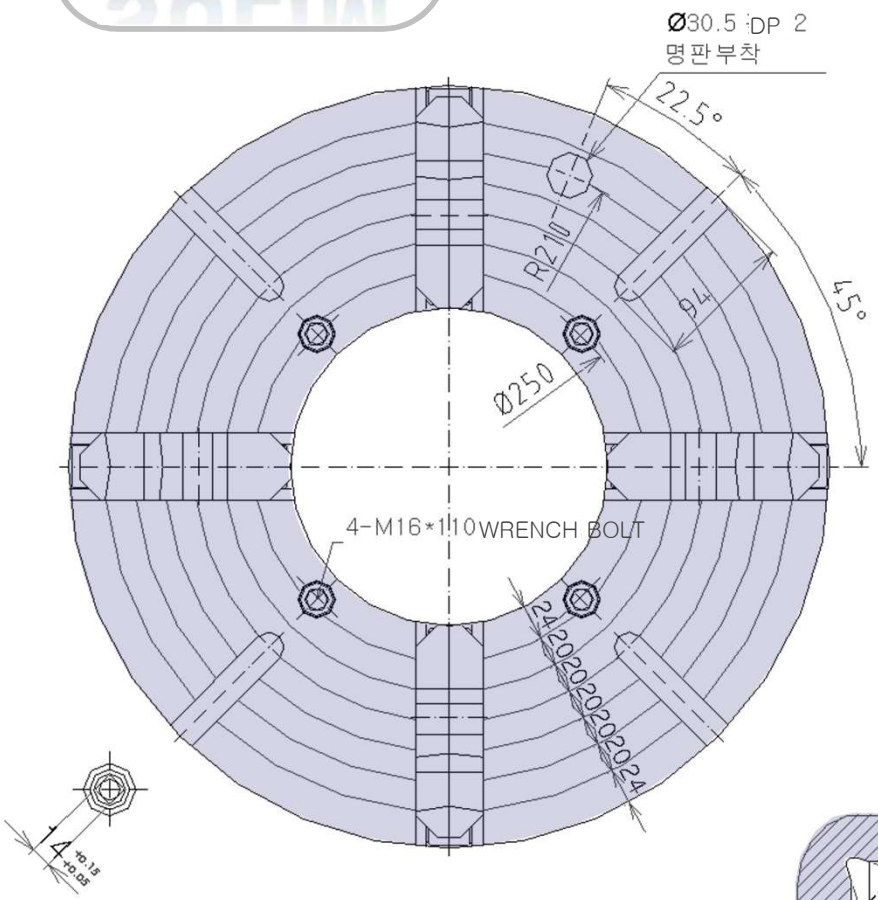
- **Model** : BB N 470-191
- **Chuck Size** : Ø470mm
- **Through Spindle Hole Dia.**: Ø185mm
- **Jaw Stroke** : 7 mm

A	470
B	191
C	467
D	310
E	400
F	374
G	M12
G1	26
H	196
H1	194
J	8
K	448
L	20
N	G 1/2”
O	37
P	26
R	35
S	374
a	57
b	25.5
d	M20
e	13
f	38/85
α°	20
β°	9 x 40
γ°	83

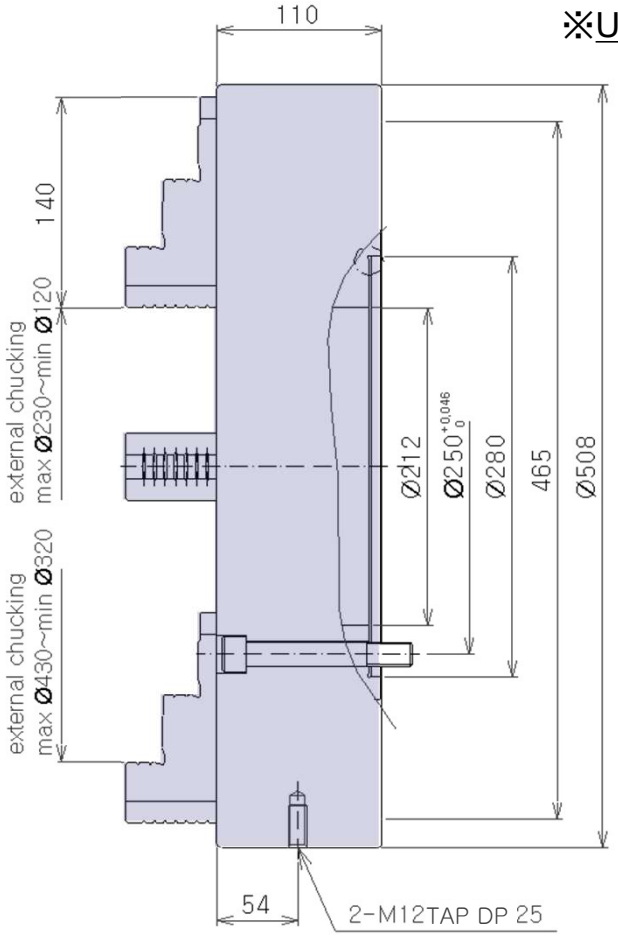
※ Including Pneumatics Control System

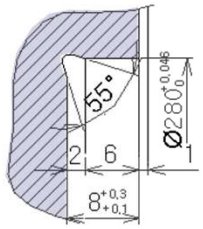
Manual Chuck【Option】

SULIM



※Unit: mm





DETAIL "A"

- **Model:** SL-i-1-2000-12B10
- **Chuck Size:** Ø508mm
- **Through Spindle Hole Dia.:** Ø212mm
- **Max. Rotation Speed:** 900rpm

※ Max. Spindle Speed using Manual Chuck: 900rpm

Pneumatic System【Option】

Compressed air supplier

- **Using Option Parts**
  - Air Chuck Clamp / Unclamp
  - Air Gun
  - Auto Door

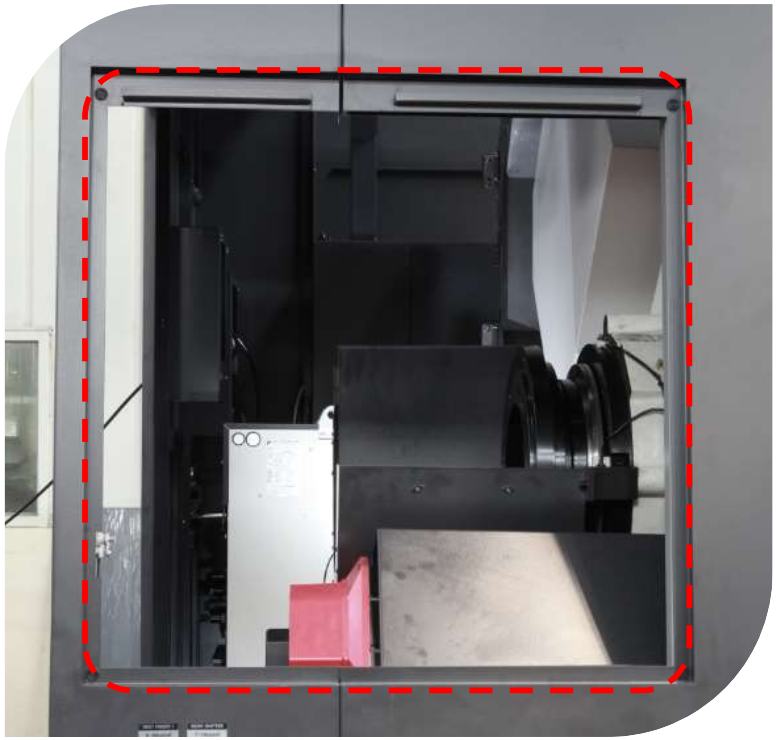
Specification

- **Required pressure** : 0.5~0.7 MPa
- **Inlet hose** : Ø12
- **Max. Consumption Rate**: 690 Nℓ/min

Customization Design

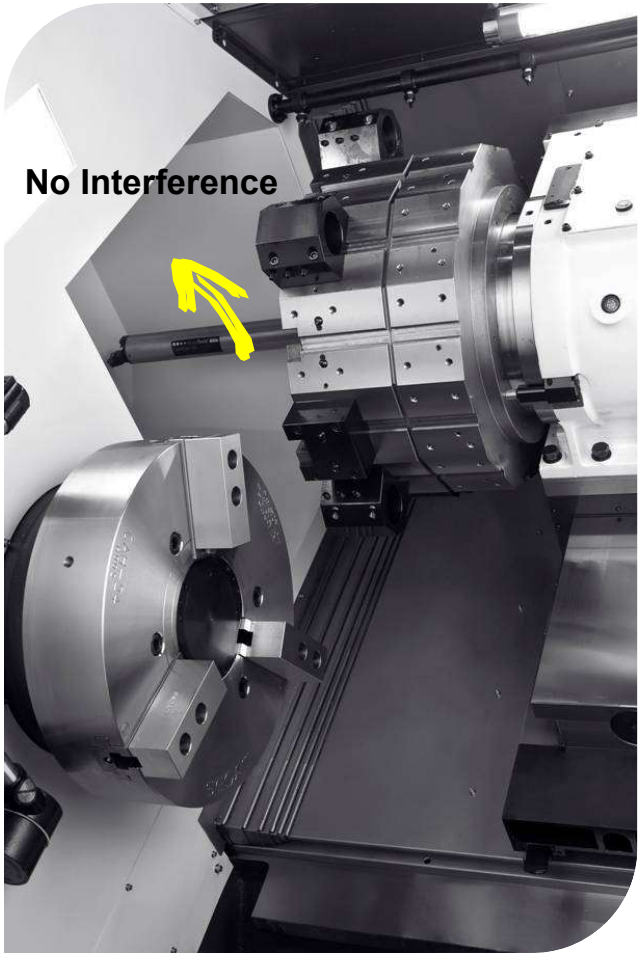
- The side cover is designed to let hoist lifted large work pieces to be loaded and unloaded from the rear of the spindle, to maximize accessibility.

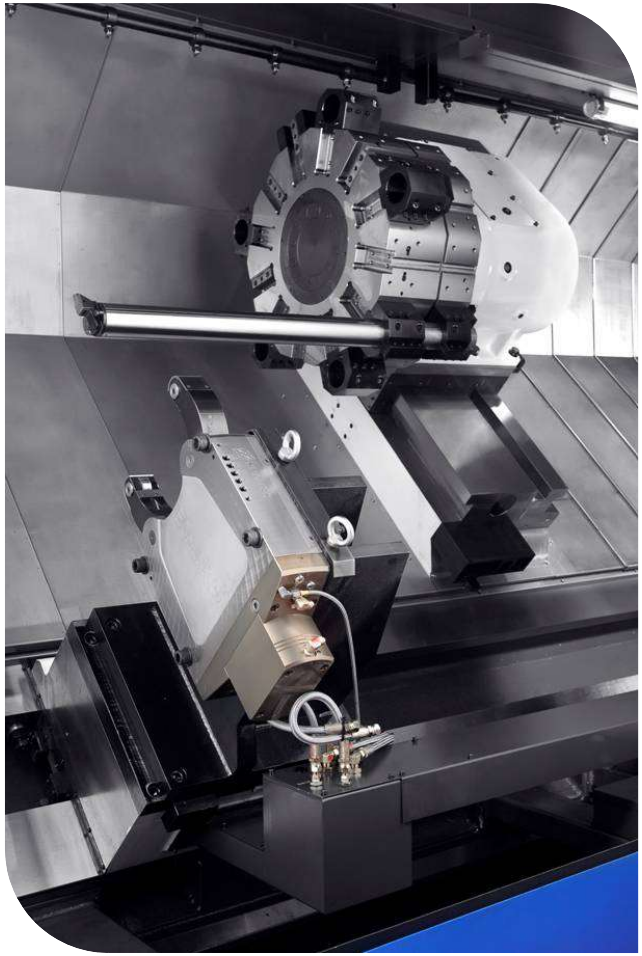
Customization Design



- Maintenance door can make it easy to check the condition of the end of spindle, so that can maintain and repair it efficiently.
- Rear Chuck Cover located in back side of spindle is providing a good working environment when the workpiece loading / unloading and also prevent to spread coolant and chips during the machining.

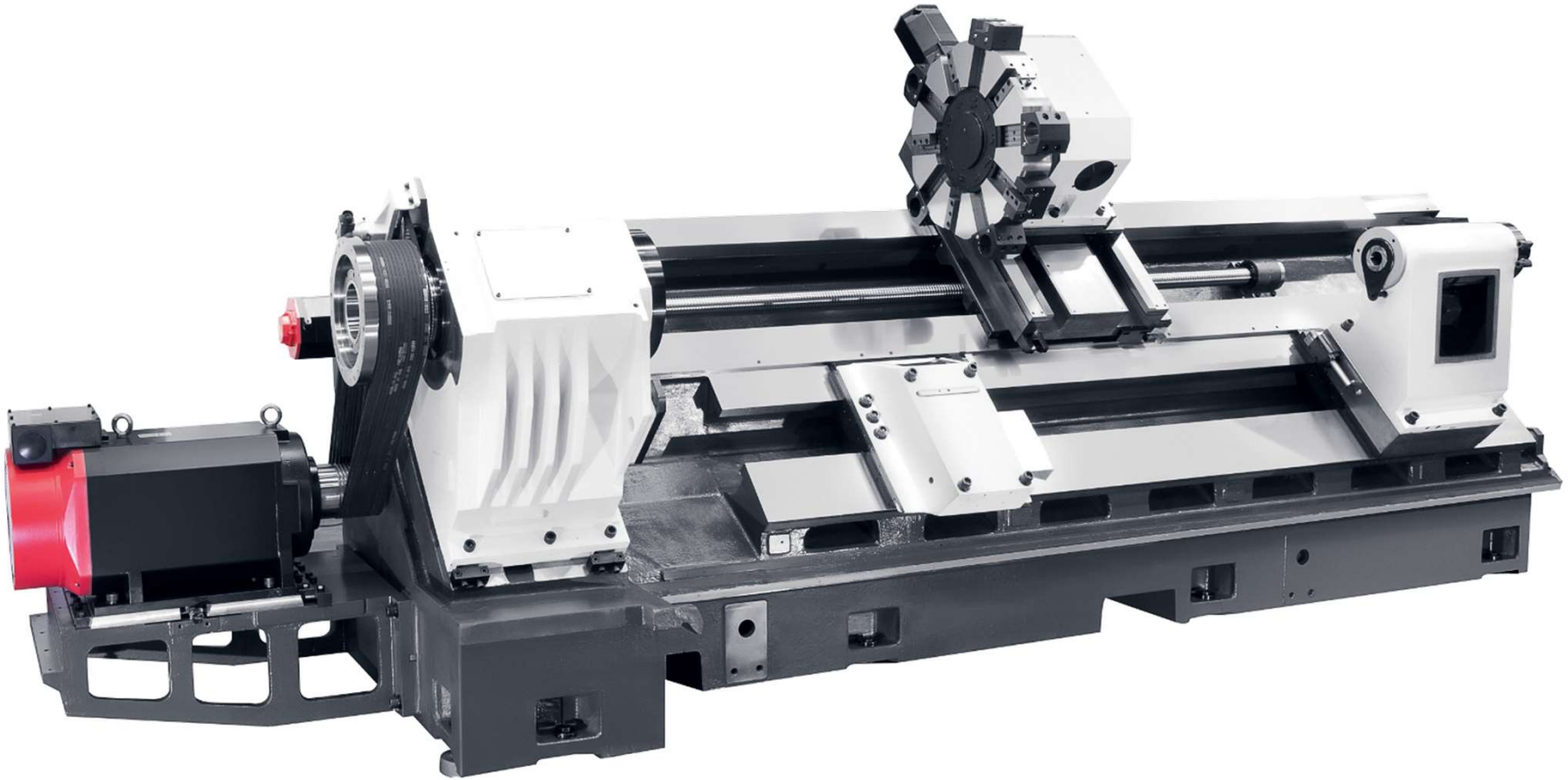
Customization Design





- Interference-free design of main cover would provide the perfect solution for Long Boring Bar
- By applying a wide turret, full rotation of the turret can be provided during an operation with Long Boring Bar without any devices.

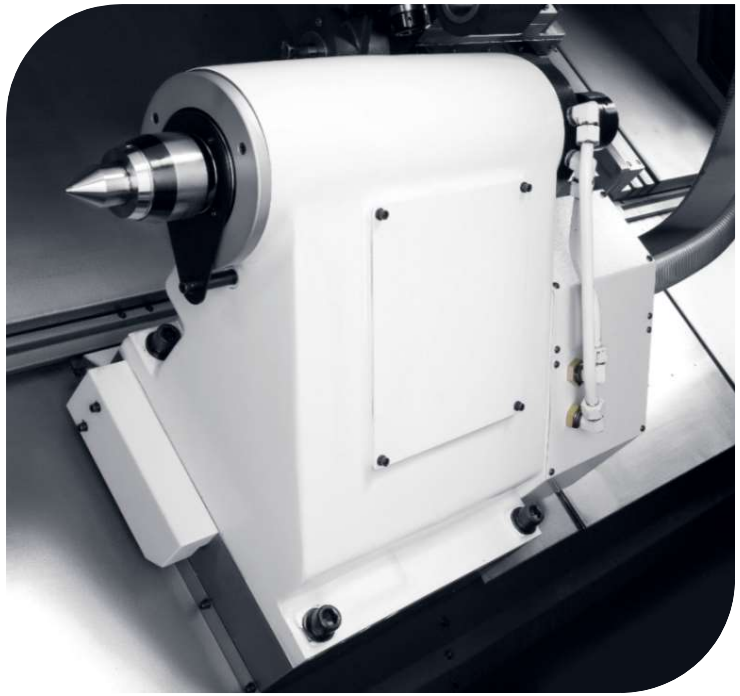
High Rigid, Stable Bed Frame



- The heavily ribbed torque tube design processed with fine grain meehanite prevents twisting and deformation. This design ensures high rigidity with no deformation during heavy & high-speed cutting.
- High rigid slant angle 45˚ maintains high stability and brilliant balance.

Programmable Tailstock

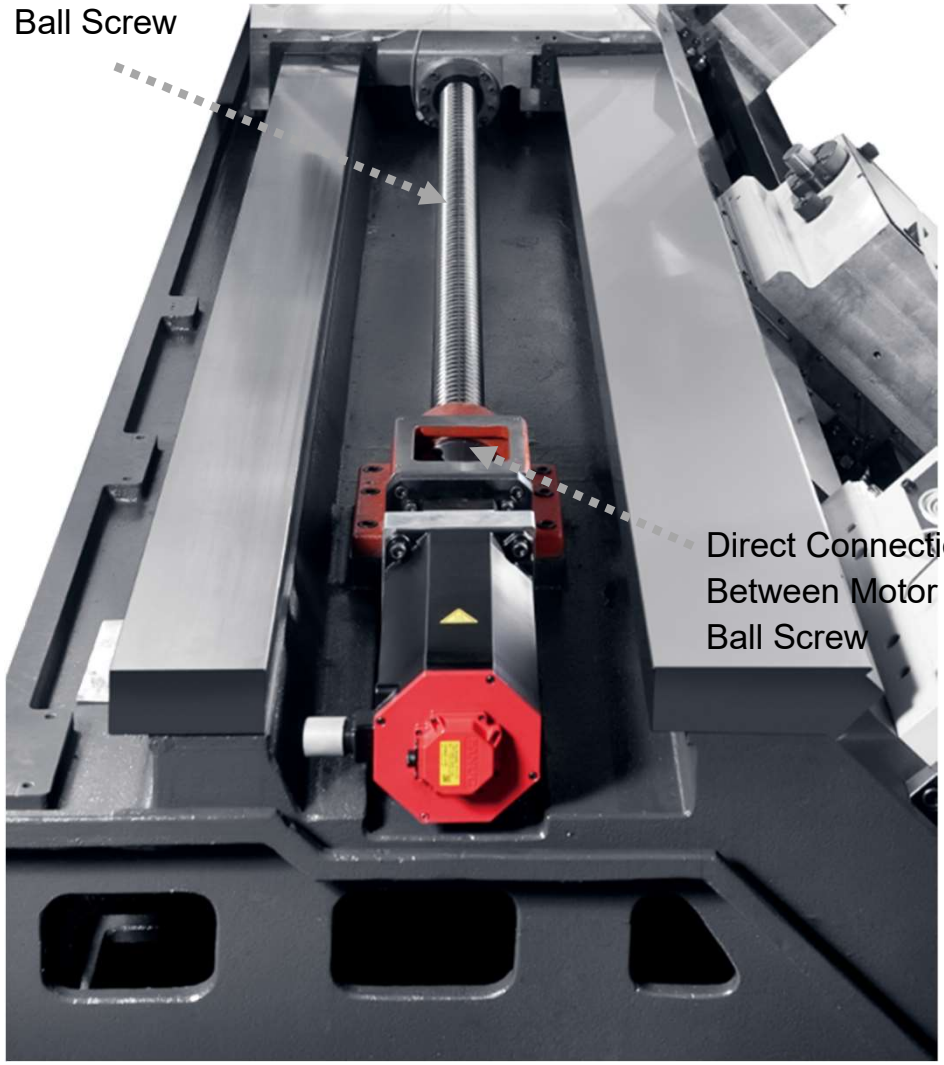
※Unit: mm(inch)



- Quill Dia. : Ø120(4.72”)
- Quill Stroke : 150(5.90”)
- Tailstock Stroke : 980(38.85”)
- Thrust Force: 1,272 kg_f
- Quill Taper: MT#5

- Outstanding precision during high power heavy cutting.
- Programmable auto control system.
- Absorbed work thermal deformation ensures high precision machining.
- Programmable Tailstock
  - Tailstock Body program (Std.)
  - Tailstock Quill program (Std.)

High precision Axes



Axis Driving Motor

- **Short Bed Type [1,150mm(45.28”)]**
  - X-axis: 4kW(5.5HP)
  - Z-axis: 4kW(5.5HP)
  - Rapid (X/Z) : 20/24m/min.
- **Long Bed Type [2,150mm(84.65”)]**
  - X-axis: 4kW(5.5HP)
  - Z-axis: 7kW(9.5HP)
  - Rapid (X/Z) : 20/20m/min.
- **XL Bed Type [3,250mm(127.95”)]**
  - X-axis: 4kW(5.5HP)
  - Z-axis: 7kW(9.5HP)
  - Rapid (X/Z) : 20/10m/min.

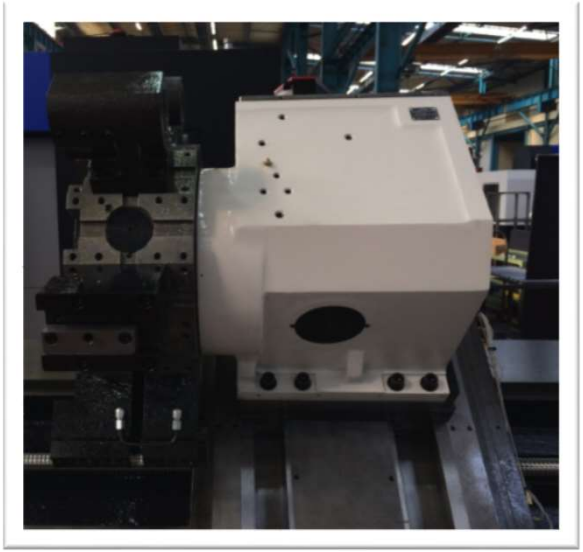
➢ The servo motors are connected to the ball screws without intermediate gears for quiet and responsive slide movement with virtually no backlash

Heavy Duty Wide Turret

- Turret Type: **Servo Motor Type**
- Turret Station: **12**
- Tool Size: □ **32(1.25”) ×Ø60(2.5”)**
- Indexing Time: **0.2sec./step**
- Chip to Chip(100mm): **3.2sec**
- Clamp Force: **6,200kg$_f$(13,669lb$_f$)**

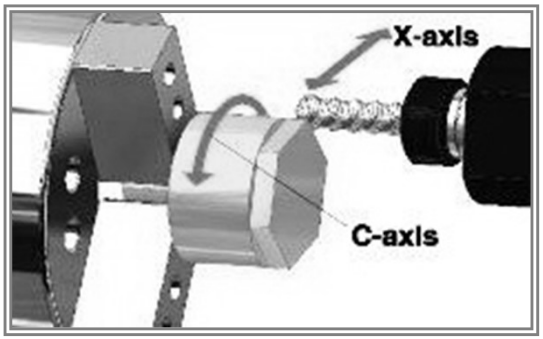
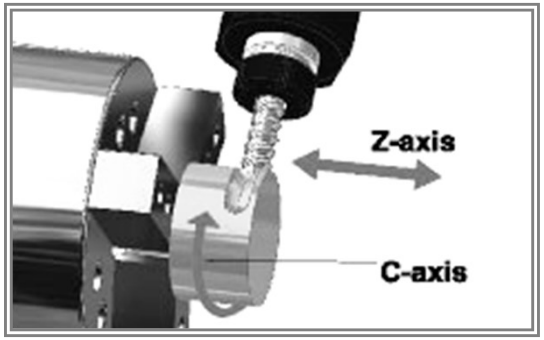
➢ *The heavy duty turret maintains exceptionally perfect precision and extended tool life*

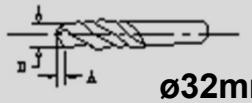
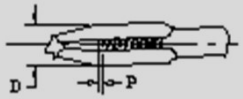
【공구대】



【Wide Turret】

Turnmill with C-Axis 【Option】

Polar coordinate interpolation	Cylindrical interpolation
	

Drill / Tap Size	(Drilling) 	**ø32mm(ø1.25”)**
	(Tapping) 	**M20**

- Driven tools for Milling, Tapping and Drilling contribute to highly intensive process with spindle indexing(0.001˚) by a Spindle motor.
- Machining is one process can be achieved

Coolant Equipment

The large capacity coolant tank and chip cover are separate from the machine bed to prevent heat transfer and easy cleaning.

※ Tank Capacity

- ▶ **Short Bed: 250ℓ(66 gal)**
- ▶ **Long Bed: 380ℓ(100 gal)**
- ▶ **XL Bed : 580ℓ(153 gal)**

Std. Pump ***1bar***

Opt. Pump ***6 / 15bar***

└ High Pressure

Lubrication Unit

- Automatic lubrication is provided to all guide ways and ball screws.
- A low level alarm prevents the machine from restarting without lubricant.

Hydraulic Unit

- The operation of Turret and Chuck cylinder, Tailstock, Steady Rest and etc.

Tool Presetter 【Option】

- **Various Functions**
  - Minimized coordinate setup time by easy touch sensor manipulation (less than 15sec.)
  - Auto calculation input of shape calibration value of tool coordinate
  - Auto tool coordinate correction on work shape change
- **Automatic Tool Presetter**

High Precision Scale 【Option】

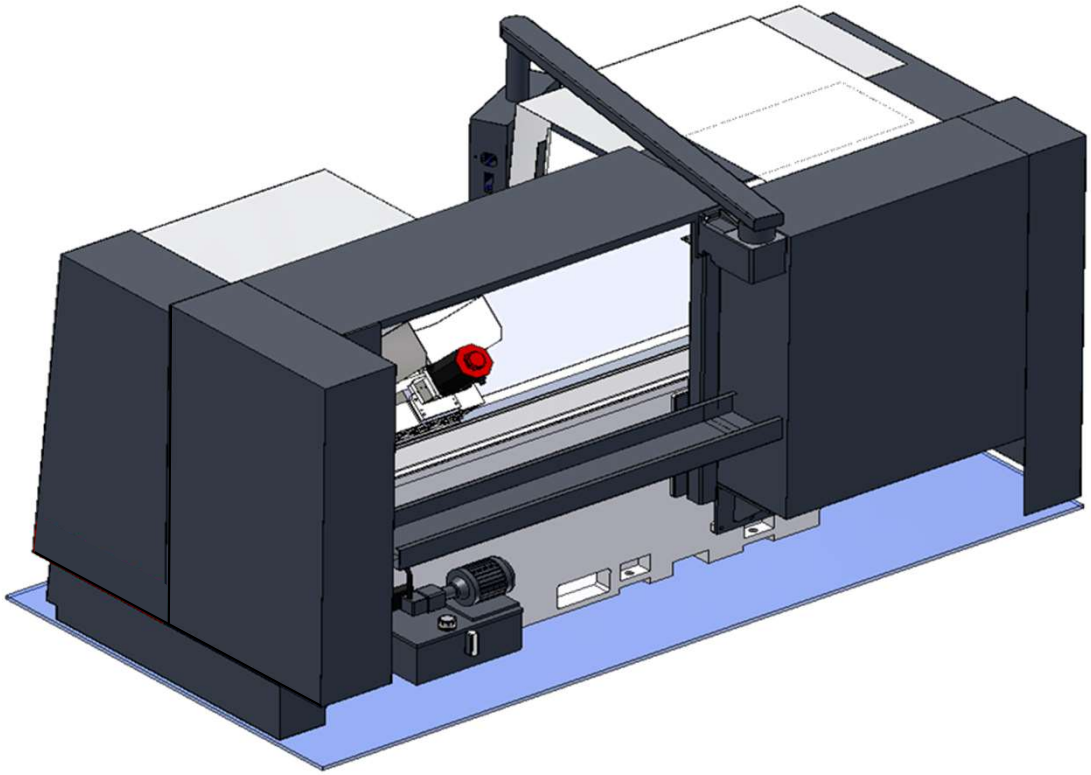
- Application axis: X & Z axis
- Type : Absolute Output
- Partition Ratio: 0.1μm

Convenient operation Panel

- **10.4” Color LCD(Std.), Full Key type (Fanuc)**

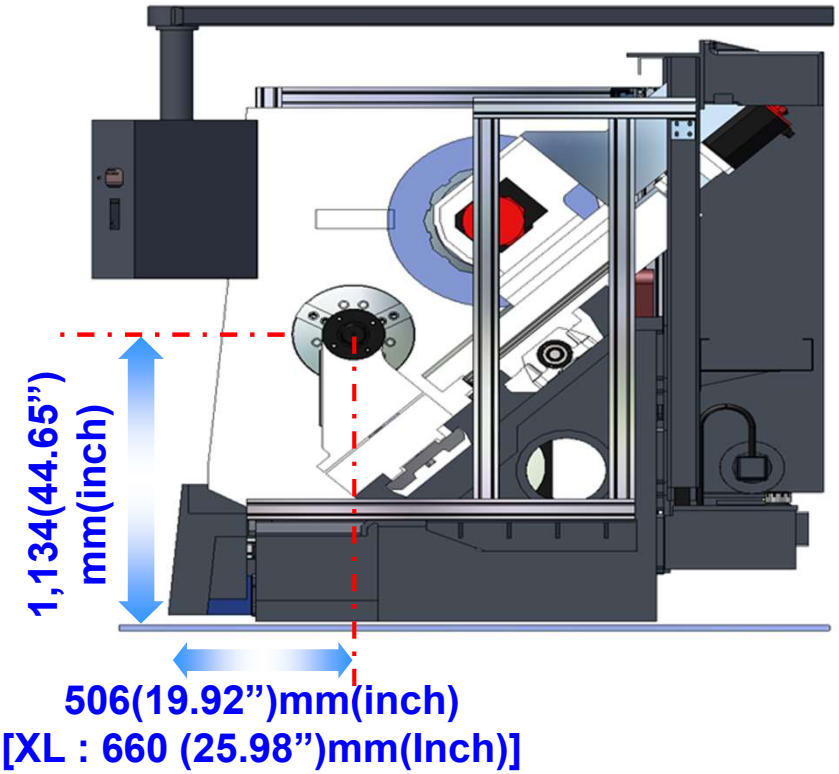
- The operator panel is mounted on the right hand side and it fixed on the machine main cover. The layout and location of the panel is ergonomically designed to be efficient and convenient for the operator.

Convenient operation

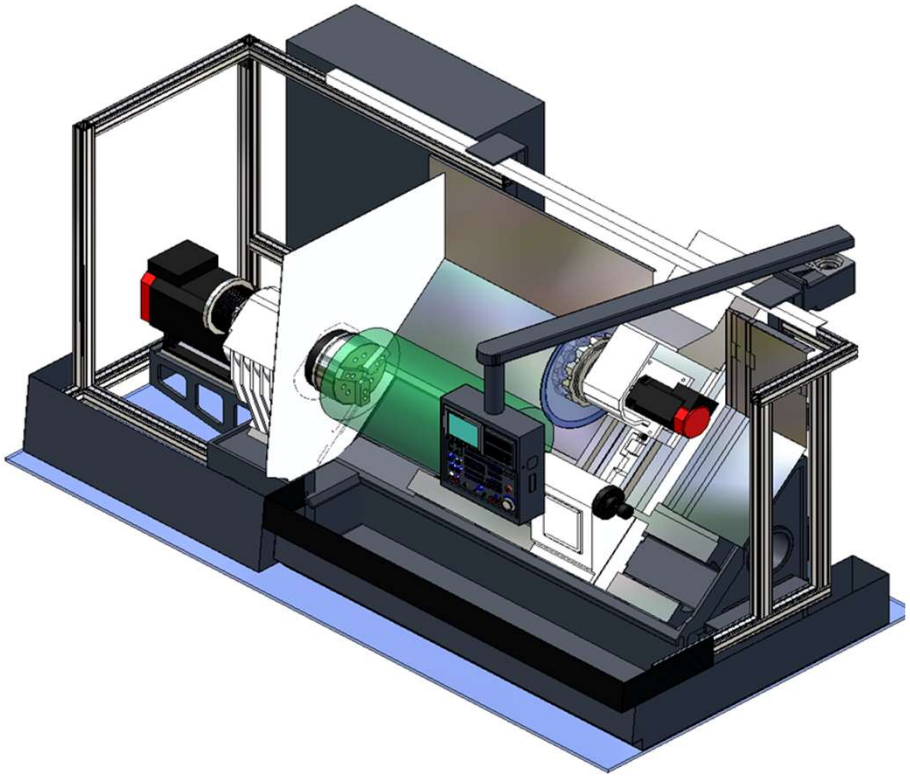


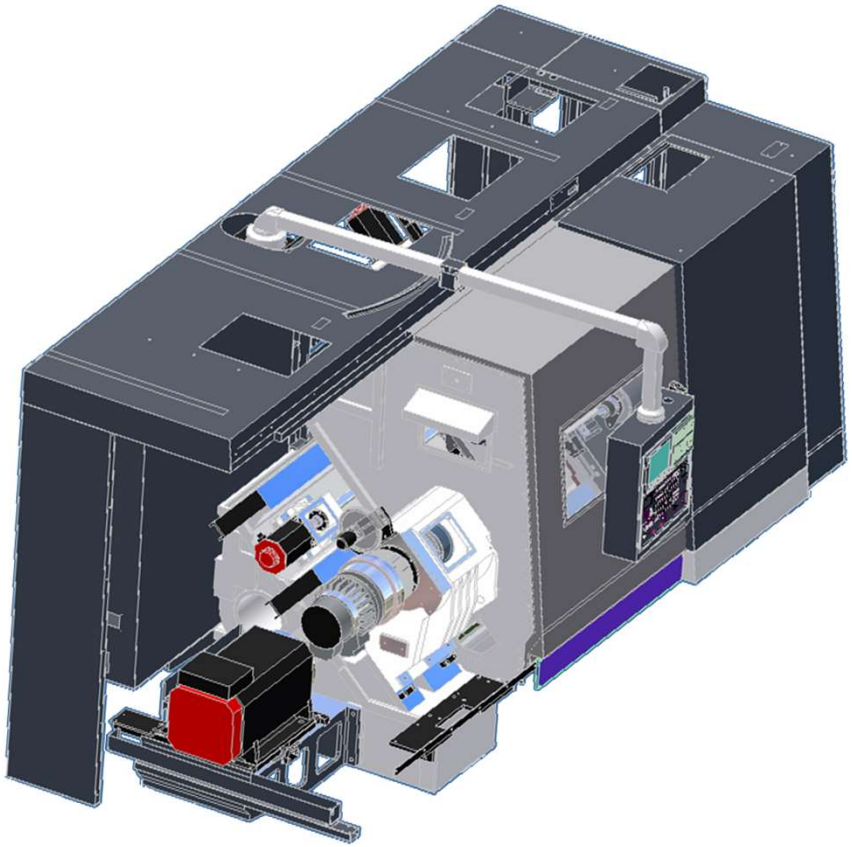
- **Wiring & Maintenance**

  → Duct Type



Machine cover design





- We designed the machine covers that maintenance locations are easily seen when removed, and the openings have been made wider to allow easier access.

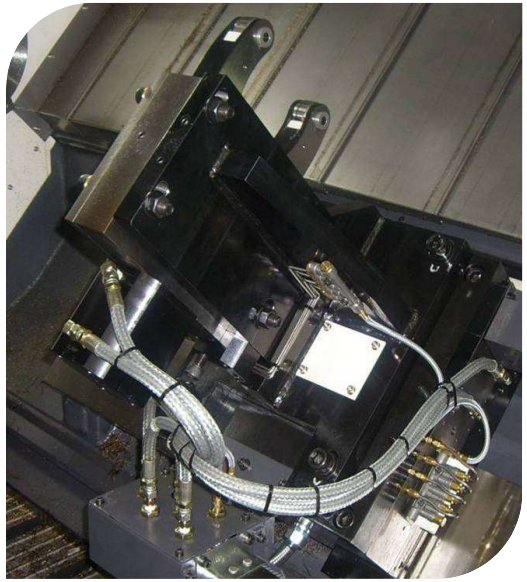
Steady Rest Block 【Option】

- **Prepared accessory with Block**
  - ► Hy'd Line with valves for Open & close
  - ► Lubrication Line
  - ► Electric Signal cable for Open & close,
  - ► Interlock cable between Block and Tailstock
  - ► All necessary electric ladder with M-code
  - ► Locking block for connection with Saddle
- **Operation Method**
  - ► Programmable Type
  - ► Manual Type

Steady Rest 【Option】

(KHAN)

Item \ Model	ASR 1	ASR 2	ASR 3	ASR 3.1	ASR 3.2
Min. Clamp Dia.	Ø 4	Ø 8	Ø 12	Ø 20	Ø 50
Max. Clamp Dia.	Ø 64	Ø 101	Ø 152	Ø 165	Ø 200



(SMW)

Item \ Model	SLU 1	SLU 2	SLU 3	SLU 3.1	SLU 3.2
Min. Clamp Dia.	Ø 4	Ø 8	Ø 12	Ø 20	Ø 50
Max. Clamp Dia.	Ø 64	Ø 101	Ø 152	Ø 165	Ø 200

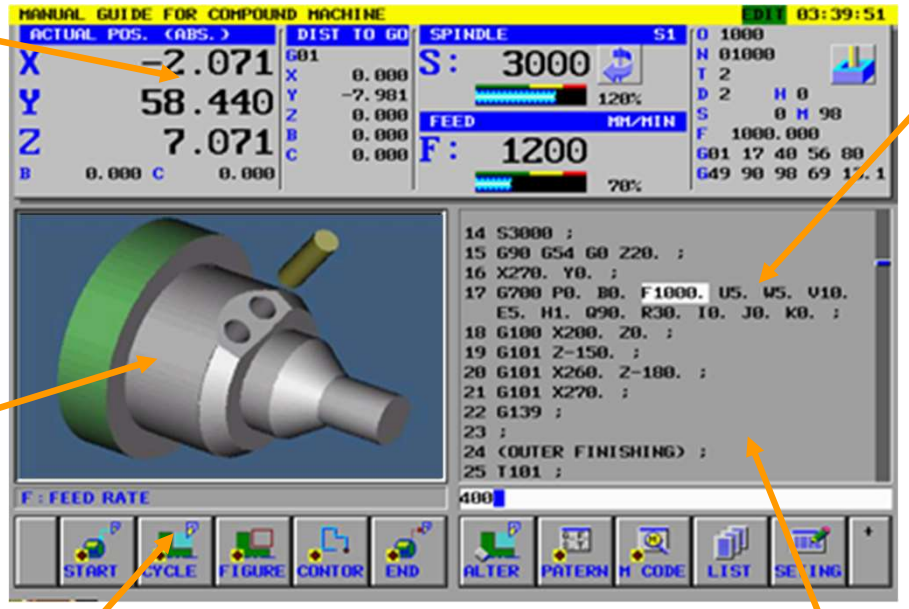
Easy Programming 【Standard】

(Communication Programming ☞ Manual Guide i)

All-in-one Screen
Only one screen concentrated all operations

Machine status window
Machine status such as actual position, feed rate and load meter are displayed always

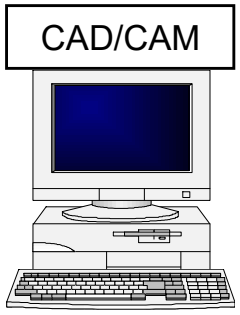
Easy programming
Based on ISO-code program format, complex machining motions can be created easily by menu form



Realistic machining simulation
3-D solid model machining simulation is available

Intuitive menu selecting
Menu can be selected easily and intuitively by soft-key with icon

Good affinity with CAD/CAM
Most popular ISO-cod program format on CAD/CAM can be dealt as it is

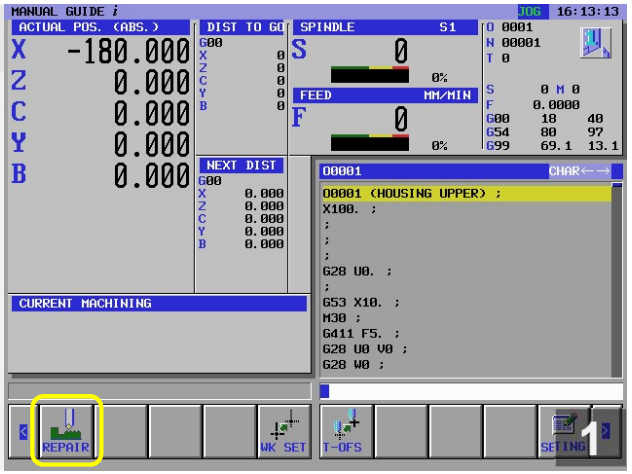


Thread Repair Function【Standard】

● Thread Repair Function

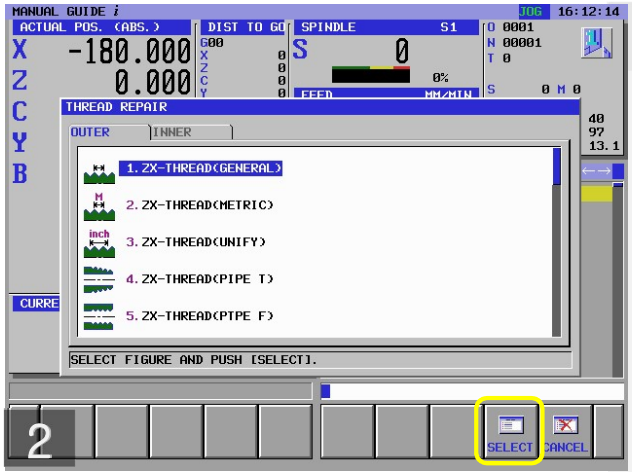
1. Start of Thread Repair Function

- Check the machine condition
- Check the Processing condition



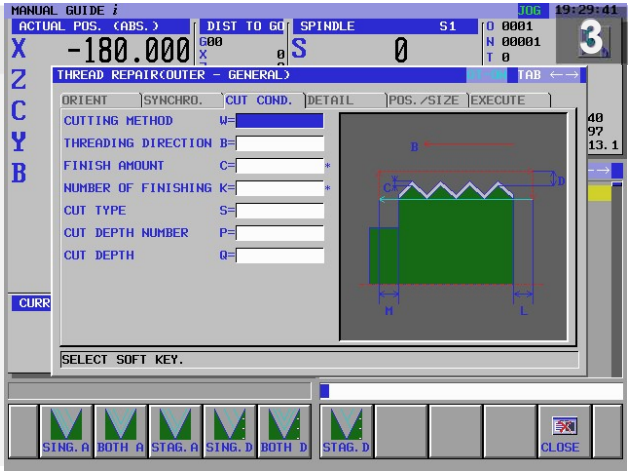
2. Selection of Thread Type

- Select Outer/inner Thread
- Select Thread Type
  - General Thread
  - Meteric Thread
  - Uni-fied Thread
  - PT/PF Thread



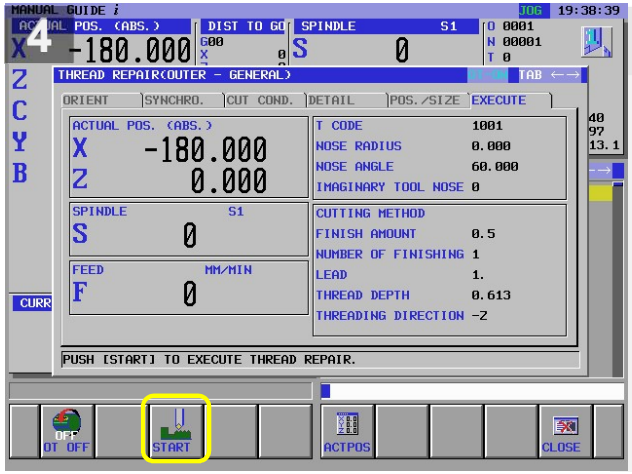
3. Processing condition setting

- Spindle Orientation
- Synchronized Position Setting
- Input of processing conditions



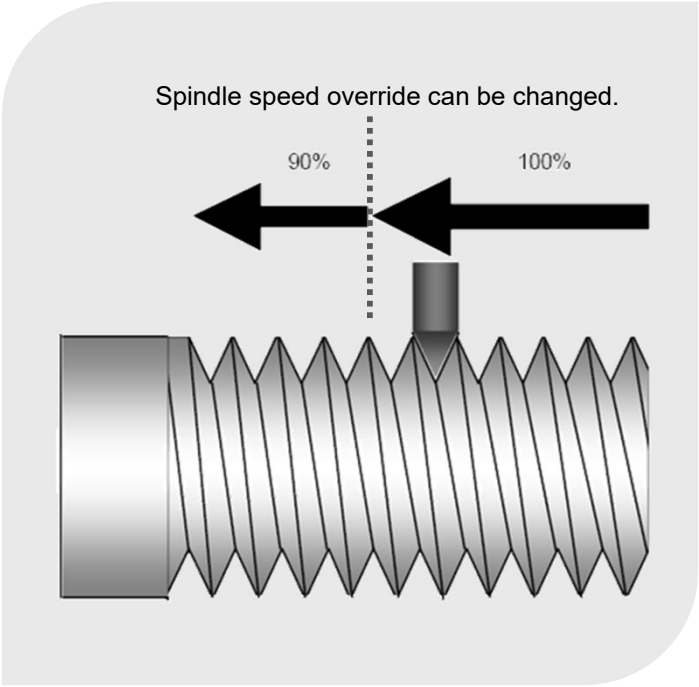
4. Processing Start

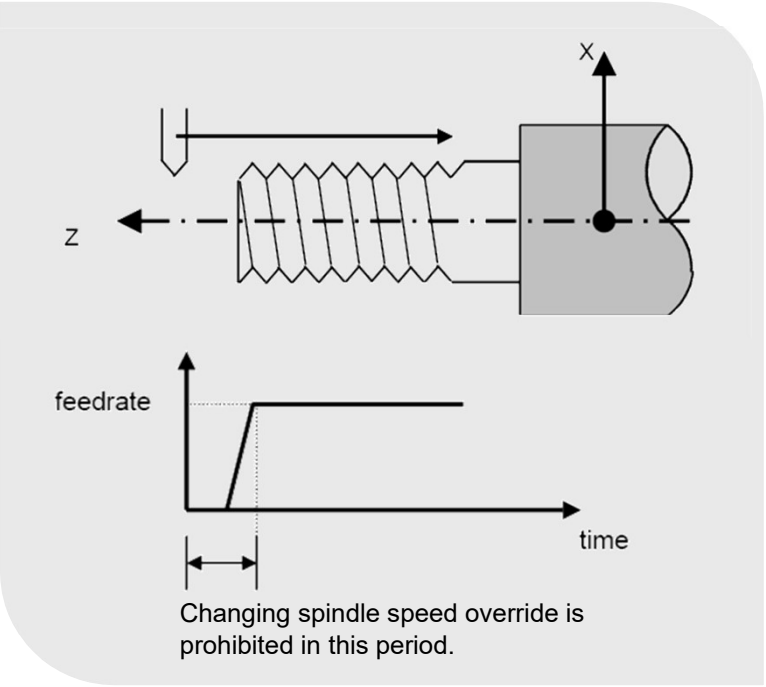
- Transfer the NC data
- Program Start



- Thread Repair will make it possible for an operator to easily recut or repair the thread of a part that has been reloaded into the machine.

Arbitrary Speed Threading 【Option】

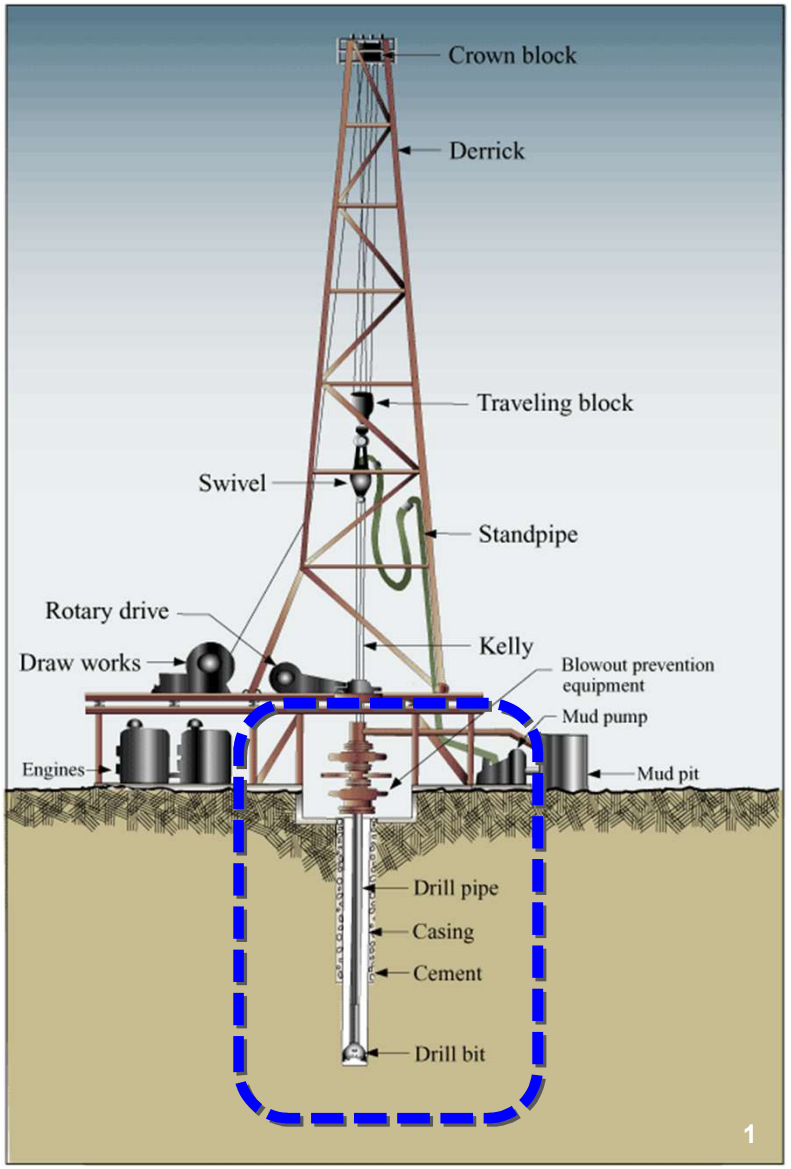




- Arbitrary speed threading will make it possible for an operator to override the spindle speed during a threading cycle while staying in lead.
- This option will also allow an operator to change the spindle speed in the program and stay in lead without needing to use the thread repair function.

※ This function works with the Fanuc 0i-TF and 31i-B controller.

Sample work piece 【Hi-TECH 550BB】



1. Land-Based Oil Rigs
2. Drill Casting Pipe/Oil Field
3. Steel Oil Pipe/Oil Field
4. Drill Pipes for oil and gas/ Oil Field

Comparison with competitor

	Unit	Hi-TECH 550BB	PUMA-400C
Spindle Hole	mm	**Ø195**	**Ø181**
Front Bearing Inner Diameter	mm	**Ø240**	**Ø240**
Spindle Motor Power	kW	**37/30**	**37/30**
Spindle Nose	ASA	**A2-15**	**A1-15**
Spindle Speed(rpm)	rpm	**1,500**	**1,500**
Z-axis Stroke	mm	**1,150/2,150/3,250**	**1,105/2,155/3,150**
Max. Torque	Nm	**3,363.5(@105rpm)**	**STD : 3,279(@108rpm) MC : 2,431(@145rpm)**
Construction of Head stock		**Gear Box+Belt**	**Gear Box+Belt**
			

Update History

(1) Last Update : **Oct. 6th, 2015**

(2) Responsible: Project 3 Dept. of Institute of R&D

(3) Rectification:

[1.0] May, 27th, 2013: The first edition
[1.1] Nov. 20th, 2013: ① Correction of Machine Size(Height)
② Correction of NC Specification
③ Correction of Accessories
④ Additional of Customization Design in sales point
[1.2] Dec. 19th, 2013: ① Tooling System – Correction of Part name (Face Holder->Face & ID Holder)
② Sales Point - Additional of Customization Design
③ Additional of Thread Repair Function & Arbitrary Speed Threading
④ Additional of NC Controller(Fanuc 31i-B) Option
[2.3] Jan. 16th, 2015: ① Additional of XL Bed type
② Additional of Standard Accessories – Wide Type Turret Disk & Built in Tailstock (In case of 550BXL & 550BXL/MC)
[2.4] Jun. 30th, 2015: According to Apply Wide Turret, Correction of Machine Specifications, Moving Range, Tool Interference, Tooling and Sales Point.
[3.4] Aug. 25th, 2015 :Upgrade of Fanuc controller (0i-TD-->0i-TF),Machine Spec. / NC Spec. / NC Instruction / Comparison data
[3.5] Oct. 6th, 2015 : Correction of Sales Manual totally

Thank you for your attention.