

Chemical seal Installation Guide

This safety and installation guide contains important safety and handling information for Badotherm Chemical Seals



Read all information below before using the application to avoid injury, improper functioning, or damage. Additional information can be found at: www.badotherm.com

CAUTION: Read this installation guide carefully before unpacking the chemical seal application. Improper handling can cause damage to the seal part, capillary or diaphragm. All chemical seal applications are tested and calibrated in a Badotherm factory under monitored & controlled conditions.

Unpacking the chemical seal – All chemical seals are packed to withstand transport and storage.

- To protect the measuring system from mechanical damage leave it in the factory packing until installation.
- Do not unpack the chemical seal by lifting or gripping it by the capillary.
- Support both the seal lower part(s) and measuring instrument when lifting it from the box.
- Make sure the surface is free of dirt, debris, and fluids that may damage the diaphragm before putting the application down. A damaged diaphragm will cause inaccuracies and/or failure of the chemical seal application.
- NEVER attempt to disconnect the seal part from the pressure instrument. This results in loss of fill fluid and the seal combination will not perform properly and will void the product warranty.

Tagging – Each diaphragm seal is tagged with important material and fluid information. The information present on the instrument is:

- Production date
- Tag. No. (if applicable)
- Span
- Filling fluid
- Diaphragm material

Removing the cover – Chemical seals without lower housing are executed with a special cover to protect the diaphragm. Remove this cover prior to installation on the process. NEVER put the diaphragm seal part without diaphragm cover on any other surface than the installation point.

Capillary use - When handling a device, the capillary must never be bent. Surplus capillary can be wound and bundled with a diameter >150mm (6 inch).

Chemical seal installation - Only qualified persons authorised by the plant manager are permitted to install, maintain and service the pressure instruments. Before installation check the process specifications with product specifications. For installation use appropriate fixing position, screws and screw nut according to fitting, and flange standard.

Chemical seal position – A differential measurement application has two seal lower parts, a high (+) and low (-) side. The position of the seal parts is predetermined. If you do not know the correct position check the “+” or “-” on the seal part or transmitter.

Bolt torque – The bolts should be tightened with the appropriate torque to the applicable flange/gasket requirements. Required torque is a function of flange size and rating gasket material and the bolts and nuts used.

Gasket installation – The gasket should be applicable for the maximum required pressure and process conditions and make sure the gasket is properly aligned on the gasket sealing surface, not covering any part of the diaphragm portion. Do not use hard gaskets in combination with raised face covered seal parts.

Chemical seal Safety Guide

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Read all information below before using the application to avoid injury, improper functioning, or damage. Additional information can be found at: www.badotherm.com

WARNING: Failure to follow these safety instructions could result in injury or other damage. Badotherm refutes all responsibility for any direct or indirect damage to property or persons resulting from failure to follow the instruction in this guide.

Pressurised installations - Do not use the seal on an installation where the pressure exceeds the pressure rating of the seal-instrument combination. When assembling and/or disassembling the seal part make sure the installation is not under pressure. In order to guarantee the accuracy and long-term stability specified, the corresponding load limits are to be observed.

Hazardous installations – Chemical Seals are suitable for usage in hazardous installations. When assembling and disassembling the seal part make sure to follow the regulations of the installations or plant to prevent injury or spill of hazardous fluids.

Chemical seal design - Make sure the design of the seal is suitable for the purpose of use. Before installing the FLANGE RATING, OPERATING TEMPERATURE, FLUID compatibility and ENVIRONMENTAL CONDITIONS must be checked. More details on these topics can be found below.

Flange rating – Chemical seals are designed according to flange standards such as ASME B16.5, EN 1092-1 (DIN) and JIS B 2220. Check the process conditions such as pressure and temperature and verify whether selected flange rating is suitable.

Operating temperature – Badotherm chemical seals are designed to withstand the specified temperature range. Before putting the chemical seal into operation, check the temperature specification of the process and compare them with the design temperature of the chemical seal fill fluid.

Fluid compatibility – Before installing the seal part, the material/process fluid compatibility must be checked. Make sure the wetted parts of the seal part are suitable for the application. The latest noncommittal information on material compatibility can be found in the “chemical compatibility” tables at www.badotherm.com.

Environmental conditions - The condition of the local environment of the chemical seal must be analysed carefully before installing the seal part. The surrounding atmosphere must be free of heavily corrosive gasses to prevent corrosion of the materials used in the chemical seal application.

CAUTION: *Badotherm Chemical Seals are NOT designed for nuclear-qualified applications.*

Chemical seal Maintenance and Service Guide

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WARNING: Use safety clothes, protective goggles and protective (chemical resistant) gloves before starting disassembly.

The general safety of a facility often depends on the reliability of indications of the chemical seal application installed in the facility. Under normal circumstances the chemical seal does not require maintenance. Any chemical seal that seems to be giving false readings must be removed immediately, checked on damage and then tested with a testing device. If the chemical seal is damaged or tests prove the reading is unreliable, it must be repaired or replaced by a new chemical seal instrument.

Periodic verifications – A thorough check should be scheduled in the factory maintenance schedule. Any chemical seal considered to be subjected to abnormal conditions of use (e.g. fire, wrong fluid, excessive temperatures, hard particles, etc.) should be tested by the manufacturer before re-using.

Cleaning - Avoid abrasive agents or high pressure water jets when cleaning the chemical seal. The chemical seal application should be cleaned regularly with a damp cloth or soft brush and a soap solution.

Disassembly instruction - For safe disassembly the following steps must be carried out sequentially:

1. Study the statutory regulations before any installation will be started.
2. Be sure that the installation is at the required safety temperature and pressure level before dismantling the seal

- combination to prevent explosion, burning, or damage.
3. Un-tighten the seal part with a correct sized spanner.
4. Be sure the seal part is clear from process residues which may cause damage to persons and the environment.
5. When sending the chemical seal application to a Badotherm office, clean the complete chemical seal combination according statutory regulations, pack it thoroughly to prevent damage, and attach a proof of cleanliness and the necessary Material Safety Data Sheet.
6. When disposing of the chemical seal application always observe the statutory waste treatment and disposal regulations.

WARNING: Mishandling products exposed to a hazardous substance can cause serious injury or death. If the product is exposed to a hazardous substance a copy of the Material Safety Data Sheet (MSDS) must attached to the returned goods.