DSK MACHINERY

CNC Heavy Duty Plano Miller

CNC Heavy Duty Plano Miller 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, bed, table, crossrail, crossbeam, milling head, accessories and CNC control system.

www.dskmc.com

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Applications

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

디에스케이기계(주)가 생산하는 plano miller로 다양한 분야의 제품을 최고의 품질로 가공할 수 있습니다.

Shipbuilding Industry
조선분야

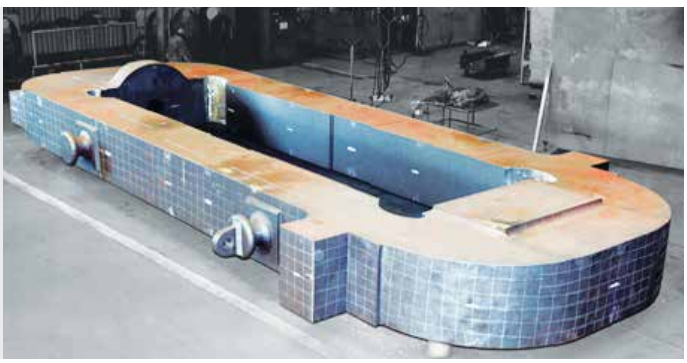
- Marine diesel engine block parts
- Bed plate
- Frame box
- Cylinder frame

Power Generation Industry
발전분야

- Stator frame
- HP / LP casing
- Inner / Outer casing
- Comp. casing

Steel Industry
제철분야

- Steel mill housing



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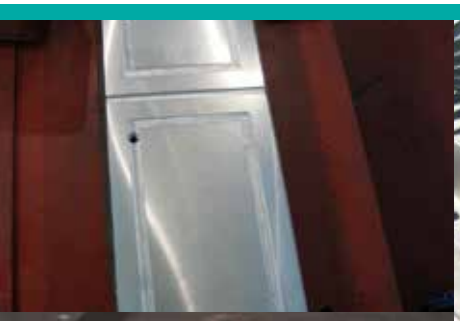
Features

Cast Iron Structure

The main parts such as table, bed, crossrail, crossbeam, column, 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 table, bed, crossrail, crossbeam, column, milling head는 주물로 제작되어 강성이 좋으며 제품의 고정밀도를 유지할 수 있고 강력 절삭에 알맞은 구조를 가지고 있습니다.



Hydrostatic Worm & Rack System

The hydrostatic worm & rack system is used for longitudinal adjustment of the table on the bed (X-axis). A stable film of oil is built up between the flanks of the worm and the rack, over which the feed power is, transmitted friction-free the bed slide to the bed. Pressure monitors and gauges are built into each circuit.
A lack of pressure due to a defect in the oil supply would lead to a fault message and the operation would be stopped.

In general, heavy duty cutting and high speed revolution without frictional resistance and backlash cannot be achieved easily, but hydrostatic worm & worm rack type is an ideal method which can solve all these problems.

Table의 움직임 (X축)을 제어하기 위해 hydrostatic worm & rack 시스템이 사용되고 있으며, bed에 설치된 worm rack을 타고 이동하며 worm과 rack 사이에는 얇은 유막층이 형성되어 마찰에 의한 마모가 거의 발생하지 않습니다. 압력을 확인할 수 있는 모니터와 게이지가 각 회로별로 설치되어 있으며 오일 공급에 문제가 있어 압력이 충분하지 않을 경우 fault message를 출력하고 작동이 정지됩니다.

일반적으로 강력절삭 및 고속회전에서 마찰저항과 backlash 없이 가공하기는 힘들지만, 이런 문제를 해결할 수 있는 이상적인 대안은 hydrostatic worm & rack 방식입니다.

Automatic Synchronization System

For the vertical moving of the crossrail, feed drive equipped with two ballscrews 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.

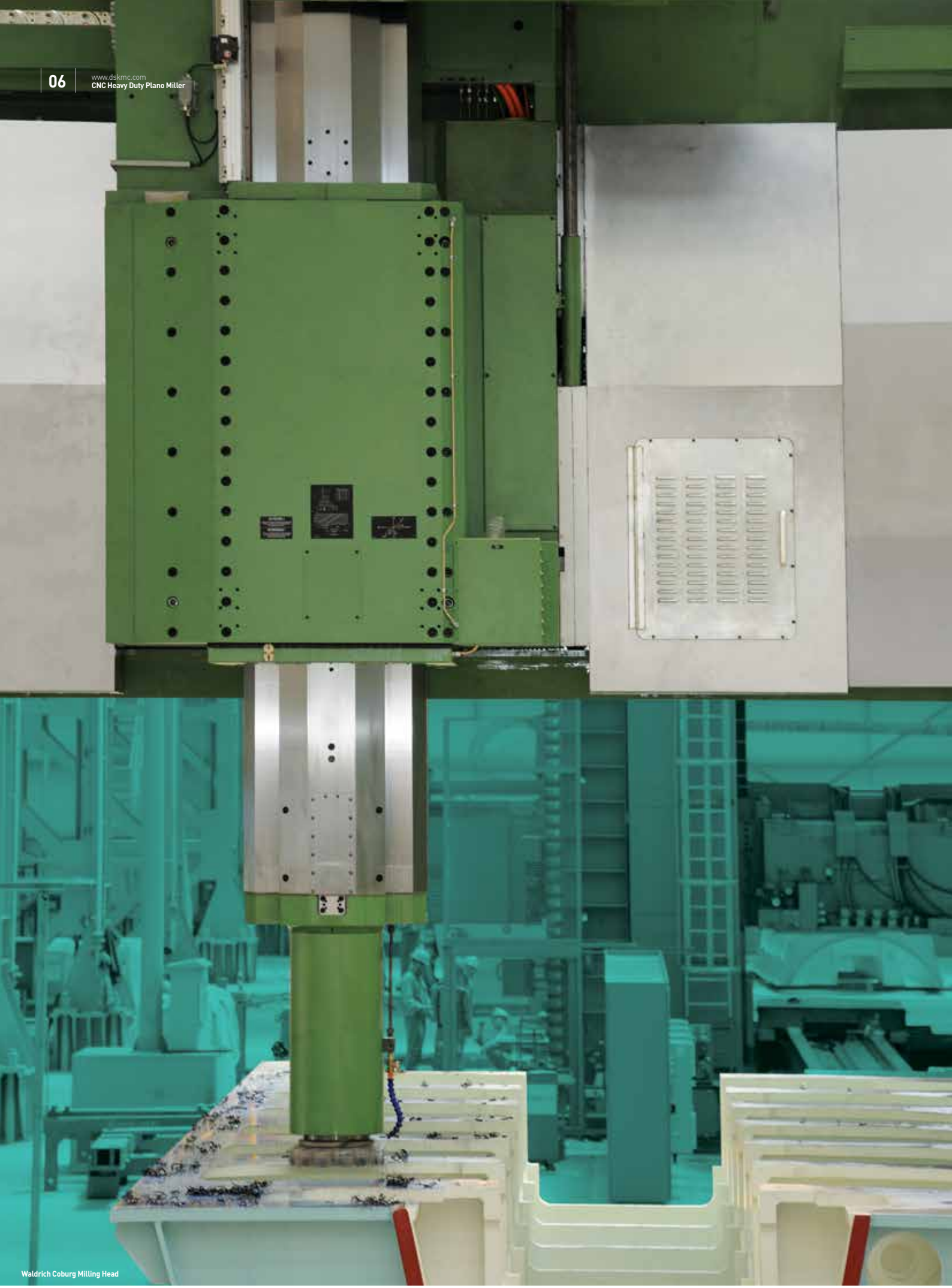
Crossrail의 상하이송은 양쪽 column에 설치된 고정밀 고강성을 가진 ballscrew와 기어박스, AC servo motor를 통해 이동합니다. W1축과 W2축은 항시 수평을 유지하고, crossrail의 위치가 변함에 따라 NC control system의 위치보정 기능을 통해 완벽한 동기화를 구현합니다.

Crossrail moving and synchronization

Control System

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

Siemens와 Fanuc의 최신 컨트롤 시스템이 적용됩니다.



Waldrich Coburg Milling Head

CNC Heavy Duty Plano Miller

Features

Milling Head

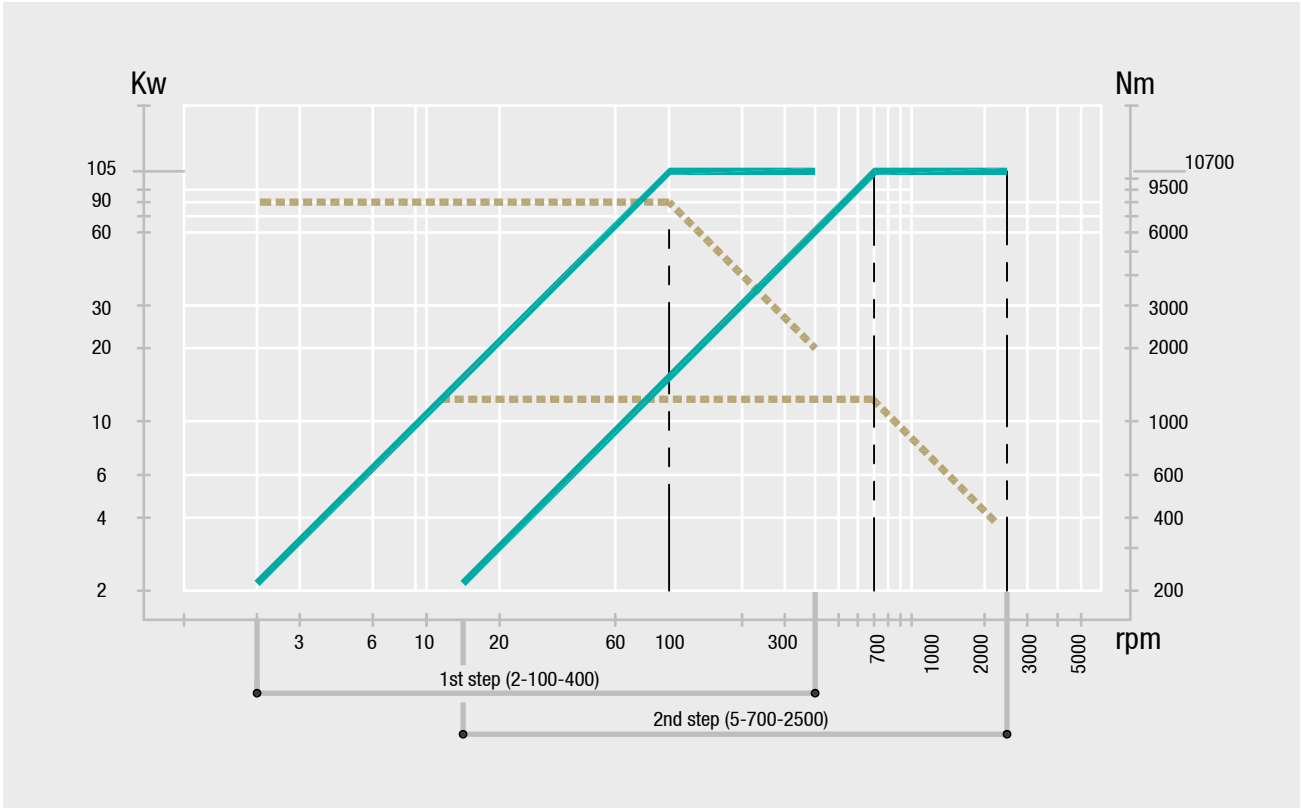
Our milling head has a special design for efficient heavy duty machining of the steel structures and parts, and guided by hydrostatic system inside of the ram housing. Ram is covered in housing to bear during heavy cutting and ram feeding executes by connected AC servo motor, spur gear and ballscrew. 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.
(A Waldrich Coburg milling head can be attached as an option under mutual consent with Waldrich Coburg.)

디에스케이기계(주)의 milling head는 철제구조의 강력 절삭을 효율적으로 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.
(고객이 원할 경우, Waldrich Coburg milling head를 옵션으로 부착할 수 있습니다.)

Specification

Specification	DPM4500 (DGPM4500)	DPM5500 (DGPM5500)	DPM6500 (DGPM6500)	DPM7500 (DGPM7500)	DPM8500 (DGPM8500)	DPM10000 (DGPM10000)
Ram section	500 x 500 / 600 x 600 mm (20 x 20 / 24 x 24 in.)	600 x 600 / 630 x 630 mm (24 x 24 / 25 x 25 in.)				
Spindle motor power	AC 75 ~ 105 kW (AC 101 ~ 141 Hp)	AC 105 kW (AC 141 Hp)	AC 105 ~ 150 kW (AC 141 ~ 201 Hp)			
Ram stroke	1,500 ~ 2,500 mm (59 ~ 98 in.)	1,500 ~ 3,000 mm (59 ~ 118 in.)		1,500 ~ 4,000 mm (59 ~ 157 in.)		

Torque Diagram



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Accessories

Attachment

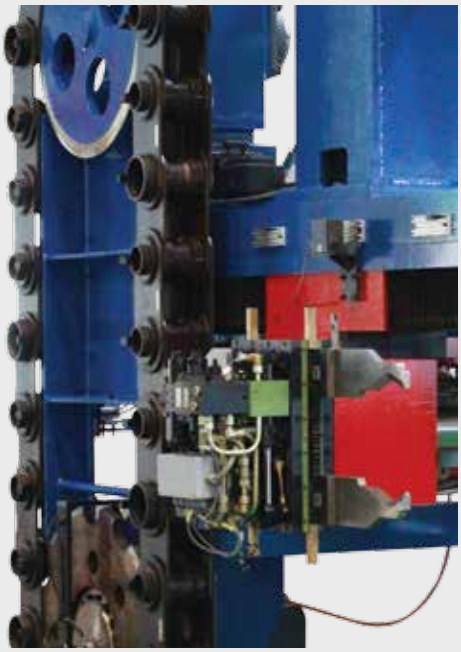
Several types of the attachments for additional machining work in large size machine tools such as straight attachment, angle attachment, universal attachment and special attachment which is customized by the request of the customer can be supplied by DSK Machinery.

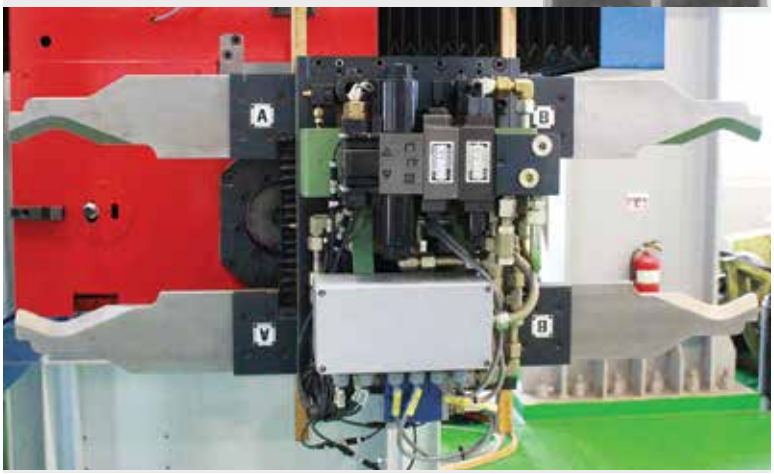
대형 공작기계에 장착하여 부가적인 가공작업을 하기 위한 attachment를 공급하고 있으며, 그 종류로는 straight attachment, angle attachment, universal attachment, 그리고 고객의 요구에 의해 customizing된 special attachment도 공급가능합니다.

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 and 60 taper both. Tools can be mounted on and dismounted from tool gripper vertically and horizontally even during machining.

효율적인 장비 운용과 가공을 위해 장비의 측면에 자동공구 교환장치가 설치될 수 있으며, ISO 50과 60 taper를 사용할 수 있습니다. 가공 중에도 수평, 수직 방향에 관계없이 공구를 교환할 수 있어 가공 중에 발생하는 시간손실을 줄일 수 있습니다.

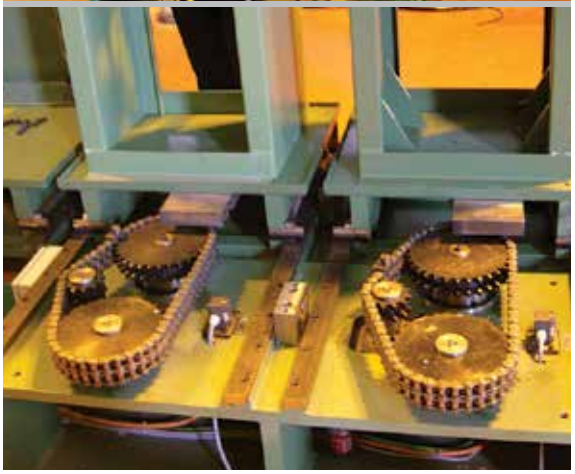




AAC (Automatic Attachment Changer)

Automatic tool changer is installed at the right or left side of the machine independently and has a multi-position shuttle for all attachments along X-axis travel direction. Wherever the ram is located, attachments can be changeable and this procedure is controlled by standard NC program.

자동공구교환장치와 마찬가지로 장비의 측면에 독립적으로 자동 attachment 교환장치가 설치될 수 있으며 X축 길이 방향으로 움직이는 shuttle를 이용하여 모든 attachment를 원하는 위치로 이동시킬 수 있습니다. Ram이 어느 장소에 있든 attachment의 교환이 가능하며, 이 모든 일련의 과정은 NC 프로그램으로 제어가 가능합니다.



Specification

Specification		DPM4500 (DGPM4500)	DPM5500 (DGPM5500)
Capacity	Distance between columns (A)	4,500 mm (177 in.)	5,500 mm (217 in.)
	Distance between table surface & spindle nose (B)	2,500 ~ 4,500 mm (98 ~ 177 in.)	4,000 ~ 5,500 mm (157 ~ 217 in.)
	Table size (C)	3,500 mm (138 in.)	4,500 mm (177 in.)
	Spindle motor power	AC 75 ~ 105 kW (AC 101 ~ 141 Hp)	AC 105 kW (AC 141 Hp)
	Ram section	500 x 500 / 600 x 600 mm (20 x 20 / 24 x 24 in.)	600 x 600 / 630 x 630 mm (24 x 24 / 25 x 25 in.)
Stroke	X-axis (D)	6,000 ~ 20,000 mm (236 ~ 787 in.)	8,000 ~ 25,000 mm (315 ~ 984 in.)
	Y-axis (E)	5,000 ~ 6,000 mm (197 ~ 236 in.)	6,000 ~ 7,000 mm (236 ~ 276 in.)
	Z-axis (F)	1,500 ~ 2,500 mm (59 ~ 98 in.)	1,500 ~ 3,000 mm (59 ~ 118 in.)
	W-axis (G)	2,000 ~ 3,500 mm (79 ~ 138 in.)	3,000 ~ 4,500 mm (118 ~ 177 in.)
Feed rate	X-axis	10,000 mm/min (394 in./min)	
	Y-axis	10,000 ~ 15,000 mm/min (394 ~ 591 in./min)	
	Z-axis	10,000 mm/min (394 in./min)	
	W-axis	2,000 mm/min (79 in./min)	
Control system		Siemens / Fanuc	
Measuring system		Heidenhain	

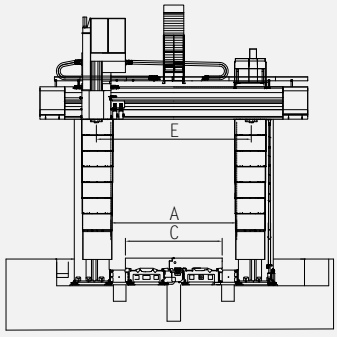
※ DPM (Table type plano miller) / DGPM (Gantry type plano miller)

Basic Accessories

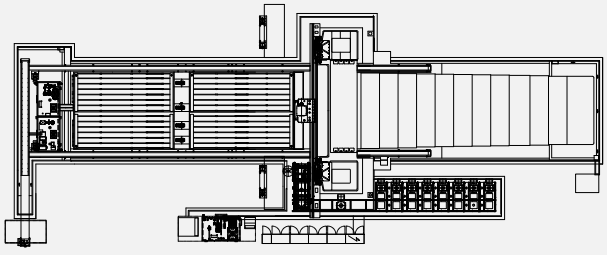
- X, Y, W-axis telescopic cover
- Work light
- Patrol lamp (red, green, yellow)
- Leveling block & anchor bolt

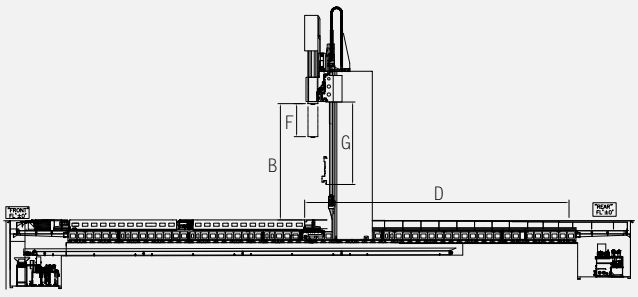
Optional Accessories

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



DPM6500 (DGPM6500)	DPM7500 (DGPM7500)	DPM8500 (DGPM8500)	DPM10000 (DGPM10000)
6,500 mm (256 in.)	7,500 mm (295 in.)	8,500 mm (334 in.)	10,000 mm (394 in.)
4,000 ~ 6,500 mm (157 ~ 256 in.)	4,000 ~ 7,500 mm (157 ~ 295 in.)	4,000 ~ 8,500 mm (157 ~ 334 in.)	4,000 ~ 10,000 mm (157 ~ 394 in.)
5,500 mm (217 in.)	6,500 mm (256 in.)	7,500 mm (295in.)	9,000 mm (354 in.)
AC 105 ~ 150 kW (AC 141 ~ 201 Hp)			
600 x 600 / 630 x 630 mm (24 x 24 / 25 x 25 in.)			
8,000 ~ 25,000 mm (315 ~ 984 in.)	10,000 ~ 30,000 mm (394 ~ 1,181 in.)		10,000 ~ 40,000 mm (394 ~ 1,575 in.)
7,000 ~ 8,000 mm (276 ~ 315 in.)	8,000 ~ 9,000 mm (315 ~ 354 in.)	9,000 ~ 10,000 mm (354 ~ 394 in.)	10,000 ~ 12,000 mm (394 ~ 472 in.)
1,500 ~ 3,000 mm (59 ~ 118 in.)		1,500 ~ 4,000 mm (59 ~ 157 in.)	
3,000 ~ 4,500 mm (118 ~ 177 in.)	3,000 ~ 5,500 mm (118 ~ 217 in.)	3,000 ~ 6,500 mm (118 ~ 256 in.)	3,000 ~ 8,000 mm (118 ~ 315 in.)
10,000 mm/min (394 in./min)			
10,000 ~ 15,000 mm/min (394 ~ 591 in./min)			
10,000 mm/min (394 in./min)			
2,000 mm/min (79 in./min)			
Siemens / Fanuc			
Heidenhain			





DSK MACHINERY

DSK MACHINERY HEADQUARTER

129 Sinchon-ri, Jinbuk-myeon, Masanhappo-gu, Changwon-si, Kyungsangnam-do, Korea
TELEPHONE : +82 (0)2 1644 4144 FAX : +82 (0)55 289 4520
E-MAIL : sales@dskmc.com HOMEPAGE : http://www.dskmc.com

SEOUL BRANCH

S-28, 8th Floor, Tool Bldg, Garden5, Munjeong-dong, Songpa-gu, Seoul, 138-200, Korea
TELEPHONE : +82 (0)2 2047 7600 FAX : +82 (0)2 2047 7609
E-MAIL : seokyung@seokyung.co.kr HOMEPAGE : http://www.seokyung.co.kr

BEIJING BRANCH

Beijing BYJC-DSK Machine Tool Engineering Technology Co., Ltd. (Joint Venture Company, Beijing)
Room 2606, Building B, Jianwai SOHO, No.39 Dongsanhuan Middle Road,Chaoyang District, Beijing
TELEPHONE : +86 010 5869 8634 ext 803 FAX : +86 010 5869 8642
E-MAIL : kalikisun@hotmail.com

SHANGHAI BRANCH

Room 309 No. 2008 Hongmei Road, Shanghai, 200233, China
TELEPHONE : +86-21-54262325 FAX : +86-21-54262326
E-MAIL : cao_yuxiong@yahoo.de