



6INCH COMPACT TURNING CENTER

# LEO

1600



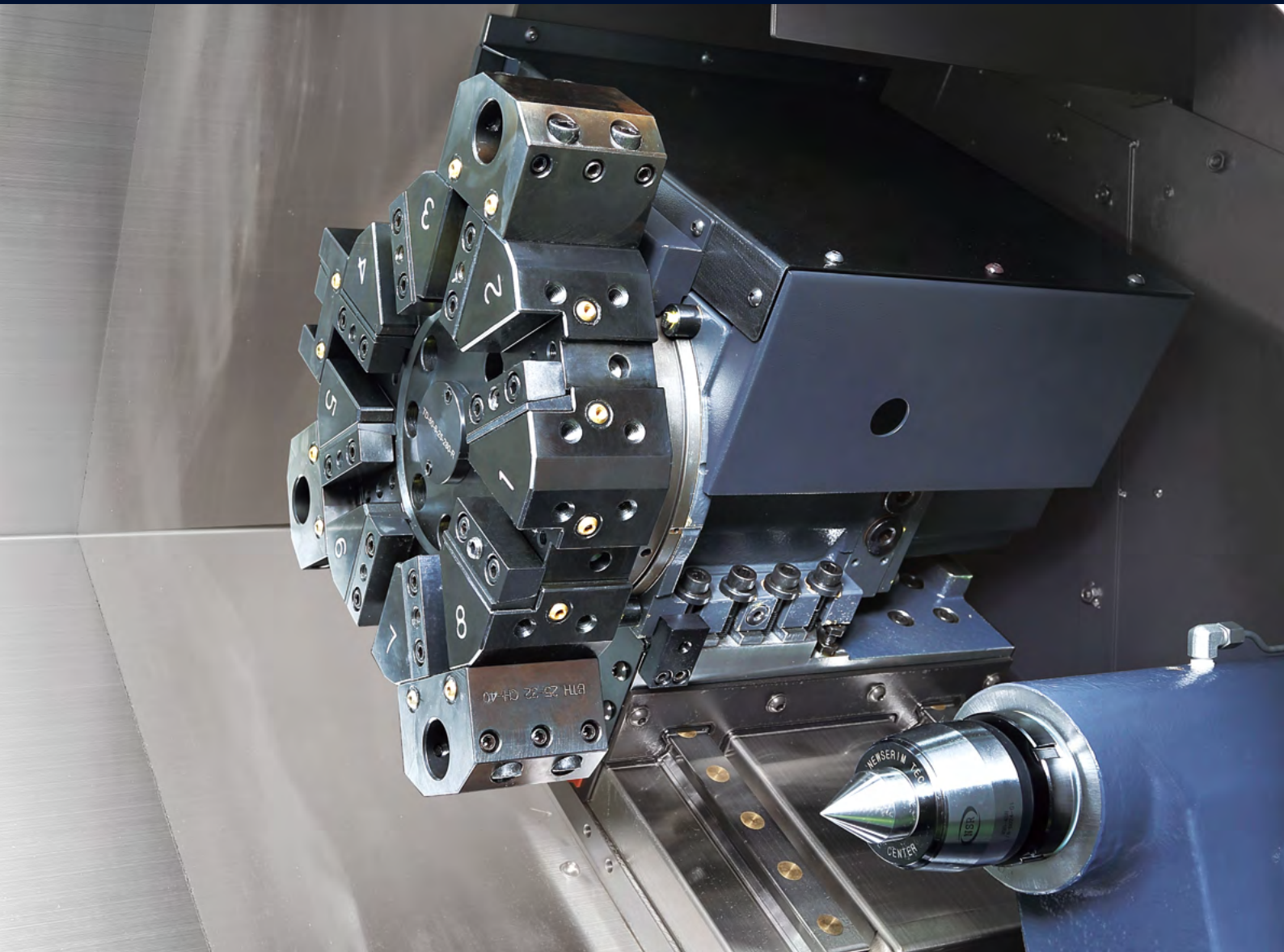
**DN SOLUTIONS**

# LEO 1600

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LEO 1600 realizes high productivity by supporting the largest processing area of the class with a compact installation area. High-strength octagonal turret provides excellent performance for strong cutting and enhances convenience with user-friendly design.





### COMPACT DESIGN PROVIDES MAXIMUM PROCESSING AREA COMPARED TO CLASS

- Size : 1850 mm
- X-axis travel distance : 175 mm
- Z-axis travel distance : 330 mm

### LEO 1600 SUPPORTS STABLE PROCESSING

- 30 degree inclined bed structure and high rigidity roller type LM guide for all axes
- Fast and stable tool selection by high-strength octagonal turret

### IT'S EASY TO USE

- Easy to monitor the processing status according to the application of inclined door windows
- Application of rear chip discharge system standard



# BASIC STRUCTURE

LEO 1600 includes a 30° slanted stable bed structure with highly rigid roller type LM guideway for reliable machining.

## A small footprint with big capabilities

The machine is a compact design with 1850 mm width and comes with a 175 mm X-axis stroke and 330 mm Z-axis stroke.

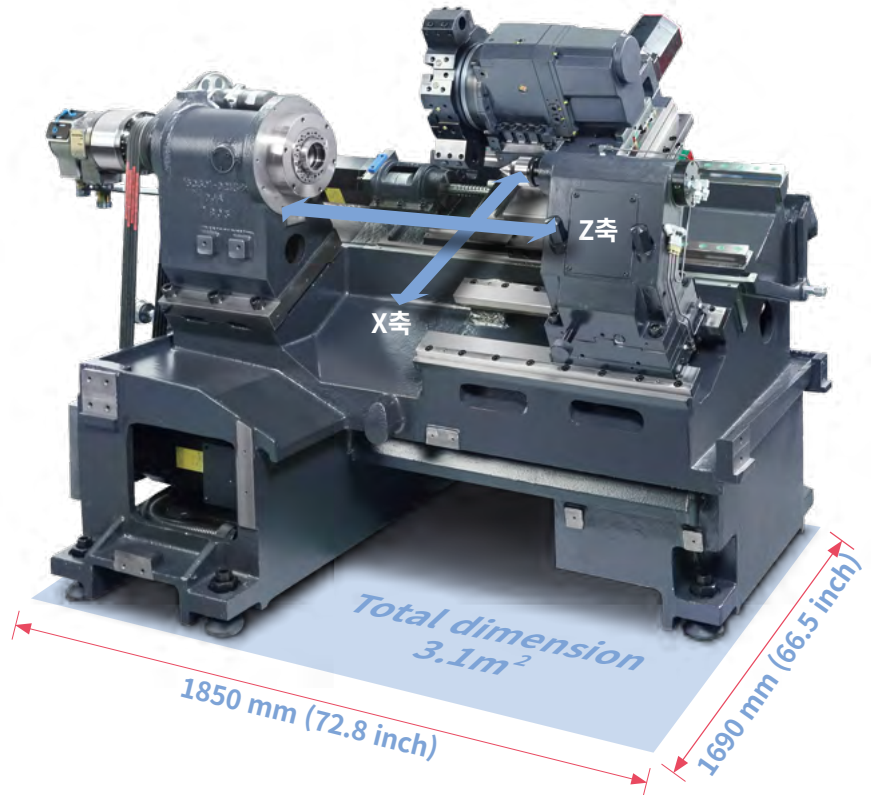
### Travel

X-axis **175** mm  
6.9 inch

Z-axis **330** mm  
13.0 inch

### Rapid feedrate

X/Z-axis **30** m/min  
1181.1 ipm



## MACHINING AREA

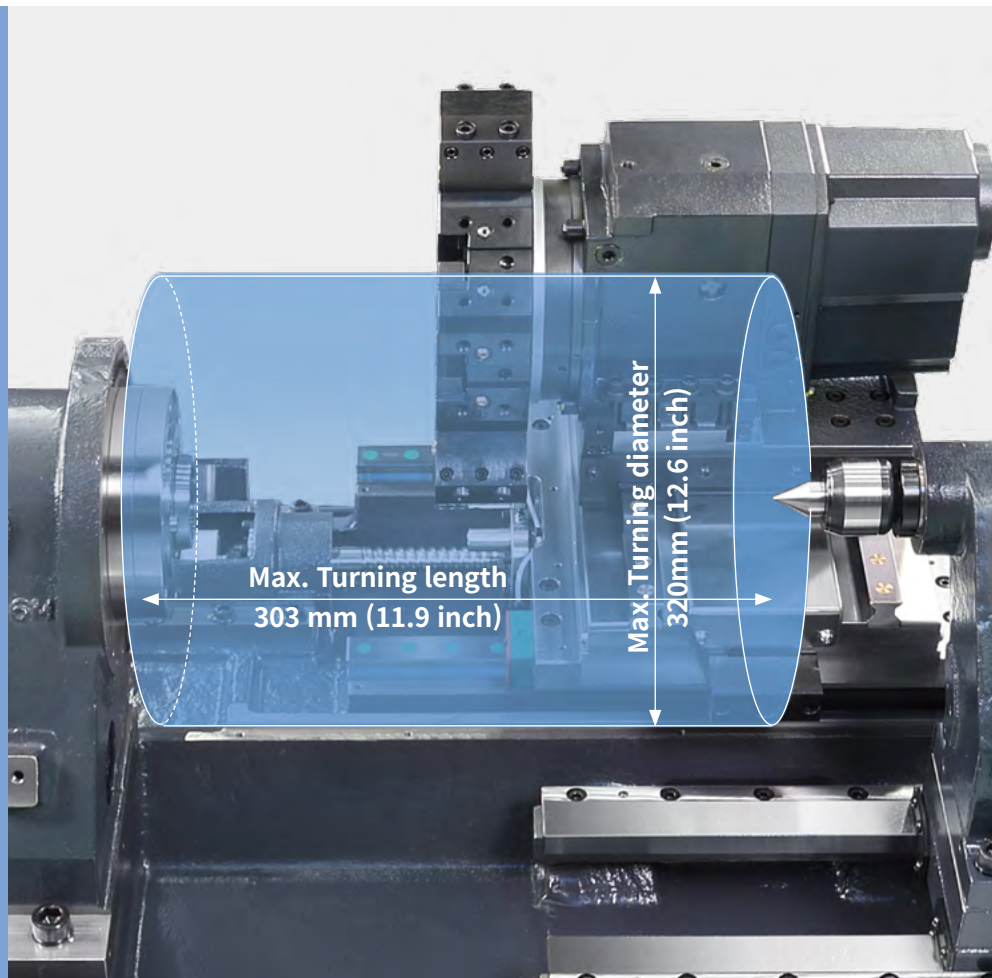
LEO 1600 offers the largest machining area in its class.

**Bar working diameter**  
**45** mm  
1.8 inch

**Max. Allowable workpiece weight**  
(including chuck)

Chuck work **70** kg

Shaft work **150** kg



# SPINDLE

Highly reliable spindle with high-rigidity spindle bearing design is available with chuck size 6 inch standard, 8 inch option.

## Chuck size

**170 {210 OPTION}** mm  
6{8} inch



# TURRET

The durable eight station turret ensures stable tool rotation and increase machine performance.

## Tool holder size

**25 X 25** mm  
( 1.0 x 1.0 inch)

## No. of tool positions

**8{12 OPTION}** ea





# TAILSTOCK OPTION

Rigid tailstock is available to provide stable support of long workpieces.

## Quill diameter

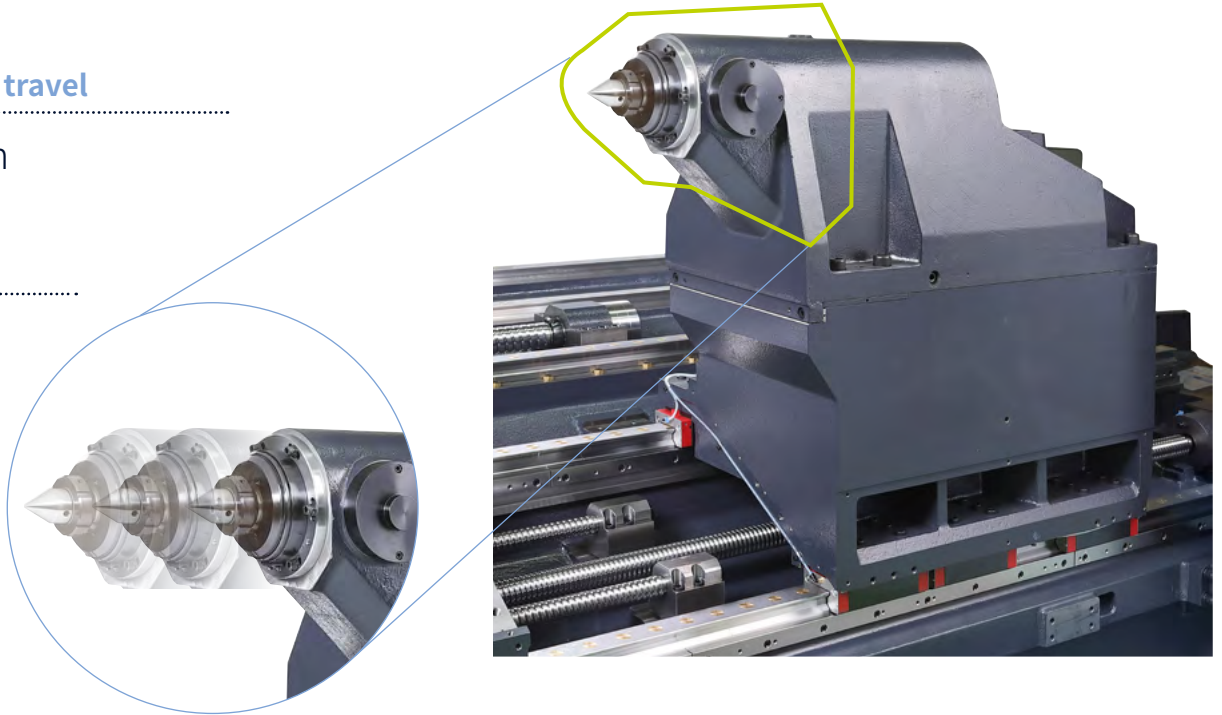
**65 mm**  
2.6 inch

## Tailstock / Quill travel

**320/80 mm**  
12.6 / 3.1 inch

## Live tail center

**MT#4**



## EASE OF OPERATION

### User friendly design for ease of operation

- Easy monitoring with reclined front window
- Rear side chip disposal
- Routine maintenance details are placed in front



# STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	LEO 1600
Chuck	6 inch	●
	8 inch	○
Jaw	Soft Jaws	●
	Hardened Jaws	○
Tailstock	Manual_Live	○
	Live center_MT4	○
Chucking	Chuck clamp confirmation	○
Coolant pump	1.3 bar	●
	1.5 bar	○
	4.5 bar	○
Coolant option	Oil skimmer (Belt type)	○
	Rear coolant tank	●
	Side coolant tank	○
	Coolant level switch : Sensing level - Low	○
Rear chip conveyor	Hinged belt type	○
	Magnetic scrapper type (Cast steel)	○
	Screw (auger) type	○
Side chip conveyor	Hinged belt type	○
	Magnetic scrapper type (Cast steel)	○
	Screw (Auger)	○
Chip bucket	Forklift 110L (for auger conveyor)	○
	Forklift 200L (for auger conveyor)	○
	Forklift 220L	○
	Forklift 300L	○
	Forklift 380L	○
	Rotation 220L	○
	Rotation 300L	○
	Rotation 380L	○
Optional device	Top cover	○
	Bar feeder interface	○
	Air gun	○
	Work & Tool counter	○
	Signal tower	○
	Quick change CAPTO	○
Customized Special Option	PARTS CATCHER_BOX TYPE_MAIN/LEFT SPINDLE	○
	TOOL SETTER_MANUAL	○
	TOOL SETTER_AUTOMATIC_ELECTRIC	○
	U-DRILL HOLDER CAP	○
	AUTOMATIC FRONT DOOR WITH SAFETY EDGE	○
	NUMBER OF TOOL ST. FOR MAIN_12ST	○
	COOLANT PRESSURE SWITCH	○
	COOLANT CHILLER	○
	AUTO WORK MEASUREMENT_OLP40_RENISHAW	○
	CHIP CONVEYOR TYPE_SCREW	○
	AIR LIMIT SENSING ON CHUCK_PREPARATION	○
	AIR CHUCK PREPARATION	○
	MIST COLLECTOR_0.4KW	○
	MIST COLLECTOR_0.75KW	○
	TSC FOR MAIN/LEFT SPINDLE_PREPARATION	○
	TSA FOR MAIN/LEFT SPINDLE_PREPARATION	○

\* Please contact your DN Solutions representative for detailed machine information.

\* When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.

● Standard ● Optional X Not applicable

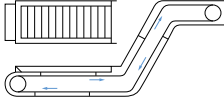
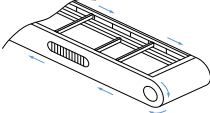


There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

# PERIPHERAL EQUIPMENT

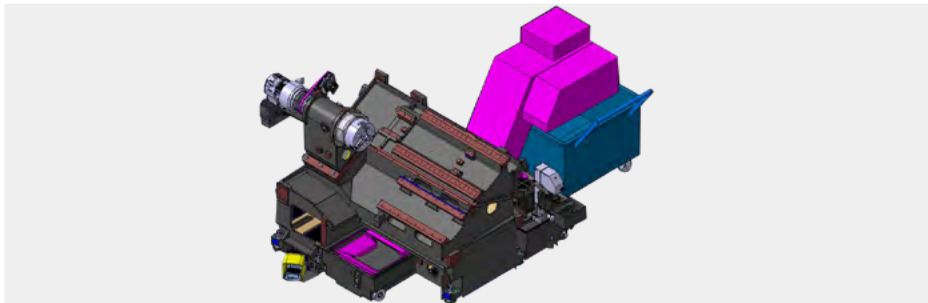
## Chip conveyor OPTION

The chip conveyor with its stable design delivers excellent chip disposal, superior operation and maintenance convenience. Users can select the optimum type of conveyor that meets their specific machining and floor space requirements.

Name	Hinged belt	Magnetic scrapper
Application	Steel	Cast steel
Features	<ul style="list-style-type: none"> <li>• General use</li> <li>• Suitable for steel applications producing 30mm chips or longer</li> </ul>	<ul style="list-style-type: none"> <li>• Easy-to-understand manual</li> <li>• Chips are scraped up and discharged</li> </ul>
Shape		

## Rear chip conveyor OPTION

A combination of an all-in-one bed and a dual chip conveyor that have secured channels for discharging left and right chips ensures smooth chip discharge.



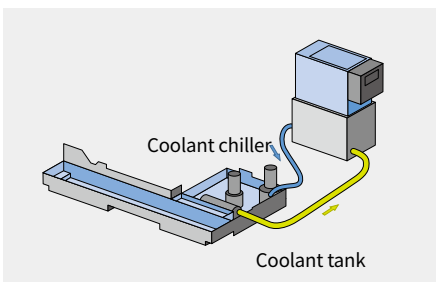
## Signal Tower OPTION

Device to show present statuses of the machine.



## Coolant Chiller (recommended) OPTION

A coolant chiller is recommended to help prevent temperature rises and to reduce thermal deformation when using a water-insoluble coolant or high-pressure coolant system (i.e., power over 1.5kW).



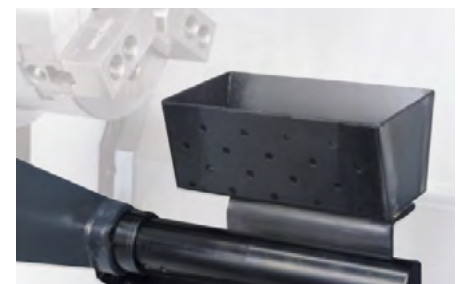
## Quick change CAPTO OPTION

The quick change tool system simplifies tool change operations. Recommended for users who need to change tools frequently or to reduce set-up times.



## Part catcher OPTION

The part catcher automatically catches machined parts and ejects them from the machining area.



## Dust Collector OPTION

The dust collector absorbs airborne oil vapor and fine dust in the system to improve working environment.



## Coolant blower OPTION



## Oil Skimmer OPTION

The oil skimmer keeps coolant and lubricant isolated from each other to extend the lifecycle of coolant.





# DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus maximizes customer productivity and convenience.

## 10.4" Screen + New OP

It is an easy and fast operation for the customer to operate featuring the familiar design via ONG button.

### DN Solutions Fanuc i Plus

- 10.4 inch display
- Intuitive and user-friendly design

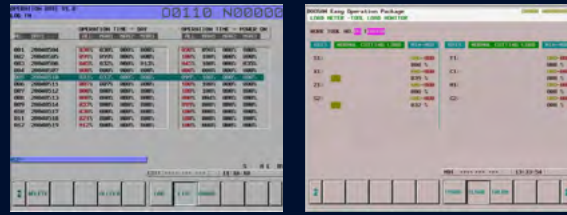
### USB & PCMCIA card ONG keyboard

- Ergonomic operator panel
- 2MB memory
- USB (standard)



## EZ WORK

DN Solutions's unique EZ WORK offers tool management function, peripheral device settings, operation, online help, and other functionalities to maximize operational efficiency and user convenience.



Productivity Monitoring

Tool Load Monitoring

## SKETCH-TURN OPTION

### DN Solutions Conversational programming software for PC

- Easy to learn for beginners
- Time savings in programming
- Reduce processing cycle time



# NUMERIC CONTROL SPECIFICATIONS

FANUC

Division	Item	Specifications	2-Axis DN Solutions Fanuc i Plus
Controlled axis	Controlled axes		2(X,Z)
	Simultaneously controlled axes		2 axes
Data input/output	Fast data server		X
	Memory card input/output		●
	USB memory input/output		●
Interface function	Embedded Ethernet		●
	Fast Ethernet		X
	Enhanced Embedded Ethernet function		●
Operation	DNC operation	Included in RS232C interface.	●
	DNC operation with memory card		●
Program input	Workpiece coordinate system	G52 - G59	●
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	○
	AI contour control II	G5.1 Q_, 200 Blocks	X
Operation Guidance Function	EZ Guidei (Conversational Programming Solution)		X
	iHMI with Machining Cycle	Note *1) Only with 15" Touch LCD standard	X
	EZ Operation package		●
Setting and display	CNC screen dual display function		●
Others	Display unit	10.4" color LCD	●
		15" color LCD	X
	Part program storage size & Number of registerable programs	640M(256KB)_500 programs	X
		5120M(2MB)_1000 programs	●

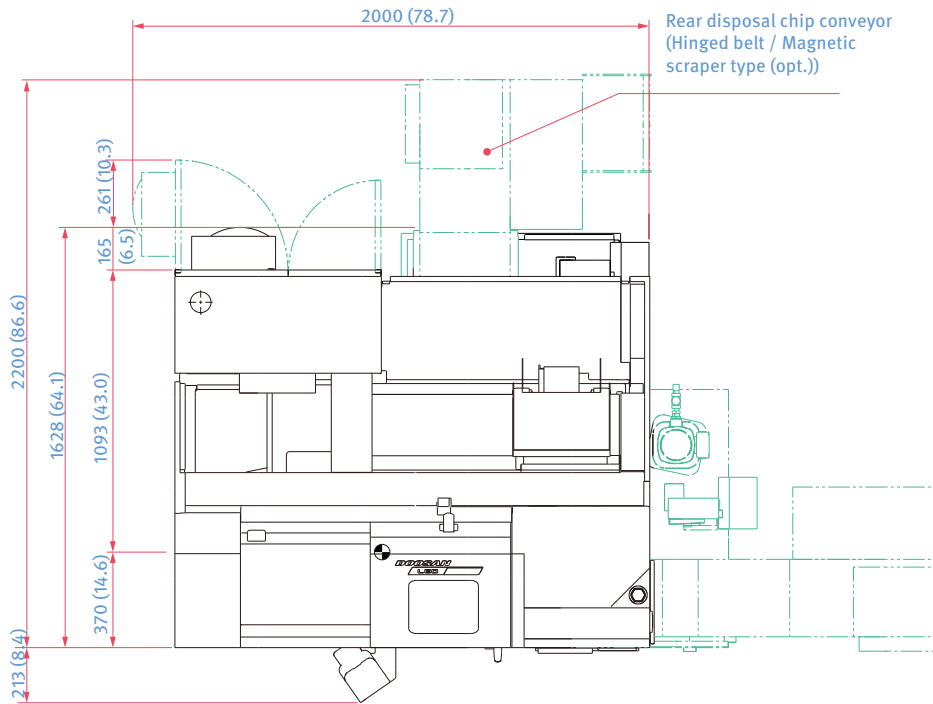
● Standard ○ Optional X N/A ⊕ Available



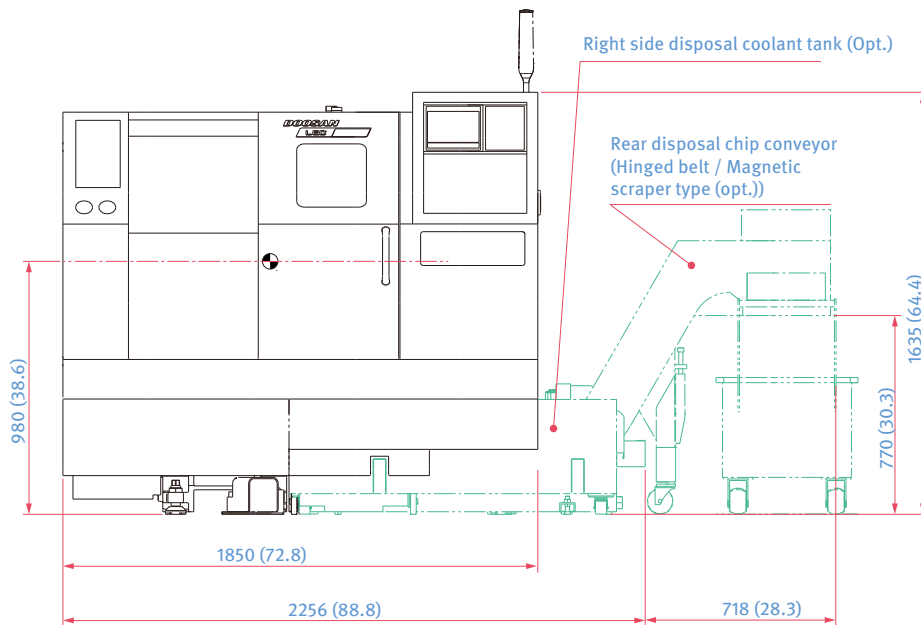
# EXTERNAL DIMENSIONS

Unit : mm (inch)

TOP



FRONT



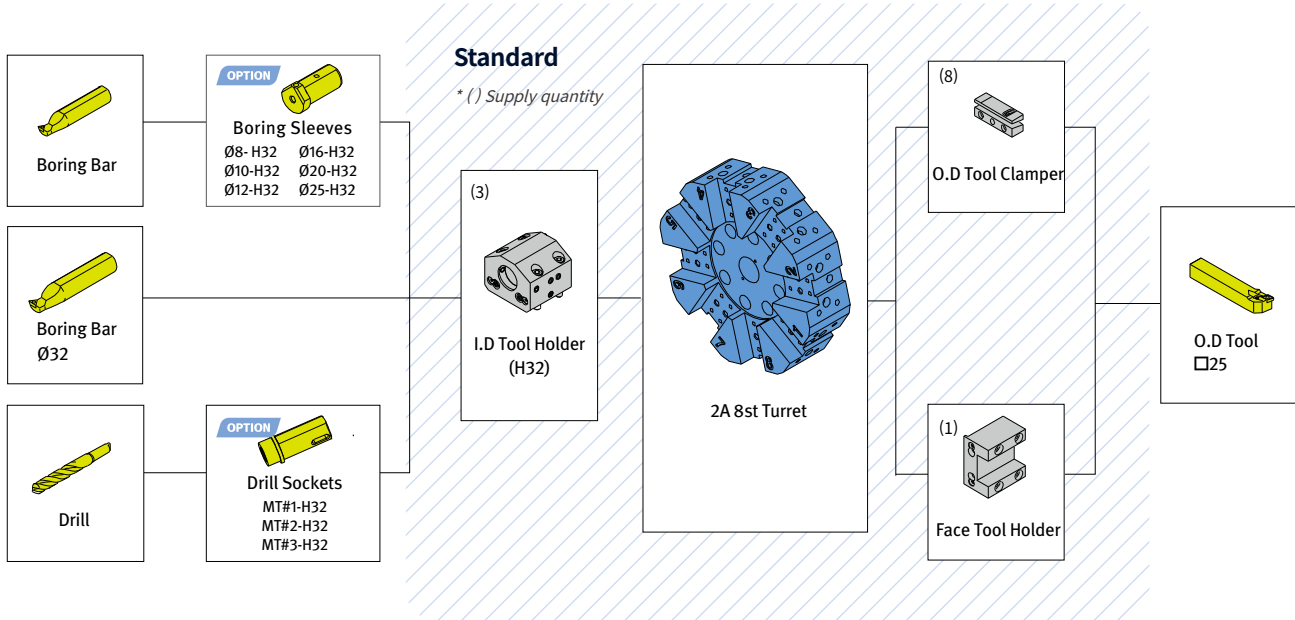
\* Some peripheral equipment can be placed in other places.



# TOOLING SYSTEM | WORKING RANGE

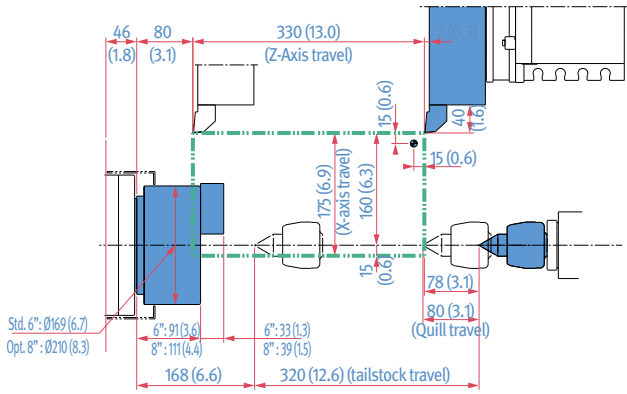
Unit : mm (inch)

## TOOLING SYSTEM

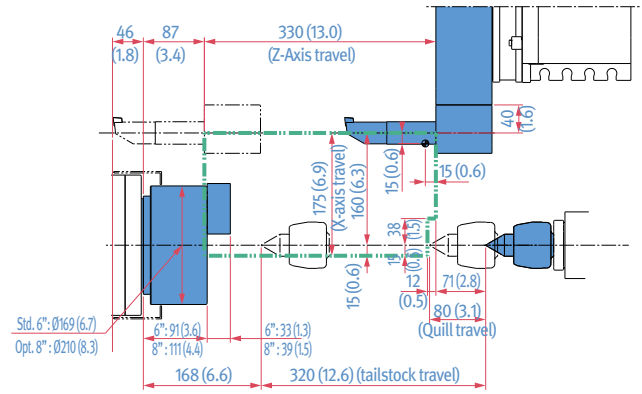


## WORKING RANGE

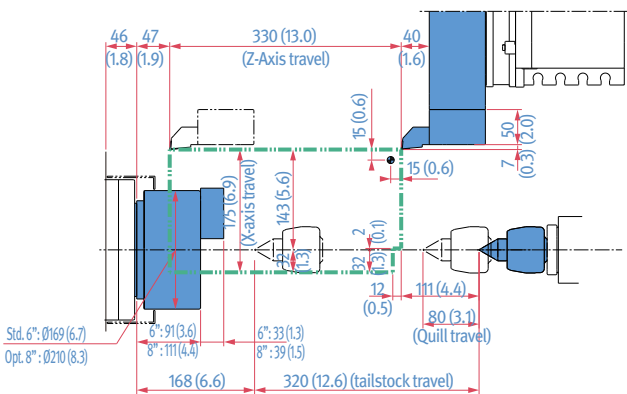
### OD HOLDER



### ID HOLDER



### FACE TOOL HOLDER



# MACHINE SPECIFICATIONS

Item			Unit	LEO 1600
Capacity	Swing over bed		mm (inch)	470 (18.5)
	Swing over saddle		mm (inch)	300 (11.8)
	Recom. Turning diameter		mm (inch)	170 (6.7)
	Max. Turning diameter		mm (inch)	320 (12.6)
	Max. Turning length		mm (inch)	303 (11.9)
	Chuck size		inch	6 {8}*
	Bar working diameter		mm (inch)	45 (1.8)
Travel	Travel distance	X axis	mm (inch)	175 (6.9)
		Z axis	mm (inch)	330 (13.0)
	Rapid traverse rate	X axis	m/min (ipm)	30 (1181.1)
		Z axis	m/min (ipm)	30 (1181.1)
Spindle	Max. Spindle speed		r/min	4000
	Main spindle motor power (S3 25%/cont.)		kW (Hp)	7.5/5.5 (10.1/7.4)
	Spindle nose		ASA	A2-5
	Spindle bearing diameter (Front)		mm (inch)	90 (3.5)
	Spindle through hole diameter		mm (inch)	61 (2.4)
Turret	No. of tool stations		ea	8 {12}*
	OD tool size		mm (inch)	25 x 25 (1.0 x 1.0)
	Max. boring bar size		mm (inch)	ø32 (ø1.3)
	Turret Indexing time (1 station swivel)		sec	0.15
Tail Stock	Quill diameter		mm (inch)	65 (2.6)
	Quill bore taper		MT	#4
	Quill travel		mm (inch)	80 (3.1)
Motors	Coolant pump motor power		kW (Hp)	0.18 {0.4/1.1}* (0.2 {0.5/1.5})
Power source	Electric power supply (rated capacity)		kVA	14.97
Machine Dimensions	Height		mm (inch)	1635 (64.4)
	Length		mm (inch)	1850 (72.8)
	Width		mm (inch)	1690 (66.5)
	Weight		kg (lb)	2600 (5731.9)
Control	CNC system		-	DN Solutions Fanuc i Plus

The DN Solutions promise, MACHINE GREATNESS, has two important meanings. The first is simple: DN Solutions makes great machines. The second is a challenge to our end-users. With a product line that is this comprehensive, accurate and reliable, we equip our customers to machine greatness. **The big question: *Why should you choose DN Solutions over other options?***

Here's why...



**MACHINE  
GREATNESS™**



WHAT YOU MAKE AND HOW YOU MAKE IT MATTERS—SO MAKE IT  
GREAT WITH DN SOLUTIONS.

## UNBEATABLE MACHINES

You won't find a more comprehensive range or a better combination of value, performance and reliability anywhere else.

## ROBUST PRODUCT LINE

We offer an impressive range of machine models and hundreds of configurations. Whatever your machining needs and requirements, there's a DN Solutions for you.

## READILY AVAILABLE - ANYWHERE IN THE WORLD

Machining centres (including 5-axis machines), lathes, multi-tasking turning centres and mill-turn machines, and horizontal borers with best-in-class specifications are all available...ready to install.

## EXPERT SERVICE

Our dedicated, experienced and knowledgeable team is totally committed to improving your productivity, growth and success.



# RESPONDING TO CUSTOMERS ANYTIME, ANYWHERE

## DN Solutions Global Network

DN Solutions provides systems-based professional support services, before and after the machine tool sale, by responding quickly and efficiently to customers. By supplying spare parts, product training, field service and technical support, we provide the expert care, attention and assistance our customers expect from a market leader.

Global sales and service support network		<b>51</b>	<b>Technical centers</b> Technical center, Sales support, Service support, Parts support
<b>4</b>	Corporations	<b>200</b>	<b>Service posts</b>
<b>155</b>	Dealer networks	<b>3</b>	<b>Factories</b>



## CUSTOMER SUPPORT AND SERVICES

**We're there for you whenever you need us.**

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.



### Field services

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



### Parts supply

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



### Training

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



### Technical support

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



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\* For more details, please contact DN Solutions.

\* Specifications and information contained within this catalogue may be changed without prior notice.