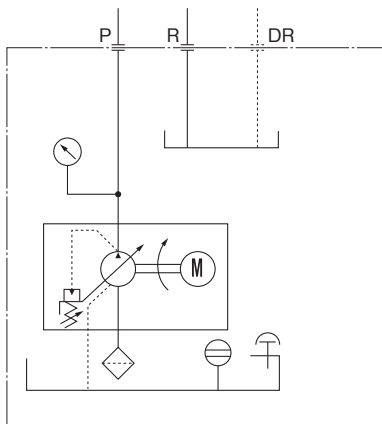


## ■ Features

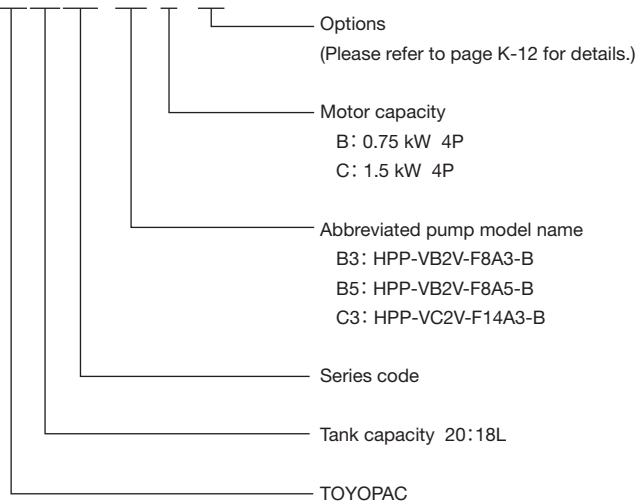
1. Lesser power loss and energy-saving is achieved by mounting a variable displacement piston pump.
  2. Compact overall unit is achieved by adopting the Toyo pump system.
  3. Selection of a variety of option devices is possible, including magnet separator, drain cooler (radiator), check valve, manifold and return filter.
  4. This model is compliant to the top runner regulations (efficiency level IE3).
- Eyebolts of a motor are provided for hoisting the motor itself. Do not use them when hoisting the hydraulic power unit. If you do, there is a danger that the hydraulic unit will be damaged or fall.
  - Standard position of motor terminal box is at the top of motor. However, the terminal box is positioned at left viewed from the pump side, only for the motor output: 0.75 kW.
  - Always ground the hydraulic power unit. Failure to ground it will cause electric shock or fire. You are recommended to install an earth leakage breaker to prevent electric shock accidents and fire with certainty.
  - When starting the hydraulic power unit, fill the inside of the pump with hydraulic fluid by supplying fluid through the oil filler port. Failure to do so may cause the pump to fall.
  - The water content of the hydraulic fluid must be 0.1% or less. Water in the hydraulic fluid causes hydraulic power unit failure.
  - Use petroleum base fluid (equivalent to ISO VG32 or VG46) within the specified fluid temperature range (VG32: 0 to 60°C, VG46: 6 to 65°C).  
Using hydraulic fluid outside the specified temperature range may cause failure of the hydraulic power unit and deterioration of the fluid. Fire-resistant fluid (water-glycol, w/o emulsion, ester phosphate) cannot be used. When replacing the fluid, use fluid of the same brand.
  - Control the contamination level of fluid to achieve better than Class 12 of NAS1638. Using contaminated fluid will shorten the service life of the hydraulic devices and damage them.
  - When installing a check valve at the pump discharge side, use one that has cracking pressure of 0.005 MPa (Model HK3-EFT005-03 to 06)
  - Manifold mounting holes are provided in the base model. A special stay is necessary for mounting a manifold.
  - The direction of rotation of the pump must be clockwise when viewed from the motor fan side.
  - Clean the interior of the tank after hoisting the cover in the case of TP20NC.

## ● Hydraulic circuit



## ■ Description of the model designation

TP20NC-B3-B- (\*)



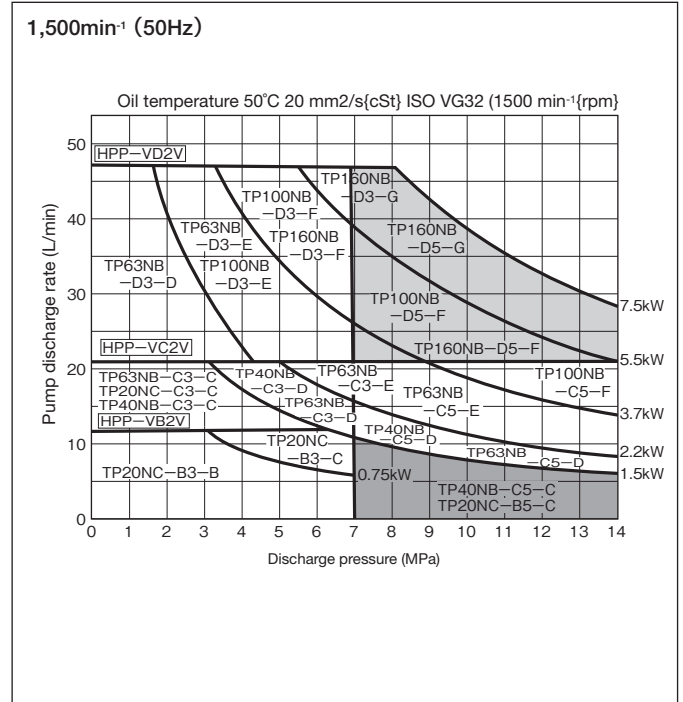
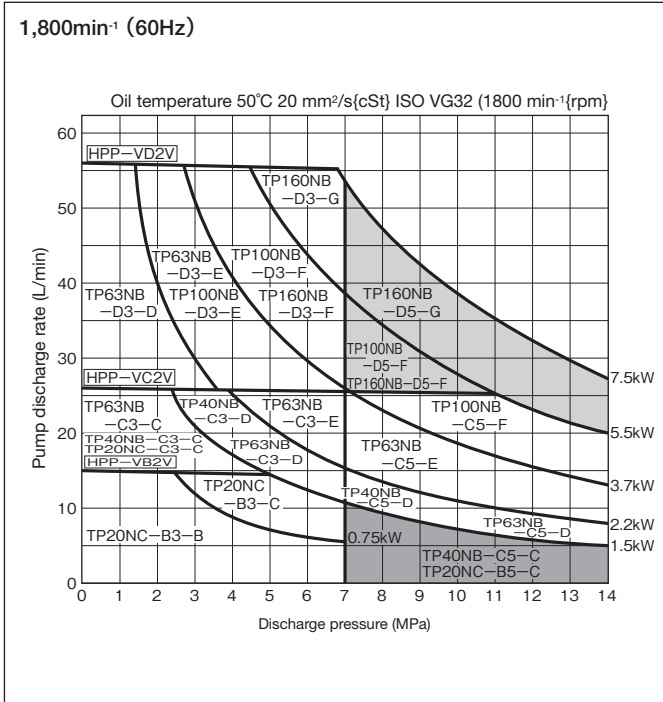
## Specifications

Base model	Motor capacity	Tank capacity (L)	Displacement adjustment range (L/min)		Max. operating pressure (MPa)	Pressure adjustment range (MPa)	Voltage (V)	Mass*3 (kg)
			*1 50Hz	*1 60Hz				
TP20NC-B3-B	0.75 kW 4P	18	4 to 12	4 to 14	7	1 to 7	AC200V 50/60Hz	40
TP20NC-B3-C	1.5 kW 4P							45
TP20NC-B5-C			5 to 21	5 to 26	7	1 to 7	AC220V 60Hz	50

NOTE: If special voltage is required, please consult us

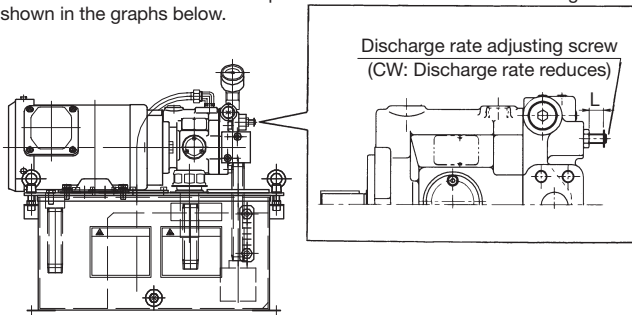
\*1: Value at 1,500 min<sup>-1</sup> \*2: Value at 1,800 min<sup>-1</sup> \*3: Option does not include fluid.

## Model selection chart



## Adjusting the discharge rate using the pump discharge rate adjusting screw

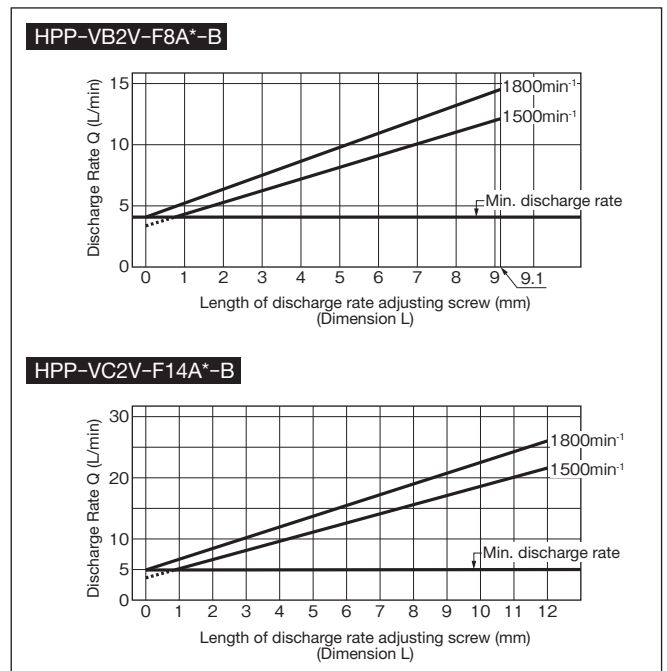
Adjust or set the discharge rate using the discharge rate adjusting screw; set the discharge rate using the length of the screw (dimension L) in the figure in the left as the reference. The relationship between dimension L and discharge rate Q is shown in the graphs below.



(NOTE)

- The minimum discharge rate for the pump HPP-VB2V must be larger than 4 L/min, regardless of the speed of rotation.
- The minimum discharge rate for the pump HPP-VC2V must be larger than 5 L/min, regardless of the speed of rotation.

- Conditions: Fluid: ISO VG32, Fluid temperature: 50°C (20 mm<sup>2</sup>/s {cSt}) Discharge rate: NL 0.5 MPa

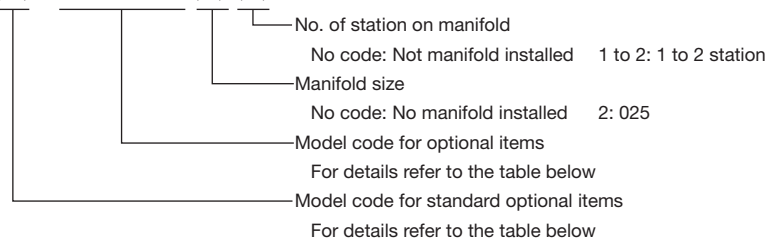


K

HYDRAULIC POWER UNITS

■ Model coding for optional items

TP20NC-B3-B-(S)- \* \* \* \* \* (2) (2)



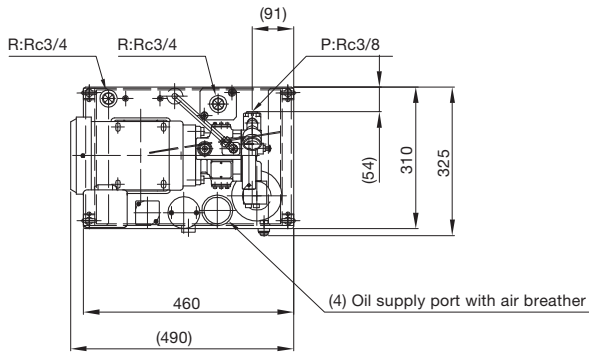
■ Option selection table (This table shows the selectable options for each TOYOPAC N series pump.)

Code	Description		Feature	Model
				TP20NC
S	Standard optional items		Complete with Magnetic separator(M), Radiator(C) , Radiator filter(A) , Thermometer-and-oil level gauge(T), Return filter(F) and Spare element for return filter	○
B	Level switch		Used to observe the decrease of working fluid by detecting the oil level in the tank	○
L	Water leak test		Water leak test is performed	○
M	Magnetic separator		Installed at the tank bottom, it can collect fine iron particles in the working fluid which are attracted by magnetic force to reduce wear of hydraulic devices.	○
C	Radiator		Used in the case where the oil temperature exceeds 60°C. Since this is a drain cooler(radiator), no power supply is required. Determine whether the drain cooler is necessary or not by referring to the Fluid Temperature Rise Chart in the OUTSIDE DIMENSIONS (BASE MODEL).	○
K	Check valve	HPP-VB2V	Used to protect the pump from rotating in the wrong direction (cracking pressure: 0.005 MPa).	○
		HPP-VC2V	Used to protect the pump from rotating in the wrong direction (cracking pressure: 0.005 MPa).	○
A	Radiator filter		Used to protect the radiator from direct adhesion of oil mist to it. No need to clean the fin. Easy replacement is possible.	○
T	Thermometer		Used to check the oil level and oil temperature, and can be changed in its mounting position.	○
H	Thermo switch		Used to observe the oil temperature rise by detecting the temperature of working fluid in the tank.	○
F	Return filter		Used to avoid failure of the hydraulic power unit caused by contaminated fluid, thus prolonging the service life of hydraulic devices. (Paper element with filtering accuracy of 10 μm)	○
FW	Return filter with part pressure gauge		Its pressure gauge serves to check the clogging condition of element which enables you to know the right time to replace the element.	○
P	Pressure switch		Used to observe pressure drop by detecting P port pressure.	○
G	Level gauge guard		Used to protect oil level gauge against external force.	○
R	Oil pan		It can protect the working fluid from flowing over to some extent.	○
D	Facing direction change for maintenance purpose		Level gauge, pressure gauge and nameplate change to face "D" direction. (Please refer to page K-14•K-16•K-18 for details.)	○
21	1-station 025 size manifold		Manifold model of HMD-1-025-03T2 is used.	○
22	2-station 025 size manifold		Manifold model of HMD-2-025-03T2 is used.	○

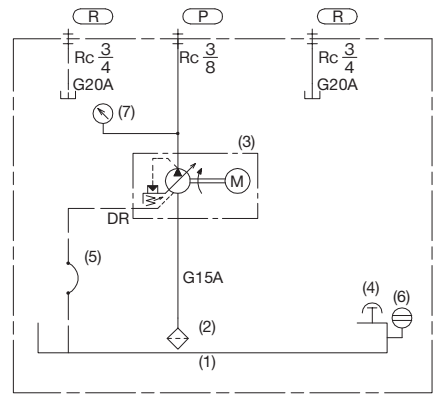
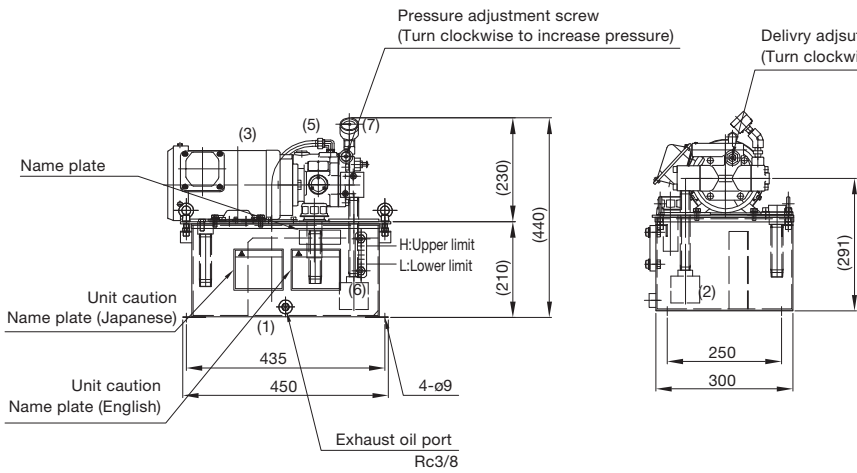
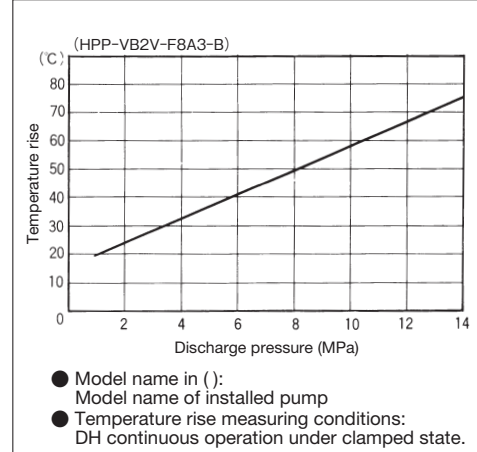
NOTE 1: When the manifold is mounted, a check valve is installed.

■ Outside dimensions

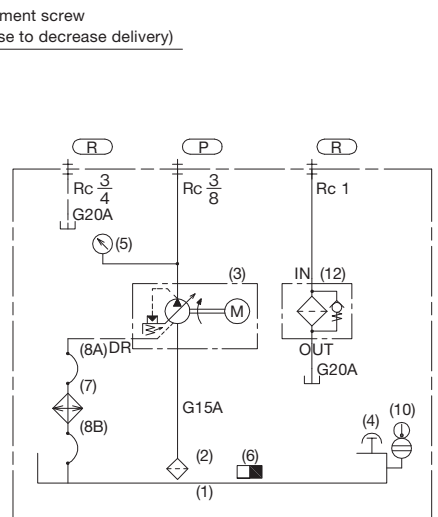
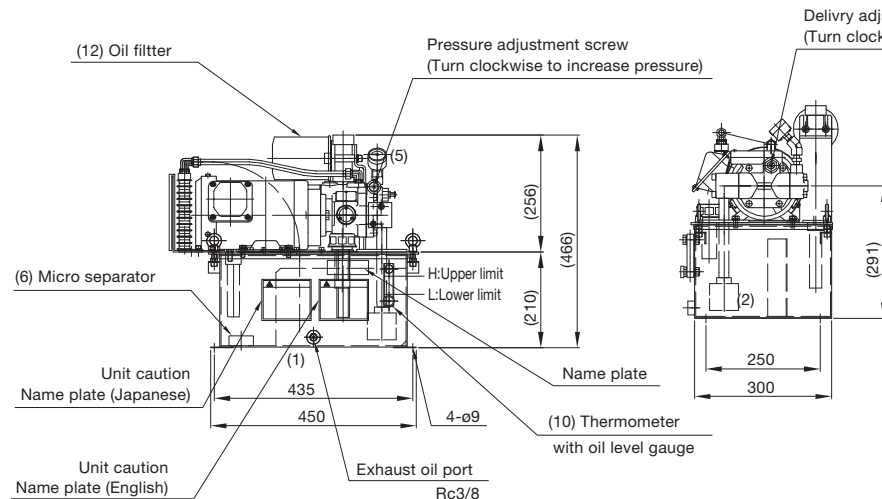
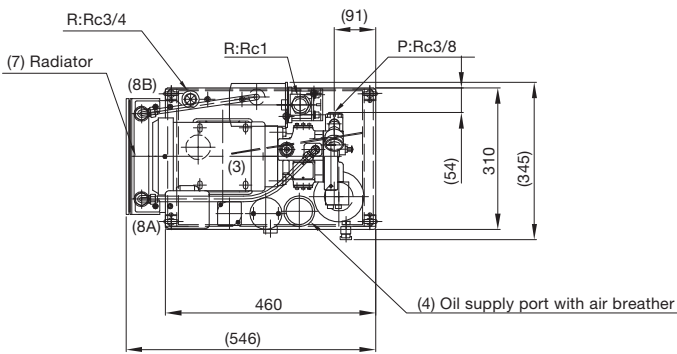
TP20NC-B3-B



Fluid temperature rise chart  
(Fluid temperature = room temperature + temperature rise)

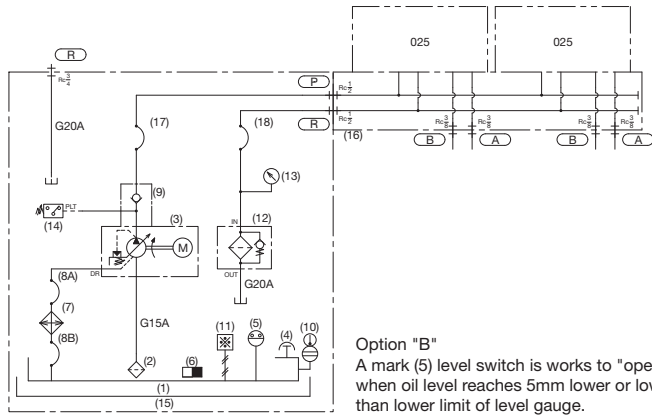
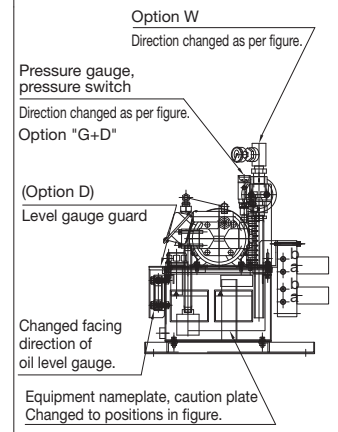
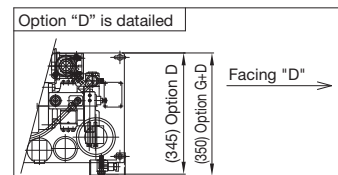
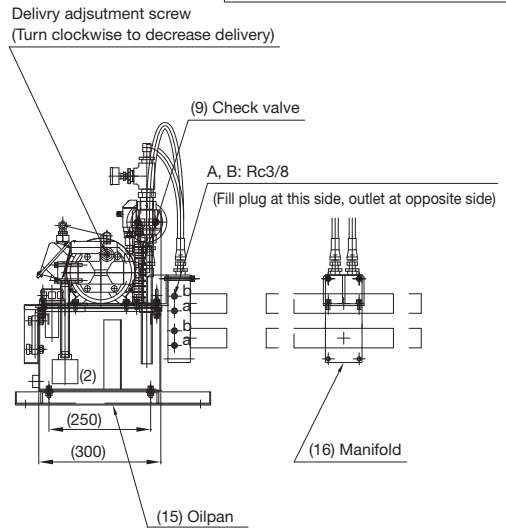
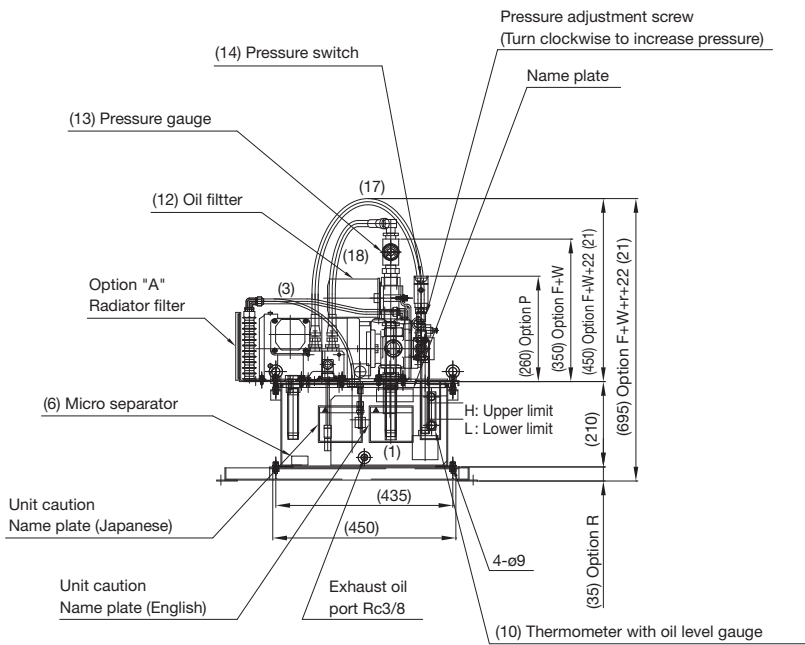
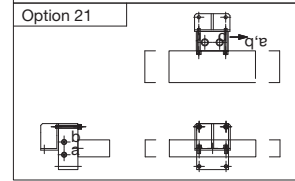
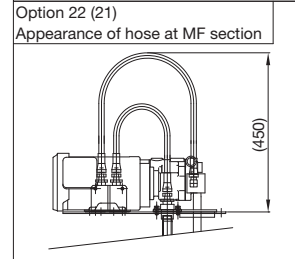
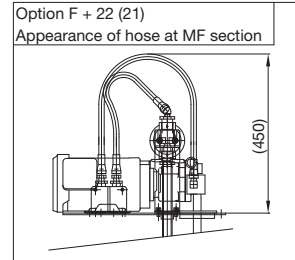
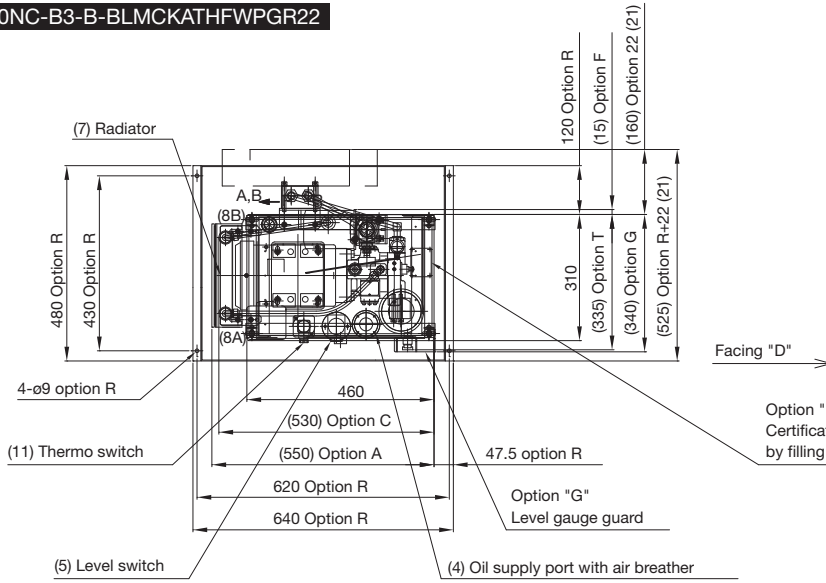


TP20NC-B3-B-S



**Outside dimensions**

TP20NC-B3-B-BLMCKATHFWPGR22



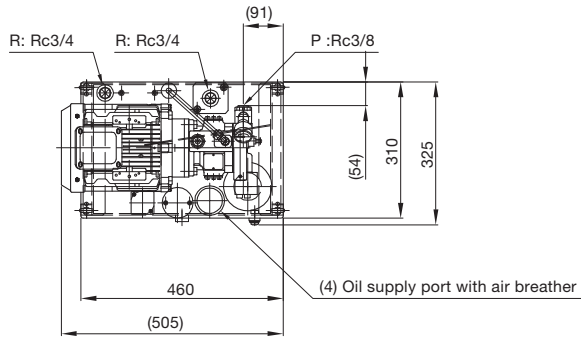
Option L  
Tank : Inspection by filling water

K

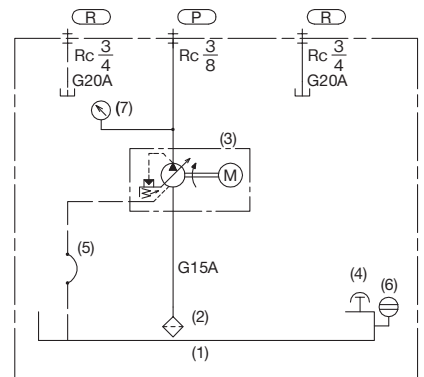
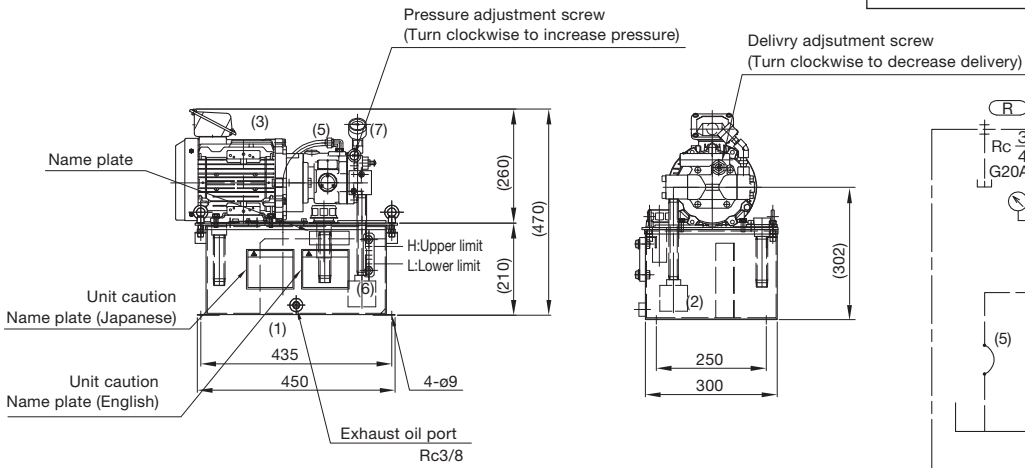
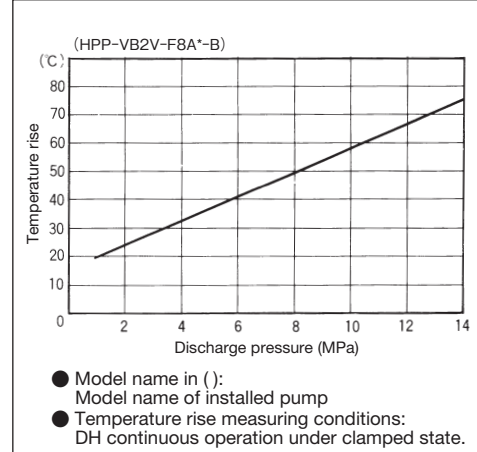
HYDRAULIC POWER UNITS

**Outside dimensions**

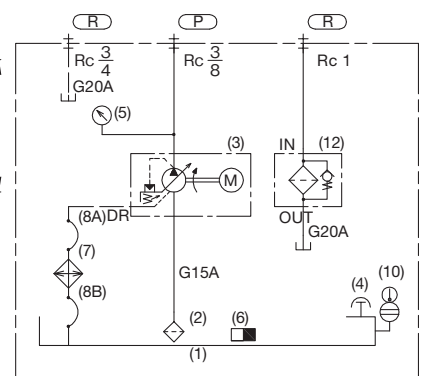
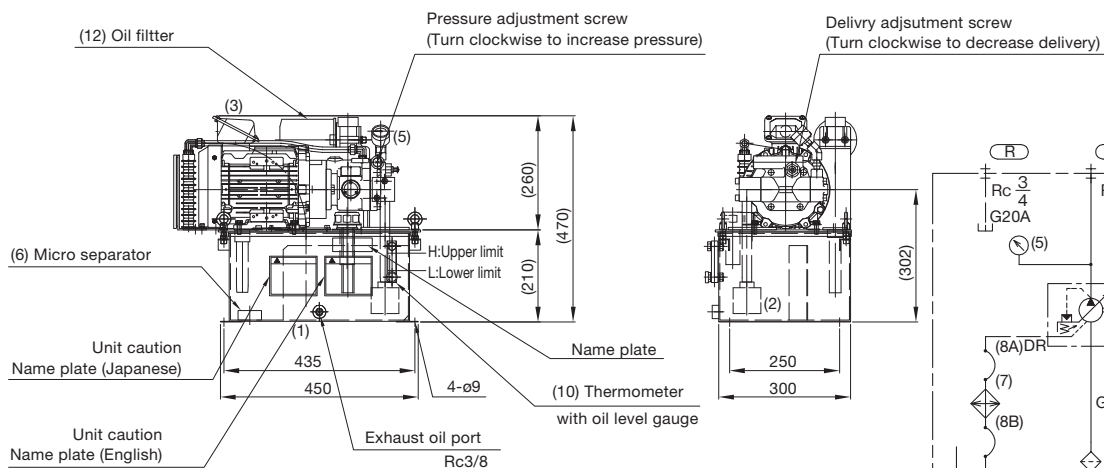
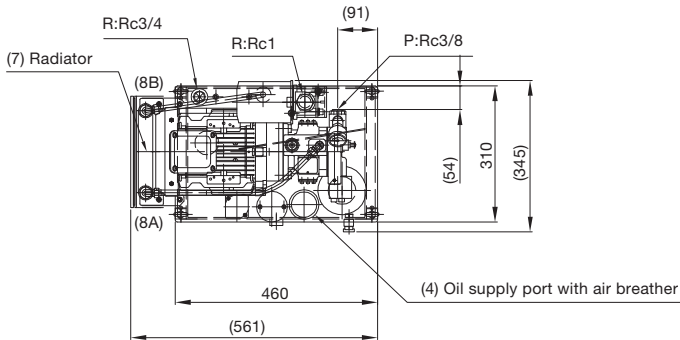
**TP20NC-B\*-C**



**Fluid temperature rise chart**  
(Fluid temperature = room temperature + temperature rise)

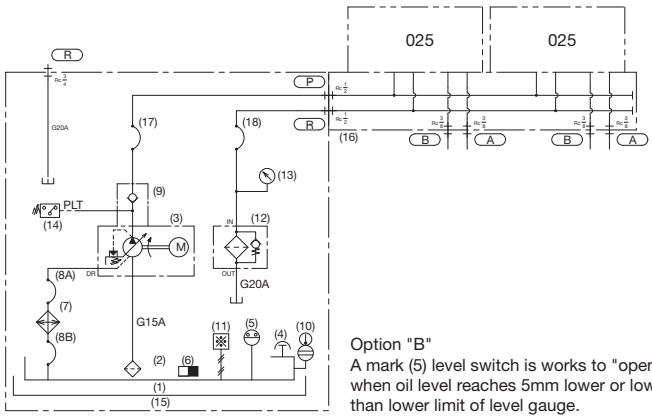
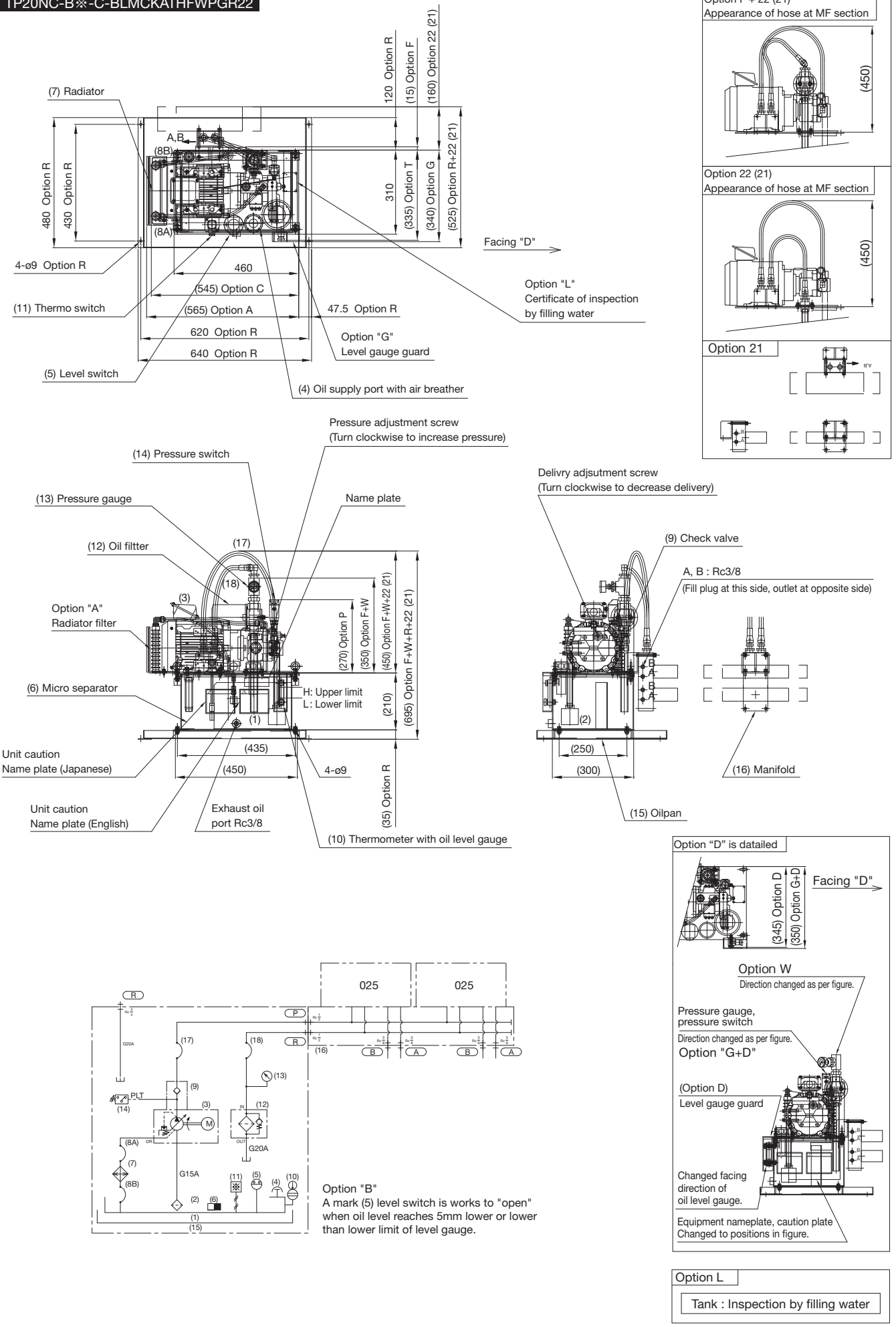


**TP20NC-B\*-C-S**



■ Outside dimensions

TP20NC-B※-C-BLMCKATHFWPGR22

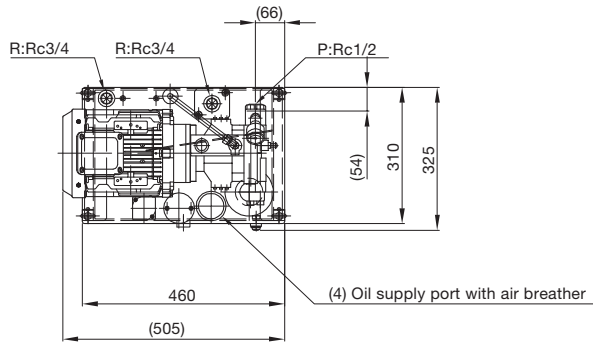


K

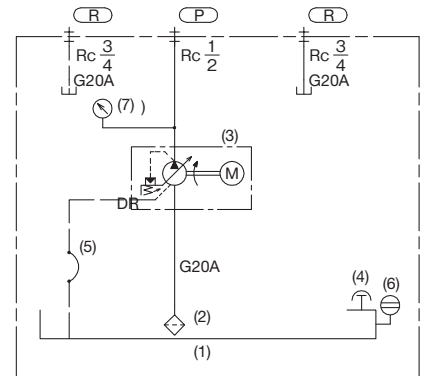
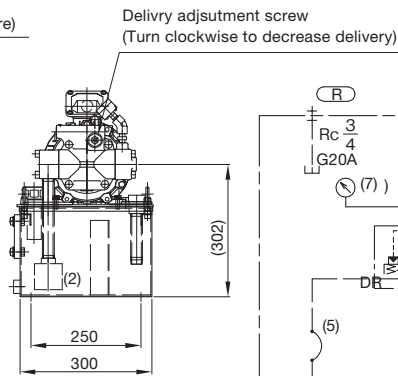
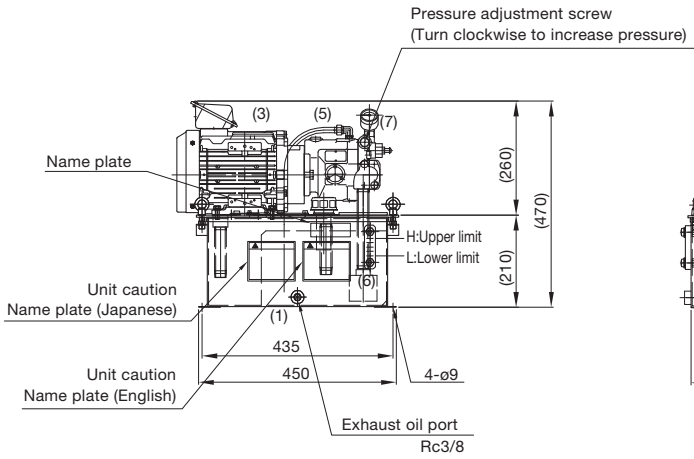
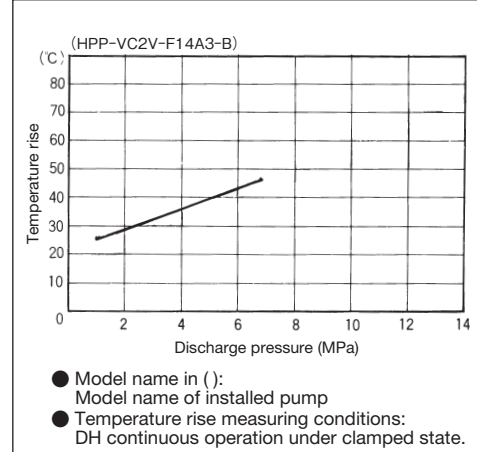
HYDRAULIC POWER UNITS

■ Outside dimensions

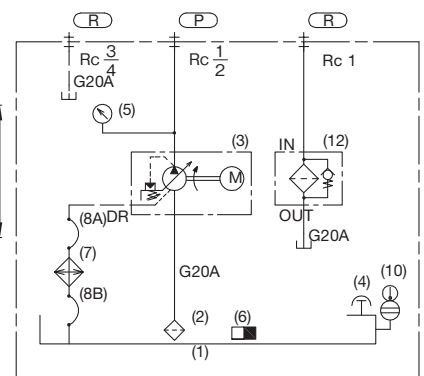
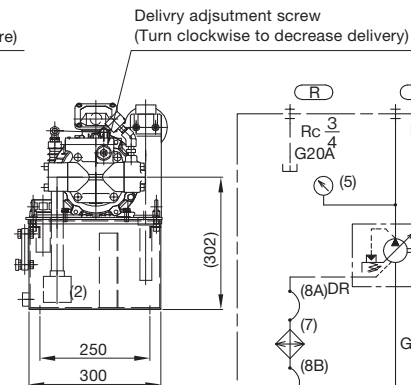
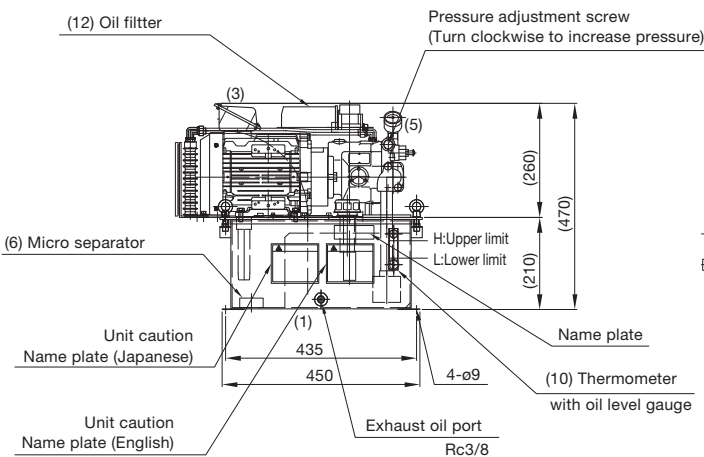
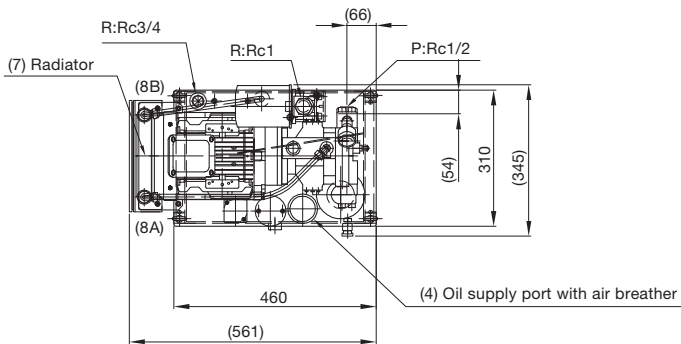
TP20NC-C3-C



Fluid temperature rise chart  
(Fluid temperature = room temperature + temperature rise)



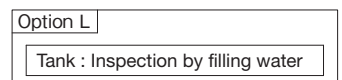
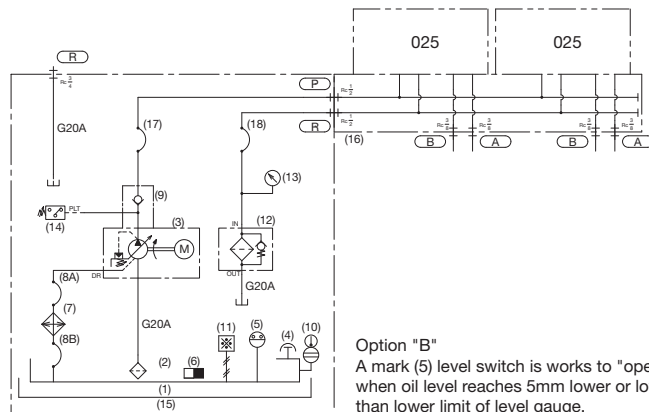
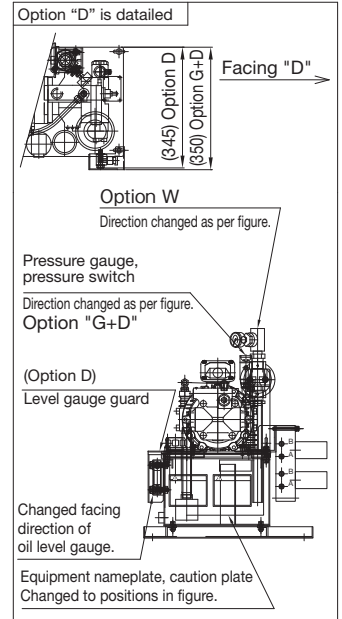
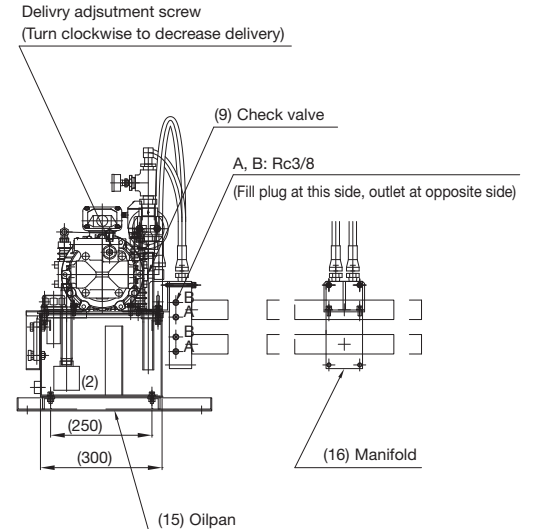
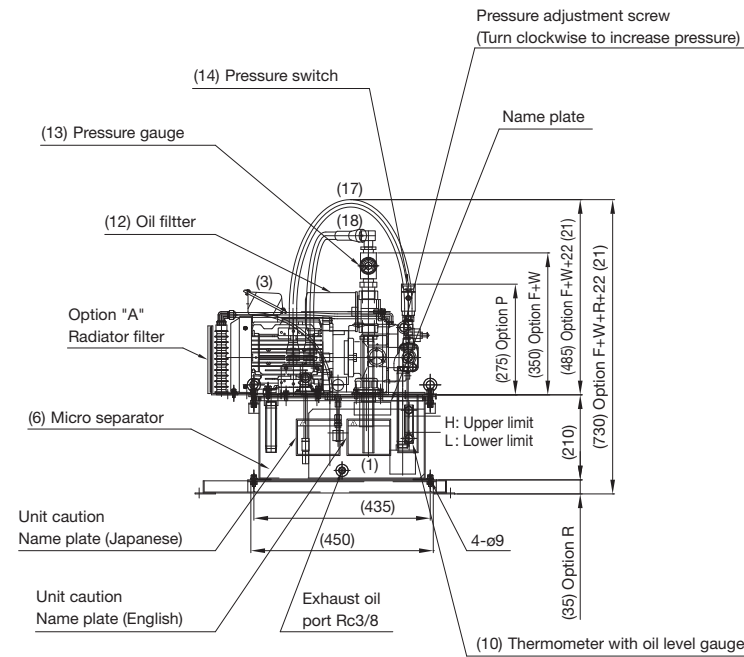
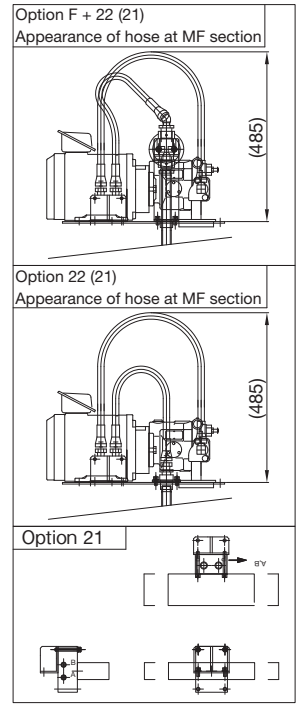
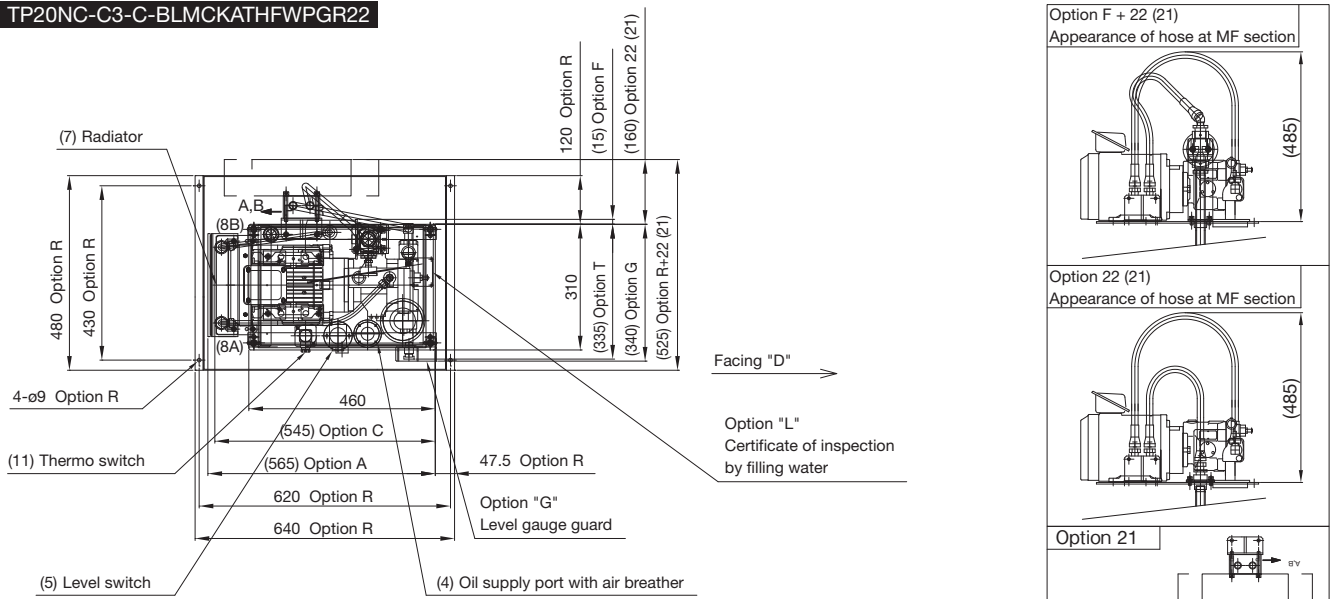
TP20NC-C3-C-S





**Outside dimensions**

TP20NC-C3-C-BLMCKATHFWPGR22



K

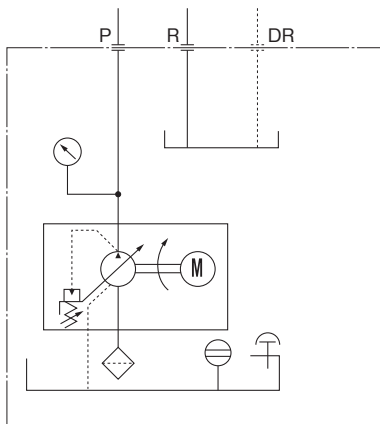
HYDRAULIC POWER UNITS



## ■ Features

1. Lesser power loss and energy-saving is achieved by mounting a variable displacement piston pump.
2. Compact overall unit is achieved by adopting the Toyo pump system.
3. Selection of a variety of option devices is possible, including magnet separator, drain cooler (radiator), check valve, manifold and return filter.
4. This model is compliant to the top runner regulations (efficiency level IE3).
  - Eyebolts of a motor are provided for hoisting the motor itself. Do not use them when hoisting the hydraulic power unit. If you do, there is a danger that the hydraulic unit will be damaged or fall.
  - Standard position of motor terminal box is at the top of motor.
  - Always ground the hydraulic power unit. Failure to ground it will cause electric shock or fire. You are recommended to install an earth leakage breaker to prevent electric shock accidents and fire with certainty.
  - When starting the hydraulic power unit, fill the inside of the pump with hydraulic fluid by supplying fluid through the oil filler port. Failure to do so may cause the pump to fail.
  - The water content of the hydraulic fluid must be 0.1% or less. Water in the hydraulic fluid causes hydraulic power unit failure.
  - Use petroleum base fluid (equivalent to ISO VG32 or VG46) within the specified fluid temperature range (VG32: 0 to 60°C, VG46: 6 to 65°C).  
Using hydraulic fluid outside the specified temperature range may cause failure of the hydraulic power unit and deterioration of the fluid. Fire-resistant fluid (water-glycol, w/o emulsion, ester phosphate) cannot be used. When replacing the fluid, use fluid of the same brand.
  - Control the contamination level of fluid to achieve better than Class 12 of NAS1638. Using contaminated fluid will shorten the service life of the hydraulic devices and damage them.
  - When installing a check valve at the pump discharge side, use one that has cracking pressure of 0.005 MPa (Model HK3-EFT005-03 to 06)
  - Manifold mounting holes are provided in the base model. A special stay is necessary for mounting a manifold.
  - The direction of rotation of the pump must be clockwise when viewed from the motor fan side.
  - Clean the interior of the tank after hoisting the cover in the case of TP40NB, TP63NB, TP100NB and TP160NB, clean after removing the cleaning window from the side face.
  - When an oil pan is required at the reservoir top plate, consult us separately.
  - The exterior coating is Munsell No. 10.0GY9.0/1. Note that the pump, motor, drain cooler, oil level gauge and oil filler port-cum-breather are coated with the manufacturer's standard color.

## ● Hydraulic circuit



## ■ Description of the model designation

Base model	Option
TP100NB-D3-E-	(M) (C) (K) (3) (4) (F) (L)
	With/without leak test by filling with water No code: None L: With leak test by filling with water
	Return filter No code: Not installed F: With return filter
	No. of station of manifold No code: Not installed 1 to 5: 1 to 5 station
	Manifold size No code: Not installed 2: 025 3: 03
	Check valve No code: Not installed K: With check valve
	Drain cooler (radiator) No code: Not installed C: With drain cooler
	Magnet separator No code: Not installed M: With magnet separator
	Motor capacity (4 pole) C: 1.5 kW D: 2.2 kW E: 3.7 kW F: 5.6 kW G: 7.5 kW
	Abbreviated pump model name C3: HPP-VC2V-F14A3-B C5: HPP-VC2V-F14A5-B D3: HPP-VD2V-F31A3-B D5: HPP-VD2V-F31A5-B
	Series code Tank capacity 40: 40 L 63: 63 L 100: 100 L 160: 160 L
	TOYOPAC

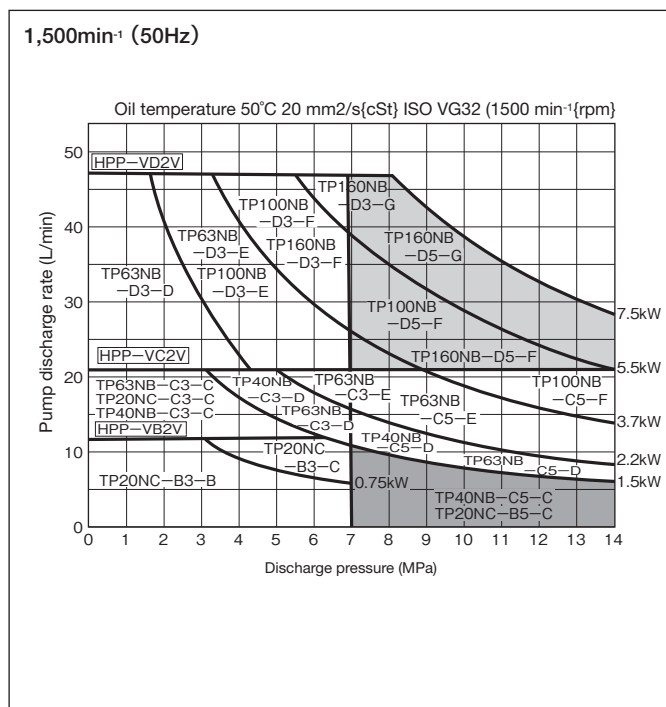
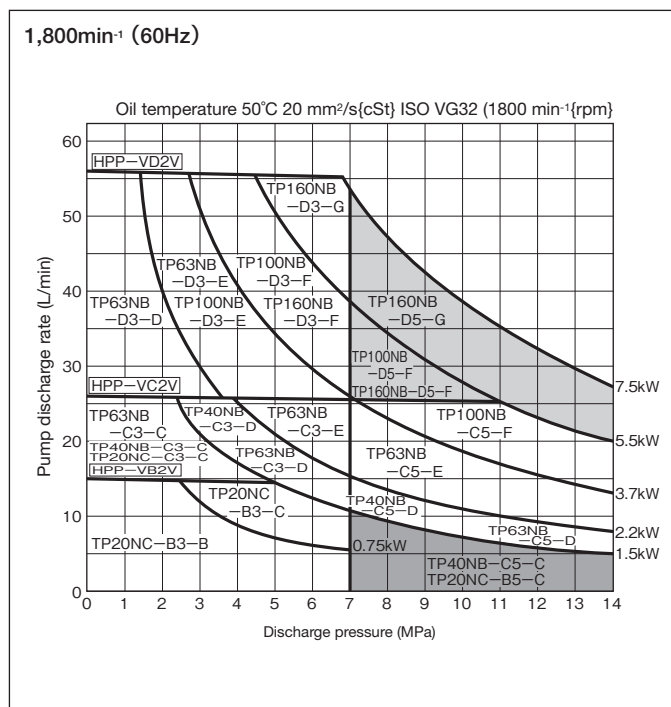
## Specifications

Base model	Motor capacity	Tank capacity (L)	Displacement adjustment range (L/min)		Max. operating pressure (MPa)	Pressure adjustment range (MPa)	Voltage (V)	Mass*3 (kg)
			*1 50Hz	*1 60Hz				
TP40NB-C3-C	1.5 kW 4P	40	5 to 21	5 to 26	7	1 to 7	84	
TP40NB-C3-D	2.2 kW 4P						96	
TP40NB-C5-C	1.5 kW 4P				14	3 to 14	84	
TP40NB-C5-D	2.2 kW 4P						96	
TP63NB-C3-C	1.5 kW 4P	63	5 to 21	5 to 26	7	1 to 7	94	
TP63NB-C3-D	2.2 kW 4P						101	
TP63NB-C3-E	3.7 kW 4P				14	3 to 14	118	
TP63NB-C5-D	2.2 kW 4P						101	
TP63NB-C5-E	3.7 kW 4P		12 to 47	12 to 56	7	1 to 7	118	
TP63NB-D3-D	2.2 kW 4P						112	
TP63NB-D3-E	3.7 kW 4P				14	3 to 14	129	
TP100NB-C5-F	5.5 kW 4P						180	
TP100NB-D3-E	3.7 kW 4P	100	12 to 47	12 to 56	7	1 to 7	158	
TP100NB-D3-F	5.5 kW 4P						14	3 to 14
TP100NB-D5-F			7	1 to 7	205			
TP160NB-D3-F	5.5 kW 4P				160	12 to 47	12 to 56	14
TP160NB-D3-G	7.5 kW 4P	205						
TP160NB-D5-F	5.5 kW 4P	221						
TP160NB-D5-G	7.5 kW 4P	205						
TP160NB-D5-G	7.5 kW 4P	221						

NOTE: If special voltage is required, please consult us

\*1: Value at 1,500 min<sup>-1</sup> \*2: Value at 1,800 min<sup>-1</sup> \*3: Option does not include fluid.

## Model selection chart

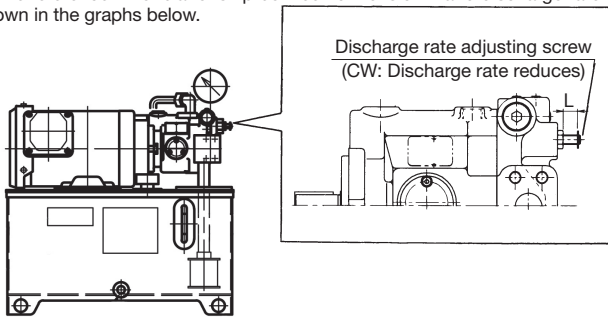


K

HYDRAULIC POWER UNITS

### Adjusting the discharge rate using the pump discharge rate adjusting screw

Adjust or set the discharge rate using the discharge rate adjusting screw; set the discharge rate using the length of the screw (dimension L) in the figure in the left as the reference. The relationship between dimension L and discharge rate Q is shown in the graphs below.



(NOTE)

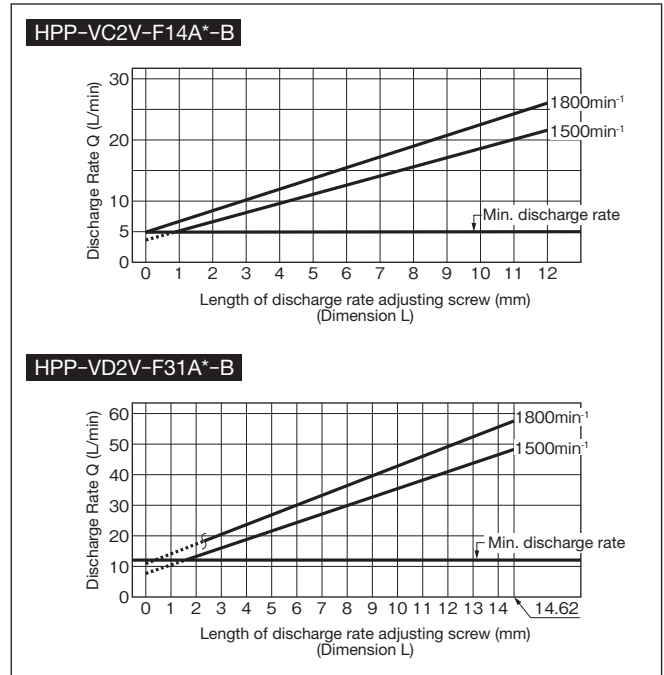
- The minimum discharge rate for the pump HPP-VC2V must be larger than 5 L/min, regardless of the speed of rotation.
- The minimum discharge rate for the pump HPP-VD2V must be larger than 12 L/min, regardless of the speed of rotation.

### Options

A wide variety of options is available for TOYOPAC N series hydraulic power units. They are briefly explained below.

- **M: Magnetic separator**  
Installed at the bottom in the tank and attracts and collects fine iron particles in the hydraulic fluid to reduce wear of hydraulic devices.
- **C: Drain cooler (radiator)**  
Used when the fluid temperature exceeds 60°C. Since this is a drain cooler (radiator), no power supply is required. Determine whether the drain cooler is necessary or not by referring to the Fluid Temperature Rise Chart in the EXTERNAL DIMENSIONS (BASE MODEL).
- **K: Check valve**  
Used to prevent reversal of pump rotation (cracking pressure: 0.005 MPa).
- **2\*: Manifold for size 025 3\*: Manifold for size 03**  
NOTE 1: The manifold model designation is HMD-\*025-03T2 for size 025 and HMD-\*03-04T2 for size 03.
- **F: Return filter**  
Used to avoid failure of the hydraulic power unit due to contaminated fluid, thus prolonging the service life of hydraulic devices.  
(Paper element with filtering accuracy of 10 μm, with indicator)

- Conditions: Fluid: ISO VG32, Fluid temperature: 50°C (20 mm<sup>2</sup>/s {cSt})  
Discharge rate: NL 0.5 MPa



### Option selection table (This table shows the selectable options for each TOYOPAC N series pump.)

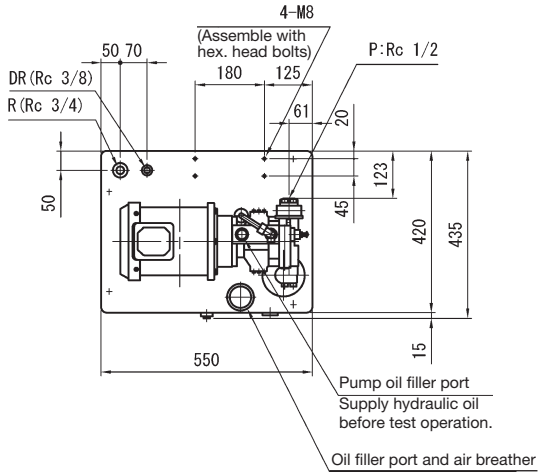
Option		Model	TP40NB	TP63NB	TP100NB	TP160NB
M	Magnetic separator	Small	○	○	○	—
		Large	—	—	—	○
C	Drain cooler (radiator)		○	○	○	○
K	Check valve	HPP-VC2V	○	○	○	—
		HPP-VD2V	—	○	○	○
2*	Manifold for size 025		1 to 4 station	1 to 5 station	1 to 5 station	1 to 5 station
3*	Manifold for size 03		1 to 3 station	1 to 4 station	1 to 5 station	1 to 5 station
F	Return filter		○	○	○	○

NOTE 1: When the manifold is mounted, a check valve is installed.

NOTE 2: Symbol “\*” indicates the No. of station of manifolds.

■ Outside dimensions (base models)

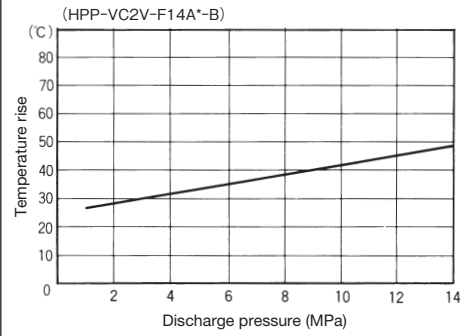
TP40NB-C\*-\*



Dimension table (Unit: mm)

Motor capacity (kW)	A
C: 1.5	600
D: 2.2	610

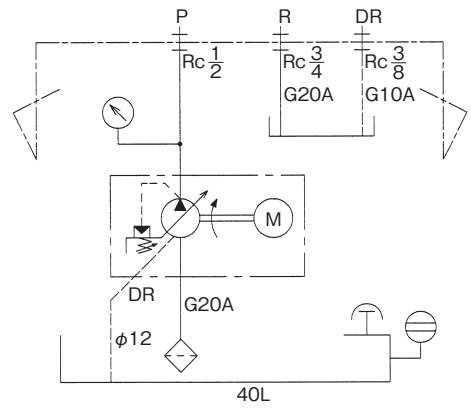
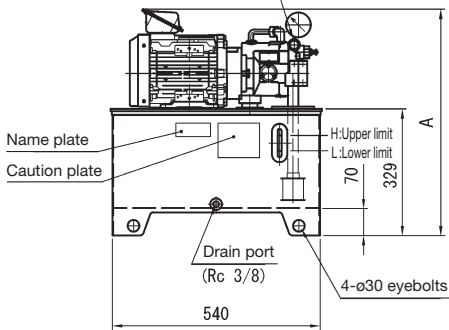
Fluid temperature rise chart (Fluid temperature = room temperature + temperature rise)



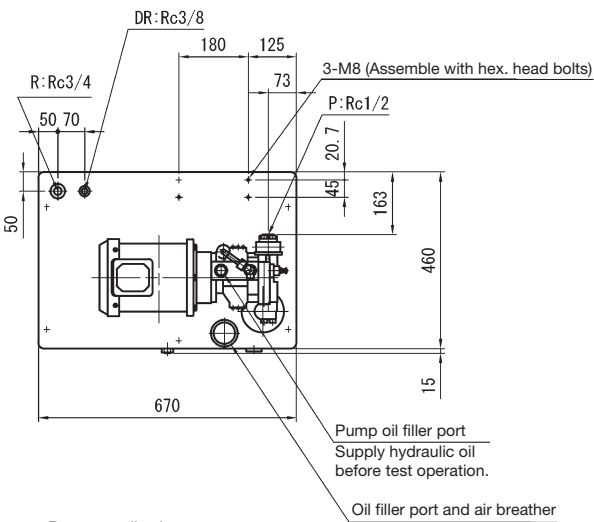
- Model name in ( ): Model name of installed pump
- Temperature rise measuring conditions: DH continuous operation under clamped state.

Pressure adjusting screw (CW: Pressure increases)

Discharge rate adjusting screw (CW: Discharge rate reduces)



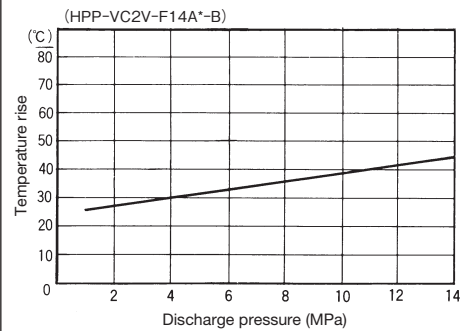
TP63NB-C\*-\*



Dimension table (Unit: mm)

Motor capacity (kW)	A
C: 1.5	630
D: 2.2	640
E: 3.7	670

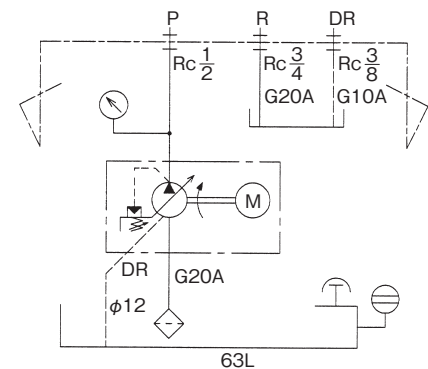
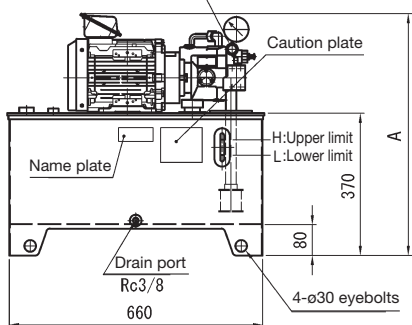
Fluid temperature rise chart (Fluid temperature = room temperature + temperature rise)



- Model name in ( ): Model name of installed pump
- Temperature rise measuring conditions: DH continuous operation under clamped state.

Pressure adjusting screw (CW: Pressure increases)

Discharge rate adjusting screw (CW: Discharge rate reduces)

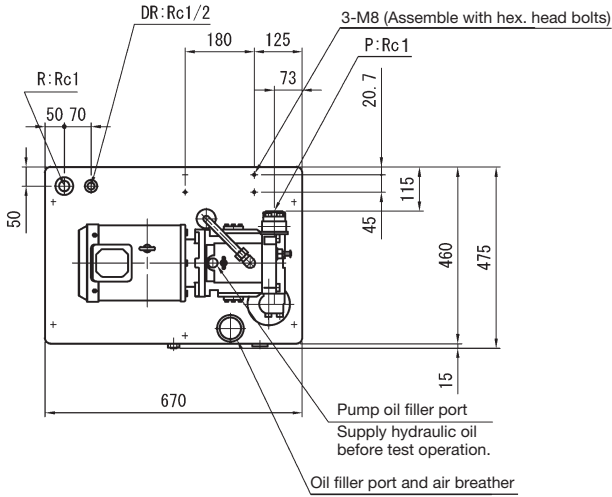


K

HYDRAULIC POWER UNITS

■ Outside dimensions (base models)

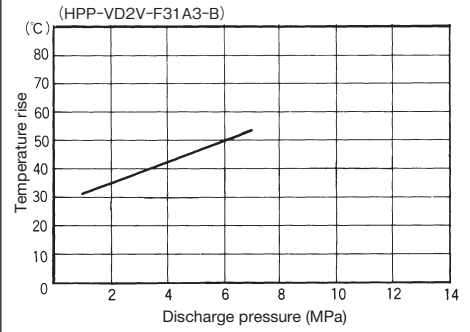
TP63NB-D3-\*



Dimension table (Unit: mm)

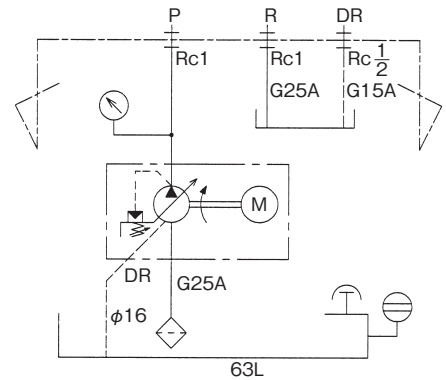
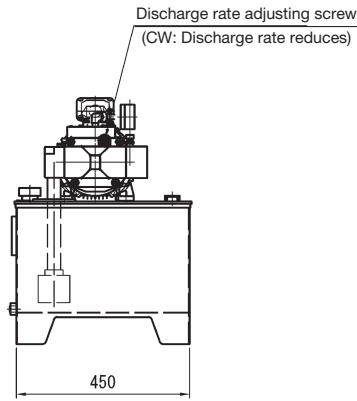
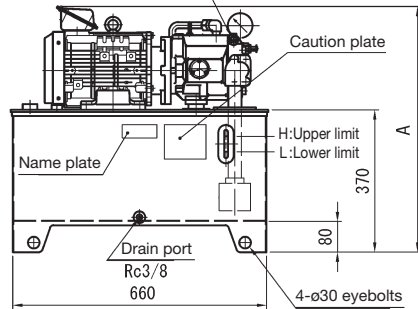
Motor capacity (kW)	A
D: 2.2	640
E: 3.7	670

Fluid temperature rise chart  
(Fluid temperature = room temperature + temperature rise)

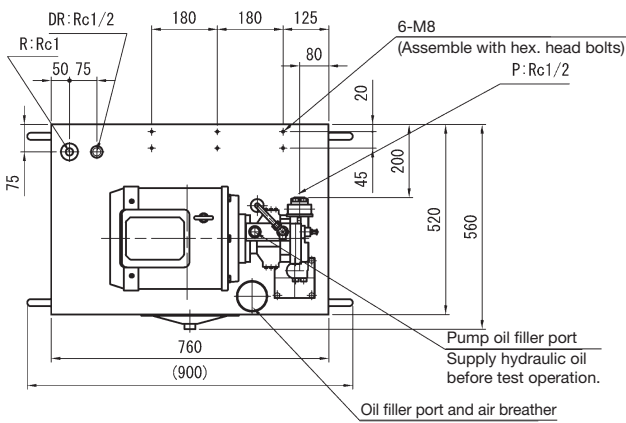


- Model name in ( ): Model name of installed pump
- Temperature rise measuring conditions: DH continuous operation under clamped state.

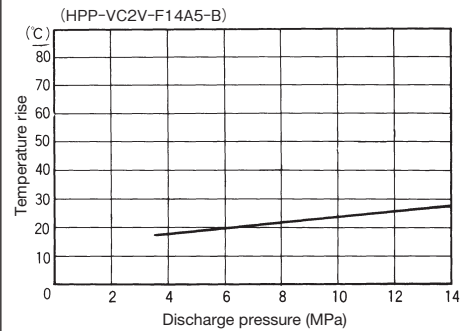
Pressure adjusting screw  
(CW: Pressure increases)



TP100NB-C5-F

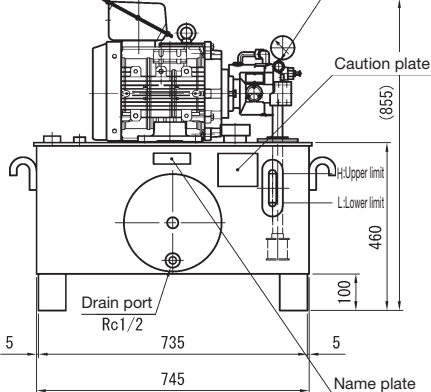


Fluid temperature rise chart  
(Fluid temperature = room temperature + temperature rise)

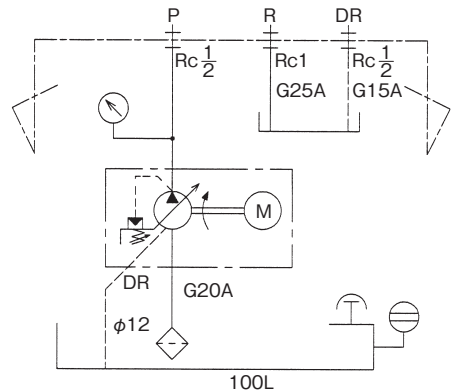
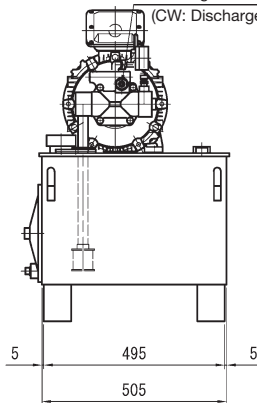


- Model name in ( ): Model name of installed pump
- Temperature rise measuring conditions: DH continuous operation under clamped state.

Pressure adjusting screw  
(CW: Pressure increases)

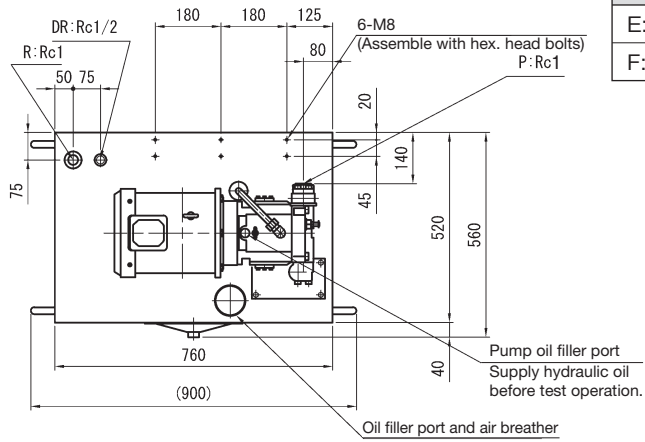


Discharge rate adjusting screw  
(CW: Discharge rate reduces)



■ Outside dimensions (base models)

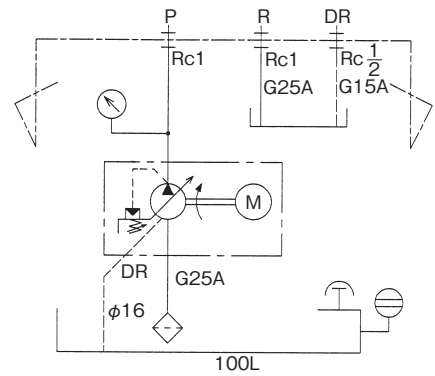
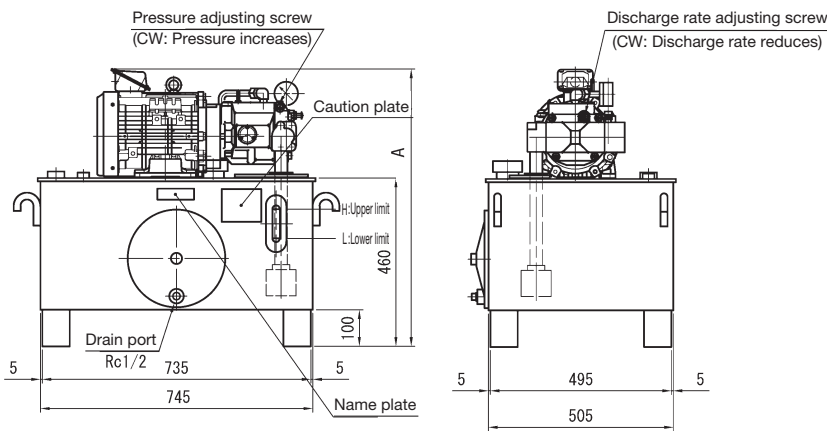
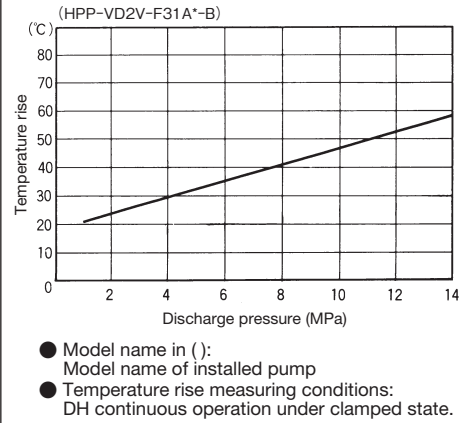
TP100NB-D\*-\*



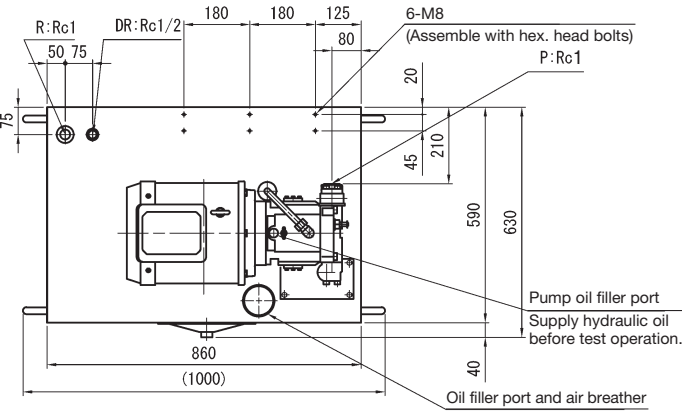
Dimension table (Unit: mm)

Motor capacity (kW)	A
E: 3.7	760
F: 5.5	855

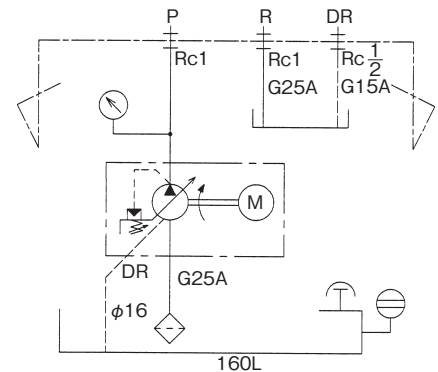
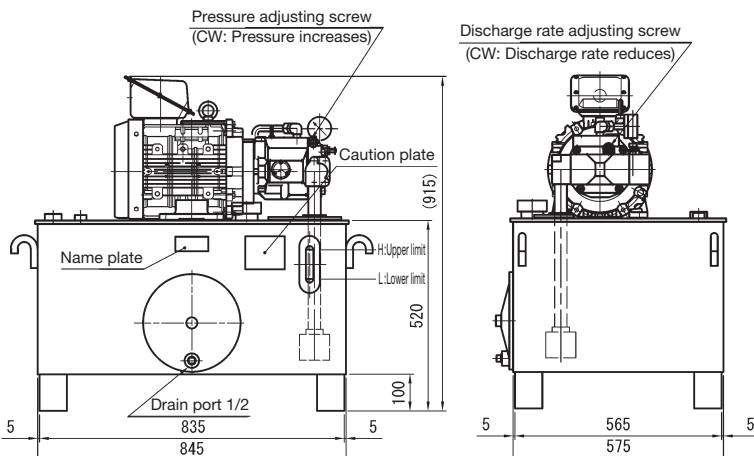
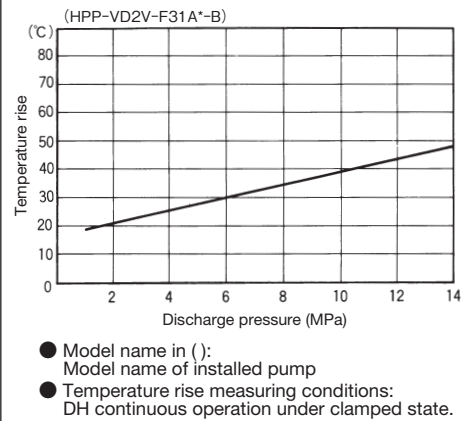
Fluid temperature rise chart  
(Fluid temperature = room temperature + temperature rise)



TP160NB-D\*-\*



Fluid temperature rise chart  
(Fluid temperature = room temperature + temperature rise)

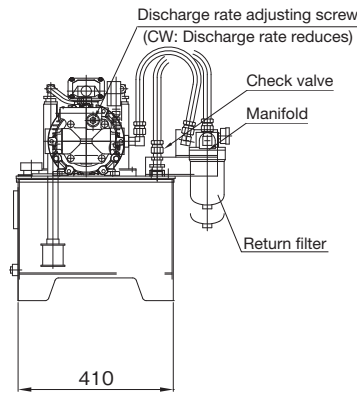
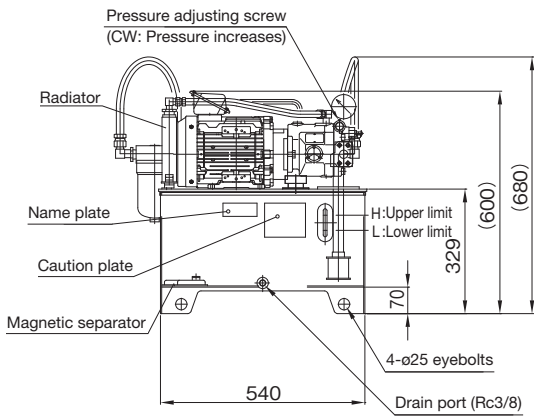
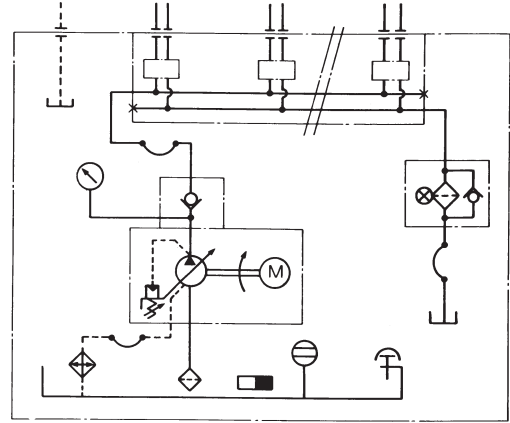
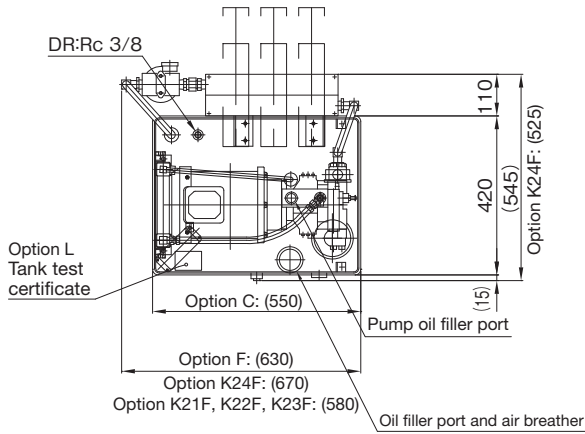


K

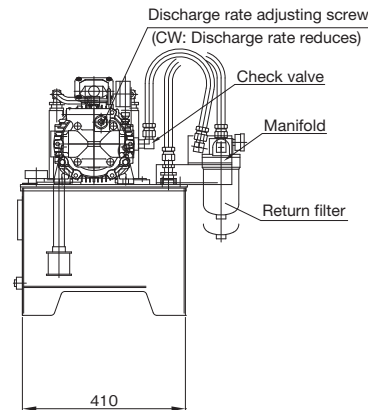
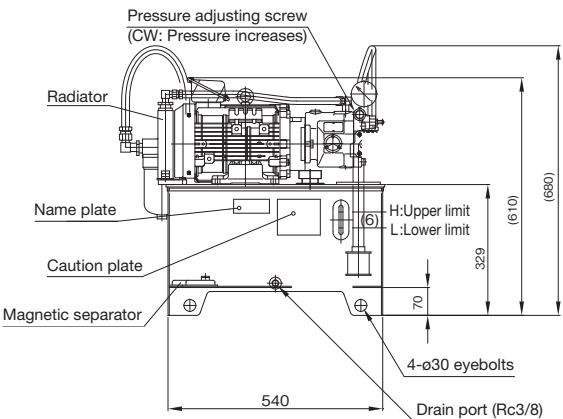
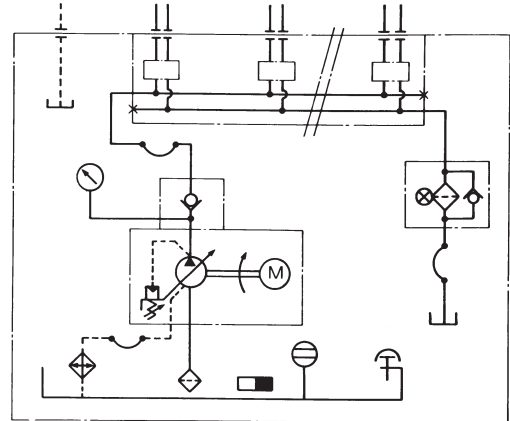
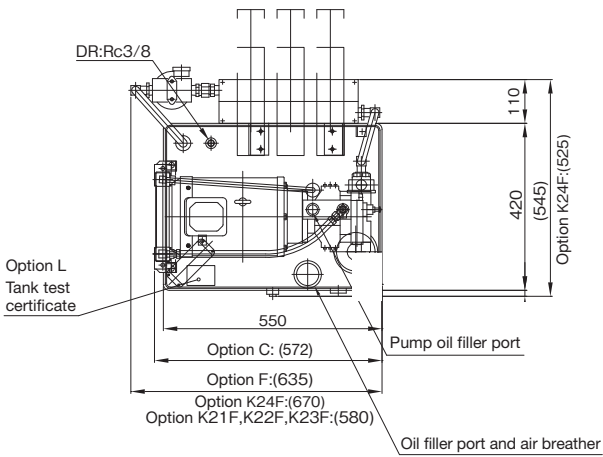
HYDRAULIC POWER UNITS

■ Outside dimensions of option device (\* In the fully equipped state)

TP40NB-C\*-MCK33FL (TP40NB-C\*-MCK24FL)



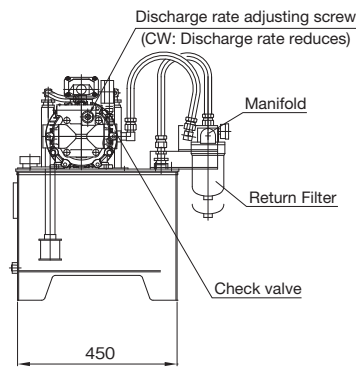
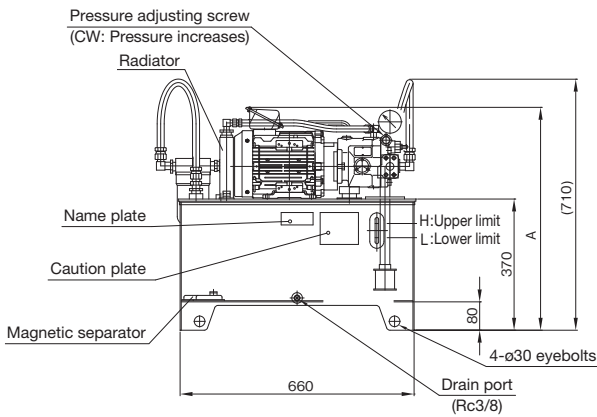
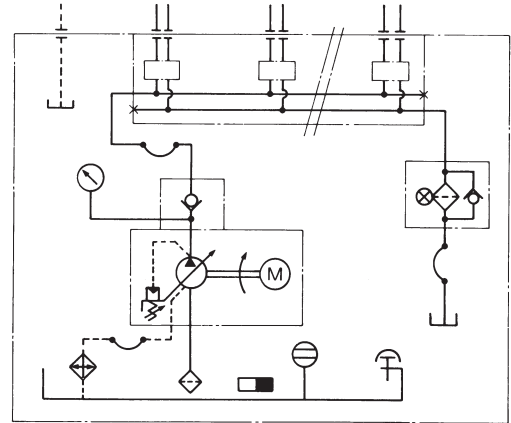
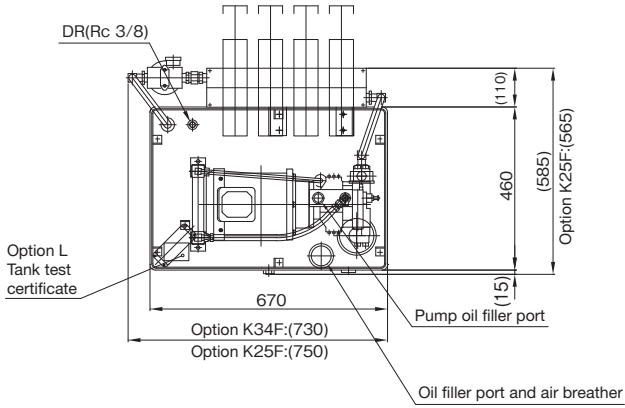
TP40NB-C\*-D-MCK33FL (TP40NB-C\*-D-MCK24FL)





■ Outside dimensions of option device (\* In the fully equipped state)

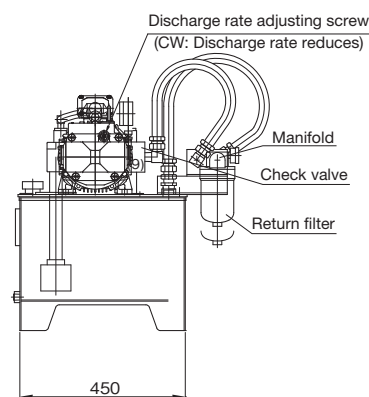
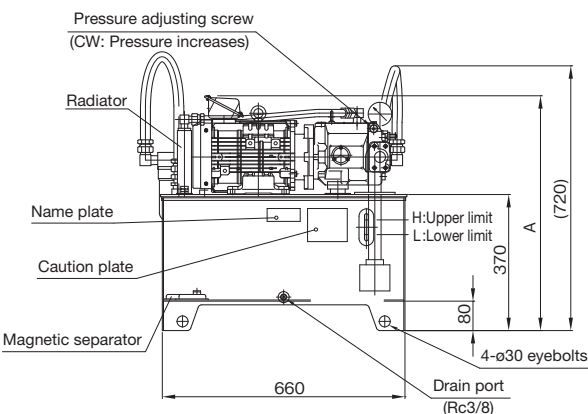
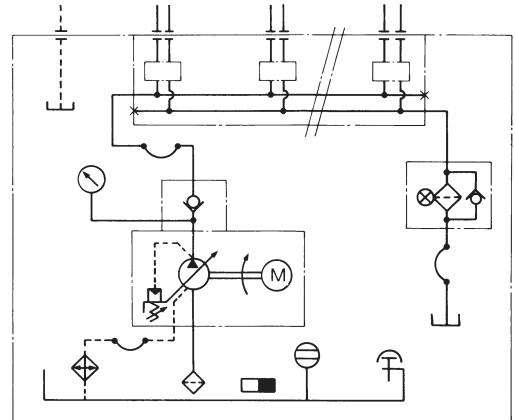
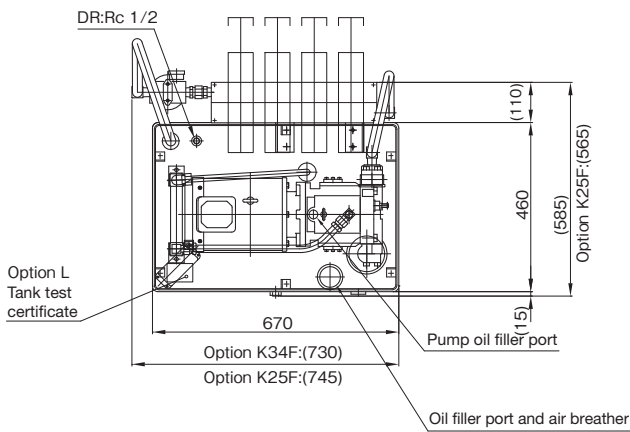
TP63NB-C\*-\*-MCK34FL (TP63NB-C\*-\*-MCK25FL)



Dimension table (Unit: mm)

Motor capacity (kW)	A
C: 1.5	630
D: 2.2	640
E: 3.7	670

TP63NB-D3\*-\*-MCK34FL (TP63NB-D3\*-\*-MCK25FL)

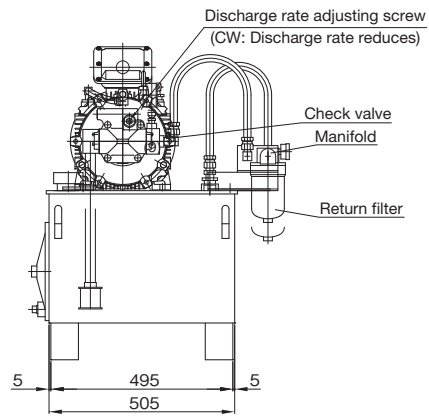
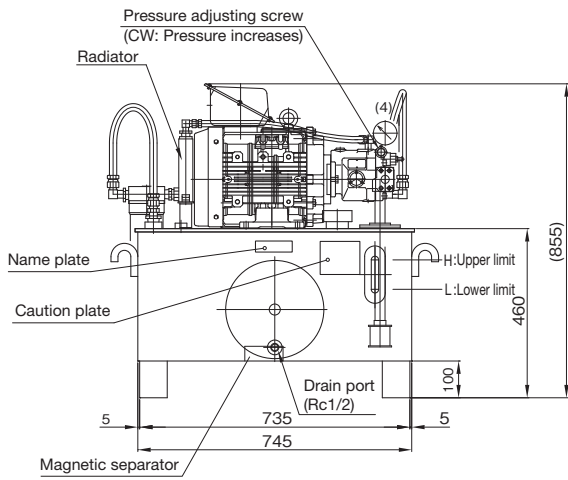
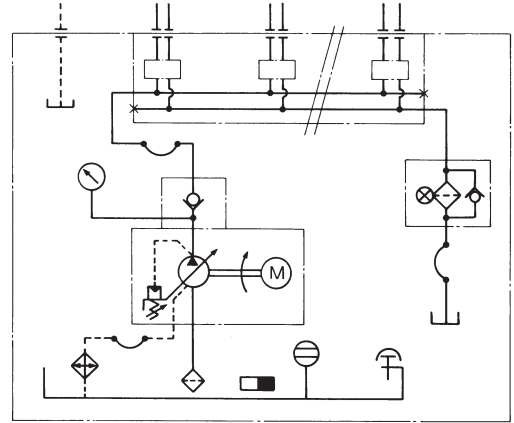
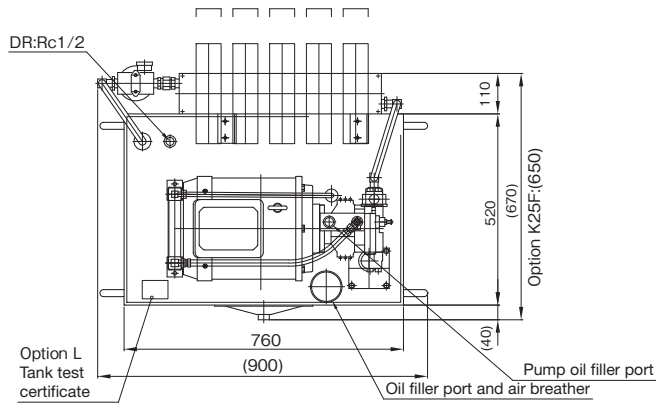


Dimension table (Unit: mm)

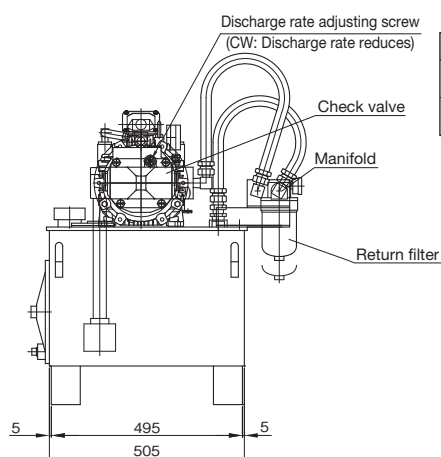
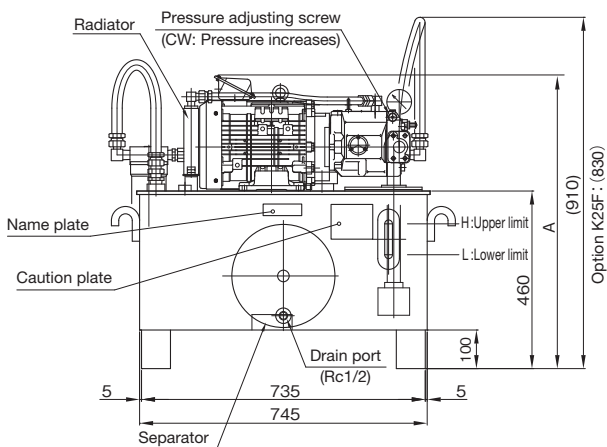
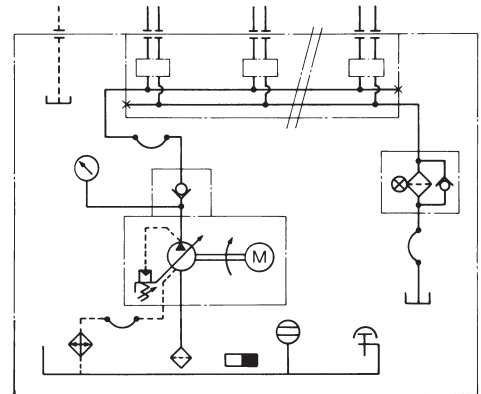
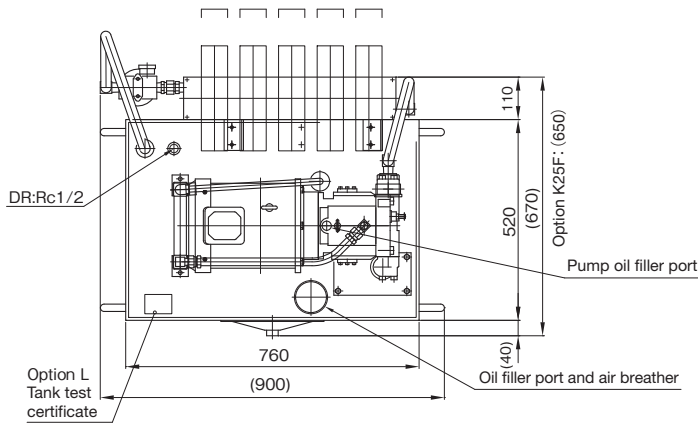
Motor capacity (kW)	A
D: 2.2	640
E: 3.7	670

■ Outside dimensions of option device (\* In the fully equipped state)

TP100NB-C5-F-MCK35FL (TP100NB-C5-F-MCK25FL)



TP100NB-D\*-\*-MCK35FL (TP100NB-D\*-\*-MCK25FL)

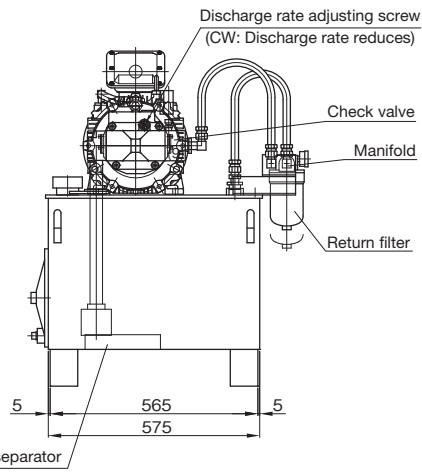
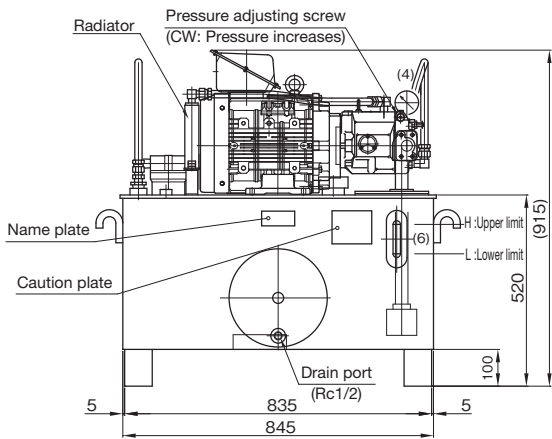
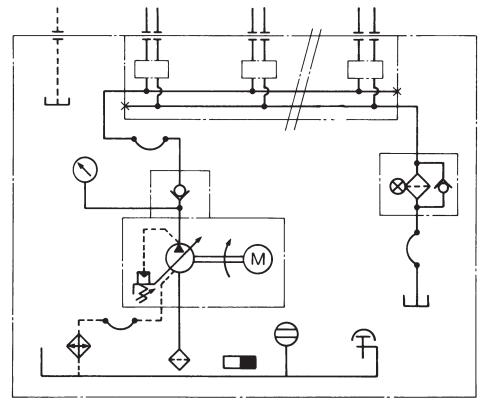
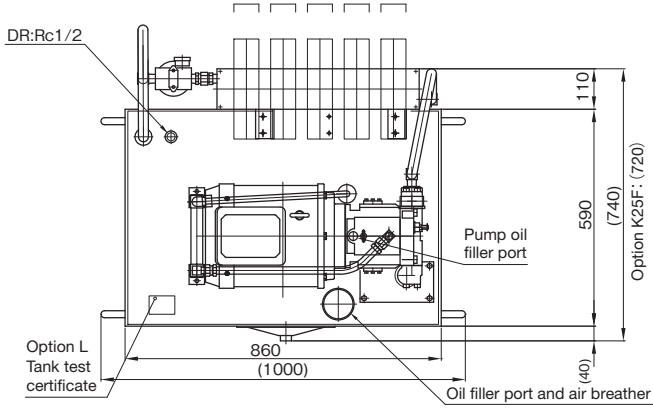


Dimension table (Unit: mm)

Motor capacity (kW)	A
E: 3.7	760
F: 5.5	850

■ Outside dimensions of option device (\* In the fully equipped state)

TP160NB-D\*-\*-MCK35FL (TP160NB-D\*-\*-MCK25FL)



K

HYDRAULIC POWER UNITS