

IWAKI
DIRECT
DRIVE PUMPS

NRD



High performance canned pumps for a wide variety of uses

NRD series models are small canned motor centrifugal pumps powered by brushless DC motors. They are incredibly compact, lightweight, quiet and feature seal less construction designed to eliminate the potential for leakage. The models in the NRD series offer a wider range of options with their flow adjustment feature (DC 1 to 5V), support for high-temperature liquid (0°C to 80°C), and capacity to be installed in areas with high ambient temperature (0°C to 50°C).

Seal-less design

The pumps are equipped with a small, lightweight canned motor encapsulated in resin. This construction requires less space than magnet pumps, while the seal-less design prevents liquid leakage.

Multiple connection types

There are three different port connection options available, Hose Barb, NPT Thread or R Thread. Select the option that best fits your location and installation.

Long life

A Brushless DC motor is employed as the pump drive. This motor design eliminates pump/motor failures due to brush wear, ensuring a service life equal to AC motors.

Readily compliant with international standards

The NRD series power voltage is classified as safety voltage (50V or less), which allows the user to easily comply with international standards such as UL, CSA, CE and GS. The DC power supply does not have a region-specific voltage or frequency, allowing for unified usage.

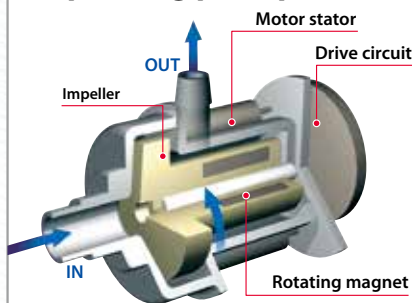
Flow adjustment feature and built-in drive technology

An external input signal (DC 1 to 5V) can be used to vary the flow rate. The NRD series models are also equipped with a built-in motor drive circuit. With this circuit, the power can be connected to variable external input to operate the pump.

High temperature environments

The pump can be installed in an environment with an ambient temperature of up to 50°C. It can also pump fluids as warm as 80°C.

Operating principle



Canned motor centrifugal pumps directly drive the rotor magnet that is coupled to the impeller. The pump chamber is completely sealed from the exterior by a static o-ring. The impeller is driven by a rotating magnetic field that doesn't require a shaft seal.

In addition, these products have a simpler and more compact structure than pumps which have external drive magnets.



NRD-05
Hose type



NRD-08
Thread type



NRD-12
Hose type

Typical applications

Fuel cells : Cogeneration systems (cooling and circulation)

Medical : Biochemical analysis, Cooling systems, Patient temperature management
medical equipment, Cooling for laser treatment

Physical/chemical analysis : Thermostats, Pure water equipment, Different types of analyzers

Vending machines : Dispensers

Photo : Automatic film developing machines, X-ray film developing machines

Semiconductors : Semiconductor cooling systems

Surface treatment : Small plating machines

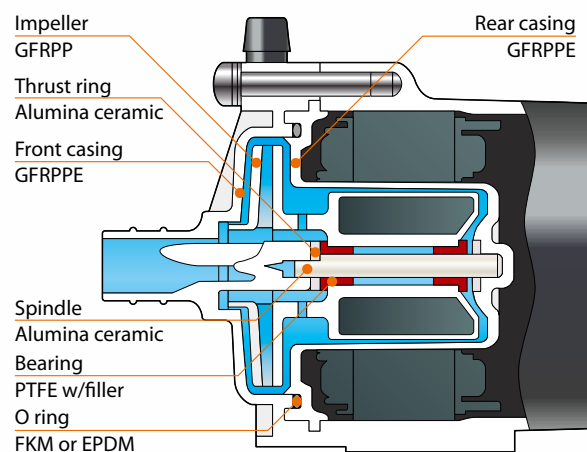
Solar power systems : Electric water heaters, Solar battery heat collectors

Electric cars : Radiators, Heaters

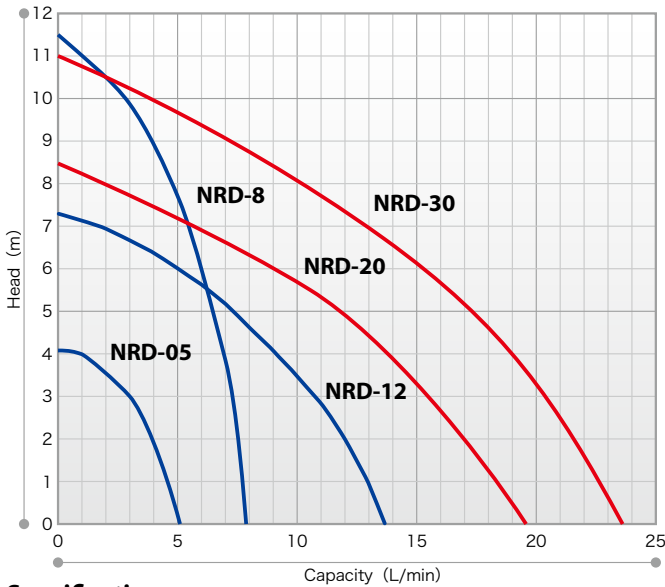


NRD-20/30
Thread type

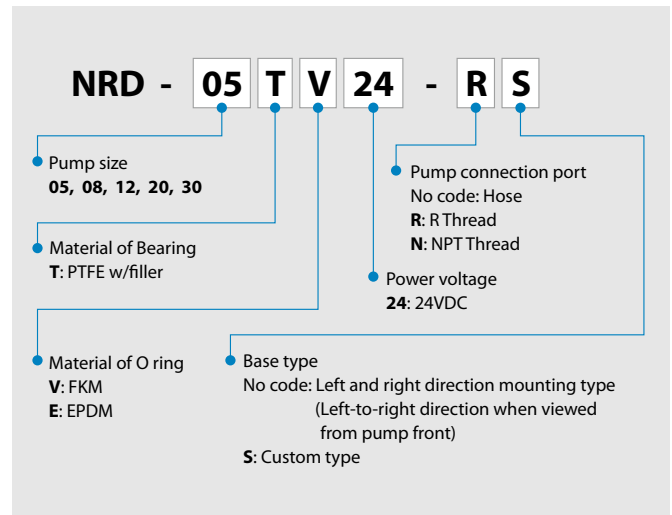
Wet end materials



Performance curves



Pump identification

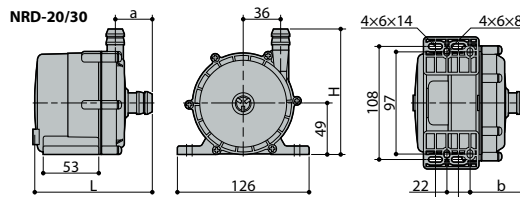
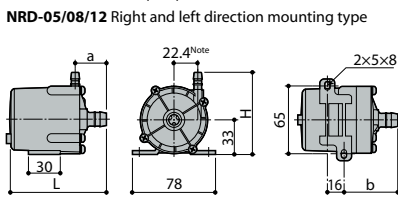


Specifications

Model	Connection sizes mm		Max. Capacity ^{Note1} L/min	Max. Head ^{Note1} m	Noise ^{Note2} dB	Limit of specific gravity	Motor		Mass kg
	IN	OUT					Power voltage V	Output W	
NRD-05	14	8	5.1	4.1	up to 40	1.07	DC24	6	0.4
	R3/8	R1/8							
	NPT3/8	NPT1/8							
NRD-08	14	8	7.9	11.5	up to 45	1.07	DC24	22	0.4
	R3/8	R1/8							
	NPT3/8	NPT1/8							
NRD-12	18	18	13.6	7.4	up to 45	1.07	DC24	17	0.4
	R3/8	R3/8							
	NPT3/8	NPT3/8							
NRD-20	21	17	19.5	8.5	up to 55	1.0	DC24	28	1.2
	R1/2	R3/8							
	NPT1/2	NPT3/8							
NRD-30	21	17	23.5	11	up to 55	1.0	DC24	45	1.2
	R1/2	R3/8							
	NPT1/2	NPT3/8							

Note1: The numerical values listed in the table represent the average performance values for when NRD series models are shipped from the factory. The individual differences between models may result in an error discrepancy of ±10%.
 Note2: Noise was measured at a location 1 meter away from pump front, using the A scale.
 • Test performance using pure water at room temperature.
 • The maximum discharge rate is the discharge rate for when the pump head is at 0 meters and the maximum pump head is based on the shut-off total head.
 • The viscosity limit of the working fluid is up to 1.0 mPa·s (with specific gravity of NRD-05/08/12: 1.07 pm, NRD-20/30: 1.0 pm).
 • Specifications/Environmental conditions Ambient temperature: 0°C to 50°C, Working liquid temperature: 0°C to 80°C, Relative humidity: 35% to 85% RH
 Please note that the above conditions vary depending on working liquid and heat cycle specifications.

Dimensions (mm)



NRD-05/08/12 Right and left direction mounting type

Specification	H	L	a	b
Hose	78(84)	91(92.5)	29.5(31)	50.5(52)
R Thread	75.5(84)	90.5(92.5)	29(31)	50(52)
NPT Thread	75.5(84)	90.5(92.5)	29(31)	50(52)

Note: () dimensions are NRD-12.

NRD-20/30

Specification	H	L	a	b	c
Hose	119	112	35	59.5	70.5
R Thread	115	107	30	54.5	65.5
NPT Thread	115	107	30	54.5	65.5

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Caution for safety use: Before use of pump, read instruction manual carefully to use the product correctly.

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