

# Assembly and Installation Procedures

## for Pall Supracap™ 100 Capsules

### 1 Introduction

The following procedures must be followed for the installation of Pall Supracap 100 Capsules.

The instructions contained in the product documentation must be read thoroughly because they contain valuable information gained by extensive experience. It is very important that all instructions are carefully followed, and where appropriate, they should be incorporated into the end user's standard operating procedures. If some of the procedures do not suit your needs, please consult Pall or your local distributor before finalizing your system.

Use of this product in a manner other than in accordance with Pall's current recommendations may lead to injury or loss. Pall cannot accept liability for such injury or loss.

### 2 Specifications

The maximum working pressure and temperature can vary between capsule assembly types or filter media. Please check the datasheet and labeling for details, or contact Pall or your local distributor. Short-term exposure to pressurized air or nitrogen above the maximum working pressure is allowable for integrity testing of filter capsule assemblies. Please consult Pall for details. Operation outside the specifications and with fluids incompatible with construction materials may cause personal injury and result in damage to the equipment. Incompatible fluids are fluids which chemically attack, soften, stress, attack or adversely affect the materials of construction. Please contact Pall for exact limits.



*Warning: European Directive 94/9/EC (ATEX)  
Equipment Intended for Use in Potentially Explosive Atmospheres  
For information relating to European Directive 94/9/EC (ATEX),  
please refer to page 5.  
For information relating to Zone 0/20 Applications, please contact  
Pall. More information can be obtained through Pall, your local  
distributor or the Pall website.*

### 3 Receipt of Equipment



*Caution: Capsule assemblies are suitable for sterilization by autoclaving. Please check the product label prior to use to ensure product part numbers correspond to the application. If unsure of suitable sterilization method, contact Pall.*

1. Store the filter assembly in clean, dry conditions between 0 °C and 30 °C without exposure to irradiation sources like direct sunlight, and wherever practical in the packaging as delivered.
2. **Do not** remove from packaging until just before installation.
3. Check that the bag or packaging is undamaged prior to use.
4. Ensure that the type of capsule assembly selected is suitable for the application.
5. In addition to the part number, each filter assembly is identified by a unique identification batch and a unique serial number.
6. Shelf life information for various filter media used in Supracap 100 capsules is available. Please refer to Pall for detailed information.

### 4 Installation

Before installation, it is essential to verify that the capsule assembly type selected is suitable for the product to be filtered and to follow the appropriate instructions listed below.

Install the capsule assembly in-line using compatible connections. Ensure that it is installed in the correct orientation for flow from the inlet to the outlet and is adequately supported. Most capsules have the flow direction indicated on the filter assembly. This product is not suitable for reverse flow applications.

1. If valves and inlet/outlet connectors are protected by plastic caps, the caps should be removed prior to use.
2. Liquid filter capsule assemblies can be positioned in any orientation, providing that effective venting of the filter can be carried out before and during operation.
3. Where a positive pressure exists downstream of the capsule assembly, a sensitive check valve or other suitable installation will be needed to prevent back pressure damage due to reverse flow.
4. Where pulsating flow is present, the capsule assembly should be protected by a surge tank or similar device upstream.
5. Where a rapidly closing downstream valve is present, the possibility of pressure pulsing and subsequent filter damage exists. The capsule assembly should be protected by a surge tank or similar device between valve and filter.
6. Depending on the application, rinsing with cold or warm water in a forward flow direction is recommended prior to putting the Supracap 100 capsules into operation. In special cases rinsing can be performed with product or a product-compatible liquid. The recommended rinsing volume is 50 L/m<sup>2</sup> of filter area for single-layer capsules and 100 L/m<sup>2</sup> and for double-layer capsules. If unsure of suitable flushing procedures, contact Pall.

## 5 Sterilization



*Caution: Pall Supracap capsule filters must not be in-line steam sterilized.*

### 5.1 Autoclaving



*Caution: Please refer to the appropriate Pall product information literature for products that can be autoclaved and the maximum recommended cumulative autoclave exposure time.*

*Autoclave sterilization procedures are detailed in Pall publication USTR 805.*

*Do not autoclave the capsules in the bag supplied.*

*When capsule filters with sanitary connections are used, it is recommended that the sanitary clamp is not fully tightened prior to autoclaving. The clamp should be fully tightened only when autoclaving is completed. The vent and drain valves should be opened at least one turn before autoclaving.*

## 6 Operation

### 6.1 Liquid Applications

1. Remove the capsule from bag or protective autoclave wrapping and attach tubing to the inlet. If hose barb connections are used, the tubing should be secured in place by a suitable fastener. If a sanitary connection is used, then the gasket should be properly installed and the clamp should be adequately tightened.
2. Loosen vent valve and slowly begin to fill the capsule. The valves are operated by rotation. Tighten vent as soon as all excess air escapes the assembly and liquid reaches the level of the vent.
3. Gradually increase flow rate or pressure to the desired value. Do not exceed the maximum operating parameters listed in the specifications section of the product datasheet.
4. When filtration is complete, fluid can be followed by an air purge to minimize hold-up of solution in the assembly.

## 7 Filter Assembly Replacement

Capsule assemblies should be replaced in line with the GMP requirements of the process. Where capsule assemblies are used for more than one manufacturing batch, replacements are recommended when the maximum allowable differential pressure has been reached (refer to the appropriate Pall datasheet), if the flow rate has become unacceptable, or if the cumulative steam life has been reached, whichever occurs first. Discard capsule assembly in accordance with local Health and Safety and Environmental procedures. No attempt should be made to clean disposable capsule assemblies.

## 8 Scientific and Laboratory Services

Pall operates a technical service to assist in the application of all filter products. This service is readily available to you and we welcome your questions so that we can help. In addition, a full network of technical representatives is available throughout the world.

## Technical Addendum for ATEX 94/9/EC Pall Encapsulated Filter Assemblies

Installation and maintenance should be undertaken by a competent person. National and local codes of practice, environmental regulations and Health and Safety directives must be adhered to and take precedence over any stated or implied practices within this document.

For fluids having low conductivity, there exists the possibility of the generation of static electricity during use with polymeric components. This could potentially lead to a static electricity discharge resulting in the ignition of a potentially explosive atmosphere where such an atmosphere is present. These Pall products are not suitable for use with such low conductivity fluids in an environment that includes flammable liquids or a potentially explosive atmosphere.

Where flammable or reactive fluids are being processed through a Pall capsule assembly, the user should ensure that spillages during filling, venting, depressurizing, draining and capsule change operations are minimized, contained or directed to a safe area. In particular, the user should ensure that flammable fluids are not exposed to surfaces at a temperature that may ignite the fluid, and that reactive fluids cannot contact incompatible materials that may lead to reactions generating heat, flame or that are otherwise undesirable.

Pall capsule assemblies do not generate heat, but during the processing of high temperature fluids, including steam sterilization operations and process upset conditions, it will take on the temperature of the fluid being processed. The user should ensure that this temperature is acceptable for the area in which the filter is to be operated, or that suitable protective measures are employed. When processing flammable fluids, the user should ensure that any air is fully purged from within the assembly during filling and subsequent operation to prevent the formation of a potentially flammable or explosive vapor/air mixture inside the equipment. This can be achieved through careful venting of the assembly or system as detailed in the user instructions.

To prevent damage or degradation which may result in leakage of fluids from this equipment it is imperative that the end user check the suitability of all materials of construction (including seals on the connections where appropriate) with the process fluid and conditions. The user should ensure that the assembly is regularly inspected for damage and leaks, which should be promptly corrected, and that seals (where appropriate) are renewed after every capsule change.

Leakage of flammable or reactive fluids from this assembly, arising through incorrect installation or damage to the equipment (including any seals), may generate a source of ignition if flammable fluids are exposed to a heated surface, or if reactive fluids contact incompatible materials that may lead to reactions generating heat, flame or that are otherwise undesirable. The user should ensure that the assembly is regularly inspected for damage and leaks, which should be promptly corrected, and that any seals are renewed after every filter change.

The user should ensure that these products are protected from foreseeable mechanical damage that might cause such leakage, including impact and abrasion.

Should you have any questions, please contact your local Pall office or distributor.







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