

NC Unit Specification/FANUC Series

● : Standard ○ : Option

	ITEM	Specification	Qi-TF Plus
Controlled axis	Controll axes	4 axes (X, Z, Y, C) / 6 axes (X, Z, Y, B, C, A)	●
	Max. simultaneously controlled axis		4
	Cs contouring control		●
	Least command increment	0.001mm (0.0001 inch), 0.001 deg (C-axis)	●
	Stored limit check before move		●
Operation functions	C-A axis synchronous control		○
	DNC operation	Included in RS-232C interface	●
	DNC operation with memory card	CF card and CF card adapter is required	●
	Wrong operation prevention		●
	Dry run		●
Interpolation functions	Single block		●
	Nano interpolation		●
	Linear interpolation	G01	●
	Circular interpolation	G02, G03	●
	Dwell	G04	●
	Polar coordinate interpolation	G12.1, G13.1	●
	Cylindrical interpolation	G07.1	●
	Helical interpolation		○
	Variable lead thread cutting	G34	●
	Multi / Continuous threading		●
	Reference position return	G28	●
	Reference position return check	G27	●
Feed function	Rapid traverse rate override	F0, 25%, 50%, 100%	●
	Feedrate override	0 ~ 200%	●
	Pulse handle feed	X1, X10, X100	●
	Override cancel		●
	AI contour control (AICC) I, II	40ea, 200ea (AICC II)	○
	Feedrate per minute / revolution	G98 / G99	●
Auxiliary / Spindle function	Rapid traverse block overlap		●
	Constant surface speed control	G96, G97	●
	Spindle override	0 ~ 150%	●
	Spindle orientation		●
	Spindle synchronous control		○
	Rigid tapping		●
Program input	Arbitrary speed threading		○
	Optional block skip	9EA	●
	Absolute/incremental programming		●
	Canned cycles	G90, G92, G94	●
	Multiple repetitive canned cycle	G70 ~ G76	●
	Program restart		●
	Retraction for rigid tapping		○
	Max. programmable dimension	±999,999.999mm (±99,999.9999 inch)	●
	Custom macro		●
	Canned cycle for drilling		●
	Direct drawing dimension programming		●
	Programmable data input	G10	●
	Workpiece coordinate system	G52 ~ G59	●
Tool function / Tool & Accuracy compensation	Workpiece coordinate system preset		●
	Tool offset pairs	128-pairs	●
	Tool radius/Tool nose radius compensation		●
	Tool geometry/wear compensation		●
	Automatic tool offset		●
	Tool life management		●
Data input / output & Interface	Backlash compensation		●
	Memory card and USB memory input/output		●
	Data server		○
Others	Embedded Ethernet		●
	Manual guide i		●
	iHMI		●
	Part program storage size / No. of registerable programs	2 Mbyte (5120m) / 1000ea	●
	Display unit	15" color LCD with Touch Panel	●



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Best technology and know-how



NL 3500SY-Y Series

High performance Y-Axis CNC Turning Centers

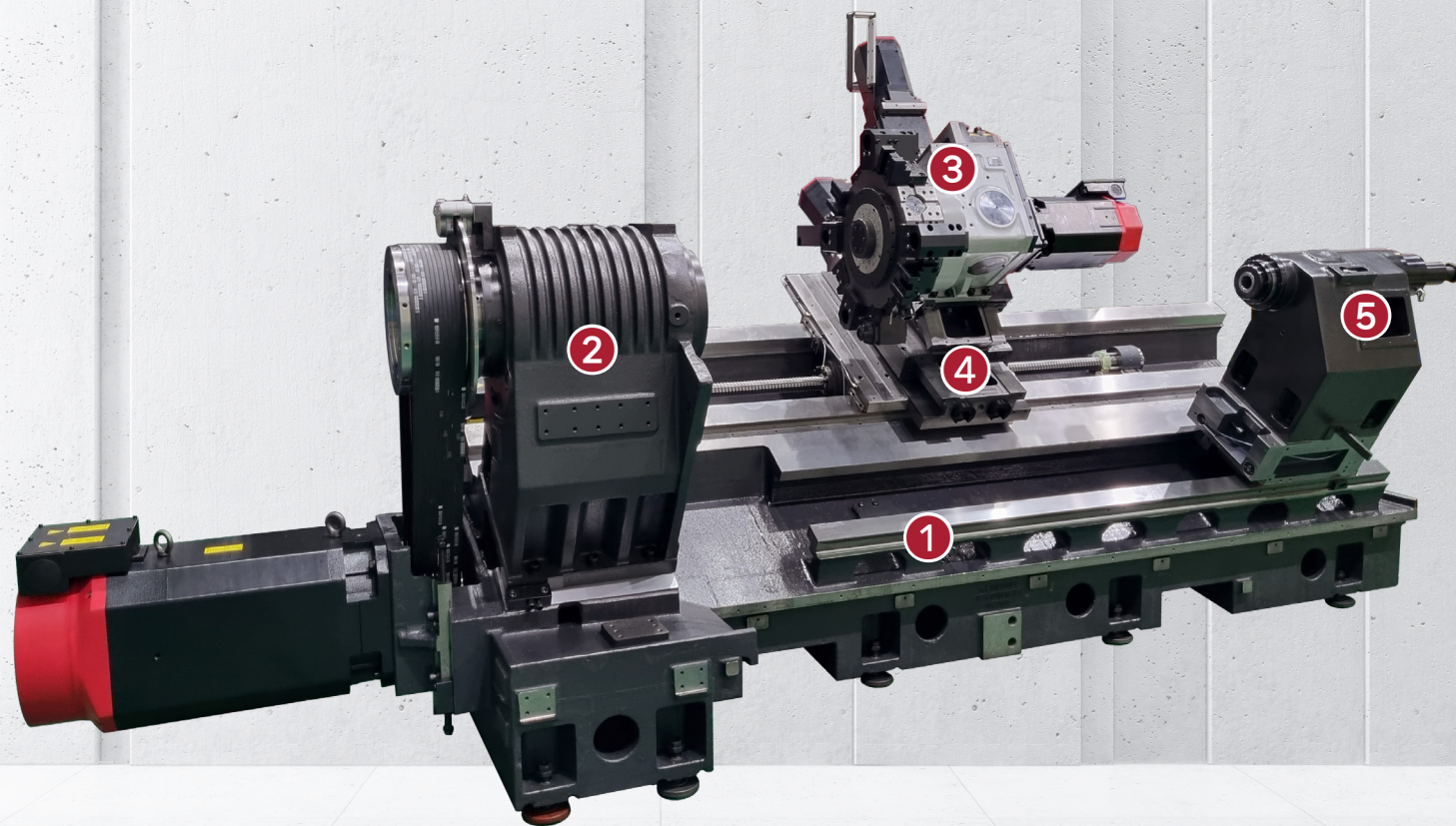


NL Series NL 3500Y, NL3500XLY, NL3500BY, NL3500BXY, NL3500SY, NL3500BSY

Chuck Size 12, 15 inch

Machine Structure

High Rigidity Body Structure for Heavy-duty Machining



1 Bed

One-piece casting 30-degree slant bed and wide Box guide ways which has superb vibration absorption characteristics, provides rigid foundation for all machine components.

3 BMT65 Mill Turret

BMT turret is equipped with 2 separated motors for indexing and milling, ensuring high machining performance, reliability and reducing processing time of workpiece.

5 Programmable Tailstock Body & Quill

Wide-spaced guideways and heavy-duty hydraulic tailstock provides excellent stability and support for long workpieces.

2 Spindle

Double row cylindrical roller bearings in the front and back, coupled with angular thrust bearing, ensure high rigidity for heavy cutting and excellent surface finishes.

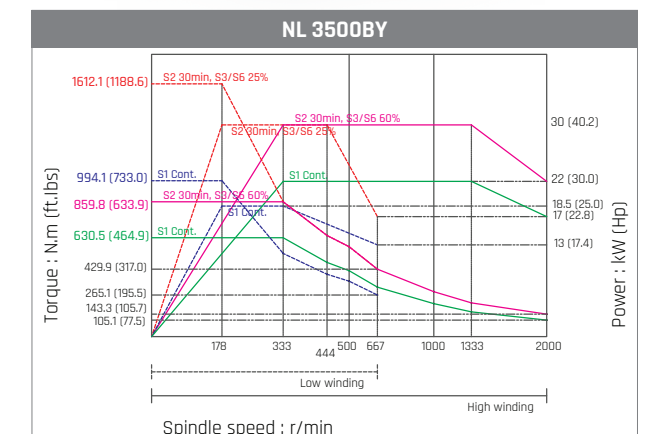
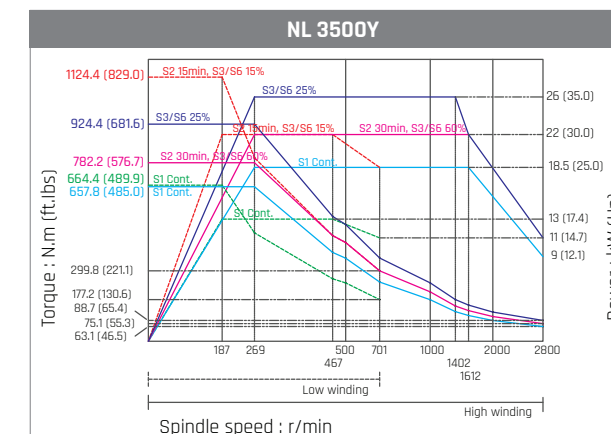
4 Y-Axis

Wedge type Y-axis structure allow superior rigidity and accuracy of machining.
Y-axis travel: 130mm (±65mm).

Main Spindle

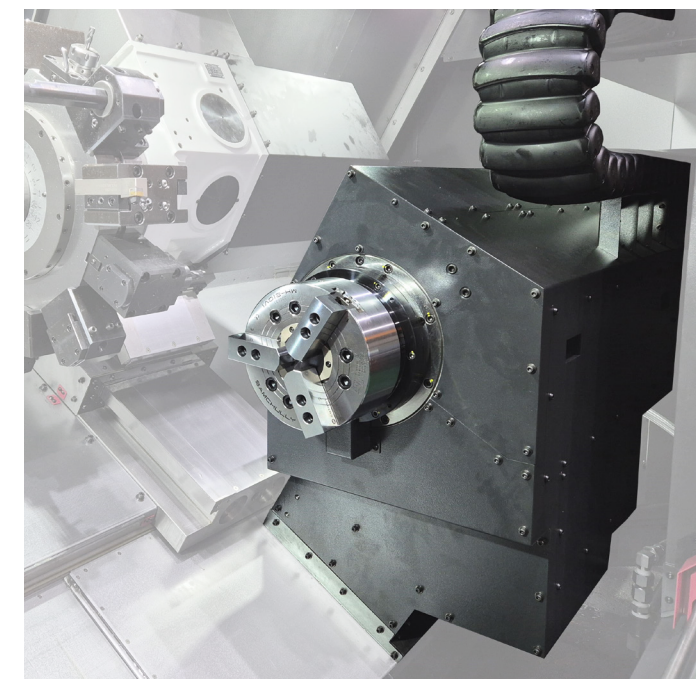
Heavy-duty headstock machined from one-piece casting. Reinforced with radiator fan-like pin tube rib design dissipates heat generated by axis movements, maintaining minimal thermal expansion.

		NL 3500Y / SY	NL 3500BY / BSY
Chuck size	inch	12"	15"
Spindle nose	ASA	A2-11	A2-11
Max spindle speed	rpm	2,800	2,000
Thru hole diameter	mm(inch)	Ø115 (4.53)	Ø132 (5.2)
Draw tube I.D.	mm(inch)	Ø103 (4.06)	Ø117.5 (4.63)

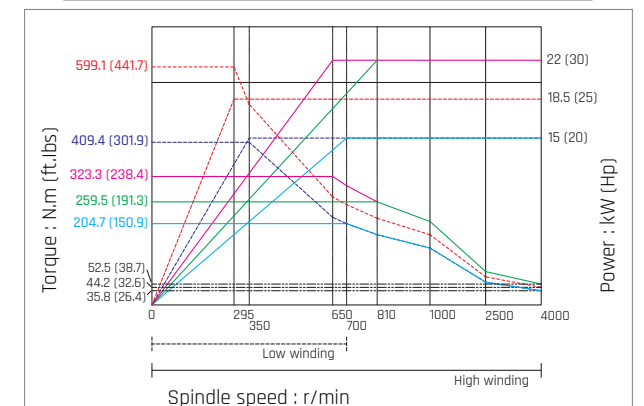


Sub Spindle (SY Models)

The sub-spindle with full C-axis control enables precise machining on the rear side of the workpiece. Its powerful built-in motor with an oil cooling system delivers fast acceleration, high torque and exceptional precision.



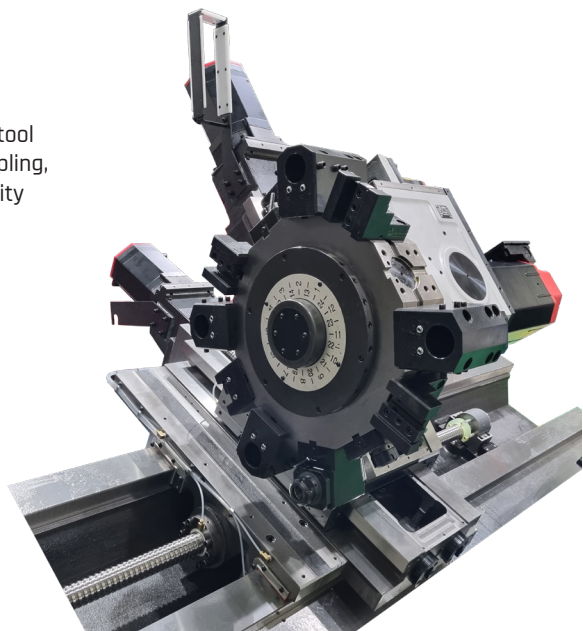
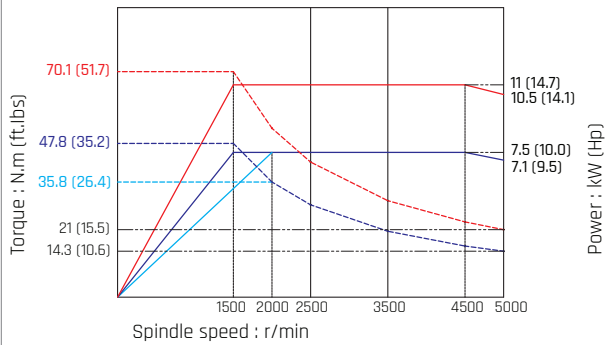
		NL 3500SY / BSY
Chuck size	inch	10"
Spindle nose	ASA	A2-8
Max spindle speed	rpm	4,000
Thru hole diameter	mm(inch)	Ø91 (3.58)
Draw tube I.D.	mm(inch)	Ø82 (3.23)



Turret

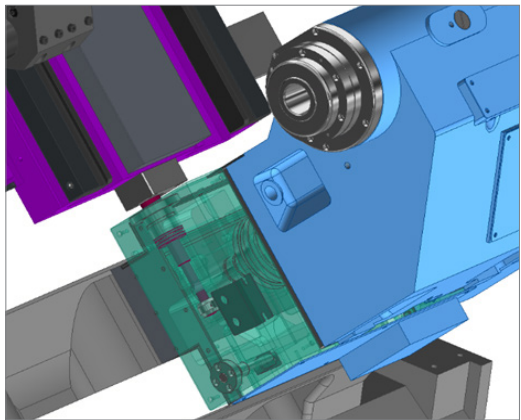
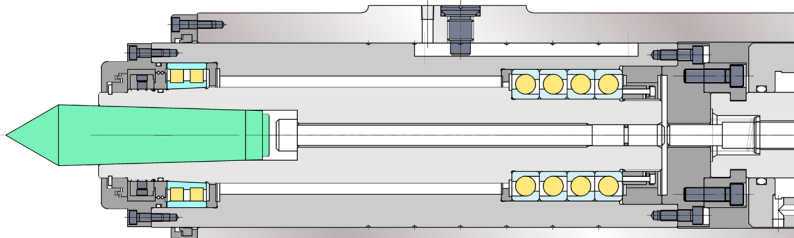
The 12-station turret with 24 index positions (half-indexing) offers increased tool capacity. The turret design incorporates a 245 mm large-diameter Curvic coupling, delivering powerful clamping force of 83.8 kN (18,839 lbf) to ensure high rigidity and enhanced cutting performance.

• Mill Tool Torque Diagram



Tailstock (Y Models)

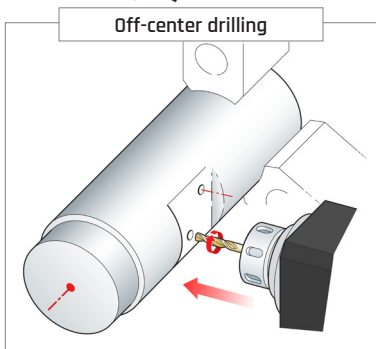
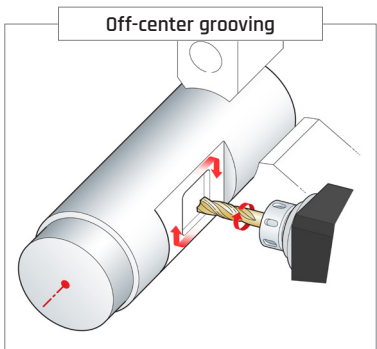
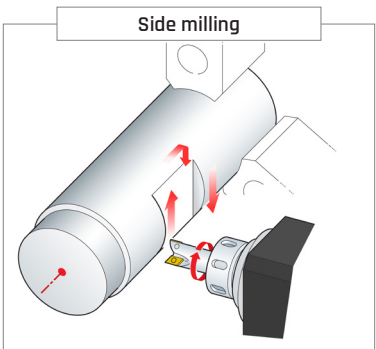
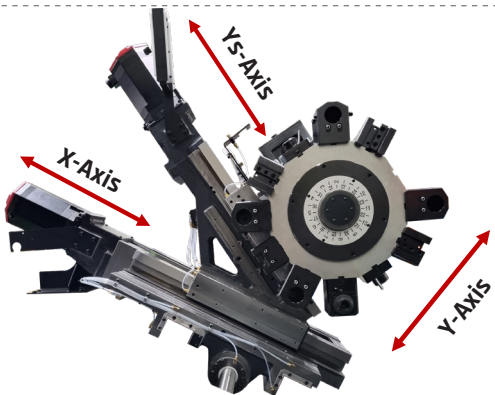
Programmable tailstock body & quill make easier to adjust tailstock position and minimize setup time. MT#5 built-in live center tailstock provided as standard, ensures superior machining rigidity.



Y-Axis Machining

Y-axis allows side milling, off-center drilling and grooving. This result in better machining accuracy and also enable more complex shape machining capability compared to conventional 2 and 3 axis turning center. The simultaneous operation of the X-axis and the Ys-axis creates the Y-axis movement.

Y-Axis Travel	Y-Axis Rapid Traverse
130 (±65) mm [5.12 (±2.56 inch)]	10 m/min [394 ipm]



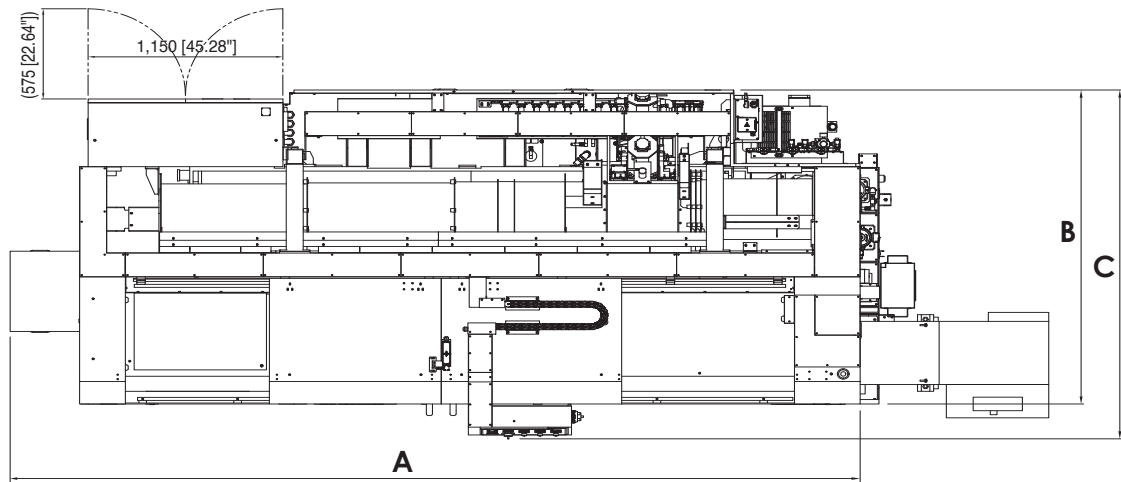
Standard & Option Specifications

● : Standard ○ : Option X : Not applicable

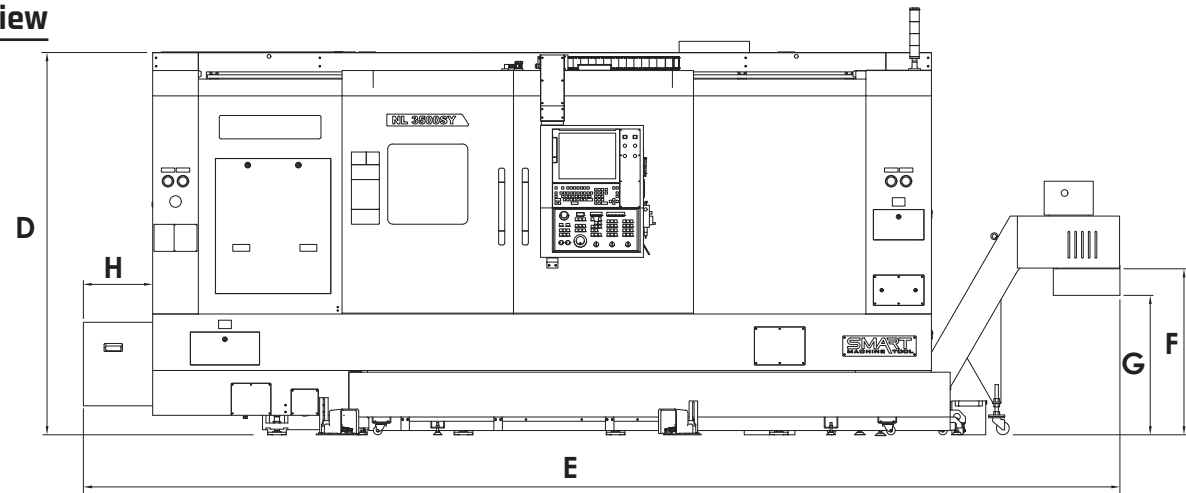
		NL 3500			
		Y	BY	SY	BSY
Spindle and Chucking					
Main spindle chuck (Hydraulic 3 jaw)	12 inch	●	○	●	○
	15 inch	○	●	○	●
Sub spindle chuck (Hydraulic 3 jaw)	10 inch	X	X	●	●
Soft jaw	6 sets (SY), 3 sets (Y)	●	●	●	●
Hard jaw	2 sets (SY), 1 set (Y)	●	●	●	●
Special chuck		○	○	○	○
Dual pressure chucking		○	○	○	○
Chuck pressure switch		○	○	○	○
Chuck clamp foot switch		●	●	●	●
Chuck clamp confirmation		●	●	●	●
Steady Rest					
Hydraulic (Programmable)	SLU-3 (Ø12~Ø152 mm [0.47~5.98 inch])	○	○	X	X
	SLU-3.1 (Ø20~Ø165 mm [0.79~6.5 inch])	○	○	X	X
	SLU-3.2 (Ø50~Ø200 mm [1.97~7.87 inch])	○	○	X	X
	SLU-4 (Ø30~Ø245 mm [1.18~9.65 inch])	○	○	X	X
Tailstock					
Programmable tailstock		●	●	X	X
Built-in live center	MT#4 (dead center)	●	●	X	X
Tailstock in-out foot switch		●	●	X	X
Coolant					
High pressure coolant pump	10 bar (145 psi)	●	●	●	●
	20 bar (290 psi)	○	○	○	○
	30 bar (435 psi)	○	○	○	○
Oil skimmer		●	●	●	●
Coolant chiller		○	○	○	○
Coolant filtration system		○	○	○	○
Chuck coolant		○	○	○	○
Shower coolant		○	○	○	○
Coolant gun		○	○	○	○
Chip Disposal					
Side chip conveyor		○	○	○	○
Chip bucket		○	○	○	○
Air gun		○	○	○	○
Air blower		○	○	○	○
Mist collector		○	○	○	○
Measurement & Automatic Operation					
Tool presetter	Manual	○	○	○	○
	Automatic	○	○	○	○
Workpiece measurement		○	○	○	○
Linear scale	X/Y/Z axis	○	○	○	○
Bar feeder interface		○	○	○	○
Auto door		○	○	○	○
Others					
Operation status light tower		●	●	●	●
Work light (LED lamp)		●	●	●	●
Manual and part list		●	●	●	●
Door interlock		●	●	●	●
Leveling blocks		●	●	●	●
Air conditioner		○	○	○	○

I Machine Dimensions

Top View



Front View

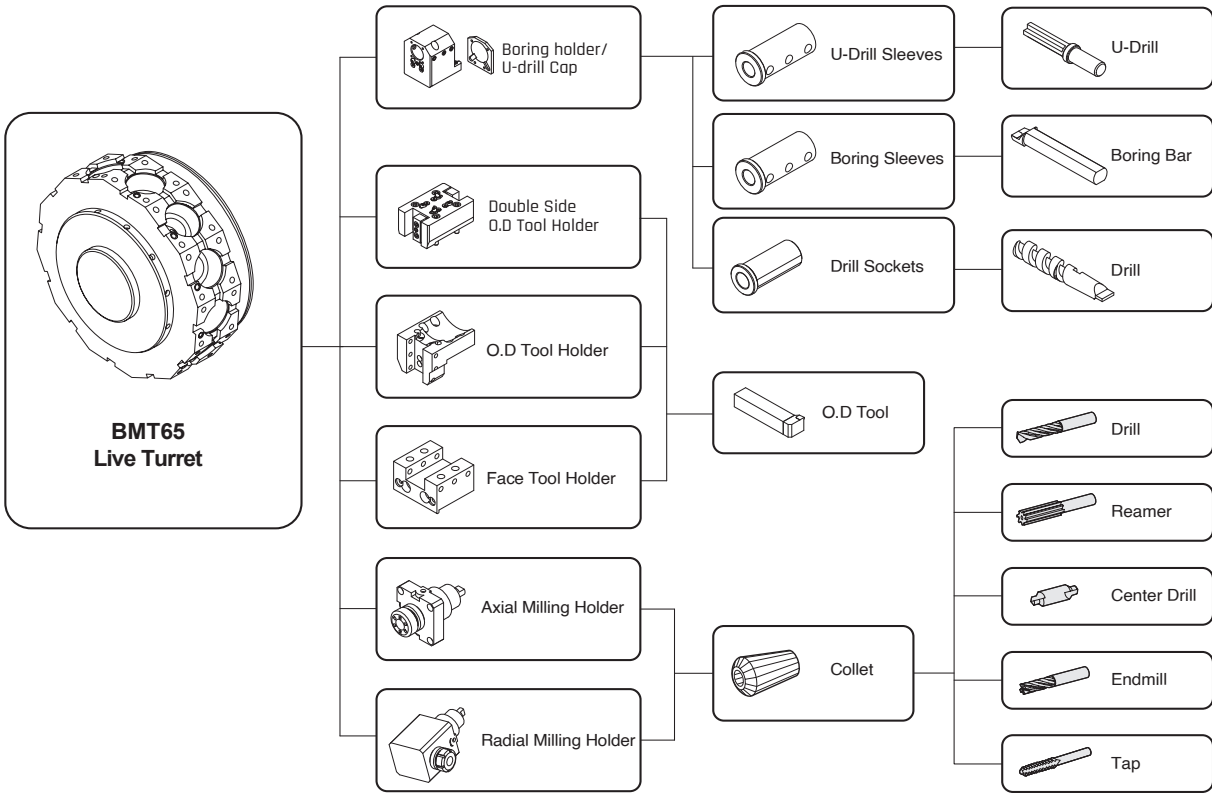


Unit : mm (inch)

Model	A (Length)	B (Width)	C (Width with controller)	D (Height)	E (Length with chip conveyor)	F (Chip conveyor height)	G	H (Motor cover width)
NL 3500Y	4,838 (190.47)	2,090 (82.28)	2,322 (91.42)	2,265 (89.17)	5,953.2 (234.38)	982 (38.66)	825 (32.48)	230 (9.06)
NL 3500BY	5,018 (197.56)				6,133.2 (241.46)			410 (16.14)
NL 3500XLY	6,508 (256.22)		2,409 (94.84)		7,623.2 (300.13)			230 (9.06)
NL 3500BXLY	6,688 (263.31)				7,803.2 (307.21)			410 (16.14)
NL 3500SY	4,838 (190.47)		2,322 (91.42)		5,953.2 (234.38)			230 (9.06)
NL 3500BSY	5,018 (197.56)				6,133.2 (241.46)			410 (16.14)

I Tooling System

BMT Turret (12 Station)

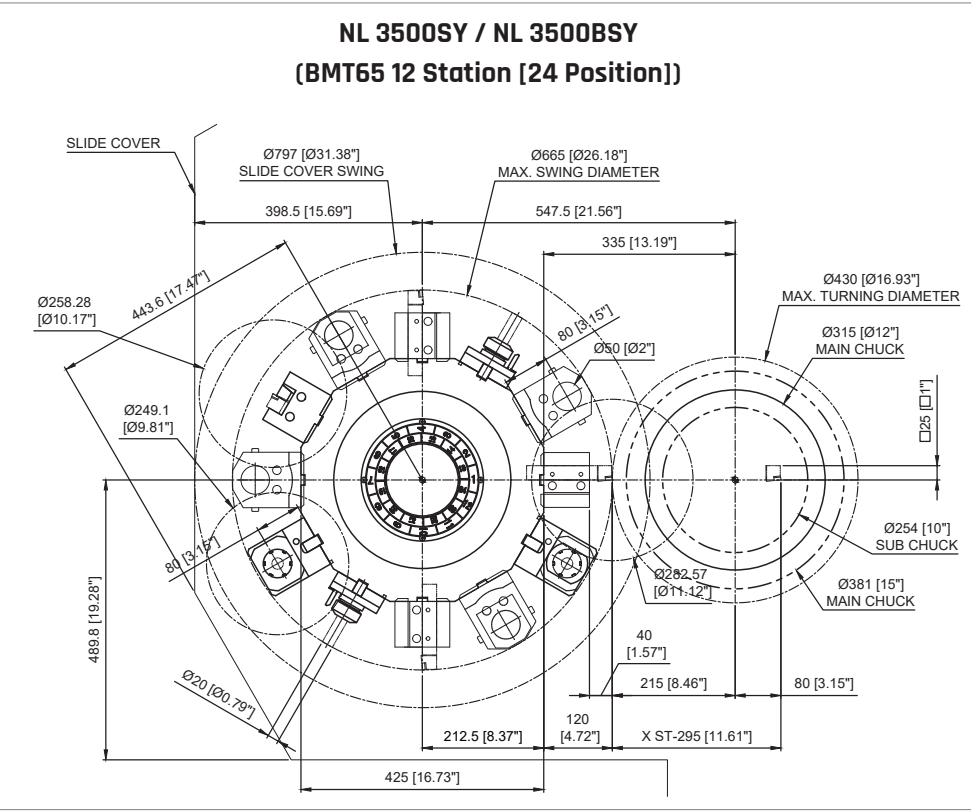
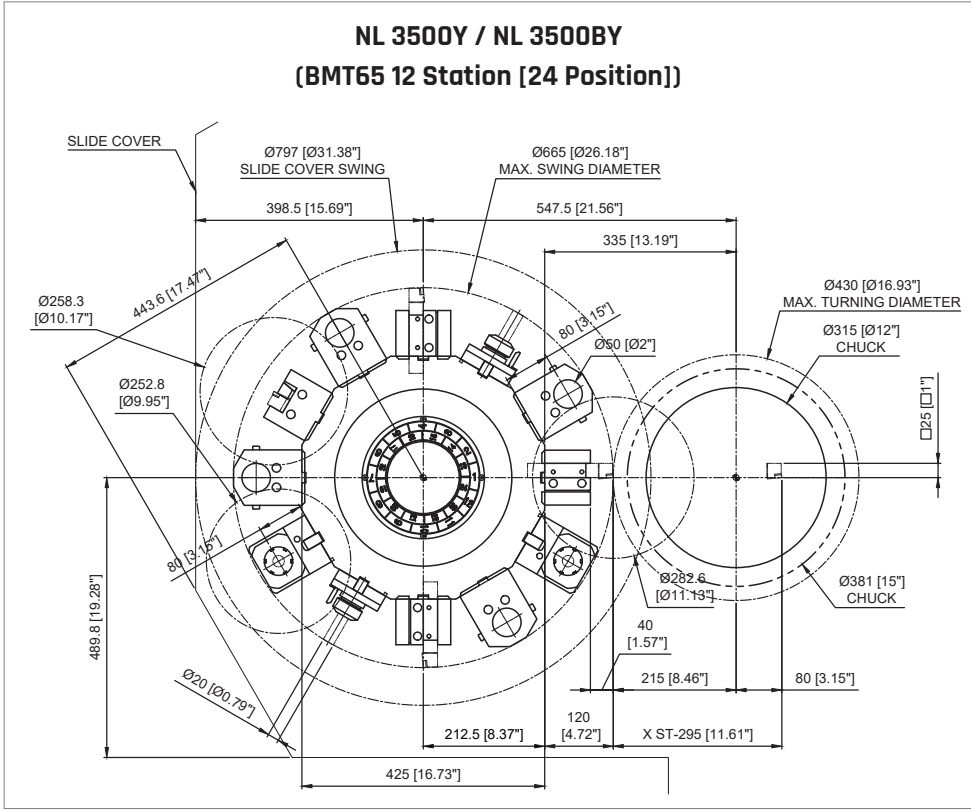


Standard Tooling Parts

Unit : mm (inch)

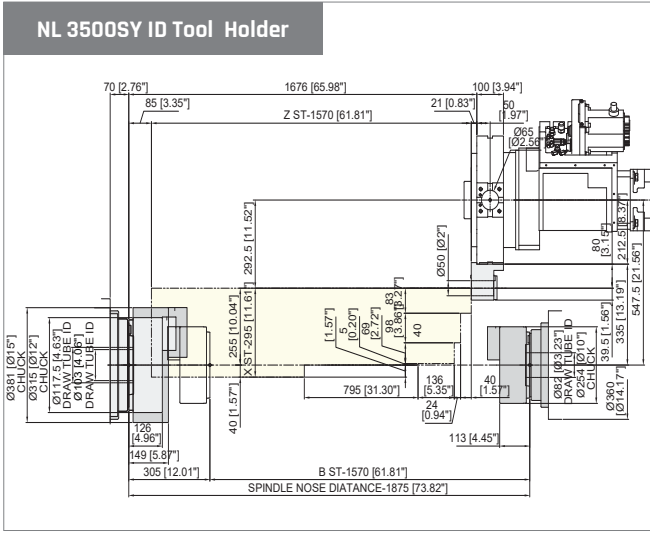
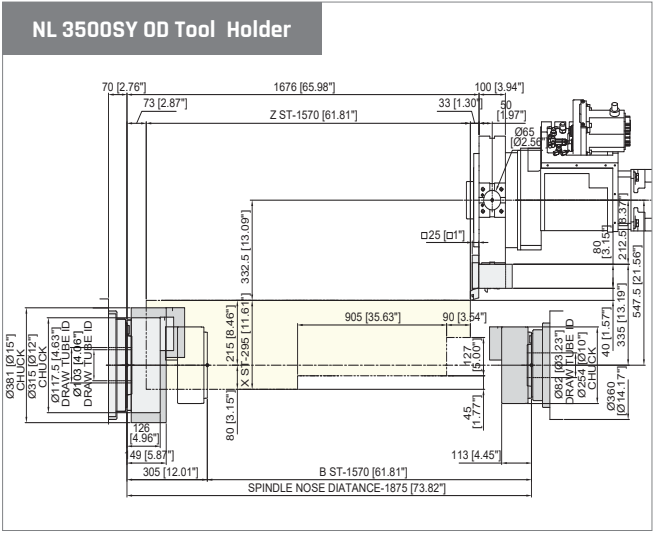
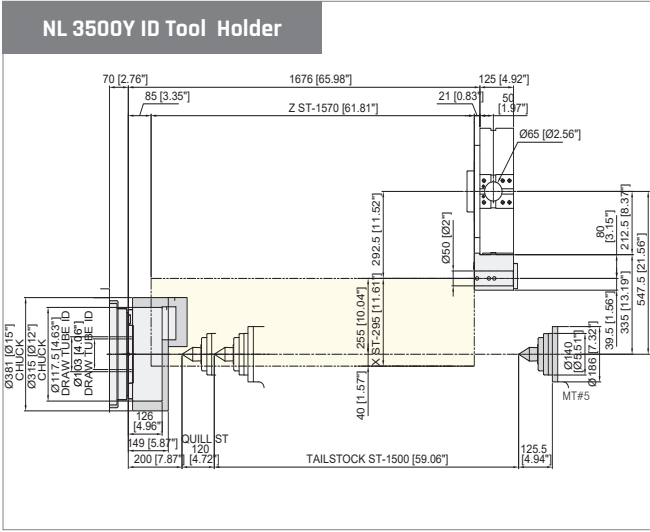
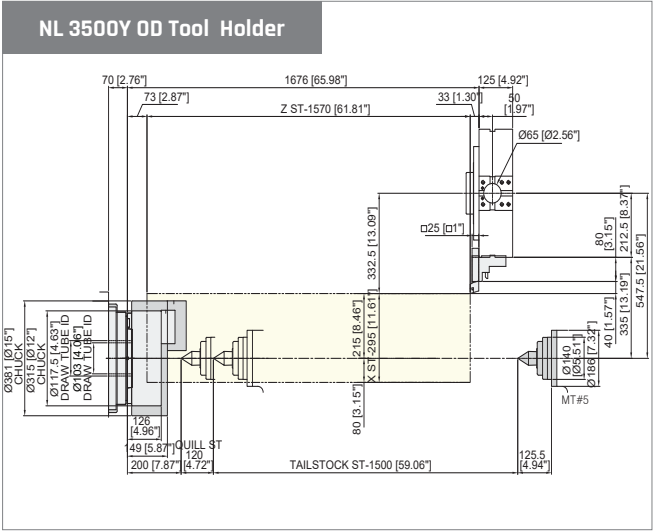
ITEM			NL 3500Y	NL 3500BY	NL 3500SY	NL 3000BSY
Turning Holder	O.D Holder		3	3	-	-
	O.D Holder (Double side)		-	-	3	3
	O.D Face Holder		1	1	1	1
Boring Holder	Boring/U-Drill Holder	Single	4	4	4	4
Driven Holder	Axial Milling Holder	Standard	1	1	1	1
	Radial Milling Holder	Standard	1	1	1	1
Sleeve	Boring	Ø10(3/8")	1	1	1	1
		Ø12(1/2")	1	1	1	1
		Ø16(5/8")	1	1	1	1
		Ø20(3/4")	1	1	1	1
		Ø25(1")	1	1	1	1
		Ø32(1 1/4")	1	1	1	1
		Ø40(1 1/2")	1	1	1	1
		Ø50(2")	-	-	-	-
	Drill	MT2	-	-	-	-
		MT3	1	1	1	1
		MT4	1	1	1	1

I Interference

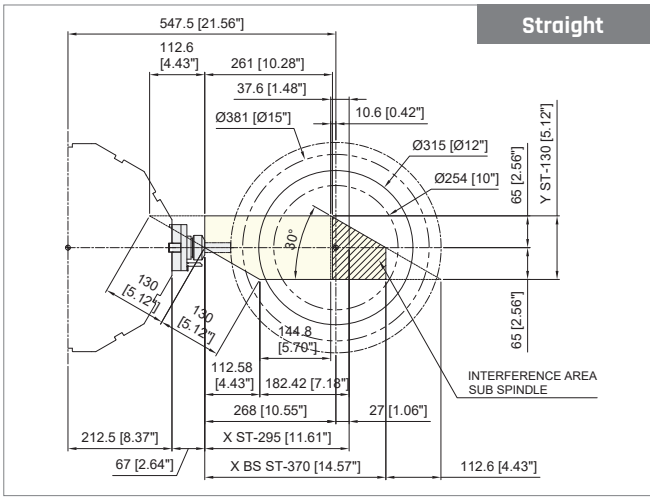
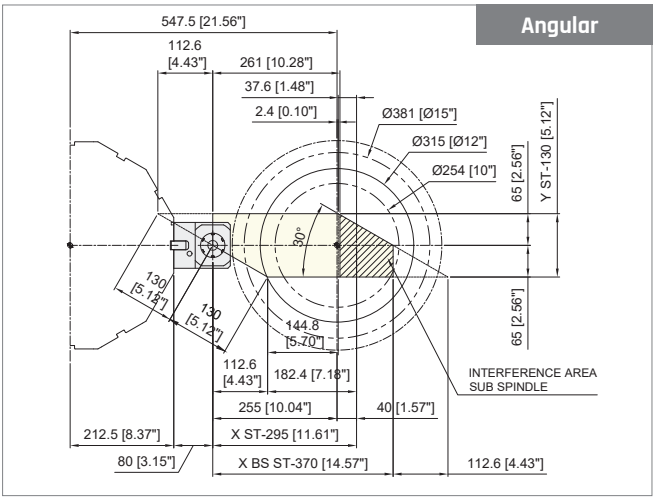


I Work Range

Unit : mm (inch)



I Y-Axis Travel Range



I Machine Specifications

DESCRIPTION			NL 3500Y	NL 3500XLY	NL3500BY	NL 3500BXY
CAPACITY	Swing over the bed	mm(inch)	987 (38.86)			
	Swing over the cross slide	mm(inch)	852 (33.54)			
	Max. machining diameter	mm(inch)	430 (16.93)			
	Max. machining length	mm(inch)	1,500 (59.06)	3,000 (118.11)	1,470 (57.87)	2,970 (116.93)
	Chuck size	Inch	12		15	
	Bar working dia.	mm(inch)	102 (4.02)		116.5 (4.59)	
SPINDLE	Spindle speed	rpm	2,800		2,000	
	Spindle motor	kW(Hp)	26/22/18.5 (35/30/25)		30/22 (40/30)	
	Spindle torque	N.m(ft.lbs)	1,124.4 (829)		1,612.1 (1,188.6)	
	Spindle nose	ASA	A2-11			
	Spindle through hole dia.	mm(inch)	115 (4.53)		132 (5.2)	
	Min. C-axis indexing	deg	0.001			
TRAVEL	Rapid traverse (X/Z/Y)	m/min(ipm)	30/30/10 (1,181/1,181/394)			
	X-axis travel	mm(inch)	295 (11.61)			
	Z-axis travel	mm(inch)	1,570 (61.81)	3,065 (120.67)	1,570 (61.81)	3,065 (120.67)
	Y-axis travel	mm(inch)	130 (5.12) [±65 (±2.56)]			
	Feed motor (X/Z/Y)	kW(hp)	4/7/4 (5.4/9.4/5.4)			
TURRET	Number of tool stations	st.	12 (24)			
	OD tool size	mm(inch)	25 (1)			
	Max. boring bar size	mm(inch)	50 (2)			
	Indexing time	sec	0.25			
	Milling tool holder type	-	BMT65			
	Max. rotary tool spindle speed	rpm	5,000			
	Rotary tool motor power	kW(hp)	11/7.5 (14.7/10)			
TAILSTOCK	Tailstock travel	mm(inch)	1,450 (57.1)	2,950 (116.14)	1,450 (57.1)	2,950 (116.14)
	Quill diameter	mm(inch)	140 (5.51)			
	Quill travel	mm(inch)	120 (4.72)			
	Taper of tailstock spindle	-	MT#5 dead center			
BED TYPE		-	30° Slant Box way			
ELECTRIC POWER SUPPLY		kVA	50		55	
REQUIRED FLOOR SPACE		mm(inch)	5,000x2,300 (196.9x90.6)	6,522x2,300 (256.7x90.6)	5,200x2,300 (204.7x90.6)	6,722x2,300 (264.6x90.6)
MACHINE WEIGHT		kg(lbs)	8,700 (19,180)	10,800 (23,810)	8,900 (19,621)	11,000 (24,251)
CONTROLLER		-	Fanuc Oi-TF Plus			

DESCRIPTION			NL 3500SY	NL 3500BSY
CAPACITY	Swing over the bed	mm(inch)	987 (38.86)	
	Swing over the cross slide	mm(inch)	852 (33.54)	
	Max. machining diameter	mm(inch)	430 (16.93)	
	Max. machining length	mm(inch)	1,500 (59.06)	1,470 (57.87)
SPINDLE	Chuck size	Inch	12	15
	Bar working dia.	mm(inch)	102 (4.02)	116.5 (4.59)
	Spindle speed	rpm	2,800	2,000
	Spindle motor [Cont./Max.]	kW(Hp)	26/22/18.5 (35/30/25)	30/22 (40/30)
	Spindle torque	N.m(ft.lbs)	1,124.4 (829)	1,612.1 (1,188.6)
	Spindle nose	ASA	A2-11	
	Spindle through hole dia.	mm(inch)	115 (4.53)	132 (5.2)
	Min. C-axis indexing	deg	0.001	
SUB SPINDLE	Chuck size	Inch	10	
	Bar working dia.	mm(inch)	81 (3.19)	
	Spindle speed	rpm	4,000	
	Spindle motor [Cont./Max.]	kW(Hp)	22/15 (29.5/20.1)	
	Spindle torque	N.m(ft.lbs)	599.1 (441.7)	
	Spindle nose	ASA	A2-8	
	Min. A-axis indexing	deg	0.001	
TRAVEL	Rapid traverse	m/min(ipm)	30/30/10/30 (1,181/1,181/394/1,181)	
	Travel	X/Z/B mm(inch)	295/1,570/1,570 (11.61/61.81/61.81)	
		Y mm(inch)	130 (5.12) [±65 (±2.56)]	
	Feed motor (X/Z/Y/B)	kW(hp)	4/7/4/3 (5.4/9.4/5.4/4)	
TURRET	Number of tool stations	st.	12 (24)	
	OD tool size	mm(inch)	25 (1)	
	Max. boring bar size	mm(inch)	50 (2)	
	Indexing time	sec	0.25	
	Milling tool holder type	-	BMT65	
	Max. rotary tool spindle speed	rpm	5,000	
	Rotary tool motor power	kW(hp)	11/7.5 (14.7/10)	
BED TYPE		-	30° Slant Box way	
ELECTRIC POWER SUPPLY		kVA	55	60
REQUIRED FLOOR SPACE		mm(inch)	5,200x2,300 (204.7x90.6)	
MACHINE WEIGHT		kg(lbs)	9,500 (20,944)	9,700 (21,385)
CONTROLLER		-	Fanuc Oi-TF Plus	