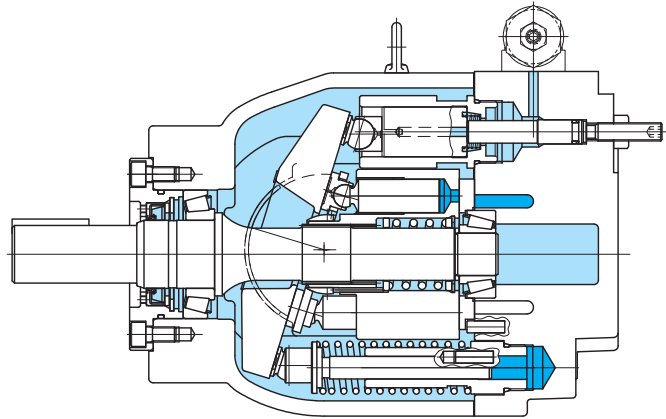
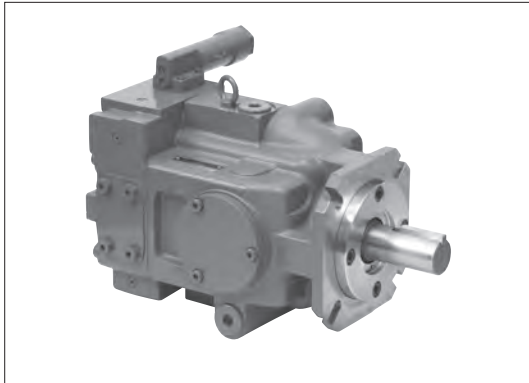


Low noise, high pressure variable displacement piston pumps PH series



The **PH Series** is a low-noise variable displacement piston pump with rated pressure of 28 MPa. This series was developed based on the low-noise P**V series which has won high reputation from various customers. The PH Series also feature lower noise levels, and more compact size.

- Superior controllability: in addition to pressure compensator control, load sensing control, and electric direct control, torque limiter control is also offered.

Model Code

PH100-M(*)S(*) (F)YR-21-CH-(D)-10

1 2 3 4 5 6 7 8 9 10 11 12

- | | |
|---|--|
| <p>1 PH Series swash plate type variable displacement piston pump
PH56, PH80, PH100, PH130, PH170</p> <p>2 Port thread specifications
M: metric (standard)</p> <p>3 Delivery port specifications
Omit: "SAE J 518c" standard pressure
H: "SAE J 518c" high pressure</p> <p>4, 5 Code for double pump
S: single pump
* Consult Tokyo Keiki for double pump configurations.</p> <p>6 Pump mounting
Omit: flange mounting
F: foot mounting</p> <p>7 Shaft end configuration
Y: long shaft w/SAE square key</p> | <p>8 Rotation (viewed from shaft end)
R: right rotation (clockwise)
L: left rotation (counter-clockwise)</p> <p>9 Pump design no.</p> <p>10 Pump control method
CH : pressure compensator control
CGH : remote pressure compensator control
CVH : load sensing
TL: torque limiter (low)
TH: torque limiter (high)
EDHS : electric direct control (flow, pressure)</p> <p>11 Maximum displacement adjustment function
Omit: not provided
D: w/adjuster</p> <p>12 Control valve design no.</p> |
|---|--|

Specifications

Model Code	Maximum Displacement cm ³ /rev	Working Pressure MPa	Maximum Speed min ⁻¹	Minimum Speed min ⁻¹	Weight kg
PH56	56	Rated 28 Intermittent 30	1800	600	39
PH80	80				51
PH100	100				70
PH130	130				95
PH170	170	Rated 21 Intermittent 22.5			95

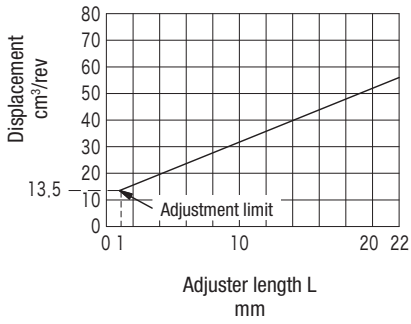
- "Intermittent" refers to intermittent pressure which operable time is limited to 10% of operating cycle (max. 6 seconds). Consult Tokyo Keiki for working pressure above rated pressure.
- Rated pressure of electric direct control EDHS is 21 MPa. This pressure is limited by safety valve setting.
- Weight is for CH type (pressure compensator control).
- Consult Tokyo Keiki for specifications of pumps using water glycol fluids.

Pump control method (PH series)

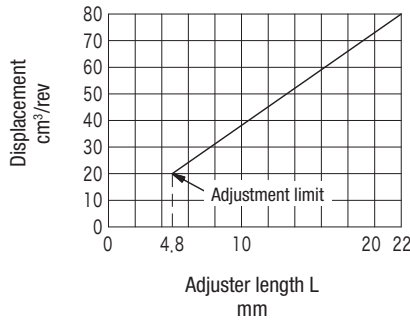
Pump Control Method		Characteristics Curve	Description	Function Symbol (detailed)
Name	Code			
Pressure compensator control	CH		<ul style="list-style-type: none"> When pump delivery pressure approaches the compensator setting, pump delivery is automatically reduced to the minimum flow necessary to maintain the pressure. Pressure setting can be adjusted manually. 	
Remote pressure compensator control	CGH		<ul style="list-style-type: none"> Setting pressure of pressure compensator control can be set from a separate location with a remote control valve. Pressure compensator safety relief valve integrated. Pressure setting can be adjusted manually. 	
Load sensing control	CVH		<ul style="list-style-type: none"> Pump delivery automatically controlled to maintain constant differential pressure across flow control valve located downstream of pump. Energy-saving type pump control which supplies minimum flow and pressure necessary to drive load (actuator). Pressure compensator safety relief valve integrated. Pressure setting can be adjusted manually. Remote pressure compensator control possible with externally installed remote control valve. 	<p>A vent port should be connected to the hydraulic circuit.</p>
Torque limiter (low torque/high torque)	TL/TH		<ul style="list-style-type: none"> Pump delivery automatically controlled to match load capacity of the electric motor. Flow setting can be manually adjusted. Pressure compensator safety relief valve integrated. Pressure setting can be adjusted manually. Remote pressure compensator control possible with externally installed remote control valve. 	
Electric direct control	EDHS		<ul style="list-style-type: none"> In flow control mode, pump delivery is controlled by flow control signal and as pump delivery pressure approaches the pressure setting signal, mode automatically switches to pressure control. Special controller necessary. Pressure compensator safety relief valve integrated. Pressure setting can be adjusted manually. 	
Maximum displacement adjustment function	D		<ul style="list-style-type: none"> Maximum displacement adjustment with adjustment screw on pump. 	<p>Displacement adjustment symbol</p>

Pump control method (PH series)

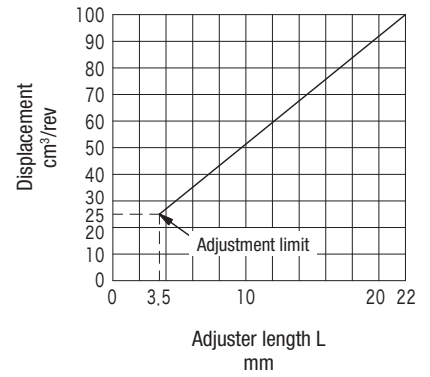
Max displacement adjuster characteristics



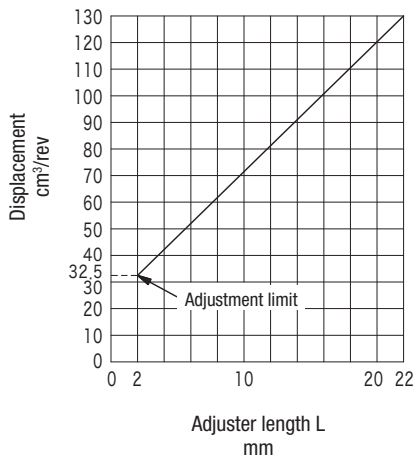
PH56



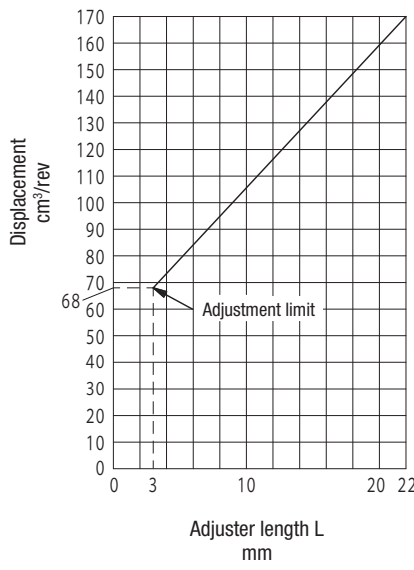
PH80



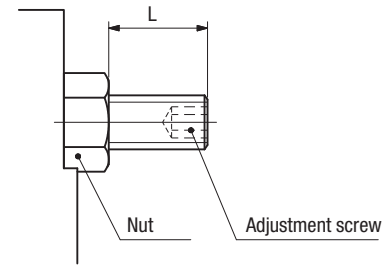
PH100



PH130

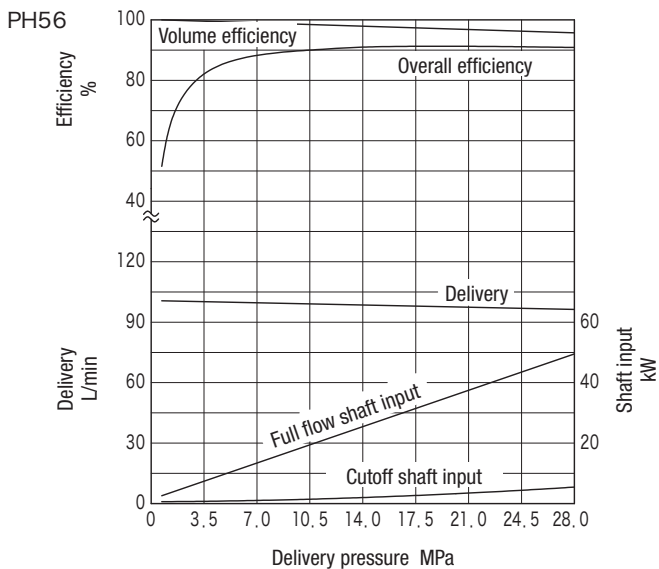


PH170

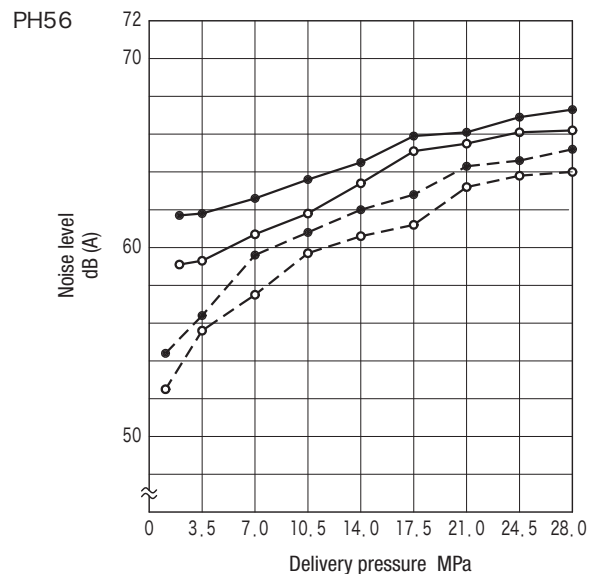


Characteristics Curve (at 20 mm²/s) (typical examples)

Pressure, efficiency, delivery, input power (1800 min⁻¹)



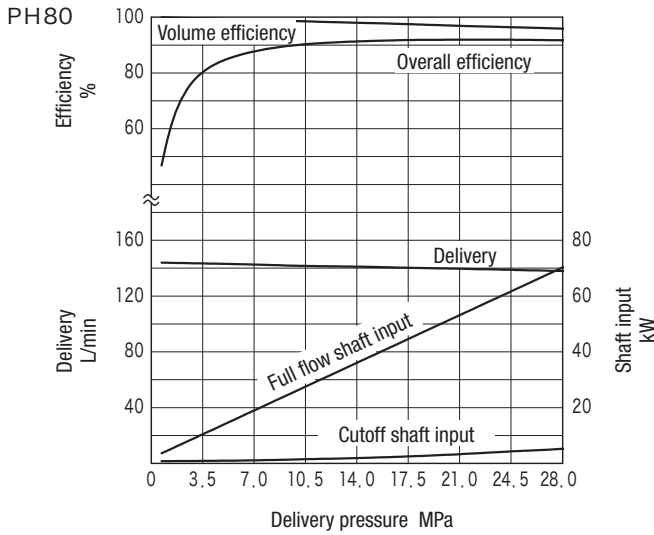
Pressure, noise characteristics (1 m from pump rear)



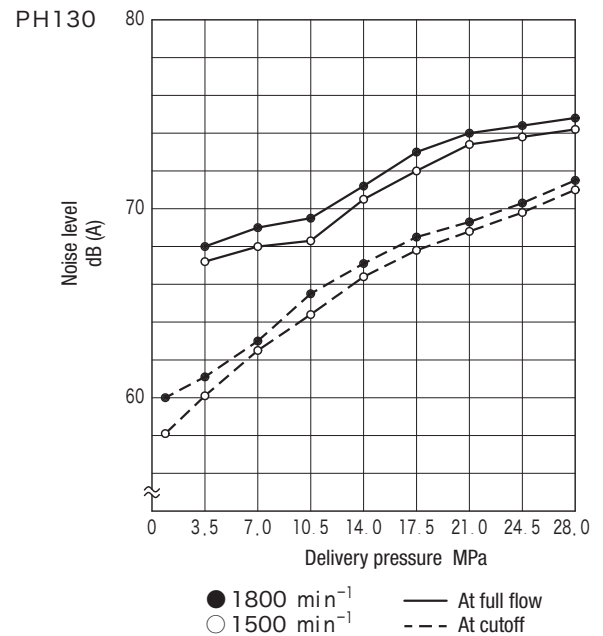
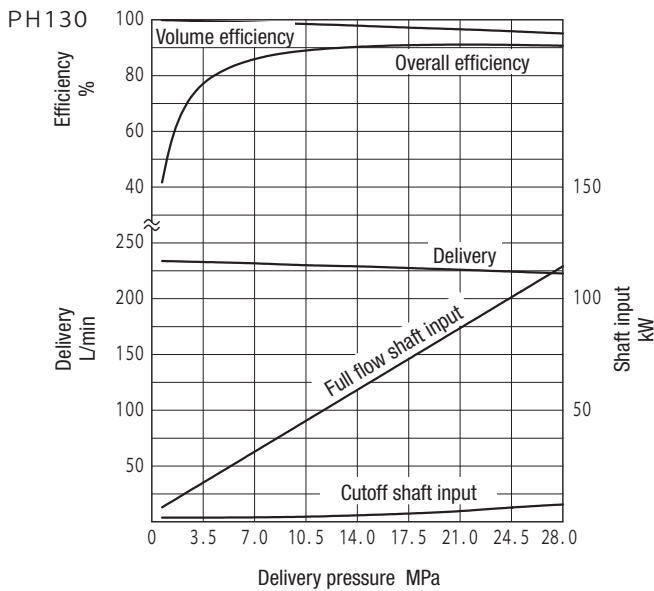
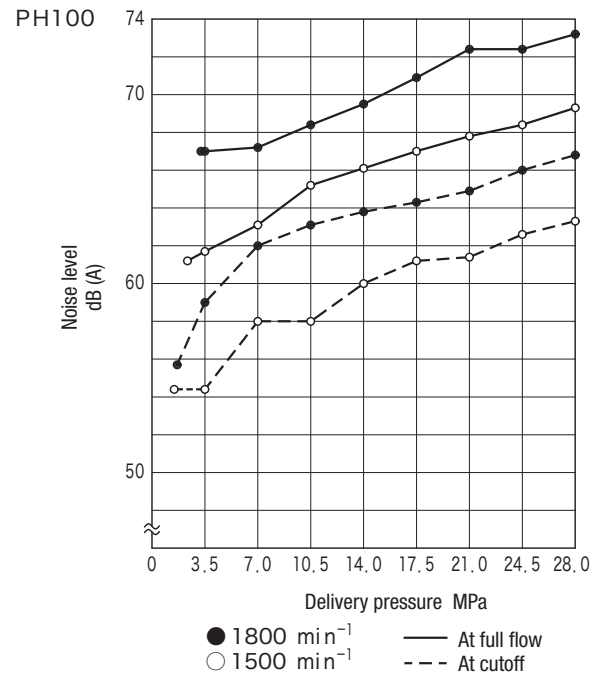
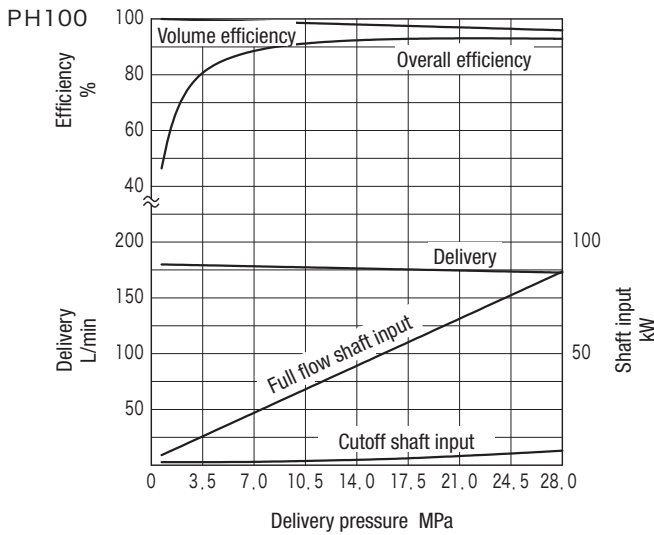
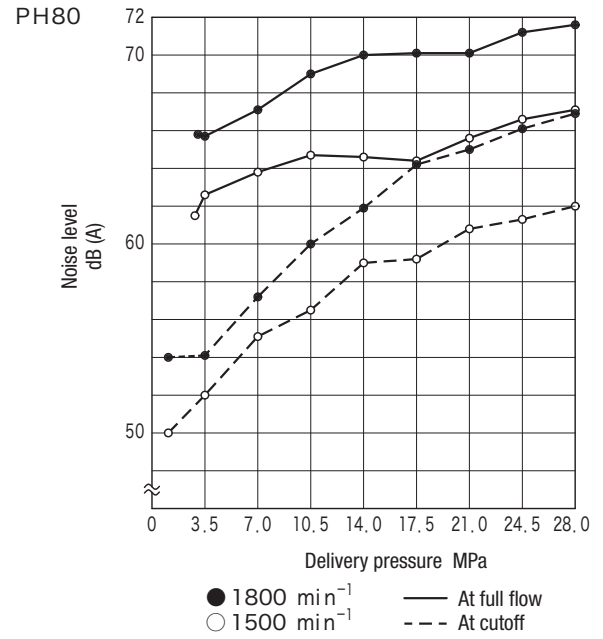
● 1800 min⁻¹ — At full flow
○ 1500 min⁻¹ - - - At cutoff

Characteristics Curve (at 20 mm²/s) (typical examples)

Pressure, efficiency, delivery, input power (1800 min⁻¹)

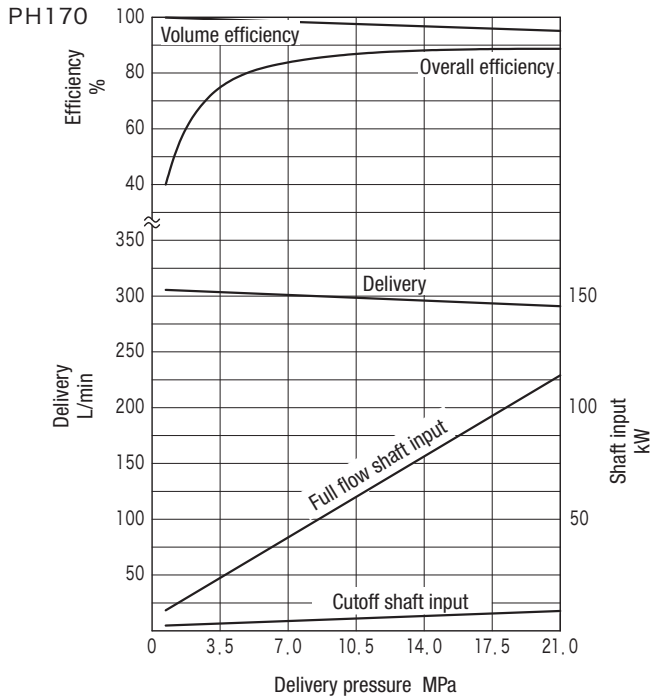


Pressure, noise characteristics (1 m from pump rear)

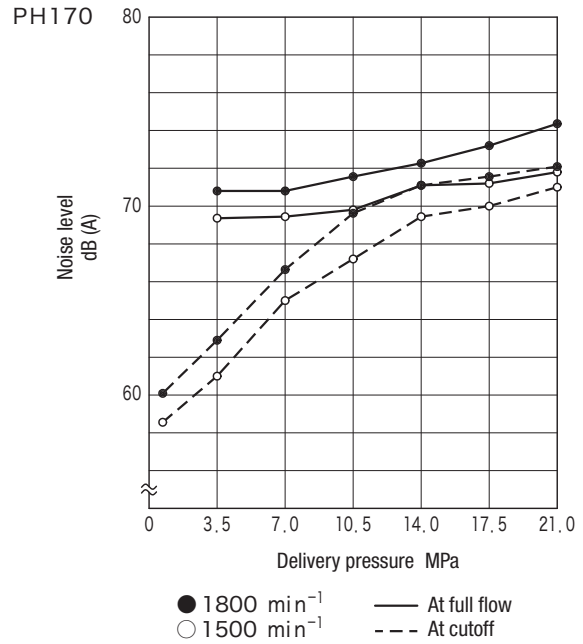


Characteristics Curve (at 20 mm²/s) (typical examples)

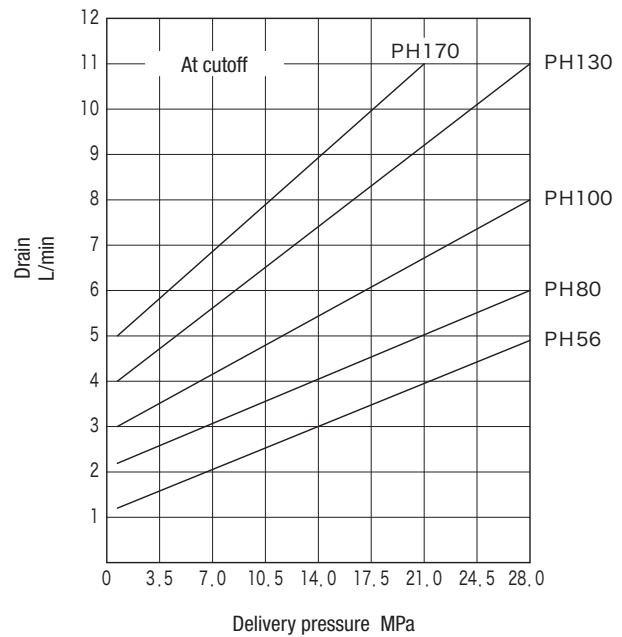
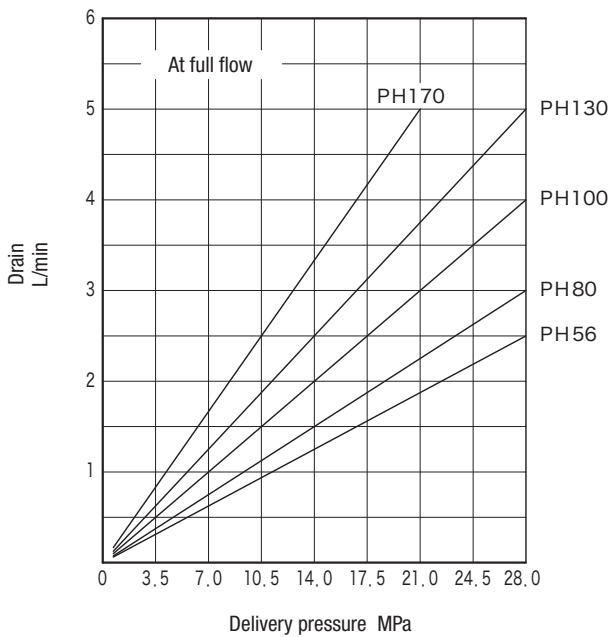
Pressure, efficiency, delivery, input power (1800 min⁻¹)



Pressure, noise characteristics (1 m from pump rear)



Pressure, drain flow characteristics (1800 min⁻¹, 20 mm²/s)



Notes on Operation

- See piston pump Notes on Operation (page A0-3, A0-4)

Piping Flanges

- Flanges must be ordered separately. See table below for required parts.
(conforming to SAE J 518c Standard Pressure)

Piping Flanges

Pump Model	Type	Suction Port		Delivery Port	
		Size	Flange Model	Size	Flange Model
PH56	Threaded	1-1/2	FL1-12-12P-10-JA-S4-M	1	FL1-8-08P-10-JA-S4-M
	Welded		FL1-12-12W-10-JA-M		FL1-8-08W-10-JA-M
PH80	Threaded	2	FL1-16-16P-10-JA-S4-M	1-1/2	FL1-12-12P-10-JA-S4-M
	Welded		FL1-16-16W-10-JA-M		FL1-12-12W-10-JA-M
PH100	Threaded	2-1/2	FL1-20-20P-10-JA-S4-M	1-1/2	FL1-12-12P-10-JA-S4-M
PH130 PH170	Welded		FL1-20-20W-10-JA-M		FL1-12-12W-10-JA-M

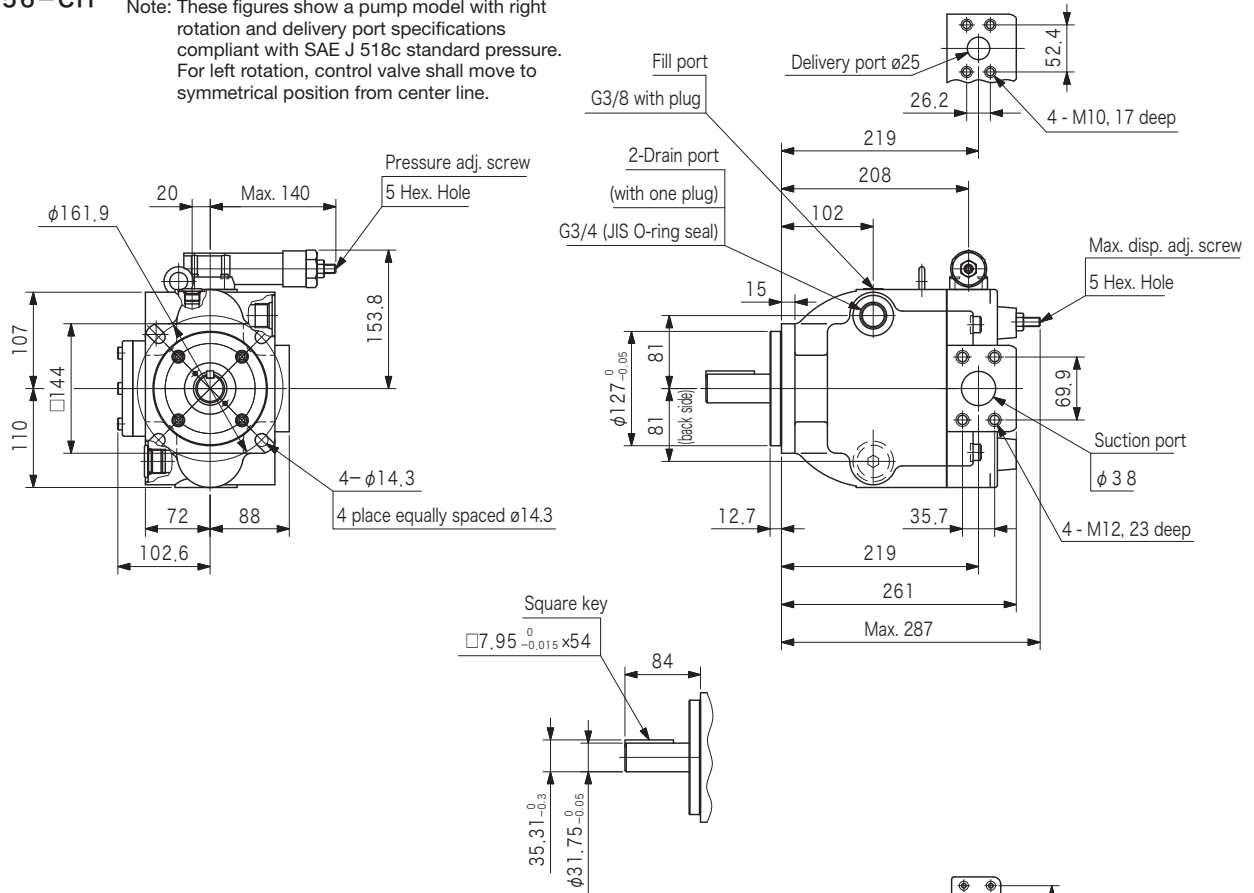
- Users are responsible for obtaining the pipe flanges conforming to the SAE J 518c high-pressure applicable to the delivery port specifications (model code: H).

Control method (CH)

Dimensions

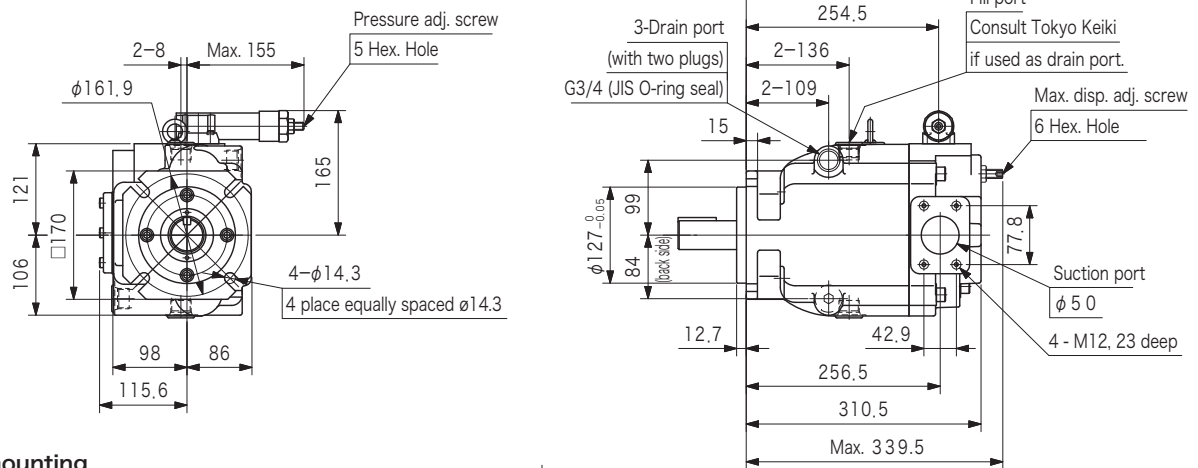
PH56-CH

Note: These figures show a pump model with right rotation and delivery port specifications compliant with SAE J 518c standard pressure. For left rotation, control valve shall move to symmetrical position from center line.

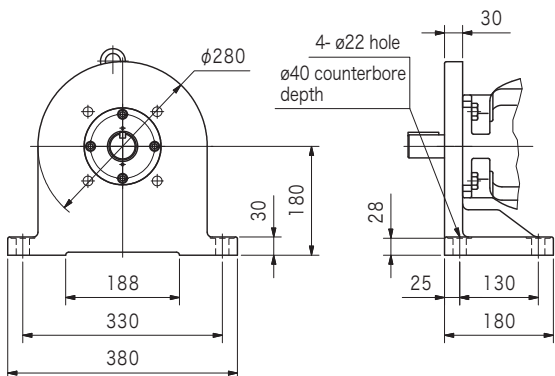


PH80-CH

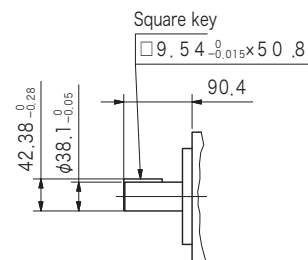
Note: These figures show a pump model with right rotation and delivery port specifications compliant with SAE J 518c standard pressure. For left rotation, control valve shall move to symmetrical position from center line.



Foot mounting



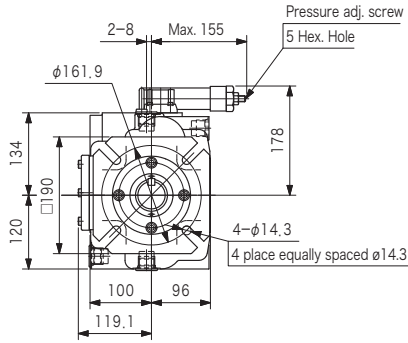
Shaft end



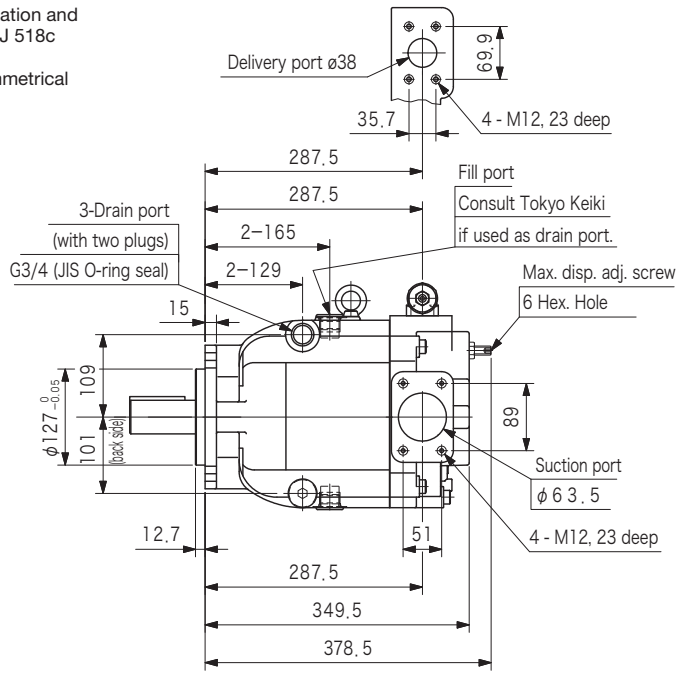
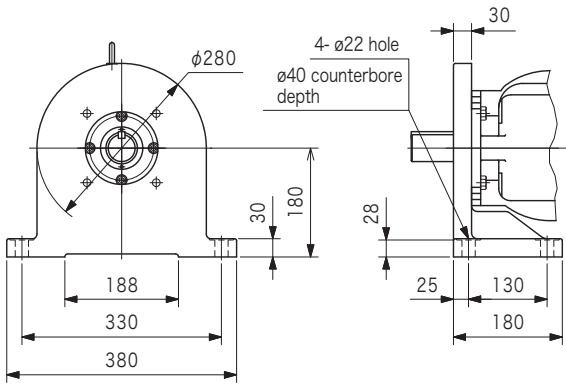
Dimensions

PH100-CH

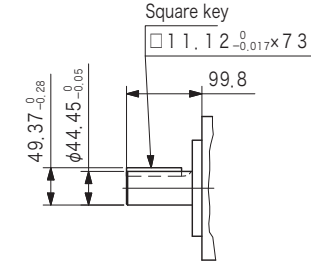
Note: These figures show a pump model with right rotation and delivery port specifications compliant with SAE J 518c standard pressure.
For left rotation, control valve shall move to symmetrical position from center line.



Foot mounting

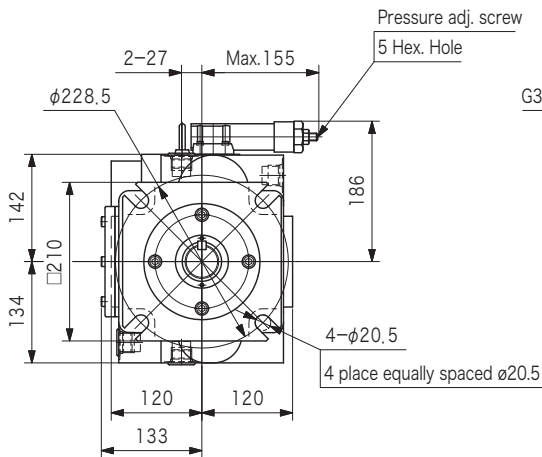


Shaft end

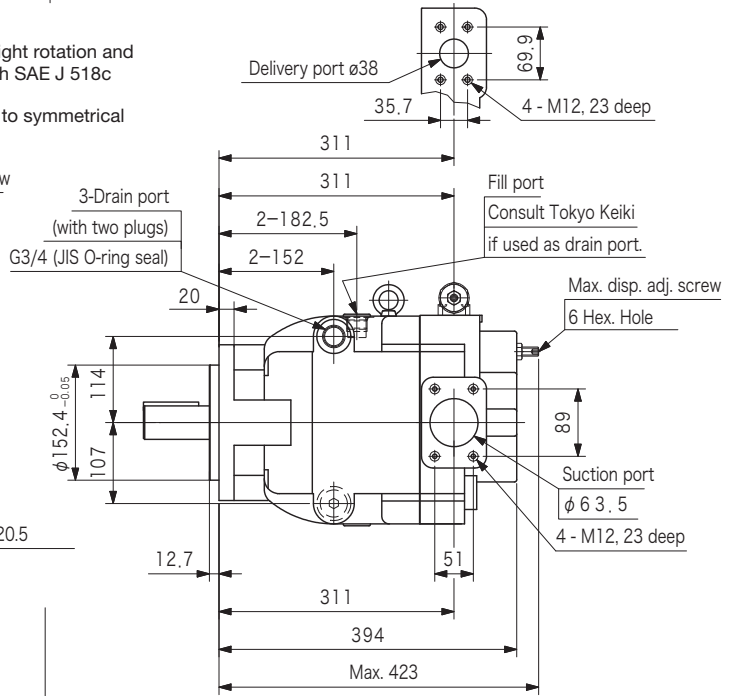
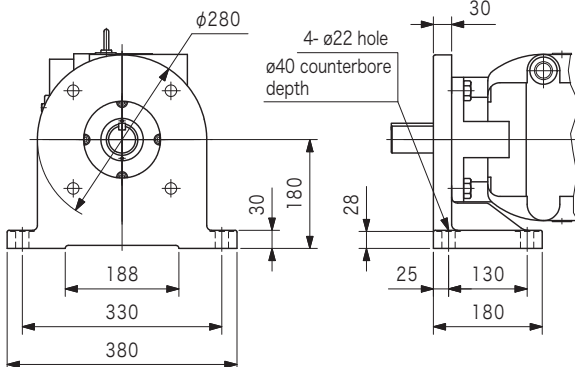


PH130-CH
PH170-CH

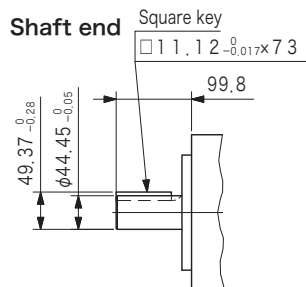
Note: These figures show a pump model with right rotation and delivery port specifications compliant with SAE J 518c standard pressure.
For left rotation, control valve shall move to symmetrical position from center line.



Foot mounting



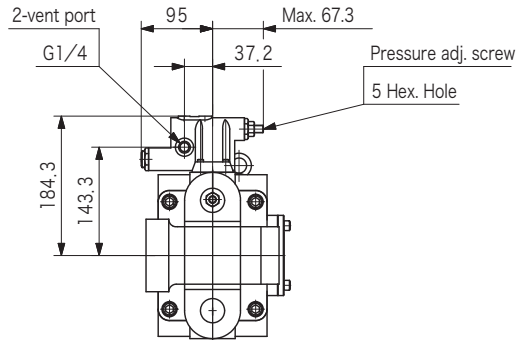
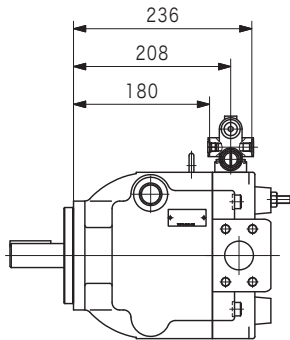
Shaft end



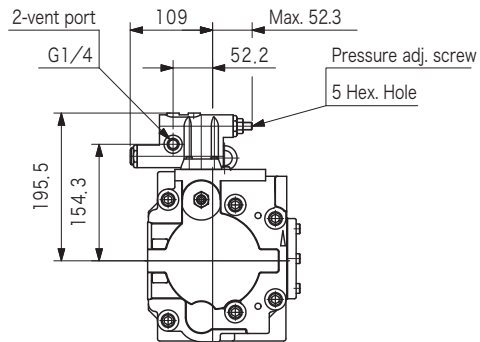
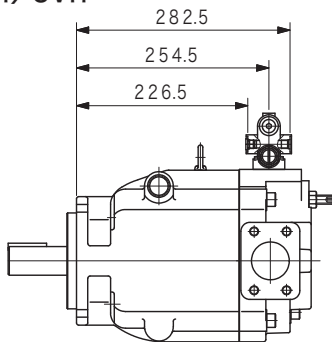
Control method (CGH/CVH)

Dimensions

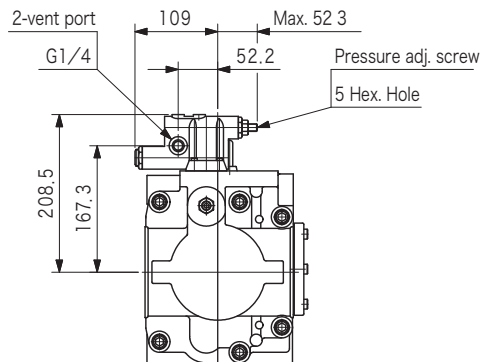
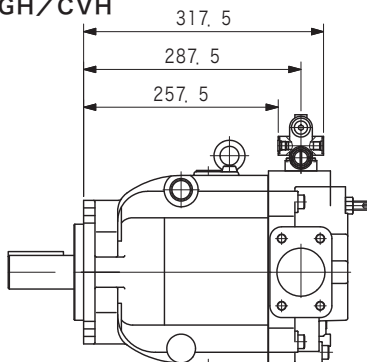
PH56-CGH/CVH



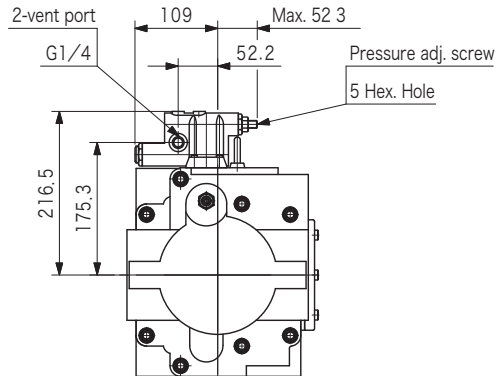
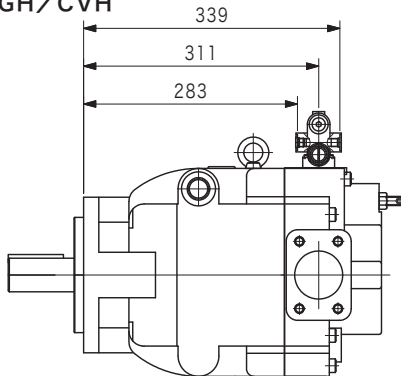
PH80-CGH/CVH



PH100-CGH/CVH



PH130-CGH/CVH
PH170-CGH/CVH

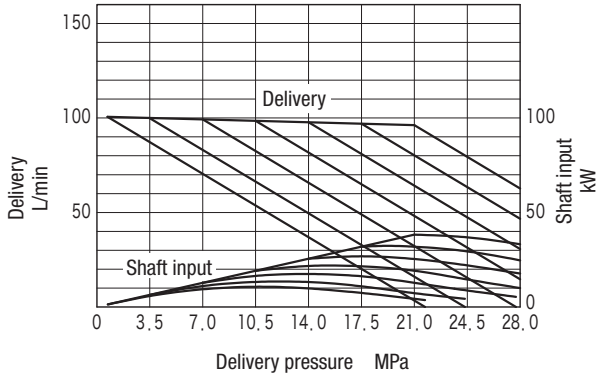


Control method (TL/TH)

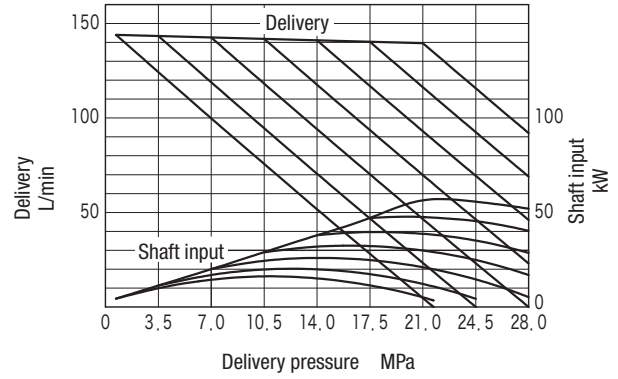
Characteristics Curve (1800 min⁻¹, 20 mm²/s) (typical examples)

Control Method: TL (low torque)

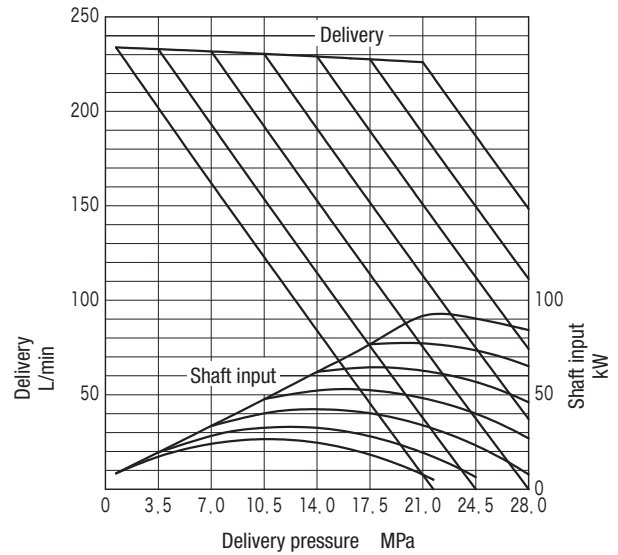
PH 5 6



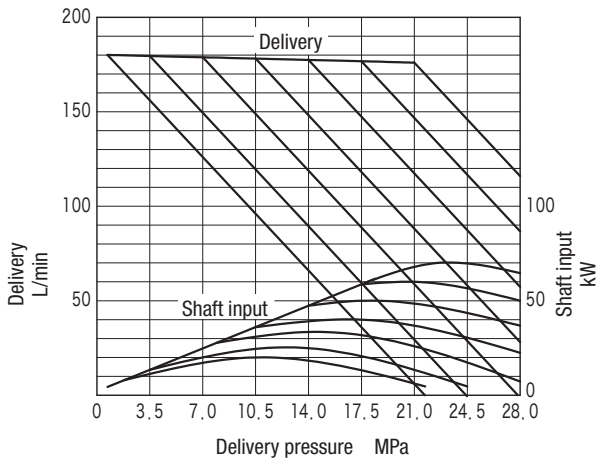
PH 8 0



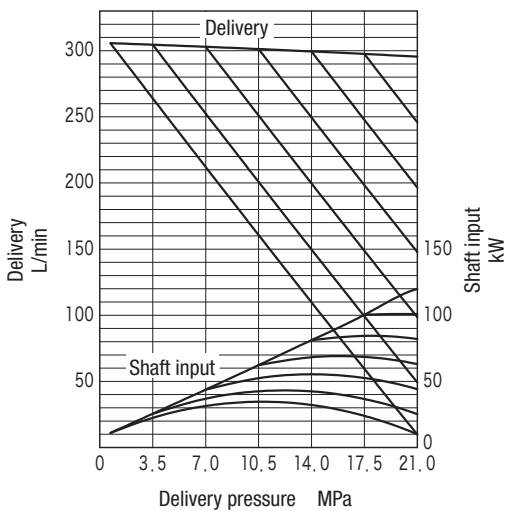
PH 1 3 0



PH 1 0 0

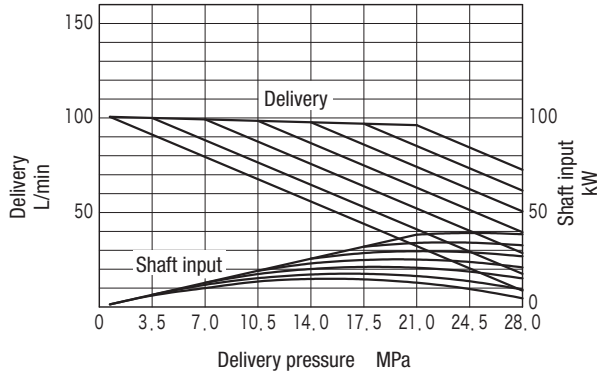


PH 1 7 0

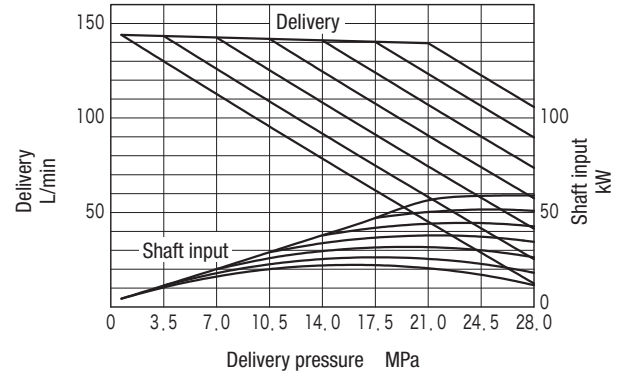


Control Method: TH (high torque)

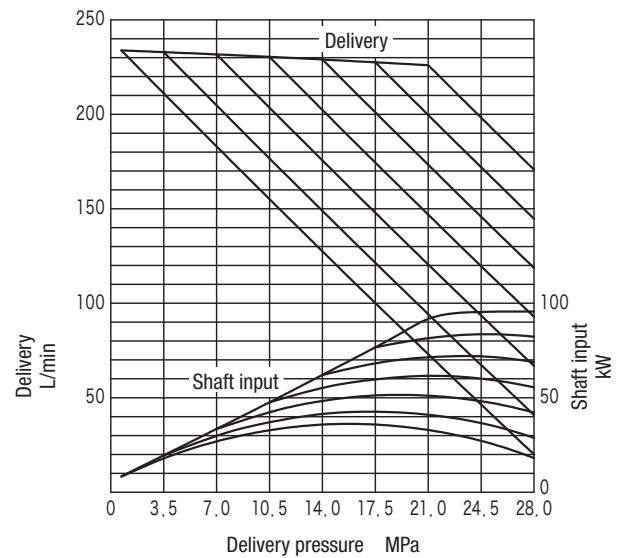
PH 5 6



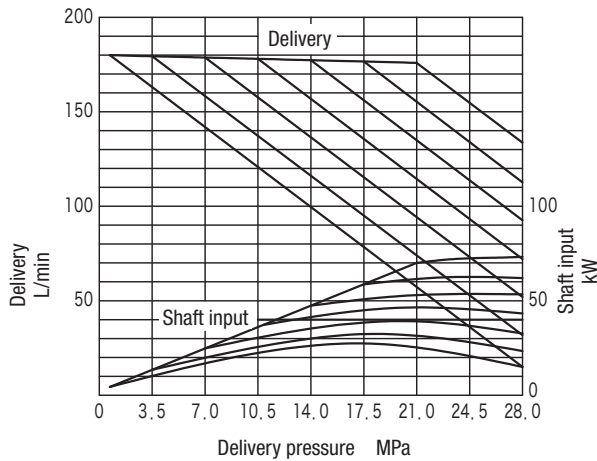
PH 8 0



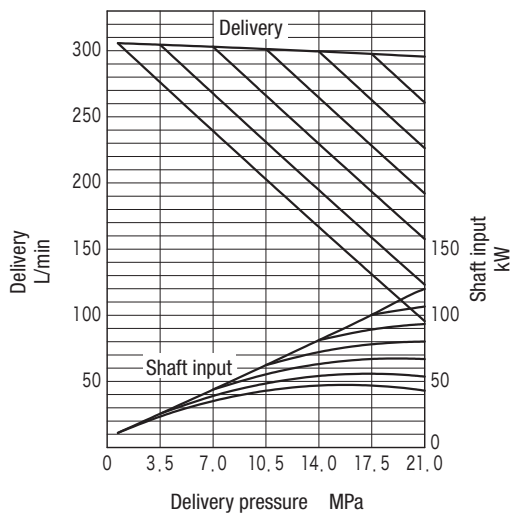
PH 1 3 0



PH 1 0 0

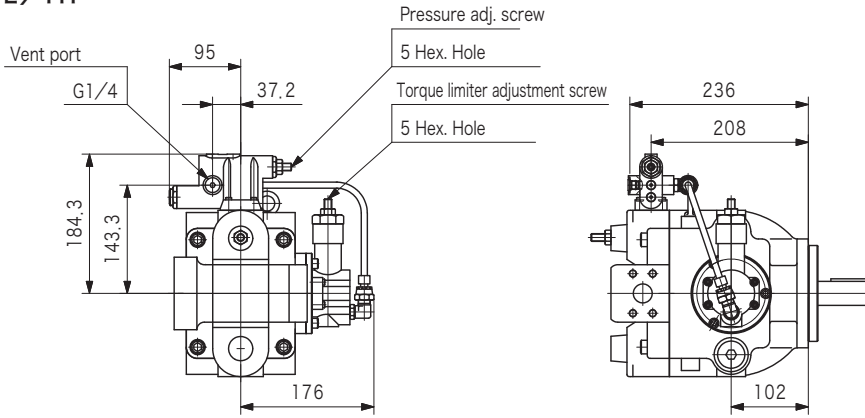


PH 1 7 0

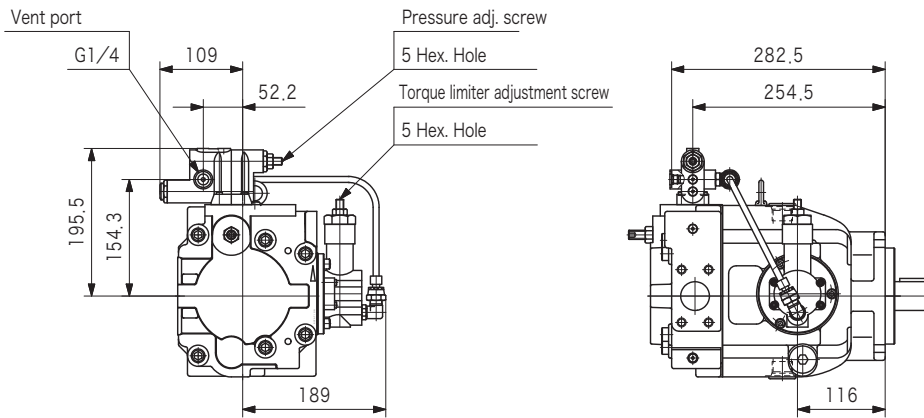


Dimensions

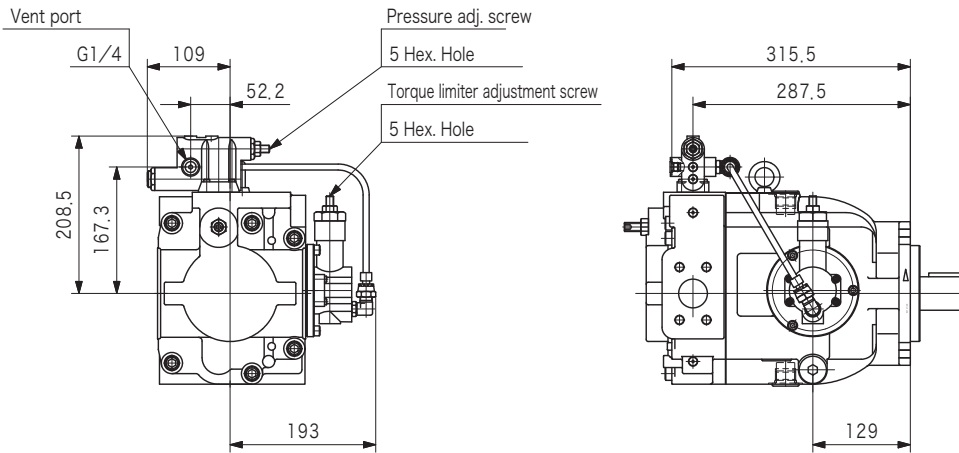
PH56-TL/TH



PH80-TL/TH



PH100-TL/TH



PH130-TL/TH
PH170-TL/TH

