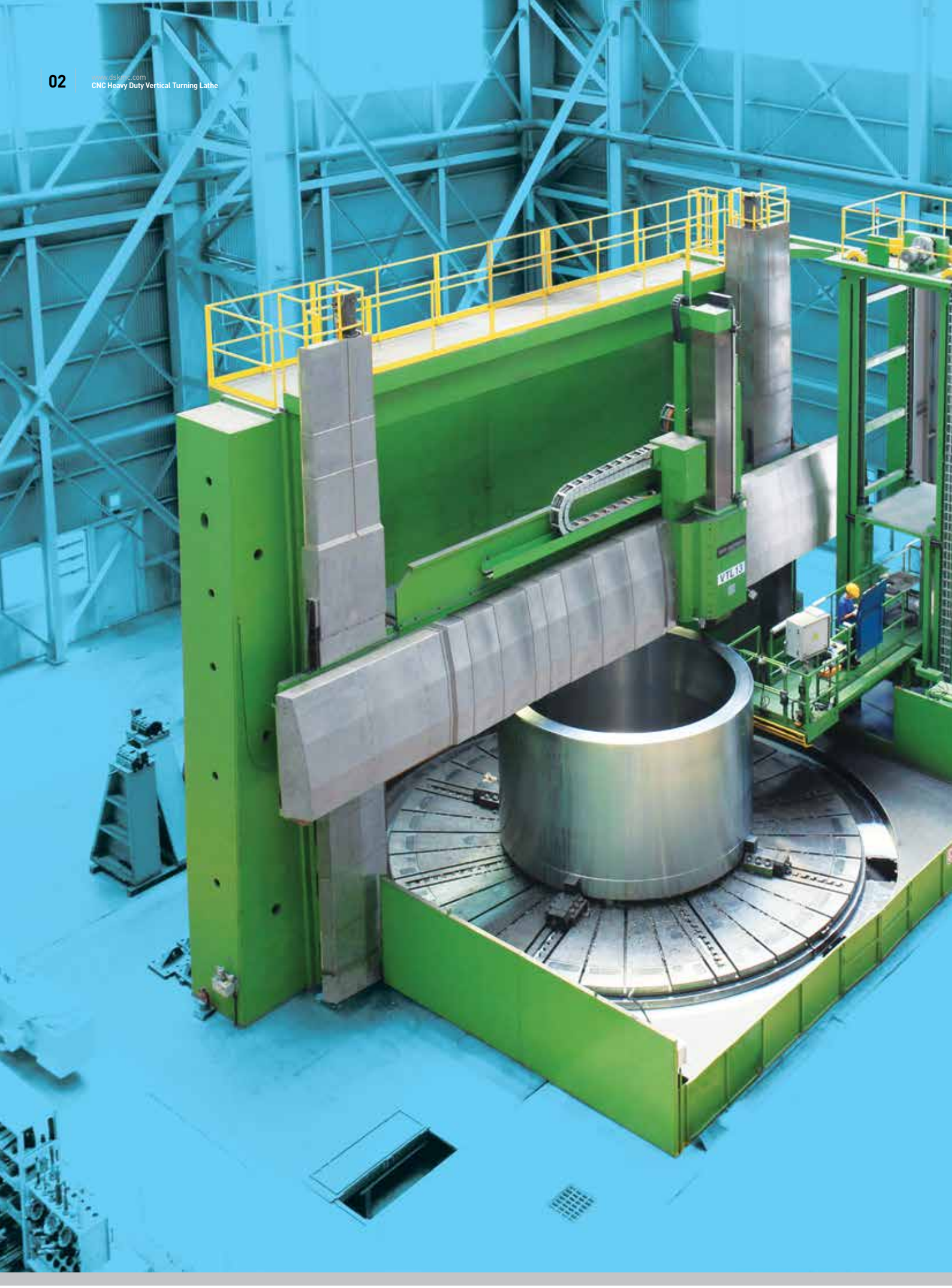
DSK MACHINERY

CNC Heavy Duty Vertical Turning Lathe

CNC Heavy Duty Vertical Turning Lathe has a perfect combination of the up-to-date design, advanced high technology and fully skilled DSK Machinery's engineering.
This machine consists of column, turning table, base, crossrail, crossbeam, turning and milling head, accessories and CNC control system.

www.dskmc.com




VTL-13



CNC Heavy Duty Vertical Turning Lathe

Applications

This machine has been designed for various kinds of workpieces in the industries like below.

디에스케이기계(주)가 생산하는 vertical turning lathe로 다양한 분야의 제품을 최고의 품질로 가공할 수 있습니다.

Power Generation Industry
발전분야

- Shell for steam generator
- HP / LP casing
- Francis runner
- Reactor vessel
- Steam generator
- Bearing housing for wind power
- Main hub for wind power



Shipbuilding Industry
조선분야

- Propeller



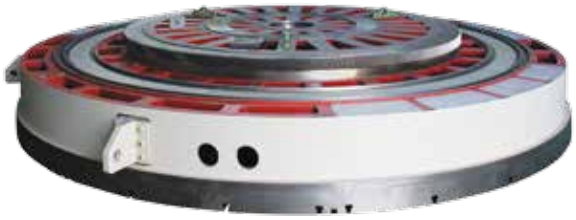
Cement Industry
시멘트분야

- Tire for cement mill
- Girth gear



CNC Heavy Duty Vertical Turning Lathe

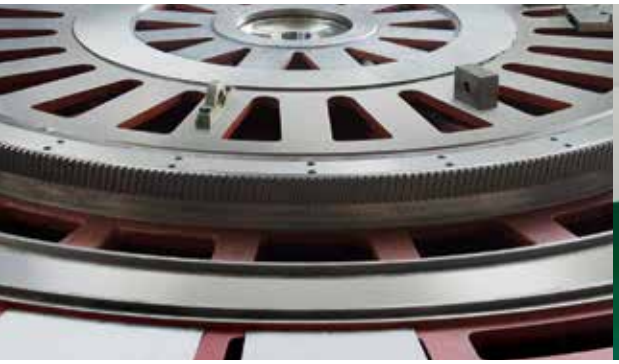
Features

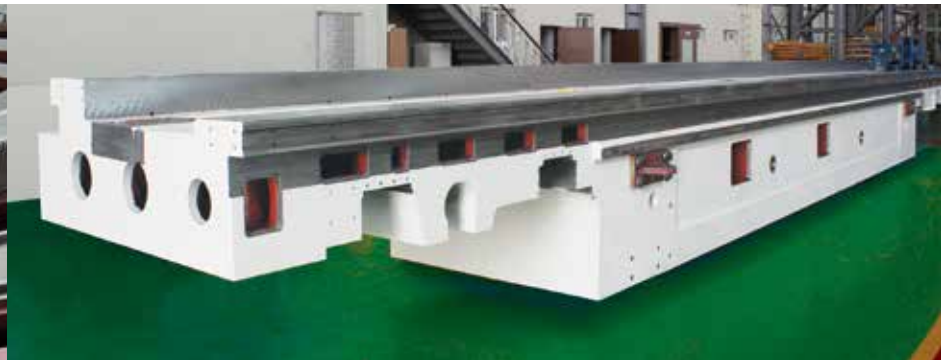


Cast Iron Structure

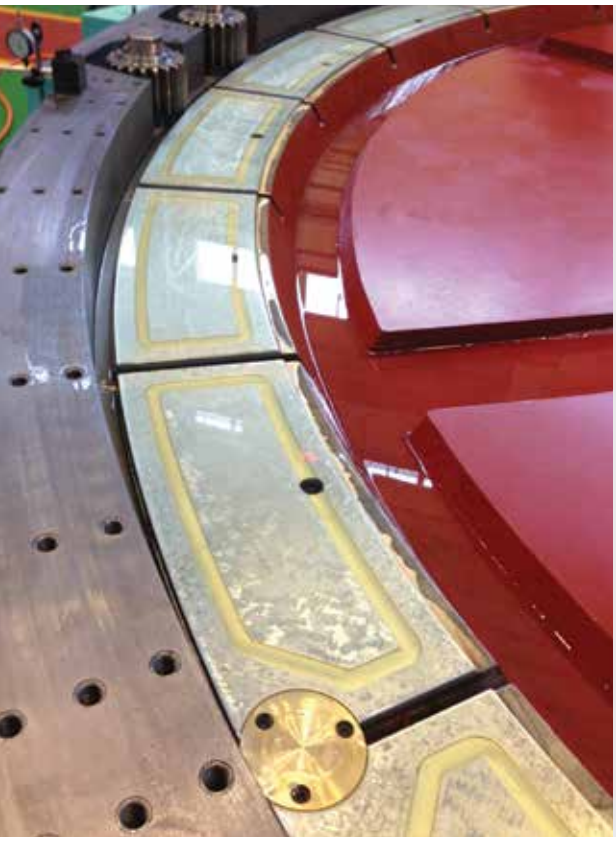
The main parts such as turning table, base, crossrail, crossbeam, column, and turning and milling head are made as cast iron to get rigid structure and high dimensional accuracy of the products. This stiff structure makes it possible to perform heavy duty machining.

주요 파트인 turning table, base, crossrail, crossbeam, column, turning and milling head는 주물로 제작되어 강성이 좋으며 제품의 고정밀도를 유지할 수 있고 강력 절삭에 알맞은 구조를 가지고 있습니다.



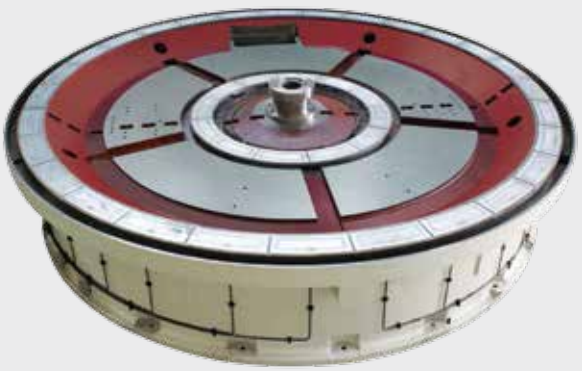


Hydrostatic Table Guide System



The material of hydrostatic pad is Alzen plate with good slipperiness, and hydrostatic pad has hydrostatic pockets. This hydrostatic system adopted "pump per pocket type" which has one (1) to one (1) connection between pocket and pump. Multi outlet pump supplies constant oil flow to the hydrostatic pockets, thus also makes constant oil gap. Through this system, table is not touching base directly, smooth driving is possible with only small frictional force. That means if the machine can keep the level (balance) normally, there is no wear on the slide ways.

Hydrostatic pad는 미끄러운 성질이 우수한 Alzen plate를 사용하고, 포켓과 펌프가 1:1로 연결되어 있는 "pump per pocket type" 방식을 채택하였습니다. Multi outlet pump는 일정한 유량을 포켓으로 전달하여 기름막을 형성시키고, 이런 시스템을 통해 table이 직접적으로 base와 접촉하는 것을 방지하여 마찰력이 거의 없는 상태로 부드럽게 구동되게 합니다. 일반적으로 table의 부상량이 모든 구간에 걸쳐 일정할 경우 습동면의 마모는 없습니다.





Automatic Synchronization System

For the vertical moving of the crossrail, feed drive equipped with two ball screws with high hardness and accuracy, two separate feed gear boxes and AC servo motors on each column. W1 &W2-axis enable to keep level continuously and to be done complete synchronization for these changing locations of crossrail through location adjusting function of NC control system.

Crossrail의 상하이송은 양쪽 column에 설치된 고정밀 고강성을 가진 ballscrew와 기어박스, AC servo motor를 통해 이동합니다. W1축과 W2축은 항시 수평을 유지하고, crossrail의 위치가 변함에 따라 NC control system의 위치보정 기능을 통해 완벽한 동기화를 구현합니다.

Crossrail moving and synchronization







Control System

Up-to-date control systems of Siemens and Fanuc are applicable.

Siemens와 Fanuc의 최신 컨트롤 시스템이 적용됩니다.


DSK MACHINERY

CNC Heavy Duty Vertical Turning Lathe

Features

Turning & Milling Head

Our turning & milling head has a special design for efficient heavy duty machining of the steel structures and parts, and guided by hydrostatic system inside of the ram housing. Ram is covered in housing to bear during heavy cutting and ram feeding executes by connected AC servo motor, spur gear and ballscrew. Double nut type ballscrew is applied in order to remove backlash and ram is designed for rapid traverse without load in spite of no counter balance cylinder.

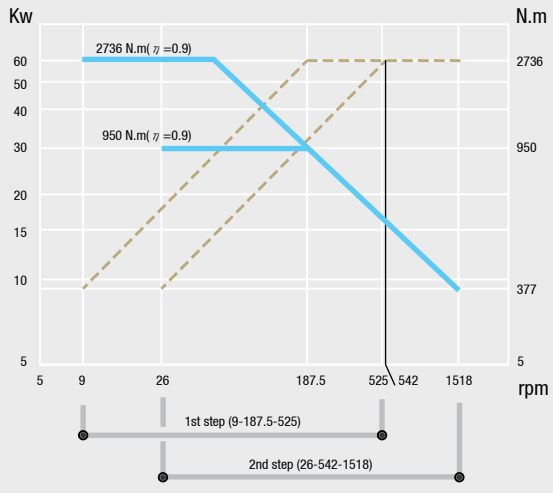
디에스케이기계(주)의 turning & milling head는 철제구조의 강력 절삭을 효과적으로 하기 위해 디자인 되었으며, ram housing 내부에는 hydrostatic system으로 구성되어 있습니다. 강력절삭 시 발생하는 부하를 견디기 위해 ram이 housing 안에 들어가 있으며 AC servo motor, spur gear 그리고 ballscrew로 구동됩니다.
Backlash를 제거하기 위해 double nut type ballscrew를 사용하며 counter balance cylinder 없이도 부하 없이 급속이동이 가능합니다.

Specification

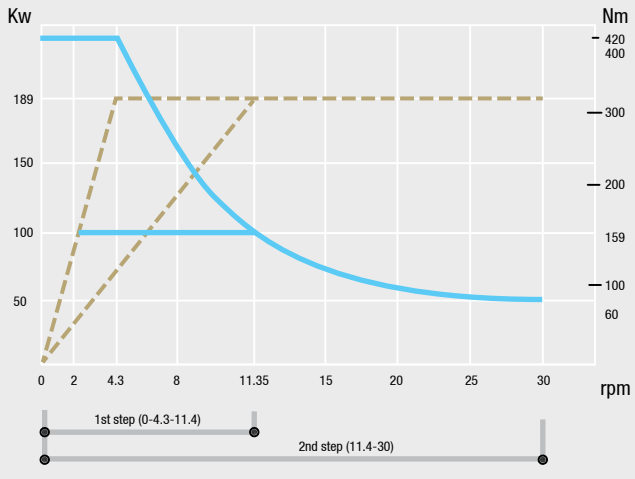
Specification	DVTL4050 (DVTM4050)	DVTL5060 (DVTM5060)	DVTL6070 (DVTM6070)	DVTL7085 (DVTM7085)	DVTL80100 (DVTM80100)	DVTL100120 (DVTM100120)
Ram section	350 x 350 / 400 x 400 mm (13 x 13 / 15 x 15 in.)	400 x 400 mm (15 x 15 in.)	450 x 520 mm (17 x 20 in.)			
Spindle motor power	22 ~ 45 kW (30 ~ 60 Hp)	37 ~ 60 kW (49 ~ 80 Hp)				
Ram stroke	1,000 ~ 2,000 mm (39 ~ 78 in.)	2,000 ~ 3,000 mm (78 ~ 118 in.)		2,000 ~ 4,000 mm (78 ~ 157 in.)		

Torque Diagram

+ DVTM7085 Milling Head



+ DVTM7085 Turning Table



CNC Heavy Duty Vertical Turning Lathe

Accessories

Attachment

Several types of the attachments for additional machining work in large size machine tools such as straight attachment, angle attachment, universal attachment and special attachment which is customized by the request of the customer can be supplied by DSK Machinery.

대형 공작기계에 장착하여 부가적인 가공작업을 하기 위한 attachment를 공급하고 있으며, 그 종류로는 straight attachment, angle attachment, universal attachment, 그리고 고객의 요구에 의해 customizing 된 special attachment도 공급하고 있습니다.



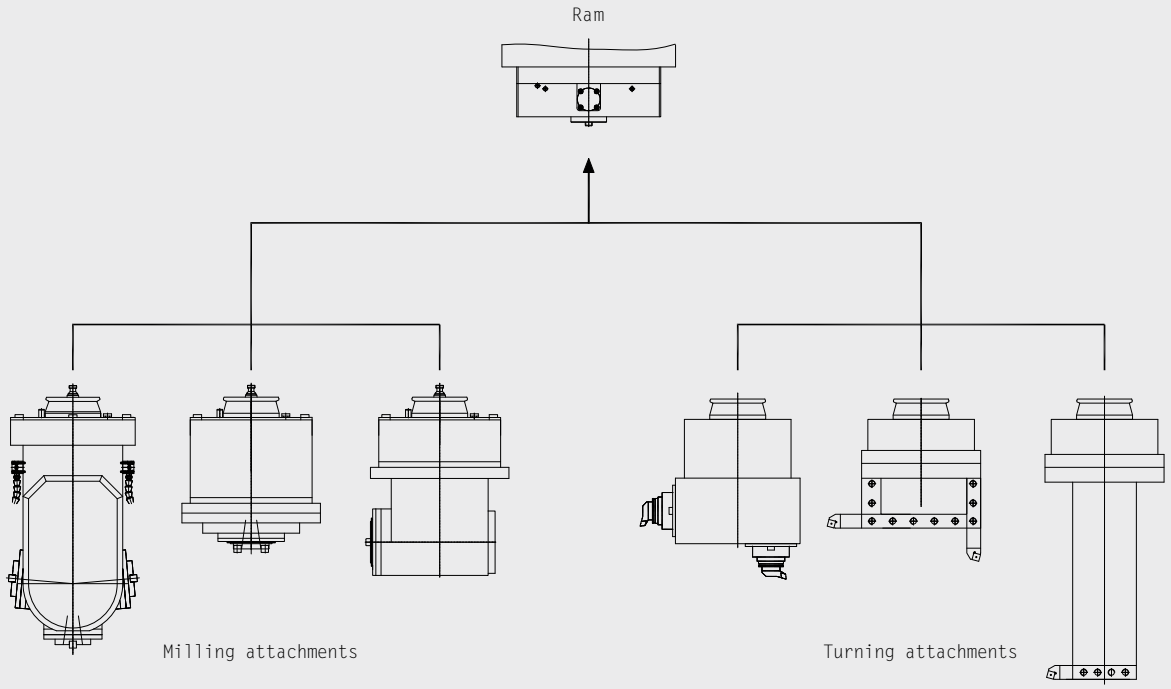


ATC (Automatic Tool Changer)

Automatic tool changer is installed at the right or left side of the machine for efficient operating and machining, and has ISO 50 taper. Tools can be mounted on and dismounted from tool gripper even during machining.

효율적인 장비 운용과 가공을 위해 장비의 측면에 자동공구교환장치가 설치될 수 있으며, ISO 50 taper를 사용할 수 있습니다. 가공 중에도 공구를 교환할 수 있어 가공 중에 발생하는 시간손실을 줄일 수 있습니다.





C-axis Table Indexing Function

C-axis table indexing function can be added to the turning table for milling machining of the workpiece. The graduation of indexing is 0.001°.

소재에 milling 작업이 필요할 경우, C축 기능을 turning table에 장착할 수 있으며 indexing 각도는 0.001° 입니다.

Specification

Specification		DVTL4050 (DVTM4050)	DVTL5060 (DVTM5060)
Capacity	Max. turning diameter (A)	5,000 mm (196 in.)	6,000 mm (236 in.)
	Table diameter (B)	4,000 mm (157 in.)	5,000 mm (196 in.)
	Max. turning height (C)	2,000 ~ 5,000 mm (78 ~ 196 in.)	3,000 ~ 6,000 mm (118 ~ 236 in.)
Stroke	X-axis (D)	2,700 mm (106 in.)	3,200 mm (125 in.)
	Z-axis (E)	1,000 ~ 2,000 mm (39 ~ 78 in.)	2,000 ~ 3,000 mm (78 ~ 118 in.)
	W-axis (F)	2,000 ~ 4,000 mm (78 ~ 157 in.)	2,000 ~ 5,000 mm (78 ~ 196 in.)
Feed rate	X-axis	10,000 ~ 15,000 mm/min (393 ~ 590 in./min)	
	Z-axis	10,000 mm/min (393 in./min)	
	W-axis	2,000 mm/min (78 in./min)	
Milling spindle	Spindle motor power	22 ~ 45 kW (30 ~ 60 Hp)	37 ~ 60 kW (49 ~ 80 Hp)
	Spindle speed	1,500 / 2,000 rpm	
	Ram section	350 x 350 / 400 x 400 mm (13 x 13 / 15 x 15 in.)	400 x 400 mm (15 x 15 in.)
Turning table	Motor power	75 ~ 100 kW (100 ~ 134 Hp)	100 ~ 150 kW (134 ~ 201 Hp)
	Max. turning speed	50 (100) rpm	30 (50) rpm
	Max. workpiece weight	50 ~ 80 tons (110,000 ~ 176,000 lbs)	100 ~ 150 tons (220,000 ~ 330,000 lbs)
Control system		Siemens / Fanuc	
Measuring system		Heidenhain	

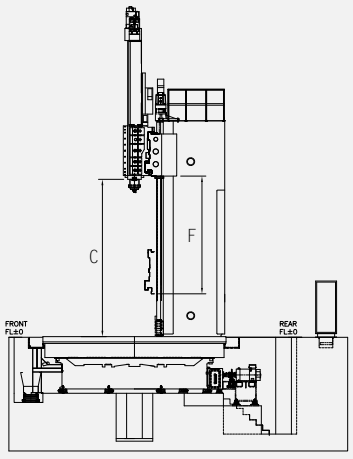
※ DVTL (Vertical turning lathe) / DVTM (Vertical turning and milling machine)

Basic Accessories

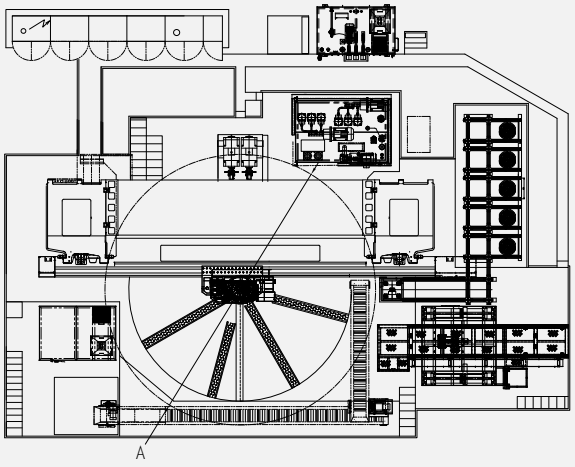
- 4 chucking jaw units
- X, W-axis telescopic cover
- Patrol lamp (red, green, yellow)
- Leveling block & anchor bolt
- Turning tool holder
- Boring bar

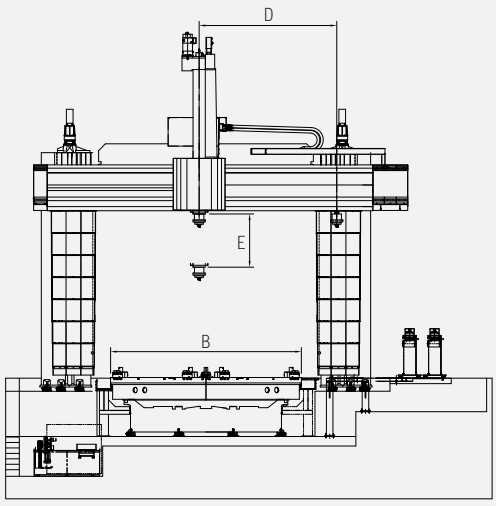
Optional Accessories

- Coolant supply unit (internal / external)
- Chip conveyor
- C-axis function
- Milling head
- Automatic tool changer
- Automatic attachment changer
- Attachment
- Adapter
- Extractable and independent operator platform
- Renishaw probe system
- Laser tool measurement system
- Machine tools monitoring system (black box)
- Industrial camera with recorder



DVTL6070 (DVTM6070)	DVTL7085 (DVTM7085)	DVTL80100 (DVTM80100)	DVTL100120 (DVTM100120)
7,000 mm (275 in.)	8,500 mm (334 in.)	10,000 mm (393 in.)	12,000 mm (472 in.)
6,000 mm (236 in.)	7,000 mm (275 in.)	8,000 mm (314 in.)	10,000 mm (394 in.)
3,000 ~ 6,000 mm (118 ~ 236 in.)	4,000 ~ 9,000 mm (157 ~ 354 in.)		
3,700 mm (145 in.)	4,450 mm (175 in.)	5,200 mm (204 in.)	6,200 mm (244 in.)
2,000 ~ 3,000 mm (78 ~ 118 in.)	2,000 ~ 4,000 mm (78 ~ 157 in.)		
2,000 ~ 5,000 mm (78 ~ 196 in.)	3,000 ~ 7,000 mm (118 ~ 275 in.)		3,000 ~ 8,000 mm (118 ~ 314 in.)
10,000 ~ 15,000 mm/min (393 ~ 590 in./min)			
10,000 mm/min (393 in./min)			
2,000 mm/min (78 in./min)			
37 ~ 60 kW (49 ~ 80 Hp)			
1,500 / 2,000 rpm			
450 x 520 mm (17 x 20 in.)			
100 ~ 150 kW (134 ~ 201 Hp)	150 ~ 200 kW (201 ~ 268 hp)		
30 (50) rpm	20 (30) rpm		20 rpm
100 ~ 200 tons (220,000 ~ 440,000 lbs)	150 ~ 400 tons (330,000 ~ 880,000 lbs)		200 ~ 600 tons (440,000 ~ 1,320,000 lbs)
Siemens / Fanuc			
Heidenhain			





DSK MACHINERY



DSK MACHINERY HEADQUARTER

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