

CHEVALIER®

Grinding / Turning / Milling



FSG-ADS 系列

Column Type High Precision 3-Axes
Automatic Surface Grinder

FSG-2040ADS • 2060ADS

FSG-2440ADS • 2460ADS • 2480ADS

FSG-24120ADS

FSG-20 · 24ADS Series

Column Type High Precision 3-axis Automatic Surface Grinder

Programmable Controlled Grinding Machine

The Series features a new PLC controller that includes a grind cycle with rough and fine grinding, spark-out passes and an automatic over-wheel dresser with compensation that can be added to a fully automatic grinding process. After the cycle is finished, the table will "park" either left or right, wheel head will park at safety position to facilitate unloading and loading.

Spindle can be set to stop running or continue running and the wheelhead can also be set to lift up to the start or the reference point after grinding cycle has finished.

It's friendly too. The FSG-ADS's new user-friendly touch-screen control has standard surface grinding programs and a multi-plunge grinding cycle, crisscross or zigzag cycles and a CBN dressing cycle. So simple and user-friendly, all skill levels can operate this series of control.

Precision Spindle And Rigid Elevating Guideways

The rigid wheelhead houses a large diameter cartridge type spindle supported by six super precision Class 7 (P4) permanently lubricated angular contact ball bearings. The balanced spindle motors are air cooled to ensure optimum surface finishes and maintain superior accuracy.

Optional Automatic Wheel Dressing With Compensation

The machine efficiency is maximized by the automatic dressing with automatic dressing compensation during rough and/or fine grinding and at the end of rough grinding. This allows the machine to run unattended and reduces machining costs.

Completely Supported Guideways

Extended base guideways for crossfeed and longitudinal travel enhance the machines rigidity and stability in addition to upgrading the machines accuracy and longevity. The permissible loads can be completely supported and table overhang is eliminated.

Rigid Construction

All essential casting is made of high grade dense cast iron which has been stress relieved and ribbed with honeycomb ribs to enhance rigidity and increase stability, which increases cutting capability.

Crossfeed Stroke Setting

The crossfeed travel is set with push buttons on the control panel. This new break through in design is more efficient and user-friendly.

Wheelhead Driven By AC Servo Motor

An AC servo motor provides high torque, high-speed and accurate positioning with a minimum increment of 0.001mm (0.0001"). A manual pulse generator (MPG) is standard for easy operation.

Crossfeed Speed Control

The crossfeed is combined with a servo motor and is controlled by a ratio switch to obtain a better grinding surface finish and better dressing result.

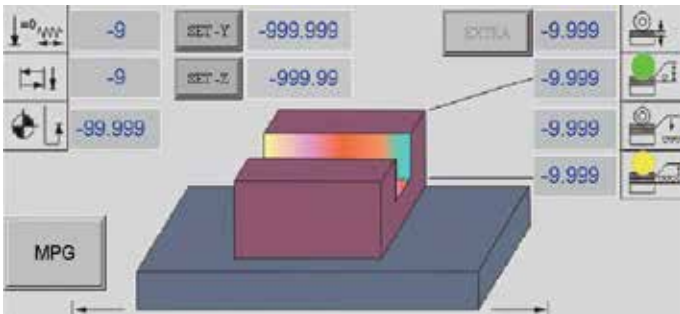


FSG-2060ADS

Note: Machine shown with optional accessories

FSG-20 · 24ADS Series

Grinding Mode Display on The Controller



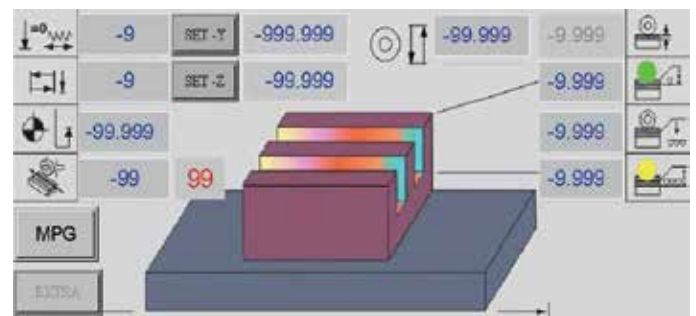
Plunge Grinding Mode



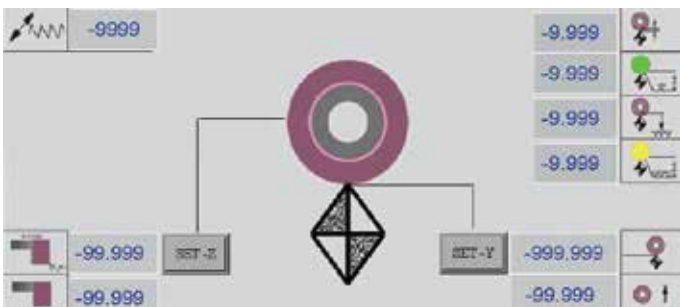
Surface Grinding Mode



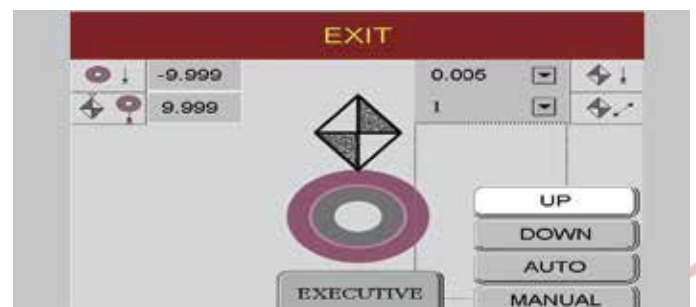
Crisscross Grinding Mode



Multi-Groove Grinding Mode (24ADS only)



Dressing from Table



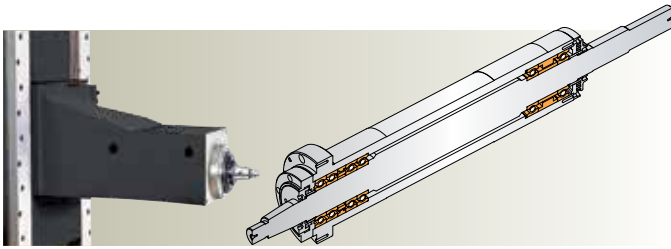
Automatic overhead dresser with compensation (Optional)

FSG-20ADS Series

Machine Construction

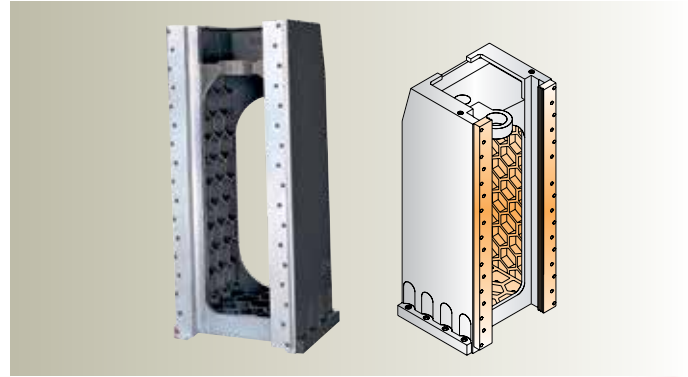
Spindle

The spindle is supported by six pieces of Class 7 (P4) super precision angular contact ball bearings, which have been accurately measured, selected and preloaded and assembled in a temperature controlled clean room. The spindle is permanently lubricated and requires no maintenance. The large diameter spindle is precisely balanced to ensure accuracy.



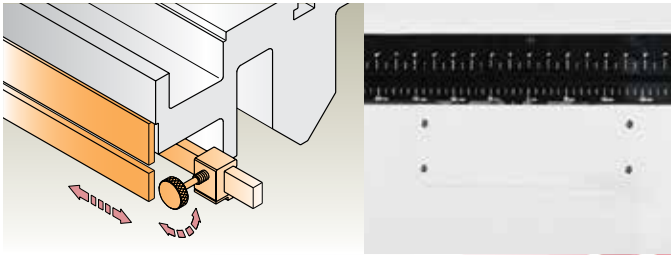
Column

The column is made of high grade dense cast iron which has been stress relieved and ribbed with honeycomb type ribs to enhance rigidity and increase stability thereby increasing the grinding performance.



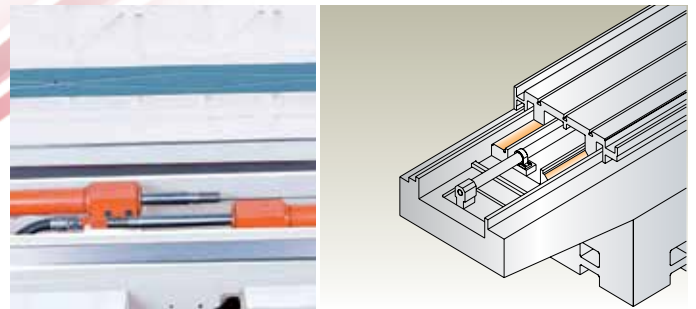
Longitudinal Stroke Adjustment Device

Table reversal is controlled by proximity switches which never make contact. It is simple for operator to adjust table reversal to minimum required stroke, thereby grinding less air and reducing grinding time. Stroke adjustment protection plate is designed to allow table stroke to be adjusted safely.



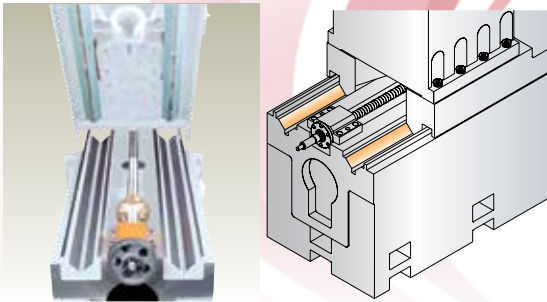
Longitudinal Slide Way

One "V" and one flat table guideways are laminated with Turcite-B and precisely hand scraped to ensure high accuracy. Continuous lubrication is provided to assure smooth stick-slip free movement of the table and accurate positioning.



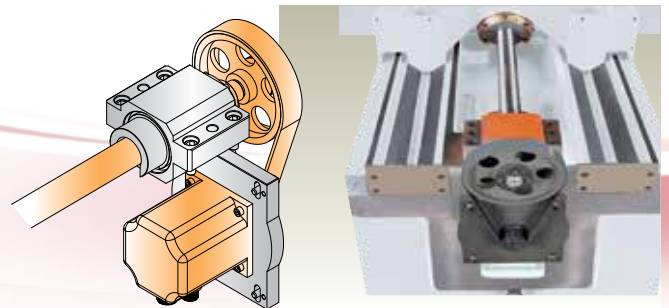
Crossfeed Guideways

Double "V" guideways are ground and laminated with Turcite-B then precisely hand scraped. Continuous lubrication is provided to ensure smooth and precise crossfeed increments.



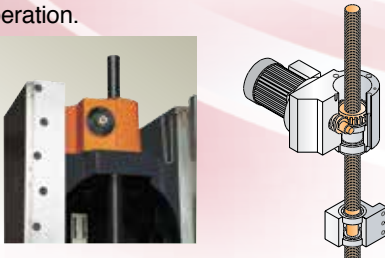
Crossfeed Transmission Mechanism

Enlarged precision leadscrew with backlash adjustment device is driven by an AC motor. The encoder type stroke setting key allows crossfeed reversal points to be set from operator's control panel, thereby working efficiency is increased.



Elevating Transmission Mechanism

The wheelhead travelling on a preloaded hardened and ground guideway system is driven by a hardened and ground leadscrew and an AC servo motor providing high torque, speed and accurate positioning with minimum increment of 0.001mm (0.0001"). A manual pulse generator (MPG) is standard for easy operation.



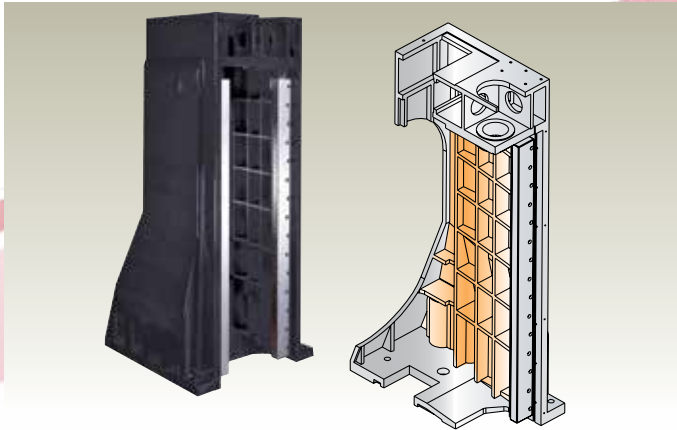
FSG-24ADS Series

Machine Construction

Stable structure

The column is made of high-grade dense cast iron that has been stress relieved. With ribbed and computer analyzed structure, the stability and rigidity is greatly increased.

Spindle travels on hardened and ground square ways, and is driven by precision ballscrew and an AC servomotor for heavy grinding and smooth and accurate movement.



Crossfeed Slideway

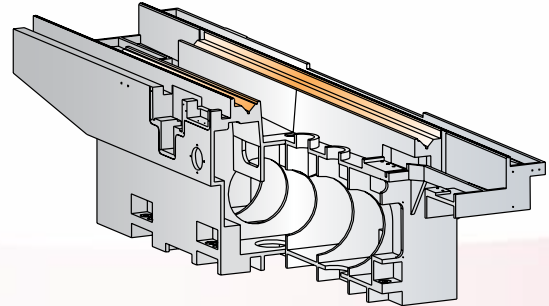
Hardened and ground guideways are laminated with Turcite-B, then precisely hand scrapped. Continuous lubrication is provided to assure smooth stick-slip free movement of the table and accurate positioning.



Longitudinal Slideways

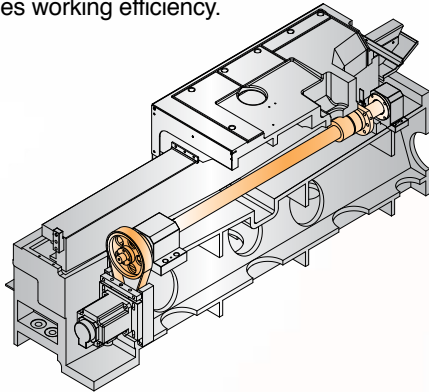
With double "V" guideways, which are laminated with Turcite-B anti-friction material, for smooth and stable longitudinal movement.

The table is full supported on the well-designed front base of machine resulting in increased accuracy.



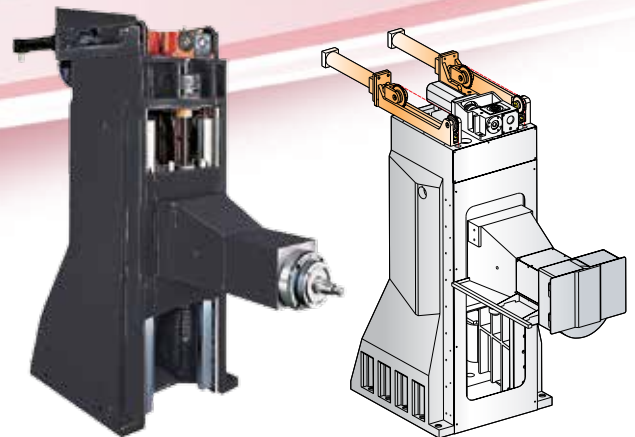
Crossfeed Transmission Mechanism

An AC servo motor and the ballscrew drives the column in a linear motion. The encoder type stroke setting key allows the crossfeed reversal points to be set from operator's control panel that increases working efficiency.



Spindle Counter Weights Balance System

Pneumatic counter weights balance system is installed to eliminate backlash and wear of elevating screws.

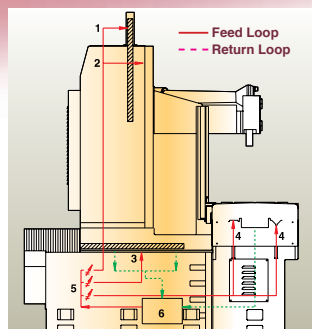


Elevating Transmission Mechanism

Automatic Lubrication System (FSG-20 ADS and FSG-24 ADS Series)

The series is equipped with a central continuous lubrication system. A warning light will illuminate if the oil pressure drops below preset pressure.

1. Elevating leadscrew
2. Column guideways
3. Cross guideways
4. Table guideways
5. Flow divider
6. Lubricator



FSG-20 • 24ADS Series

Optional Accessories

Note: Items marked with • are recommended to be factory installed.



Machine Lamp



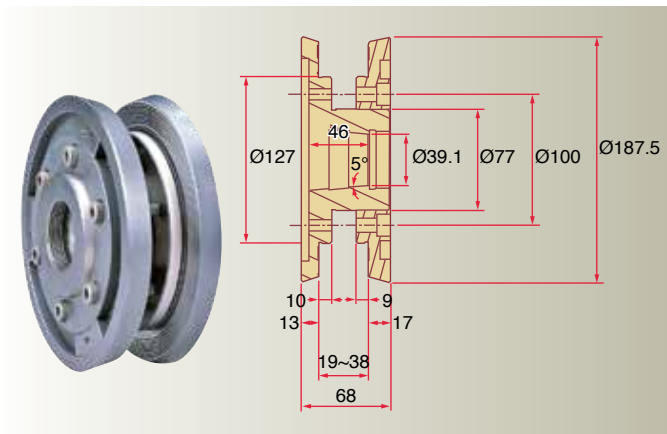
DIAMOND DRESSER

- 1.0 Carat



WATER Baffle

僅適用 20ADS 系列



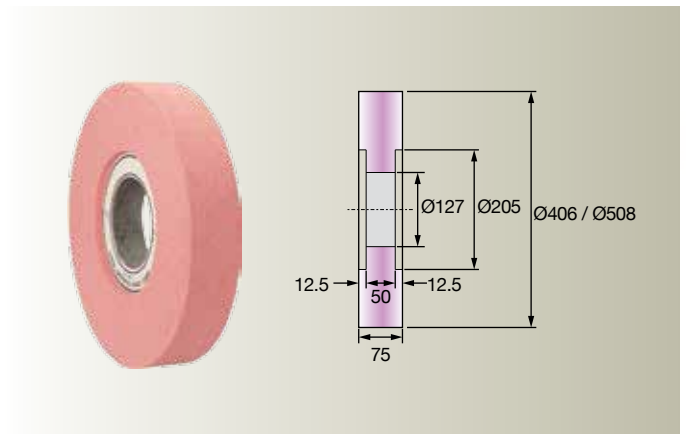
WHEEL FLANGE • Bore size: Ø127mm

For 20ADS

- Clamping width: 19~38mm (3/4" ~ 1 1/2")

For 24ADS

- Clamping width: 32~50mm (1 1/4" ~ 2")
- Clamping width: 43~50mm (1.7" ~ 2")



GRINDING WHEEL

For 20ADS

- Ø355 x 50 x Ø127mm

For 24ADS

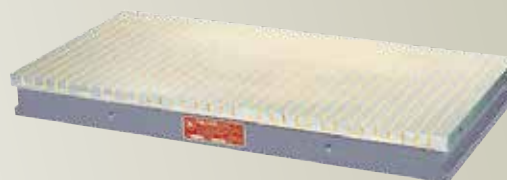
- Ø406 x 75 x Ø127mm (Ø16" x 3" x Ø5") Double recessed
- Ø508 x 75 x Ø127mm (Ø20" x 3" x Ø5") Double recessed



CHUCK CONTROL

- Input Voltage: 135VAC Output Voltage: 110VDC 10A, with variable holding power, auto demagnetization

* Must be ordered with electro magnetic chuck.



ELECTROMAGNETIC CHUCK

For 20ADS

- 500x1,000mm (19 5/8" x 39 3/8")
 - 500x1,500mm (19 5/8" x 59")
- (Voltage: 110VDC)

For 24ADS

- 600x1,000mm (24" x 39 3/8"), 1pc
- 600x1,500mm (24" x 59"), 1pc (Voltage: 110VDC)
- 600x1,000mm (24" x 39 3/8"), 2pcs
- 600x1,500mm (24" x 59"), 2pcs

* To order chuck control is required.

FSG-20 • 24ADS Series

Optional Accessories



Spindle Motor

For 20ADS

- 15HP/6P for Ø508mm (Ø20") wheel

For 24ADS

- 25HP/4P, 1,700rpm/60Hz, 1,400rpm/50Hz
- 15HP/6P, 1,200rpm/60Hz, 1,000rpm/50Hz for Ø508mm (Ø20") wheel
- 25HP/6P, 1,200rpm/60Hz, 1,000rpm/50Hz for Ø508mm (Ø20") wheel



Hydraulic Temperature Regulator

For 20ADS

- Volume: 20L
- Cooling capacity: 3,750 kcal/hr/50Hz
4,500 kcal/hr/60Hz



Coolant System with Auto Paper Feeding Device

(With 1 Roll of Paper)

For 20ADS

- Volume: 120L
- Paper Feeding Motor: 25W
- Pump: 1/4HP
- Coolant Capacity: 20L/min
- Space: 1,450x620mm (57" x 24 3/8")
- Height: 760mm (30")



Coolant System With Auto Paper Feeding Device & Magnetic Separator

(With 1 Roll of Paper)

For 20ADS

- Volume: 120L
- Paper Feeding Motor: 25W
- Pump: 1/4HP
- Coolant Capacity: 20L/min
- 電磁過濾器處理能力 : 40L/min
- Space: 1,450x620mm (57" x 24 3/8")
- Height: 760mm
- Volume: 250L
- Pump: 1/2HP
- Coolant Capacity: 120L/min
- Space: 1,600x1,100mm (63" x 43")
- Height: 750mm (29 1/2")



FREQUENCY CONVERTER

For 20ADS

- 15HP
- Voltage: 200V-230V
- Voltage: 480V-575V, 240V, 346V
- Transformer
- Voltage: 380V, 415V, 440V, 460V

For 24ADS

- 25HP (Voltage: 380V-460V)
- 25HP (Voltage: 200V-230V)
- 15HP (Voltage: 200V-230V)
- 15HP (Voltage: 240V, 346V, 480V)
- 15HP (Voltage: 380V-460V)

FSG-20 • 24ADS Series

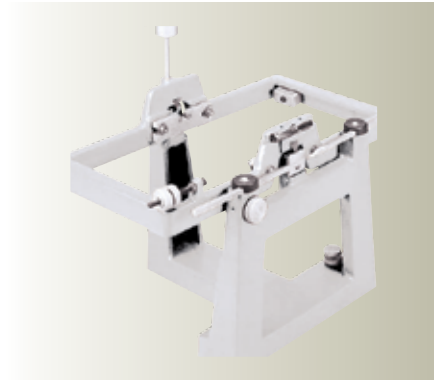
Optional Accessories

Note: Items marked with • are recommended to be factory installed.



Overwheel Parallel Dresser With Automatic Dress Compensation
For 20ADS

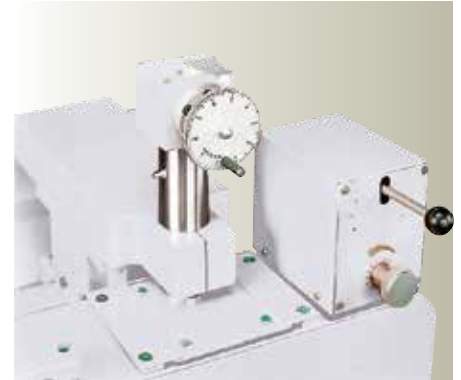
- Max. OD: 355mm (14")
Mini OD: 235mm (9.3")
Max. Length: 60mm (2.4")



Balancing Stand with Levelling Bubble

For 20ADS

- Max. Dia: 355mm (14")
Max. Width: 50mm (2")



Parallel Dressing Attachment (Hydraulic Type)

For 20ADS

- Max.OD: 355mm (14")
Mini OD: 235mm (9.3")
Max. Length: 60mm (2.4")



Auto Over-The-Wheel Dresser with Auto Dressing Compensation

For 24ADS

- Suitable for 406mm (16")
Grinding Wheel Max. OD: 406mm (16")
Mini OD: 236mm (9.3")
Max. Length: 76mm (3")



Roller Balancing Stand

For 20ADS

- Max. Dia: 355mm (14")



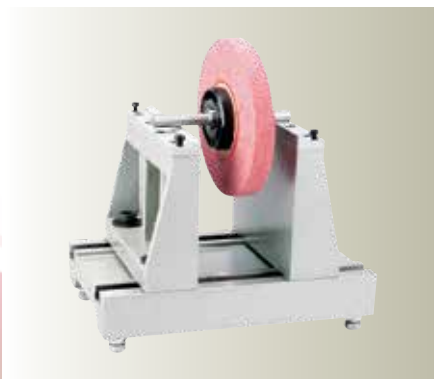
Roller Balancing Stand

For 24ADS

- Max. Dia: 508mm (20")



Grinding Wheel Dynamic Balancer (SBS)



Guildway Type Balancing Stand

For 24ADS



Spindle Temperature Regulator

- Volume: 7L
Cooling capacity: 1,000 kcal/hr/60Hz
840 kcal/hr/50Hz

FSG-20 • 24ADS Series

Standard Accessories

Note: The items marked "•" with are stored in the tool box.



1. Tool box



2. Wheel flange



3. Grinding wheel



• 4. Locking nut



• 5. Wheel flange extractor



• 6. Balancing arbor



7. Wrench



• 8. Touch-up paint



9. Levelling pads



10. Levelling screws & nuts



11. Splash guard



12. Hydraulic Temperature Regulator
For 24ADS

• Volume: 35L

Cooling capacity: 5,000 kcal/hr/50Hz
6,000 kcal/hr/60Hz



13. Water baffle
For 24ADS

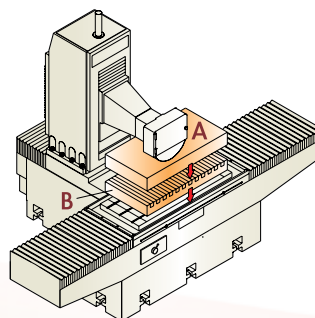
Permissible Load of Machine

Unit: kg (lbs)

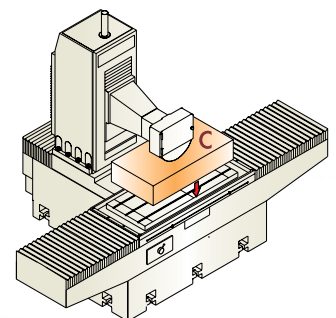
The total suggested maximum loads of working table are shown as follows

A = Workpiece **B = Magnetic chuck** **C = A + B**

Model	2040ADS	2060ADS	2440ADS	2460ADS	2480ADS	24120ADS
A	900 (1,980)	1,100 (2,420)	1,120 (2,464)	1,320 (2,904)	1,240 (2,728)	1,540 (3,388)
B	270 (594)	440 (968)	380 (836)	480 (1,056)	760 (1,672)	960 (2,112)
C	1,170 (2,574)	1,540 (3,388)	1,500 (3,300)	1,800 (3,960)	2,000 (4,400)	2,500 (5,500)



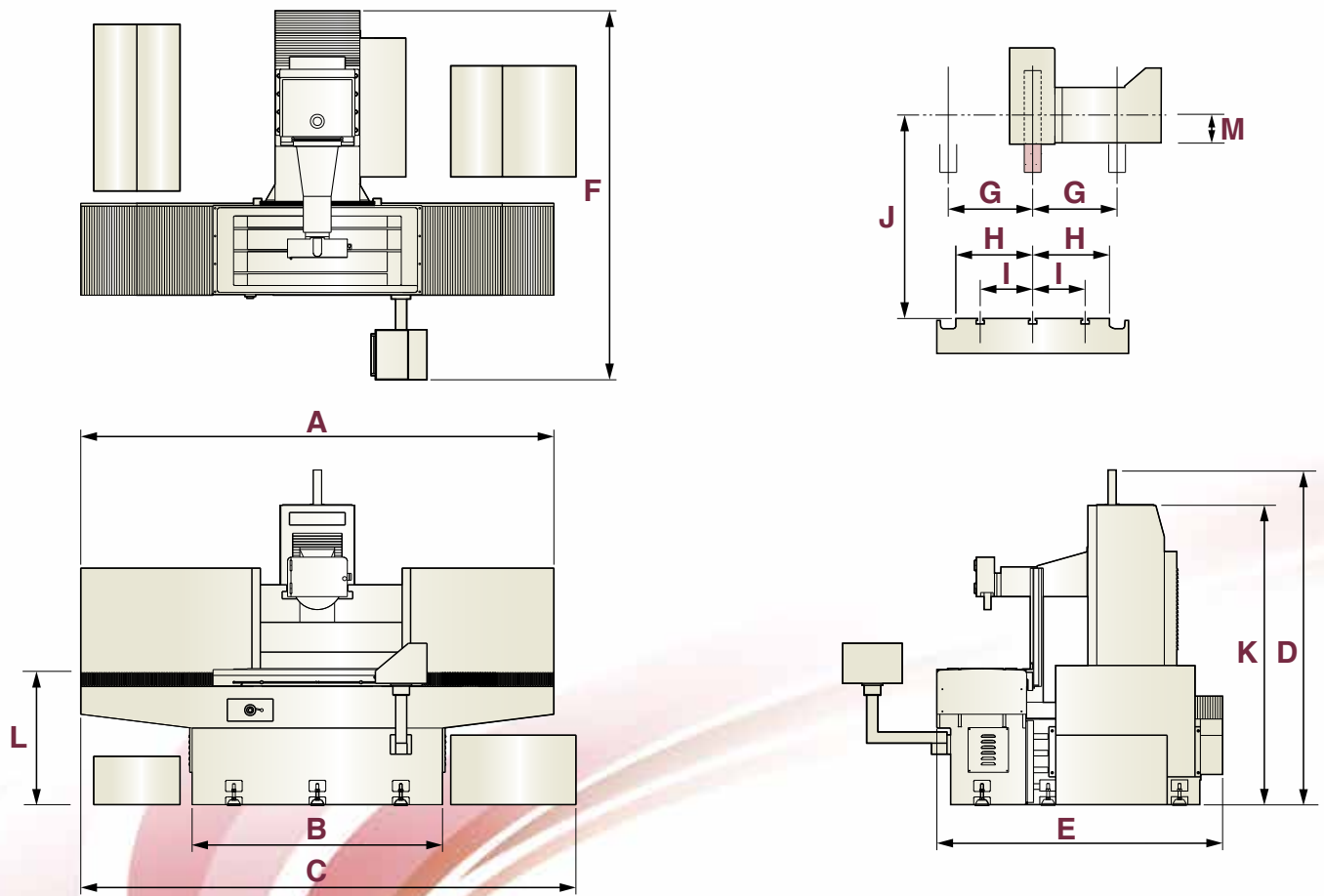
Grinding with
Electromagnetic Chuck



Grinding without
Electromagnetic Chuck

FSG-20 • 24ADS Series

Dimensional Drawings



Description	2040ADS	2060ADS	2440ADS	2460ADS	2480ADS	24120ADS
A	3,400mm (133.8")	4,600mm (181.1")	3,500mm (137.8")	4,500mm (177.2")	6,000mm (236.2")	8,733mm (344.8")
B	1,800mm (70.8")	2,800mm (110.2")	2,100mm (82.6")	3,100mm (122")	4,100mm (161.4")	8,000mm (315")
C	3,810mm (150")	4,953mm (195")	3,870mm (152.3")	4,870mm (191.7")	6,120mm (241")	8,000mm (315")
D	2,719mm (107")		N/A			
E	2,175mm (85.6")			2,750mm (108.3")		
F	2,810mm (110.6")			3,660mm (144.1")		
G	280mm (11")			295mm (11.6")		
H	280mm (11")			305mm (12")		
I	160mm (6.3")			210mm (8.3")		
J	730mm (28.7")			Max. 850mm (33.5"); Min. 170mm (6.7")		
K	2,310mm (91")			2,799mm (110")		
L	990mm (39")			880mm (34.6")		
M	95mm (3.7")			110mm (4.3")		

FSG-20 • 24ADS Series

Specifications

Description		2040ADS	2060ADS	2440ADS	2460ADS	2480ADS	24120ADS
Capacity	Max. Grinding Length-Longitudinal	1,000mm (40")	1,500mm (59")	1,000mm (40")	1,500mm (59")	2,000mm (78.7")	3,000mm (118")
	Max. Grinding Width-Crosswise	500mm (20")		600mm (23.6")			
	Distance Between Table To Spindle Centerline	730mm (28.7")		850mm (33.4")			
Table	Table Working Size	500 x 1,000mm (20" x 40")	500 x 1,500mm (20" x 59")	600 x 1,000mm (24" x 40")	600 x 1,500mm (24" x 59")	600 x 2,000mm (24" x 80")	600 x 3,000mm (24" x 118")
	T-Slots (Width x Dis. x No.)	14mm x 160mm x 3 pcs (0.55" x 6.3" x 3 pcs)		14mm x 210mm x 3 pcs (0.55" x 8.3" x 3 pcs)			
	The Distance From Table To Ground	990mm (39")		880mm (34.6")			
	Table Speed	5~25 m/min. (16~82fpm)					
	Max. Table Stroke	1,100mm (43.3")	1,600mm (63")	1,100mm (43.3")	1,600mm (63")	2,100mm (82.6")	3100mm (122")
Transverse Movement (Z)	Rapid Travel	0~3660 mm/min. (0~155 ipm)		0~2250 mm/min. (0~99 ipm)			
	Automatic Transverse Movement	1~32mm (0.04"~1.25")					
	Least Increment	0.001mm (0.0001")					
	Transverse Movement Stroke	560mm (22")		675mm (26.6")			
Elevating Movement Of Wheel Head (Y)	Rapid Travel	533 mm/min. (12 ipm)		675 mm/min. (45 ipm)			
	Least Increment	0.001mm (0.0001")					
Spindle	Spindle Speed	60Hz / 1,750rpm; 50Hz / 1,450rpm					
Grinding Wheel	(OD. x Width x Bore)	Ø355 x 50 x Ø127 mm (Ø14" x 2" x Ø5")		Ø406 x 75 x Ø127 mm (Ø14" x 3" x Ø5")			
Motors	Spindle Motor	7.5kW (10HP, 4P)		11kW (15HP)			
Power Requirement		15kW (20HP)	17kW (23HP)	20.6kW (28HP)	22kW (30HP)	23.6kW (32HP)	
Tank Capacities	Hydraulic Tank	200L (52 gals)		250L (66 gals)			
	Lubricant Tank	20L (5 gals)					45L (12 gals)
Machine Dimension	Floor Space (W x L)	3,810 x 2,997 mm (150" x 118")	4,953 x 2,997mm (195"x118")	3,660 x 3,870mm (144"x152")	3,660 x 4,870mm (144" x 191")	3,660 x 6,120mm (144" x 240")	3,660 x 8,733mm (144" x 343")
	Hight (H)	2,719mm (107")		2,799mm (110")			
	Weight	6,200Kg (13,640 lbs)	7,900Kg (17,380 lbs)	8,400Kg (18,480 lbs)	9,800Kg (21,560 lbs)	10,600Kg (23,320 lbs)	17,500Kg (38,500 lbs)

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Grinding Machine



Grinding Machine



Turning Machine



Milling Machine

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