DOOSAN

DNM 750 Ⅱ
DNM 750L Ⅱ

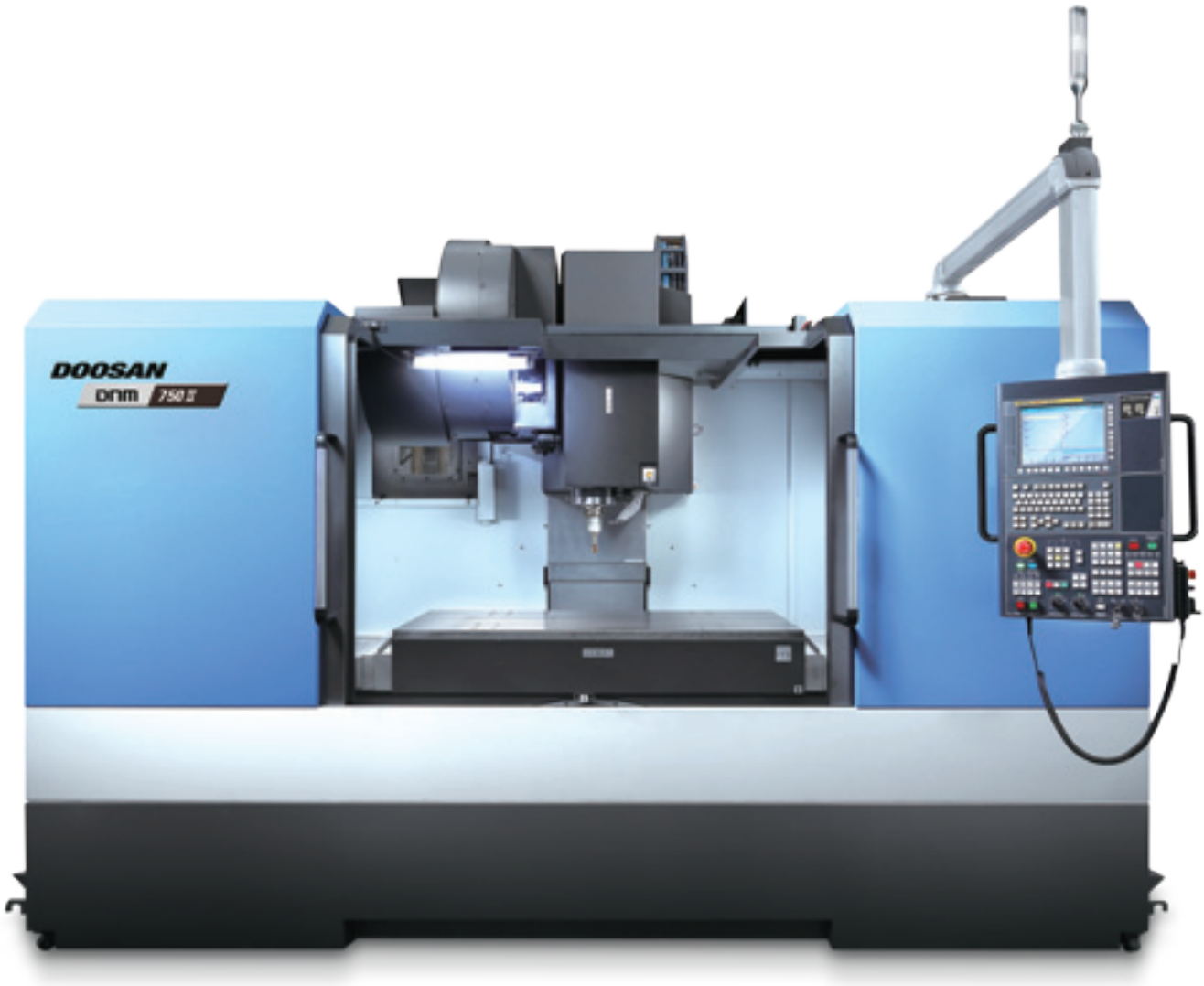
High Productivity Vertical Machining Center

DNM 750 Ⅱ DNM 750L Ⅱ

DNM 750 Ⅱ

DNM 750L Ⅱ

MACHINE GREATNESS™



DNM 750 Ⅱ

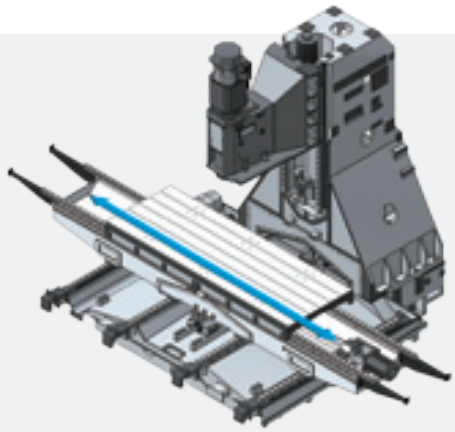
DNM 750 Ⅱ
DNM 750L Ⅱ

Designed as a high productivity vertical machining center, the DNM 750 Ⅱ, DNM 750L Ⅱ is equipped with belt drive spindle, direct coupled spindle and high rigidity for high productivity. An oil cooler system is provided as a standard feature for long-term, continuous operation at high speed. The oil is cooled down in the cooler before circulating around the spindle head and ball screw nut to minimize thermal error and deliver high-precision cutting. The EOP functions for user-friendliness has improved the convenience of customers.

Contents

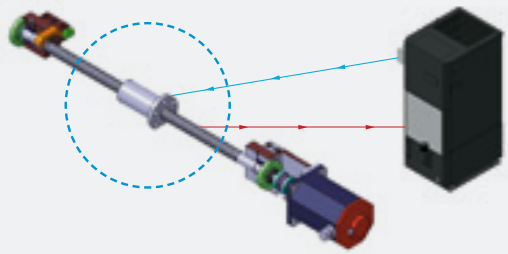
The largest cutting area of the machine is the best in its class

- The X axis travel distance has been extended to assist with the machining of large workpieces and the table size and allowable load have been increased.



High productivity machine for highly stable machining performance

- Spindle cooling system and ball screw cooling system are applied as standard so that there is no significant change in the machining results due to the surrounding environment.



Easy operation of CNC system

- Easy operation for user's convenient machine operation.
- The EOP functions improve userfriendliness for operators.

Basic structure

The rigid column design is adopted for highly stable machining performance. It is possible to machine large workpieces by extending the X axis stroke.

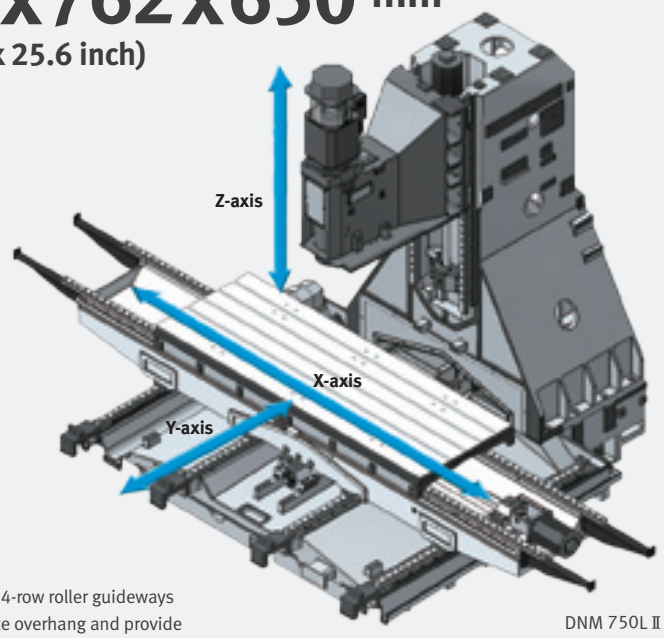
Traver distance (X x Y x Z axis)

DNM 750 Ⅱ

1630 x 762 x 650 mm
(64.2 x 30.0 x 25.6 inch)

DNM 750L Ⅱ

2160 x 762 x 650 mm
(85.0 x 30.0 x 25.6 inch)



DNM 750L Ⅱ

The DNM 750L Ⅱ uses 4-row roller guideways in the Y axis to eliminate overhang and provide optimum stability.

(DNM 750 Ⅱ has 2-row roller guideways)

Axis system

Roller LM guideways are adopted as standard on all axes to improve rigidity.

Rapid traverse rate (X / Y / Z axis)

DNM 750 Ⅱ

30 / 30 / 24 m/min
(1181.1 / 1181.1 / 944.9 ipm)

DNM 750L Ⅱ

24 / 24 / 24 m/min
(944.9 / 944.9 / 944.9 ipm)

Roller LM guideway life is longer about twice than Ball LM guideway.

Table

The machine offers a wide range cutting capacity and can handle a variety of large workpieces.

Table Size (A x B)

DNM 750 Ⅱ

1630 x 760 mm
(64.2 x 29.9 inch)

DNM 750L Ⅱ

2160 x 760 mm
(85.0 x 29.9 inch)

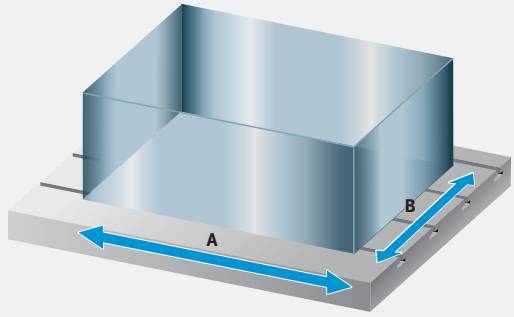
Max. weight on Table

DNM 750 Ⅱ

1500 kg
(3306.9 lb)

DNM 750L Ⅱ

1800 kg
(3968.3 lb)



Spindle

Direct-coupled type spindles have been adopted as a standard feature to further reduce vibration and noise while enhancing productivity, work environment and machining accuracy. Dual contact tool system support as standard for high rigidity.

Max. spindle speed

8000 * / 12000 r/min ** option

Max. spindle motor power

18.5 kW
(24.8 Hp)

28 kW option
(37.5 Hp)

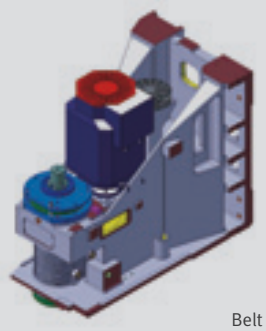
15.6 kW option
(20.9 Hp)

Max. spindle motor torque

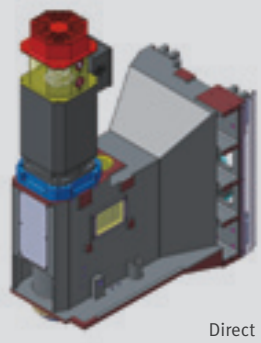
118 N·m
(87.1 ft-lbs)

159.1 N·m option
(117.4 ft-lbs)

165.5 N·m option
(122.1 ft-lbs)



Belt



Direct

* Belt type ** Direct type

Tool change system

Higher productivity can be achieved with the CAM-type tool changer that supports faster tool changing.

Tool to Tool **1.3sec**

Chip to Chip* **3.7sec**

Tool storage capacity **30 ea**

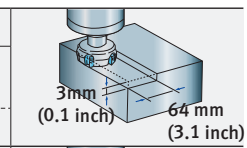
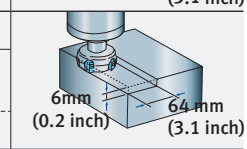
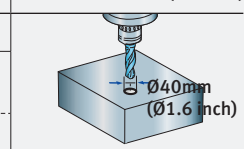
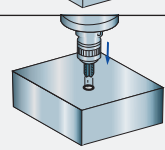
40 ea option

* The Chip-to-Chip time has been tested in accordance with Doosan's strict testing conditions, but may vary depending on the user's operating conditions.

Cutting Performance

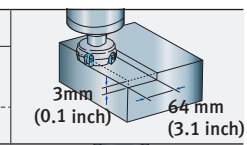
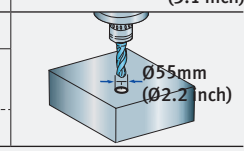
To provide best cutting performance. Tool change time has been optimized to reduce non cutting time.

Result of cutting test on DNM 750 Ⅱ (12000r/min, Direct, 15.6/15.6kW (20.9/20.9 Hp))

Face mill (ø80 mm (ø3.1 inch) Carbon steel (SM45C)			
Chip removal rate (cm³/min(inch³/min))	Spindle speed (r/min)	Feedrate (mm/min (ipm))	
806 (49.2)	1500	4200 (165.4)	
Face mill (ø80 mm (ø3.1 inch) Aluminium alloy (AL6061)			
Chip removal rate (cm³/min(inch³/min))	Spindle speed (r/min)	Feedrate (mm/min (ipm))	
1728 (105.4)	1500	4500 (177.2)	
U-Drill (ø40 mm (ø1.6 inch)) Carbon steel (SM45C)			
Chip removal rate (cm³/min(inch³/min))	Spindle speed (r/min)	Feedrate (mm/min (ipm))	
251 (15.3)	1200	200 (7.9)	
Tap Carbon steel (SM45C)			
Tap size (mm)	Spindle speed (r/min)	Feedrate (mm/min (ipm))	
M30 x P3.5	200	700 (27.6)	

* 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.

Result of cutting test on DNM 750 Ⅱ (12000r/min, Direct, 28/11kW (37.5/14.8 Hp))

Face mill (ø80 mm (ø3.1 inch) Carbon steel (SM45C)			
Chip removal rate (cm³/min(inch³/min))	Spindle speed (r/min)	Feedrate (mm/min (ipm))	
864 (52.7)	1500	4500 (177.2)	
U-Drill (ø55 mm (ø2.2 inch)) Carbon steel (SM45C)			
Chip removal rate (cm³/min(inch³/min))	Spindle speed (r/min)	Feedrate (mm/min (ipm))	
356 (21.7)	700	150 (5.9)	

* 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 to satisfy customers' specific machining applications.

● Standard ○ Optional X N/A

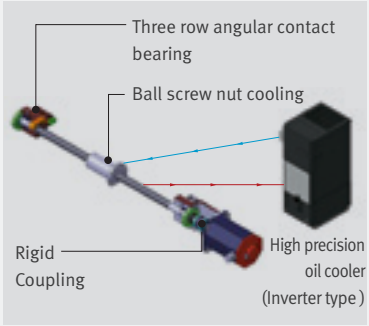
No.	Description	Features				DNM 750 Ⅱ DNM 750L Ⅱ
1	Spindle	FANUC	8000 r/min	Belt	18.5/15 kW (24.8/20.1 Hp) (S3 60%/Cont.)	●
2			12000 r/min	Direct	28/11 kW (37.5/14.8 Hp) (S3 15%/Cont.)	○
3					15.6/15.6 kW (20.9/20.9 Hp) (S3 40%/Cont.)	○
4		HEIDENHAIN	8000 r/min	Belt	20/15 kW (26.8/20.1 Hp) (S6 60%/Cont.)	○
5			12000 r/min	Direct	20/15 kW (26.8/20.1 Hp) (S6 60%/Cont.)	○
6		SIEMENS	8000 r/min	Belt	21.8/16.3 kW (29.2/21.9 Hp) (S6 40%/Cont.)	○
7			12000 r/min	Direct	16.5/11 kW (22.1/14.8 Hp) (S6 40%/Cont.)	○
8	Spindle cooling system	FANUC	8000 r/min	Belt	18.5/15 kW (24.8/20.1 Hp)	●
9			12000 r/min	Direct	28/11 kW (37.5/14.8 Hp)	●
10					15.6/15.6 kW (20.9/20.9 Hp)	●
11		HEIDENHAIN	8000 r/min	Belt	20/15 kW (26.8/20.1 Hp)	●
12			12000 r/min	Direct	20/15 kW (26.8/20. Hp)	●
13		SIEMENS	8000 r/min	Belt	21.8/16.3 kW (29.2/21.9 Hp)	●
14			12000 r/min	Direct	16.5/11 kW (22.1/14.8 Hp)	●
15	Magazine	Tool storage capacity		30 ea		●
16				40 ea		○
18	Tool shank type	BIG PLUS BT40				●
19		BIG PLUS CAT40				○
20		BIG PLUS DIN40				○
21	Coolant	FLOOD		0.15 Mpa, 0.4 kW (0.5 Hp)		●
22				0.7 MPa, 1.8 kW (2.4 Hp)		○
23		TSC		None		●
24				2 MPa, 1.5kW (2.0 Hp)		○
25				2 MPa, 4.0 kW (5.4 Hp)		○
26				7 Mpa, 5.5 kW (7.4 Hp)		○
27		SHOWER		0.1 MPa, 1.1 kW (1.5 Hp)		○
28		Oil skimmer		Belt type		○
29		MQL				○
30	Chip disposal	Chip pan				●
31		Chip conveyor		Hinged type (Left / Right / Rear)		○
32				Magnetic scraper type (Left / Right / Rear)		○
33				Drum filter type (Rear)		○
34		Chip bucket				○
35	Precision machining option	Smart Thermal Compensation				●
36		Linear scale		X / Y / Z axis		○
37		AICC I (40 block)				○
38		AICC II (200 block)				○
39	Measurement & Automation	Automatic tool measurement		TS27R		○
40				OTS		○
41		Automatic tool breakage detection				○
42		Automatic workpiece measurement		OMP60		○
43		Automatic front door with safety device				○
44	Accessories	WORK LIGHT		LED LAMP		●
45		SMART THERMAL CONTROL		SENSORLESS TYPE(ONLY SPINDLE)		●
46		AIR BLOWER		-		○
47		AUTO TOOL LENGTH MEASUREMEMT	MAKER/SPEC.	RENISHAW / TS27R		○
48				RENISHAW / OTS		○
49		AUTO TOOL BREAKAGE DETECTION		FAR-EAST MACHINE TOOL/FEM-1CP (NEEDLE TYPE IN CUTTING AREA)		○
50		AUTO WORKPIECE MEASUREMENT		RENISHAW / OMP60		○
51		4TH AXIS PREPARATION CABLING FOR SERVO/1-PNEUMATIC PIPING		FACTORY READY MADE		○
52		AIR GUN		-		○
53		Coolant gun				○
54		Mist collector				○
55	Customized Special Option	ANCHORING(1)		SIDE CLAMP & CHEMICAL ANCHOR BOLT		○
56		COOLANT CHILLER(2)		-		○
57		TSA(3)		0.54		○
58		RAISING BLOCK		150mm		○
59				200mm		○
60				300mm		○
61		CHIP CONVEYOR		HINGED PLATE TYPE LEFT SIDE		○
62				MAGNETIC SCRAPER TYPE RIGHT SIDE		○
63				MAGNETIC SCRAPER TYPE LEFT SIDE		○
64				DRUM CHIP CONVEYOR WITH HINGED PLATE		○
65				DRUM CHIP CONVEYOR WITH SCRAPER		○
66				OUTLET DIRECTION - REAR SIDE TYPE		○
67		20 BAR TSC with INVERTER		50Hz → 60Hz		○
68		MAGAZINE TOOL STORAGE CAPACITY		60T(CHAIN ATC)		○
69		SERVO MAGAZINE		30T		○
70				40T		○
71		AEROSPACE PACKAGE		30K SPINDLE(HSK-63A)		○
72				IMPROVED CHIP EVACUATION		○
73		SPINDLE HEAD TYPE		11/18.5(S3 15%), 15,000 rpm, DIRECT TYPE		○
74		AUTO TOOL LENGTH MEASUREMEMT		LTS		○
75		AUTO TOOL BREAKAGE DETECTION		MSC/BK9(NEEDLE TYPE ON MAGAZINE)		○
76		AUTO DOOR WITH SAFETY EDGE		-		○

* Please contact Doosan to select detail specifications.
(1) Please refer to foundation drawing in relation to anchoring. If more detail information want, consult with doosan service
(2) In case of using neat cutting oil, this device is highly recommended in order to reduce the change of accuracy by rising the coolant temperatures.
(3) In case of TSC is not required and only TSA is needed, this option can be selected.

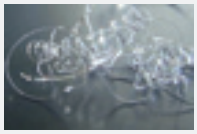
Peripheral equipments

Spindle and Ball screw nut cooling system

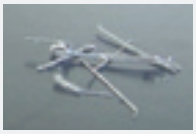
Cooling system to minimize thermal displacement Thermal displacement of the spindle and axes is achieved by circulating cooling oil via an oil cooler to the spindle head and ball screw nuts.



Chip conveyor option 34~36


Long


Short


Needle

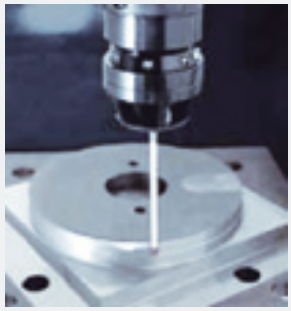

Sludge

Chip conveyor type \ Material		Carbon steel			Cast iron		Aluminium		
		Long	Short	Needle	Short	Sludge	Long	Short	Needle
Hinged belt type		○	△	X	△	X	○	△	X
Scrapper type	Normal	X	○	△	○	△	X	△	X
	Magnetic	X	○	○	○	○	–	–	–
Drum filter type	Hinged type	○	△	X	△	X	○	△	X
	Scrapper	X	○	△	○	△	X	○	△

○ : Suitable, △ : Possible, X : Not suitable

Measurement & Automation option 46~49


Automatic tool measurement

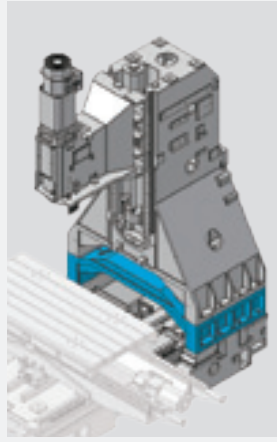

Automatic workpiece measurement

Raised block option 21~23

When the distance between the table top and the spindle nose needs to be extended, for example, accommodate a fixture or rotary axis on the table, raised block can be used to extend the distance.

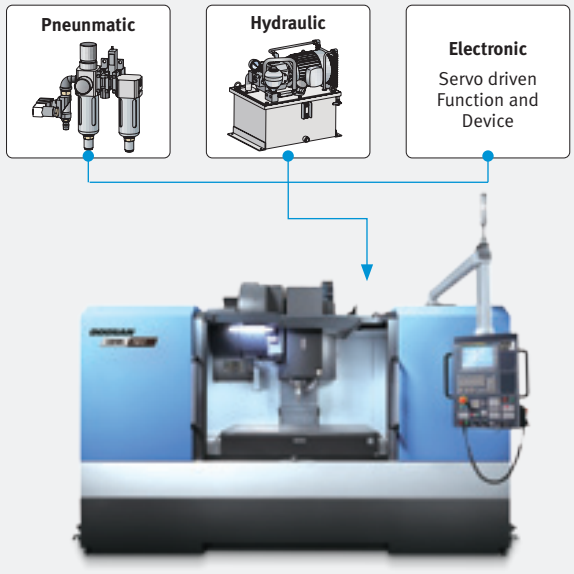
Height

150 mm (5.9 inch)
200 mm (7.9 inch)
300 mm (11.8 inch)



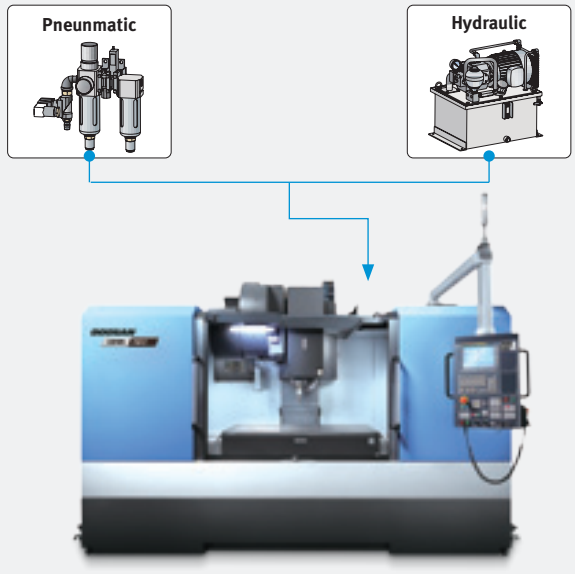
4th axis auxiliary device interface option 53

Users who wish to set up a rotary axis on the table to increase application flexibility are encouraged to contact Doosan in advance.



Hydraulic / Pneumatic fixture line option

The user should prepare pipelines for hydraulic/pneumatic fixtures whose detailed specifications should be determined by discussion with Doosan.



DOOSAN Fanuc i Plus

DOOSAN Fanuc i Plus is optimized for maximizing customer productivity and convenience.

15 inch screen + New OP

DOOSAN Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout, and features the Qwerty keyboard for fast and easy operation.

DOOSAN Fanuc i Plus

- 15 inch color display
  Intuitive and user-friendly design

USB & PCMCIA card QWERTY keyboard

- EZ-guide i standard
- Ergonimic operator panel
- 2MB Memory
- Hot key

iHMI Touch screen option

- iHMI provides an intuitive interface that utilizes a touch screen for quick and easy operation

Variety of applications

- Providing various applications related to PLANNING, MACHINING, IMPROVEMENT, and UTILITY for customer convenience.

Easy Operation Package

The software developed by Doosan's own technology provides numerous functions designed for convenient operation.

Adaptive Feed Control (AFC)

Function to control feedrate so that the cutting can be carried out at a constant load (To adapt to the spindle load set up with constant load feedrate control function)

Tool Management

Function to manage tool information [Tool information]
- Tool No. / Tool name
- Tool condition : normal, large diameter, worn/damaged, used for the first time, anual

Tool Load Monitor

Function to automatically monitor tool load (Different loads can be set for one tool according to M700 ~ M704)

Pattern Cycle & Engraving

Function to create frequently-used cutting programs automatically

Work Offset Setting

Function to configure various work offset settings

Alarm Guidance

Function to show detailed info on frequently triggered alarms and recommended actions

Sensor Status Monitor

Function to view sensor conditions of the machine

ATC Recovery

Function to view detailed info with recommended actions and to perform step-by-step operation manually (when an alarm is triggered during an ATC operation)

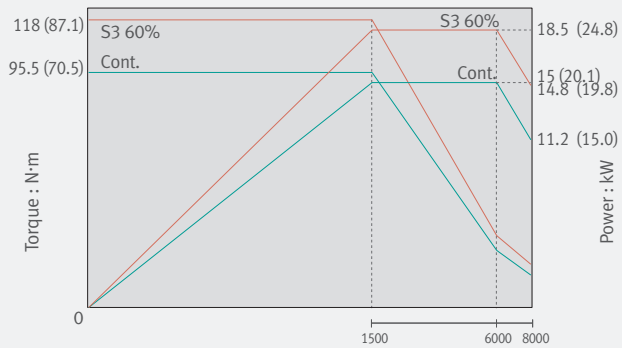
Spindle Power - Torque Diagram

FANUC

8000 r/min

Max. spindle power **18.5 kW** (24.8 Hp)

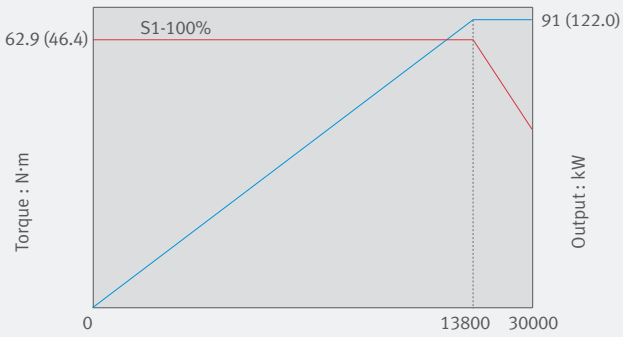
Max. spindle torque **118 N·m** (87.1 ft-lbs)



30000 r/min option

Spindle motor power **91 kW** (122.0 Hp)

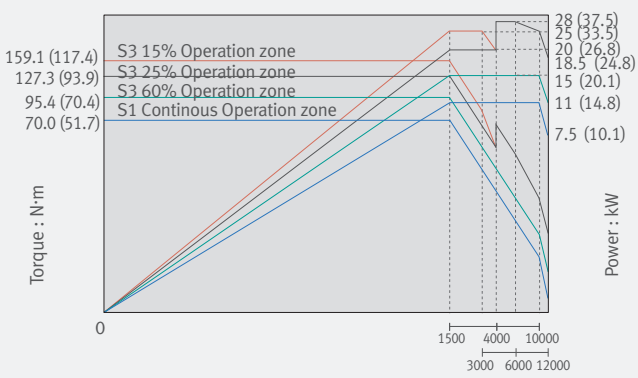
Max. spindle torque **62.9 N·m** (46.4 ft-lbs)



12000 r/min

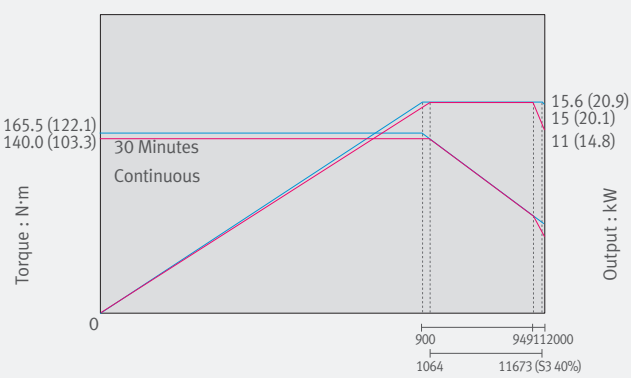
Max. spindle power **28 kW** (37.5 Hp)

Max. spindle torque **159.1 N·m** (117.4 ft-lbs)



Max. spindle power **15.6 kW** (20.9 Hp)

Max. spindle torque **165.5 N·m** (122.1 ft-lbs)

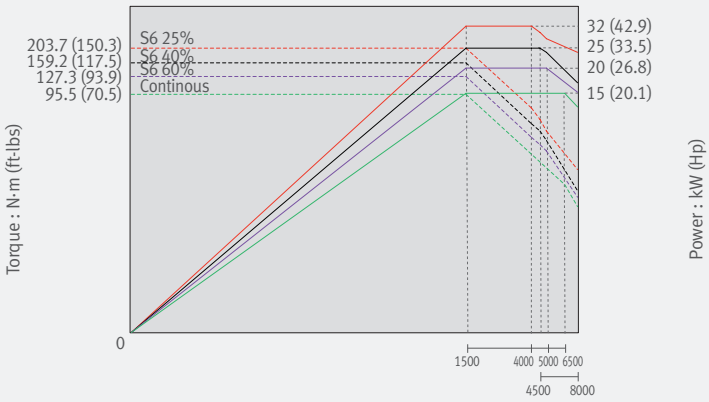


HEIDENHAIN

8000 r/min

Max. spindle power **32 kW**
(42.9 Hp)

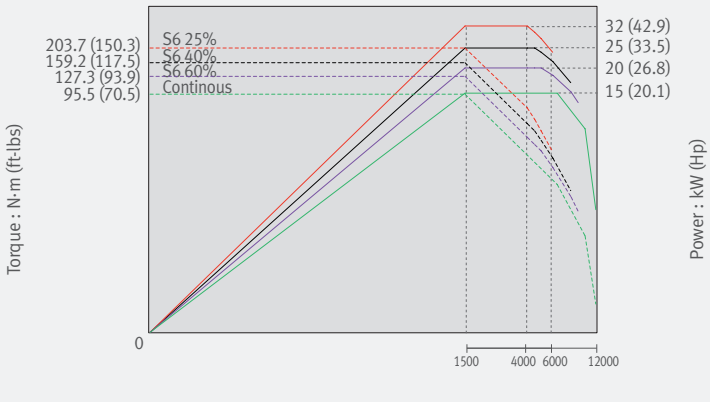
Max. spindle torque **203.7 N·m**
(150.3 ft-lbs)



12000 r/min

Max. spindle power **32 kW**
(42.9 Hp)

Max. spindle torque **203.7 N·m**
(150.3 ft-lbs)

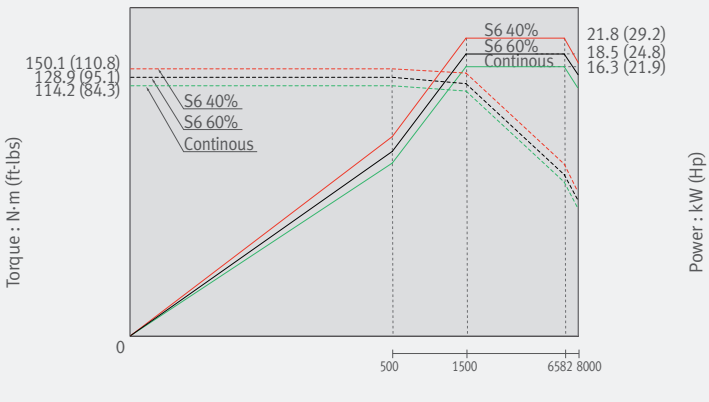


SIEMENS

8000 r/min

Max. spindle power **21.8 kW**
(29.2 Hp)

Max. spindle torque **150.1 N·m**
(110.8 ft-lbs)



12000 r/min

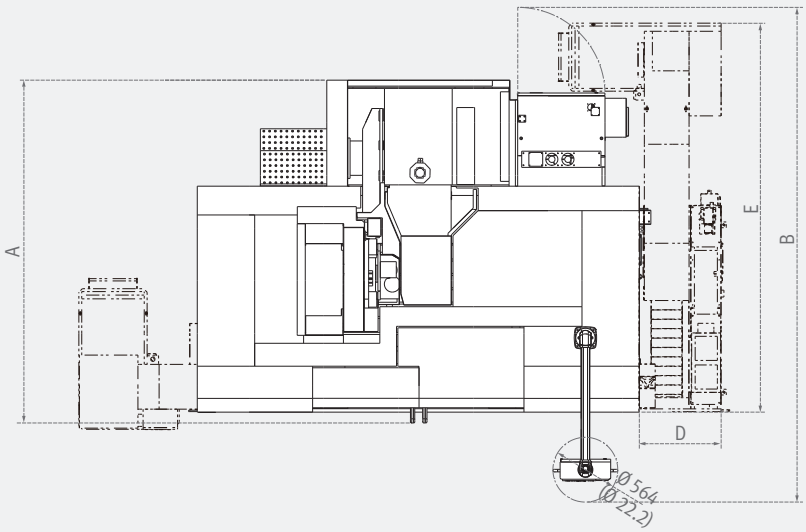
Max. spindle power **16.5 kW**
(22.1 Hp)

Max. spindle torque **141.3 N·m**
(104.3 ft-lbs)

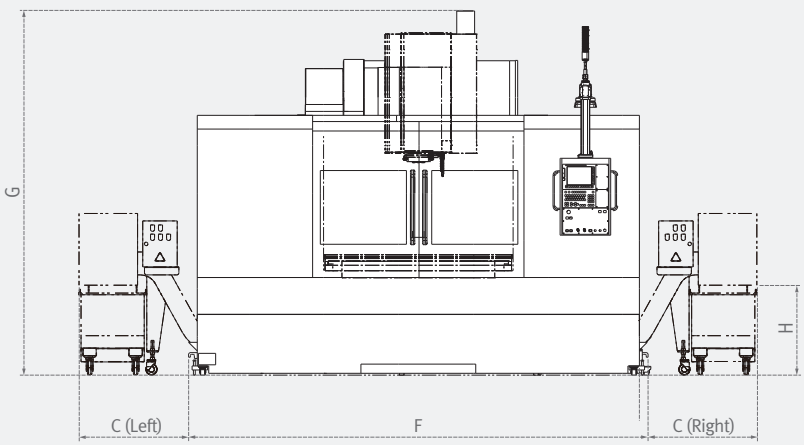
External Dimensions / Table

External Dimensions

Top View



Pront View



Unit: mm (inch)

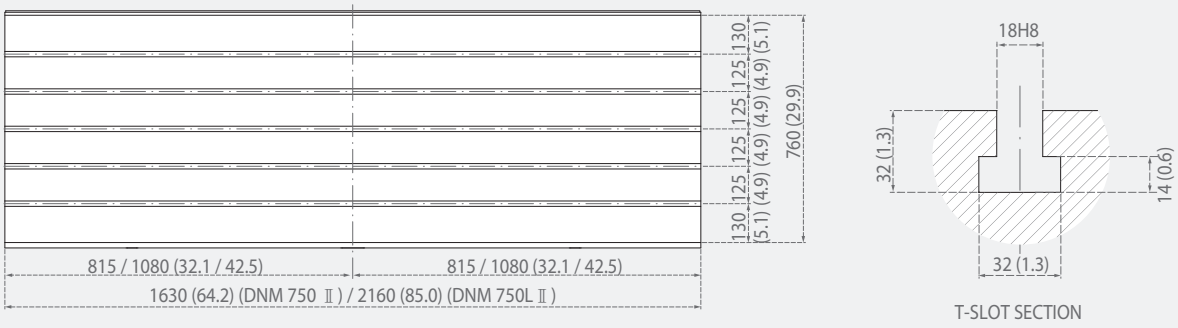
Model	A (Length)	B (Max. machine length)	C (Additional width to accommodate the side chip conveyor)	D (Additional width to accommodate the rear chip conveyor)	E (Length to accommodate the rear chip conveyor)	F (Width)	G* (Height)	H (Height from the floor to the chip outlet)
DNM 750 Ⅱ	2986 (117.6)	4309 (169.6)	Left & Right : 953 (37.5)	790 (31.1)	3390 (133.5)	4000 (157.5)	3170 / 3251 (124.8 / 128.0)	805 (31.7)
DNM 750L Ⅱ	2986 (117.6)	4309 (169.6)	Left & Right : 953 (37.5)	790 (31.1)	3390 (133.5)	5050 (198.8)	3170 / 3251 (124.8 / 128.0)	805 (31.7)

* Some peripheral equipment can be placed in other places

* 8k spindle / 12k spindle

Table

Unit: mm (inch)



Machine Specifications

DNM 750 Ⅱ
DNM 750L Ⅱ

Description				Unit	DNM 750 Ⅱ	DNM 750L Ⅱ
Travels	Travel distance	X axis		mm (inch)	1630 (64.2)	2160 (85.0)
		Y axis		mm (inch)	762 (30.0)	
		Z axis		mm (inch)	650 (25.6)	
	Distance from spindle nose to table top			mm (inch)	150 ~ 800 (5.9 ~ 31.5)	
Table	Table size			mm (inch)	1630 x 760 (64.2 x 29.9)	2160 x 760 (85.0 x 29.9)
	Table loading capacity			kg (lb)	1500 (3306.9)	1800 (3968.3)
	Table surface type			mm (inch)	T-SLOT [5-125 (4.9) x 18 (0.7)H8]	
Spindle	Max. spindle speed	FANUC	Direct	r/min	8000	
				r/min	{12000}*	
				r/min	{12000}*	
			Built in	r/min	{30000}*	
		HEIDENHAIN	Belt	r/min	8000	
			Direct	r/min	{12000}*	
		SIEMENS	Belt	r/min	8000	
			Direct	r/min	{12000}*	
	Taper			-	ISO #40	
	Spindle power	FANUC	Direct	kW (Hp)	18.5/15 (24.8/20.1)	
				kW (Hp)	{28/11 (37.5/14.8)}*	
				kW (Hp)	{15.6/15.6 (20.9/20.9)}*	
		HEIDENHAIN	Belt	kW (Hp)	32/15 (42.9/20.1)	
			Direct	kW (Hp)	{32/15 (42.9/20.1)}*	
		SIEMENS	Belt	kW (Hp)	21.8/16.3 (29.2/21.9)	
			Direct	kW (Hp)	{16.5/11 (22.1/14.8)}*	
	Max. spindle torque	FANUC	Direct	N·m (ft-lbs)	118 (87.1)	
				N·m (ft-lbs)	{159.1 (117.4)}*	
				N·m (ft-lbs)	{165.5 (122.1)}*	
		HEIDENHAIN	Belt	N·m (ft-lbs)	203.7 (150.3)	
			Direct	N·m (ft-lbs)	{203.7 (150.3)}*	
		SIEMENS	Belt	N·m (ft-lbs)	150.1 (110.8)	
			Direct	N·m (ft-lbs)	{141.3 (104.3)}*	
Feedrates	Rapid traverse rate	X axis		m/min (ipm)	30 (1181.1)	24 (944.9)
		Y axis		m/min (ipm)	30 (1181.1)	24 (944.9)
		Z axis		m/min (ipm)	24 (944.9)	24 (944.9)
Automatic Tool Changer	Type of tool shank	Tool shank		-	BT 40 {CAT40/DIN40}*	
		Pull stud		-	PS806	
	Tool storage capa.			ea	30 {40}*	
	Max. tool diameter	Continous		mm (inch)	80 (3.1) {76 (3.0)}*	
		Without Adjacent Tools		mm (inch)	125 (4.9)	
	Max. tool length			mm (inch)	300 (11.8)	
	Max. tool weight			kg (lb)	8 (17.6)	
	Max. tool moment			N·m (ft-lbs)	5.88 (4.3)	
	Tool seletion			-	MEMORY RANDOM	
	Tool change time	Tool-to-tool		sec	1.3 | 1.6	
		Chip-to-chip		sec	3.7 | 4.0	
Power source	Electric power supply (Rated capacity)			kVA	42.6 / 37.5 / 43.3	
	Compressed air supply			Mpa	0.54	
Tank capacity	Coolant tank capacity			L (gal)	520 (137.4)	590 (155.9)
Machine Dimensions	Height			mm (inch)	3170 (124.8)	
	Length			mm (inch)	3480 (137.0)	
	Width			mm (inch)	3850 (151.6)	4900 (192.9)
	Weight			kg (lb)	13500 (531.5)	15000 (590.6)
Control	CNC system			-	DOOSAN Fanuc i Plus {Fanuc 32i}* / SIEMENS S828D / HEIDENHAIN TNC620	

*{ } : Option

CNC Specifications

FANUC

● Standard ○ Optional X Not applicable

No.	Division	Item	Spec.	DOOSAN Fanuc i Plus	Fanuc 32i
1	Axes control	Controlled axes	3 (X, Y, Z)	X, Y, Z	X, Y, Z
2		Least command increment	0.001 mm / 0.0001"	●	●
3		Least input increment	0.001 mm / 0.0001"	●	●
4		Stored pitch error compensation	Pitch error offset compensation for each axis	X	●
5		Interpolation type pitch error compensation		●	○
6	Interpolation & Feed function	2nd reference point return	G30	●	●
7		3rd / 4th reference return		●	○
8		Inverse time feed		●	○
9		Cylinderical interpolation	G07.1	●	○
10		Automatic corner override	G62	●	○
11		Manual handle feed	Max. 3unit	1 unit	1 unit
12		Manual handle feed rate	x1, x10, x100 (per pulse)	●	●
13		Manual handle retrace		○	○
14		Handle interruption		○	●
15		AICC II	200 BLOCK	●	○
16		Fine Surface Machining	Look-ahead block no. is Max. 200 - AI contour control II+ - Smooth tolerance control+ - Jerk control - Machining quality level adjustment function	●	X
17	Spindle & M-code function	M- code function		●	●
18		Retraction for rigid tapping		●	●
19		Rigid tapping	G84, G74	●	●
20	Tool function	Number of tool offsets	400 ea	400ea	○
21		Tool nose radius compensation	G40, G41, G42	●	●
22		Tool length compensation	G43, G44, G49	●	●
23		Tool life management		●	●
24		Addition of tool pairs for tool life management		●	○
25		Tool offset	G45 - G48	●	○
26	Programming & Editing function	Custom macro		●	●
27		Macro executor		●	●
28		Macro executor + C language executor		●	X
29		Fanuc picture executor		●	X
30		Extended part program editing		●	●
31		Part program storage	512KB(1280m)	X	○
32		Part program storage	2MB(5120m)	5120m	○
33		Inch/metric conversion	G20 / G21	●	●
31		Optional block skip	9 BLOCK	●	○
32		Optional stop	M01	●	●
33		Playback function		●	○
34		Number of Registered programs	1000 ea	1000ea	○
35		Tilted working plane indexing command	G68.2	○	○
36		Tilted working plane indexing function	Programming TWP command on guidance window	○	○
37	Other Functions (Operation, setting & Display, etc)	Embeded Ethernet		●	●
38		Graphic display	Tool path drawing	●	●
39		Loadmeter display		●	●
40		MDI / DISPLAY unit	15" color LCD	●	●
41			15" color LCD with Touch Panel	○	X
42		Cs contouring control		○	X
43		Memory card interface		●	●
44		USB memory interface	Only Data Read & Write	●	●
45		Operation history display		●	●
46		DNC operation with memory card		●	●
47		Optional angle chamfering / corner R		●	●
48		Run hour and part number display		●	●
49		High speed skip function		○	○
50		Polar coordinate command	G15 / G16	●	○
43		Programmable mirror image	G50.1 / G51.1	●	○
44		Scaling	G50, G51	●	○
45		Single direction positioning	G60	●	○
46		Pattern data input		●	○
47		Machine alarm diagnosis		●	X
48		CNC screen display		●	●
49		CNC screen dual display function		●	●
50		One touch macro call	G15 / G16	●	○
51		Machining quality level adjustment	G50.1 / G51.1	●	○
52		EZ Guide i (Conversational Programming Solution)	G50, G51	● [1]	○
53		iHMI with Machining Cycle	G60	○ [2]	X
54		MANUAL GUIDE i		X	○

1) Only with 15" LCD standard
2) Only with 15" Touch LCD standard

SIEMENS

● Standard ○ Optional X Not applicable

No.	Division	Item	Spec.	S828D
1	Controlled axis	Controlled axes	3 axes	X, Y, Z
2		Additional controlled axes	Max. 5 axes in total	○
3		Least command increment	0.001mm (0.0001 inch)	●
4		Least input increment	0.001mm (0.0001 inch)	●
5		Travel to fixed stop with Force Control		○
6	Interpolation & Feed Function	Reference point return	G75 FP=1	●
7		2nd reference point return	G75 FP=2	●
8		3rd / 4th reference return	G75 FP=3, 4	●
9		Inverse time feedrate	G93	●
10		Helical interpolation		●
11		Polynomial interpolation		N/A
12		Spline interpolation (A, B and C splines)		○
13		Separate path feed for corners and chamfers		●
14		Acceleration with Jerklimitation		●
15		Compressor for 3-axis machining		●
16		Temperature compensation		●
17		Look ahead number of block	150 BLOCK	●
18		Cartesian point-to-point (PTP) travel		●
19		TRANSMIT/cylinder surface transformation		○
20	Spindle Function	Tapping with compensating chuck/rigid tapping		●
21		Retraction for rigid tapping		●
22	Tool Function	Tool radius compensations in plane		●
23		Number of tools/cutting edges in tool list	256/512	●
24			600/1500	N/A
25		Tool length compensation		●
26		Operation with tool management		●
27		Tool list		●
28		Replacement tools for tool management		○
29		Monitoring of tool life and workpiece count		●
30		Manual measurement of tool offset		●
31		Magazine list		●
32	Programming & Editing Function	Number of levels for skip blocks 1		●
33		Number of levels for skip blocks 8		○
34		Program/workpiece management	On additional plug-in CF card	●
35			On integral Hard disk PCU50.3	N/A
36			On USB storage medium (e.g. disk drive, USB stick)	●
37			On network drive	○
38		Program editor	Programming support for cycles program (Program Guide)	●
39			CNC editor with editing functions: Marking, copying, deleting	●
40			Programming graphics/free contour input (contour calculator)	●
41			ShopMill Machining step programming	●
42		Technology cycles for drilling/milling		●
43		Pocket milling free contour and islands stock removal cycle		●
44		Residual material detection		●
45		Access protection for cycles		●
46		Programming support can be extended, e.g. customer cycles		●
47		2D simulation		●
48		3D simulation, finished part		●
49	OTHERS FUNCTIONS (Operation, setting & Display, etc)	Switchover: inch/metric		●
50		Manual measurement of zero/work offset		●
51		Automatic tool/workpiece measurement		●
52		Reference point approach, automatic/via CNC program		●
53		Execution from USB or CF card interface on operator panel front		●
54		Execution from network drive		○
55		10.4" color display		●
56		15.0" color display		N/A
57		Alarms and messages		●
58		Remote Control System (RCS) remote diagnostics	RCS Host remote diagnostics function	○
59			RCS Commander (viewer function)	●
60		Automatic measuring cycles		○

CNC Specifications

HEIDENHAIN

● Standard ○ Optional X Not applicable

No.	Division	Item	Spec.	TNC 620
1	Axes	Controlled axes	3 axes	X, Y, Z
2		Additional Controlled axes	Max. 18 axes in total	○ (Max. 6axes)
3		Least command increment	0.0001 mm (0.0001 inch), 0.0001°	●
4		Least input increment	0.0001 mm (0.0001 inch), 0.0001°	●
5		MDI / DISPLAY unit	15.1 inch TFT color flat panel	●
6		Program memory for NC programs	SSDR	8GB
7	Commissioning and diagnostics	Data interfaces	Ethernet interface	●
8			USB interface (USB 2.0)	●
9	Machine functions	Look-ahead (Intelligent path control by calculating the path speed ahead of time)	Max. 1024 blocks.	N/A
10			Max. 5000 blocks.	●
11		HSC filters		●
12		Switching the traverse ranges		N/A
13	User functions	Tool compensation	In the working plane and tool length	●
14			Radius-compensated contour lookahead for up to 99 blocks (M120)	○
15			Three-dimensional tool radius compensation	○
16		Tool table	Central storage of tool data	●
17			Multiple tool tables with any number of tools	●
18		MDI mode		N/A
19		Tilting the working plane with Cycle 19		○
20		Tilting the working plane with the PLANE function		○
21		Manual traverse in tool-axis direction	after interruption of program run	●
22		Function TCPM	Retaining the position of tool tip when positioning tilting axes	○
23		Rotary table machining	Programming of cylindrical contours as if in two axes	○
24			Feed rate in distance per minute	○
25		New 3-D simulation graphics in full detail		●
26		Program verification graphics	Plan view, view in three planes, 3-D view	●
27			3-D line graphics	●
28		Enhanced file management		●
29		Context-sensitive help for error messages		●
30		TNCguide	Browser-based, context-sensitive helpsystem	●
31		Calculator		●
32		"Save As" function		●
33	Fixed cycles	Pecking	Cycle 1	●
34		Tapping	Cycle 2	●
35		Slot milling	Cycle 3	●
36		Pocket milling	Cycle 4	●
37		Circular pocket	Cycle 5	●
38		Datum shift	Cycle 7	●
39		Mirror imaging	Cycle 8	●

● Standard ○ Optional X Not applicable

No.	Division	Item	Spec.	TNC 620
40	Fixed cycles	Dwell time	Cycle 9	●
41		Rotation	Cycle 10	●
42		Scaling factor	Cycle 11	●
43		Program call	Cycle 12	●
44		Oriented spindle stop	Cycle 13	●
45		Rigid tapping (controlled spindle)	Cycle 17	●
46		Working plane	Cycle 19	○
47		Cylinder surface	Cycle 27	○
48		Cylinder surface slot milling	Cycle 28	○
49		Cylinder surface ridge milling	Cycle 29	○
50		Tolerance (HSC mode, TA)	Cycle 32	○
51		Rigid tapping, new	Cycle 207	●
52		Tapping with chip breaking	Cycle 209	●
53		Polar pattern	Cycle 220	●
54		Cartesian pattern	Cycle 221	●
55		Engraving	Cycle 225	●
56		Multipass milling	Cycle 230	●
57		Face milling	Cycle 233 Eenhanced with side walls, milling direction and strategy	●
58		Centering	Cycle 240	●
59		Single-lip deep-hole drilling	Cycle 241	●
60		Datum setting	Cycle 247	●
61		Rectangular pocket, complete	Cycle 251	●
62		Circular pocket, complete	Cycle 252	●
63		Slot, complete	Cycle 253	●
64		Circular slot, complete	Cycle 254	●
65		Rectangular stud, complete	Cycle 256	●
66		Circular stud, complete	Cycle 257	●
67		Thread milling	Cycle 262	●
68		Thread milling/countersinking	Cycle 263	●
69		Thread drilling/milling	Cycle 264	●
70		Helical thread drilling/milling	Cycle 265	●
71		Outside thread milling	Cycle 267	●
72		Trochoidal milling	Cycle 275	●
73	Touch probe cycles	Calibrating the effective radius on a circular stud		●
74		Calibrating the effective radius on a sphere		●
75	Cycles for automatic workpiece inspection	Save kinematics		○
76		Measure kinematics		○
77		Preset compensation		○
78		TS calibration of length		○
79		TS calibration in a ring		○
80		TS calibration on stud		○
81	Options	Software option 1	Rotary table machining, Coordinate transformation, Interpolation	○
82		Software option 2	3-D machining, Interpolation	○

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.

Global Sales and Service Support Network

Corporations	Dealer Networks	Technical Centers	Service Post	Factories
		Technical Center: Sales Support, Service Support, Parts Support		
4	167	51	200	3

Doosan Machine Tools 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

DNM 750 Ⅱ, DNM 750L Ⅱ

Description	Unit	DNM 750 Ⅱ	DNM 750L Ⅱ
Max. spindle speed	r/min	8000 {12000 / 30000}*	
Max. spindle power	kW (Hp)	18.5 (24.8) {28 (37.5)}* {15.6 (20.9)}*	
Max. spindle torque	N·m (ft-lbs)	118 (87.1) (S3 60%) {159.1 (117.4) (S3 15%)}* {165.5 (122.1) (S3 40%)}*	
Taper	-	ISO #40	
Travel distance (X / Y / Z)	mm (inch)	1630 / 762 / 650 (64.2 / 30.0 / 25.6)	2160 / 762 / 650 (85.0 / 30.0 /25.6)
Tool storage capa.	ea	30 {40}*	
Table size	mm (inch)	1630 x 760 (64.2 x 30.0)	2160 x 760 (85.0 x 30.0)

*{ } Optional

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Fire Safety Precautions | There is a high risk or 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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