

## “A3HG” Series High Pressure Variable Displacement Piston Pumps

“A3HG” series pumps are high pressure variable displacement piston pumps based on YUKEN’s highly reputable “A3H” series pumps and meeting international standards (ISO and SAE). They have a rated pressure of 315 Kgf/cm<sup>2</sup> and a maximum operating pressure of 350 Kgf/cm<sup>2</sup>.

These pumps meet JIS standards as well as ISO standards common in Europe and SAE standards in North America to ensure interchangeability with pumps available on the global market. In addition to wide displacement range like the A3H series, they are equipped with a through drive to allow for multiple pump installations with a pump on the drive side and another pump with up to the same capacity as the other pump on the non-drive side.

Thus, A3HG series pumps provide an extended maximum flow range and support a variety of control types. As a hydraulic pressure source for all types of equipment, they can be used in a wide range of application.



### Features

- **Wide assortment of models to ensure interchangeability with pumps available on the global market.**

European models: Compatible with ISO 3019-2, North American models: Compatible with SAE J744 Standard models are with keyed or splined shaft end.

- **Wide displacement range and high volumetric efficiency**

While inheriting the high performance of A3H series pumps, A3HG series pumps feature higher rated pressure design 315 Kgf/cm<sup>2</sup>. They can be used as pumps capable of handling moderate to high loads in a wide range of applications.

- **Through drive supplied as standard**

The through drive allows for multiple pump installation with a pump on the drive side and another pump with up to the same capacity as the other pump on the non-drive side. All pumps meeting international standards can be used on the non-drive side.

- **Control types**

Pressure compensator type (01), pressure compensator type with external pilot (07), and load sensing type (14) are available.

### Specifications

| ModelNumbers           |                       | A3HG16                                                                                                                  | A3HG37 | A3HG56 | A3HG71 | A3HG100 | A3HG145 | A3HG180 |
|------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|---------|---------|---------|
| Items                  |                       |                                                                                                                         |        |        |        |         |         |         |
| Geometric Displacement | cm <sup>3</sup> /rev. | 16.3                                                                                                                    | 37.1   | 56.3   | 70.7   | 100.5   | 145.2   | 180.7   |
| Minimum Adj. Flow      | cm <sup>3</sup> /rev. | 8.0                                                                                                                     | 16.0   | 35.0   | 45.0   | 63.0    | 95.0    | 125.0   |
| Rated Pressure         | Kgf/cm <sup>2</sup>   | 315                                                                                                                     |        |        |        |         |         |         |
| Max. Oper. Pressure    | Kgf/cm <sup>2</sup>   | 350                                                                                                                     |        |        |        |         |         |         |
| Shaft Speed Range      | Max                   | 3600                                                                                                                    | 2700   | 2500   | 2300   | 2100    | 1800    | 1800    |
|                        | Min.                  | 600                                                                                                                     |        |        |        |         |         |         |
| Suction Pressure       |                       | -0.167~0.5 Kgf/cm <sup>2</sup> at 600-1800 r/min. 0~0.5 Kgf/cm <sup>2</sup> at speed above 1800 r/min. (Gauge Pressure) |        |        |        |         |         |         |
| Hydraulic Fluid        |                       | Petroleum Base Oils (Equivalent to ISO VG 32 or 46)                                                                     |        |        |        |         |         |         |
| Viscosity              | mm <sup>2</sup> /sec. | 20 - 400                                                                                                                |        |        |        |         |         |         |
| Oil Temperature        | °C                    | 0-60 (Within Specified Viscosity Range)                                                                                 |        |        |        |         |         |         |
| Seal Material          |                       | FKM (Fluoro Rubber)                                                                                                     |        |        |        |         |         |         |
| Mass*                  | Kg                    | 17                                                                                                                      | 26.5   | 32.5   | 45     | 56.5    | 68.5    | 88      |

\* Mass of A3HG※ -FR01KK-E※-10

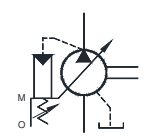
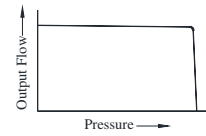
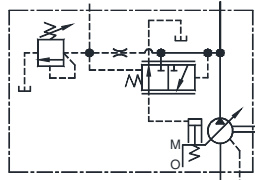
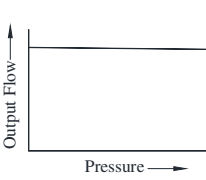
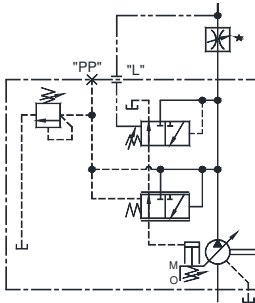
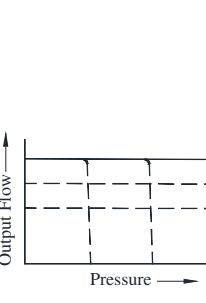
**Model Number Designation**

| A3HG16                                         | -F                            | R                                                           | 01                                                                                                                                                                 | K                                                                       | K                                                           | -E1                                                                                                                                                                                                                                                                                                                   | D                         | -10                |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
|------------------------------------------------|-------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------|--------------------|----|-----|--------|----|-----|---------|----|-------------|----|--|-----------|----------------------------|-----------|
| Series Number                                  | Mounting                      | Direction of Rotation                                       | Control Type                                                                                                                                                       | Pressure Adj. Range Kg/cm <sup>2</sup>                                  | Shaft Extension                                             | Port/Flange Type                                                                                                                                                                                                                                                                                                      | Number of Pump Mtg. Bolts | Design Number      |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG16</b><br>(16.3cm <sup>3</sup> /rev.)   | <b>F :</b><br>Flange Mounting | (Viewed from Shaft end)<br><b>R :</b><br>Clockwise (Normal) | <b>01 :</b><br>Pressure Compensator Type<br><br><b>07 :</b><br>Pilot Pressure Control Type<br>Pressure Compensator<br><br><b>14 :</b><br>Load Sensing Control Type | <b>K:</b><br>50~350<br><br>N/A for the control types <b>07 &amp; 14</b> | <b>K:</b><br>Keyed Shaft<br><br><b>SP:</b><br>Splined Shaft | <table border="1"> <tr> <th>Code</th> <th>Flange</th> <th>Port/Flange Thread</th> </tr> <tr> <td>E1</td> <td>ISO</td> <td>Metric</td> </tr> <tr> <td>U1</td> <td rowspan="2">SAE</td> <td>Unified</td> </tr> <tr> <td>U2</td> <td>BSPF/Metric</td> </tr> <tr> <td>J1</td> <td></td> <td>Rc/Metric</td> </tr> </table> | Code                      | Flange             | Port/Flange Thread | E1 | ISO | Metric | U1 | SAE | Unified | U2 | BSPF/Metric | J1 |  | Rc/Metric | <b>C: 2</b><br><b>D: 4</b> | <b>10</b> |
| Code                                           |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       | Flange                    | Port/Flange Thread |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| E1                                             |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       | ISO                       | Metric             |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| U1                                             |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       | SAE                       | Unified            |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| U2                                             |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           | BSPF/Metric        |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| J1                                             |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           | Rc/Metric          |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG37</b><br>(37.1cm <sup>3</sup> /rev.)   |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           |                    |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG56</b><br>(56.3cm <sup>3</sup> /rev.)   |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           |                    |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG71</b><br>(70.7 cm <sup>3</sup> /rev.)  |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           |                    |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG100</b><br>(100.5cm <sup>3</sup> /rev.) |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           |                    |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG145</b><br>(145.2cm <sup>3</sup> /rev.) |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           |                    |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |
| <b>A3HG180</b><br>(180.7cm <sup>3</sup> /rev.) |                               |                                                             |                                                                                                                                                                    |                                                                         |                                                             |                                                                                                                                                                                                                                                                                                                       |                           |                    |                    |    |     |        |    |     |         |    |             |    |  |           |                            |           |

**Application**

Press machines, pipe bending machines, pipe end forming machines, steel mill machines, rolling mill machines, concrete making machines, compactors, tube forming machines, other general industrial machinery/equipment, and general industrial vehicles.

**Control Type**

| Control Type                                          | Graphic Symbols                                                                     | Performance Characteristics                                                         | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| “01” Pressure compensator type                        |  |  | When the system pressure increases and approaches the preset full cut-off pressure, the pump flow decreases automatically while maintaining the set pressure as it is. The output flow and full cut-off pressure can be manually adjusted.                                                                                                                                                                                                                                                                                                                                                                              |
| “07” Pilot Pressure Control Type Pressure Compensator |  |  | The pump is used in combination with a remote control relief valve or multistage pressure control valve. By controlling the pilot pressure, the full cut-off pressure can be remote-controlled according to user requirement.                                                                                                                                                                                                                                                                                                                                                                                           |
| “14” Load Sensing Control Type                        |  |  | This is an energy-saving type control valve which regulates the pump flow and load pressure to be at the absolute minimum necessary level to operate the actuator. This type of control automatically regulates the output flow so that the inlet-outlet differential pressure of the flow control valve at the output side is constant. To do so, the load pressure must be introduced to the load sensing port “L” of the pump through the external piping. This type of control can be actualize the remote control of the full cut-off pressure by connecting a remote control relief valve to the pilot port “PP”. |

Note : Consult YUKEN for further details.