

## Machine Specifications ND 2 type

| Model                              | GP-45D (GP-55D)                               |                               |          |                           |           |           |           |    |
|------------------------------------|---|-------------------------------|----------|---------------------------|-----------|-----------|-----------|----|
|                                    | 100ND2  | 150ND2                        | 220ND2   | 300ND2                    | 400ND2    | 500ND2    |           |    |
| Capacity                           | Swing over table                              | φ 450 (φ 550) mm              |          |                           |           |           |           |    |
|                                    | Distance between centers                      | 1,000 mm                      | 1,500 mm | 2,200 mm                  | 3,000 mm  | 4,000 mm  | 5,000 mm  |    |
|                                    | Max. grinding diameter                        | φ 430 (φ 530) mm              |          |                           |           |           |           |    |
|                                    | Max. workpiece mass (when using both centers) | 650 kg                        | 1,000 kg |                           |           |           |           |    |
| Wheelhead                          | Swivel angle                                  | Non-swivel                    |          |                           |           |           |           |    |
|                                    | Wheel size (O.D. x W x I.D.)                  | φ 610 x 75 x φ 254 mm         |          |                           |           |           |           |    |
|                                    | Max. wheel peripheral speed                   | 33 m/sec                      |          |                           |           |           |           |    |
|                                    | Total feed amount                             | 440 mm                        |          |                           |           |           |           |    |
|                                    | Rapid feed amount                             | 60 mm                         |          |                           |           |           |           |    |
|                                    | Rapid feed speed                              | φ 0 to 10,000 mm/min [4-step] |          |                           |           |           |           |    |
|                                    | Min. input increment                          | φ 0.0001 mm                   |          |                           |           |           |           |    |
| Workhead                           | Swivel angle                                  | Non-swivel                    |          |                           |           |           |           |    |
|                                    | Work spindle                                  | Dead spindle                  |          |                           |           |           |           |    |
|                                    | Rotational speed                              | 3 to 200 min <sup>-1</sup>    |          |                           |           |           |           |    |
|                                    | Taper hole                                    | MT. No. 5                     |          |                           |           |           |           |    |
| Tailstock                          | Type  | Manual lever type             |          |                           |           |           |           |    |
|                                    | Tailstock spindle stroke                      | 50 mm                         |          |                           |           |           |           |    |
|                                    | Taper hole                                    | MT. No. 5                     |          |                           |           |           |           |    |
| Table                              | Swivel angle                                  | C. C. W.                      | 8.3°     | 6.3°                      | 5°        | 4°        | 3.5°      | 2° |
|                                    |   | C. W.                         | 1.5°     | 1°                        | 1°        | 0.5°      | 0.5°      | 0° |
|                                    | Rapid feed speed                              | 0 to 10,000 mm/min [4-step]   |          |                           |           |           |           |    |
|                                    | Min. input increment                          | 0.0001 mm                     |          |                           |           |           |           |    |
| Motor                              | Wheel spindle                                 | 11 kW 4P                      |          |                           |           |           |           |    |
|                                    | Work spindle                                  | AC servo                      | 3 kW     |                           |           |           |           |    |
|                                    | Wheelhead infeed                              | AC servo                      | 3 kW     |                           |           |           |           |    |
|                                    | Table traverse                                | AC servo                      | 6 kW     | 4 kW [with speed reducer] |           |           |           |    |
|                                    | Wheel spindle lubrication oil pump            | 0.1 kW 4P                     |          |                           |           |           |           |    |
|                                    | Hydraulic pump                                | 0.75 kW 4P                    |          |                           |           |           |           |    |
|                                    | Coolant pump                                  | 0.25 kW 2P                    |          |                           |           |           |           |    |
| Tank capacity<br>[Viscosity grade] | Wheel spindle lubrication oil tank            | 12 L [ISO VG5]                |          |                           |           |           |           |    |
|                                    | Tailstock spindle lubrication oil tank        | 0.26 L [ISO VG460]            |          |                           |           |           |           |    |
|                                    | Hydraulic oil tank                            | 54 L [ISO VG68]               |          |                           |           |           |           |    |
|                                    | Coolant tank                                  | 300 L                         |          |                           |           |           |           |    |
| Center height from floor           | 1,200 (1,250) mm                              |                               |          |                           |           |           |           |    |
| Mass of machine (approx.)          | GP-45D  | 8,700 kg                      | 9,700 kg | 11,200 kg                 | 12,800 kg | 14,900 kg | 16,700 kg |    |
|                                    | GP-55D  | 8,900 kg                      | 9,900 kg | 11,400 kg                 | 13,000 kg | 15,100 kg | 16,900 kg |    |

( ) denotes the specifications for the GP-55D series.

## CNC Specifications (FANUC)

| Item   | Specifications                               | Tool function       | Tool nose radius compensation |
|--|--|---------------------|-------------------------------|
| No. of registerable workpiece in interactive display | 47 pcs. (Max 20 different diameters per pc.) |                     | Tool offset pairs [64 pairs]  |
| Program capacity                                     | 512 KB                                       | Editing operation   | Program protect               |
| Display  | 8.4-inch color LCD                           | Setting and display | Self-diagnosis function       |
| Operation  | Single block                                 |                     | Alarm display                 |
|  | Manual handle interruption                   |                     | Alarm history display         |
| Program input  | Optional block skip (1)                      |                     | Operation history display     |
|  | Custom macro B                               |                     | Help function                 |
|  | Circular interpolation by R programming      | Data input/output   | Memory card                   |



<http://www.shigiya.co.jp>

Please contact us for the ND and A type specifications.

### SHIGIYA MACHINERY WORKS LTD.

5378 Minoshima-cho, Fukuyama, Hiroshima, 721-8575 Japan TEL 81-84-953-6631 FAX 81-84-954-2574

### SHIGIYA(USA)LTD.

651 East State Pkwy,  
Schaumburg, Illinois,  
60173 U.S.A.  
TEL 1-847-325-4800  
FAX 1-847-325-4218

### SHIGIYA(THAILAND)LTD.

888/37 Moo 9, Soi Roongcharoen,  
Lieb Kleng Suvarnabhumi Road, Bangpla,  
Bangplee, Samutprakarn, 10540 Thailand  
TEL 66-2181-6773,4  
FAX 66-2181-6775

### SHIGIYA(SHANGHAI)LTD.

A7-202 Shanghai Jiahua Business Center,  
No.808 Hongqiao Road, Xuhui-qu,  
Shanghai, 200030 China  
TEL 86-21-6447-9069  
FAX 86-21-6447-9062

### SF PRECISION CO., LTD.

118-3, Sinchon-Dong,  
Seongsan-Gu, Changwon-City,  
Gyeongnam, Korea  
TEL 82-55-284-7800  
FAX 82-55-284-7801

- Descriptions contained in this catalog are subject to change without prior notice. Some of the photos contained in this catalog are different from the standard specifications.
- The capacity ranges for the models in this catalog may be changed depending on the dimensions or shape of the wheel or workpiece, or due to the addition of special specifications. Please contact us for details.
- An export license from the Japanese government is needed to export a product that is considered to be a controlled substance for technical information/service under Japan's Foreign Exchange Law and/or Foreign Trade Law.
- This machine includes a device which detects the relocation of the machine (depending on the destination). In the case of relocating, reselling, or exporting the machine, you are required to contact Shigiya Machinery Works Ltd. in advance.
- Shigiya Machinery Works Ltd. may refuse to restart the machine after its relocation, if they determine that it is an unauthorized export of goods/technology or doing so would otherwise violate applicable export restrictions.
- Shigiya Machinery Works Ltd. shall have no liability for any losses or the service warranty as a result of the machine being disabled due to the abovementioned reasons.

Cylindrical Grinder  
CNC Cylindrical Grinder

GP-45D  
-55D



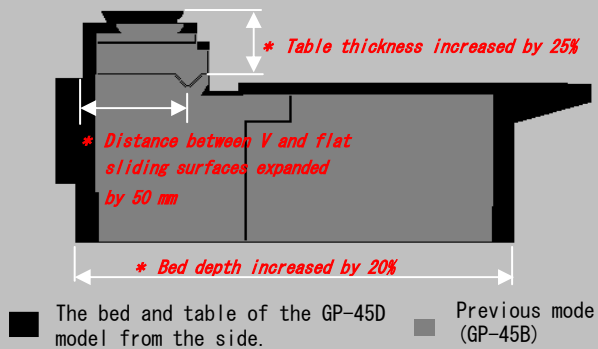
# For a higher precision grinder with more functions

GP-45D (GP-55D) has been developed to provide multi-grinding function as well as more consistent accuracy and greater ease of use than previous models of our long selling grinder series, which has gained popularity and trust in the construction, printing, heavy electrical machinery and machine tool industries.

- Space requirement is reduced by 200 to 550 mm with accordion bed cover and new cableveyor.
- Integration of wheelhead base and saddle further improves the feeding rigidity by reducing the distance between the wheel spindle and the sliding surface.
- Drainage ways of coolant on the upper table are angled towards the wheelhead, enabling better drainage of coolant.
- Newly designed splash covers reduce the amount of coolant mist.
- Efficiency of coolant use is improved by 100% compared to the previous model by upgrading the coolant pump power to 250 W.
- Easier maintenance with less wiring inside the bed.



- Consistent grinding accuracy resulting from improved machine rigidity
- Wheelhead automatic swivel system that enables multi-grinding (optional)
- High quality grinding capability with hydrostatic wheelhead slide system and an extremely low-vibration wheel spindle motor (optional)



■ The bed and table of the GP-45D    ■ Previous model (GP-45B)  
model from the side.

- For table feeding, the models with a center distance of 4,000 to 5,000 mm are equipped with a ball screw support unit that does not employ hydraulic mechanism (ND2 type).

Above are examples of the many improved features of the model.

GP-45D-300ND2  
※ The machine shown in the photo has some parts different from the standard specifications.

| Standard Accessories         |                                    |                |
|------------------------------|------------------------------------|----------------|
| Item                         |                                    | Quantity       |
| Wheel flange                 | φ 610 x 38 to 75 x φ 254 mm        | 1 set          |
| Wheel flange extracting nut  |                                    | 1 set          |
| Carbide tipped center ※      |                                    | 2 pcs.         |
| Diamond tool holder ※        |                                    | 1 set          |
| Jack bolt & Foundation plate |                                    | Necessary pcs. |
| Tool set                     |                                    | 1 set          |
| Splash cover                 | Front splash cover: Insertion type | 1 set          |

※ These do not come with the Grinder, depending on its specifications.

| Optional Accessories                |                      |
|-------------------------------------|----------------------|
| Item                                | Remarks              |
| Wheel balancing stand               | φ 760 x 240 mm       |
| Wheel balancing arbor               | φ 77 x 2/15 x 370 mm |
| Wheel lifting tool                  | Screw fix type       |
| Spare wheel flange                  |                      |
| Diamond tool                        |                      |
| Table swivel angle measuring device |                      |
| 2-point steady rest                 |                      |
| Work rest                           | φ 20 to 300 mm       |
| Scroll chuck set                    | #10                  |
| Independent 4-jaw chuck set         | #10 / #12            |

| Optional Specifications                           |                                |
|---|--------------------------------|
| Item  | Remarks                        |
| Machine color as specified by customer (1 color)  | Standard color: Munsell 5GY9/1 |
| Foundation parts                                  |                                |
| Specification change of wheel cover               | φ 760 x 130 mm, 33 m/s, 15 kW  |
| Extremely low vibration wheel spindle motor       | Air cooling / Oil cooling      |
| Jib crane   |                                |
| Overhead straight wheel dressing device           | φ 610 x 75 mm, 33m/s, 11 kW    |
| Internal grinding attachment                      | SA-902 / SA-903                |
| In-process O.D. gauge                             | φ 8 to 92 mm                   |
| Manual slide front splash cover                   |                                |
| Dead-live spindle workhead with swivel base       | Center support mass: 650 kg    |
| Tailstock with manual fine taper adjustment       |                                |
| Hydraulic operated tailstock                      | Stroke: 50 mm                  |
| Hydraulic held tailstock with manual handwheel    |                                |
| Magnetic coolant dust separator                   | 80 L/min. / 120 L/min.         |
| Magnetic & Paper filter coolant dust separator    | 80 L/min. / 120 L/min.         |
| Machine lighting equipment                        | LED 7 W x 2                    |
| MPG + Manual handwheel device (Meister handwheel) | Applicable for ND2 type only   |

## Non-swivel Wheelhead



The high-precision rotation of the wheel is a result of the non-concentric hydrodynamic bearings, which secure the optimal wedge angle based on hydrodynamics. The bearings are ground with a high degree of precision using a grinder that SHIGIYA has developed exclusively for grinding bearings. Also, a larger diameter wheel can be mounted (Max. φ 760 mm) as an option to provide high precision grinding, high efficiency, and high productivity.

## Non-swivel Dead spindle workhead



This non-swivel dead spindle workhead has the rigidity to perform heavy grinding. The ND2 type model employs an AC servo motor and can change the workpiece's rotational speed steplessly. With the A and ND type models, the rotational speed of the workpiece can be varied in eight steps by changing the drive belts and poles. It can be changed to a dead-live spindle workhead with swivel base as an option.

※ The picture shows the dead-live spindle workhead with swivel base.

## Manual Tailstock



The large-diameter spindle, processed with precision, and the highly rigid tailstock enable high-precision heavy grinding. Either a tailstock with a manual fine taper adjustment, a hydraulic operated tailstock, or a hydraulic held tailstock with a manual handwheel, is available as options.

※ The picture shows the tailstock with a manual fine taper adjustment.

## Extremely low-vibration Wheel spindle motor

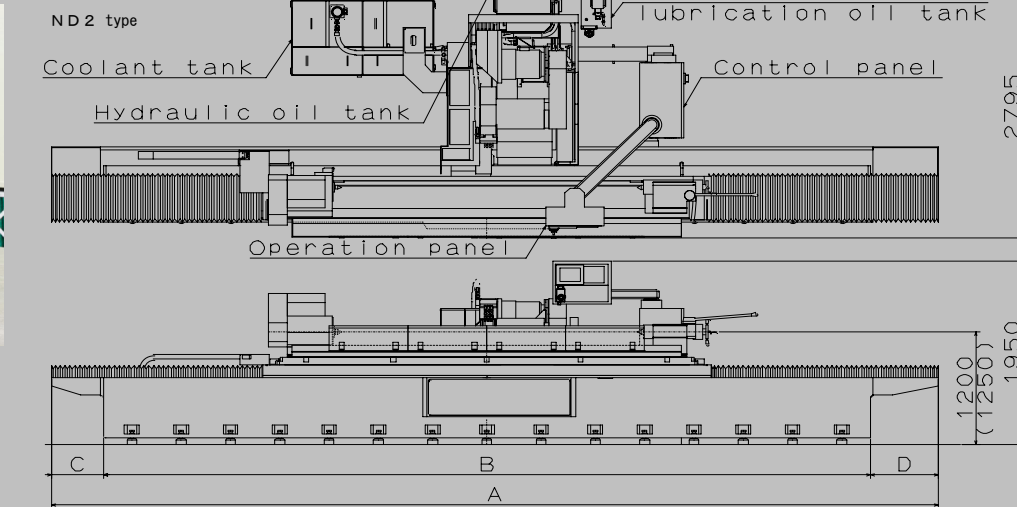


The extremely low-vibration wheel spindle motor is available as an option. The motor shaft is processed, carefully checked for rotational balance and then assembled by SHIGIYA, to assure a grinding performance that can provide great surface finish to every workpiece.

Please choose the GP-45D (GP-55D) of your choice from the 3 types below.

| Type | Machine                              | Controlled axis |
|------|--------------------------------------|-----------------|
| ND 2 | 2-axis CNC Cylindrical grinder       | X, Z            |
| ND   | 1-axis CNC Cylindrical grinder       | X               |
| A    | Automatic infeed Cylindrical grinder |                 |

## Floor plan



( ) denotes the dimension for the GP-55D series.

| MODEL         | A      | B      | C   | D   |
|---------------|--------|--------|-----|-----|
| GP-45D-100ND2 | 5,040  | 3,780  | 585 | 675 |
| GP-45D-150ND2 | 6,040  | 4,780  | 585 | 675 |
| GP-45D-220ND2 | 7,440  | 6,180  | 585 | 675 |
| GP-45D-300ND2 | 9,190  | 7,780  | 685 | 725 |
| GP-45D-400ND2 | 11,470 | 9,780  | 845 | 845 |
| GP-45D-500ND2 | 13,770 | 11,780 | 995 | 995 |