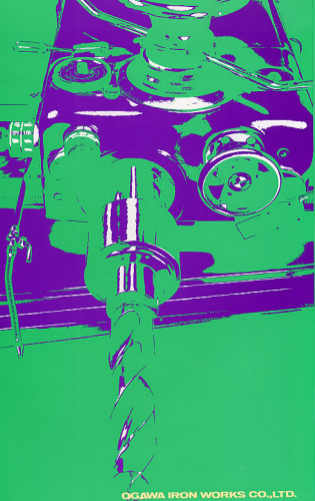


RADIAL DRILLING MACHINE

MODEL HOR-D1000/1400/1600/1700/2000/3000



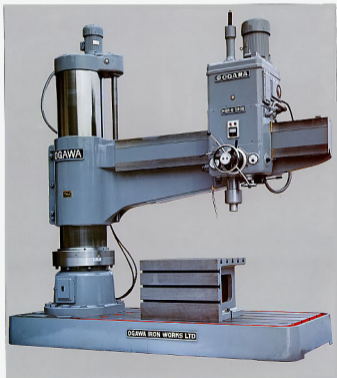
OGAWA IRON WORKS CO.,LTD.

HOR-D Series

OGAWA High Speed Radial Drilling Machine

HOR-D 1700 HOR-D 2000 HOR-D 3000

Pre-selection System (Pre-selection of rotational frequency and feed rate)



OUTSTANDING FEATURES OF HOR-D SERIES

OGAWA

HOR-D 1700 HOR-D 2000 HOR-D 3000

All models are provided with a hydraulic clamp type tool ejector and pre-selection system.

Radial drilling machines in the HOR Series were developed by Ogawa's technique on the basis of many years' experience in design as well as manufacture of such machines, from those of OGAWA to those of MITSUBISHI. All models have a number of outstanding features such as a hydraulic clamp type tool ejector, etc. Not only are they supplied to the Japanese market, but they gain public favor on the world market.

The machines in the HOR-D Series are full-scale radial drilling machines; a pre-selection system with a unique Ogawa design is employed in them. The HOR-D Series machines are designed and manufactured on the principle of safety as well as efficiency from the standpoint of the users.

● PRE-SELECTION

If the rotational frequency and feed rate necessary for the next work are set during drilling work, they can automatically be changed by turning a lever. Radial drilling machines in HOR-D Series are full-scale ones which improve working efficiency and can be easily operated by anyone.



● TOOL-EJECTOR

A tool can be easily replaced simply by operation of a push-button. Not only does it remarkably improve working efficiency during tool replacement but the high accuracy of the machine can be maintained for a long period without damaging the spindle or reducing the accuracy of boring sections.



● HYDRAULIC CLAMP

A hydraulic clamp system more powerful and speedier than an electric clamp system is employed. Powerful and speedy tightening and loosening can be performed by push-button operation. If a push-button in the center of the handle for the transverse shift of the spindle head is depressed as shown in the photograph, tightening and loosening can be performed as follows:

Tightening: In the sequence from the column sleeve to the spindle head.

Loosening: In the sequence from the spindle head to the column sleeve.

Continuity and Separation of Tightening and Loosening

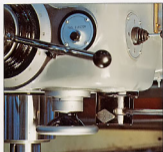
As tightening and loosening of the column sleeve and the spindle head can be performed in continuity or separately by operation of the push-button, positioning work is facilitated.

This is advantageous above all for boring work.



● RELEASE

In case of centering with a working material or connecting/disconnecting a drill, the oil pressure is applied by depressing a lever for spindle F.R. and release. The clutch of the spindle driving gear is disconnected so that the spindle can be released very lightly.



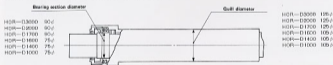
● GEAR BOX

The spindle rotary gears consists of precisely polished hard facing gears made of nickel-chrome steel, and both shafts and gears are designed and manufactured so as to endure powerful drilling, so they can withstand powerful transmission and rotate smoothly. In addition to this, the rotary sections are manufactured so that forced lubrication is assured.



● SPINDLE

The bearing spindle design with anti-friction bearings and highly rigid construction permits machine to be employed for heavy and precision boring and drilling.



● OIL PRESSURE AND ELECTRIC CONTROL BOARD

It is safely arranged behind the arm, and sufficient measures are taken against overload of the motor.

- (1) Pressure oil tank
- (2) Hydraulic pump driving motor
- (3) Hydraulic pump (built in the tank)
- (4) Hydraulic circuit change-over solenoid valve



DESCRIPTION ON SPINDLE HEAD

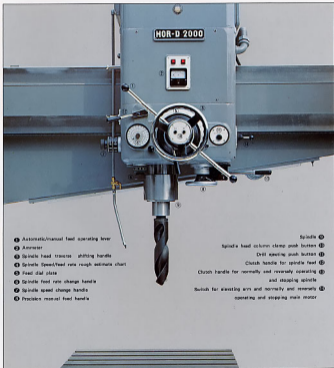
HOR-D 1700 HOR-D 2000 HOR-D 3000

For operating the spindle head, a front-concentrated operation system is employed from the standpoint of the operator, so that work is facilitated and arrangement is effective.

A wide range of speeds includes 22 spindle speeds and 16 lead rates, and in addition to this an oil pressure pre-selection system is employed, so that it can be applied to any kind of work.

As a multiple disc clutch is employed for starting and stopping the spindle, normal and reverse operations can be repeated smoothly and powerfully.

Further, as a safety clutch is employed, the machine is fully protected against overload during work.



- ① Automatic/manual feed operating lever
- ② Ammeter
- ③ Spindle head traverse shifting handle
- ④ Spindle Speed/Feed rate rough estimate chart
- ⑤ Feed dial plate
- ⑥ Spindle feed rate change handle
- ⑦ Spindle speed change handle
- ⑧ Precision manual feed handle

- Spindle ⑨
- Spindle head column clamp push button ⑩
- Drill opening push button ⑪
- Clutch handle for spindle feed ⑫
- Clutch handle for normally and reversely operating ⑬
and stopping spindle
- Switch for selecting arm and normally and reversely ⑭
operating and stopping main motor

HOR-D Series

OGAWA Radial Drilling Machine

All models are provided with a hydraulic clamp type tool ejector and pre-selection system.

HOR-D 1000 HOR-D 1400 HOR-D 1600

Pre-selection System(Pre-selection of rotational frequency)



DESCRIPTION ON SPINDLE HEAD

HOR-D 1000 HOR-D 1400 HOR-D 1600

For operating the spindle head, a front-concentrated operation system of handles, push-buttons, etc. is employed from the standpoint of the operator, so that work is facilitated and efficiency can be improved. An oil pressure pre-selection system is employed for changing the spindle speed in 12 states, and together with the change of feed rate in 12 stages it is suitable for a wide range of work.

As a multiple disc clutch is employed for starting and stopping the spindle, normal and reverse operations can be repeated smoothly and powerfully.

In addition to this, as a safety clutch is employed, the machine is fully protected against overload during work.

