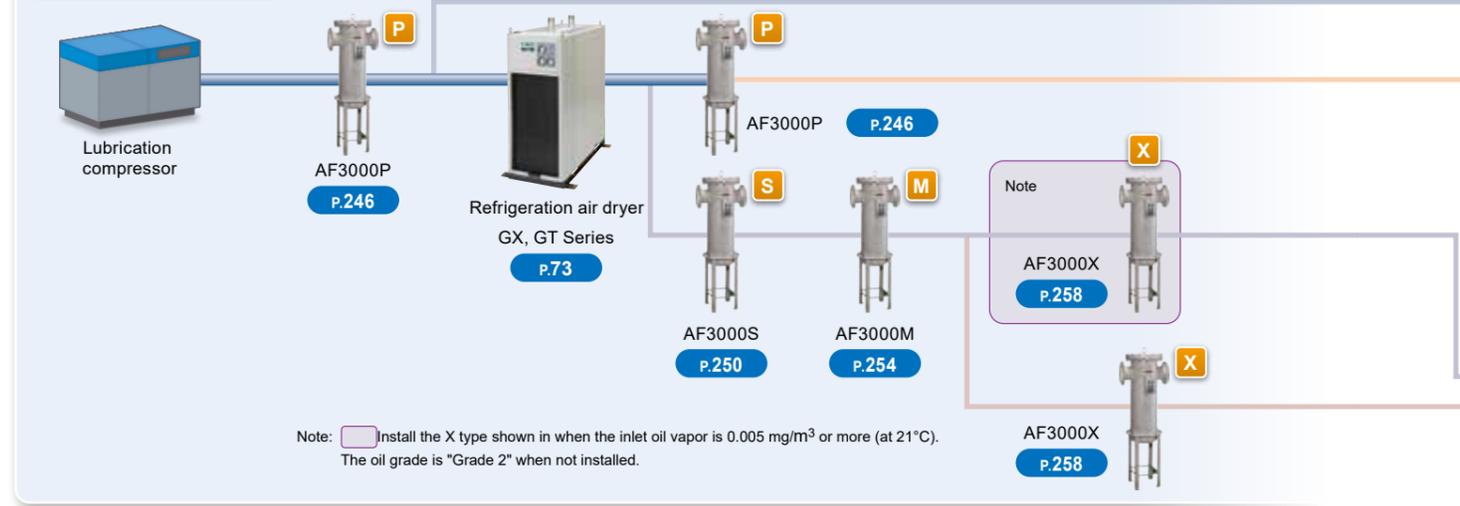


# Recommended system configuration for Main Line Filter Components

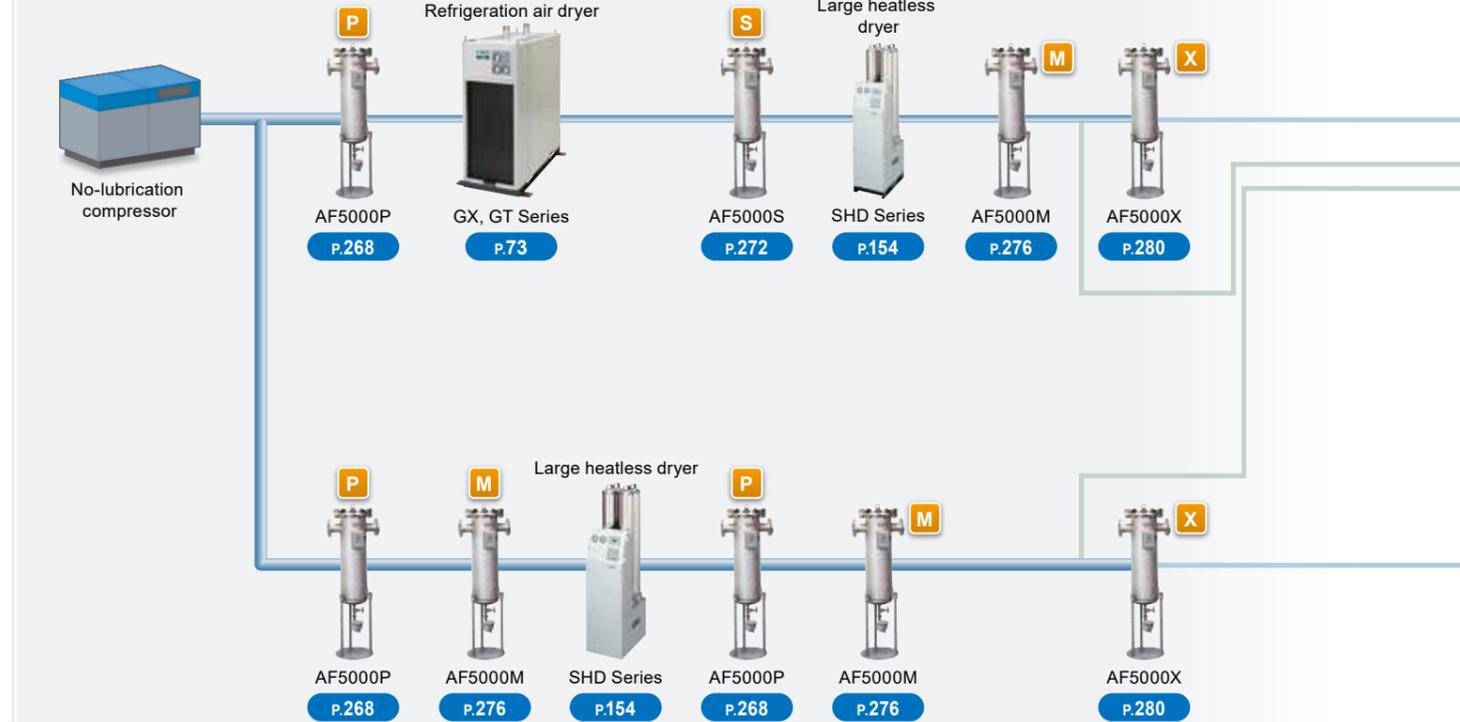
## Large Main Line Filter

Processing flow rate [AF3000 general purpose] 16 to 256 m<sup>3</sup>/min (ANR)



Note: Install the X type shown in when the inlet oil vapor is 0.005 mg/m<sup>3</sup> or more (at 21°C). The oil grade is "Grade 2" when not installed.

Processing flow rate [AF5000 oil-free] 16 to 256 m<sup>3</sup>/min(ANR)



### Main Line Filters

**Pre-filter**  
Ideal for use as a pre-filter for air dryers.



\*1: If your conditions are different, refer to the specifications in the catalog in order to select a model.

\*2: This example of system selection is based on an air-cooling refrigeration air dryer, the model No. of the filter may vary since the standard processing air flow rate may differ. Contact CKD Sales for details.

\*3: Air filter and oil mist filter are to be used where the inlet air temperature is 60°C or less, and X-type where the inlet air temperature is 30°C or less. If air temperature from the secondary side of the refrigeration air dryer is high, keep enough distance from the refrigeration air dryer to maintain a temperature no greater than the inlet air temperature.

\*4: This system cannot be used for high pressure specifications (1 to 1.6 MPa). In that case, contact CKD Sales.

### Oil Mist Filter

**Oil Removing Filter**  
Protects expensive pneumatic components



\*5: Use anti-rust processed materials for piping (zinc plated pipe, lined pipe or stainless steel pipe).

\*6: If there is a possibility of a large instantaneous air flow rate greater than the amount of air treated by the refrigeration air dryer, install a tank on the secondary side of the refrigeration air dryer. Installing a tank supplies stable moisture removed air.

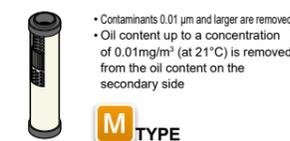
\*7: The air filter at the secondary side of the refrigeration air dryer can be used as a pre-filter before an oil mist filter.

\*8: Depending on working conditions, condensation may form on the inside of the refrigeration air dryer and drip to the floor. To prevent water drops from flowing out, install a drain-pan, etc., before installing the dryer.

\*9: Please feel free to consult with our sales staff when considering energy-saving systems.

\*10: Install a filter immediately before the equipment to be used to remove contaminants existing in the piping.

**High-Performance Oil Removing Filter**  
For Pneumatic Circuits Which Prohibit Passage of Oil.



\*11: This system cannot be used for high pressure specifications (1 to 1.6 MPa). In that case, contact CKD Sales.

\*12: This example of system selection is based on an air-cooling refrigeration air dryer, the model No. of the filter may vary since the standard processing air flow rate may differ. Contact CKD Sales for details.

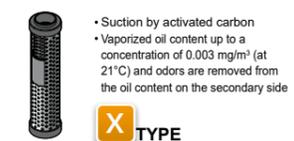
\*13: Air filter and oil mist filter are to be used where the inlet air temperature is 60°C or less, and X-type where the inlet air temperature is 30°C or less. If air temperature from the secondary side of the refrigeration air dryer is high, keep enough distance from the refrigeration air dryer to maintain a temperature no greater than the inlet air temperature.

\*14: This system cannot be used for high pressure specifications (1 to 1.6 MPa). In that case, contact CKD Sales.

\*15: Please feel free to consult with our sales staff when considering energy-saving systems.

\*16: Install a filter immediately before the equipment to be used to remove contaminants existing in the piping.

**Activated Carbon Filter**  
For pneumatic circuits which prohibit passage of odors



\*17: This system cannot be used for high pressure specifications (1 to 1.6 MPa). In that case, contact CKD Sales.

\*18: This example of system selection is based on an air-cooling refrigeration air dryer, the model No. of the filter may vary since the standard processing air flow rate may differ. Contact CKD Sales for details.

\*19: Air filter and oil mist filter are to be used where the inlet air temperature is 60°C or less, and X-type where the inlet air temperature is 30°C or less. If air temperature from the secondary side of the refrigeration air dryer is high, keep enough distance from the refrigeration air dryer to maintain a temperature no greater than the inlet air temperature.

\*20: This system cannot be used for high pressure specifications (1 to 1.6 MPa). In that case, contact CKD Sales.

\*21: Please feel free to consult with our sales staff when considering energy-saving systems.

\*22: Install a filter immediately before the equipment to be used to remove contaminants existing in the piping.

| Air Quality                                     | Applications   | Impurities in the Air |                          |  | ISO 8573-1 compressed air purity grade |
|---|--|-----------------------|--------------------------|--|--|
|   |  | Individual particles  | Moisture                 | Oil content  |  |
| <b>Dewatered Air</b><br>Coarse dust removed air | Air for cleaning (dry air not required)  | 3 μm                  | -                        | -  | 4: -: -                                |
| <b>General Dry Air</b>                          | General Pneumatic Components<br>General Pneumatic Tools<br>Labor-Saving Components<br>Pneumatic Jigs and Tools<br>Air Chuck  | 3 μm                  | Pressure dew point 10°C  | 0.5 mg/m <sup>3</sup>                                | 4:6:3                                  |
|   |  |                       | Pressure dew point 7°C   |  | 4:5:3                                  |
| <b>Dry Air (oil-free)</b>                       | Instrumentation<br>Measurement<br>Sequence control<br>Painted  | 0.01 μm               | Pressure dew point 10°C  | 0.01 mg/m <sup>3</sup><br>(0.003 mg/m <sup>3</sup> ) | 1.6.1                                  |
|   |  |                       | Pressure dew point 7°C   |  | 1.5.1                                  |
| <b>Dry air (odorless)</b>                       | Food and Pharmaceutical Processes<br>(Stirring, dry blowing, packaging, brewing, pressure-feeding, filling)<br>Cosmetic Manufacturing Processes<br><br>*If the product directly contacts the workpiece, it is recommended to install a bacteria-removing filter. | 0.01 μm               | Pressure dew point 10°C  | 0.003 mg/m <sup>3</sup>                              | 1.6.1                                  |
|   |  |                       | Pressure dew point 7°C   |  | 1.5.1                                  |
| <b>Ultra dry air (oil-free)</b>                 | Ozone generator<br>Powder transfer<br>Drying furnace gas<br>Drying the insulation gas of a high-voltage generator<br>Drying computer rooms<br>Centralized control instrumentation<br>Liquid crystal panel manufacturing<br>Chemical plants<br>Painted            | 0.01 μm               | Pressure dew point -20°C | 0.01 mg/m <sup>3</sup>                               | 1.3.1                                  |
|   |  |                       | Pressure dew point -40°C |  | 1.2.1                                  |
|   |  |                       | Pressure dew point -60°C |  | 1.2.1                                  |
| <b>Ultra-Dry Air (odorless)</b>                 | Food and Pharmaceutical Processes<br>(Stirring, dry blowing, packaging, brewing, pressure-feeding, filling)<br>Cosmetic Manufacturing Processes<br><br>*If the product directly contacts the workpiece, it is recommended to install a bacteria-removing filter. | 0.01 μm               | Pressure dew point -20°C | 0.003 mg/m <sup>3</sup>                              | 1.3.1                                  |
|   |  |                       | Pressure dew point -40°C |  | 1.2.1                                  |
|   |  |                       | Pressure dew point -60°C |  | 1.2.1                                  |

\*1. The System No. is based on the grades in the table below. 'X' indicates odor removal, and '-' indicates 'not specified'.

### ISO 8573-1: 2010 Compressed air purity grade

| Grade | Solid Particles  |               |               | Mass Concentration Cp mg/m <sup>3</sup> | Humidity and Water Content |   | Oil Total Oil Concentration mg/m <sup>3</sup> |
|-------|--|---------------|---------------|---|----------------------------|---|---|
|       | Max. number of particles per 1 m <sup>3</sup> for particle diameter d (μm)   |               |               |   | Pressure dew point °C      | Water Concentration Cw g/m <sup>3</sup> |   |
|       | 0.1 < d ≤ 0.5  | 0.5 < d ≤ 1.0 | 1.0 < d ≤ 5.0 |   |                            |   |   |
| 0     | Conditions stricter than Grade 1, is to be specified by the user or supplier |               |               |   |                            |   |   |
| 1     | ≤ 20,000   | ≤ 400         | ≤ 10          | -                                       | ≤ -70                      | -                                       | ≤ 0.01  |
| 2     | ≤ 400,000  | ≤ 6,000       | ≤ 100         | -                                       | ≤ -40                      | -                                       | ≤ 0.1   |
| 3     | -  | ≤ 90,000      | ≤ 1,000       | -                                       | ≤ -20                      | -                                       | ≤ 1   |
| 4     | -  | -             | ≤ 10,000      | -                                       | ≤ +3                       | -                                       | ≤ 5   |
| 5     | -  | -             | ≤ 100,000     | -                                       | ≤ +7                       | -                                       | -   |
| 6     | -  | -             | -             | 0 < Cp ≤ 5                              | ≤ +10                      | -                                       | -   |
| 7     | -  | -             | -             | 5 < Cp ≤ 10                             | -                          | Cw ≤ 0.5                                | -   |
| 8     | -  | -             | -             | -                                       | -                          | 0.5 < Cw ≤ 5                            | -   |
| 9     | -  | -             | -             | -                                       | -                          | 5 < Cw ≤ 10                             | -   |
| X     | -  | -             | -             | Cp > 10                                 | -                          | Cw > 10                                 | > 5   |

For example, "Grade 1: 2: 1" means:

- Solid particles: 0.1 to 0.5 μm are 20,000 particles or less, 0.5 to 1.0 μm are 400 particles or less, and 1.0 to 5.0 μm are 10 particles or less
- Pressure dew point: -40°C or less
- Oil concentration: 0.01 mg/m<sup>3</sup> or less

This indicates the class.