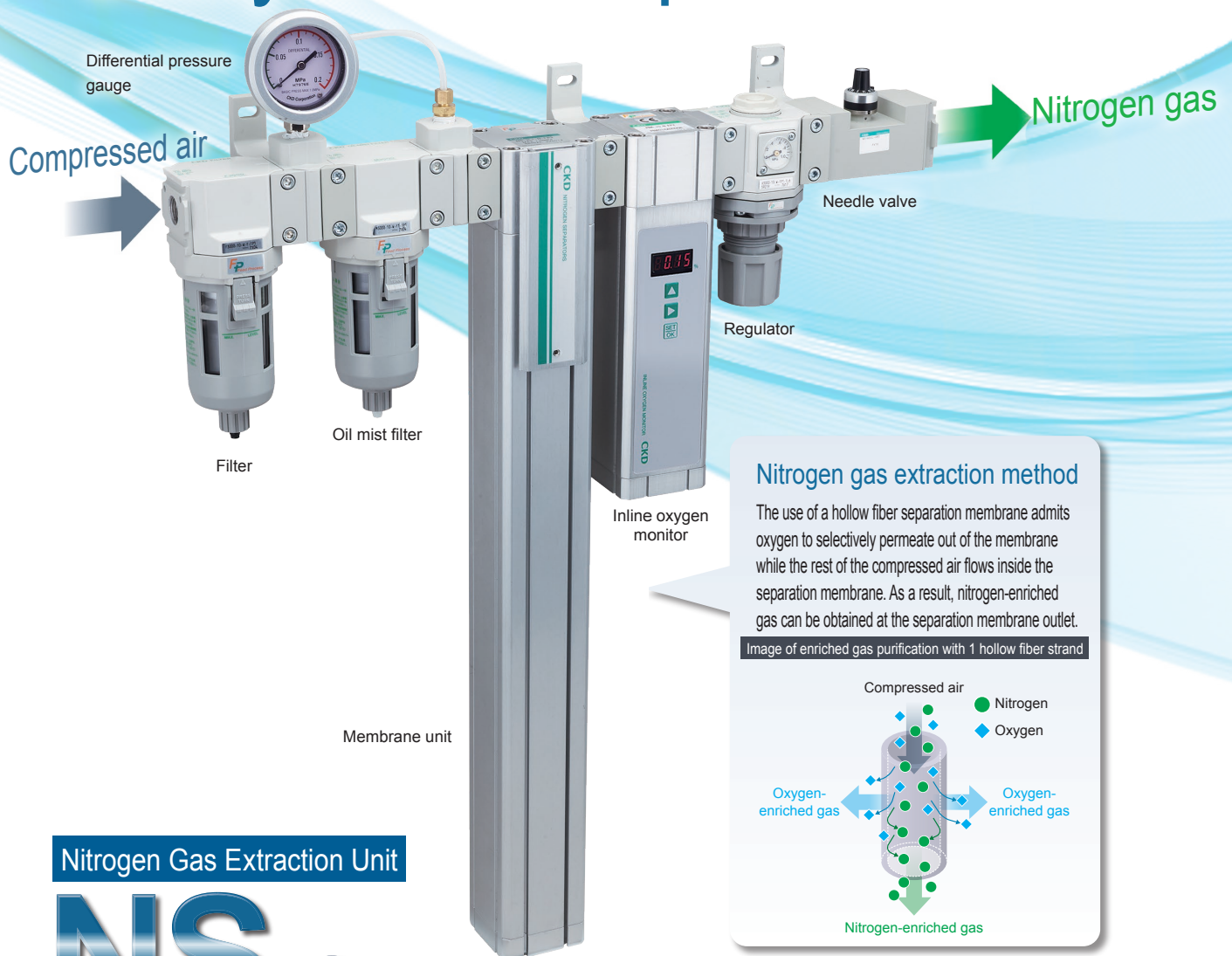


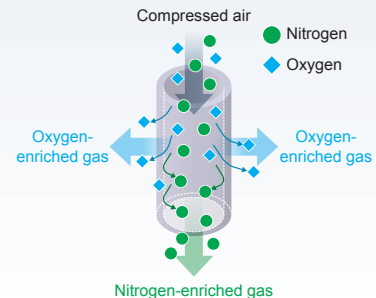
# Nitrogen gas can be extracted easily from compressed air.



## Nitrogen gas extraction method

The use of a hollow fiber separation membrane admits oxygen to selectively permeate out of the membrane while the rest of the compressed air flows inside the separation membrane. As a result, nitrogen-enriched gas can be obtained at the separation membrane outlet.



Image of enriched gas purification with 1 hollow fiber strand



## Nitrogen Gas Extraction Unit

# NS Series

## NS Series configuration

System	Unit	
	Single cylinder	Multiple cylinders
NSU	NS	
		

*New*

# Install anywhere

## Saves processes, piping, and space

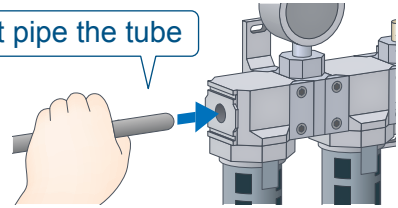
- › With system components provided, design and piping are easy.
- › The ideal system can be selected according to the required flow rate.
- › Long piping work dedicated for nitrogen is unnecessary since it can be installed near equipment.

## Power supply not required

- › Usable even in explosion-proof atmospheres, different voltage areas, etc.
- › No malfunctions due to electrical noise.
- › Quiet, with no heat generation as there is no drive system.

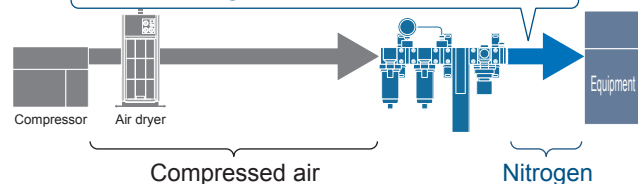
\*When selecting the Inline oxygen monitor (option), a power supply is required.

Just pipe the tube



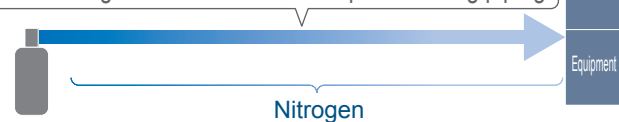
### NS Series

Quick nitrogen concentration start up



### Conventional method

Slow nitrogen concentration start up due to long piping



# Low cost

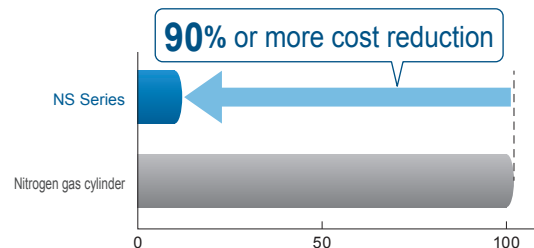
## Running cost reduction

- › The only required maintenance cost is electricity for the air compressor.
- › No continuous running costs such as cylinder refilling costs.

## Expense reduction

- › Troublesome cylinder management of remaining gases, or replacement work is not required.

### Nitrogen gas cylinder and gas unit price comparison



\* Comparison assuming that the nitrogen gas concentration is 99% and the gas unit price is 100.

# Easy maintenance

## Sustainable reliability

- › Since there are no movable parts, stable performance can be maintained.
- › Parts replacement is possible without disassembling the piping.

## High Pressure Gas Safety Act not applicable

- › There is no need for notifications or assignment of qualified personnel.

## Compatible with FP Series for secure food manufacturing processes

Can be used safely in food manufacturing processes.

**NSF H1**  
grease for  
foodstuffs is used

Material compatible  
with the Food Sanitation Act  
Fluid passage section  
Resin /rubber

**FP**  
Food Process®

This logo mark stands for our brief  
that CKD's safe products support food  
manufacturing processes.



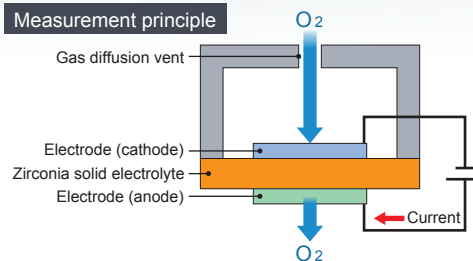
# Oxygen concentration under pressure can be monitored



## Limit current method

The PNA Series uses the limit current method. When voltage is applied to the zirconia element, an ion current flows with oxygen ions as carriers. When the oxygen concentration changes, the current characteristics change proportionally, enabling detection of the oxygen concentration. This method is highly durable and offers a long service life.

### Measurement principle

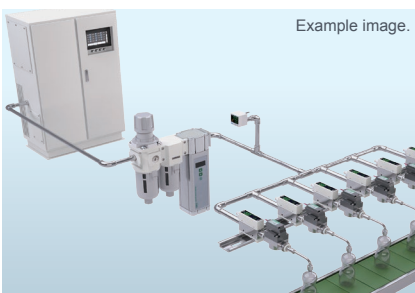


## Inline Oxygen Monitor

# PNA Series

## Examples of applications

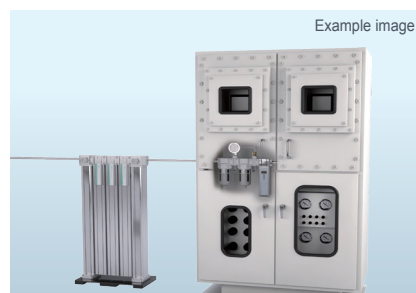
### Terminal concentration check



Example image.

- Concentration check at start of work
- Normal concentration check
- Identification of maintenance timing

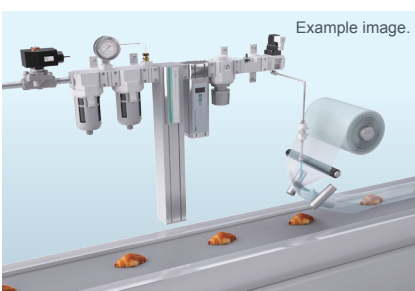
### Concentration check for gas in explosion-proof areas



Example image.

- Concentration check at start of work
- Normal concentration check
- Alarms for hazardous concentrations

### Nitrogen filling concentration check



Example image.

- Concentration check when filling nitrogen
- Concentration setting

### Checking gas for remaining oxygen removal



Example image.

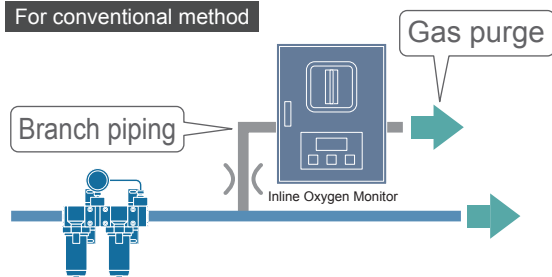
- Oxygen concentration check for removal gas
- Status monitoring

# Saves energy, piping, and space

Realizing a pressure-resistant structure. The inline Modular structure saves piping space. Conventional gas purging is no longer necessary.

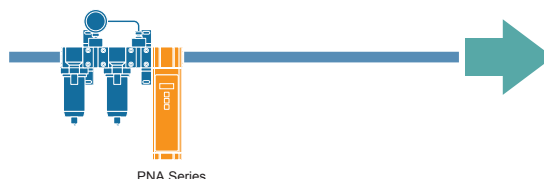


For conventional method



For PNA Series

- Gas purge not required
- Space saving via inline installation



PNA Series

## Easy to use

### Oxygen/inert gas concentration display is switchable

- › With 100-oxygen concentration, the inert gas concentration is clear at a glance.

### Upper/lower limit switch output setting and analog output are available

- › Alarms can be set for concentration changes, and status monitoring is possible.

### With self-diagnostic function

- › Keeps you posted about abnormalities in the detector element.

### Degree of protection IP65 or equivalent

- › Wet or dry, it still functions.

### Pressure-resistant structure

- › Usable at pressures from atmospheric pressure through 1.0 MPa.



Oxygen concentration display



Inert gas concentration display

## Compatible with FP Series for secure food manufacturing processes

Can be used safely in food manufacturing processes.

Material compatible  
with the Food Sanitation Act  
Fluid passage section  
Resin /rubber



This logo mark stands for our brief that CKD's safe products support food manufacturing processes.

## CKD after-sales service

Traceability certificates (with traceability series variation diagram) can be issued.

The sensor of the oxygen concentration monitor may deteriorate depending on the working conditions. Therefore, regular calibration is required to maintain stable performance. For even longer consistent performance, we recommend the yearly calibration service.



Feel free to contact CKD for details on calibration and repair.