Safety Precautions

Be sure to read this section before use.
For general precautions for pneumatic equipment, please refer to Intro 15.

Product-specific cautions: Nitrogen Gas Extraction Unit NS, NSU Series

* For cautions of PNA and NS-QFS Series, refer to the product-specific cautions for each model (P. 52 and 44).

Design / Selection

WARNING

■ **Nitrogen gas may cause a risk of oxygen deprivation; therefore, use nitrogen gas in accordance with the following instructions.**
- Use in well ventilated locations.
- Ventilate the work area when nitrogen gas is being used.
- Periodically inspect the nitrogen gas piping for leaks.

■ **Oxygen-rich gas is discharged from the exhaust port of the membrane unit, so be aware of the following points when installing the equipment.**
- Install away from sources of fire and flammable substances.
- Ventilate the work area when equipment is being used.

■ **Do not use this product for purposes that directly concern human life.**

CAUTION

■ Working environment
- Avoid installing this product where it will be subject to direct sunlight or rain.
- As the bowl material is polycarbonate, avoid use with the following chemicals or in an atmosphere containing these chemicals. [NSU Series]
- Avoid use in environments where ozone is generated.
- Avoid use where vibration and impact are present.
- Avoid using this product where it will be subject to air with a relative humidity of 50% or more. (Performance will decrease sharply if the separation membrane gets wet with droplets (such as water).)
- Avoid using air containing corrosive gases (strong acidic gases such as hydrogen sulfide, sulfur dioxide, hydrogen chloride, fluorine, etc.) or strong alkali gases (amines, ammonia, caustic soda, etc.).

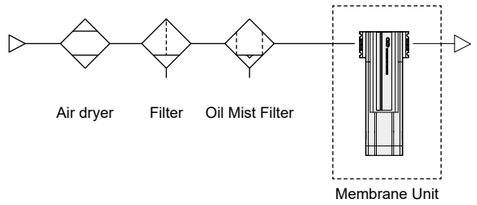
■ The needle valve cannot be used as a stop valve that requires no leakage. Slight leakage is allowed for in this product's specifications.

■ Dust cannot be completely kept out of the flow path. Install a final clean filter if dust could be a problem with the circuit. (Use anti-bacterial/bacteria-removing filters for food processes.)

■ Please use at your own discretion after thoroughly confirming the compatibility of the materials used in each device with the valve structure, fluid used, and atmosphere in which the device is used.

■ Internal parts may wear when the needle valve operates. If there is any influence, take necessary measures such as installing a filter on the secondary side.

■ Check the working circuit and working fluid.
To prevent drop in membrane unit performance, install the dryer, air filter and oil mist filter on the primary side, and remove water or oil. If the working fluid could contain hydrocarbons, install an activated carbon filter.



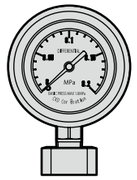
■ Install an oil removing filter (M-type) in front of the membrane unit inlet to remove all water drops and oil. If oil adheres to the separation membrane, nitrogen concentration may decrease. If oil adheres to the separation membrane, nitrogen concentration may decrease.

■ Install the regulator on the outlet side of the membrane unit.

■ When installing NS (2, 3 or 4 units), fix the inlet and outlet pipes or fix the body with a bracket.

■ When installing NS (6 or more units), place on a solid and flat surface that does not vibrate and fix the base with anchor bolts.

■ The oil mist filter comes to the end of its service life when the pressure drops to 0.07 MPa or after one year of use, whichever comes first. Replace the mantle with a new one at the end of its life. (Check the pressure drop with the differential pressure gauge.) (Do not touch the urethane rubber foam layer when replacing the mantel)
[NSU Series]



■ The service life of the membrane unit differs according to the working conditions. As a guideline, replace the membrane every 3 to 5 years..

■ Please note that it takes time to obtain the required nitrogen concentration after supplying compressed air.

Types of Chemicals	Categories of Chemicals	Main Products of Chemicals	General Applications	Polycarbonate
Inorganic compounds	Acids	Hydrochloric acid, sulfuric acid, fluorine, phosphoric acid, chromic acid, etc.	Acid washing of metals, acidic degreasing solutions, Coating treatment solution	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate, etc.	Alkaline degreasing solution for metals	×
	Inorganic salts	Sodium sulfide, potassium nitrate, potassium bichromate, sodium sulfate, etc.		×
Organic compounds	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, xylene)	×
	Chlorinated Aliphatic Hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic Solvent-Based Washing Solution for Metals(Trichloroethylene, Tetrachloroethylene, Carbon Tetrachloride, etc.)	×
	Chlorinated Aromatic Hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	×
	Petroleum components	Solvent, naphtha, gasoline		×
	Alcohols	Methanol, ethanol, cyclohexanol, benzyl alcohol	Used as an antifreeze agent	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Brake fluid additive	×
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid are used for aluminum treatment Phthalic Acid Is Used as a Paint Base	×
	Phosphate ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic hydraulic fluid, rust preventative additives used as plasticizers for synthetic resins	×
	Oxyacids	Glycolic acid, lactic acid, malic acid, citric acid, tartaric acid		×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		×
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Brake fluid additive	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	×

For precautions during mounting, installation, adjustment, use and maintenance, refer to the CKD Components Product Site (https://www.ckd.co.jp/kiki/en/) → "Model No. → Instruction Manual

Pneumatic components (flow rate sensor)

Safety Precautions

Be sure to read this section before use.
For general precautions for pneumatic equipment, please refer to Intro 15.

Product-specific cautions: Flow rate sensor NS-QFS Series

Design / Selection

Working fluids

DANGER

■Never use this product with flammable fluids.

WARNING

■This product cannot be used as a billing meter.
Do not use this product for commercial transactions as it is not compliant with the Measurement Act. Intended applications include industrial sensors.

■Do not use fluids which are not applicable.

■Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist.

■Depending on the fluid, retaining the fluid for long periods could adversely affect the performance. Do not seal the fluid in the pipe for long periods of time.

■Working pressure / flow rate range
Applications exceeding the max. working pressure and specified flow rate range may result in breakdown. Use this product only within the specified range.

■When using a valve on the primary side of the sensor, use only valves with oil-prohibited specifications. This sensor could malfunction or fail if exposed to splattering grease, oil, etc. As friction powder may be generated depending on the valve, mount a filter to prevent the powder from entering the sensor.

Working environment

DANGER

■Explosion-proof environments: Never use this product in an explosive gas atmosphere. The structure is not explosion-proof, and explosions or fires could occur.

WARNING

■Corrosive environments: Do not use this product in an atmosphere containing corrosive gases such as sulfur dioxide.

■Ambient/fluid temperatures: Use ambient / fluid temperatures from 5 to 50°C within the specified range. Even if the temperature is within the specified range, do not use this product if the ambient temperature and fluid temperature could suddenly change and cause dew to condense.

■Drip-proof environments: The degree of protection of this product is equivalent to IP40. Do not install this product where water, salt, dust, or swarf is present or in a pressurized or depressurized environment. The product cannot be used with large temperature variations or high temperature/humidity since condensation may occur inside the body.

Flow rate unit

CAUTION

■This product's flow rate is measured at a mass flow rate unaffected by temperature or pressure. The unit is L/min, but this is the display when the mass flow rate is converted to volumetric flow rate at 20°C 1 atmosphere (101 kPa) relative humidity 65%RH.

Overflow

CAUTION

■There is no problem with the sensor even if an excess flow of about twice the measuring range is applied, but if dynamic pressure near the maximum working pressure is applied (pressure difference between the primary and secondary sides greater than the maximum working pressure), there is a possibility of sensor failure. When dynamic pressure is applied, such as when filling a workpiece for leakage inspection, be sure to provide a bypass circuit or a squeezer to prevent dynamic pressure from being applied to the sensor.

Other

CAUTION

■The flow path is not completely free of dust generation, so if dust generation is a problem, a final clean filter should be used in conjunction.

Piping

CAUTION

■Do not install a pressure reducing valve (regulator), solenoid valve, etc. immediately before this product. Deflected currents may occur and cause errors.

■This product is exclusively for Nitrogen Gas Extraction Unit system type NSU. When piping, use modular connections with our products.

For precautions during mounting, installation, adjustment, use and maintenance, refer to the CKD Components Product Site (https://www.ckd.co.jp/kiki/en/) → "Model No. → Instruction Manual

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