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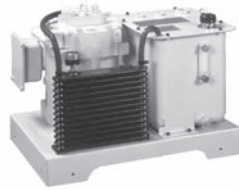
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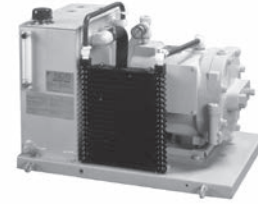
NDR Series Rotor Pack



NDR151 (Vertical type)



NDR151 (Horizontal type)



NDR231

Features

- **Low noise**

Achieves a noise level of no greater than 60 dB (A) and there is no need to worry about hydraulic noise even at factories in residential areas.

- **Compact design**

Minimum size designs for both the vertical and horizontal models make mounting design easier.

- **High reliability**

The fully enclosed structure with no shaft protruding from the casing eliminates the possibility of oil leakage without using an oil seal.

- **Low oil temperature rise**

Temperature rise is restricted to within room temperature +15°C to eliminate thermal distortion of the machine.

- **Possible to install a solenoid valve**

A solenoid valve can be installed on NDR081 and NDRI51.

Nomenclature

NDR × × **1** - × × × × - **30** - × ×

1 2 3 4 5 6 7 8 9

1 Model No.

NDR: Rotor back

2 Pump capacity

08: 8.0 cm³/rev
15: 14.8 cm³/rev
23: 24.4 cm³/rev
38: 37.7 cm³/rev

3 Maximum operating pressure

1: 7 MPa {70 kgf/cm²}

4 Tank capacity

07: 7 L <Applicable only to NDR08>
10: 10 L <Applicable only to NDR15>
20: 20 L <Applicable only to NDR23>
30: 30 L <Applicable only to NDR23 and 38>

5 Motor capacity

1: 0.75 kW, 4-pole <Applicable only to NDR08>
2: 1.5 kW, 4-pole <Applicable only to NDR15>
3: 2.2 kW, 4-pole <Applicable only to NDR15 and 23>
5: 3.7 kW, 4-pole <Applicable only to NDR23 and 38>

6 Pack configuration

No designation: NDR23, NDR38
H: Vertical type <Applicable to NDR08 and 15>
L: Horizontal type <Applicable to NDR08 and 15>

7 Design No. (The design No. is subject to change.)

8 Option code I

No designation: Standard product
R: With return filter (nominal filtration accuracy: 10 μm)
<Applicable to NDR23 and 38>

9 Option code II

No designation: Standard product
E: CE standard compliant

Refer to Page C-5 for details of RP series rotor pumps incorporated into these units.

Specifications

Model code	Pump capacity cm ³ /rev	Motor capacity Output kW (Number of poles: 4)	Tank capacity L	Maximum operating pressure MPa {kgf/cm ² }	Discharge rate setting at shipment L/min		Pressure at shipment MPa {kgf/cm ² }	Oil cooler motor input W
					50 Hz	60 Hz		
NDR081-071× -30	8	0.75	7	7 {70}	11	14	3.5 {35}	16 /17.6
NDR151-102× -30	14.8	1.5	10		20	25		
NDR151-103× -30		2.2	20		35	42	3.5 {35}	
NDR231-203 -30	24.4	3.7	30				7 {70}	
NDR231-305 -30					3.7	30	7 {70}	
NDR381-305 -30	37.7	3.7	30		53.5	64	3.5 {35}	

Note: ○ Power supply: AC 3-phase 200 V (50 Hz), 200 V (60 Hz), 220 V (60 Hz)
○ Oil cooler power supply: AC 1-phase 200 V (50 Hz), 200 V (60 Hz), 220 V (60 Hz)

Paint color

White (Munsell code N8.5).

Handling

● **Hydraulic fluid, ambient environment**

- Use a petroleum-based hydraulic fluid equivalent to ISO VG32 to 46.
Use of hydraulic fluids other than the petroleum-based type (e.g. hydrous/synthetic) is prohibited.
- Operate the unit in an environment where both the following conditions are satisfied: viscosity range from 15 to 400 mm²/s {cSt} and oil temperature from 0 to 60°C.
- Be sure to maintain the water content in the hydraulic fluid at 0.1% maximum by volume.
- Contamination of the hydraulic fluid causes device trouble and reduces the service life, so pay due attention to controlling contamination and ensure that it goes no higher than NAS contamination class 10.
- Use the unit indoors under the following conditions.
Ambient temperature: 0 to 35°C, Ambient humidity: 20 to 85%RH (with no condensation)

● **At start**

- Fill the pump case with hydraulic fluid through the filler port before starting trial operation, after replacing the pump, or after stopping the unit for 3 months or longer. Use the same hydraulic fluid as for the hydraulic circuit. When replenishing fluid after the unit has been stopped for a while, check the fluid level in the tank with the level gauge during replenishment since fluid inside the pump may enter the tank and cause overflow.

	NDR081	NDR151	NDR231	NDR381
Pump case filling volume cm ³	1100	2300	4000	

● **Electric wiring**

- Connect the power cable matching the phases at the pump motor and power supply sides as shown below.
The positions of U, V, W of the motor are indicated on the back of the terminal box.



Check that the pressure at the delivery side rises at the pressure gauge.

If wires are connected with the wrong phase order, the motor and pump rotate in the reverse direction and no fluid is discharged. If fluid is not discharged within 5 minutes after turning the power on, the phase order may be incorrect. In this case, switch the wires for two phases among the three.

- Be sure to connect the ground terminal.
- Install a no-fuse breaker on the main power supply. In addition, install an earth leakage breaker.
The electrical ratings are as shown in the table below. Refer to Page C-11 for the reference current values for selecting the thermal breaker capacity.

Model code	Motor capacity Output kW (Number of poles: 4)	Rated current A		
		AC 200 V (50 Hz)	AC 200 V (60 Hz)	AC 220 V (60 Hz)
NDR081-071*-30	0.75	3.8	3.4	
NDR151-102*-30	1.5	6.8	6	5.8
NDR151-103*-30	2.2	9.6	8.8	8.4
NDR231-203 -30		10	9.2	8.7
NDR231-305 -30	3.7	15.1	14.7	13.4
NDR381-305 -30				

- The fan motor for the oil cooler uses a 1-phase AC 200 V power supply without polarity. Although the motor is equipped with an impedance protector or thermal protector (see oil cooler DCR***-10 on Page N-15), install a 0.5 A circuit breaker to prevent burning out of wires at short-circuiting.

● **Air intake/exhaust**

Do not place any obstacles to oil cooler air intake and exhaust within a distance of 100 mm from intake and exhaust vent of the oil cooler. Install the unit at a location with good air flow so that heated air can be vented.

● **Transportation**

Use eye bolts for hoisting to transport the unit.

● **Installation**

The unit is a stationary type. Fix it with bolts on a level location that is free of vibration.

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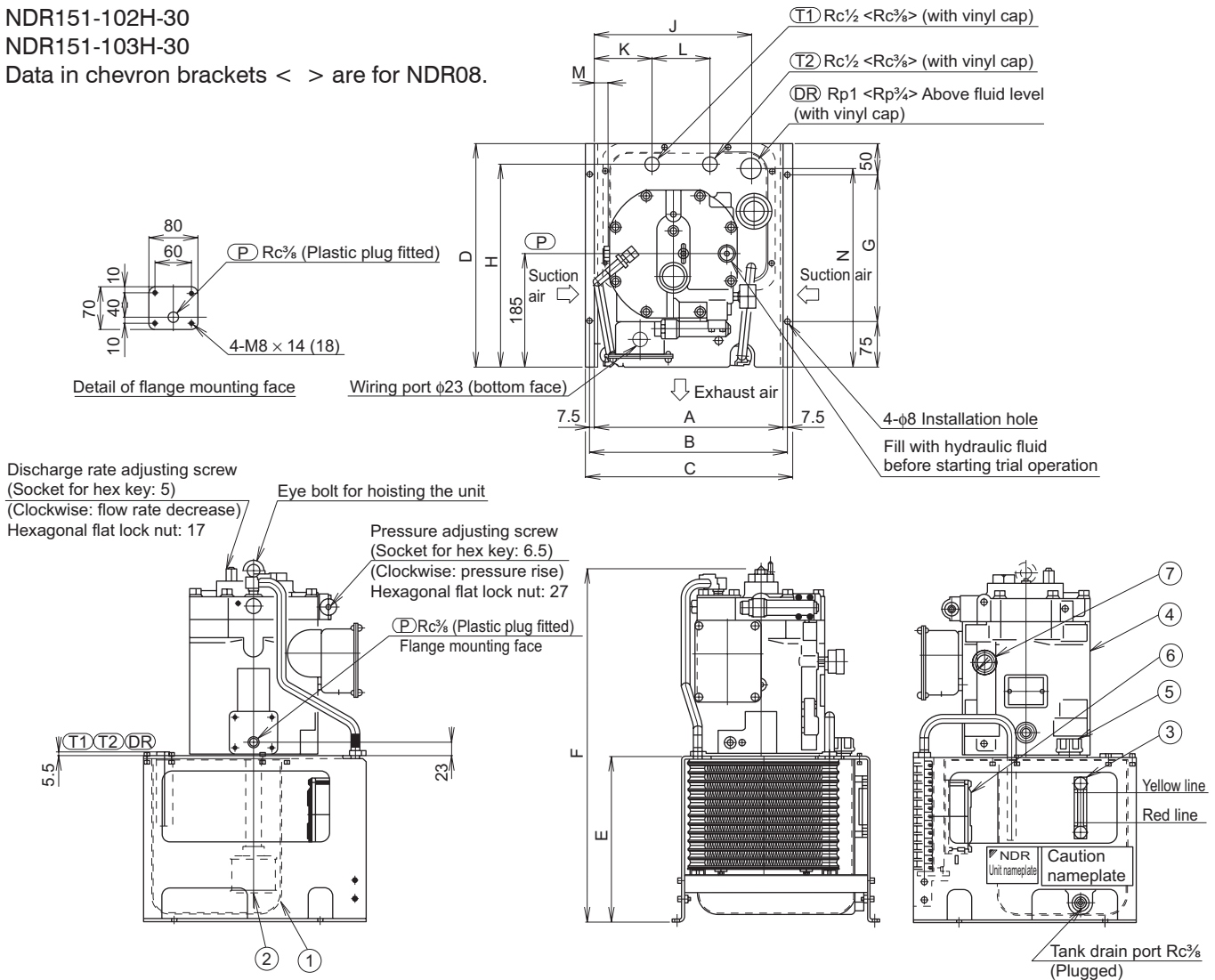
External dimension diagram

NDR081-071H-30

NDR151-102H-30

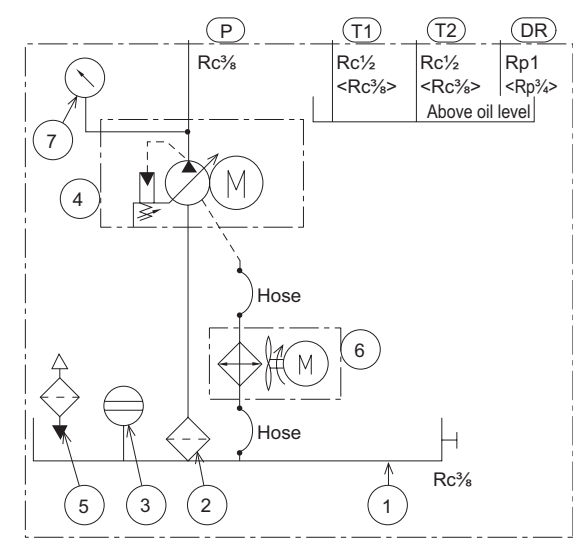
NDR151-103H-30

Data in chevron brackets < > are for NDR08.



Dimension table	A	B	C	D	E	F	G	H	J	K	L	M	N	Tank fluid volume		Mass (Fluid excluded)
														Yellow line	Red line	
NDR081-071H-30	280	295	310	335	250	525	210	305	225	90	80	30	300	7 L	5 L	48 kg
NDR151-102H-30	310	325	340	365	270	577	240	331.5	258	95	95	22	325	10 L	7.6 L	75 kg
NDR151-103H-30																

Part No.	Name	Quantity
1	Oil tank	1
2	Suction strainer	1
3	Oil level gauge	1
4	Rotor pump	1
5	Oil filler port with air breather	1
6	Oil cooler	1
7	Pressure gauge	1



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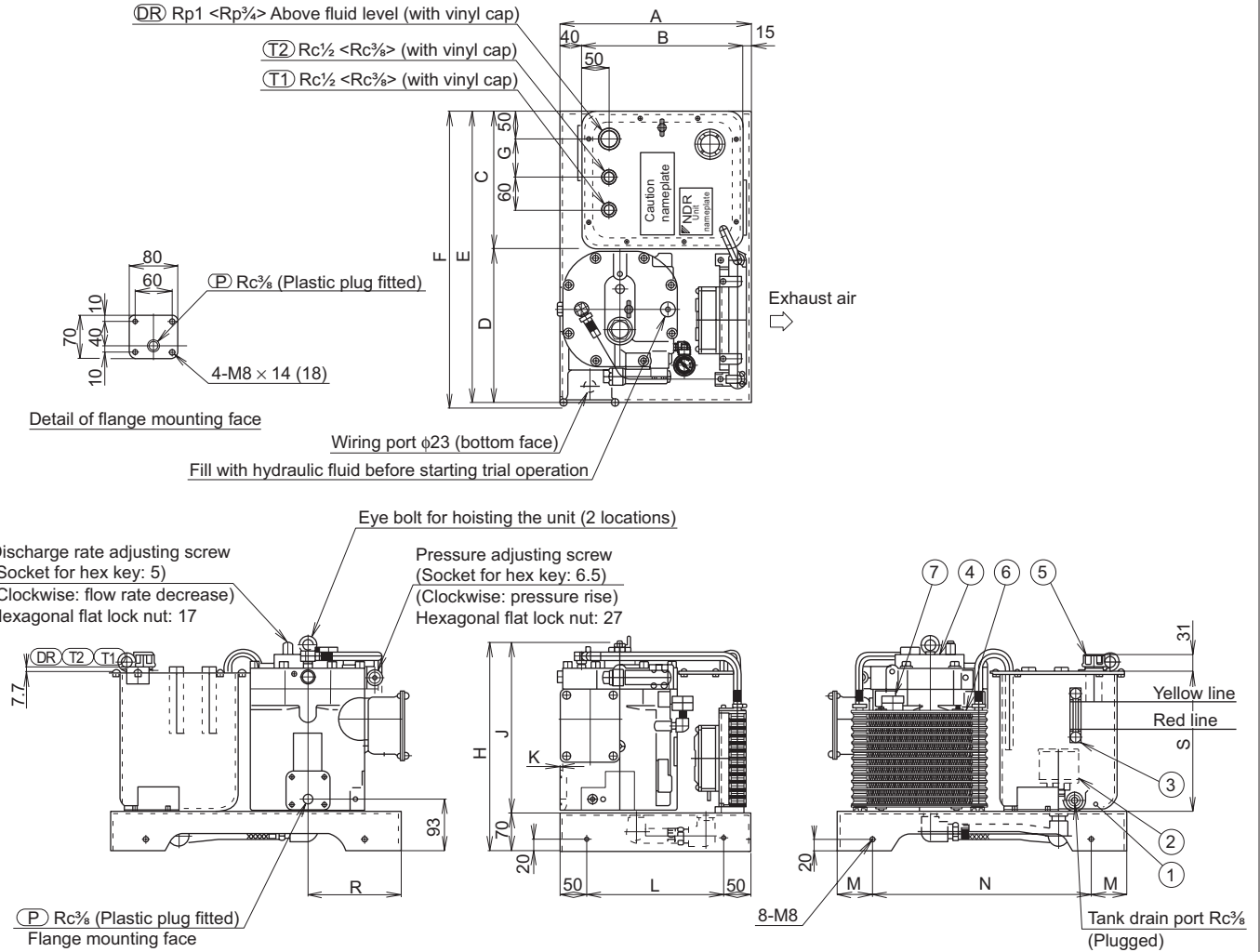
External dimension diagram

NDR081-071L-30

NDR151-102L-30

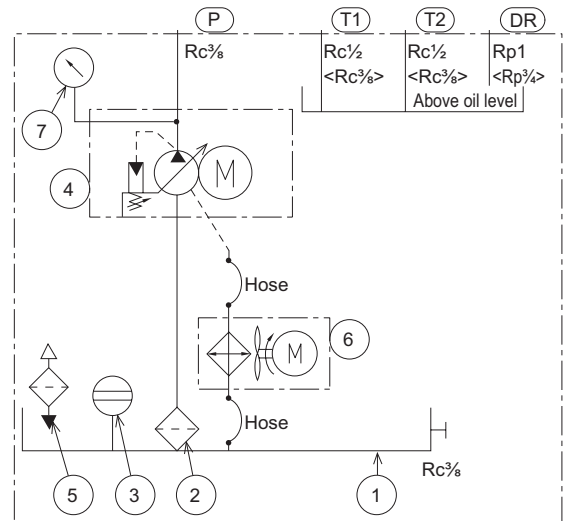
NDR151-103L-30

Data in chevron brackets < > are for NDR08.



Dimension table	A	B	C	D	E	F	G	H	J	K	L	M	N	R	S	Tank fluid volume		Mass (Fluid excluded)
																Yellow line	Red line	
NDR081-071L-30	320	265	220	250	470	-	60	350	280	10	220	60	350	160	240.9	7 L	5 L	53 kg
NDR151-102L-30	350	295	250	280	530	540	70	378	308	2	250	65	400	170	254.9	10 L	7.6 L	79 kg
NDR151-103L-30																		

Part No.	Name	Quantity
1	Oil tank	1
2	Suction strainer	1
3	Oil level gauge	1
4	Rotor pump	1
5	Oil filler port with air breather	1
6	Oil cooler	1
7	Pressure gauge	1



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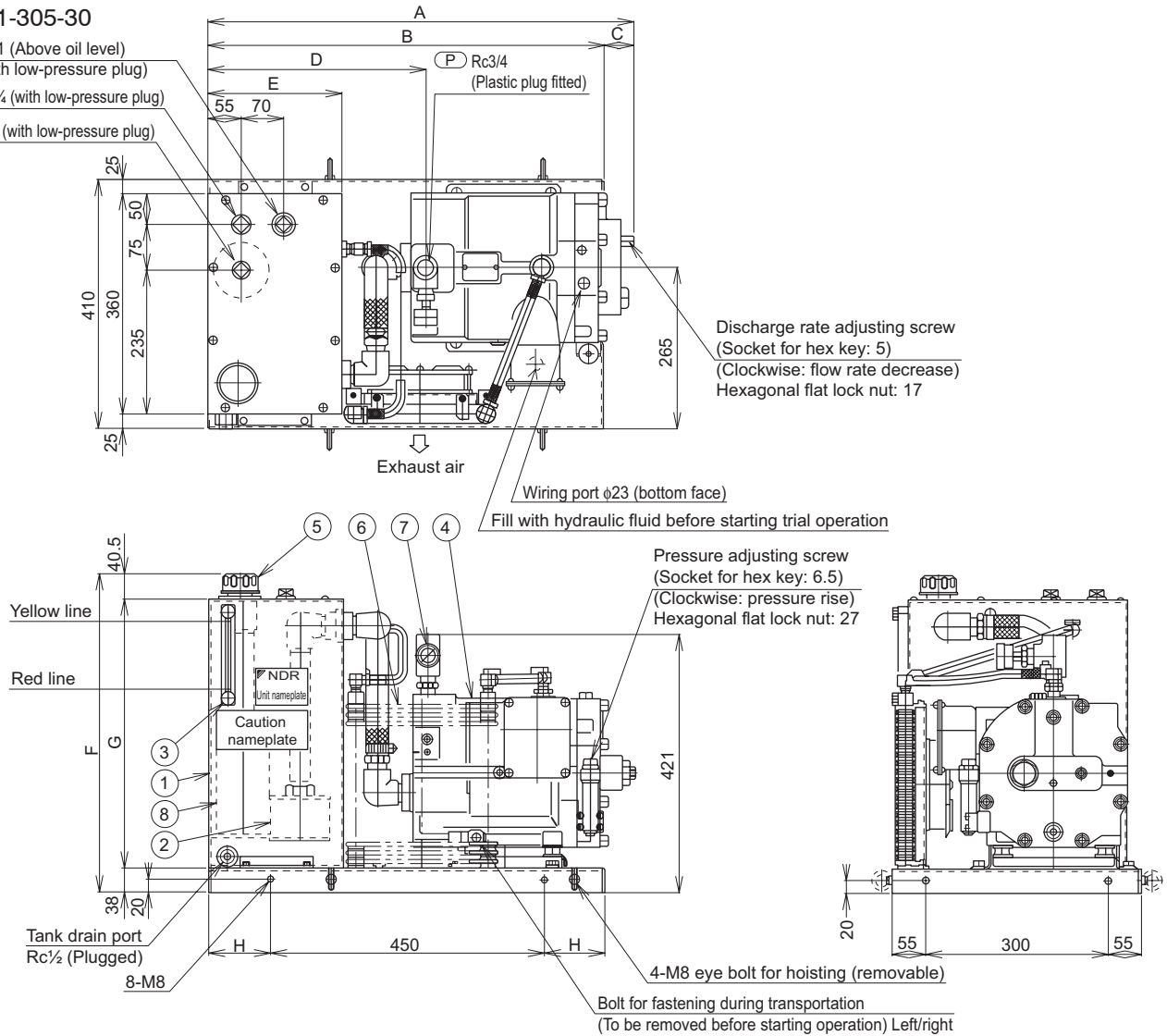
External dimension diagram

NDR231-203-30

NDR231-305-30

NDR381-305-30

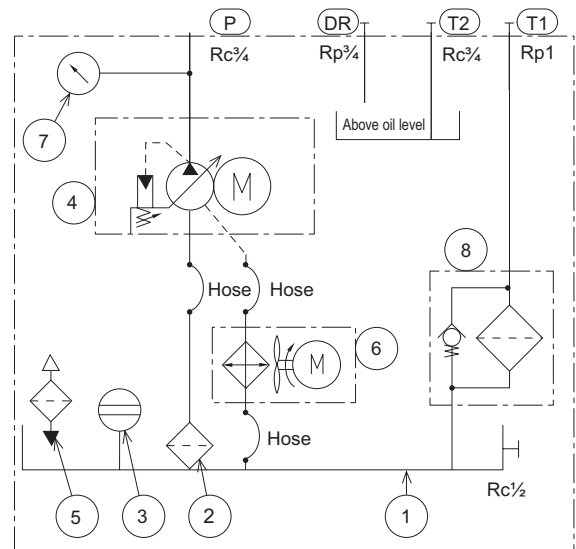
- (DR) Rp1 (Above oil level)
(with low-pressure plug)
- (T2) Rp $\frac{3}{4}$ (with low-pressure plug)
- (T1) Rp1 (with low-pressure plug)



Dimension table	A	B	C	D	E	F	G	H	Tank fluid volume		Mass (Fluid excluded)
									Yellow line	Red line	
NDR231-203-30 (-R)	630	600	30	308	170	448.5	370	75	20 L	13.2 L	95 kg
NDR231-305-30 (-R)	700	650	50	358	200	518.5	440	100	30 L	21.6 L	105 kg
NDR381-305-30 (-R)											

(-R) indicates the models with an optional return filter.

Part No.	Name	Quantity
1	Oil tank	1
2	Suction strainer	1
3	Oil level gauge	1
4	Rotor pump	1
5	Oil filler port with air breather	1
6	Oil cooler	1
7	Pressure gauge	1
8	Return filter (option)	1



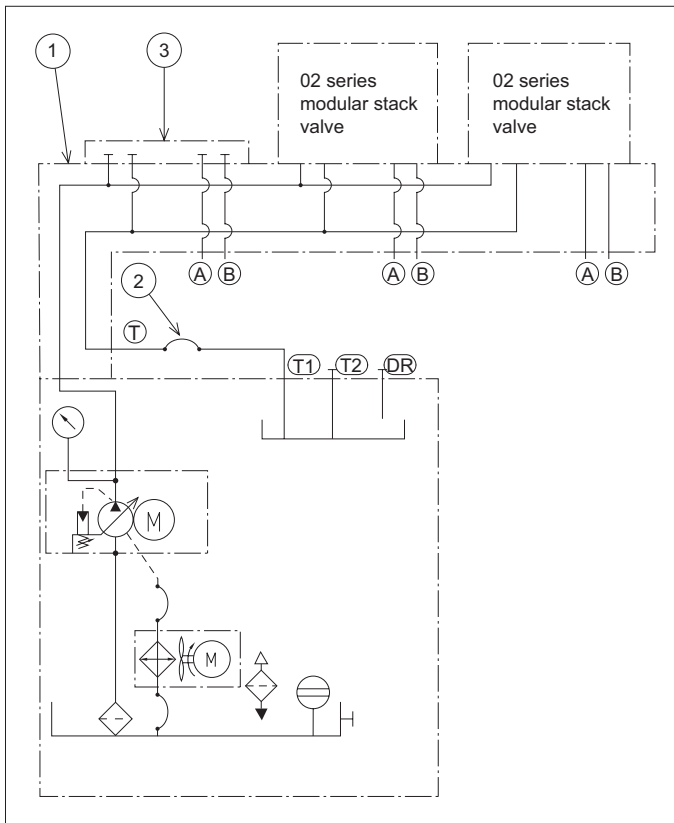
Rotor pack options (separately available parts)

The NDR08/NDR15 series are designed to incorporate 02 series control valves to cover a wide variety of customer requirements.

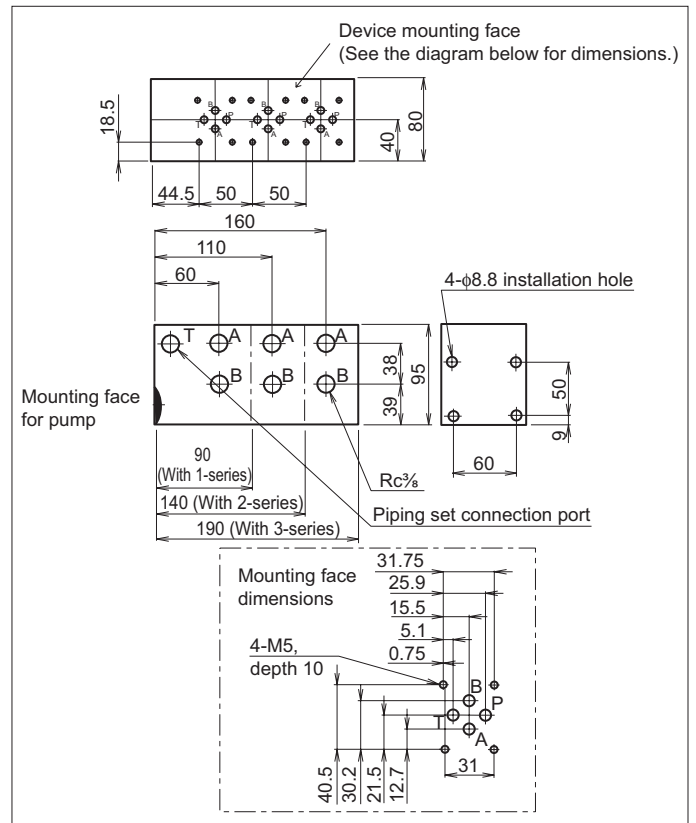
● Option table

Part No.	Name	Detail of accessories		Order code			
		Name	Quantity	For NDR081-071H	For NDR081-071L	For NDR151-10×H	For NDR151-10×L
1	1-series block set	1-series block	1	BTRSET1-10			
		O-ring (JIS B 2401 1B P18)	1				
		O-ring (JIS B 2401 1B P20)	1				
		Mounting bolt (M8 × 100 hexagon socket head cap bolt)	4				
		Installation guide	1				
	2-series block set	2-series block	1	BTRSET2-10			
		O-ring (JIS B 2401 1B P18)	1				
		O-ring (JIS B 2401 1B P20)	1				
		Mounting bolt (M8 × 150 hexagon socket head cap bolt)	4				
		Installation guide	1				
	3-series block set	3-series block	1	BTRSET3-10			
		O-ring (JIS B 2401 1B P18)	1				
		O-ring (JIS B 2401 1B P20)	1				
		Mounting bolt (M8 × 200 hexagon socket head cap bolt)	4				
		Installation guide	1				
2	Piping set	Piping (rubber hose)	1	NDR08H-PIPE-10	NDR08L-PIPE-10	NDR15H-PIPE-10	NDR15L-PIPE-10
		Joint	1 set				
		Piping guide	1				
3	Blocking block	Blocking block	1	P-BS02SET-20			
		O-ring (JIS B 2401 1B P9)	4				
		Mounting bolt (M5 × 25 hexagon socket head cap bolt)	4				

● Hydraulic circuit diagram (for 3-series)



● Block set external diagram



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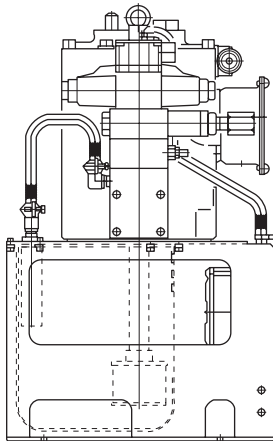
Block set installation diagram

NDR081-071H-30

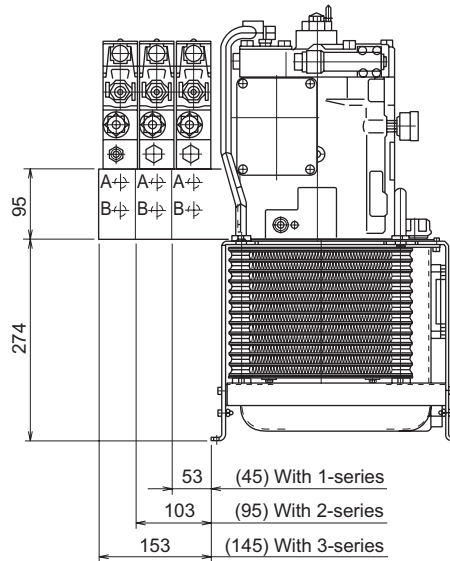
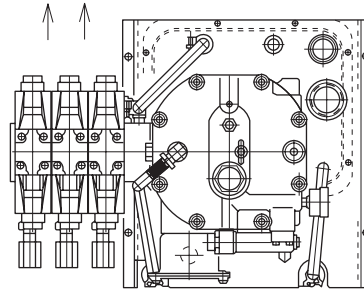
NDR151-102H-30

NDR151-103H-30

Dimensions in parentheses are for NDR081.



Port A/B piping direction

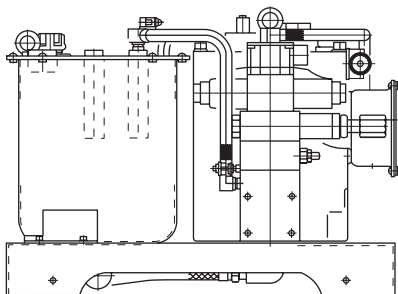


NDR081-071L-30

NDR151-102L-30

NDR151-103L-30

Dimensions in parentheses are for NDR081.



Port A/B piping direction

