

GENERAL SPECIFICATION

	FSG-2040ADIII	FSG-2060ADIII	FSG-2440ADS	FSG-2460ADS	FSG-2480ADS
Capacity					
Max. Grinding Length-Longitudinal	1,000mm (40" )	1,500mm (60" )	1,000mm (40" )	1,500mm (59" )	2,000mm (78.7" )
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	500mm × 1,000mm (20" × 40" )	500mm × 1,500mm (20" × 60" )	600mm x1,000mm (24" × 40" )	600mm x1,500mm (24" × 60" )	600mm x 2,000mm (24" × 80" )
	14mm x 3 (0.55" × 3)		14mm x 210mm x 3 (0.55" × 8.3 × 3)		
T-Slots(WID x DIS x NO.)	990mm (39" )		880mm (34.6" )		
Table Speed	16~82fpm (5~25 m/min.)		16~82fpm (5~25m/min.)		
Max. Table Stroke	1,100mm (43 1/4" )	1,600mm (63" )	1,100mm (43.3" )	1,600mm (63" )	2,100mm (82.6" )
Transverse Movement (Z)					
Rapid Travel	1.5m/min. (60Hz / 4.9fpm), 1.25m/min. (50Hz / 4.08fpm )	1.5m/min. (60Hz / 4.9fpm ) , 1.25m/min. (50Hz / 4.08fpm)	0~5m/min. (0~16fpm)		
Auto Matic Transverse Movement	3~32mm (18" - 1 1/4" )		3~32mm (18" -1 1/4" )		
Hand Wheel Per Revolution	5mm (0.2" )		5mm (0.2" )		
Hand Wheel Per Graduation	0.02mm (0.0008" )		0.02mm (0.0008" )		
Transverse Movement Stroke	560mm (22" )		675mm (26.6" )		
Elevating Movement Of Wheel Head					
Rapid Travel	400mm/min. (15.7" )		400mm/min. (15.7" )		
Head Wheel Per Graduation	0.001mm (0.00005" )		0.001mm (0.00005" )		
Spindle					
Spindle speed	60Hz / 1,750rpm, 50Hz / 1,450rpm		60Hz / 1,750rpm, 50Hz / 1,450rpm		
Wheel Size (OD×W×BORE)	ø355mm × ø50mm × ø127mm (ø14" × ø2" × ø5" )		ø406mm x ø75mm x ø127mm (ø16" × ø3" × ø5" )		
Motors					
Spindle Motor	5.6Kw (7.5HP,4P)	7.5Kw (10HP,4P)	11Kw (15HP)		
Power Requirement					
Power Required	13.5Kw (18HP)	17Kw (23HP)	20.6Kw (28HP)	22Kw (30HP)	23.6Kw (32HP)
Tank Capacities					
Hydraulic Tank Voltage	200L		250L		
Lubricant Tank Voltage	-		20L		
Machine Dimensions					
Machine Height(H)	2,719mm (107" )		2,780mm (109" )		
Required Floor Space(WxL)	3,810mm x 2,997mm (150" x 118" )	4,953mm x 2,997mm (195" x 118" )	3,660mm x 3,870mm (144" x 152" )	3,660mm x4,870mm (144" x 191" )	3,660mm x 6,120mm (144" x 240" )
Machine Weight	6200Kg(13,640lbs.)	7900Kg(17,416lbs.)	8,400Kg (18,518lbs.)	9,800Kg (21,605lbs.)	10,600Kg (23,369lbs.)

Notice: The manufacturer reserves the right to modify the design, specifications, mechanisms....etc. of the machine without notice.  
All content is for reference only and may be subject to change without notice or obligation.



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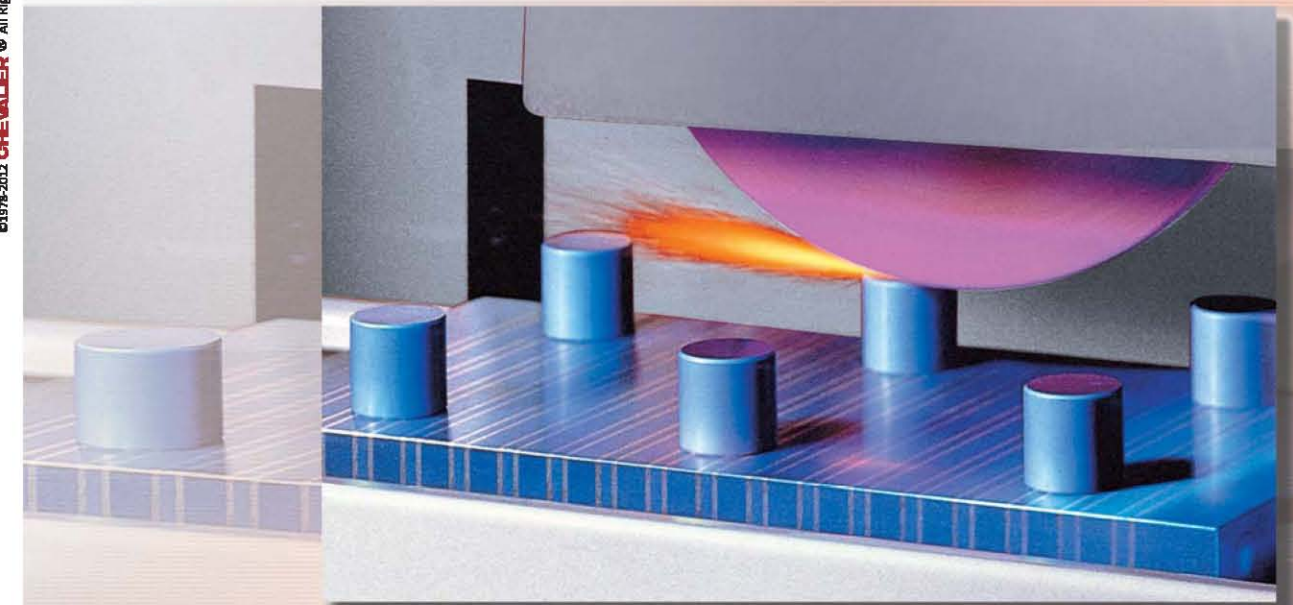
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**CHEVALIER®**  
Grinding / Turning / Milling

**FSG-2040ADIII/2060ADIII**  
**2440ADS/2460ADS/2480ADS**

**COLUMN TYPE HIGH PRECISION 3-AXES AUTOMATIC SURFACE GRINDER**



Description	2040ADIII	2060ADIII	2440ADS	2460ADS	2480ADS
<b>A</b>	3,400mm(133 7/8")	4,600mm(181 1/8")	3,500mm(137 3/4")	4,500mm(177 1/4")	6,000mm(236 1/4")
<b>B</b>	1,800mm(70 7/8")	2,800mm(110 1/4")	2,100mm(82 3/4")	3,100mm(122")	4,100mm(161 3/8")
<b>C</b>	3,810mm(150")	4,953mm(195")	3,870mm(152 3/8")	4,870mm(191 3/4")	6,120mm(241")
<b>D</b>	2,719mm(107")		2,780mm(109 3/8")		
<b>E</b>	2,250mm(85 5/8")		2,855mm(112 3/8")		
<b>F</b>	2,810mm(110 5/8")		3,660mm(144 1/8")		
<b>G</b>	280mm (11")		295mm(11 3/5")		
<b>H</b>	280mm (11")		305mm(12")		
<b>I</b>	160mm(6 5/16")		210mm (8 1/4")		
<b>J</b>	730mm (28 3/4")		Max. 850mm(33 1/2"), min. 170mm(6 3/4")		
<b>K</b>	2,310mm(91")		N/A		
<b>L</b>	990mm(39")		880mm(34 11/16")		
<b>M</b>	95mm(3 3/4")		110mm(4 5/16")		

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FSG-2040ADIII • 2060ADIII

FSG-2440ADS • 2460ADS • 2480ADS

## COLUMN TYPE HIGH PRECISION 3-AXIS AUTOMATIC SURFACE GRINDER

## FSG-20ADIII/ 24 ADS Series

## COLUMN TYPE HIGH PRECISION 3- AXIS AUTOMATIC SURFACE GRINDER

## ■ Programmable Controlled Grinding Machine

This machine has a micro-processor that is programmed to perform rough grinding, fine grinding sparkout passes, automatic overwheel dressing and compensation for wheel dress amount. After grinding, the table can be set to park either left end or right end. Spindle can be set to stop running or keep running and wheelhead can also be set to lift up to start point or reference point after grinding cycle finished. The machine is suitable for mass production.

## ■ Precision Spindle And Rigid Elevating Guideways

The rigid wheelhead houses a large diameter cartridge type spindle supported by 6 super precision Class 7(P4) permanently lubricated angular contact ball bearings (4 pieces for 20 series). The precisely balanced spindle motors are air cooled to ensure optimum surface finishes and maintain superior accuracies.

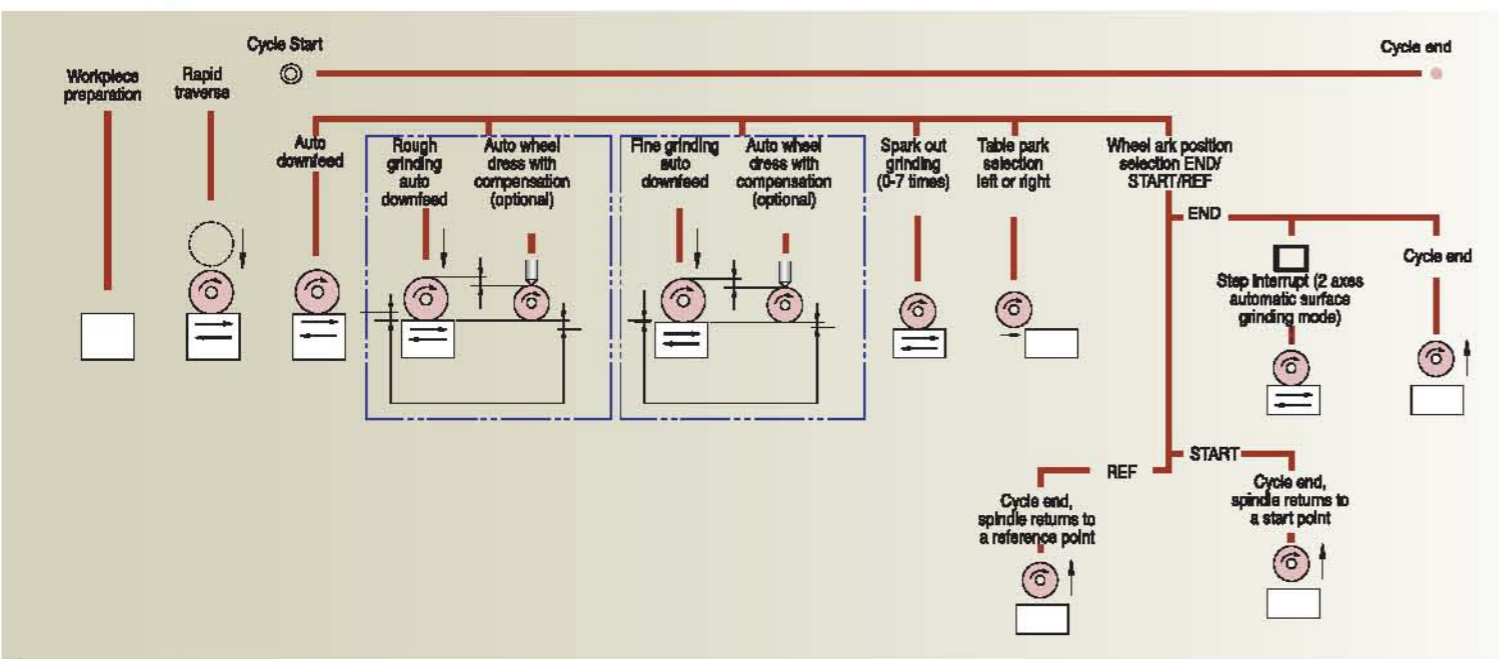
## ■ Optional Automatic Wheel Dressing With Compensation

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

## ■ Completely Supported Guideways

Extended base guideways for crossfeed and longitudinal travel enhance machine rigidity and stability and upgrade machine accuracy and longevity. The permissible loads can be completely supported and table overhang is eliminated.

## Grinding flow chart



## ■ Rigid Construction

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

## ■ Crossfeed Stroke Setting

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

## ■ AC Servo Vertical Drive

The wheelhead, travelling on hardened and ground square ways coated with Turcite-B system is cooperated with hardened and ground leadscrew (20 series) and precision ballscrew (24 series), and an AC servo motor to provide high torque, speed and accurate positioning with a minimum increment of 0.0001" (0.001mm). A manual pulse generator (MPG) is standard for easy operation.

## ■ Crossfeed Speed Control

Column continuous movement speed is controlled by a frequency converter for obtaining better grinding surface finish and better dressing result from table.

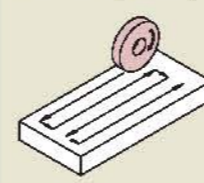


FSG-2040ADIII

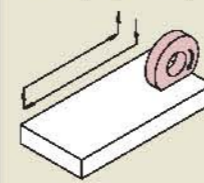
Note: Machine shown with optional accessories

## GRINDING MODE

1. Surface grinding



2. Plunge grinding



3. Crisscross grinding



4. CBN



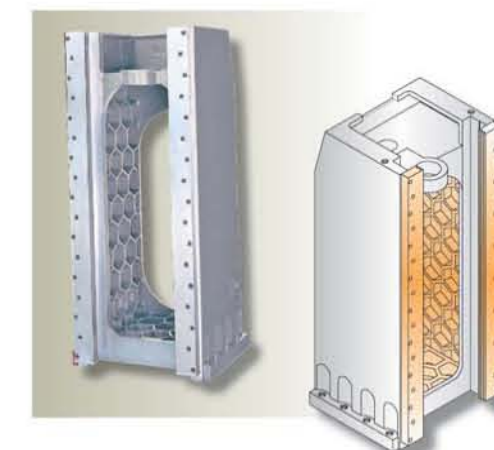
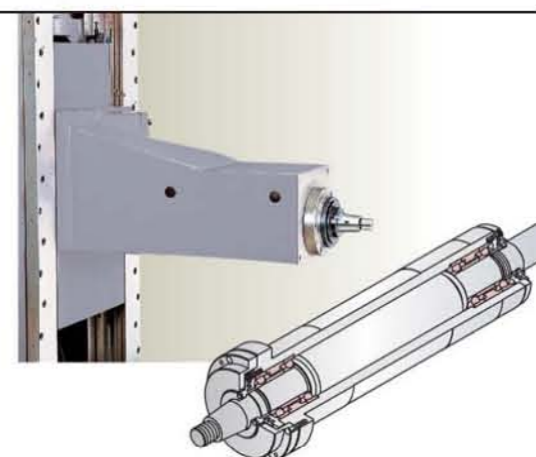
## ■ Column

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.

## MACHINE CONSTRUCTION(20 series)

## ■ Spindle

Spindle is supported by 5 pieces (6 pieces for 24 series) of class 7(P4) super precision angular contact ball bearings which have been accurately measured, selected and preloaded, and then assembled in a temperature controlled clean room. Spindle is permanently lubricated and requires no maintenance. Large diameter spindle is precisely balanced to ensure accuracy.



# FSG-20ADIII/ 24 ADS Series

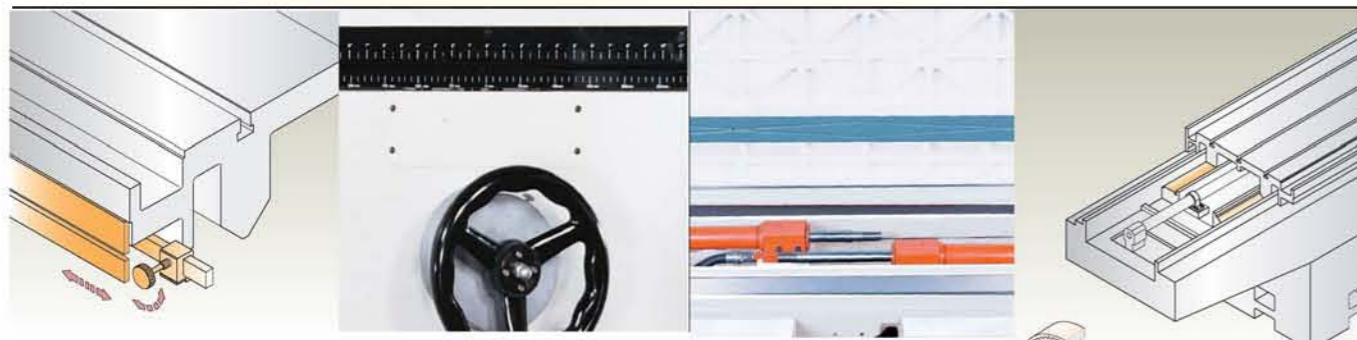
## COLUMN TYPE HIGH PRECISION 3- AXIS AUTOMATIC SURFACE GRINDER

### 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.

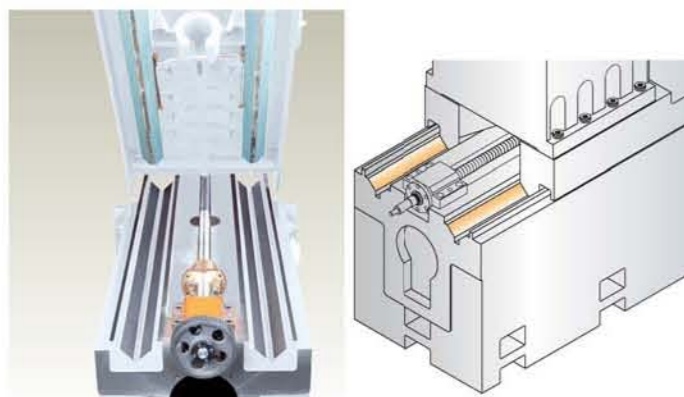
### Longitudinal Slide Way

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



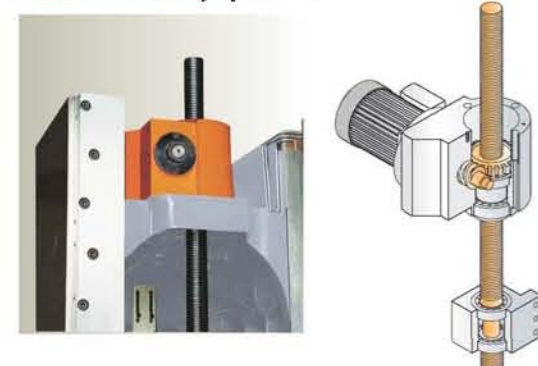
### Crossfeed Guideways

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.



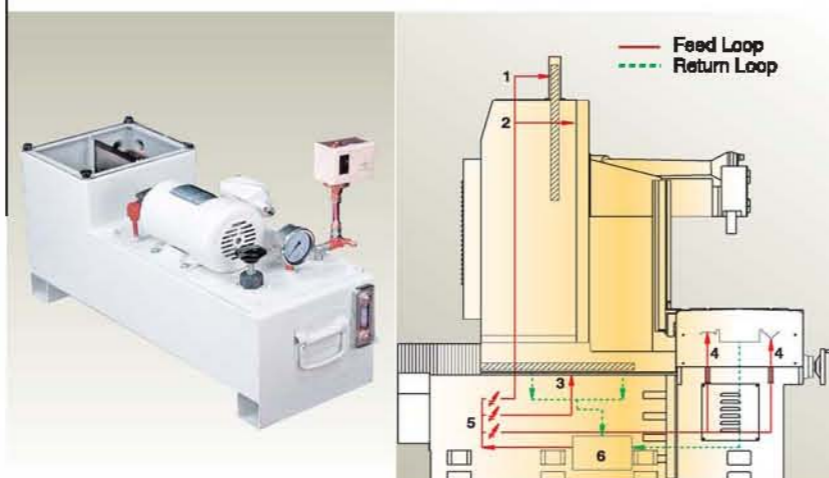
### Elevating Transmission Mechanism

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.



### Crossfeed Transmission Mechanism

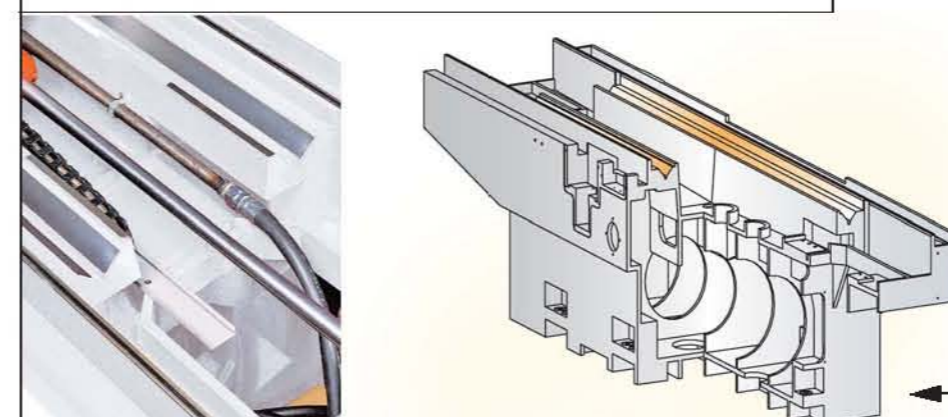
Enlarged precision leadscrew with backlash adjustment device is driven by an AC motor. The encoder type stroke setting key allows crossfeed reversal points to be set from operators control panel, thereby working efficiency is increased.



### 24 series

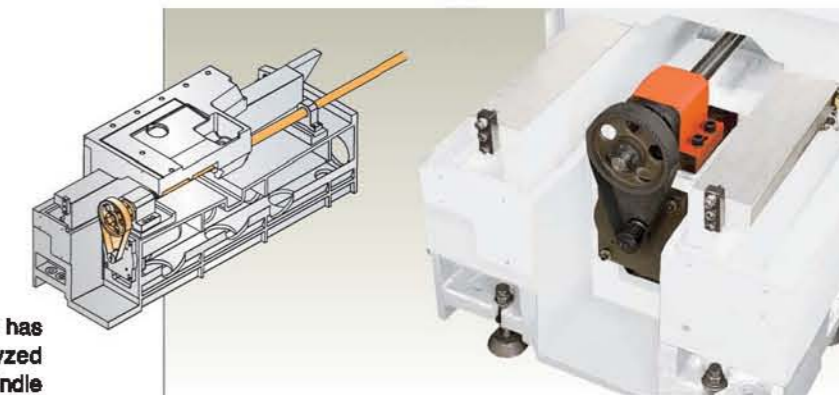
#### Stable Structure

The column is made of high grade dense cast iron which 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 servo motor for heavy grinding and smooth and accurate movement.



### Crossfeed Slideway

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



### Longitudinal Slideways

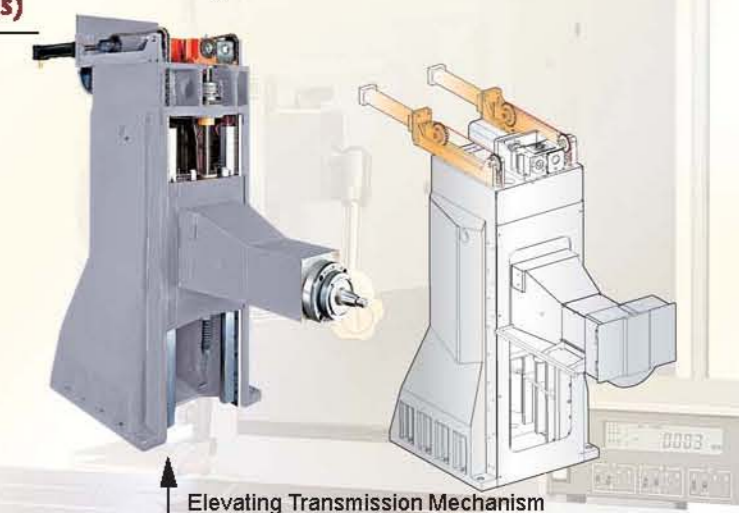
With double "V" guideways, which are laminated with turcite-B anti-friction material, for smooth and stable longitudinal movement.

The table is full supported on the well designed front base of machine, Thus, the accuracy is greatly increased.

Crossfeed Transmission Mechanism

### Spindle Counter Weights Balance System

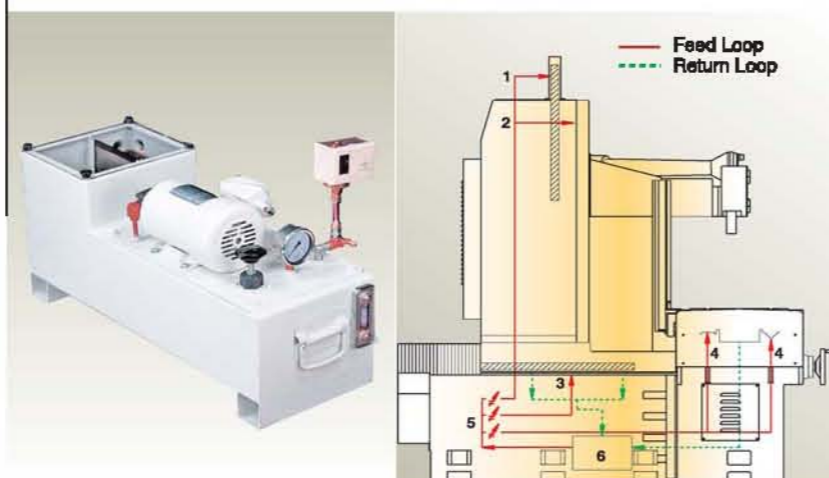
Hydraulic counter weights balance system is installed to eliminate backlash and wear of elevating screws.



### Automatic Lubrication System(20 and 24 series)

Equipped with a central continuous lubrication system. A warning light will illuminate if oil pressure drops below preset pressure.

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



# FSG-20ADIII/ 24 ADS Series

## 5 OPTIONAL ACCESSORIES(20 Series)

Note: Items marked with \* are recommended to be factory installed



**MACHINE LAMP**  
B01-0903  
(12V, 50W)



**DIAMOND DRESSER**  
B03-0401  
(1.0 Carat)



**WHEEL FLANGE**  
B05-0401  
Suitable for 55 x 127 x 50 mm  
(14" x 5" x 2")  
grinding wheel Clamping width:  
22 ~ 38mm(7/8" ~ 1 1/2")



**ELECTROMAGNETIC CHUCK**  
B09-1001 (2040)  
500 x 1,000mm(19 5/8" x 39 3/8")  
B09-1002 (2060)  
500 x 1,000mm(19 5/8" x 59") (Voltage:  
110VDC)  
\* To order B23-0705 chuck control is required.



**SPINDLE MOTOR**  
\* B31-1001  
(10HP, 4P) (2040)  
\* B31-1003  
7.5HP, 6P for 508mm(20") wheel



**CROSSFEED BALLSCREW**  
\* B37-1001 (metric)  
\* B37-1002 (inch)



**HYDRAULIC TEMPERATURE REGULATOR**  
\* B42-1001 (HBO-1000PSB)  
Cooling capacity: 1,000 kcal/hr  
\* B42-1002 (HBO-600PSB)  
Cooling capacity: 2,100 kcal/hr/60Hz



**FREQUENCY CONVERTER**  
\* B48-10011  
(7.5HP) (Voltage: 200V-230V) (2040)  
\* B48-10021  
(7.5HP+Transformer) (Voltage:  
480V-575V, 240V, 346V) (2040)  
\* B48-10031  
(10HP) (Voltage:200V-230V) (2060)  
\* B48-10041  
(10HP+Transformer) (Voltage:  
480V-575V, 240V, 346V) (2060)  
\* B48-10051  
(7.5HP) (Voltage: 380V-415V, 440V,  
460V) (2040)  
\* B48-10061  
(10HP) (Voltage: 380V, 415V, 440V,  
460V) (2060)

Note: Items marked with \* are recommended to be factory installed



**ELECTROMAGNETIC CHUCK**  
B09-07011  
600 x 1,000mm x 1pc  
(24" x 39 3/8" x 1pc)  
B09-0702  
600 x 1,500mm x 1pc  
(24" x 59" x 1pc)  
(Voltage: 110VDC)  
B09-0704  
600 x 1,000mm x 2pcs  
(24" x 39 3/8" x 2pcs)  
\* To order B23-0704 chuck  
control is required.



**AUTO OVER-THE-WHEEL DRESSER WITH AUTO DRESSING COMPENSATION**  
\* B13-0708  
Suitable for 406mm(16")  
grinding wheel Max.  
OD: 406mm(16")  
Mini OD: 236mm(9.3")  
Max. Length:76mm( 3")



**COOLANT SYSTEM WITH AUTO PAPER FEEDING DEVICE**  
B17-0701  
Volume: 250L  
Pump: 1/2HP  
Coolant Capacity: 120L/min.  
Space:1,600x1,100mm(63" x 43")  
Height: 750mm(29 1/2")



**COOLANT SYSTEM WITH AUTO PAPER FEEDING DEVICE & MAGNETIC SEPARATOR**  
B17-0702  
Volume: 250L  
Pump: 1/2HP  
Coolant Capacity: 120L/min.  
Space: 1,600 x 1,100mm(63" x 43")  
Height: 750mm(29 1/2")

## OPTIONAL ACCESSORIES (24 Series)

Note: Items marked with \* are recommended to be factory installed



**PARALLEL DRESSING ATTACHMENT (HYDRAULIC TYPE)**  
\* B13-1001  
Max. OD: 355mm (14")  
Mini OD: 235mm (9.3")  
Max. Length: 60mm(2.4")



**OVERWHEEL PARALLEL DRESSER WITH AUTOMATIC DRESS COMPENSATION**  
\* B13-1002  
Max. OD: 355mm (14")  
Mini OD: 235mm (9.3")  
Max. Length: 60mm (2.4")



**BALANCING STAND WITH LEVELLING BUBBLE**  
B15-0301  
Max. Dia: 355mm (14")  
Max. Width: 50mm (2")  
**BALANCING STAND (ROLLER TYPE)**  
B15-0702  
Max. Dia: 508mm (20")



**BALANCING STAND (ROLLER TYPE)**  
B15-0601  
Max. Dia: 355mm(14")



**MACHINE LAMP**  
B01-0702  
(24V, 50W)



**WHEEL FLANGE**  
B05-0701  
Bore size:127mm(Ø5")  
Clamping width: 43~50mm(1.7"~2")



**ROLLER BALANCING STAND**  
B15-0702  
Max. Wheel Dia.:508mm (20")



**GUILDWAY TYPE BALANCING STAND**  
B15-0703



**GRINDING WHEEL DYNAMIC BALANCER**  
\* B44-0703(SBS)



**HYDRAULIC TEMPERATURE REGULATOR for SPINDLE**  
\* B42-0801  
Volume: 50L



**DIAMOND DRESSER**  
B03-0701  
(1.0 Carat)



**FREQUENCY CONVERTER**  
\* B48-07081  
(25HP) (Voltage: 380V-460V)  
\* B48-07061  
(25HP) (Voltage: 200V-230V)  
\* B48-07011  
(15HP) (Voltage: 200-230V)  
\* B48-07021  
(15HP) (Voltage: 240V, 346V, 480V)  
\* B48-07031  
(15HP) (Voltage: 380V-460V)



**SPINDLE MOTOR**  
\* B31-0701  
25HP/4p, 1,200rpm/60cy,  
1,400rpm/50cy  
\* B31-0705  
15HP/6p, 1,200rpm/60cy,  
1,000rpm/50cy for Ø508mm  
( Ø20" ) wheel  
\* B31-0706  
25HP/6p, 1,200rpm/60cy,  
1,000rpm/50cy for Ø508mm  
( Ø20" ) wheel

## STANDARD ACCESSORIES

Note: The items marked \* with are stored in the tool box.

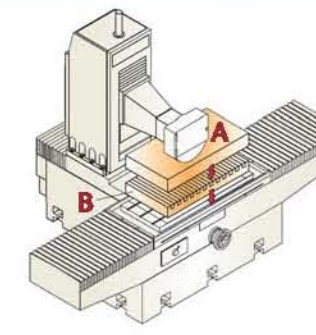


1. Tool box
2. Wheel flange
3. Grinding wheel
4. Locking nut
5. Wheel flange extractor
6. Balancing arbor
7. Hook spanners
8. Wrench
9. Fuse
10. Touch-up paint
11. Levelling pads
12. Levelling screws and nuts
13. Splash guard
14. Hydraulic temperature regulator (for 24 series)
15. Water baffle (for 24 series)

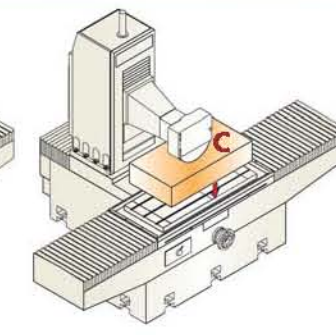
## PERMISSIBLE LOAD OF MACHINE

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

	A = Workpiece		B = Magnetic chuck		C = A + B
MODEL	2040ADIII	2060ADIII	2440ADS	2460ADS	2480ADS
A Kgs (lbs.)	900 (1,980)	1,100 (2,420)	1,120 (2,464)	1,320 (2,904)	1,240 (2,782)
B Kgs (lbs.)	270 (524)	440 (968)	380 (836)	480 (1,056)	760 (1,672)
C Kgs (lbs.)	1,170 (2,574)	1,540 (3,388)	1,500 (3,330)	1,800 (3,960)	2,000 (4,400)



Grinding with Electromagnetic Chuck



Grinding without Electromagnetic Chuck