

DOOSAN



Lynx 2100 series

6/8/10-Inch Global Compact Turning Center

Lynx 2100 series

Lynx 2100/M

Lynx 2100L/LM/LMS

**MACHINE
GREATNESS™**



Basic information

Basic Structure
Cutting
Performance

Detailed
Information

Options
Applications
Diagrams
Specifications

Customer Support
Service



Lynx 2100 series

The Lynx 2100 Series – the next generation of the Lynx Series, currently with more than 25000 sales worldwide – aims to deliver even greater customer satisfaction with its superior machining performance, reliability, and user convenience.

Contents

02 Product Overview

Basic Information

04 Basic Structure

08 Cutting Performance

Detailed Information

09 Standard / Optional Specifications

11 Applications

14 Diagrams

24 Machine / CNC Specifications

30 Customer Support Service



Superior Machining Performance

Equipped with a 15 kW (20.1 Hp) high-power motor and machine structure, and further enhanced spindle and axis ball screw stiffness, the Lynx 2100 Series offers excellent cutting capability up to a maximum turning diameter of Ø350 mm (Ø13.8 inch) and a maximum turning length of 550 mm (21.7 inch).

High Reliability

The Series' excellent reliability is based on the adoption of a wider support structure, more stable bed, low vibration/noise spindle, servo-driven turret, and a full slideway cover for preventing coolant leaks and chips from penetrating the machine.

Improved User Convenience

The CNC tailstock, new Easy Operation Package (EOP) and hot keys enable the user to operate peripheral devices quickly and conveniently. User convenience has been further enhanced with grease type lubrication and a lateral / rear side double-purpose chip conveyor.

Basic Structure

The Lynx 2100 Series includes a wider support structure for X, Z axes and tailstock traverse. The X and Z axes are fitted with highly rigid roller-type LM Guideways .

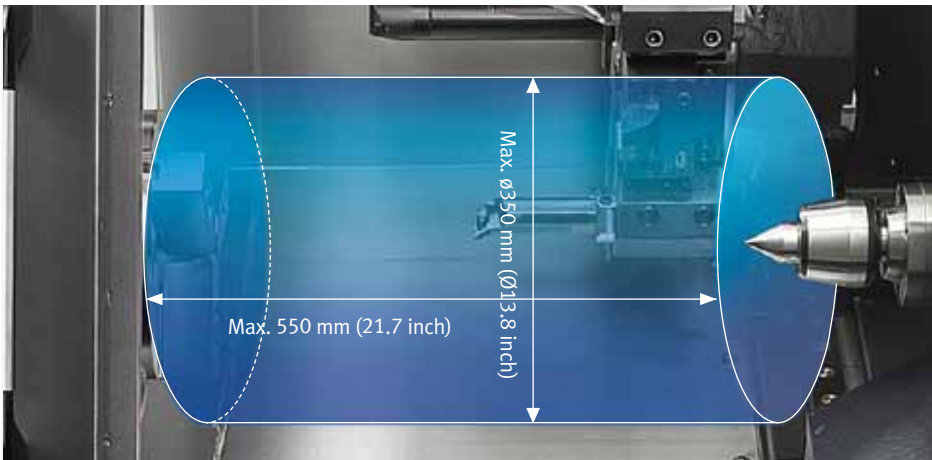


Standard chuck size	Models	Travel mm (inch)		Rapid feedrate m/min (ipm)		Fnuctions		
		X-axis	Z-axis	X-axis	Z-axis	2-axis	M	MS
6 inch	Lynx 2100A / MA	205 (8.1)	340 (13.4)	30 (1.2)	36 (1.4)	○	○	-
	Lynx 2100LA / LMA / LMSA		560 (22.0)			○	○	○
8 inch	Lynx 2100B / MB	205 (8.1)	340 (13.4)	30 (1.2)	36 (1.4)	○	○	-
	Lynx 2100LB / LMB / LMSB		560 (22.0)			○	○	○
10 inch	Lynx 2100LC	205 (8.1)	560 (22.0)	30 (1.2)	36 (1.4)	○	○	○

★ M : 2-axis + Milling /
MS : Milling + Sub spindle

Largest Machining Area

The Series also offers the largest machining area window in its class, with a max. turning diameter of Ø350 mm (Ø13.8 inch) and a max. turning length of 550 mm (21.7 inch).



Function	Models	unit	Max. turning dia.	Bar working dia. (6inch / 8inch)	Max. cutting length
2-axis	Lynx 2100A / B	mm (inch)	Ø350 (Ø13.8)	51 / 65 (2.0 / 2.6)	330 (13.0)
	Lynx 2100LA / LB	mm (inch)	Ø350 (Ø13.8)	51 / 65 (2.0 / 2.6)	550 (21.7)
	Lynx 2100LC	mm (inch)	Ø350 (Ø13.8)	81 (3.2) (10 inch)	537 (13.0)
M / MS type	Lynx 2100MA / MB	mm (inch)	Ø300 (Ø11.8)	51 / 65 (2.0 / 2.6)	290 (11.4)
	Lynx 2100LMA / LMB	mm (inch)	Ø300 (Ø11.8)	51 / 65 (2.0 / 2.6)	510 (20.1)
	Lynx 2100LMSA / LMSB	mm (inch)	Ø300 (Ø11.8)	51 / 65 (2.0 / 2.6)	510 (20.1)
	Lynx 2100LMC/LMSC	mm (inch)	Ø300 (Ø11.8)	81 (3.2) (10 inch)	497 (19.6)

Spindle

The high power / torque motor supports high-precision and heavy-duty cutting, improving productivity.



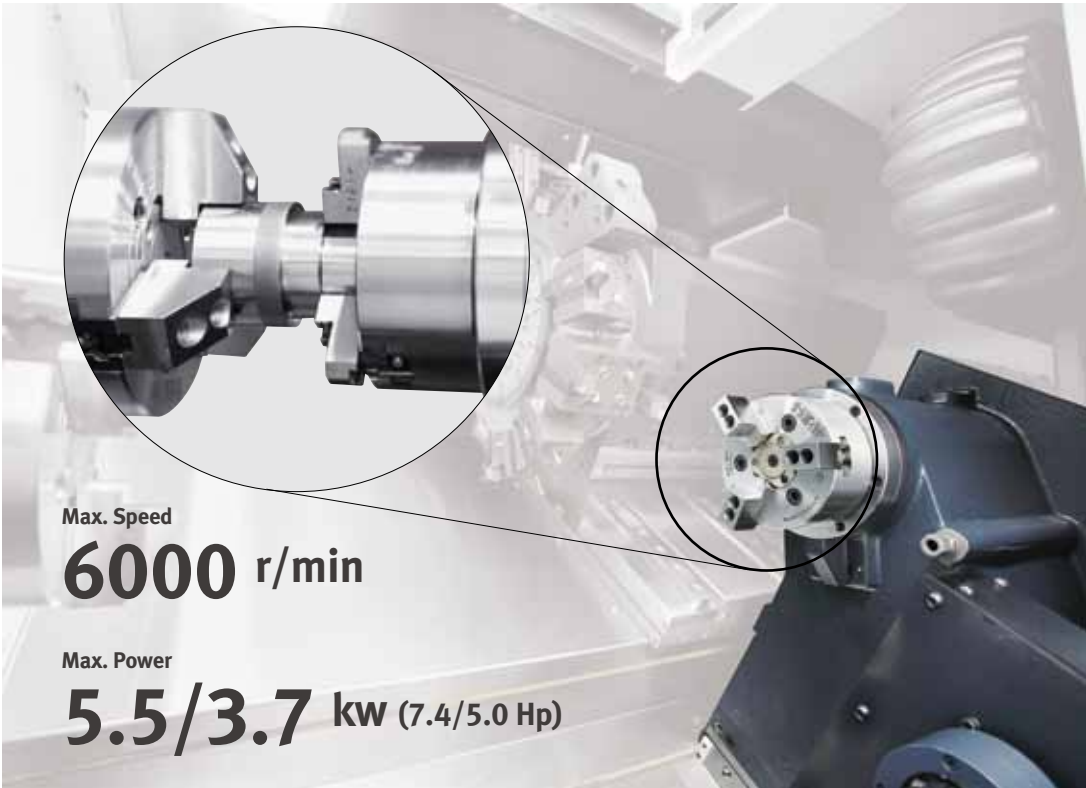
Max. Speed
6000 r/min (6 inch)

Max. Torque
269 N·m (10 inch)
(198.5 ft-lbs)

Standard chuck size	Models	Spindle speed r/min	Max.power (15min/cont.) kW (Hp)	Max torque N·m (ft-lbs)
6 inch	Lynx 2100A / LA / MA / LMA / LMSA	6000	15/11 (20.1/14.7)	127 (93.7)
8 inch	Lynx 2100B / LB / MB / LMB / LMSB	4500	15/11 (20.1/14.7)	169 (124.7)
10 inch	Lynx 2100LC / LMC / LMSC	3500	18.5/15 (24.8/20.1)	269 (198.5)

Sub-spindle

The sub-spindle function enables rear-side cutting by a single setup, thereby maximizing the user's productivity and efficiency. Full C axis 0.001 degree control is included to optimize capability.



Max. Speed
6000 r/min

Max. Power
5.5/3.7 kw (7.4/5.0 Hp)

Models	Standard chuck size	Spindle speed r/min	Max.power (15min/cont.) kW	Max torque N·m (ft-lbs)
Lynx 2100LMSA / LMSB / LMSC	5 inch	6000	5.5 / 3.7 (7.4 / 5.0)	47 (34.7)

Basic information

Basic Structure
Cutting
Performance

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service

Rotation of the turret is controlled by servo motor for rapid and accurate selection of tools. The M model is fitted with Doosan's unique BMT45P turret to provide superior performance for milling operations.

Turret for 2-axis Models_ Lynx 2100A / B / LA / LB / LC



No. of Tool Positions

Lynx 2100A/LA/B/LB

10 station option
12 station

Lynx 2100LC

10 station
12 station option

BMT45PTurret for M/MS Models_ Lynx 2100 MA / MB / LMA / LMB / LMC / LMSA / LMSB / LMSC

The BMT45 turret developed using Doosan's unique technology minimizes thermal error by using an air / oil cooling system. The direct turret clamping system improves accuracy and rigidity.



No. of Tool Positions

12 station

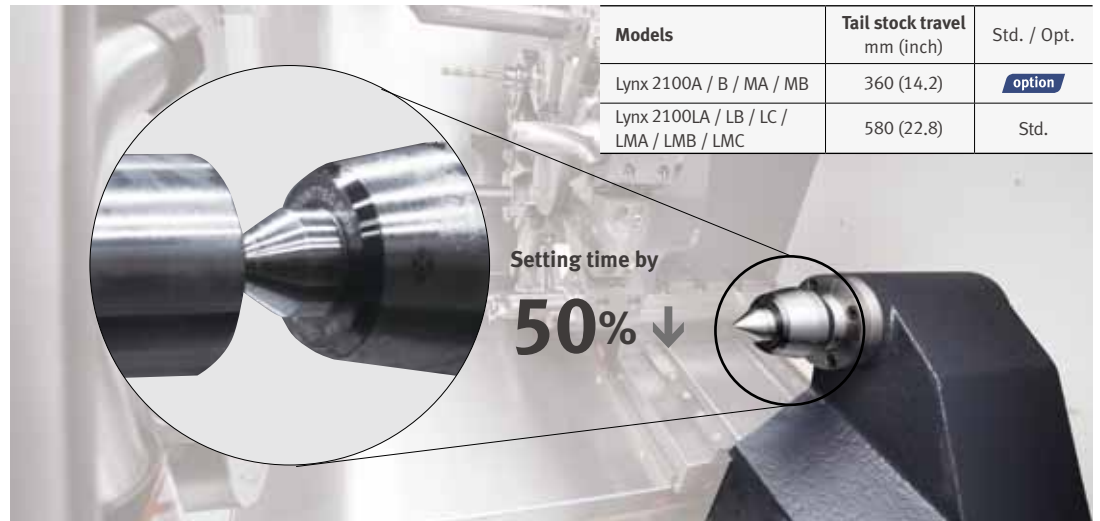
Indexing

24 position index

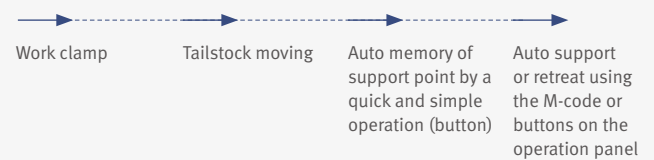
Tailstock

Adoption of the hydraulic actuation type CNC tailstock (hydraulic type) enables tailstock positioning and work setting using the operation panel. The dedicated screen reduces the work setting time by about 50%.

CNC Tailstock (Hydraulic Type)

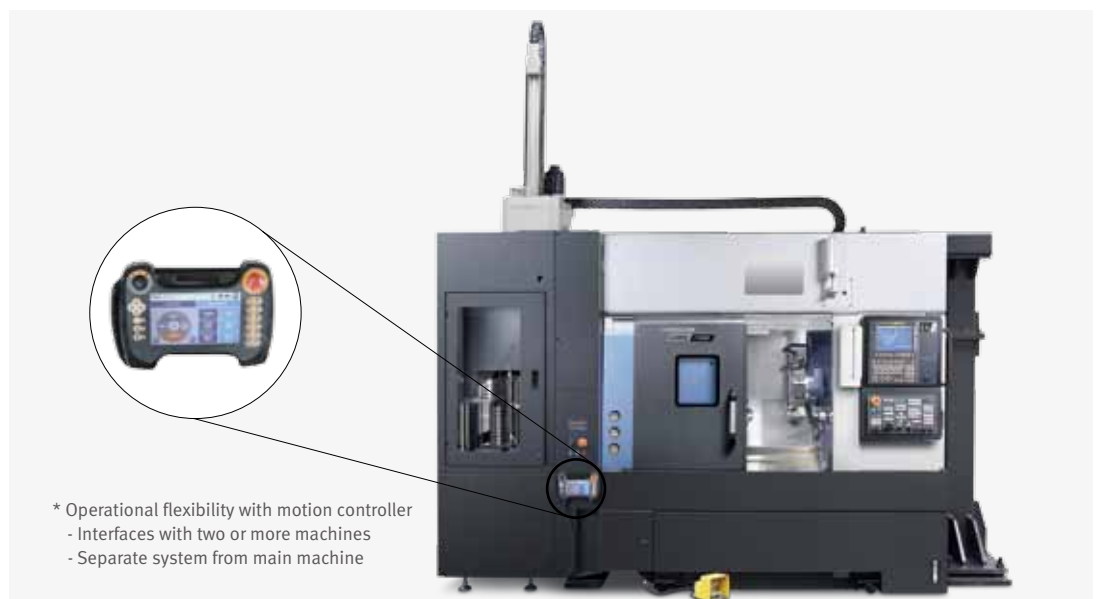


The EOP (Easy Operation Package) System enables fast and easy tailstock position setting and control.



Doosan Gantry Loader

Doosan Gantry Loader is compact and easy customized stand alone type automation solution controlled by motion controller.



Description		Unit	Doosan Gantry Loader
Travel	Z / Y axis	mm (inch)	2080 / 900 (81.9 / 35.4)
Rapid Traverse	Z / Y axis	m/min (ipm)	210 / 180 (8267.7 / 7086.6)
Work Capacity		mm (inch)	Ø150 x 90 (Ø5.9 x 3.5)
		kg (lb)	3 (6.6)
Number of Pallets (Work Stocker)		st	14
Applicable model		-	Lynx 2100 series / PUMA GT2100 series

Cutting Performance

Basic information

Basic Structure
Cutting
Performance

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service

Lynx 2100 series has powerful cutting performance.



O.D turning

	Unit	Lynx 2100LB
Cutting speed	m/min (ipm)	210 (8267.7)
Feed	mm/rev (ipr)	0.56 (0.0)
Spindle speed	r/min	844
Cutting depth	mm (inch)	4 (0.2)
Chip removal rate	cm ³ /min (inch ³ /min)	462 (28.2)



I.D turning (Rough / End)

	Unit	Lynx 2100LB
Cutting speed	m/min (ipm)	280 / 200 (11023.6 / 7874.0)
Feed	mm/rev (ipr)	0.3 / 0.1 (0.0 / 0.0)
Spindle speed	r/min	1182 / 863
Cutting depth	mm (inch)	3 / 0.4 (0.1 / 0.0)
Tool length	mm (inch)	4.0D / 4.0D (0.2D / 0.2D)



U-drilling

	Unit	Lynx 2100LB
Cutting speed	m/min (ipm)	200 (7874.0)
Feed	mm/rev (ipr)	0.12 (0.0)
Spindle speed	r/min	1011
U-drill dia.	mm (inch)	63 (2.5)
Cutting depth	mm (inch)	176 (6.9)
Chip removal rate	cm ³ /min (inch ³ /min)	378 (23.1)



Face milling

	Unit	Lynx 2100MA
Cutting speed	m/min (ipm)	188 (7401.6)
Feed	mm/min (ipm)	600 (23.6)
Spindle speed	r/min	1500
Cutting depth	mm (inch)	3 (0.1)
Chip removal rate	cm ³ /min (inch ³ /min)	57.6 (3.5)
Tool dia.	mm (inch)	50 (2.0)



End milling

	Unit	Lynx 2100MA
Cutting speed	m/min (ipm)	57 (2244.1)
Feed	mm/min (ipm)	300 (11.8)
Spindle speed	r/min	1500
Cutting depth	mm (inch)	30 (1.2)
Chip removal rate	cm ³ /min (inch ³ /min)	108 (6.6)
Tool dia.	mm (inch)	12 (0.5)



Tap

	Unit	Lynx 2100MA
Tap dia.	mm (inch)	10 (0.4)
Cutting speed	m/min (ipm)	60 (2.4)
Feed	mm/rev (ipr)	1.75 (0.1)
Spindle speed	r/min	1592

* The results, indicated in this catalogue are provides as example. They may not be obtained due to differences in cutting conditions and environmental conditions during measurement.



Standard / Optional Specifications

Various optional features are available for customer-specific work environments.

● Standard ○ Optional ✕ Not applicable

NO.	Description	Features	Lynx 2100A/LA	Lynx 2100B/LB	Lynx 2100LC	Lynx 2100MA/LMA/LMSA	Lynx 2100MB/LMB/LMSB	Lynx 2100LMC/LMSC
1	Chuck	6 inch	●	✕	✕	●	✕	✕
2		8 inch	○	●	✕	○	●	✕
3		10 inch	✕	○	●	✕	○	●
4		None	○	○	○	○	○	○
5	Jaw	Soft jaw	●	●	●	●	●	●
6		Hard jaw	○	○	○	○	○	○
7	Chucking option	DUAL PRESSURE CHUCKING	○	○	○	○	○	○
8		CHUCK CLAMP CONFIRMATION	●	●	●	●	●	●
9	Turret	Rotary tool_6000r/min	✕	✕	✕	●	●	●
10		Rotary tool_10000r/min	✕	✕	✕	○	○	○
11	Coolant pump	1.5 bar	●	●	●	●	●	●
12		4.5 bar	○	○	○	○	○	○
13		7 bar	○	○	○	○	○	○
14		10 bar	○	○	○	○	○	○
15		14.5 bar	○	○	○	○	○	○
16	Coolant pump (opt.)	4.5 bar	○	○	○	○	○	○
17	Coolant options	Oil Skimmer	○	○	○	○	○	○
18		Coolant chiller	○	○	○	○	○	○
19		Coolant pressure switch	○	○	○	○	○	○
20		Coolant level switch	●	●	●	●	●	●
21	Side chip conveyor	Hinged belt	○	○	○	○	○	○
22		Magnetic scrapper	○	○	○	○	○	○
23		Screw (auger)	○	○	○	○	○	○
24	Rear chip conveyor	Hinged belt	○	○	○	○	○	○
25		Magnetic scrapper	○	○	○	○	○	○
26		Screw (auger)	○	○	○	○	○	○
27	Chip bucket	Folklift 110L (for auger conveyor)	○	○	○	○	○	○
28		Folklift 200L (for auger conveyor)	○	○	○	○	○	○
29		Folklift 220L	○	○	○	○	○	○
30		Folklift 300L	○	○	○	○	○	○
31		Folklift 380L	○	○	○	○	○	○
32		Rotation 220L	○	○	○	○	○	○
33		Rotation 300L	○	○	○	○	○	○
34		Rotation 380L	○	○	○	○	○	○
35	Chip processing options	Air blower	○	○	○	○	○	○
36		Chuck coolant	○	○	○	○	○	○
37		Coolant gun	○	○	○	○	○	○
38		Mist collector ready	○	○	○	○	○	○
39		Assembled mist collector	○	○	○	○	○	○
40	Measurement & Automation	Bar feeder system	○	○	○	○	○	○
41		Auto door	○	○	○	○	○	○
42		Tool setter (Manual)	○	○	○	○	○	○
43		Tool setter (Auto)	○	○	○	○	○	○
44		Parts catcher and box	○	○	○	○	○	○
45		Parts catcher and conveyor	○	○	○	○	○	○
46	Standard devices	Front door interlock	●	●	●	●	●	●
47		Manual book	●	●	●	●	●	●
48		installation parts	●	●	●	●	●	●
49		safety sticker	●	●	●	●	●	●
50		Work light	●	●	●	●	●	●
51		Standard operation tools	●	●	●	●	●	●
52		Foot switch	●	●	●	●	●	●
53	Optional devices	Tool monitoring system	○	○	○	○	○	○
54		Signal tower	○	○	○	○	○	○
55		Air gun	○	○	○	○	○	○
56		Auto power off	○	○	○	○	○	○

Basic information

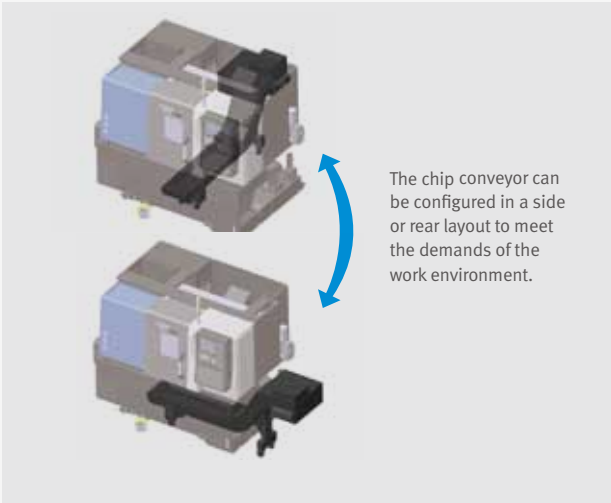
Basic Structure
Cutting
Performance

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service

Chip Conveyor (option 21~26)



Chip conveyor type	Material	Description
Hinged belt	Steel	Most typical type of chip conveyor. Appropriate for steel materials generating chips of length of 30 mm or more.
Screw (auger)	Steel	Chip conveyor with smallest footprint. Demands 80% of footprint comparing to hinged belt.
Magnetic scrapper	Cast iron	Chip conveyor with magnet equipped: Appropriate for cast iron workpieces generating fine chips.

Quick change CAPTO (option)



The Quick Change Tool system simplifies tool change operation. Recommended for users who need to change tools frequently or reduce the set-up time.

Grease Lubrication System

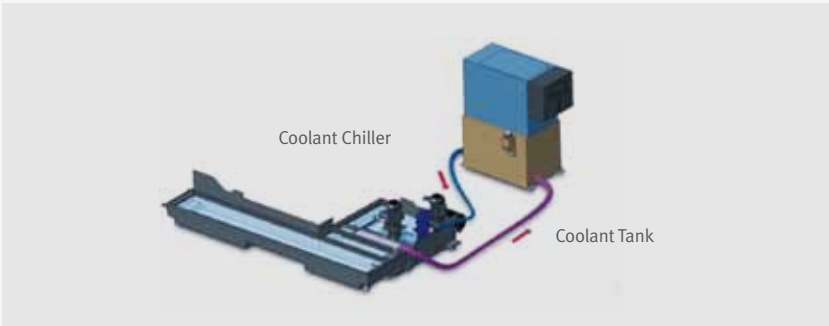


The standard grease lubrication system eliminates the need for an oil skimmer and reduces lubrication costs by about 80% compared to oil lubrication.

Yearly maintenance cost
Max. **80%** ↓

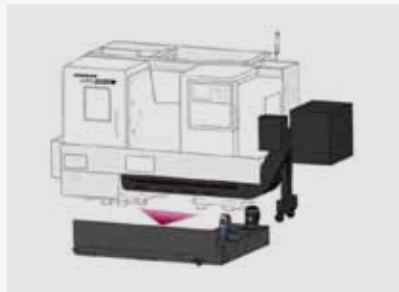
Coolant Chiller (option 18)

The detachable coolant chiller is recommended to maintain thermal error at a minimal level and achieve superior machining precision.



Easy-to-clean Coolant Tank

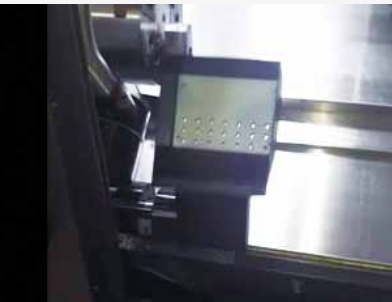
The coolant tank can be isolated without removing the chip conveyor, significantly enhancing the operator's convenience.



Tool Setter (Manual /Auto) (Tool length measurement device) (option 42~43)
The tool setter facilitates the setting of machining tools, and can be used to automatically compensate for worn tools accurately.



Part Catcher (option 44~45)
The Part Catcher automatically catches finished parts and transfers them to the downstream processes.



Oil Skimmer (option 17)
As the Lynx 2100 Series uses a grease type lubricant, the coolant rarely mixes with oil. This optional oil skimmer helps keep exceptional service life of the coolant.



CNC optimized for DOOSAN's machine tools maximizes productivity.

User-Friendly Operation Panel

The newly-designed operation panel enhances operating convenience by incorporating common-design buttons and layout, and features the Qwerty keyboard for fast and easy operation.



10.4-inch display

- Vertical soft key

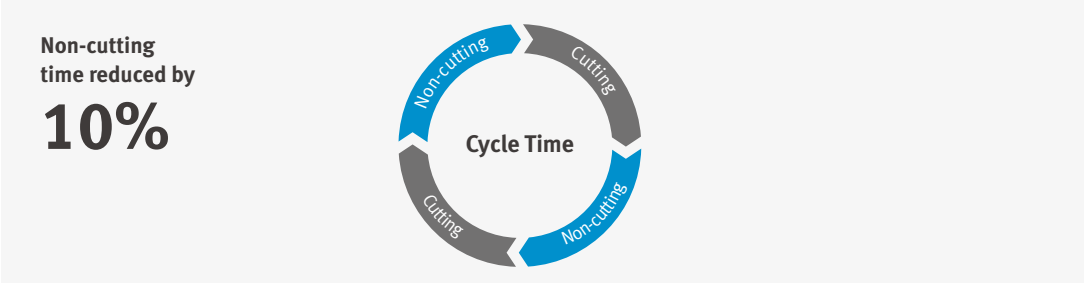
- USB & PCMCIA card (standard)
- QWERTY keyboard
- Ez-guide i (standard)
- Ergonomically designed operation panel for greater user convenience
- Hot key





Improved Productivity

Cycle time, mechanism operating speed, acceleration and deceleration are optimized and non-cutting times during cutting operation are analyzed and minimized to enhance productivity.



EZ-Guide i

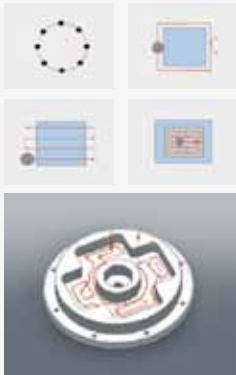
Using the DOOSAN EZ-Guide i, users can create a cutting program for any desired shape, including patterns, by entering the appropriate figures only.

Exemplary Programming

Cutting shape

EZ-Guide i Screen

Automatic creation of cutting program





Enter the dimensions of the desired shape.

```

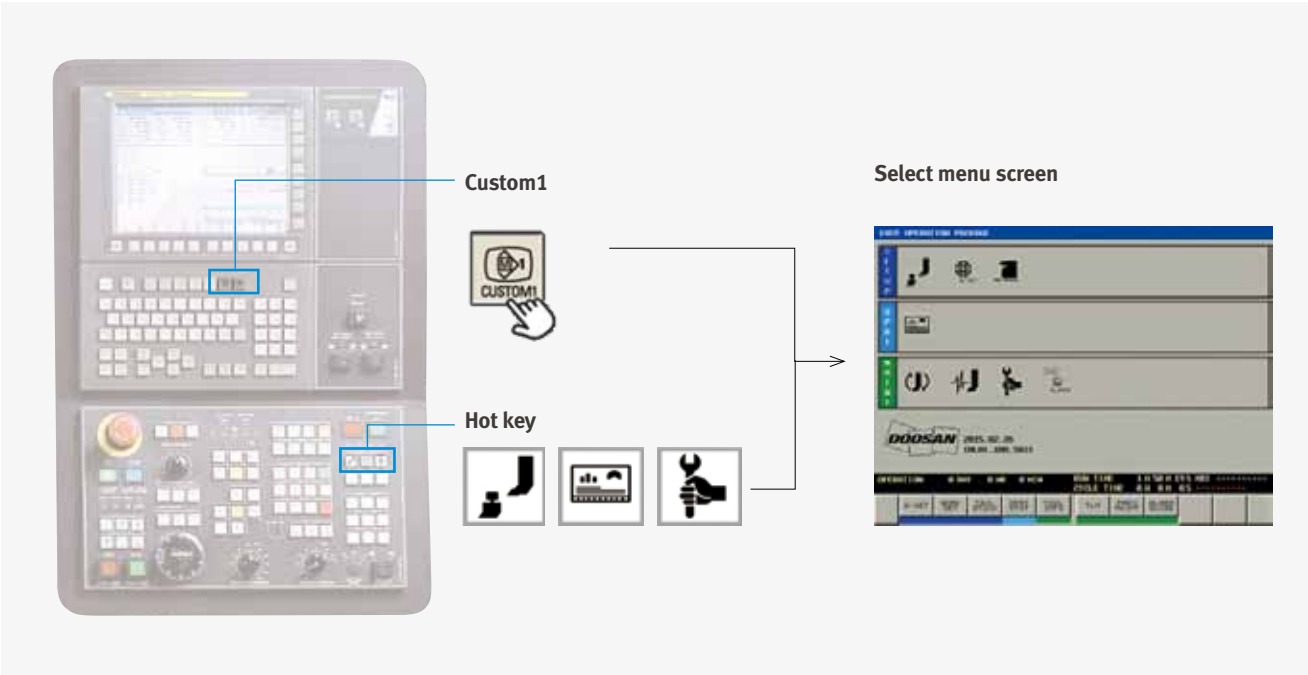
O7000 (SAMPLE PROGRAM) ;
...
M3 S1500 ;
G0 X50. Y125. ;
G0 Z30. ;
G1040 T0.5 J3. H0.2 K0.5 ... ;
G1020 H120. V50. U37. W68. ;
G0 Z80. ;
M5 ;

```

A cutting program is automatically created with the entered values.

Easy Operation Package

Doosan Easy Operation Package (EOP) supports the user with tool, help desk, operation, functionalities to maximize operational efficiency and user convenience.



Convenient set up for peripheral equipment

Helps tool setter guide, work setting, tailstock setting, and other measurement and parameter control to reduce setting-up time and facilitates operation.



Screen for monitoring the machine and operating conditions

The screen provides a complete view of machine operation. Information on the feed system position, offset, feedrate and spindle speed, tool life and count in an easy-to-view screen.



Management Convenience Screen

Helps to prepare tools and provides for visual information on alarms to reduce maintenance time.





SIEMENS CNC have been adopted and optimized for DOOSAN's machine tools to maximize users' productivity.



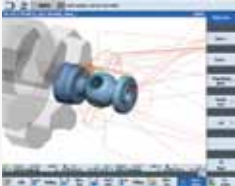
10.4 inch display

- Qwerty keyboard
- USB / CF-card (std.)
- shop turn (std.)

Conversational Convenient function

The machining monitoring function developed on the basis of the Shop Turn – an interactive machining support function of SIEMENS – provides users with cutting, servicing and maintenance screens for easy and convenient machine operation.

Cutting and operation support function



This function shows a cutting and tool path simulation of a cutting program on a real-time basis.

Tail stock function



Dialogic Screen will help easy setting and operating about CNC Tail stock.

Shop-turn mode[various] → [attachments]

Operation safety function



Spindle and Turret's interference could be checked before crash. So that it Protect operator's mistake.

[offset] → [operating parameter] → [attachment setting] → [Collision avoidance]

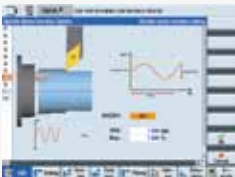
Maintenance and service convenience function



Maintenance and service of major units and peripheral devices, timer setting and parts counter setting can be easily carried out on a convenient screen.

[offset] → [operating parameter] → [TC service]

Machining accuracy improvement



The NC controls spindle speed at an optimal level for precision threading and turning, making it possible to improve surface roughness automatically.

[various] → [attachment] → [DSSV]



Before applying the function

After applying the function

Basic information

Basic Structure
Cutting
Performance

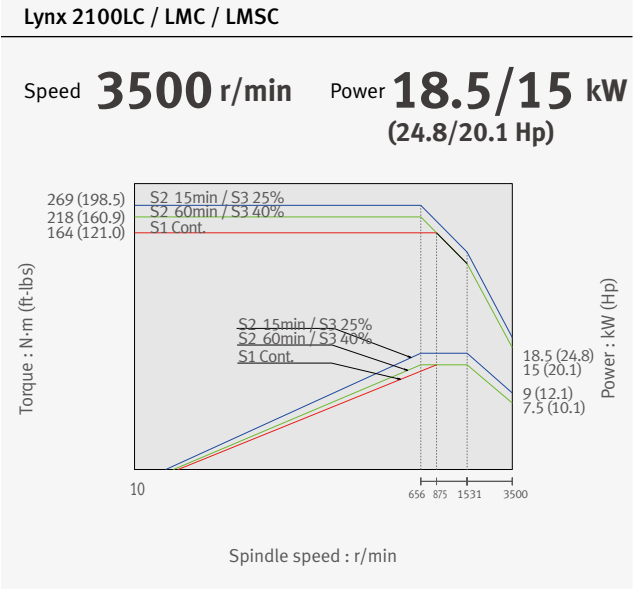
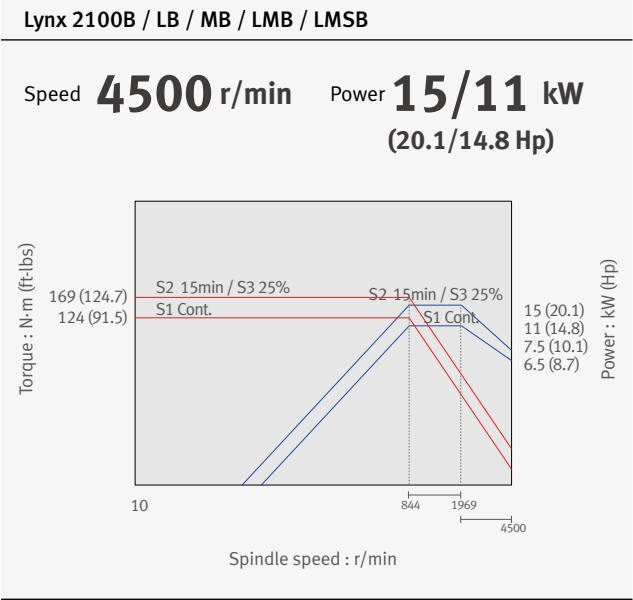
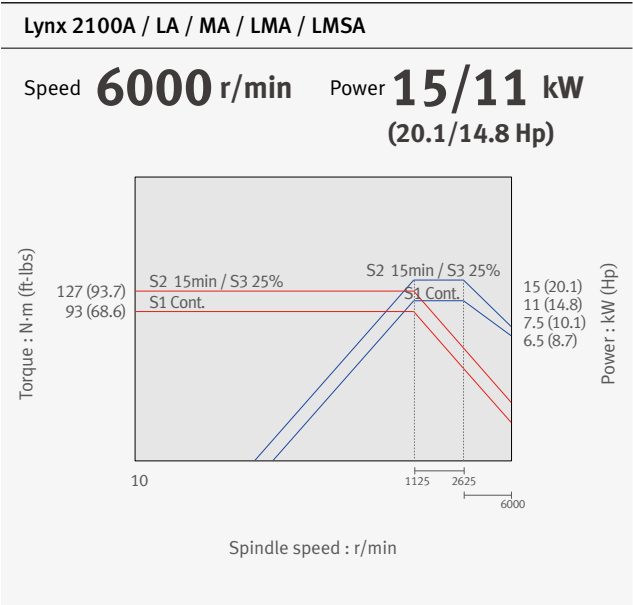
Detailed
Information

Options
Applications
Diagrams
Specifications

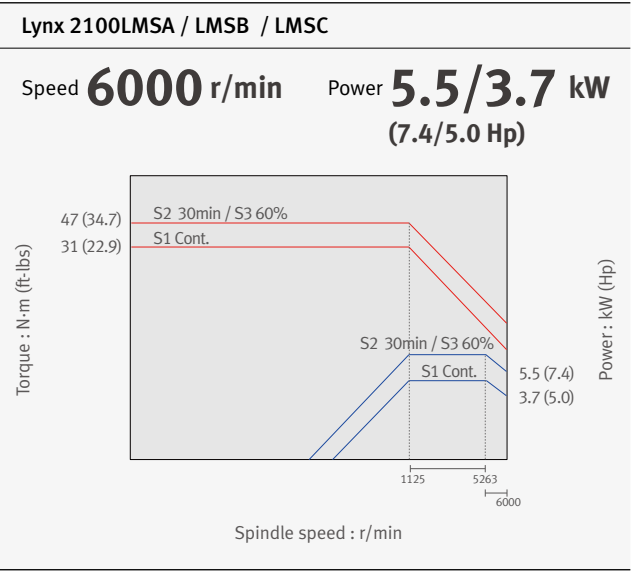
Customer Support
Service

Power-Torque Diagram (FANUC)

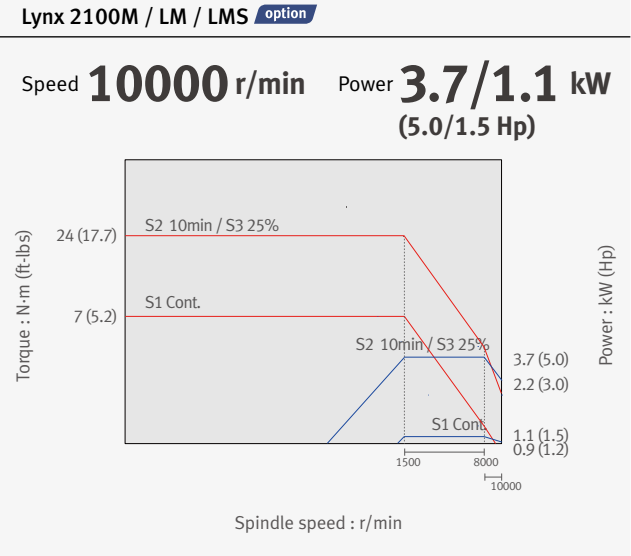
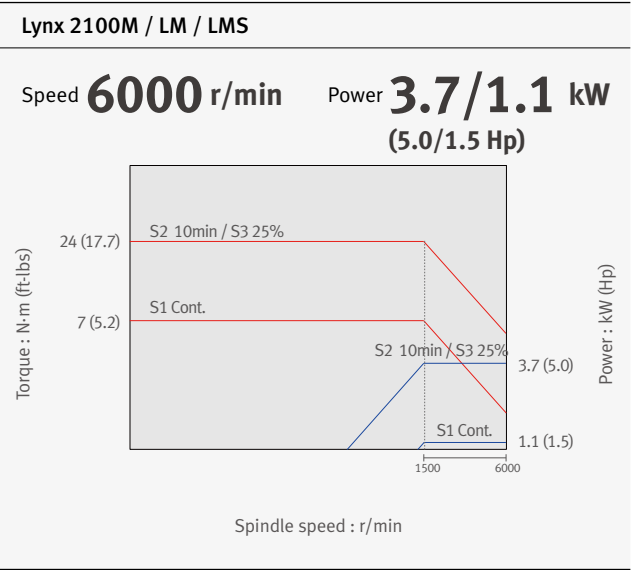
Main Spindle



Sub-Spindle

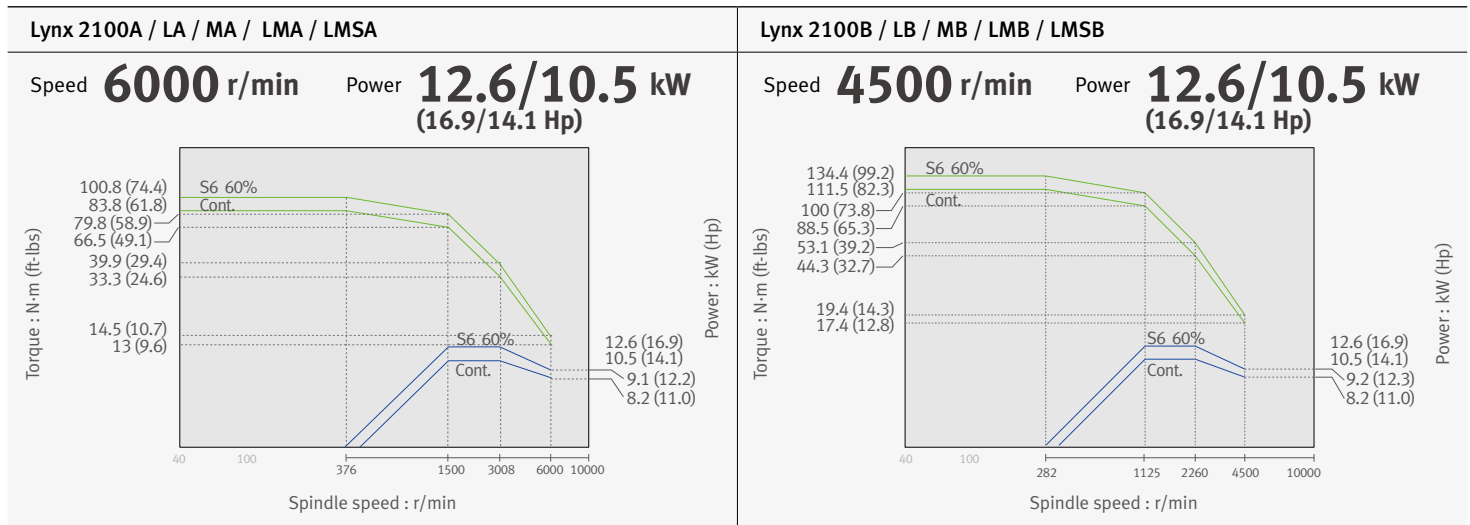


Rotary Tool

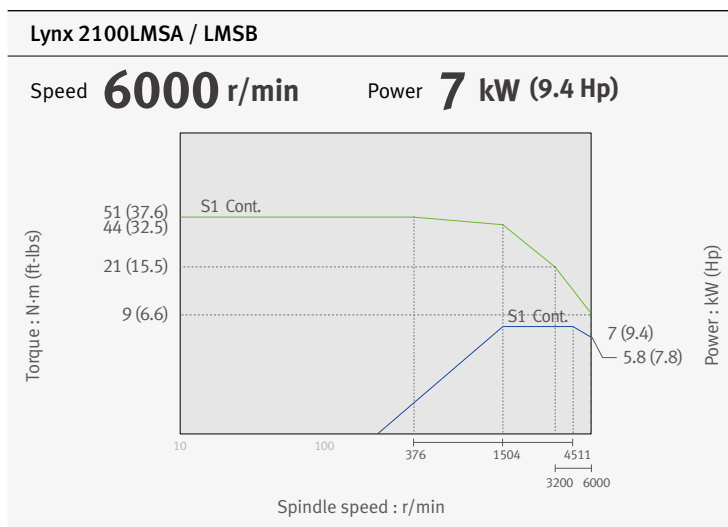


Power-Torque Diagram (SIEMENS)

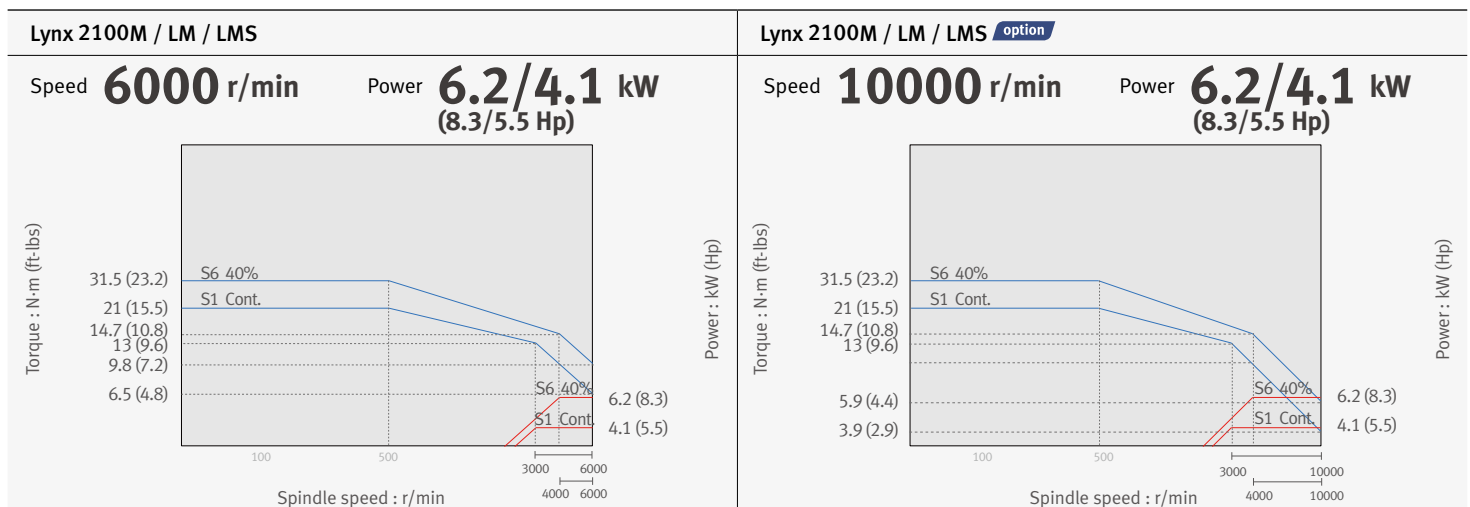
Main Spindle



Sub-Spindle



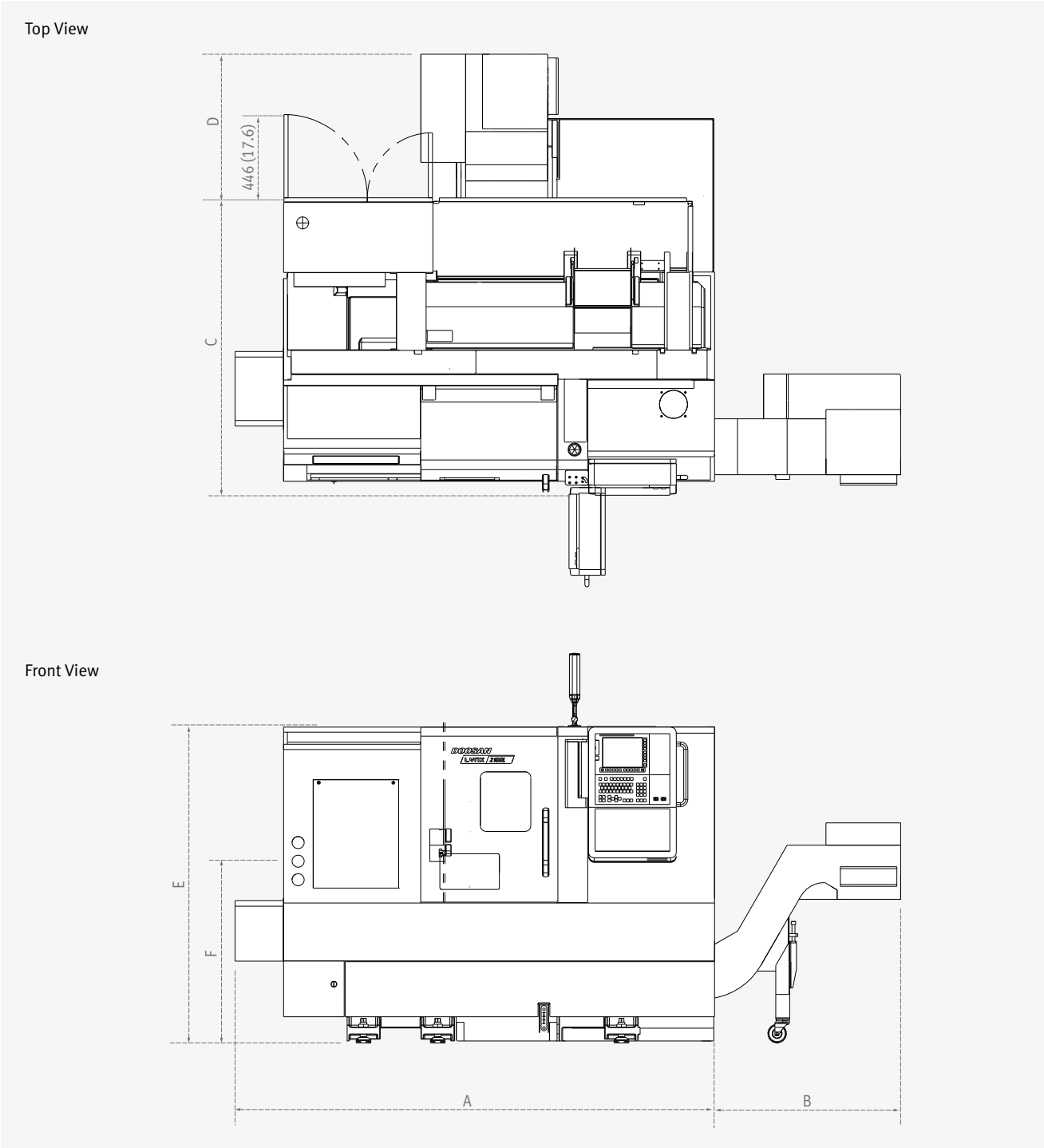
Rotary Tool



External Dimensions

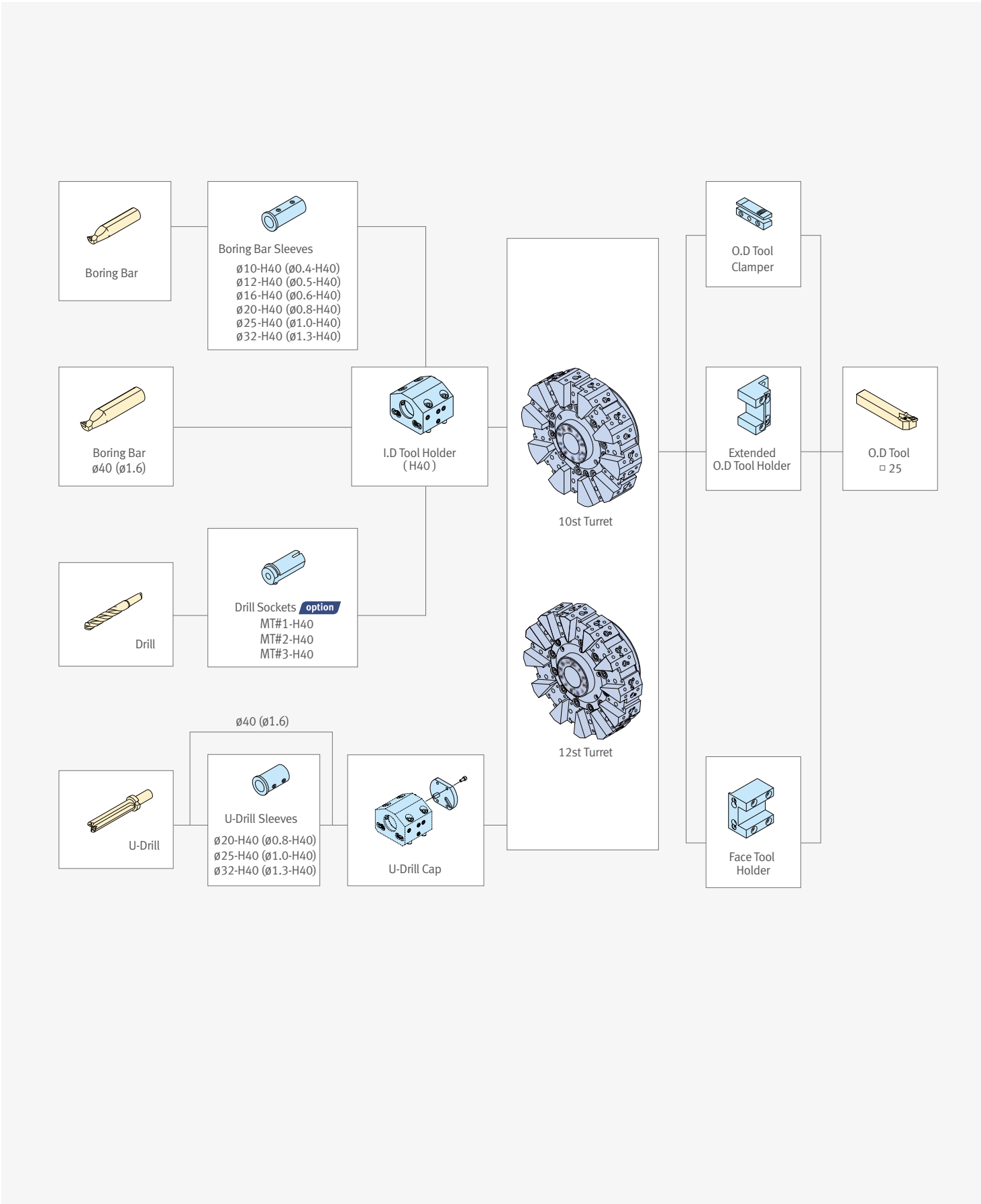
Lynx 2100 series

Unit : mm (inch)



Models	A	B		C	D		E	F
		side hinged chip conveyor	side screw (auger) chip conveyor		rear hinged chip conveyor	rear screw (auger) chip conveyor		
Lynx 2100A / MA [B / MB]	2320 [2350] (91.3 [92.5])	953 (37.5)	759 (29.9)	1595 (62.8)	770 (30.3)	583 (23.0)	1693 (66.7)	1060 (41.7)
Lynx 2100LA / LMA [LB / LMB]	2540 [2570] (100.0 [101.2])	997 (39.3)	830 (32.7)	1595 (62.8)	770 (30.3)	616 (24.3)	1693 (66.7)	1070 (42.1)
Lynx 2100LC / LMC	2570 (101.2)	997 (39.3)	-	1602 (63.1)	770 (30.3)	-	1693 (66.7)	1060 (41.7)
Lynx 2100LMSA [LMSB]	2805 [2835] (110.4 [111.6])	997 (39.3)	830 (32.7)	1595 (62.8)	770 (30.3)	616 (24.3)	1693 (66.7)	1060 (41.7)
Lynx 2100LMSC	2837 (111.7)	993 (39.1)	-	1602 (63.1)	770 (30.3)	-	1693 (66.7)	1060 (41.7)

* Some peripheral equipment can be placed in other places



Tooling System

Basic information

Basic Structure
Cutting
Performance

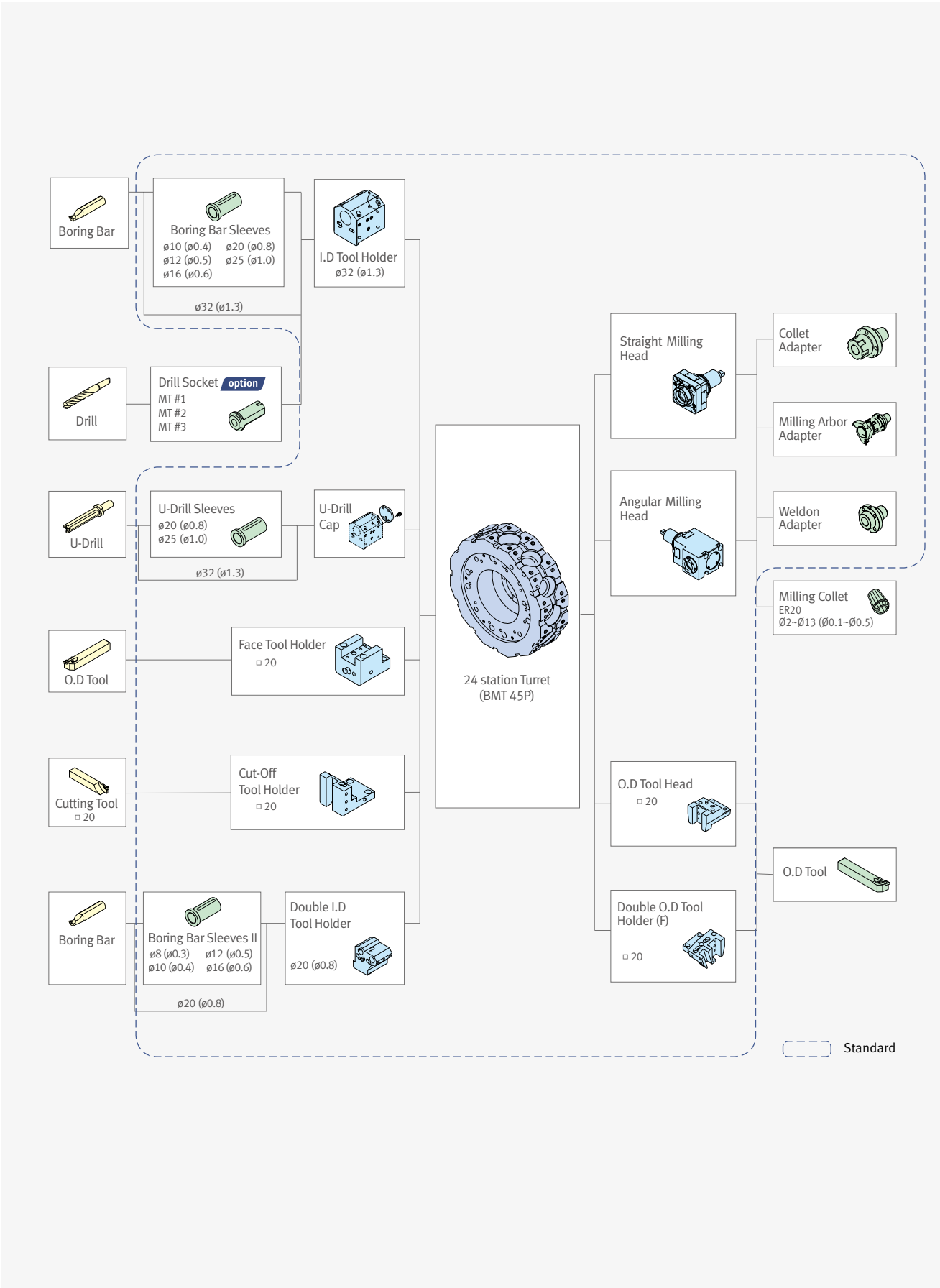
Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service

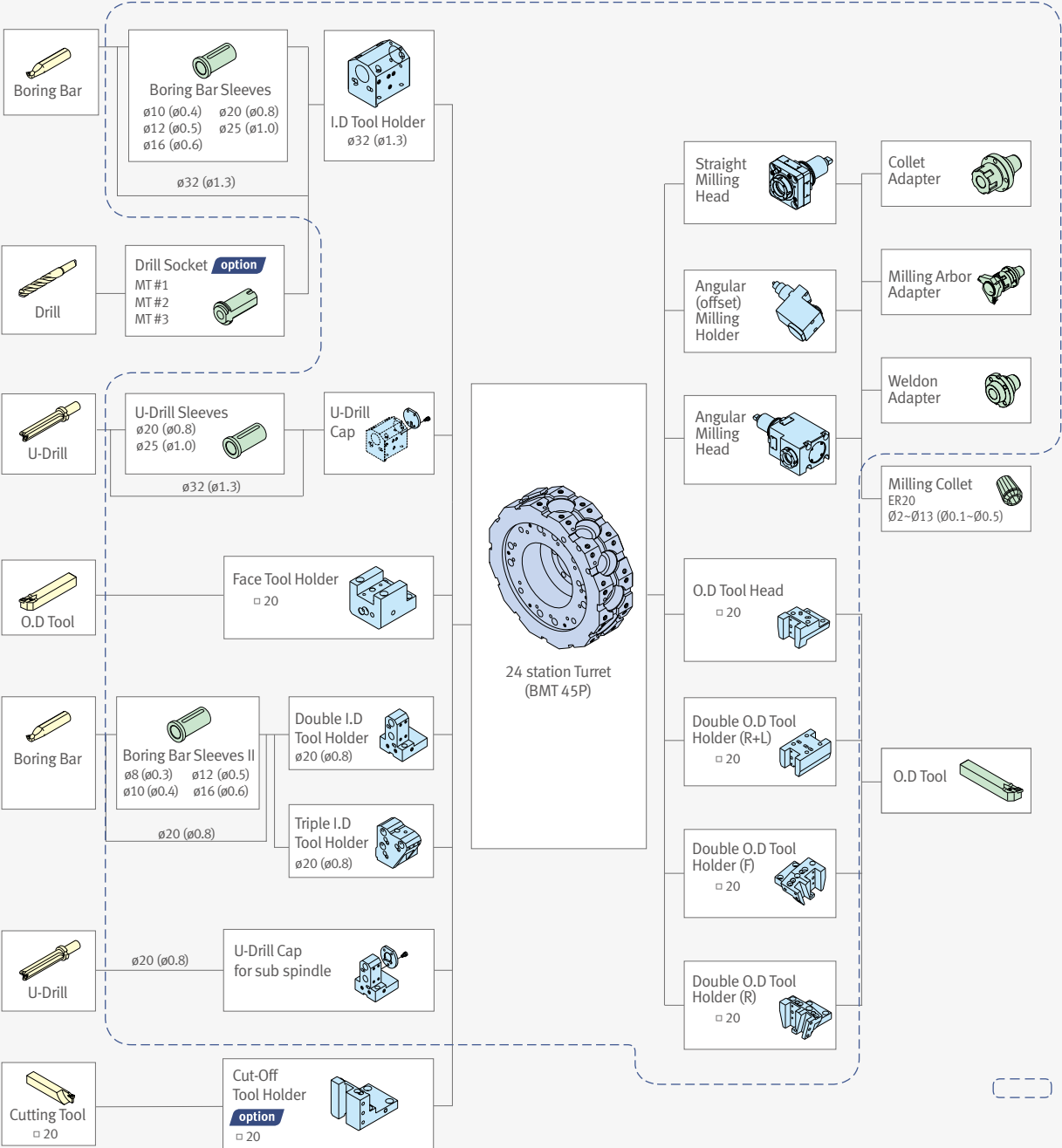
Lynx 2100MA / MB / LMA / LMB / LMC (12 station(24 Position Index), BMT45P)

Unit : mm (inch)



Lynx 2100LMSA / LMSB / LMSC (12 station(24 Position Index), BMT45P)

Unit : mm (inch)

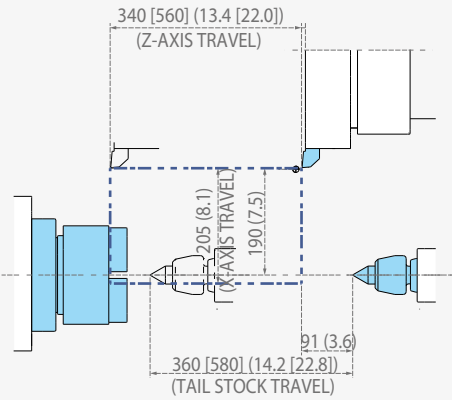


Working Range

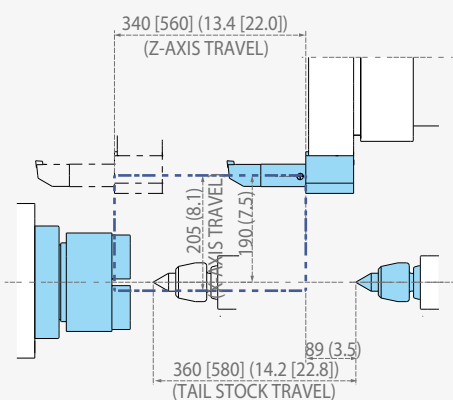
Lynx 2100A / B [LA / LB / LC]

Unit : mm (inch)

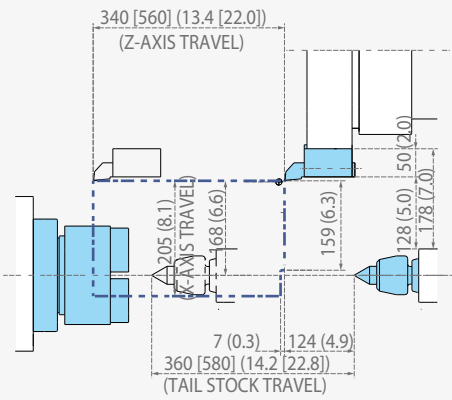
OD Holder



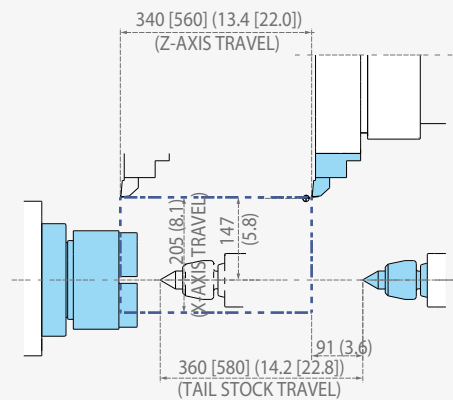
ID HOLDER



Face Tool Holder



Extended OD Holder



Working Range

Basic information

- Basic Structure
- Cutting
- Performance

Detailed Information

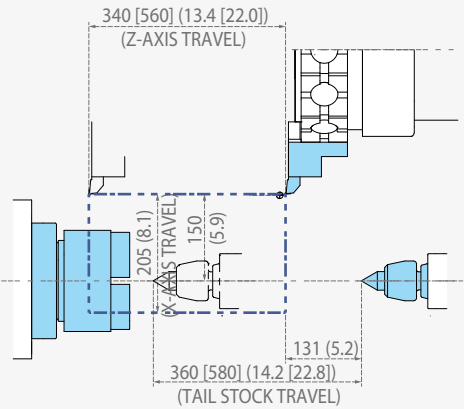
- Options
- Applications
- Diagrams
- Specifications

Customer Support Service

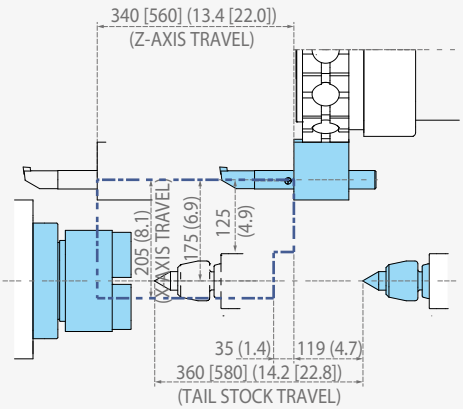
Lynx 2100MA / MB [LMA / LMB / LMC]

Unit : mm (inch)

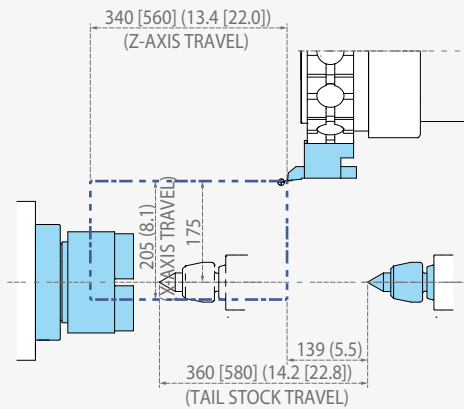
OD Holder



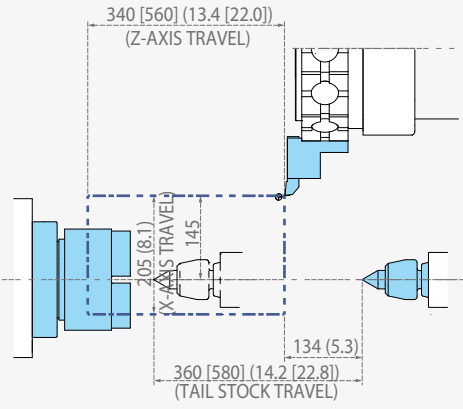
ID HOLDER



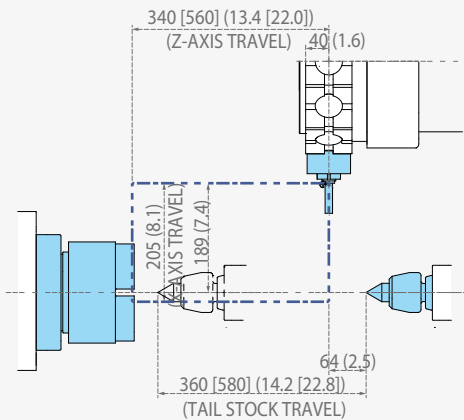
Face Tool Holder



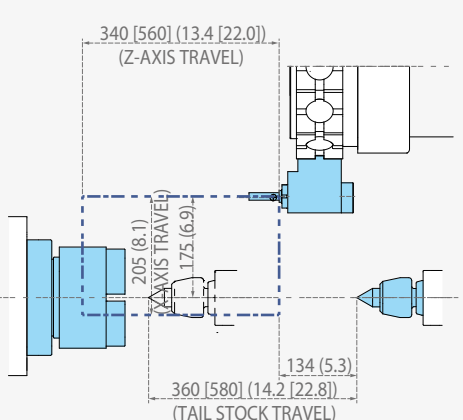
Double OD Holder



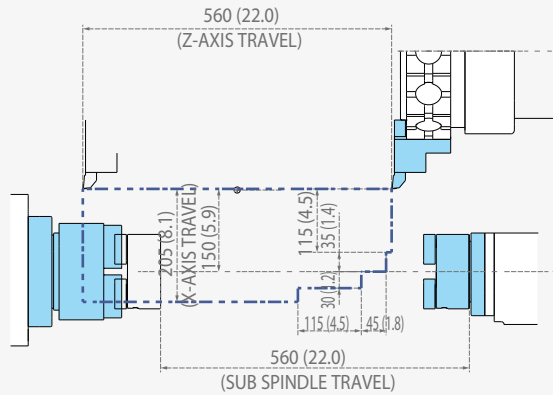
Straight Milling Holder



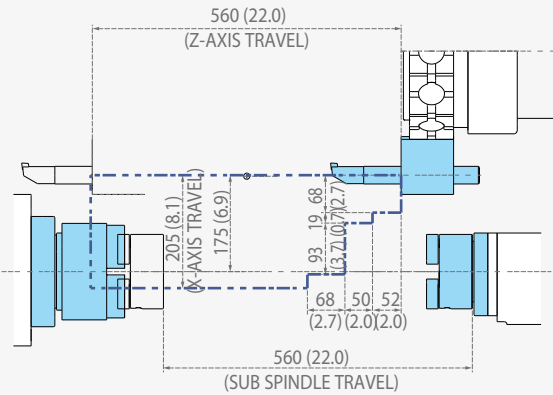
Angular Milling Holder



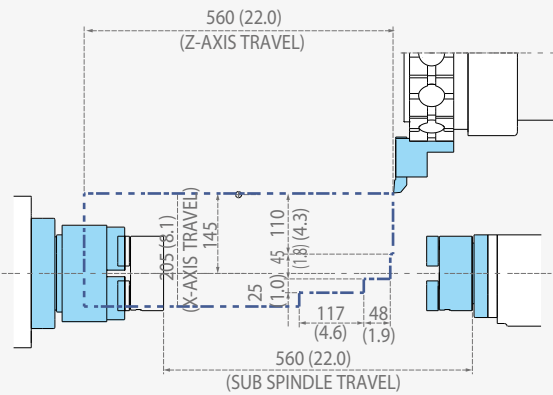
OD Holder



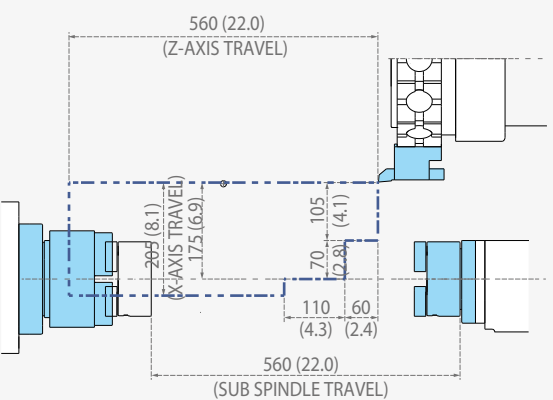
ID HOLDER



Double OD Holder



Face Tool Holder



Machine Specifications

Basic information

- Basic Structure
- Cutting
- Performance

Detailed Information

- Options
- Applications
- Diagrams
- Specifications

Customer Support Service



Description		Unit	Lynx 2100A [LA]	Lynx 2100MA [LMA]
Capacity	Swing over bed	mm (inch)	600 (23.6)	
	Swing over saddle	mm (inch)	400 (15.7)	
	Recommended turning diameter	mm (inch)	170 (6.7)	
	Max. turning diameter	mm (inch)	350 (13.8)	300 (11.8)
	Max. turning length	mm (inch)	330 [550] (13.0 [21.7])	290 [510] (11.4 [20.1])
	Chuck size	inch	6 {8}*	
	Bar working diameter	mm (inch)	51 (2.0)	
Travel	Travel distance	X-axis	mm (inch)	205 (8.1)
		Z-axis	mm (inch)	340 [560] (13.4 [22.0])
Feedrate	Rapid traverse	X-axis	m/min (ipm)	30 (1181.1)
		Z-axis	m/min (ipm)	36 (1417.3)
Spindle	Spindle speed		r/min	6000
	Spindle motor power (15min/cont.) (FANUC)		kW (Hp)	15/11 (20.1/14.8)
	Spindle motor power (S6 60%/cont.) (SIEMENS)		kW (Hp)	12.6/10.5 (16.9/14.1)
	Max. spindle torque (FANUC)		N-m (ft-lbs)	127 (93.7)
	Max. spindle torque (SIEMENS)		N-m (ft-lbs)	100.8 (74.4)
	Spdinel nose		ASA	A2-5
	Spindle bearing diameter		mm (inch)	90 (3.5)
	Spindle inner diameter		mm (inch)	61 (2.4)
	C-axis min.indexing angle		deg	- 0.001
Turret	No.of tool stations		ea	12 {10}* 12
	OD tool size		mm (inch)	25 x 25 (1.0 x 1.0) 20 x 20 (0.8 x 0.8)
	Max.ID tool size		mm (inch)	40 (1.6) 32 (1.3)
	Turret indexing time		s	0.11 {0.15}* 0.11
	Max.rotary tool speed		r/min	- 6000 {10000}*
	Ratary tool motor power (FANUC)		kW (Hp)	- 3.7 (5.0)
	Rotary tool motor power (SIEMENS)		kW (Hp)	- 6.2 (8.3)
Tail stock	Travel distance		mm (inch)	360 [580] (14.1 [22.8]) 360 [580] (14.1 [22.8])
	Quill diameter		mm (inch)	65 (2.6) 65 (2.6)
	Quill taper		MT	MT#4 (Live) MT#4 (Live)
Sub spindle	Spindle speed			- -
	Spindle motor power (15min/cont.) (FANUC)		kW (Hp)	- -
	Spindle motor power (cont.) (SIEMENS)		kW (Hp)	- -
	Max. spindle torque		N-m (ft-lbs)	- -
	Spdinel nose			- -
	Spindle bearing diameter		mm (inch)	- -
	Spindle inner diameter		mm (inch)	- -
	C-axis min.indexing angle			- -
Power source	Power consumption		kVA	25.94 25.94
Machine dimensions	Length		mm (inch)	2320 [2540] (91.3 [100.0]) 2320 [2540] (91.3 [100.0])
	Width		mm (inch)	1595 (62.8)
	Height		mm (inch)	1693 (66.7)
	Weight		kg (lb)	3100 [3400] (6834.2 [7495.6]) 3170 [3480] (6988.6 [7672.0])
Control	NC system			DOOSAN-FANUC i / SIEMENS 828D

Lynx 2100LMSA	Lynx 2100B [LB]	Lynx 2100MB [LMB]	Lynx 2100LMSB	Lynx 2100LC	Lynx 2100LMC	Lynx 2100LMSC
600 (23.6)				600 (23.6)		
400 (15.7)				400 (15.7)		
170 (6.7)				255 (10.0)		
300 (11.8)	350 (13.8)	300 (11.8)	300 (11.8)	350 (13.8)	300 (11.8)	300 (11.8)
510 (20.1)	330 [550] (13.0 [21.7])	290 [510] (11.4 [20.1])	510 (20.1)	537 (21.1)	497 (19.6)	497 (19.6)
6 {8}* 51 (2.0)	8{10}* 65 (2.6)			10 81 (3.2)		
205 (8.1)				205 (8.1)		
340 [560] (13.4 [22.0])				560 (22.0)		
30 (1181.1)				30 (1181.1)		
36 (1417.3)				36 (1417.3)		
6000	4500			3500		
15/11 (20.1/14.8)				18.5/15 (24.8/20.1)		
12.6/10.5 (16.9/14.1)				**		
127 (93.7)	169 (124.6)			269 (198.5)		
100.8 (74.4)	134.4 (99.2)			**		
A2-5	A2-6			A2-8		
90 (3.5)	110 (4.3)			130 (5.1)		
61 (2.4)	76 (3.0)			91 (3.6)		
0.001	-	0.001	0.001	-	0.001	0.001
12	10 {12}* 20 x 20 (0.8 x 0.8)	12 20 x 20 (0.8 x 0.8)	12 20 x 20 (0.8 x 0.8)	10 25 x 25 (1.0 x 1.0)	12 20 x 20 (0.8 x 0.8)	12 20 x 20 (0.8 x 0.8)
32 (1.3)	40 (1.6)	32 (1.3)	32 (1.3)	40 (1.6)	32 (1.3)	32 (1.3)
0.11	0.15 {0.11}* 6000 {10000}* 3.7 (5.0) 6.2 (8.3)	0.11 6000 {10000}* 3.7 (5.0) 6.2 (8.3)	0.11 6000 {10000}* 3.7 (5.0) 6.2 (8.3)	0.15 - - -	0.11 6000 {10000}* 3.7 (5.0) -	0.11 6000 {10000}* 3.7 (5.0) -
-	360 [580] (14.1 [22.8])	360 [580] (14.1 [22.8])	-	580 (22.8)	580 (22.8)	-
-	65 (2.6)	65 (2.6)	-	65 (2.6)	65 (2.6)	-
-	MT#4 (Live)	MT#4 (Live)	-	MT#4 (Live)	MT#4 (Live)	-
6000	-	-	6000	-	-	6000
5.5/3.7 (7.4/5.0)	-	-	5.5/3.7 (7.4/5.0)	-	-	5.5/3.7 (7.4/5.0)
7 (9.4)	-	-	7 (9.4)	**		
47 (34.7)	-	-	47 (34.7)	-	-	47 (34.7)
Flat ø110	-	-	Flat ø110	-	-	Flat Ø110
75 (3.0)	-	-	75 (3.0)	-	-	75 (3.0)
43 (1.7)	-	-	43 (1.7)	-	-	43 (1.7)
0.001	-	-	0.001	-	-	0.001
31.8	25.94	25.94	31.8	32.81	32.81	34.84
2805 (110.4)	2350 [2570] (92.5 [101.2])	2350 [2570] (92.5 [101.2])	2835 (111.6)	2570 (101.2)	2570 (101.2)	2837 (111.7)
1595 (62.8)				1602 (63.1)		
1693 (66.7)				1693 (66.7)		
3600 (7936.5)	3100 [3400] (6834.2 [7495.6])	3170 [3480] (6988.6 [7672.0])	3600 (7936.5)	3500 (7716.1)	3580 (7892.4)	3800 (8377.4)
DOOSAN-FANUC i / SIEMENS 828D				DOOSAN-FANUC i / SIEMENS 828D		

* { } : Option

** : Please check with Doosan.

● Standard ○ Optional X Not applicable

Basic information

Basic Structure
Cutting
Performance

Detailed Information

Options
Applications
Diagrams
Specifications

Customer Support Service



NO.	Division	Item	Spec.	DOOSAN-FANUC i		
				2-axis	M	MS
				A / B / LA / LB / LC	MA / MB / LMA / LMB / LMC	MSA / MSB / LMSC
1	Controlled axis	Controlled axes		X, Z	X, Z, C	X, Z, C, B
2		Simultaneously controlled axes		2 axes	3 axes	4 axes
3		Cs contouring control		x	●	●
4		Synchronous / Composite control		x	x	○
5		Torque control		●	●	●
6		HRV2 control		●	●	●
7		Inch / metric conversion		●	●	●
8		Stored stroke check 1		●	●	●
9		Stored stroke check 2,3		●	●	●
10		Stored limit check before move		●	●	●
11		Chamfering on / off		●	●	●
12		Unexpected disturbance torque detection function		●	●	●
13		Position switch		●	●	●
14	Operation	DNC operation	Included in RS232C interface.	●	●	●
15		DNC operation with memory card		●	●	●
16		Quick program restart		○	○	○
17		Tool retract and recover		○	○	○
18		Wrong operation prevention		●	●	●
19		Dry run		●	●	●
20		Single block		●	●	●
21		Reference position shift		●	●	●
22		Handle interruption		○	○	○
23		Incremental feed	x1,x10,x100	●	●	●
24		Manual handle retrace		○	○	○
25	Interpolation functions	Nano interpolation		●	●	●
26		Linear interpolation		●	●	●
27		Circular interpolation		●	●	●
28		Polar coordinate interpolation		x	●	●
29		Cylindrical interpolation		x	●	●
30		Helical interpolation		x	○	○
31		Thread cutting, synchronous cutting		●	●	●
32		Multi threading		●	●	●
33		Thread cutting retract		●	●	●
34		Continuous threading		●	●	●
35		Variable lead thread cutting		●	●	●
36		Polygon machining with two spindles		x	●	●
37		High-speed skip	Input signal is 8 points.	○	○	○
38		2nd reference position return	G30	●	●	●
39		3rd / 4th reference position return		●	●	●
40	Feed function	Override cancel		●	●	●
41		AI contour control I		○	○	○
42		AI contour control II		○	○	○
43		Rapid traverse block overlap		●	●	●
44	Program input	Optional block skip	9 pieces	●	●	●
45		Absolute / incremental programming	Combined use in the same block	●	●	●
46		Diameter / Radius programming		●	●	●

● Standard ○ Optional X Not applicable

NO.	Division	Item	Spec.	DOOSAN-FANUC i		
				2-axis	M	MS
				A / B / LA / LB / LC	MA / MB / LMA / LMB / LMC	MSA / MSB / LMSC
47	Program input	Automatic coordinate system setting		●	●	●
48		Workpiece coordinate system	G52 - G59	●	●	●
49		Workpiece coordinate system preset		●	●	●
50		Direct drawing dimension programming		●	●	●
51		G code system	A	●	●	●
52		G code system	B/C	●	●	●
53		Chamfering / Corner R		●	●	●
54		Custom macro		●	●	●
55		Addition of custom macro common variables	#100 - #199, #500 - #999	●	●	●
56		Interruption type custom macro		●	●	●
57		Canned cycle		●	●	●
58		Multiple repetitive cycles	G70~G76	●	●	●
59		Multiple repetitive cycles II	Pocket profile	●	●	●
60		Canned cycle for drilling		●	●	●
61		Coordinate system shift		●	●	●
62		Direct input of coordinate system shift		●	●	●
63		Pattern data input		●	●	●
64	Operation	EZ Guidei(Conversational Programming Solution)		●	●	●
65	Guidance Function	EZ Operation package		●	●	●
66	Auxiliary / Spindle speed function	Constant surface speed control		●	●	●
67		Spindle override	0 - 150%	●	●	●
68		Spindle orientation		●	●	●
69		Spindle synchronous control		X	X	●
70		Rigid tap		●	●	●
71	Tool function / Tool compensation	Arbitrary speed threading		○	○	○
72		Tool offset pairs	128-pairs	●	●	●
73		Tool offset pairs	200-pairs	○	○	○
74		Tool offset		●	●	●
75		Tool radius / Tool nose radius compensation		●	●	●
76		Tool geometry / wear compensation		●	●	●
77		Automatic tool offset	G36/G37	●	●	●
78		Direct input of offset value measured B		●	●	●
79	Accuracy compensation function	Tool life management		●	●	●
80		Backlash compensation for each rapid traverse and cutting feed		●	●	●
81		Stored pitch error compensation		○	○	○
82	Editing operation	Part program storage size & Number of registerable programs	5120M(2MB)_1000 programs	○	○	○
83		Part program storage size & Number of registerable programs	1280M(512KB)_400 programs	●	●	●
84		Part program storage size & Number of registerable programs	5120M(2MB)_400 programs	○	○	○
85		Program protect		●	●	●
86		Password function		●	●	●
87		Playback		●	●	●
88	Setting and display	Main menu screen		●	●	●
89	Data input / output	Fast data server		○	○	○
90		External data input		●	●	●
91		Memory card input / output		●	●	●
92		USB memory input / output		●	●	●
93		Automatic data backup		●	●	●
94	Interface function	Embedded Ethernet		●	●	●
95		Fast Ethernet		○	○	○
96	Others	Display unit	10.4" color LCD	●	●	●
97		Display unit	15" color LCD	○	○	○
98		Robot interface with PMC I/O module		○	○	○
99		Robot interface with PROFIBUS-DP		○	○	○

CNC Specifications

● Standard ○ Optional X Not applicable

Basic information

Basic Structure
Cutting
Performance

Detailed Information

Options
Applications
Diagrams
Specifications

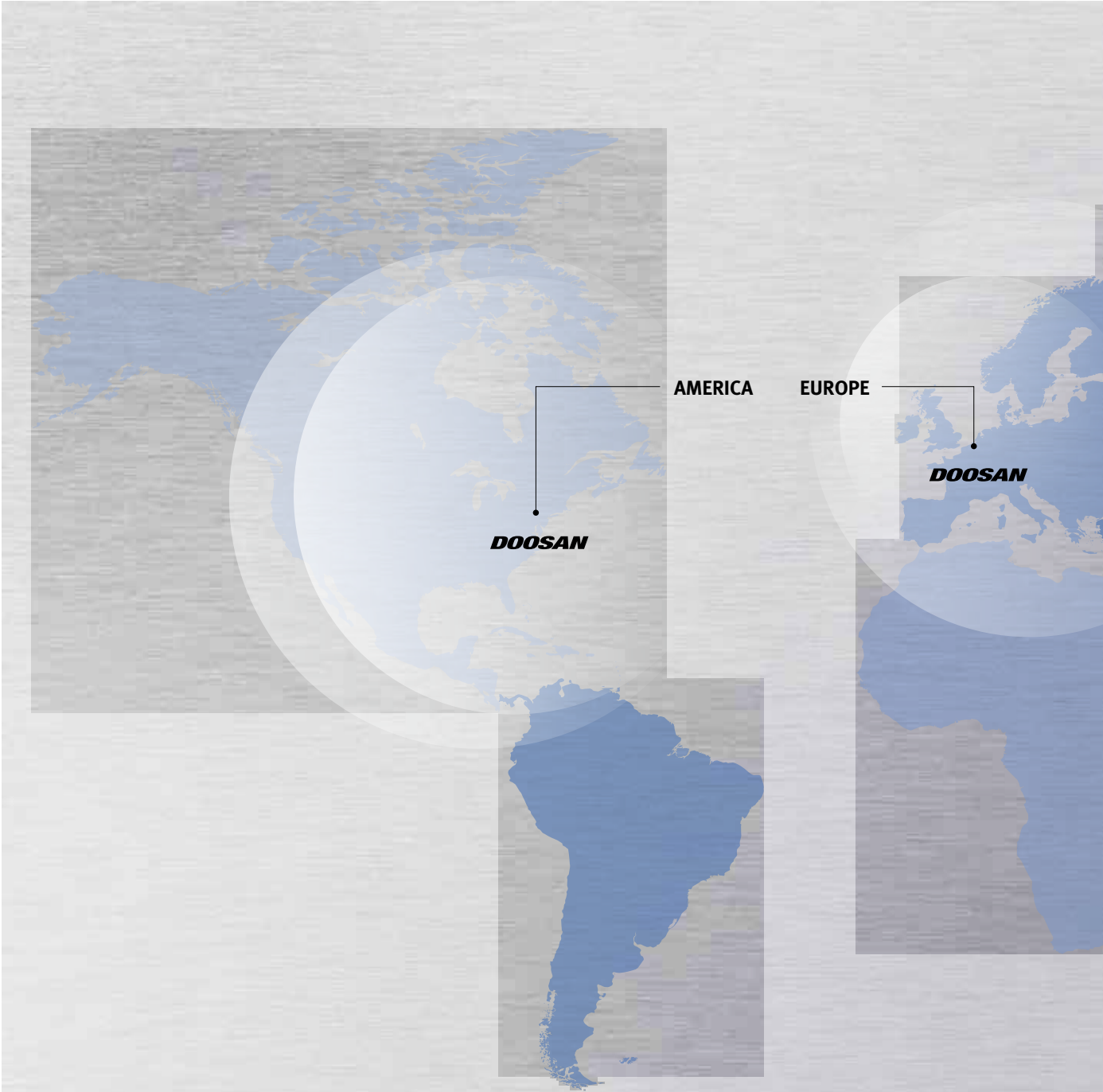
Customer Support Service

SIEMENS
S828D

NO.	Division	Item	Spec.	S828D
				Lynx 2100 series
1		Controlled axes R: Milling spindle	2 axis	X, Z, SP
			M-type	X, Z, C, R
			S-type	X, Z, C, C2, B
			MS-type	X, Z, C, R, C2, B
2	Control axes	Simultaneously controlled axes	Positioning (G00) / Linear interpolation (G01) : 3 axes Circular interpolation(G02, G03) : 2 axes	●
3		Backlash compensation		●
4		Leadscrew error compensation		●
5		Measuring system error compensation		●
6		Feedforward control	velocity-dependent	●
7		Follow up mode		●
8		Programmable acceleration		●
9		Emergency stop / overtravel		●
10		Least command increment	0.001mm (0.0001 inch)	●
11		Least input increment	0.001mm (0.0001 inch)	●
12		Maximum commandable value	±99999.999mm (±3937 inch)	●
13		Machine lock		●
14		Absolute encoder		●
15	Interpolation & Feed function	Reference point return	G75 FP=1	●
16		2nd reference point return	G75 FP=2	●
17		3rd / 4th reference return	G75 FP=3, 4	●
18		Linear interpolation	Max. 4	●
19		Circular interpolation	G02, G03	●
20		Inverse time feedrate	G93	●
21		Helical interpolation		●
22		Universal interpolator NURBS		●
23		Spline interpolation (A, B and C splines)		○
24		Dwell	G04	●
25		Feedrate / Rapid override	0 - 120 %	●
26		Separate path feed for corners and chamfers		●
27		Manual handle feed (1unit)	Portable manual pulse generator	●
28		Reposition		●
29		Acceleration with Jerklimitation		●
30	Spindle function	Spindle speed override	50 - 120 %	●
31		Spindle speed limitation		●
32		Retraction for rigid tapping		●
33		Rigid tapping		●
34	Tool function	Tool radius compensations in plane		
35		● With approach and retract strategies		●
36		● With transition circle / ellipse on outer edges		●
37		Number of tools / cutting edges in tool list		256 / 512
38		Tool length compensation		●
39		Operation with tool management		●
40		Tool list		●
41		Replacement tools for tool management		○
42		Monitoring of tool life and workpiece count		●
43		Manual measurement of tool offset		●
44		Loading and unloading of tools		●
45	Programming & Editing function	Number of subroutine passes <= 9999		●
46		Number of levels for skip blocks 1		●
47		Number of levels for skip blocks 8		○
48		Polar coordinates		●
49		1 / 2 / 3-point contours		●
50		Dimensions metric / inch, changeover manually or via program		●
51		Program functions		
52		● Dynamic preprocessing memory FIFO		●
53		● Look ahead number of blocks		1
54		● Frame concept		●
55		● Inclined-surface machining with swivel cycle		●
56		● Axis / spindle replacement		●

NO.	Division	Item	Spec.	S828D
				Lynx 2100 series
57	Programming & Editing function	• Geometry axes, switchable online in the CNC program		●
58		• Program preprocessing		●
59		Online ISO dialect interpreter		●
60		Program / workpiece management		
61		• Parts programs on NCU, max. number		300
62		• Workpieces on NCU, max. number		100
63		• On additional plug-in CF card		●
64		• On USB storage medium (e.g. disk drive, USB stick)		●
65		• On network drive		○
66		Settable offsets, max. number	G54, G55, G56 ...	100
67		Program editor		
68		• Programming support for cycles program(Program Guide)		●
69		• CNC editor with editing functions: Marking, copying, deleting		●
70		• Programming graphics / free contour input (contour calculator)		●
71		• Support for parameter input Animated Elements		●
72		• ShopTurn / ShopMill Machining step programming		●
73		Technology cycles for drilling/milling		●
74		Pocket milling free contour and islands stock removal cycle		●
75		Residual material detection		●
76		Access protection for cycles		●
77		Programming support can be extended, e.g. customer cycles		●
78		2D simulation		●
79		3D simulation, finished part		●
80		Simultaneous recording		●
81	Operation, setting & Display, etc	JOG		
82		• Handwheel selection		●
83		• Switchover: inch / metric		●
84		• Manual measurement of zero / work offset		●
85		• Manual measurement of tool offset		●
86		• Automatic tool/workpiece measurement		●
87		• Reference point approach, automatic / via CNC program		●
88		Automatic		
89		• Execution from USB or CF card interface on operator panel front		●
90		• Execution from HMI memory on NCU CF card		-
91		• Execution from network drive		○
92		Operating software languages		
93		• Ch_S,Ch_T, En, Fr, Gr, It, Kr, Pt, Sp		●
94		• Additional languages, use of language extensions		●
95		Working area limitation		●
96		Limit switch monitoring		●
97		Software and hardware limit switches		●
98		Position monitoring		●
99		Standstill (zero-speed) monitoring		●
100		Clamping monitoring		●
101		2D / 3D protection zones		●
102		Contour monitoring		●
103		Axis limitation from the PLC		●
104		Alarms and messages		●
105		Action log can be activated for diagnostic purposes		●
106		PLC status		●
107		Remote Control System (RCS) remote diagnostics		
108		• RCS Host remote diagnostics function		○
109		• RCS Commander (viewer function)	RCS Commander for PC/PG on CD-ROM	●
110		Integrated service planner for the monitoring of service intervals		●
111		Automatic measuring cycles		○
112		Easy Extend		●
113		Contour handwheel		●
114		Integrate screens in SINUMERIK Operate with SINUMERIK Integrate Run MyScreens		●
115		Cross-mode actions (ASUPs and synchronized actions in all operating modes)		●

Responding to Customers Anytime, Anywhere



Global Sales and Service Support Network

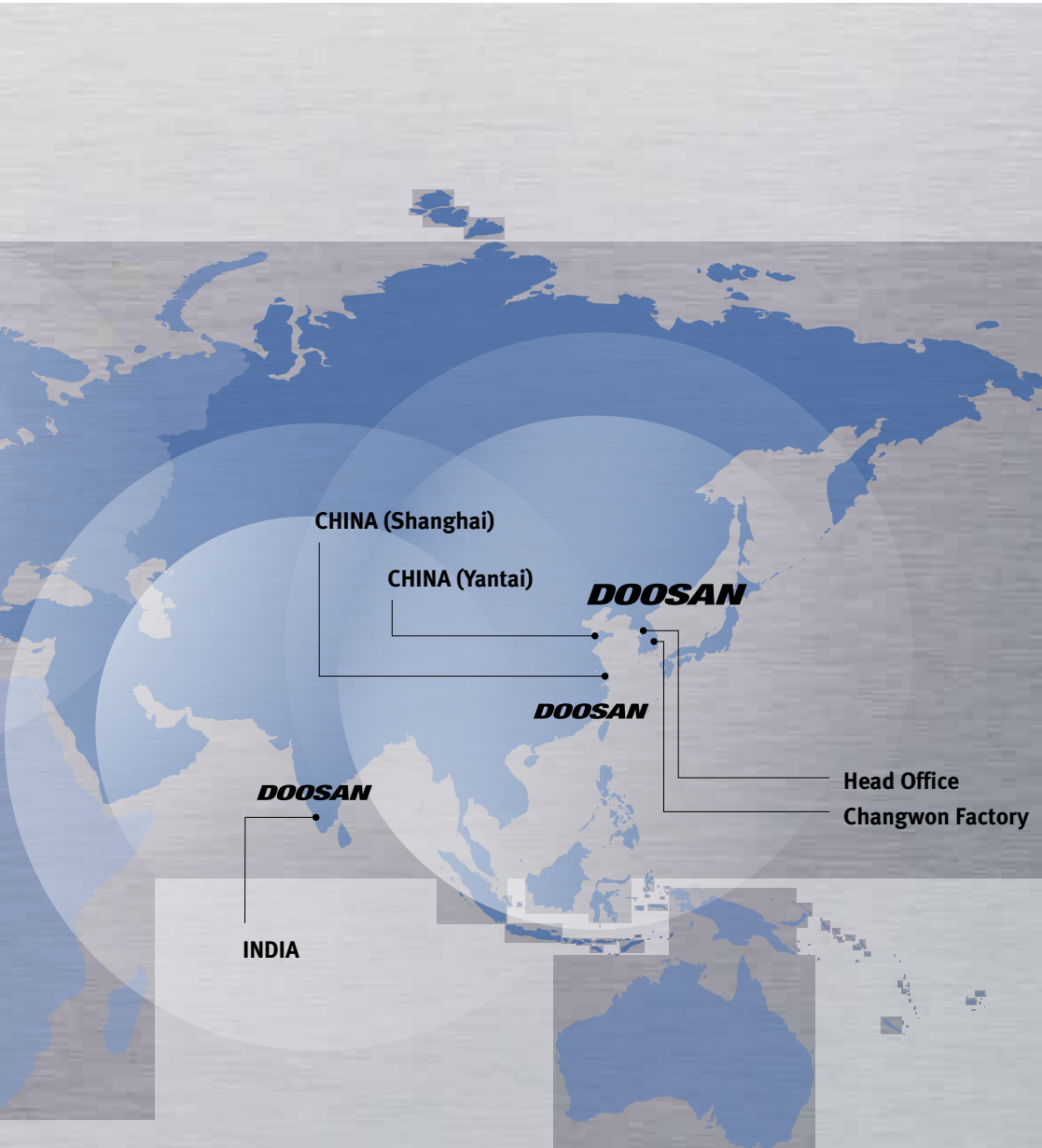
Corporations	Dealer Networks	Technical Centers	Service Post	Factories
4	164	51	198	3

Technical Center: Sales Support, Service Support, Parts Support

Doosan Machine Tools' Global Network, Responding to Customer's Needs nearby, Anytime, Anywhere

Doosan machine tools provides a system-based professional support service before and after the machine tool sale by responding quickly and efficiently to customers' demands.

By supplying spare parts, product training, field service and technical support, we can provide top class support to our customers around the world.



Customer Support Service

We help customers to achieve success by providing a variety of professional services from pre-sales consultancy to post-sales support.

Supplying Parts



- Supplying a wide range of original Doosan spare parts
- Parts repair service

Field Services



- On site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair

Technical Support



- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy

Training



- Programming / machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering

Major Specifications

Lynx 2100 series



Description	Unit	Lynx 2100 [L]	Lynx 2100M [LM] [LMS]
Max. turning dia.	mm (inch)	Ø350 (Ø13.8)	Ø300 (Ø11.8)
Max. turning length	mm (inch)	330 [550] ^{*1} (13.0 [21.7])	290 [510] [510] ^{*2} (11.4 [20.1] [20.1])
Standard chuck size	inch	6 / 8 / 10	
Max. spindle speed	r/min	6000 / 4500 / 3500	
Max. spindle power	kW (Hp)	15 (20.1) ^{*3}	

*1 : 537 mm (21.1 inch) (Lynx 2100LC)

*2 : 497 mm (19.6 inch) (Lynx 2100LMC, LMSC)

*3 : 18.5 kW (24.8 Hp) (Lynx 2100LC, LMC, LMSC)

Doosan Machine Tools

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Head Office

22FT Tower, 30, Sowol-ro 2-gil, Jung-gu,
Seoul, Korea, 04637

Tel +82-2-6972-0370 / 0350

Fax +82-2-6972-0400

Doosan Machine Tools America

19A Chapin Rd., Pine Brook, NJ 07058,
U.S.A.

Tel +1-973-618-2500

Fax +1-973-618-2501

Doosan Machine Tools India

106 / 10-11-12, Amruthahalli,
Byatarayanapura, Bellary road, Bangalore-560
092, India

Tel +91-80-4266-0122 / 121 / 100

Doosan Machine Tools Europe

Emdener Strasse 24, D-41540 Dormagen,
Germany

Tel +49-2133-5067-100

Fax +49-2133-5067-111

Doosan Machine Tools China

Room 101,201,301, Building 39 Xinzhuang
Highway No.258 Songjiang District,China
Shanghai(201612)

Tel +86-21-5445-1155

Fax +86-21-6405-1472

* For more details, please contact Doosan Machine Tools.

* The specifications and information above-mentioned may be changed without prior notice.

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**Fire Safety
Precautions**

There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting use coolants and modifying the machine without the consent of the manufacturer. Please check the SAFETY GUIDANCE carefully before using the machine.

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