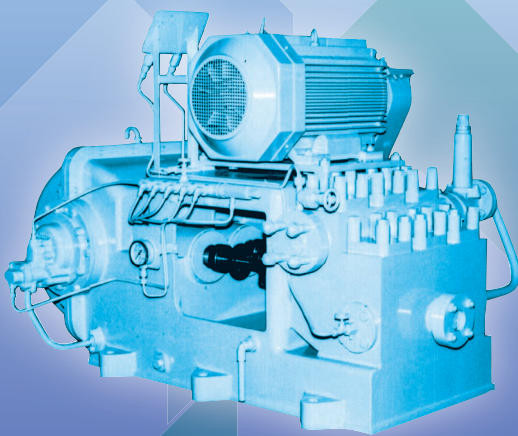
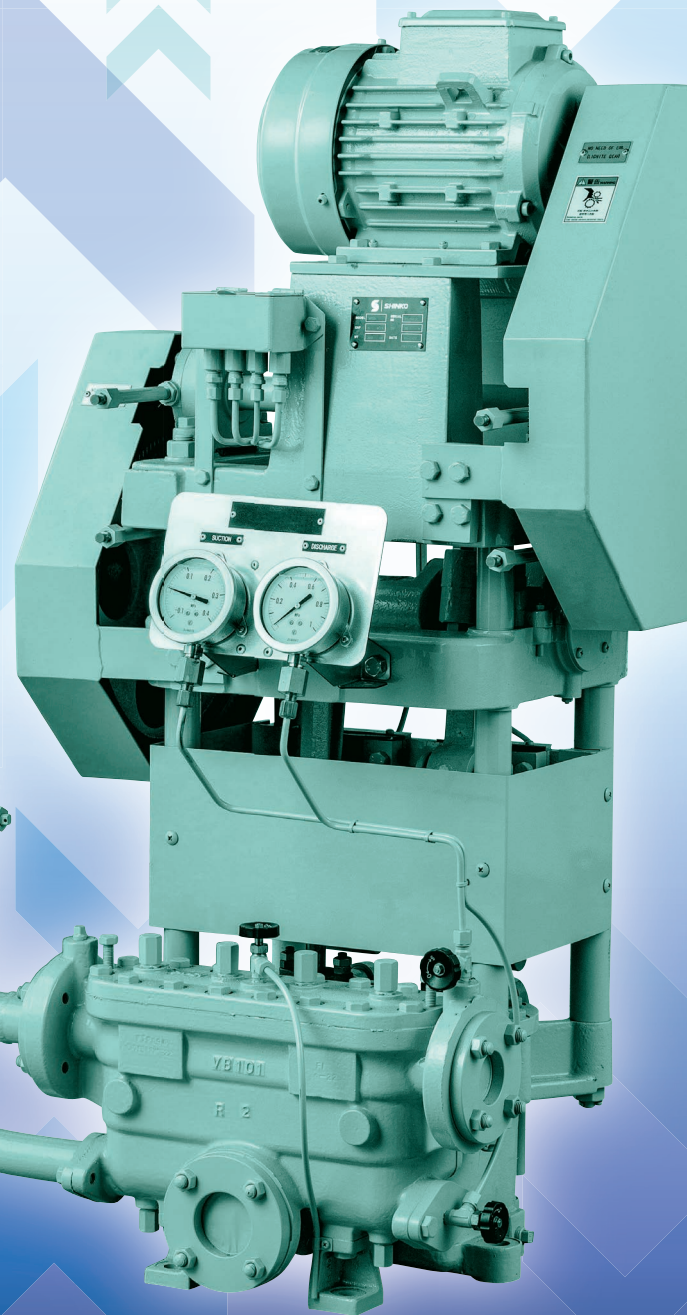
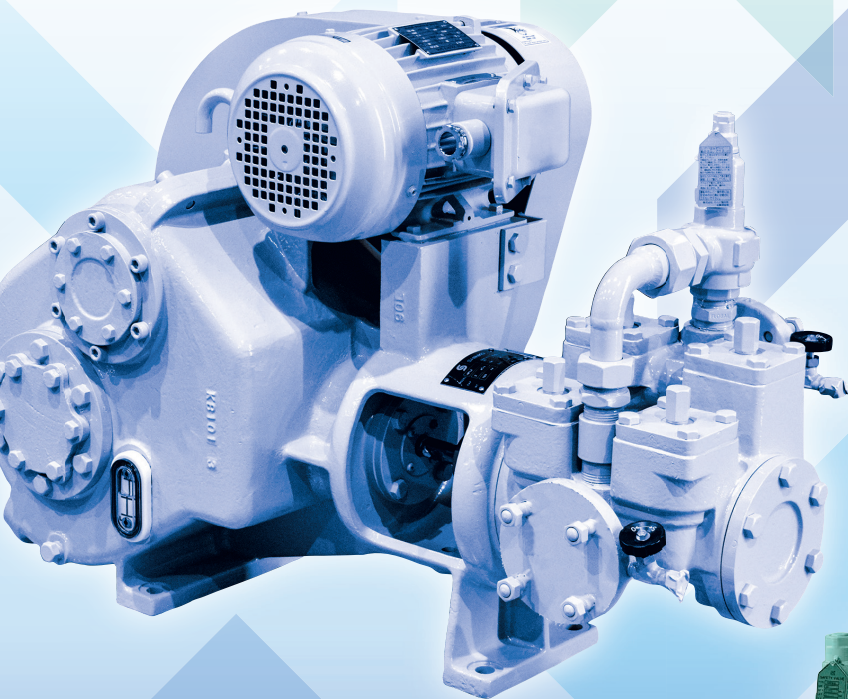


# Marine Standard

# Reciprocating Pumps

MR-101G



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# ENGINEERING DATA

SHINKO marine motor-driven reciprocating pumps have been designed and manufactured in accordance with Japan Ship Machinery and Equipment Association's standards to provide high performance with the following operating conditions:

Temperature : Maximum ambient temperature 50°C ,  
 : Maximum handling liquid temperature 50°C

List and rolling of the ship : 15 degrees horizontally, 10 degrees longitudinally, and 22.5 degrees for single-side rolling

## DESIGN & FUNCTIONS

### BALL BEARINGS, ROLLER BEARINGS & LUBRICATION

The counter shaft and crank shaft are equipped with grease-lubricated self-aligning ball bearings or roller bearings with a life-span of more than 60000 hours. They are equipped with a grease inlet and outlet as well as a grease nipple and relief nipple respectively. For the HPL pumps, sealed ball bearings are used. For the HLX pumps, oil-lubricated roller bearings have been installed on the crank shaft. In the shop tests, consideration has been given so that the bearing temperature does not exceed the ambient temperature by 40°C or the liquid temperature by 20°C, whichever is higher, and also not exceed a total of 75°C in summer.

| Name of part  | Model | Lubrication   |
|---------------|-------|---------------|
| Counter shaft | VPS   | Grease        |
|               | HPL   | Grease sealed |
| Crank shaft   | VPS   | Grease        |
|               | HPL   | Grease sealed |
|               | HLX   | Lube oil      |

### PRESSURE GAUGE AND ROOT VALVE

To indicate pump suction and discharge pressure, gauges with a 75mm diameter are located on the gauge board. They are connected by 6 mm out-diameter copper pipes with gauge root valves on the pump side and gauge joints on the gauge side.

### ESCAPE VALVE

An escape valve has been equipped which is large enough to allow the discharge pressure rise limit to remain below 150% of the total pressure, when the discharge valve is completely closed. However, when the total pressure is below 0.5MPaG, the pressure rise limit is set below +0.25MPaG over the total pressure.

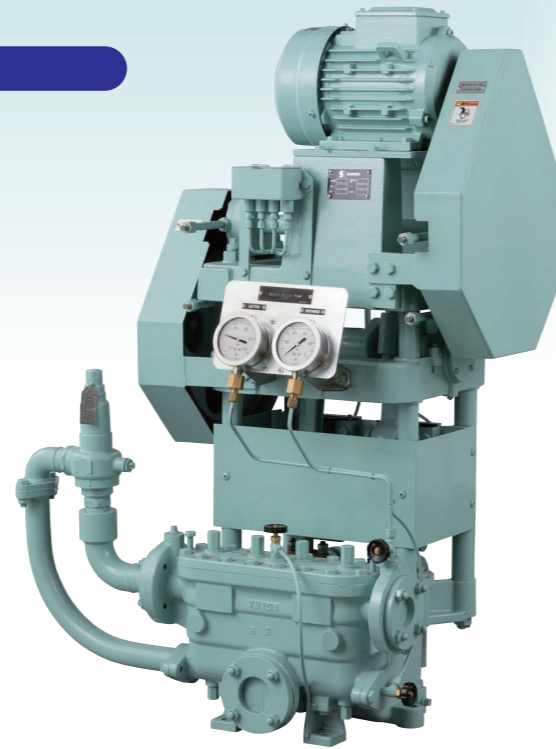
### LUBRICANT

Grease is used to lubricate the ball bearings on pumps, and oil is used for other portions that require lubrication. NLGI No.2 (National Lubricating Grease Institute) is recommended for grease, and ISO VG68 (International Standard Organization) is recommended for oil.



## APPLICATIONS

Bilge pumps



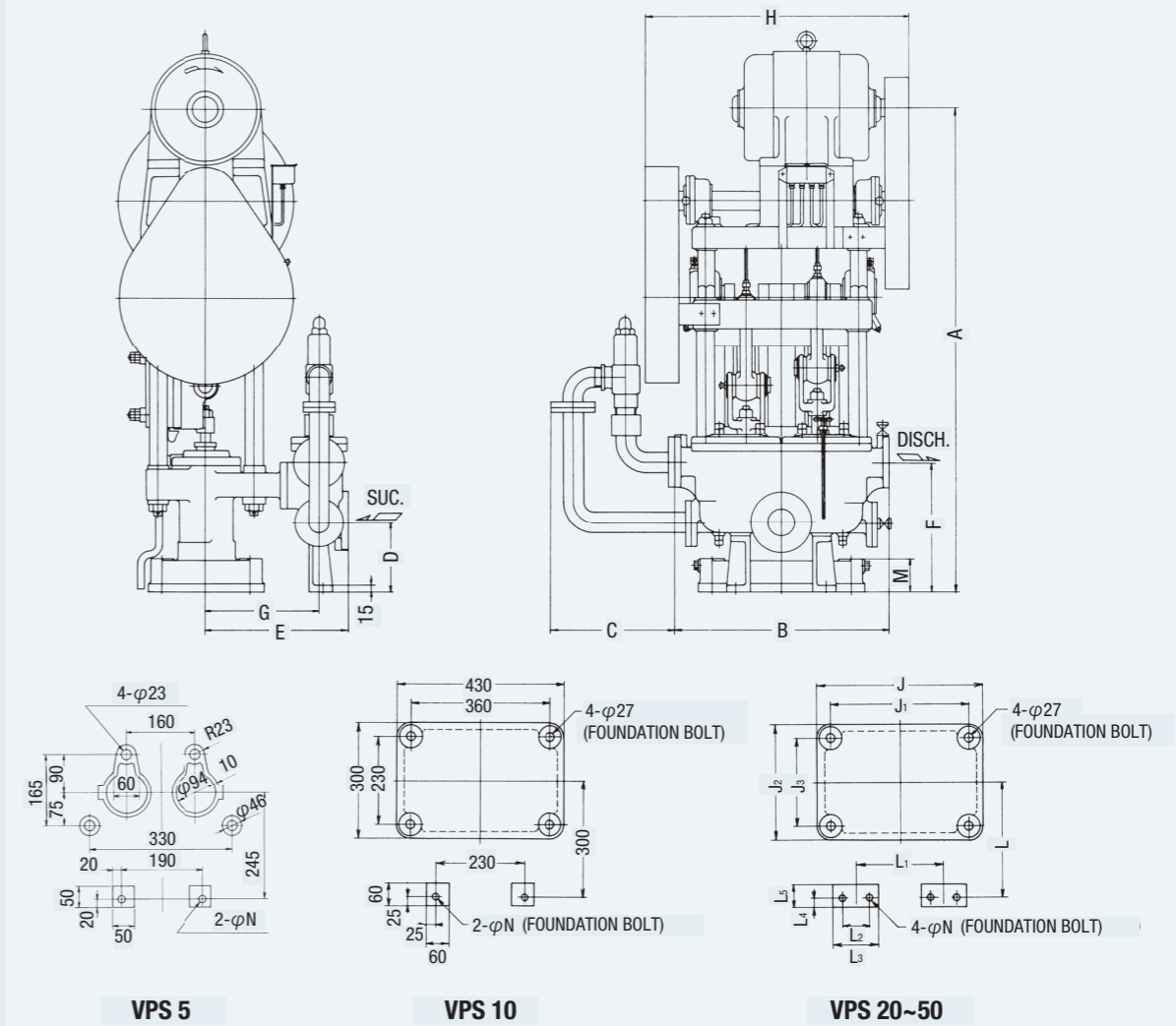
## GENERAL CHARACTERISTICS

| Item                                    | Model               | VPS 5  | VPS 10 | VPS 20 | VPS 30 | VPS 50 |
|---|---------------------|--------|--------|--------|--------|--------|
| Capacity                                | (m <sup>3</sup> /h) | 5      | 10     | 20     | 30     | 50     |
| Total head                              | (m)                 | 45     |        |        |        |        |
| Suction head                            | (m)                 | - 5    |        |        |        |        |
| Suction bore                            | (mm)                | 50     | 65     | 80     | 100    | 125    |
| Discharge bore                          | (mm)                | 40     | 50     | 65     | 80     | 100    |
| Amount of grease filled (counter shaft) | (g)                 | 2 × 13 | 2 × 15 | 2 × 25 | 2 × 25 | 2 × 40 |
| Amount of grease filled (crank shaft)   | (g)                 | 2 × 30 | 2 × 35 | 2 × 45 | 2 × 50 | 2 × 45 |
| LO filled in oil box                    | (ℓ)                 | 0.3    | 0.3    | 0.4    | 0.4    | 0.5    |
| Weight (without motor) FC               | (kg)                | 300    | 420    | 570    | 700    | 1100   |
| Weight (without motor) CAC              | (kg)                | 340    | 480    | 620    | 765    | 1200   |
| Water filled in casing                  | (kg)                | 9      | 13     | 20     | 30     | 70     |

Unit:m in head

| Model  | Capacity             | Motor kW × min <sup>-1</sup> |            |            |            |            |           |          |          |
|--------|----------------------|------------------------------|------------|------------|------------|------------|-----------|----------|----------|
|        |                      | 1.5 × 1200                   | 2.2 × 1200 | 3.7 × 1200 | 5.5 × 1200 | 7.5 × 1200 | 11 × 1200 | 11 × 900 | 15 × 900 |
| VPS 5  | 5 m <sup>3</sup> /h  | 20 ~ 45                      |            |            |            |            |           |          |          |
| VPS 10 | 10 m <sup>3</sup> /h |                              | 20 ~ 27    | 28 ~ 45    |            |            |           |          |          |
| VPS 20 | 20 m <sup>3</sup> /h |                              |            |            | 20 ~ 41    | 42 ~ 45    |           |          |          |
| VPS 30 | 30 m <sup>3</sup> /h |                              |            |            |            | 20 ~ 36    | 37 ~ 45   |          |          |
| VPS 50 | 50 m <sup>3</sup> /h |                              |            |            |            |            |           | 20 ~ 30  | 31 ~ 45  |

## VPS 5~50



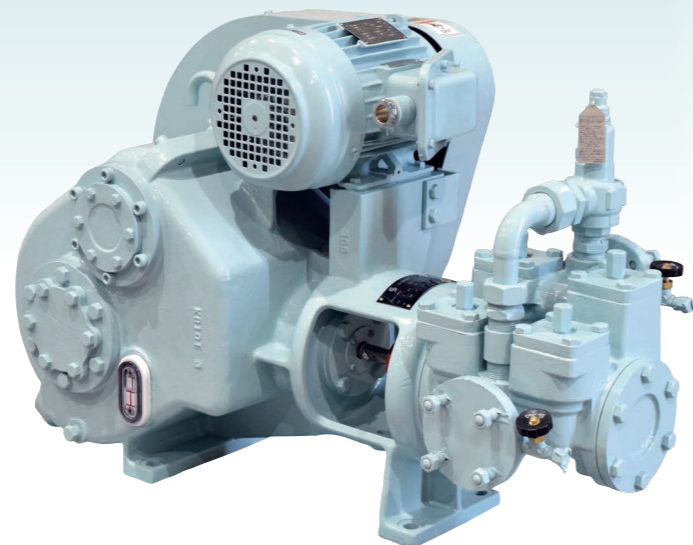
Dimensions:mm

| Model  | A    | B    | C   | D   | E   | F   | G   | H   | J   | J <sub>1</sub> | J <sub>2</sub> | J <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | M  | N  |    |
|--------|------|------|-----|-----|-----|-----|-----|-----|-----|----------------|----------------|----------------|-----|----------------|----------------|----------------|----------------|----------------|----|----|----|
| VPS 5  | 1059 | 450  | 280 | 85  | 300 | 235 | 235 | 600 | -   | -              | -              | -              | -   | -              | -              | -              | -              | -              | -  | 35 | 19 |
| VPS 10 | 1253 | 550  | 225 | 185 | 365 | 340 | 290 | 660 | -   | -              | -              | -              | -   | -              | -              | -              | -              | -              | -  | 85 | 19 |
| VPS 20 | 1422 | 650  | 290 | 220 | 390 | 390 | 305 | 730 | 470 | 400            | 320            | 250            | 310 | 250            | 60             | 100            | 25             | 57             | 85 | 19 |    |
| VPS 30 | 1544 | 680  | 345 | 230 | 410 | 430 | 315 | 780 | 500 | 430            | 350            | 280            | 325 | 270            | 60             | 100            | 28             | 65             | 90 | 19 |    |
| VPS 50 | 1650 | 1000 | 390 | 210 | 505 | 460 | 380 | 900 | 590 | 510            | 440            | 360            | 400 | 420            | 90             | 140            | 30             | 78             | 95 | 23 |    |



## APPLICATIONS

Bilge pumps

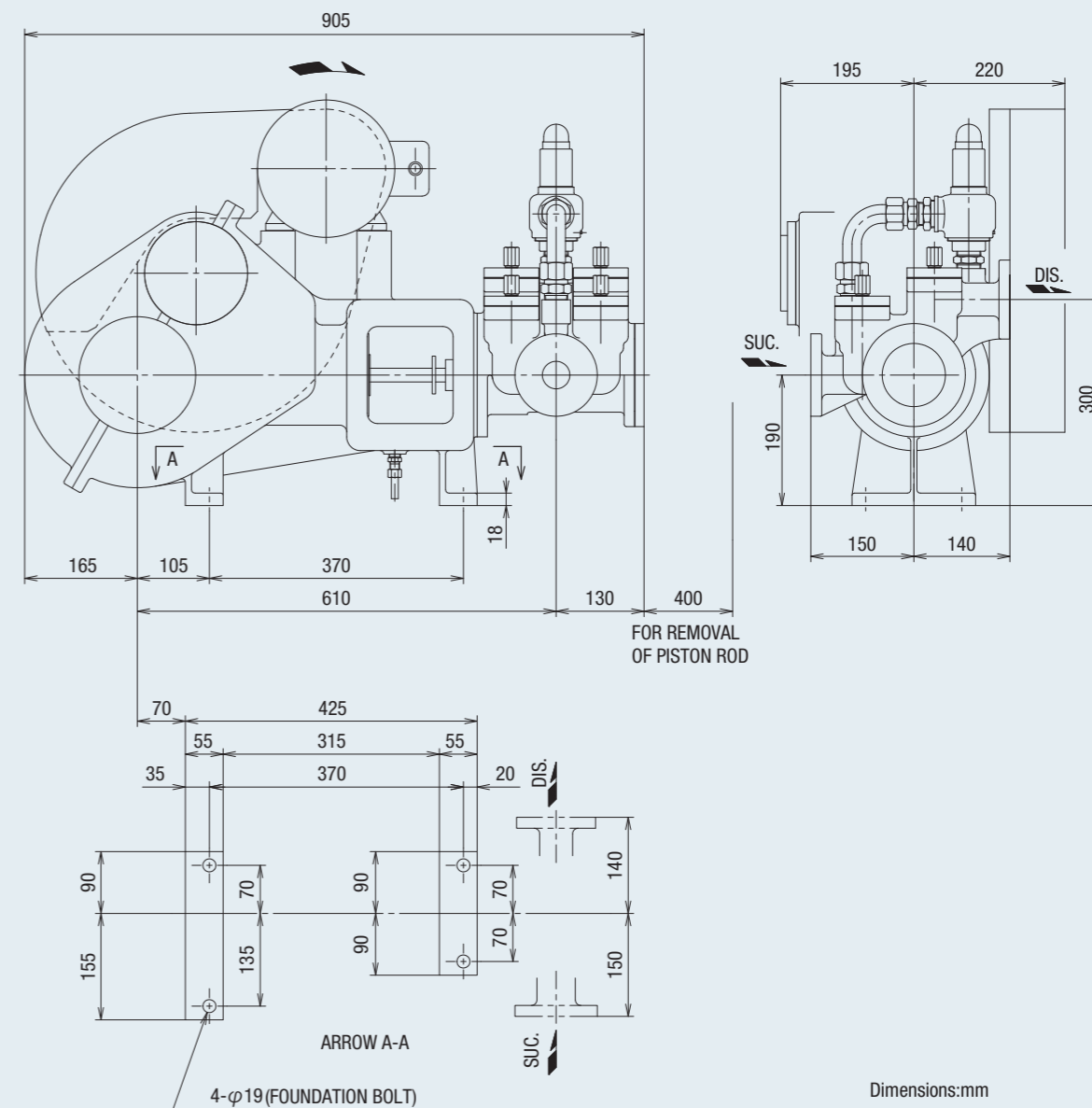


## GENERAL CHARACTERISTICS

| Item                       | Model               | HPL 2 |
|----------------------------|---------------------|-------|
| Capacity                   | (m <sup>3</sup> /h) | 2     |
| Total head                 | (m)                 | 45    |
| Suction head               | (m)                 | - 5   |
| Suction bore               | (mm)                | 40    |
| Discharge bore             | (mm)                | 32    |
| LO filled in crank case    | (ℓ)                 | 6     |
| Weight (without motor) FC  | (kg)                | 190   |
| Weight (without motor) CAC | (kg)                | 200   |
| Water filled in casing     | (kg)                | 3     |

| Motor                          | Capacity            | Total head |
|--------------------------------|---------------------|------------|
| 0.75kW × 1200min <sup>-1</sup> | 2 m <sup>3</sup> /h | 20 ~ 42m   |
| 1.5kW × 1200min <sup>-1</sup>  | 2 m <sup>3</sup> /h | 43 ~ 45m   |

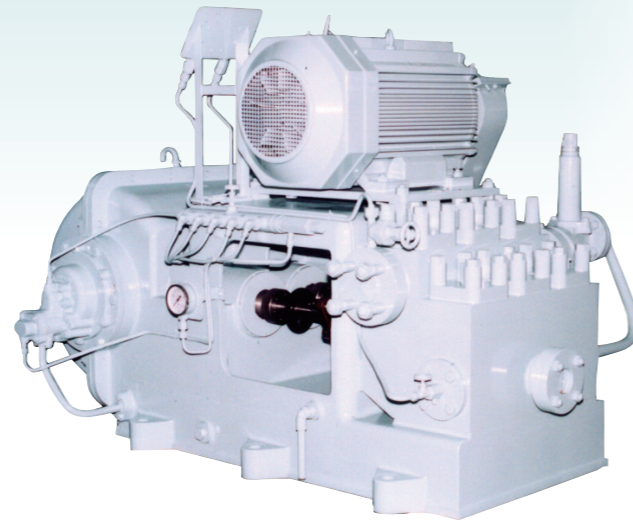
## HPL 2



Dimensions:mm

## APPLICATIONS

Cold start boiler feed pumps



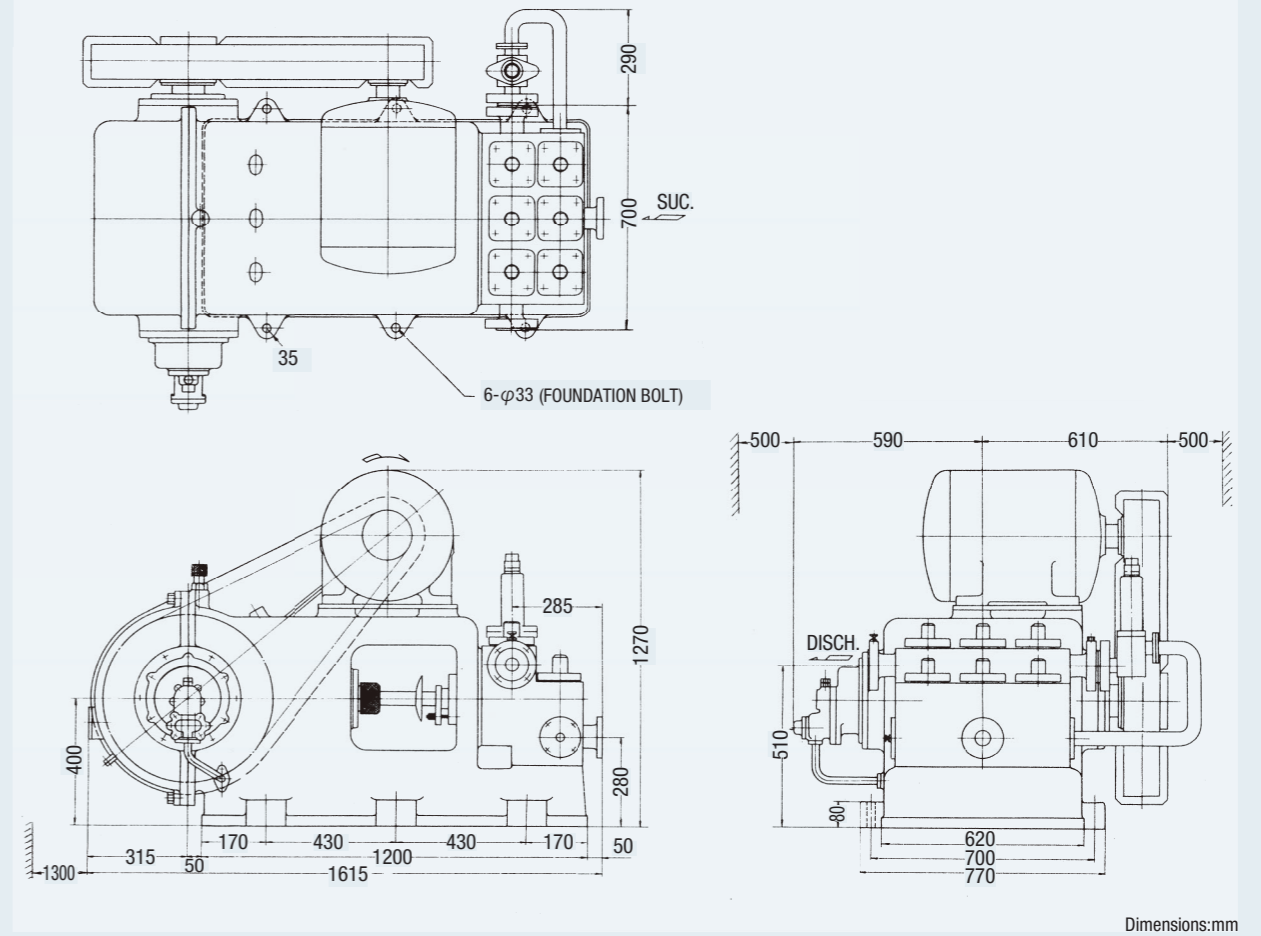
## GENERAL CHARACTERISTICS

| Item                    | Model                | HLX 3 | HLX 6 |
|-------------------------|----------------------|-------|-------|
| Capacity                | (m <sup>3</sup> /h)  | 3.0   | 6.0   |
| Max. discharge pressure | (MPaG)               | 12    |       |
| Plunger diameter        | (mm)                 | 35    | 40    |
| Motor speed             | (min <sup>-1</sup> ) | 900   | 1200  |
| Suction bore            | (mm)                 | 50    |       |
| Discharge bore          | (mm)                 | 40    |       |
| LO filled in crank case | (ℓ)                  | 60    |       |
| Weight (without motor)  | (kg)                 | 1650  |       |

Unit : MPaG

| Motor<br>kW × min <sup>-1</sup> | Capacity | HLX 3    | HLX 6    |
|---------------------------------|----------|----------|----------|
| 15 × 900                        |          | 7 ~ 8    |          |
| 18.5 × 900                      |          | 8 ~ 9.9  |          |
| 22 × 900                        |          | 9.9 ~ 12 |          |
| 30 × 1200                       |          |          | 7 ~ 8.9  |
| 37 × 1200                       |          |          | 8.9 ~ 11 |
| 45 × 1200                       |          |          | 11 ~ 12  |

## HLX 3~HLX 6



Dimensions:mm