

# Grease-Free Special Cleaning and Packaging Process (FOG)

## Scope

- © This specification is developed for certain wetted components used in oxygen-enriched environments.
- © Unlike Special Cleaning and Packaging Process (FC-02), this specification prohibits any lubrication of wetted surfaces. The absence of lubrication leads to more friction between product components, so operating products in accordance with this specification usually requires greater torques. In the meantime, the working pressure may be lower.
- © Please read and understand this specification to determine whether it meets your system's requirements for cleanliness before using the product.

## Process Requirements

- © Products should have fulfilled the requirements of the FITOK Standard Cleaning and Packaging Process (FC-01) before proceeding according to this Specification.
- © All assembling, lubricating, testing and packaging of the components should be performed according to this Specification.
- © According to the requirements of ASTM G93, Level C, non-volatile residues should not exceed 6 milligrams per square foot (66 mg/m<sup>2</sup>).
- © Products are double packaged with polyethylene bags, with the outer ones labeled with process identification. Do not open bag until ready for installation.

## Cleaning, Drying, and Inspection

- © The product should go through continuous ultrasonic cleaning, the procedures of which should be monitored in accordance with the requirements of ASTM G144. The inspection methods shall conform to the requirements of ASTM G121 and G122.
- © Carry out ultrasonic cleaning in accordance with the requirements of ASTM G131 with the cleaning agent complying with ASTM G127.
- © Use DI Water to proceed ultrasonic rinsing and spray washing for complete removal of cleaning agent according to the requirement of ASTM G313.
- © Eliminate cleaning fluid through non-combustive drying and ensure there is no residue deposit.
- © Carry out visual inspection with the assistance of bright illumination or violet lighting. Inspect the surface cleanliness of products with a dyne pen.

## Assembly and Testing

- © Cleaned parts should be protected from damage and contamination.
- © All proceedings of the cleaned parts shall be carried out in a clean room in accordance with a rational workflow to keep the parts from contamination.
- © Do not apply any lubricant to wetted components during assembly.
- © Products are factory-tested with clean and dry nitrogen or helium.

## Packaging and Labeling

- © Finished products are packaged in clean environment to avoid contamination.
- © The ports of products are sealed with caps, plugs or other means to protect the crucial parts and prevent the product interior from contamination.
- © Each product is packaged individually in a clean and sealed plastic bag.
- © Bagged products are packed in boxes for protection.
- © Part Number, quantity, and packing date are labeled on the boxes.

Fittings

Valves

Regulators

Filters

Tubing

Integrated  
SystemsOther  
ProductsTechnical  
Information

References

FITOK Documents

Standard Cleaning and Packaging Process (FC-01)

ASTM Standards

ASTM G93 Standard Practice for Cleaning Methods and Cleanliness Levels for Material and Equipment Used in Oxygen-Enriched Environments

ASTM G121 Standard Practice for Preparation of Contaminated Test Coupons for the Evaluation of Cleaning Agents

ASTM G122 Standard Test Method for Evaluating the Effectiveness of Cleaning Agents

ASTM G127 Standard Guide for the Selection of Cleaning Agents for Oxygen Systems

ASTM G131 Standard Practice for Cleaning of Materials and Components by Ultrasonic Techniques

ASTM G144 Standard Test Method for Determination of Residual Contamination of Materials and Components by Total Carbon Analysis Using a High Temperature Combustion Analyzer

Fittings
Valves
Regulators
Filters
Tubing
Integrated Systems
Other Products
Technical Information