

**Peristaltic Pump
Roller Pump**

Model NRP-1000
Model NRP-2000A·2000B
Model NRP-3000·3000P

EYELA

TOKYO RIKAKIKAI CO., LTD.



NRP-1000 NRP-2000A NRP-2000B NRP-3000 NRP-3000P

Peristaltic pump

Roller pump

Model NRP-1000
Model NRP-2000A • 2000B
Model NRP-3000 • 3000P

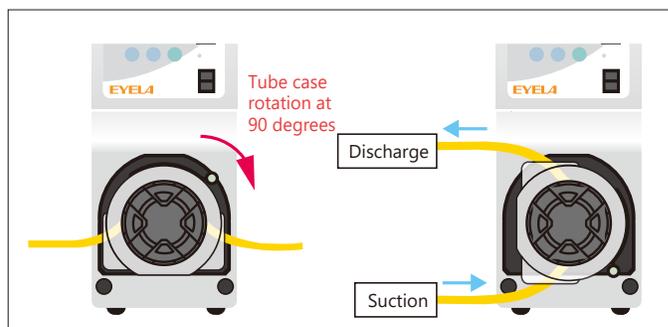
This is a liquid transfer pump that utilizes the resilience action of the tube through the rotating and revolving rollers. As only the fluid flows through the tube, there is no contact with metal parts, eliminating concerns about contamination. With a rotational speed display, precise quantitative operations can be performed. Equipped with external signal input and output terminals, it is also compatible with device integration.

We offer four types of tubing - Silicone, PharMed®, Tygon®, and Versilon (Fluran®) - suitable for various liquids. Each type comes in three different diameters, allowing you to choose according to the required flow rate.

NRP pumps are certified under the Electrical Appliance and Material Safety Law (PSE).



By adopting an integrated structure for the tube case, it is possible to perform the replacement of three types of ID of tube by simply lifting the tube holder.



The tube case can be fixed at 90-degree intervals. By aligning the suction and discharge directions in the same orientation, it prevents excessive bending or breakage of the tube, allowing for installation at the appropriate length. (Applicable only to the 2nd and 3rd channel tube cases for NRP-2000A.)



The pump is equipped with a rapid priming switch. The pump runs at maximum flow to quickly fill the tubing path with liquid right up to the destination.



Tube cases made of PPS resin have chemical resistance to acids, alkalis and organic solvents.

| Model | NRP-1000 | NRP-2000A | NRP-2000B | NRP-3000 | NRP-3000P |
|-----------------------------------|--|---------------------------|--|---|----------------------------|
| Cat. No. | 282748 | 282758 | 282768 | 265818 | 270520 |
| | 282749 | 282759 | 282769 | 265819 | |
| Flow rate range | 9 to 160mL/h, 1.15 ID x 3.2 OD (mm) tube 30 to 500mL/h, 2.15 ID x 4.2 OD (mm) tube 60 to 900mL/h, 3.15 ID x 5.2 OD (mm) tube | | 0.7 to 31L/h, 4.76 ID x 7.94 OD (mm) tube 1.1 to 51L/h, 6.35 ID x 9.53 OD (mm) tube 1.6 to 80L/h, 7.94 ID x 11.11 OD (mm) tube | 0.7 to 64L/h, 4.76 ID x 7.94 OD (mm) tube 1.2~104L/h, 6.35 ID x 9.53 OD (mm) tube 1.5 to 138L/h, 7.94 ID x 11.11 OD (mm) tube | |
| Number of tubes | 1 pc/1 channel | 3 pcs/3 channel | 1 pc/1 channel | 1 pc (PPS resin) | |
| Tube case | 1 pc (PPS resin) | 3 pcs (PPS resin) | 1 pc (Polycarbonate resin) | 1 pc (Polycarbonate resin) | 1 pc/1 channel |
| Flow rate accuracy | Within ±2% (Repeatability within ±1%) | | Within ±4% (Repeatability within ±2%) | Within ±4% (Repeatability within ±2%) | |
| Max. discharge pressure | Max.196kPa (2.0kg/cm ²) | | Max.137.3kPa (1.4kg/cm ²) | Max.137.3kPa (1.4kg/cm ²) | |
| Fluid viscosity·temperature | Max.2Pa·s(2000cP)·-10 to 100°C (No freezing) | | Max.2Pa·s(2000cP)·-10 to 100°C (No freezing) | Max.2Pa·s(2000cP)·-10 to 100°C (No freezing) | |
| Rotation speed display·range | Digital display·1 to 40 rpm | | Digital display·4 to 270rpm | Digital display·4 to 450rpm | |
| Motor | Stepper motor | | Stepper motor | DC brushless motor | |
| Pumping direction | Forward and reverse (LED display) | | Forward and reverse (LED display) | Forward and reverse (LED display) | |
| Equipped functions | Rapid priming function | | Rapid priming function | Rapid priming function | |
| External output | Alarm output terminal (NO contact) | | Alarm output terminal (NO contact) | Alarm output terminal (NO contact) | |
| External input | External signal input terminal (0 to 5VDC, 0 to 10VDC selectable), sensor signal input terminal (for leak sensor set) | | External signal input terminal (0 to 5VDC, 0 to 10VDC selectable), sensor signal input terminal (for leak sensor set) | External signal input terminal (0 to 5VDC), sensor signal input terminal (for leak sensor set) | |
| Usable tube material | Silicone, PharMed®, Tygon®, Versilon™ (Fluran®) | | Silicone, PharMed®, Tygon®, Versilon™ (Fluran®) | Silicone, PharMed®, Tygon®, Versilon™ (Fluran®) | |
| Usable tube diameter (ID x OD) mm | 1.15 x 3.2, 2.15 x 4.2, 3.15 x 5.2 | | 4.76 x 7.94, 6.35 x 9.53, 7.94 x 11.11 | 4.76 x 7.94, 6.35 x 9.53, 7.94 x 11.11 | |
| Ambient temperature range | 5 to 35°C | | 5 to 35°C | 5 to 35°C | |
| Power input·supply voltage | 0.07A, 16VA·220VAC 50/60Hz | 0.2A, 45VA·220VAC 50/60Hz | 0.2A, 45VA·220VAC 50/60Hz | 0.7A, 160VA·220VAC 50/60Hz | 1.6A, 160VA·100VAC 50/60Hz |
| | 0.09A, 10VA·115VAC 50/60Hz | 0.4A, 47VA·115VAC 50/60Hz | 0.4A, 47VA·115VAC 50/60Hz | 1.4A, 160VA·115VAC 50/60Hz | |
| Outer dimensions (mm) | 73Wx226(241)Dx121(139)H | 120Wx327(342)Dx168(186)H | 120Wx 281(296)Dx68(186)H | 121Wx276(289)Dx226(230)H | |
| Gross weight | 2.1kg | 4.6kg | 4.8kg | 5.7kg | |

※Specifications are based on room temperature 20°C, rated power supply voltage, 50Hz, water, liquid temperature 21°C, back pressure 0, and use of specified silicone tubing. Flow rate, discharge pressure, etc. may vary slightly depending on the tubing used. ※The flow rate range of NRP-2000A is based on the use of a single tube. ※The discharge volume may decrease when the viscosity of the liquid exceeds 0.1Pa·s (100cP).

※The working fluid temperature for Tygon® tubing is 0 to 70°C. ※The working fluid temperature specifies the heat resistance of the pump body, etc. The life of the tubing varies depending on the fluid used and the temperature. ※Tubing is sold separately. ※Dimensions in parentheses () include protrusions.

Options



Leak Sensor Set

Configuration: Leak sensor (0.5m), Vat and Vat support

Leak Sensor Set (optional) detects leaks that occur when the tubing breaks in the tube case and stops pumping. The leak sensor part is made of Teflon®, which has high chemical resistance.

Cat. No. 282820 for NRP-1000
Cat. No. 265840 for NRP-2000•3000

Multi-channel tube case for NRP-3000

It can be converted to a 2-channel or 3-channel configuration by purchasing additional tube cases. This allows simultaneous delivery of 2 or 3 liquids. By configuring it in a 2-channel setup and adjusting the phase of the rollers, joining the discharge side of the tubes into one, continuous discharge with further reduced pulsation can be achieved.

Polycarbonate: Cat. No. 265830
PPS resin: Cat. No. 270540



Cable for external signal input•alarm output

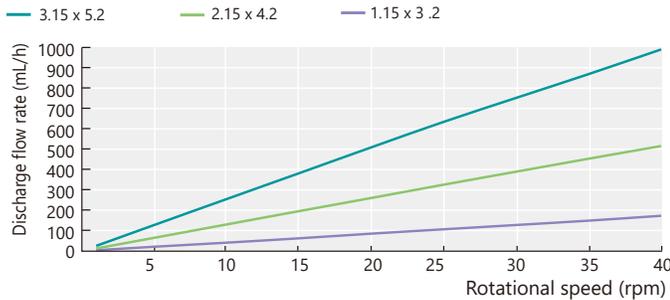
Cat. No. 285390

Data

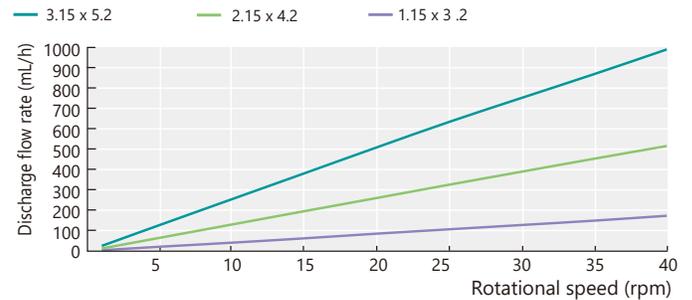
Flow rate characteristics

Conditions: Silicone tubing, Fluid: Ion-exchange water, Liquid temperature: 20°C, Room temperature: 20°C (22°C for NRP-3000 only), Back pressure: 0

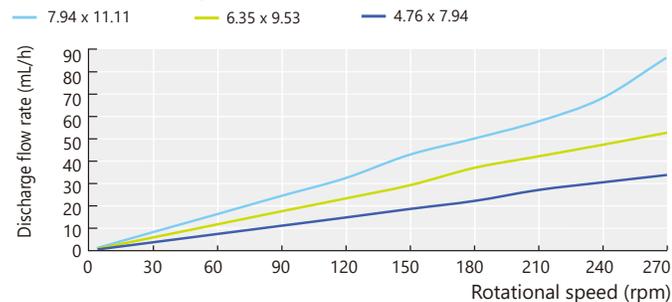
NRP-1000 : Tubing diameter (ID x OD) mm



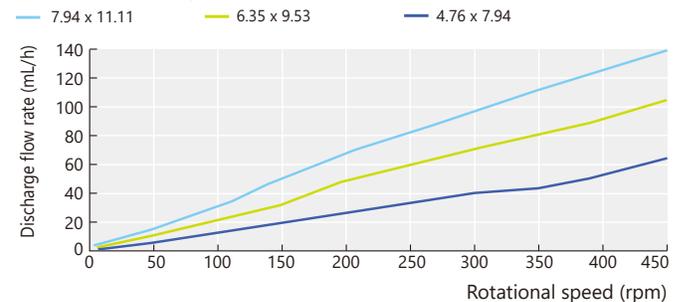
NRP-2000A : Tubing diameter (ID x OD) mm



NRP-2000B : Tubing diameter (ID x OD) mm



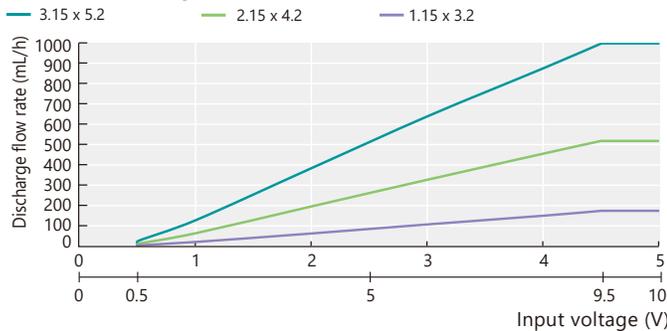
NRP-3000 : Tubing diameter (ID x OD) mm



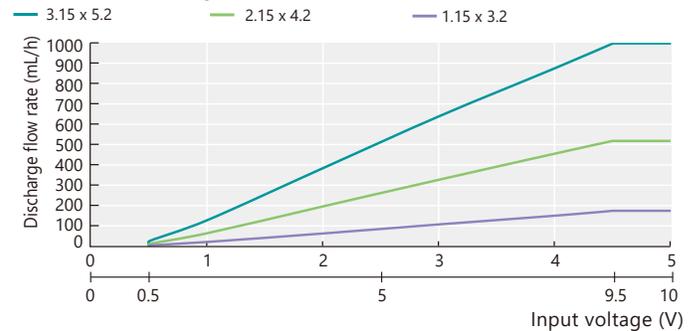
Flow characteristics with reference voltage input

Conditions: Silicone tubing, Fluid: Ion-exchange water, Liquid temperature: 20°C, Room temperature: 20°C (22°C for NRP-3000 only), Back pressure: 0

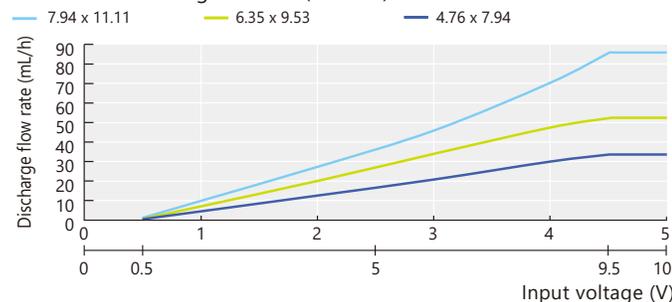
NRP-1000 : Tubing diameter (ID x OD) mm



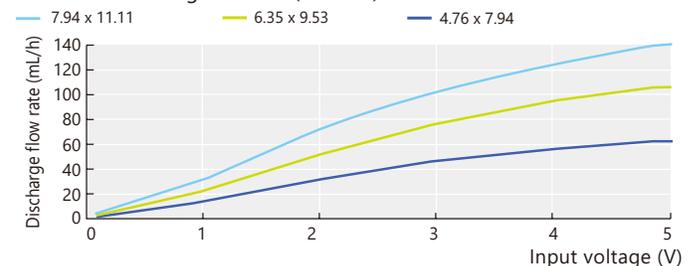
NRP-2000A : Tubing diameter (ID x OD) mm



NRP-2000B : Tubing diameter (ID x OD) mm



NRP-3000 : Tubing diameter (ID x OD) mm



Long-life PharMed® BPT tubing with 1/60 gas permeability



When used in peristaltic pumping, it lasts 5 to 10 times longer than silicone tubing (in-house comparison), eliminates the risk of leakage due to cracks, and saves time replacing tubing. A wide range of continuous use temperatures from -51°C to 135°C, and autoclave sterilization is possible. Compared to silicone tubing, the permeability of oxygen, nitrogen, and carbon dioxide is approximately 1/60, reducing the influence of gas contamination into the sample and gas permeation through the tubing on analysis results. The tubing is less susceptible to deterioration due to oxidizing substances such as ozone, hypochlorite and hydrogen peroxide, and has excellent corrosion resistance against acids and alkalis. It can also be widely used in pharmaceutical preparation, biological fields, analysis, etc. It is designed for safety with low cytotoxicity and hemolysis, and conforms to USP CLASS VI and other hygienic tests.

| Applicable pump | Size ID x OD (mm) | Length (m) | Cat. No. |
|-----------------------|-------------------|------------|----------|
| NRP-1000 NRP-2000A | 1.15 x 3.2 | 7.5 | 125320 |
| | | 1.5 | 125330 |
| NRP-1000 NRP-2000A | 2.15 x 4.2 | 7.5 | 125340 |
| | | 1.5 | 125350 |
| NRP-1000 NRP-2000A | 3.15 x 5.2 | 7.5 | 125360 |
| | | 1.5 | 125370 |
| NRP-2000B NRP-3000 | 4.76 x 7.94 | 7.5 | 125400 |
| | | 7.5 | 125420 |
| NRP-3000P | 7.94 x 11.11 | 7.5 | 125440 |

Tygon® tubing with excellent inorganic solution resistance



This tubing has excellent inorganic solution resistance and is the most versatile of the four types of tubing. It is not easily affected by oxidizing substances, and is not susceptible to deterioration. The tubing is transparent and flexible, making it easy to see the flow of liquid and to attach to piping. Excellent durability and chemical resistance. Heat resistance temperature is up to 74°C.

| Applicable pump | Size ID x OD (mm) | Length (m) | Cat. No. |
|-----------------------|-------------------|------------|----------|
| NRP-1000 NRP-2000A | 1.15 x 3.2 | 15 | 125600 |
| | | 5 | 125610 |
| NRP-1000 NRP-2000A | 2.15 x 4.2 | 15 | 125620 |
| | | 5 | 125630 |
| NRP-1000 NRP-2000A | 3.15 x 5.2 | 15 | 125640 |
| | | 5 | 125650 |
| NRP-2000B NRP-3000 | 4.76 x 7.94 | 15 | 125680 |
| | | 15 | 125700 |
| NRP-3000P | 7.94 x 11.11 | 15 | 125720 |

Data

■ Number of usable channels can be set depending on tubing (material and diameter) for NRP-3000

| Material | Size (mm) | ID x OD | | |
|--------------------|-----------|-------------|-------------|--------------|
| | | 4.76 x 7.94 | 6.35 x 9.53 | 7.94 x 11.11 |
| Silicone | | 3 channels | 3 channels | 2 channels |
| PharMed® | | 3 channels | 3 channels | 2 channels |
| Tygon® | | 3 channels | 2 channels | 2 channels |
| Versilon (Fluran®) | | 2 channels | 2 channels | 1 channel |

Silicone tubing with excellent flow stability



This tubing is made of materials specially formulated for peristaltic pumps and is highly durable. Sizes are checked for each lot, and those that meet the standards are carefully selected. The tubing withstands repeated autoclaving and has passed the standards for silicone rubber, including an elution test. Heat resistance temperature is up to 200°C.

| Applicable pump | Size ID x OD (mm) | Length (m) | Cat. No. |
|-----------------------|-------------------|------------|----------|
| NRP-1000 NRP-2000A | 1.15 x 3.2 | 15 | 125460 |
| | | 5 | 125470 |
| NRP-1000 NRP-2000A | 2.15 x 4.2 | 15 | 125480 |
| | | 5 | 125490 |
| NRP-1000 NRP-2000A | 3.15 x 5.2 | 15 | 125500 |
| | | 5 | 125510 |
| NRP-2000B NRP-3000 | 4.76 x 7.94 | 7.5 | 125540 |
| | | 7.5 | 125560 |
| NRP-3000P | 7.94 x 11.11 | 7.5 | 125580 |

Versilon (Fluran®) tubing with excellent chemical resistance



This tubing has excellent chemical resistance and is the most corrosion resistant of the four types of tubing. This high grade tubing is made of a base of fluororubber and can be used in highly corrosive solutions. Compared to standard Viton® tubing, it has superior physical strength, ozone resistance, and weather resistance. Heat resistance temperature is up to 204°C.

| Applicable pump | Size ID x OD (mm) | Length (m) | Cat. No. |
|-----------------------|-------------------|------------|----------|
| NRP-1000 NRP-2000A | 1.15 x 3.2 | 7.5 | 125740 |
| | | 1.5 | 125750 |
| NRP-1000 NRP-2000A | 1.15 x 3.2 | 7.5 | 270250 |
| | | 1.5 | 270260 |
| NRP-1000 NRP-2000A | 2.15 x 4.2 | 7.5 | 125760 |
| | | 1.5 | 125770 |
| NRP-1000 NRP-2000A | 3.15 x 5.2 | 7.5 | 125780 |
| | | 1.5 | 125790 |
| NRP-2000B NRP-3000 | 4.76 x 7.94 | 7.5 | 125830 |
| | | 7.5 | 125850 |
| NRP-3000P | 7.94 x 11.11 | 7.5 | 125870 |



Chemical resistance of tubing

Chemical resistance is based on immersion data at room temperature, atmospheric pressure, 23°C liquid temperature, and pure solvent. Actual conditions of use may vary, so use as reference data only.

TOKYO RIKAKIKAI CO., LTD.

EYELA

<https://eyelaworld.com>

TN Koishikawa Bldg.
1-15-17 Koishikawa
Bunkyo-ku, Tokyo
112-0002 Japan

Tel: +81-3-6757-3378
Fax: +81-3-3868-6571
E-mail: contact@eyelaworld.com

※The appearance and specifications of the products are subject to change without notice.