



Doosan Machine Tools

Max. 600mm diameter grinding machine for
Quartz and Ceramic materials

Lynx

XG600



Basic Information

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Cutting
Performance

Detailed Information

Standard / Options
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Lynx XG600

Ideal for grinding Quartz and Ceramic materials used in the manufacturing process of semiconductor wafers, the latest model of the LynxXG600 realizes a high level of precision and stable performance, while minimizing the defect rate when grinding workpieces composed of pure metal with high thermal resistance properties.

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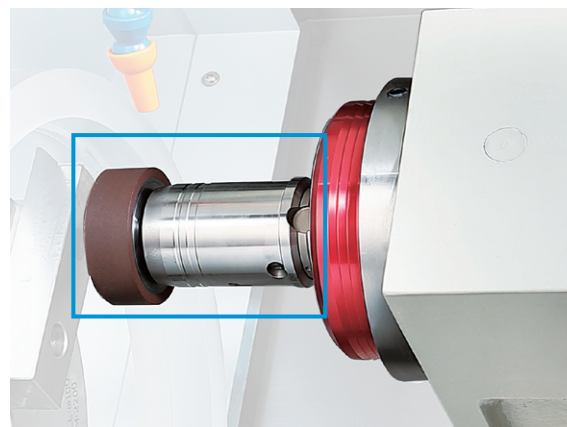
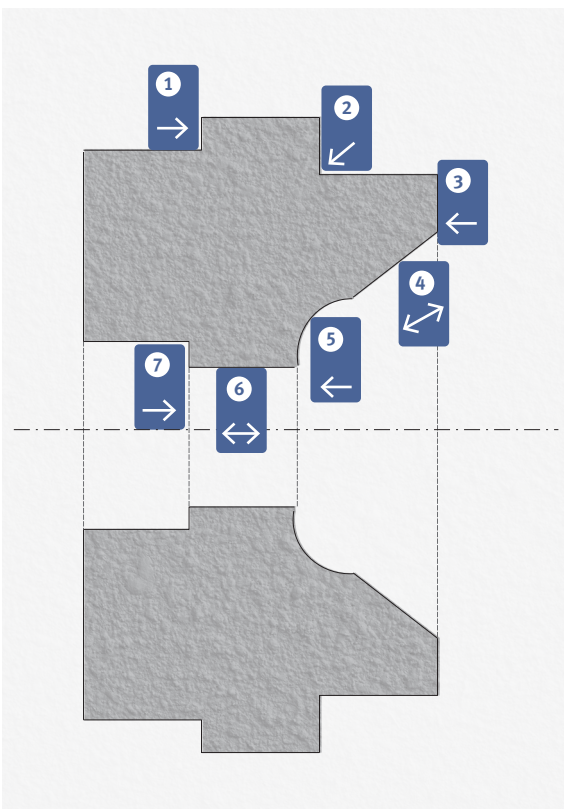
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- 1 O.D. Groove Grinding
- 2 O.D. End face Grinding
- 3 Face Grinding
- 4 I.D. Taper Grinding
- 5 I.D. Curve Grinding
- 6 I.D. Grinding
- 7 I.D. Groove Grinding

Extended Machine Life and Easier Sludge (Quartz Dust) Treatment

- The gap wiper and air-tight cover structure completely prevent the entry of Quartz or Ceramic dust into the machine slideway area, and improves long term durability.
- The “straight” type coolant tank structure with no protruding interior parts makes cleaning easy.
- Greater spatial efficiency due to adoption of a coolant tank that is removable both ways (forward and backward)

High Precision and Machine Structure Ideal for Grinding Works

- Stable support structure for the X axis allows higher grinding spindle load.
- Top class level of precision allows grinding all the way up to finishing operations..

Improved User Convenience and Options

- Access for easy workpiece and tool change achieved by creating a 650 mm space for door opening and a spacious internal work zone.
- Thanks to the addition of main spindle C axis, holes and grooves on a pitch circle diameter can also be included in the grinding process, previously only possible on machining centers. **option**

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Basic Structure

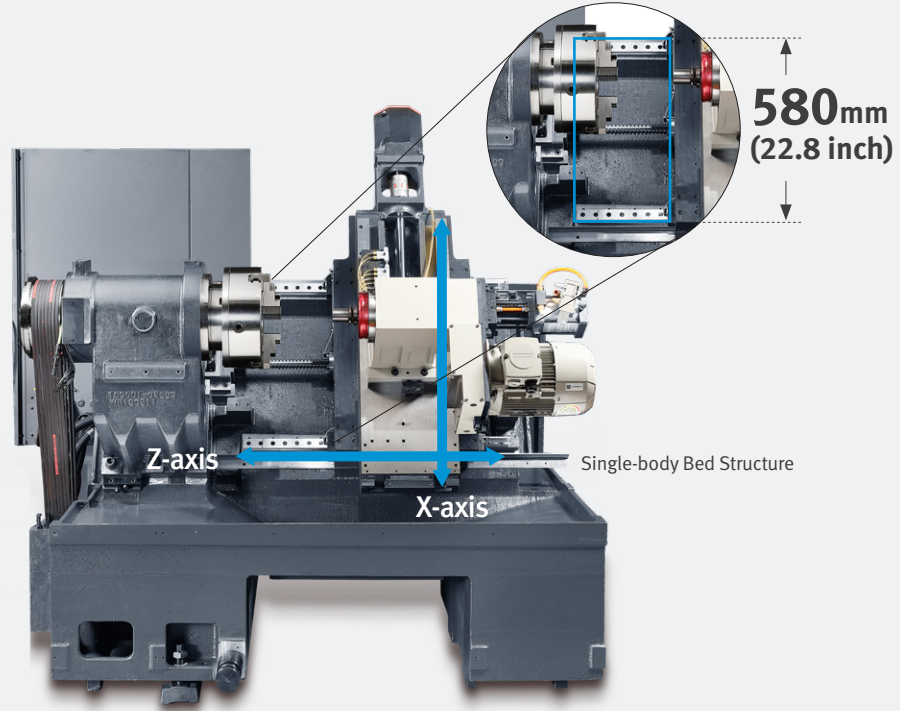
Adoption of single body type, high rigidity bed structure enables minimal vibration and thermal error, while the LMG axis configuration provides smooth and precise feed movement.

Rapid traverse

X-axis	10 m/min (393.7 ipm)
Z-axis	20 m/min (787.4 ipm)

Feeding System

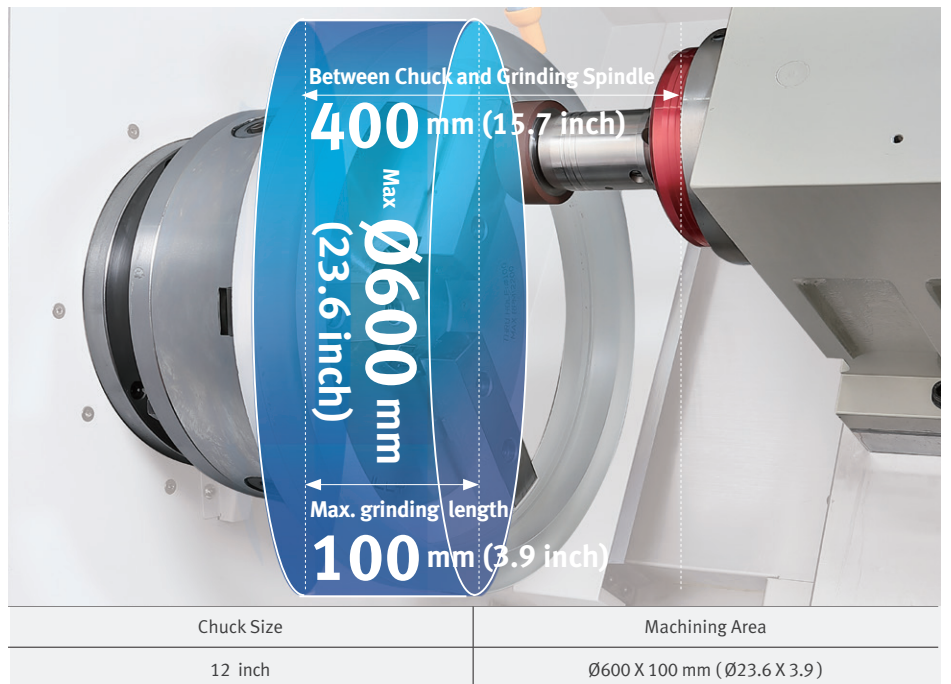
X-axis	Box Guide
Z-axis	Roller Type LM Guide



- 580mm of LMG rail spacing on the Z axis provides a high level of stability for the grinding head mounted on the X axis.
- Machine stability improved by adoption of single-body bed structure.

Machining Area

Ample space for workpiece and tool setting, with a maximum grinding diameter of 600mm and grinding length of 100mm



Spindle

14.1kW high output motor on the main spindle delivers high productivity for rough and finishing operations.

Max. spindle speed

500 r/min

2500 r/min option

Spindle nose

A2-8



Grinding Spindle

Grinding spindle with a maximum rotating speed of 5000 r/min is fully optimized for cutting quartz and ceramic workpieces.

* A different model of spindle is available upon request (technical consultation needed).

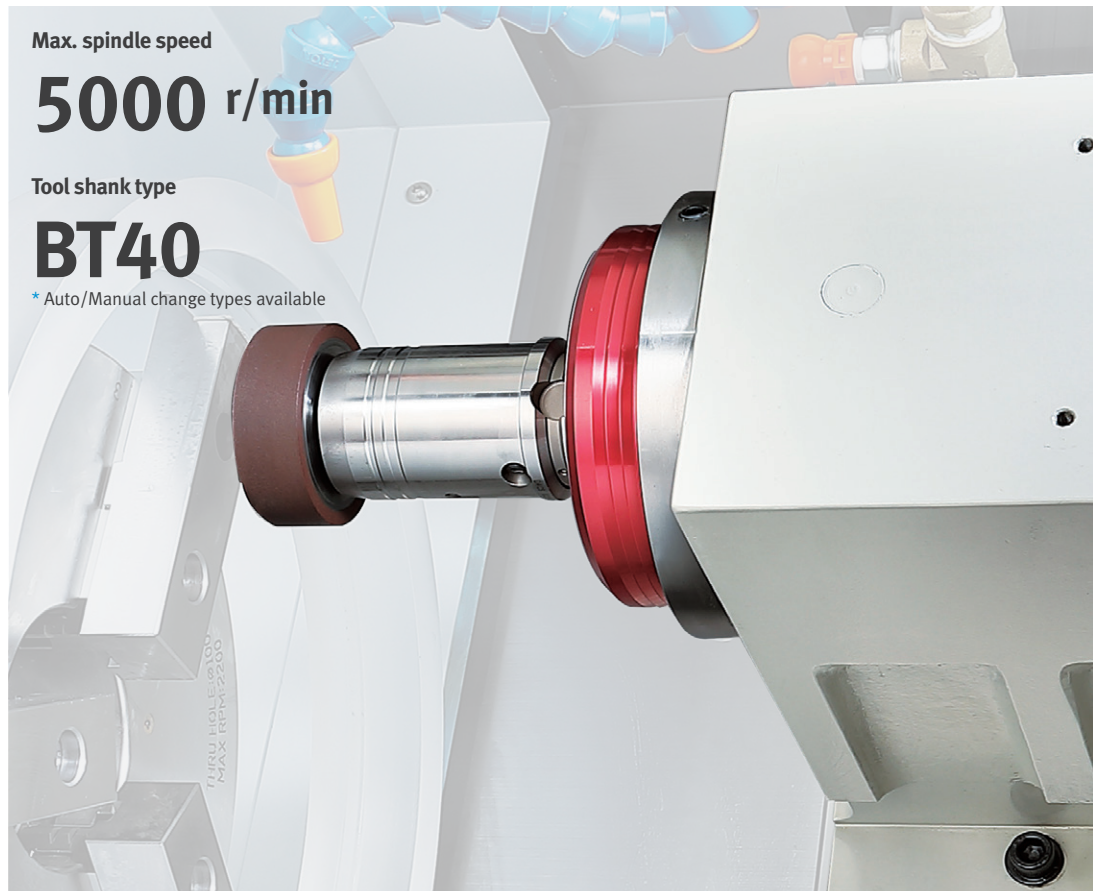
Max. spindle speed

5000 r/min

Tool shank type

BT40

* Auto/Manual change types available



Product Overview

Basic Information

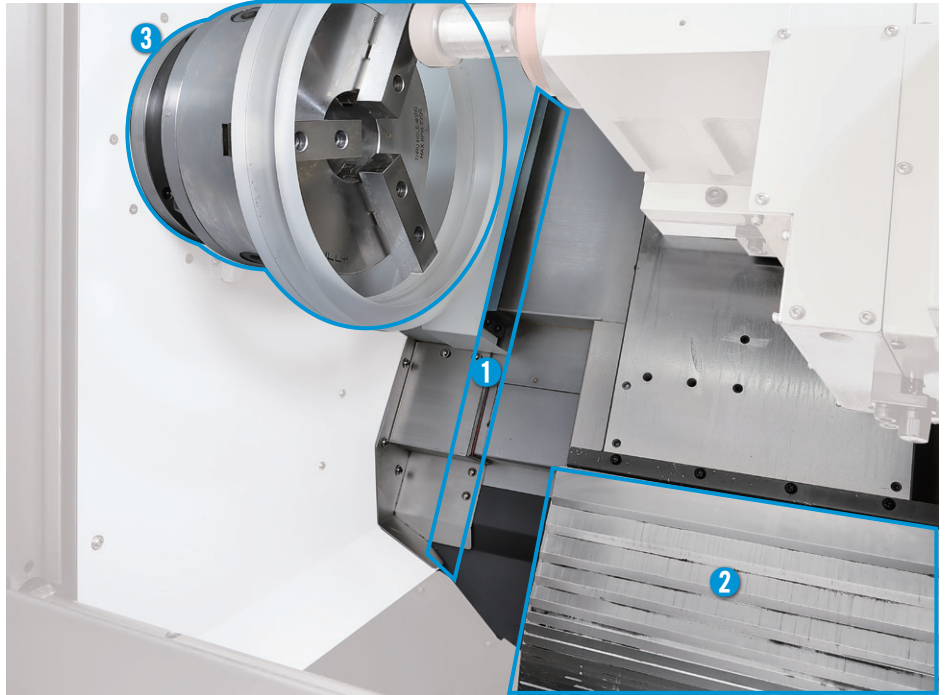
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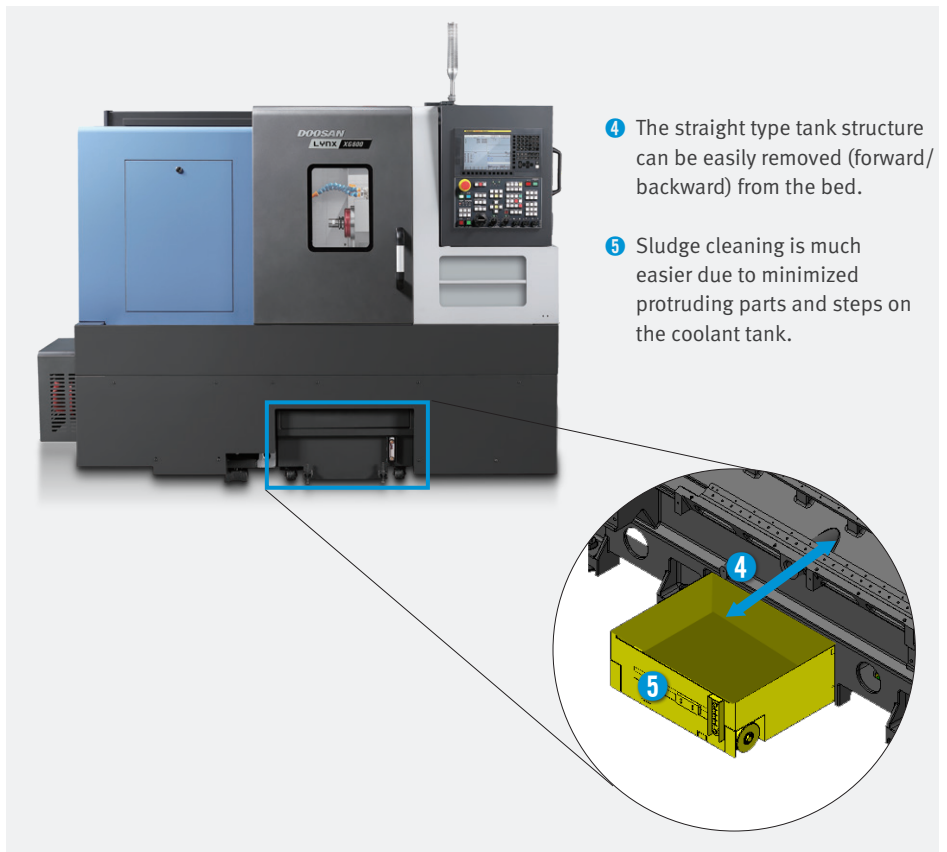
Dust Inflow and Coolant Leak Prevention



- 1 The sliding cover protects the whole slant bed surface, and includes a 2 step wiper system to prevent inflow of grinding dust.
- 2 The Multi-Cover protects the exposed part of the lower LM guide rail on the grinding spindle's feeding axis (X axis).
- 3 The air purge function supplies pressurized air from inside the spindle to prevent inflow of dust and coolant into the spindle bearings. option

Easy Tank Cleaning

* Sludge treatment



- 4 The straight type tank structure can be easily removed (forward/backward) from the bed.
- 5 Sludge cleaning is much easier due to minimized protruding parts and steps on the coolant tank.

Productivity Improvement

Hole Machining (C-axis control) option



Grinding of holes and grooves on the front face and OD of the workpiece can now be achieved thanks to the addition of a C axis function on the main spindle.

- 1 Semicircular groove cutting
- 2 3 Hole machining
- 4 Keyway cutting

Selectable Coolant Location function option

Independent coolant pumps are used for the separate OD and ID coolant supply nozzles. Each nozzle can be accurately set to provide optimum performance and minimized setting time.

Standard / Optional Specifications

Diverse optional devices and features are available to meet specific customer requirements.

● Standard ○ Optional △ Consultation Needed

NO.	Description	Specifications	Lynx XG600
1	Spindle	C axis functions (hole machining)	○
2		Air Purge	○
3	Grinding Spindle	Doosan Standard	●
4		Customization	○
5	Chuck	12" manual	●
6		12" hydraulic	○
7		Vacuum chuck preparation (technical consultation required)	○
8		No chuck available	○
9	Coolant pump	1 set of pump	●
10		2 sets of pump (Selectable Coolant Location function)	○
11	Collector	Mist Collector	○



DOOSAN FANUC i

CNC optimized for DOOSAN's machine tools maximizes productivity.

User-Friendly Operation Panel




- **LCD Size**
10.4 inch standard
- **USB & PCMCIA card (standard)**
- **Counter, timer or special option button can be optionally installed**
- **Easy to add buttons when option specification is selected**
- **Control panel re-designed for more convenience**

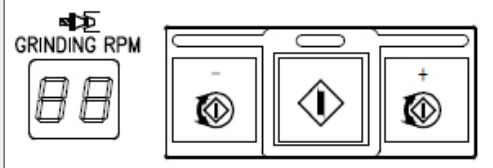
Phased Command for Grinding Spindle and Display Functions

Command function (0-7 steps) allows easier and correct control of the grinding spindle speed, and can be checked in the "GRINDING RPM" section of the screen.


During Tool Setting



Manual selection of grinding spindle



Allows visually check and control of the current rotating speed step by step



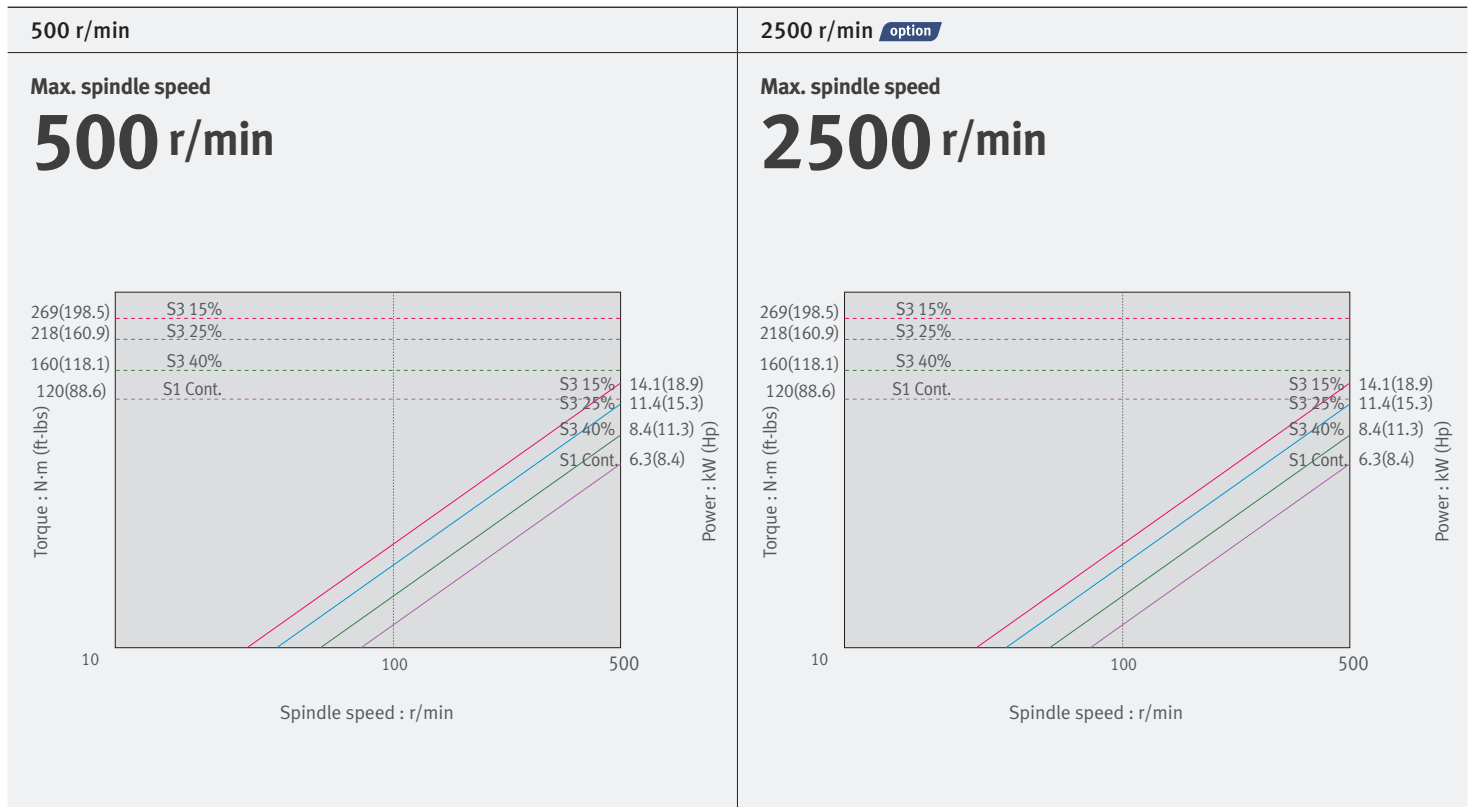
Manual operation of grinding tool clamp/unclamp

During Grinding Machining Programming
S code commands available (rotating speed can be used as a command)

Spindle Step	Grinding spindle speed (r/min)	M-code	S-code	GRINDING RPM
Step 0	50	Manual only	-	0
Step 1	2000	M141	M103 S2000	1
Step 2	2500	M142	M103 S2500	2
Step 3	3000	M143	M103 S3000	3
Step 4	3500	M144	M103 S3500	4
Step 5	4000	M145	M103 S4000	5
Step 6	4500	M146	M103 S4500	6
Step 7	5000	M147	M103 S5000	7

* Step 0 : Set as default upon machine ON

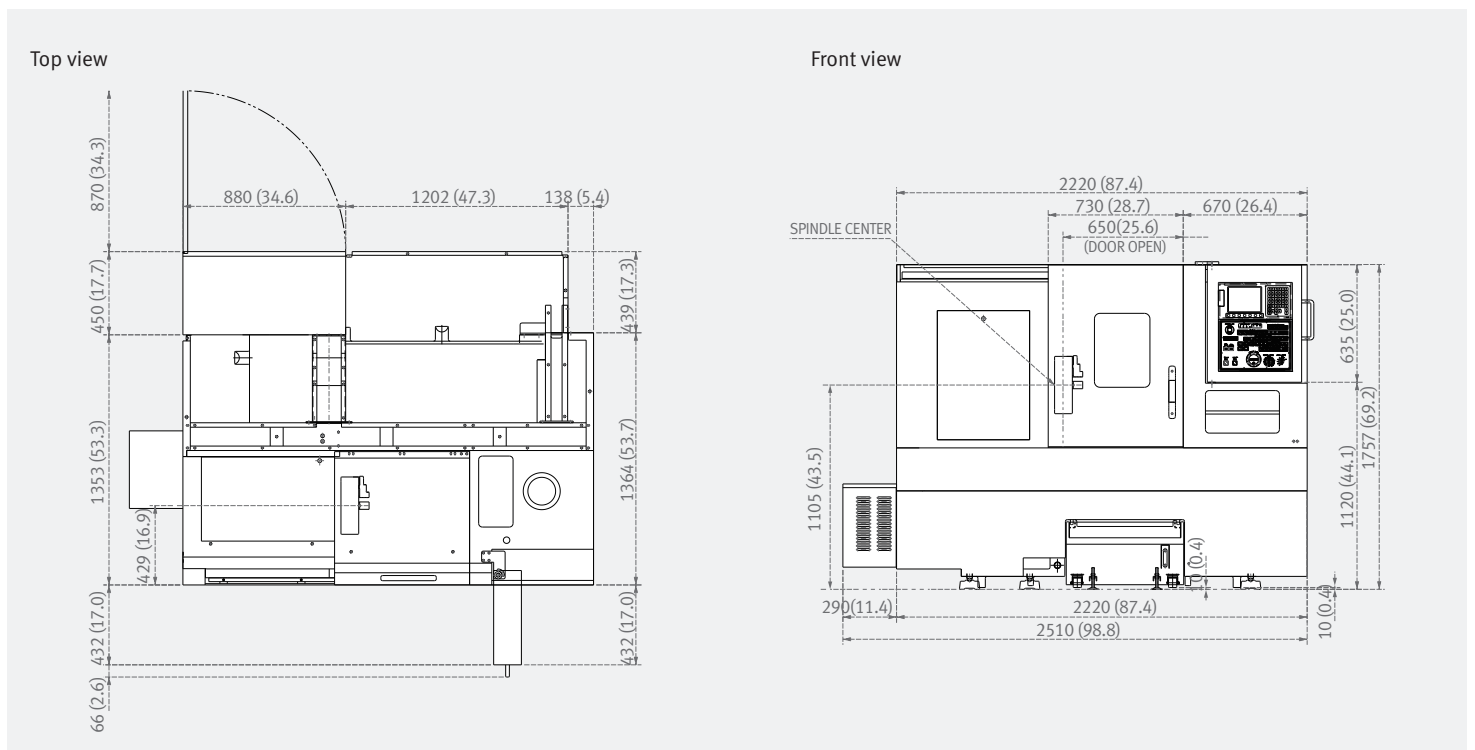
Spindle Power – Torque Diagram



External Dimensions

Lynx XG600

Unit : mm (inch)



Machine Specifications



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Description		Unit	Lynx XG600	
Capacity	Max. grinding diameter	mm (inch)	600 (23.6)	
	Max. grinding length	mm (inch)	100 (3.9)	
	Chuck size	inch	12	
Travels	Travel distance	X-axis	400 (15.7)	
		Z-axis	320 (12.6)	
	Rapid traverse	X-axis	m/min (ipm)	10 (393.7)
		Z-axis	m/min (ipm)	20 (787.4)
Spindle	Max. Spindle speed	r/min	500 {2500}*	
	Spindle nose	-	A2-8	
	Max. spindle power (S3 15%/S3 40%/cont.)	kW (Hp)	14.1/8.4/6.3	
Grinding Spindle	No. of tool stations	st	1	
	Max. Spindle speed	r/min	5000	
	Tool shank type	-	BT40	
Machine dimensions	Length x Width	mm (inch)	2510 x 1803 (98.8 x 71.0)	
	Height	mm (inch)	1757 (69.2)	
	Weight	kg (lb)	2800 (6172.9)	
Control	CNC system	-	DOOSAN FANUC i	

* Please contact DOOSAN to select detailed steady rest specifications.

NC Unit Specifications

● Standard ○ Optional X/N/A



NO.	Division	Item	Spec	DOOSAN-FANUC i	NO.	Division	Item	Spec	DOOSAN-FANUC i
1	Controlled axis	Controlled axes		X, Z	37	Interpolation functions	High-speed skip	Input signal is 8 points.	○
2		Simultaneously controlled axes		2 axes	38		2nd reference position return	G30	●
3		Cs contouring control		○	39		3rd / 4th reference position return		●
4		Synchronous / Composite control		X	40	Feed function	Override cancel		●
5		Torque control		●	41		AI contour control I		○
6		HRV2 control		●	42		AI contour control II		X
7		Inch / metric conversion		●	43		Rapid traverse block overlap		●
8		Stored stroke check 1		●	44	Program input	Optional block skip	9 pieces	○
9		Stored stroke check 2,3		●	45		Absolute / incremental programming	Combined use in the same block	●
10		Stored limit check before move		○	46		Diameter / Radius programming		●
11		Chamfering on / off		●	47		Automatic coordinate system setting		●
12		Unexpected disturbance torque detection function		●	48		Workpiece coordinate system	G52 - G59	●
13		Position switch		●	49		Workpiece coordinate system preset		●
14	Operation	DNC operation	Included in RS232C interface.	●	50		Direct drawing dimension programming		●
15		DNC operation with memory card		●	51		G code system	A	●
16		Quick program restart		X	52		G code system	B/C	●
17		Tool retract and recover		○	53		Chamfering / Corner R		●
18		Wrong operation prevention		●	54		Custom macro		●
19		Dry run		●	55		Addition of custom macro common variables	#100 - #199, #500 - #999	●
20		Single block		●	56		Interruption type custom macro		●
21		Reference position shift		●	57		Canned cycle		●
22		Handle interruption		○	58		Multiple repetitive cycles		●
23		Incremental feed	x1, x10, x100	●	59		Multiple repetitive cycles II		●
24	Manual handle retrace		○	60	Canned cycle for drilling		●		
25	Interpolation functions	Nano interpolation		●	61	Coordinate system shift		●	
26		Linear interpolation		●	62	Direct input of coordinate system shift		●	
27		Circular interpolation		●	63	Pattern data input		●	
28		Polar coordinate interpolation		X	64	Operation Guidance Function	EZ Guide(Conversational Programming Solution)		X
29		Cylindrical interpolation		X	65		MANUAL GUIDE i		○
30		Helical interpolation		○*	66	Auxiliary/ Spindle speed function	Constant surface speed control		●
31		Thread cutting, synchronous cutting		○*	67		Spindle override	0 - 150%	●
32		Multi threading		●	68		Spindle orientation		●
33		Thread cutting retract		●					
34		Continuous threading		●					
35	Variable lead thread cutting		●						
36	Polygon machining with two spindles		X						

* Available only with the Fanuc 0iT_Type3.

Responding to Customers Anytime, Anywhere

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



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*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.