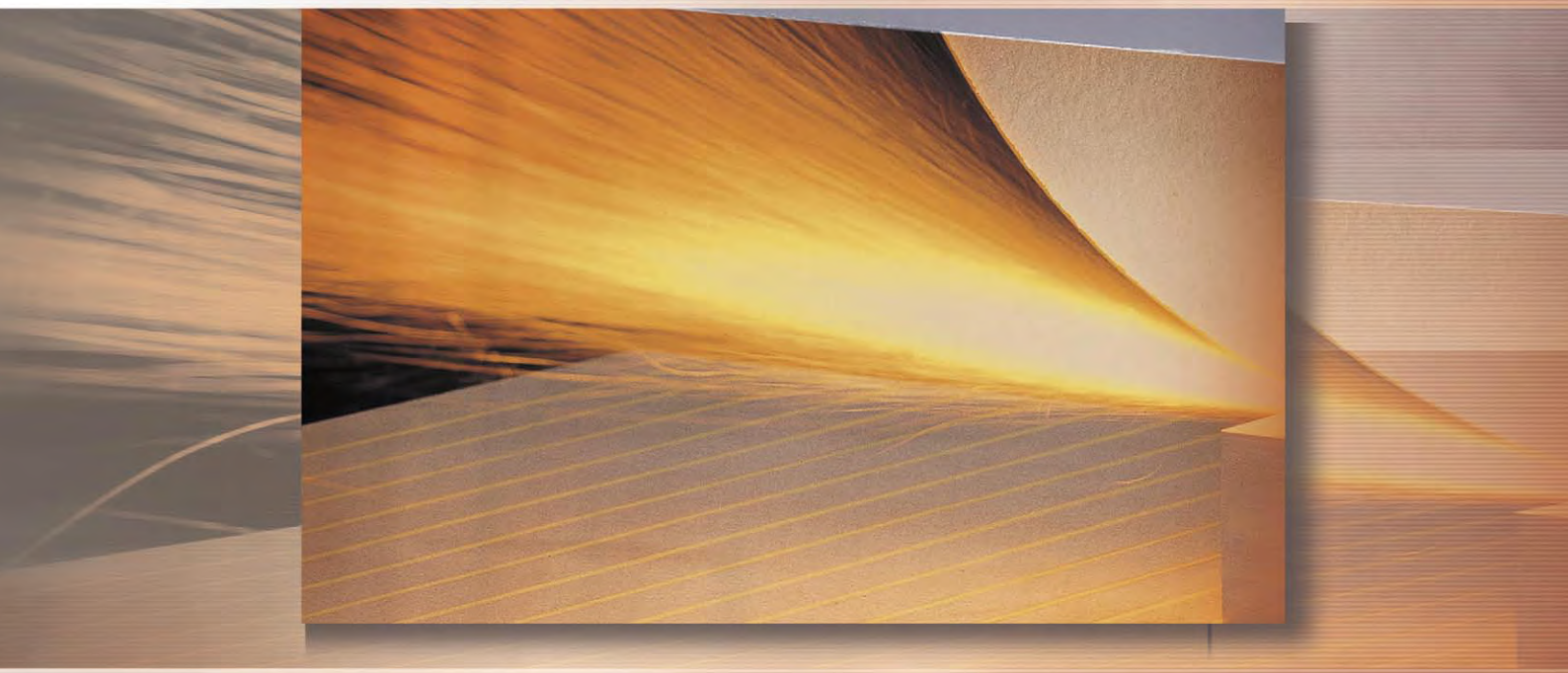
CHEVALIER®

# FSG-2A1020/3A1020
# FSG-2A1224/3A1224

## PRECISION SURFACE GRINDER




ISO 9001
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IT'S VERY WELL MADE IN TAIWAN

1 FEATURES

# PRECISION SURFACE

## FSG-2A1020.3A1020
## FSG-2A1224.3A1224
### PRECISION SURFACE GRINDER

These high precision surface grinders have been specially developed and improved in recent years. The optimum span of double V crossfeed guideways is designed based on bending moment, Kinematics and supporting force. All essential castings are made of high grade of cast iron that is stress relieved through annealing to eliminate internal stress. With the greatest stiffness and stability of the castings, these machines are suitable for precision surface grinding. These grinders are offered with one-full-year limited warranty for mechanical and electrical parts.


**FSG-2A1020**
Note:Machine shown with optional accessories


**FSG-3A1020**
Note:Machine shown with optional accessories

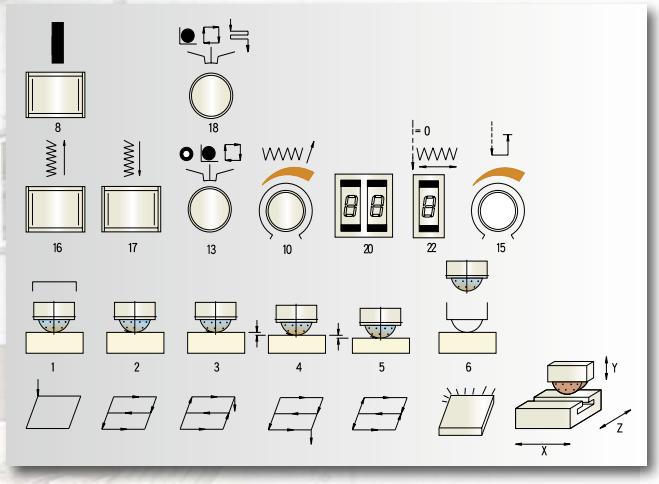
# 1020·2/3A1224 Series



## GRINDER

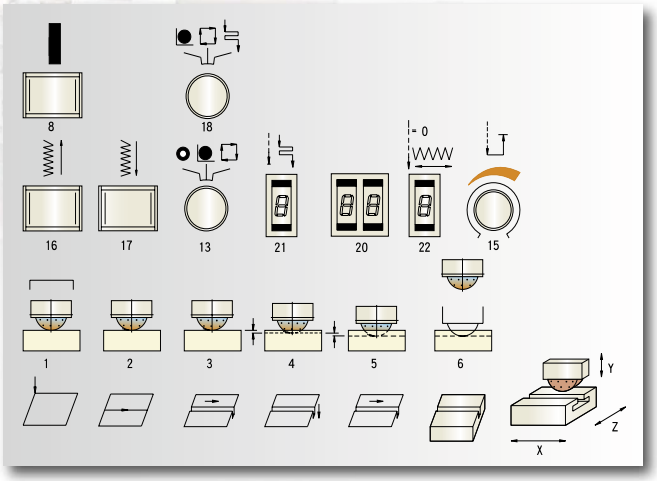
### AUTOMATIC SURFACE GRINDING CYCLE (3A SERIES)

1. Turn the switch (18) to the ( ) position. Descend the rinding wheel to the surface of workpiece closely by pushing the button(17). Approach the surface of workpiece by using the microfeed knob in a 0.0001"(0.002mm) increment until a spark generated.
2. The total stock removal can be set at the elevating handwheel.
3. Turn the switch (13) to the ( ) position. A crossfeed increment can be set by turning the switch the (10). And them turn the switch (18) to the ( ) position. The downfeed increment can be adjusted from 0.0001" (0.002mm) to 0.002" (0.04mm) at the switch (20).
4. Set the required spark-out times at the switch (22) and the automatic lifting distance of grinding wheel after cycle finished at the switch (15).
5. Push the button (8) to start the auto grinding cycle. When the grinding cycle is finished, the grinding wheel will lift up to the preset position.




### AUTOMATIC PLUNGE GRINDING CYCLE (3A SERIES)

1. Turn the switch (18) to the ( ) position. Descend the grinding wheel to the surface of workpiece closely by pushing the button (17).
2. Approach the surface of workpiece by using the microfeed knob in a 0.0001"(0.002mm) increment until a spark generated.
3. The total stock removal can be set at the elevating handwheel.
4. Turn the switch (13) . to the ( ) position. The downfeed increment can be adjusted from 0.0001" (0.002mm) to 0.002" (0.04mm) at the switch (18) to the ( ) position. Set how many times you want the downfeed to occur on the switch(21).
5. Set the required spark-out times at the switch (22) and the automatic lifting distance of grinding wheel after cycle finished at the switch (15).
6. Push the button (8) to start the auto grinding cycle. When the grinding cycle is finished, the grinding wheel will lift up to the preset position.





**FSG-2A1224**

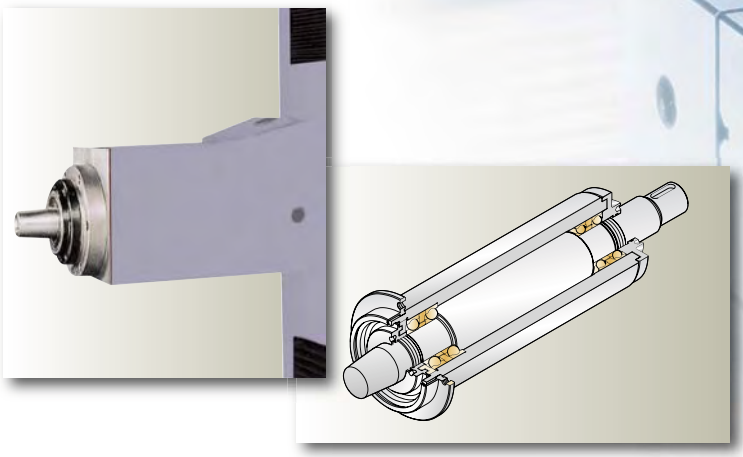
Note:Machine shown with optional accessories


**FSG-3A1224**

Note:Machine shown with optional accessories

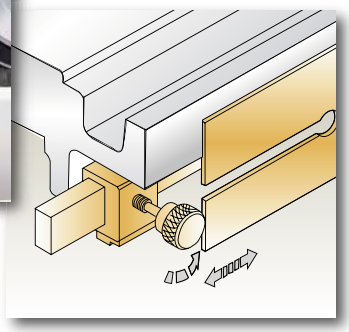
## High Precision Cartridge Type Spindle

Spindle is supported by 4 pieces 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 room to ensure better grinding accuracy and surface finish. The labyrinth seal type structure is designed to offer better water resistance, thus enhance longevity of spindle bearings.



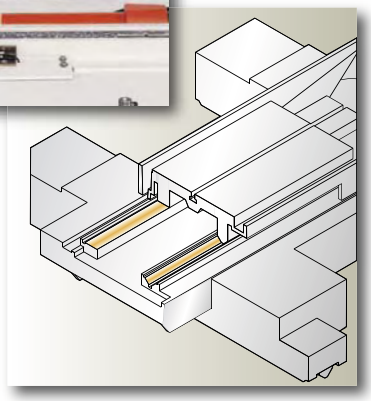
## Table Reversing Mechanism

By using proximity switches, operator can easily set suitable table stroke for each workpiece to save grinding time and obtain higher grinding efficiency. The proximity switches have been properly covered for operator's safety.



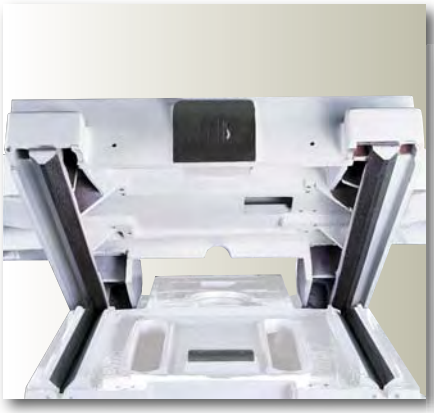
## Longitudinal Slideways

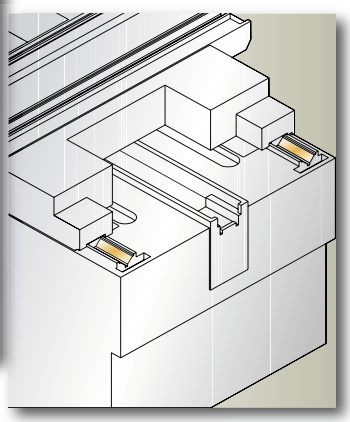
The Longitudinal slideways are laminated with Turcite-B and precisely hand scraped. The low friction slideways incorporated with automatic forced lubrication system ensures high accuracy and longer way life.



## Durable Slideways

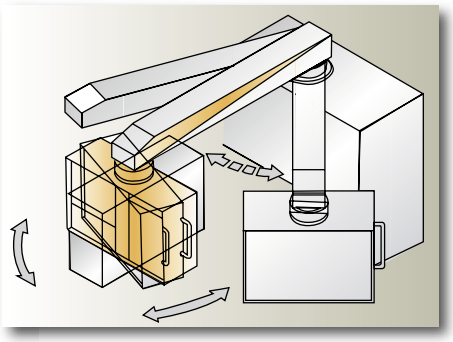
Machine base slideways are laminated with Turcite-B and precisely hand scraped. The low friction slideways incorporated with automatic forced lubrication system ensures high accuracy and longer way life.





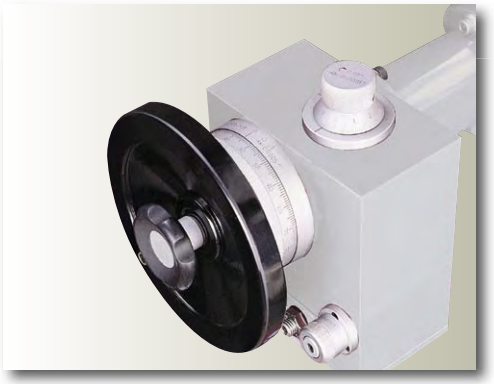
## MACHINE CONSTRUCTION 4

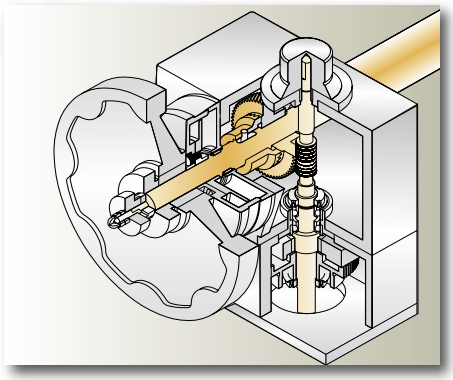
# CE GRINDER



### Control station (3A Series)

The control station can be adjusted to a comfortable position for operator. All switches, indicators, lamps, LEDS, and displays laid out are designed as ergonomic concept for easy operation.

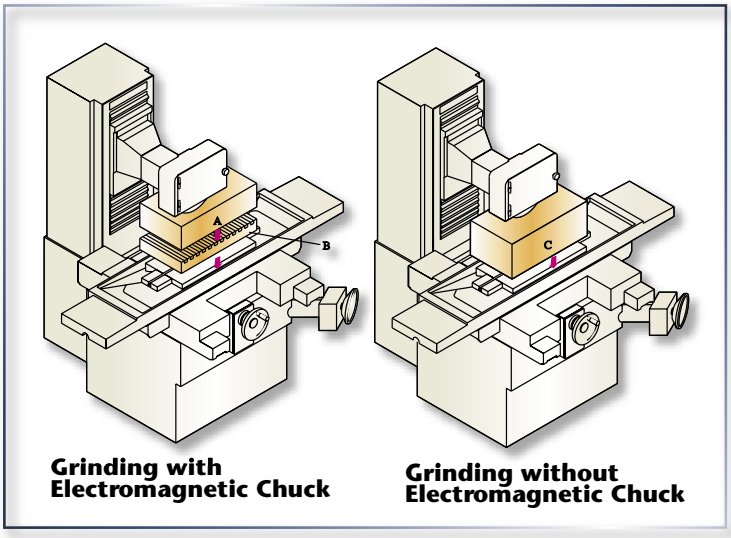




### Elevating Micro Feed Device (3A Series)

The stepping downfeed device is very convenient for rough and fine grinding. Push down the step-feed button, the infeed wheelhead will be 0.00001" (2.5$\mu$m) or 0.0002" (5$\mu$m) selected by a selector at the top of this device. The top of this device. At the upper position there is an adjustable handle for approaching and rough grinding.

## PERMISSIBLE LOAD OF MACHINE




The total suggested maximum workloads of table are shown as follows:

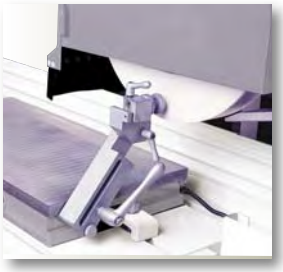
| A=Workpiece | B=Magnetic Chuck | C=A+B |
|---|---|---|
| MODEL | 1020 Series | 1224 Series |
| A lbs(kg) | 551 lbs (250kg) | 690 lbs (314kg) |
| B lbs(kg) | 220 lbs (100kg) | 233 lbs (106kg) |
| C lbs(kg) | 771 lbs (350kg) | 924 lbs (420kg) |

# OPT. ACCESSORIES

Note: Items marked with ● are recommended to be factory installed

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

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

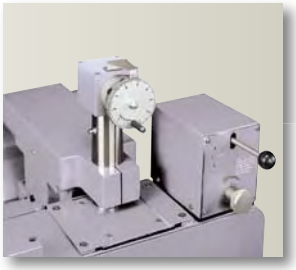


**SINGLE FACE DRESSER**
B13-0301

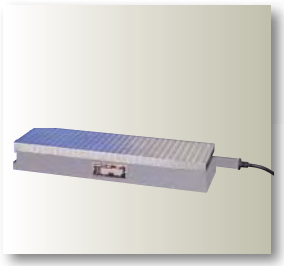
**PERMANENT MAGNETIC CHUCK**
B09-0502 (2,3A1020)
9 7/8″x19 3/4″
(250mmx500mm)

**PARALLEL DRESSING ATTACHMENT (MANUAL)**
● B13-05041 (2,3A1020)
MAX. OD: 12″(305mm)
MIN. OD: 9.3″(235mm)
● B13-0902 (2,3A1224)
MAX. OD: 14″(355mm)
MIN. OD: 9.3″(235mm)

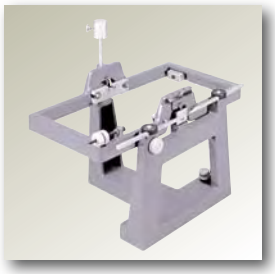
**WHEEL FLANGE**
B05-0401 (2,3A1224)
Suitable for ø14″x ø5″x2″
(355x127x50mm)
grinding wheel
B05-0501 (2,3A1020)
Suitable for ø12″x ø3″x11/4″
(305x76.2x31.75mm)



**PARALLEL DRESSING ATTACHMENT(HYDRAULIC)**
● B13-0901 (2,3A1020)
MAX. OD: 12″(305mm)
MIN. OD: 9.3″(235mm)
● B13-04011 (2,3A1224)
MAX. OD: 14″(355mm)
MIN. OD: 9.3″(235mm)



**ELECTROMAGNETIC CHUCK**
B09-04011 (2,3A1224)
11 3/4″x23 5/8″
(300mmx600mm)
B09-05011 (2,3A1020)
9 7/8″x19 3/4″(250mmx500mm)
(To order B23-0602(3A) ,B23-0701
(2A) control is required)



**BALANCING STAND WITH LEVELLING BUBBLE**
B15-0301
MAX. OD: 14″(355mm)
MAX. WITH: 2″(50mm)

**BALANCING STAND (ROLLER TYPE)**
B15-0601
Suitable for 8″~14″
(203~355mm)
grinding wheel

**CHUCK CONTROLLER**
B23-0602
(3A1020&3A1224)
(Micro computer)

**CHUCK ONTROLLER**
B23-0701
(2A1020&2A1224)
Input: 140VAC
Output: 115VDC

**RAPID ELEVATION DEVICE AND MICRO DOWNFEED DEVICE**
(Standard on 3A series)
● B39-0901
(2A1020&2A1224)

**MICRO DOWNFEED DEVICE**
(Standard on 3A series)
● B39-0902
(2A1020&2A1224)

**WATER BAFFLE**
- B19-0905 (Single Side) (2,3A1020)
- B19-0910 (Double Side) (2,3A1224)

**SPLASH GUARD WITH NOZZLE**
FOR COOLANT SYSTEM
B19-0908 (2,3A1020)
B19-0907 (2,3A1224)

**COOLANT SYSTEM WITH AUTO PAPER FEEDING DEVICE**
(With 1 Roll of Paper)
B17-0301
Volume: 120L
Paper feeding motor: 25W
Pump: 1/8HP
Space: 57″x 24 3/8″ (1450x620mm)
Height: 30″(760mm)

**COMBINATION COOLANT & DUST EXHAUST UNIT**
B17-0101
Volume: 34L
Pump: 1/8HP
Coolant Capacity: 20L/min
Space: 15 3/4″x31 1/16″ (398°—798mm) Height: 26 3/4″(680mm)

**COOLANT SYSTEM WITH AUTO PAPER FEEDING DEVICE AND MAGNETIC SEPARATOR**
(With 1 Roll of Paper)
B17-0302
Volume: 120L
Paper feeding motor: 25W
Pump: 1/8HP
Coolant Capacity: 20L/min
Separator Capacity: 40L/min
Space: 57″x24 3/8″ (1450x620mm)
Height: 30″(760mm)

**DUST COLLECTOR**
B17-0102
Suction Motor: 1/2HP, 2P
Space: 18 1/2″x19 11/16″ (470x500mm)
Height: 23″(585mm)

**COOLANT SYSTEM**
B17-0110
Volume: 42L
Pump: 1/8HP
Space: 57″x24 3/8″
Coolant Capacity: 20L/min

**COOLANT SYSTEM WITH DOUBLE FILTER**
B17-0901
Volume: 95L
Pump: 1/8HP
Coolant Capacity: 20L/min

**COMBINATION COOLANT & DUST EXHAUST UNIT WITH MAGNETIC SEPARATOR**
B17-0106
Volume: 34L
Pump: 1/8HP
Coolant Capacity: 20L/min
Suction Motor: 1/2HP
Separator: 20L/min
Space: 24 3/4″x31 1/16″ (628x790mm)
Height: 26 3/4″(680mm)

**COOLANT SYSTEM WITH MANUAL PAPER FEEDING DEVICE**
(With 1 Roll of Paper)
B17-0107
Volume: 85L
Pump: 1/8HP
Coolant Capacity: 20L/min
Space: 21 21/32″x39 3/8″ (550x1000mm)
Height: 30 1/2″(775mm)

## STD. ACCESSORIES

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

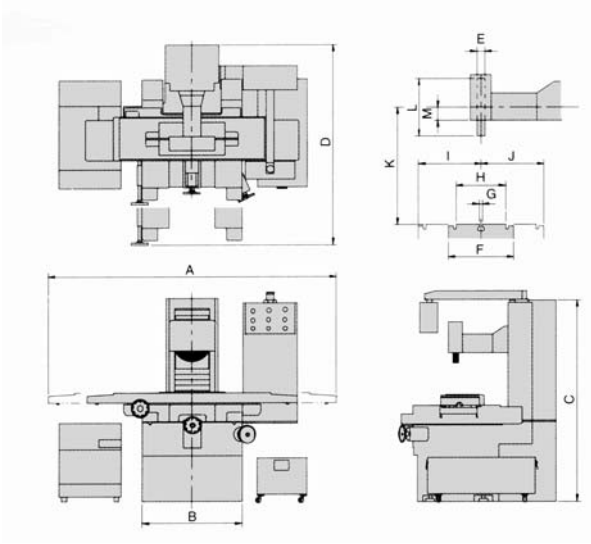

1. Tool box
2. Grinding wheel
3. Wheel flange
- 4. Levelling screws
- 5. Levelling pads
- 6. Hex. Wrench
- 7. Balancing arbor
- 8. Fuses
- 9. Hole plugs
- 10. Touch-up
- 11. Screw driver
- 12. Magnetic chuck setting screw
- 13. Lifting rods
- 14. Wrench

# SPECIFICATION

| Description | | FSG-2,3A1020 | FSG-2,3A1224 |
|---|---|---|---|
| Table Size | | 10″x20″ (254x508mm) | 12″x24″ (305x610mm) |
| Max. grinding length | Longitudinal | 20″(508mm) | 24″(610mm) |
| Max. grinding width | Crosswise | 10″(254mm) | 12″(305mm) |
| Max. distance from table surface to spindle centerline | | 21 1/2″(550mm) | 24 3/4″(630mm) |
| Standard magnetic chuck size | | 9 7/8x19 3/4″ (250x500mm) | 11 3/4x23 5/8″ (300x600mm) |
| Longitudinal movement | Longitudinal travel,hydraulic | 22 7/8″(580mm) | 25 5/8″(650mm) |
| | Maximum travel, manual | 24 3/8″(620mm) | 27 1/2″(700mm) |
| | Table speed, infinitely variable | 16-82fpm(5~25m/min) | |
| Cross transverse travel | Rapid travel, approx. | 48ipm (960mm/min) | 56ipm (1100mm/min) |
| | Automatic transverse increment. | 0.02~0.4″ (0.4~10mm) | 0.04~0.5″(1~12mm) |
| | Maximum automatic transverse travel | 11 7/16″(290mm) | 14 1/8″(360mm) |
| | Maximum manual transverse travel | 11 3/4″(300mm) | 14 1/2″(370mm) |
| | Handwheel per revolution | 0.2″(4mm) | |
| | Handwheel per graduation | 0.001″(0.02mm) | |
| Wheelhead vertical infeed | Automatic infeed | 0.0001″~0.0002″(0.002~0.04mm) (3A Standard on 3A) | |
| | Handwheel per revolution | 0.1″(2mm) | |
| | Handwheel per graduation | 0.0005″(0.01mm) | |
| | Rapid travel, approx. | 13ipm (330mm/min) (3A Standard on 3A) | |
| | Micro feed Per revolution | 0.01″(0.2mm) (3A Standard on 3A) | |
| | Micro feed Per graduation | 0.0001″(0.002mm) (3A Standard on 3A) | |
| Grinding spindle drive | Speed | 60HZ/1750rpm, 50HZ/1450rpm | |
| | Power rating | 3HP/2.3kw | 5HP/3.7kw |
| Hydraulic drive | Power rating | 1HP/0.76kw | 2HP/1.5kw |
| Crossfeed drive | Power rating | 0.05HP/40w | 0.1HP/80w |
| Elevating drive | Power rating | 1/4HP/0.19kw(3A Standard accessory) | |
| Standard grinding wheel | Diameter | 12″(305mm) | 14″(355mm) |
| | Width | 1 1/4″(31.75mm) | 2 ″(50mm) |
| | Bore | 3″(76.2mm) | 5″(127mm |
| Weights | (3A model ) | 3306 lbs(1500kgs) | 4630 lbs(2100kgs) |
| Rated power pprox. | | 6HP/4.5kw | 10HP/7.4kw |
| Packing dimensions | LxWxH | 97.5″70″x88″ (2477x1778x2235mm) | 108″75″x88″ 2743x1905x2235mm) |
| Floor space | LxWxH | 96x″61″x75″ (2440x1550x1900mm) | 105″ x72″x75″ (2670x1830x1900mm) |

※ Note: The manufacturer reserves the right to modify the design, specifications, mechanisms... etc. of the machine without prior notice.All the specifications shown above are just for reference.

# DIMENSIONAL DRAWINGS




| MODEL | 2A1020/3A1020 | 2A1224/3A1224 |
|---|---|---|
| A | 96″(2440mm) | 105″(2670mm) |
| B | 29 7/8″(760mm) | 36 1/4″(920mm) |
| C | 72″ (1830mm) / 74 1/2″ (1895mm) | 79 1/2″ (2020mm) |
| D | 60 5/8″(1540mm) | 71 1/4″(1810mm) |
| E | 1 1/4″(31.75mm) | 2″(50mm) |
| F | 13 3/8″(340mm) | 15 7/8″(402mm) |
| G | 9/16″(14mm) | 9/16″(14mm) |
| H | 10 1/4″(260mm) | 12″(305mm) |
| I | 12 5/8″(320mm) | 15 1/8″(385mm) |
| J | 12 5/8″(320mm) | 15 1/4″(387mm) |
| K | MAX:21 1/2″(550mm) / MIN:4″(100mm) | MAX:24 3/4″ (630mm) / MIN:4 3/4"(120mm) |
| L | 12″(305mm) | 14″(355mm) |
| M | 2 7/8″(72mm) | 3 1/4″(83mm) |

Cat.: 0916-00002C00 / R000048153 / 20050504 / 1000 DTP Design: VIVI / FALCON MACHINE TOOLS CO., LTD.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