

Key application data

Dear customer, please fill in the following questionnaire in cooperation with a Grundfos representative. This will help to ensure that Grundfos supplies you with a pump solution adapted to meet exactly your needs in terms of pump type, pump materials, shaft seal arrangement, shaft seal type, elastomers and accessories.

Customer information:

| | |
|------------------|-------------------|
| Company name: | Project title: |
| Customer number: | Reference number: |
| Phone number: | Customer contact: |
| Fax number: | |
| E-mail address: | |

Quotation made by:

| | |
|-----------------|-------------------|
| Company name: | Prepared by: |
| Phone number: | Date: |
| Fax number: | Quotation number: |
| E-mail address: | |

Operating conditions

Pumped liquid

| | | |
|--|-----------|------------------------------|
| Type of liquid: | | |
| Chemical composition (if available): | | |
| Distilled or demineralised water? | Distilled | Demineralised |
| Conductivity of distilled/demineralised water: | | [$\mu\text{S}/\text{cm}$] |
| Minimum liquid temperature: | | [$^{\circ}\text{C}$] |
| Maximum liquid temperature: | | [$^{\circ}\text{C}$] |
| Vapour pressure of liquid: | | [bar] |
| Liquid concentration: | | % |
| Liquid pH value: | | |
| Liquid viscosity (Dynamic): | | [cP] = [mPa·s] |
| Liquid viscosity (Kinematic): | | [cSt] = [mm ² /s] |
| Liquid density: | | [kg/m ³] |
| Specific heat capacity of liquid: | | [kJ/(kg·K)] |
| Air/gas in liquid? | Yes | No |
| Solids in liquid? | Yes | No |
| Contents of solids in liquid (if available): | | % of mass |
| Additives in liquid? | Yes | No |
| Does the liquid crystallise? | Yes | No |
| When does crystallisation happen? | | |
| Does the liquid get sticky when volatiles evaporate from the pumped liquid? | Yes | No |
| Description of 'sticky' circumstances: | | |
| Is the liquid hazardous/poisonous? | Yes | No |
| Special measures to be taken into account when dealing with this hazardous/poisonous liquid: | | |
| Special measures for handling this liquid: | | |

CIP liquid (cleaning in place)

| | |
|--------------------------------------|------------------------|
| Type of liquid: | |
| Chemical composition (if available): | |
| Liquid temperature during operation: | [$^{\circ}\text{C}$] |
| Maximum liquid temperature: | [$^{\circ}\text{C}$] |
| Vapour pressure of liquid: | [bar] |
| Liquid concentration: | % |
| Liquid pH value: | |

Pump sizing

| | | | | |
|------------------|----|---------------------|----|-----|
| Main duty point: | Q: | [m ³ /h] | H: | [m] |
| Max. duty point: | Q: | [m ³ /h] | H: | [m] |
| Min. duty point: | Q: | [m ³ /h] | H: | [m] |

Ambient operating conditions

| | |
|---------------------------|------|
| Ambient temperature: | [°C] |
| Altitude above sea level: | [m] |

Pressure

| | |
|---|-------|
| Minimum inlet pressure: | [bar] |
| Maximum inlet pressure: | [bar] |
| Discharge pressure (inlet pressure + head): | [bar] |

ATEX

Required marking of the pump

Customer's equipment group (e.g.: II):
Customer's equipment category (e.g.: 2,3):

| | | | |
|--------------------------|---------|----------|--------------------|
| Gas (G) and/or dust (D): | Gas (G) | Dust (D) | Gas and dust (G/D) |
|--------------------------|---------|----------|--------------------|

Required marking of the motor

Protection type (e.g.: d, de, e, nA):
Maximum experimental safe gap (e.g.: B, C):
Temperature class - gas (e.g.: T3, T4, T5):
Temperature class - dust (e.g.: 125 °C):

[°C]

Description/sketch

Detailed description of ATEX application:
(attach a drawing if possible)

ATEX certification required

Yes No

Frequency converter

| | | | |
|------------------------------------|--------------|----|---------------------|
| Frequency converter option wanted? | Yes | No | |
| | Pressure: | | [bar] |
| | Temperature: | | [°C] |
| Control parameter: | Flow: | | [m ³ /h] |
| | Other: | | |

Detailed description of requirement:
(attach a drawing if possible)

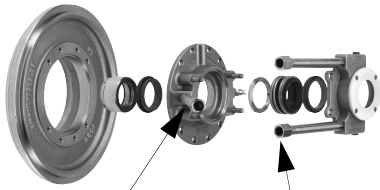
System information

Please provide us with some information about your system and maybe a simple sketch. This will give us hints as to whether you need accessories or monitoring equipment, or whether you already have a suitable system which makes it unnecessary to attach any further equipment.

Double shaft seal solutions

If you chose a tandem or a back-to-back shaft seal solution, you must connect either a flushing system or pressurizing system for barrier liquid to the connection pipes.

Tandem shaft seals

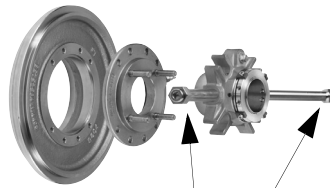


Pipe connection to primary shaft seal. The liquid is directed to the seal faces of the shaft seal. The primary seal is placed on the pumped liquid side.

Pipe connections to secondary shaft seal. The liquid is directed to the seal faces of the secondary shaft seal. The secondary seal is placed in the seal chamber.

GrA8480

Fig. 1 Flushing connections of tandem shaft seal arrangement with standard seals



Pipe connections to the cartridge seal. The direction of the flushing flow depends on the direction of rotation of the shaft

GrA8610

Fig. 2 Flushing connections of tandem shaft seal arrangement with a cartridge seal

Is a flushing liquid available in the application?
 (See description of tandem shaft seals on Data booklet)
 Description of the flushing liquid:

Yes

No

Chemical composition (if available):

Pressure of the flushing liquid:

[bar]

Does the application require flushing/cooling of the primary shaft seal?

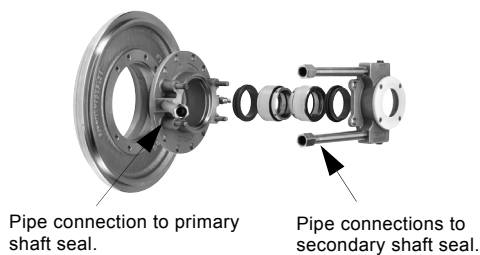
Yes

No

Comments on flushing/cooling for the primary shaft seal:

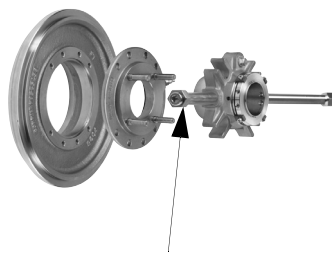
More comments/info about your system:

Back-to-back seals



The barrier liquid is directed to the seal faces of the shaft seals. Both primary and secondary seals are placed in the seal chamber

Fig. 3 Connections for barrier liquid of back-to-back seal arrangement with standard seals



Pipe connections to the cartridge seal. The direction of the barrier liquid depends on the direction of rotation of the shaft.

Fig. 4 Connections for barrier liquid of back-to-back seal arrangement with a cartridge seal

GrA8479

GrA8610

Is a barrier liquid available in the application?
(See description of tandem shaft seals on Data booklet)
Description of the barrier liquid:

Yes No

Chemical composition (if available):
Pressure of the barrier liquid:
System requirements for the barrier liquid:

[bar]

Does the application require circulation of the barrier liquid?
Comments on circulation for the primary shaft seal:

Yes No (dead-end arrangement)

Comments on dead-end arrangement:

More comments/info about your system:

Date:

Date:

Grundfos representative

Customer representative

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ECM: 1089618

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