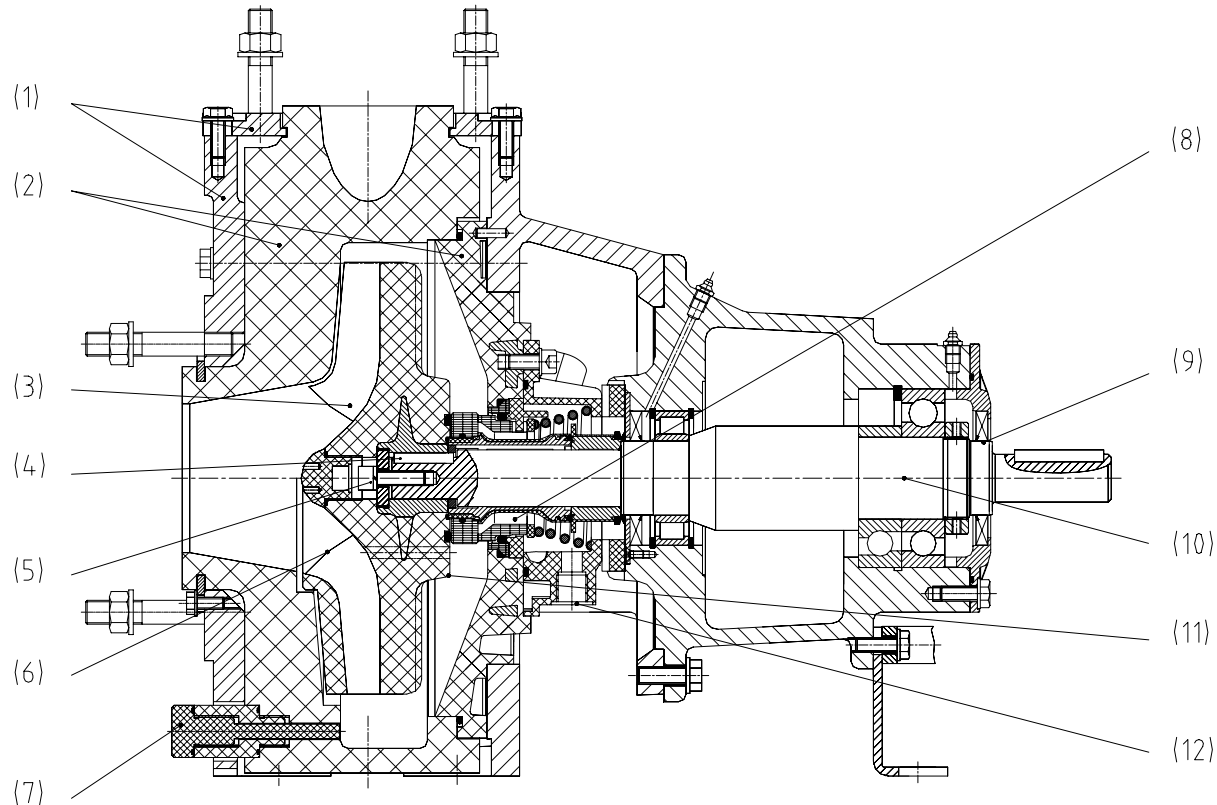


NON-METALLIC CHEMICAL PROCESS PUMPS



ALFA-NK Series Pump with mechanical seal

Pump dimensions to ISO 2858



ALFA-NK series pump with ALFA-KSS-R single mechanical Seal

Design features

- (1) Robust metal armour reliably accommodates all allowable system pressures and piping loads.
- (2) Sturdy single-piece plastic casing and solid casing cover withstand high temperatures, provide diffusion-tight containment, are resistant to mechanical wear and guarantee maximum operating reliability in chemically aggressive and abrasive service conditions.
- (3) Impeller: closed and semi-open designs available (depending on pump size).
- (4) Impeller is keyed to the shaft with a retaining bolt and is therefore bi-directional and unaffected by inadvertent reverse rotation.
- (5) Integrated impeller extraction feature facilitates removal of the impeller and/or mechanical seal.
- (6) Ideal impeller flow dynamics: high hydraulic efficiency, good suction behaviour due to low NPSH requirements; minimum mechanical vibration of components ensures long service lives of anti-friction bearings and mechanical seal.
- (7) Casing drain (depending on pump size) or connection to a cleaning circuit (option)
- (8) Available shaft seal options (depending on pump size) include:
ALFA-KSS-R single mechanical seal,
ALFA-KSS-R/D double mechanical seal.
For details, see the respective Technical Information documents.
- (9) Radial shaft seal rings are hard-surfaced to prevent shaft fretting.
- (10) Excellent rigidity of shaft guarantees long service life of mechanical seal.
- (11) Optimum seal chamber geometry without dead flow pockets ensures self-venting of the pump and continuous liquid exchange.
- (12) Flushing connections provided in the casing cover allow the pump to be optimally adapted to the specific service conditions. Possible flushing arrangements include:
 - shutdown or continuous flushing,
 - spring chamber flushing.
 For details, see the respective Technical Information documents.

ALFA-KSS-R Single Mechanical Seal for NK, NK-C series

1 Application

The ALFA-KSS-R standard single mechanical seal is insensitive to abrasive service conditions. It is typically employed when

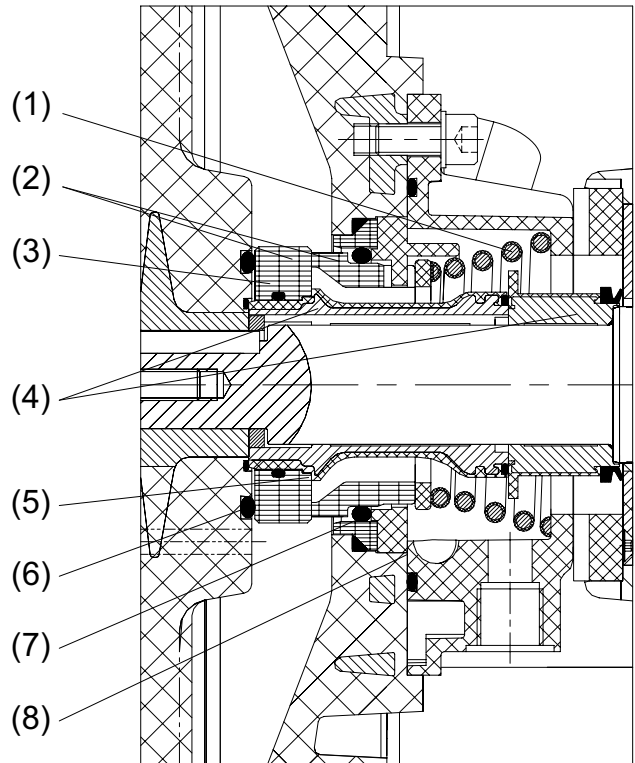
- the fluid pumped poses no health or environmental risk,
- crystallization of the fluid pumped can be ruled out,
- no plugging problems are to be expected,
- evaporation of the fluid pumped between the seal faces can be ruled out,
- there is no risk of the mechanical seal running dry.

2 Design

The completely non-metallic internal mounted single mechanical seal with stationary spring is bi-directional and is unaffected by inadvertent reverse rotation

Special features

- (1) The fluoroplastics (E-CTFE)-coated spring is located outside the path of the fluid pumped.
- (2) Rotating and stationary seal rings are fabricated from high-purity SSiC. This advanced silicon carbide offers maximum abrasion resistance to virtually all acids and alkalis.
- (3) The rotating seal ring design with a larger outside diameter and a smaller inside diameter than the stationary seal ring counteracts edge pressure effectively.
- (4) The stainless steel shaft sleeves are coated with fluoroplastics; the impeller-side shaft sleeve is positively keyed to the pump shaft.
- (5) The rotating seal ring is positively keyed to the shaft sleeve.
- (6) The static O-rings are seated with a defined preload.
- (7) Optimally positioned between the SSiC stationary seal ring and the SSiC thrust ring, the dynamic O-ring reliably prevents fluid releases to atmosphere.
- (8) No alignment required when mounting or replacing the seal components.



ALFA-KSS-R Single Mechanical Seal

Single mechanical seal with temporary spring chamber flushing connection for NKP and NKP-C series

1 Application

Spring chamber flushing removes product residues from the atmosphere-side chamber of the single mechanical seal. It is used in service conditions involving a risk of

- solids deposition or
- crystallization of the product pumped.

2 Operating principle

A product-compatible flushing medium is fed to the spring chamber via the hose nozzle (1) after the pump has been shut down. The flushing medium flows around the atmosphere side of the mechanical seal and discharges from the spring chamber via the outlet (2); minor leakage through the seal cover cannot be ruled out.

3 Flushing medium

Normally, tap water is used as the flushing medium. The flushing medium must be free from solids and chemical constituents likely to react with the product pumped or cause chemical attack to the pump components.

4 Flushing medium consumption

The flushing medium consumption depends on the **flushing intervals** and the **flushing period**; both vary greatly with the product pumped and its crystallization behaviour and must therefore be **determined on the basis of operating experience**. Where the deposits in the spring chamber are readily soluble, 2-3 minutes' flushing per week may be sufficient.

5 Flushing pressure

Flushing of the spring chamber must be carried out at atmospheric pressure.

6 Installation

The flushing medium can be introduced via a funnel/watering can, a hose or a permanently installed feed pipe. Permanently installed feed pipes (3) require a shut-off valve (4).

When using hose connections, due care should be exercised to preclude transmission of loads to the hose nozzle (1) during standstill, startup, operation and shutdown. If required, the connecting hose or feed pipe should be secured by separate fixtures. Option: From h1 = 132, a bottom hose nozzle (5) may be provided.

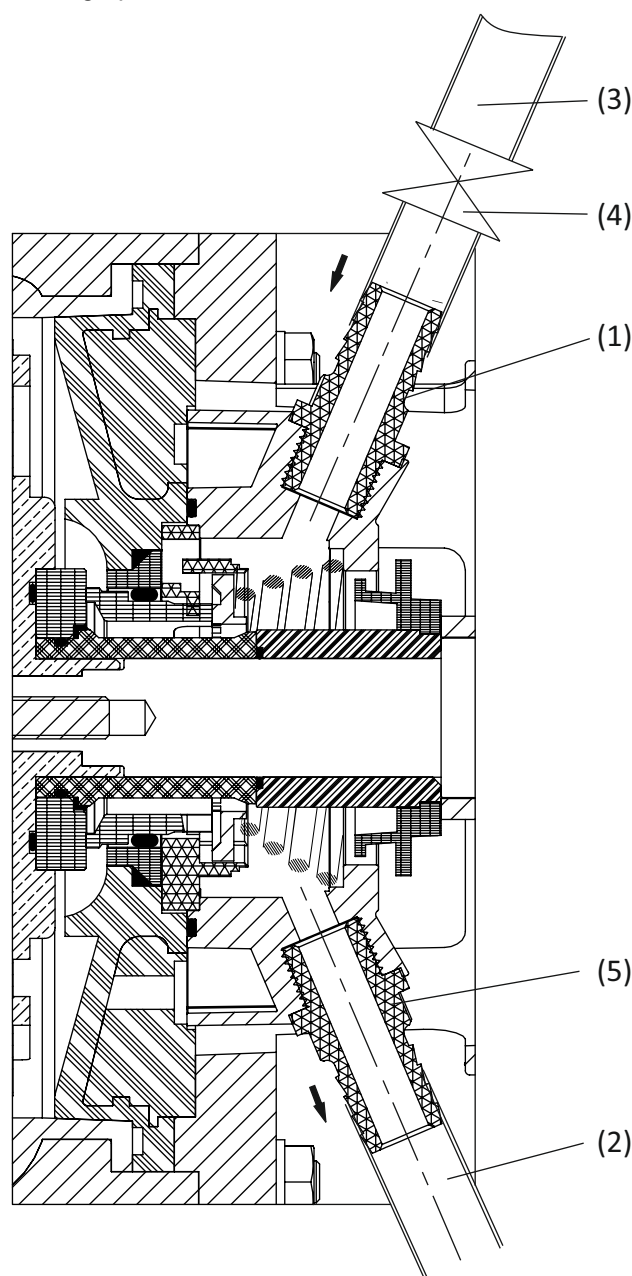
Hose/pipe and shut-off valve must be capable of withstanding the flushing pressure.

7 Spring chamber flushing – activation/deactivation

Always make sure to shut down the pump before activating spring chamber flushing.

The discharging flushing medium must be collected and disposed of in an environmentally sound manner.

Close shut-off valve (4) after completion of the flushing operation.



Spring chamber flushing

3) Extended application area for PFA
(only permissible with approval from ALFA PUMPS)

Description of Powder Coating

Surface Preparation:

Shot blasting of metal parts

Degreasing and Phosphate coating

Powder coating of metal parts:

Base coat: 1 layer, epoxy resin powder.

Colour: Light grey.

Coat thickness: 70 micrometer.

Top coat: 1 layer, polyurethane powder

Colour: RAL 5009 for pump and base plate

Coat thickness: 70 micrometer

Total coat thickness: 140 micrometer

Corrosion resistance according ISO 12944-2: C4

Coupling Guard: RAL 1003 – Signal colour for coupling guard

Coating Procedure:

The metal parts of pump are being descaled if necessary, being shot blasted, cleaned, degreased and phosphate coating. During the first step, the epoxy resin powder-primer is being electro-statically sprayed on and baked at a temperature of approx. 180 °C. After cooling down to approx. 60 °C, in the second step the powdertop coat (polyurethane basis) is being applied as described before.



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