



# Hamworthy



## Svanehøj Deepwell Cargo Pumps

Type CKL for Product and Oil Tankers

Pump Systems



# Single-stage

## Oil-lubricated Pump Type CKL



Deck arrangement

CKL 300 pump head



This brochure describes Deepwell Cargo Pumps Type CKL for Product and Oil Tankers.

The pumps have been developed by Svanehøj through extensive research.

The pump is based on the well-known pump technology taken from the DL pump type and combined with Svanehøj's more than 40 years of experience within the marine market.

The CKL cargo pump consists of four major sections:

### **Electric motor,**

in approved explosion-proof and weatherproof execution for open deck installation.

Suitable for speed regulation with frequency converters.

### **Deck arrangement,**

with motor stool, integrated lubricating oil header tank, upper drive shaft bearing, purging and stripping connections.

As standard the discharge flange is made according to EN 1092, PN16. At request other standards, such as ANSI and JIS, are available.

### **Pipestack,**

consisting of a cargo pipe and an oil-filled drive shaft column with slide bearings. The oil-lubricated bearings are held in position by flexible O-rings. The transmission shaft is made of carbon steel alloy. For lengths above 8 metres an intermediate support to bulkhead is required.

### **Pump head,**

with double mechanical shaft seal, stainless steel shaft and ball bearing arrangement.

The shaft seal arrangement consists of a primary seal against the cargo and a secondary seal against the lubricating oil in the drive shaft column.

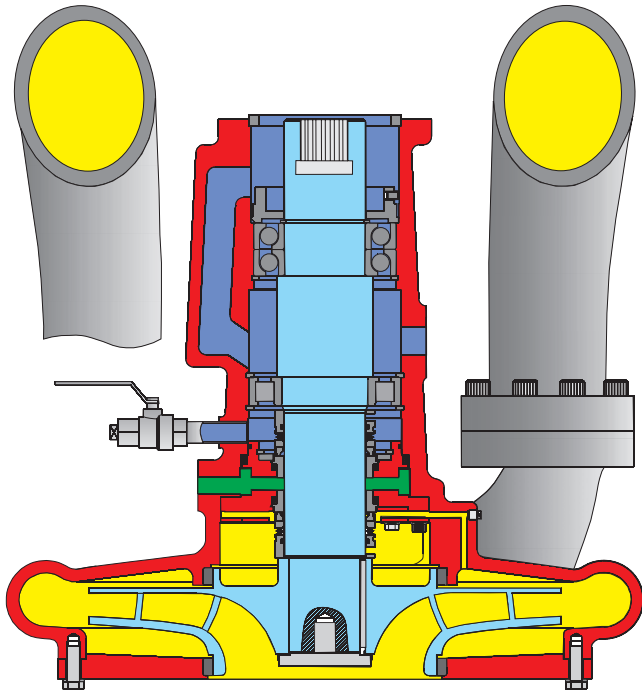
The cofferdam between the two mechanical shaft seals has pipe connections to deck for purging. The casing wear rings are easily accessible.

The CKL pump is designed for operation with frequency converter or other means of variable speed regulation. This makes the CKL pump particularly suitable for handling different types of cargoes within a wide range of specific gravity and viscosity.

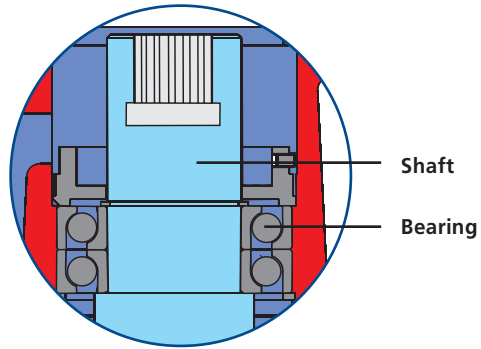
The CKL pump is available with certificate from any classification society, e.g. LRS - DNV - GL - ABS - BV - KR - RS - NK - CCS and RINA.

The motor will be delivered with PTB certificate and class certificate where required.

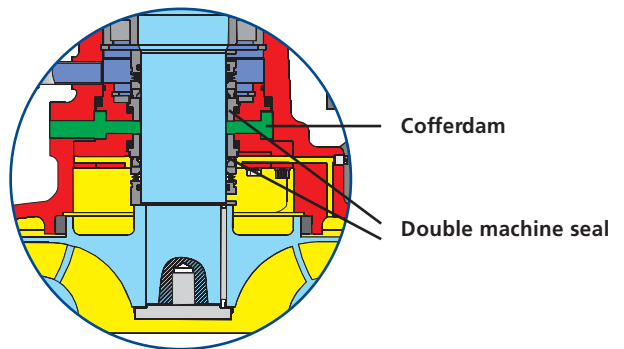
## Deepwell Cargo Pump Type CKL



## Upper bearing arrangement



## Shaft sealing arrangement



## Cargo Pump Stripping

The CKL pump has a built-in stripping facility, only requiring supply of compressed air/nitrogen.

Stripping can be either built into the discharge line on deck or through a separate stripping line directly to the manifold. When the cargo tank is empty, the stripping line valve is opened, and the main discharge valve is closed.

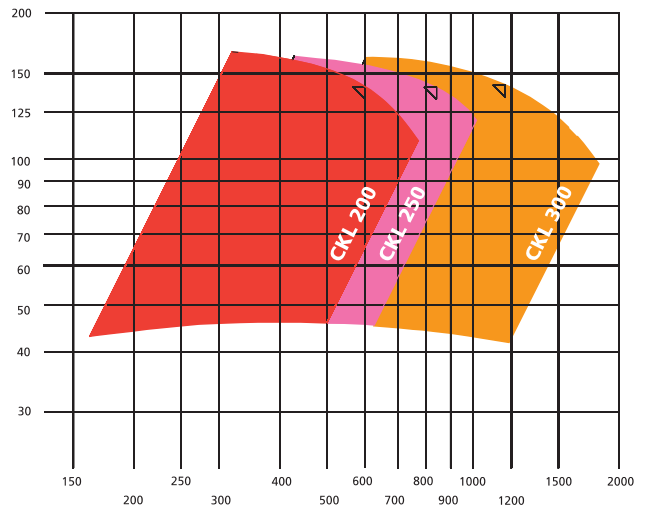
The pump will then empty itself to a certain extent, as the small diameter stripping pipe will act as if the pump was throttled.

To stimulate this function and to strip the entire pump-stack, compressed air/nitrogen is supplied at the pump side of the main discharge valve.

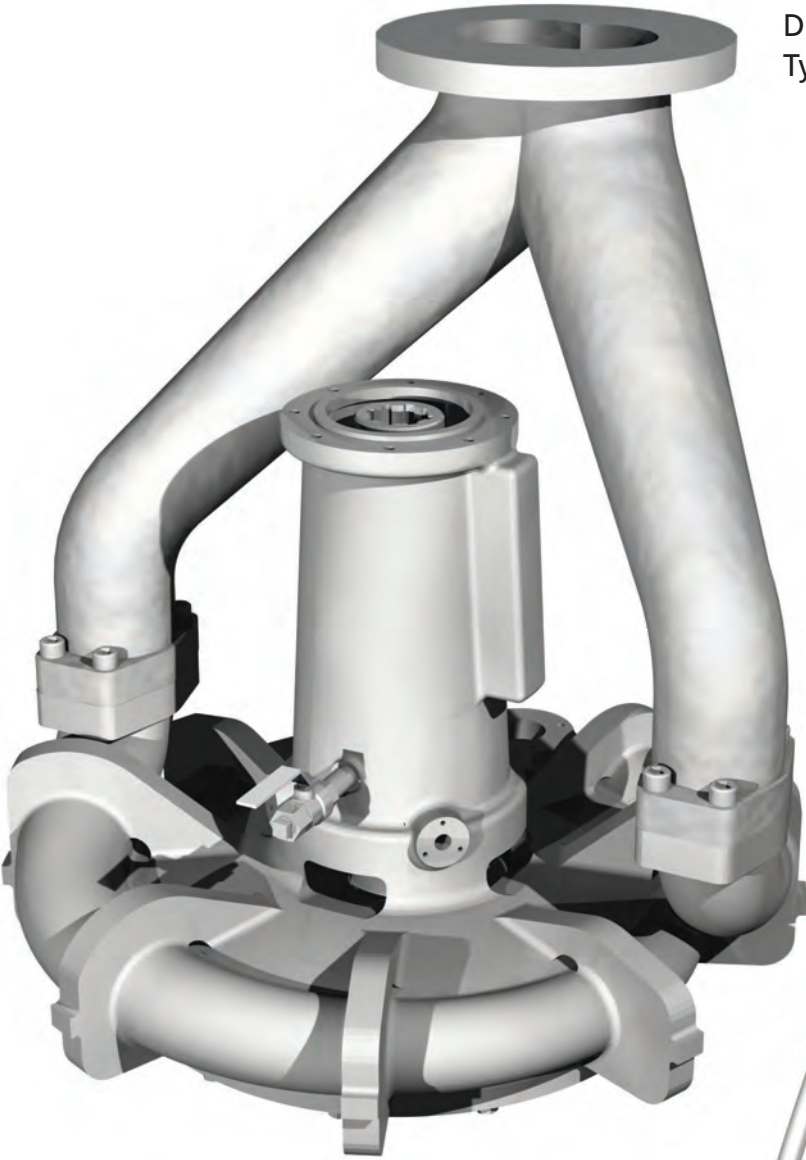
During this whole stripping sequence the pump is kept running, and the liquid in the rotating impeller will then act as a liquid barrier preventing a back flow to the tank.

Where additional requirements on tank stripping are in force, an automatic stripping system can be installed. Ask for further information.

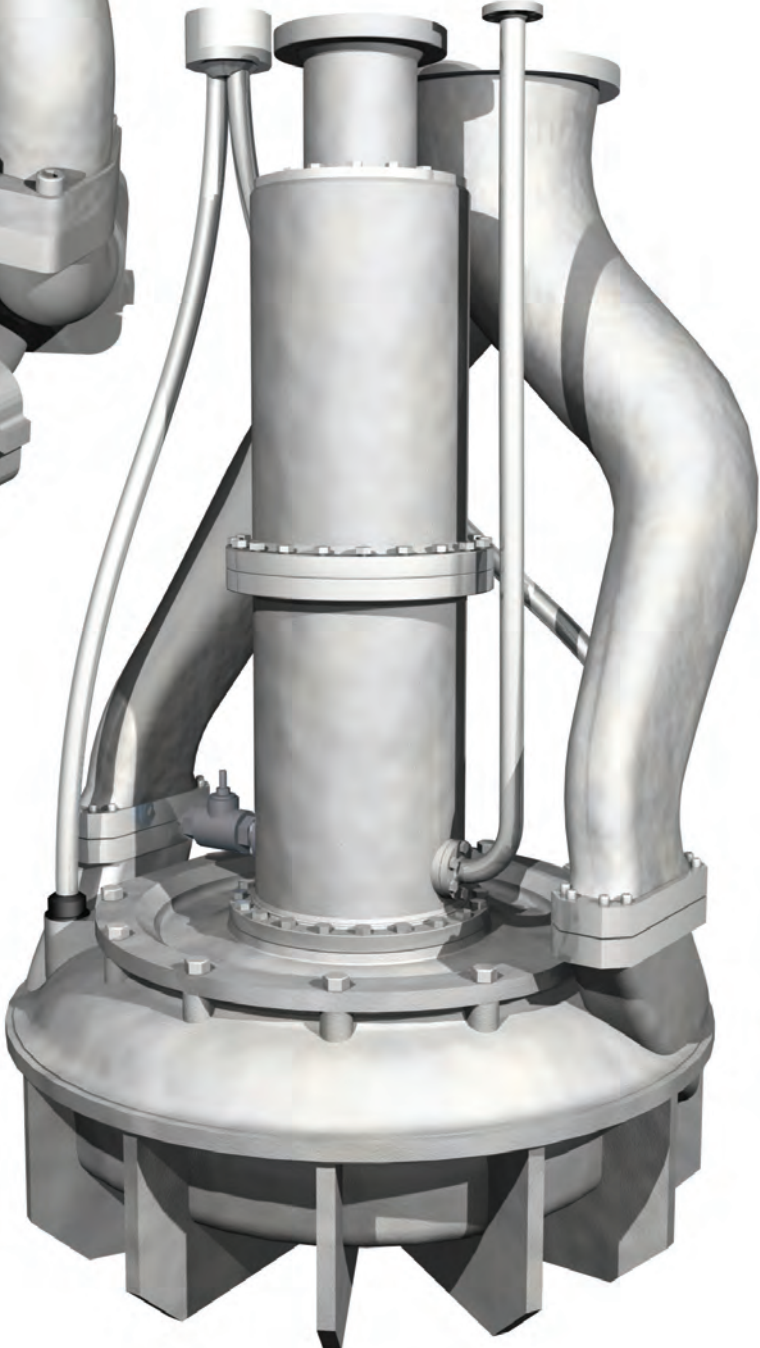
## Capacity Range



Deepwell Cargo Pump  
Type CKL 200 and 250



Deepwell Cargo Pump  
Type CKL 300



## String Test



Hamworthy Svanehøj A/S is a leading company in supplying state of the art electric driven deepwell cargo pump systems to chemical and oil product tankers.

There has been a clear tendency from both shipowners and yards to seek a simplified and better cargo pump system in order to improve competitiveness and to meet the ever increasing demands from the classification societies to minimize pollution risk and reduce noise emissions.

Another requirement from the market was to have the opportunity to test at least one of each pump type ordered.

Therefore it was decided to have the possibility to test a pump in full length (string test), which may be up to 30 m. Svanehøj are able to offer a full String Test in accordance with ISO 9906-2 of their deepwell cargo pumps type CKL 200, 250 and 300 in full length up to 30 m as an option.

The tower has an enormous 1.5 MW of frequency converter power available to test the pumps.

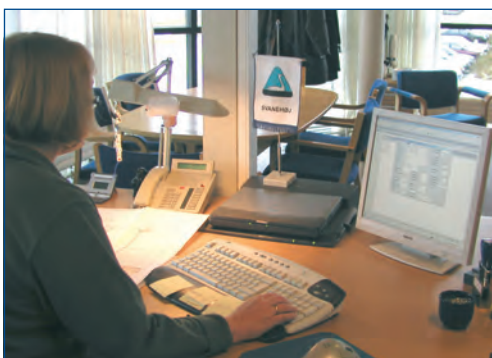
The tower is also capable of testing the pump head and pipe stack at various levels for vibration and temperature development, thereby coming as close to a real life situation as possible.

## Standard Test

The test can be divided into 3 types: Measuring of Q - H characteristics, measuring of NPSH characteristics, and pressure test of pump. If the customer motor is not available, a test motor will be used instead.

- 1) As standard the Q - H characteristics of the pump are measured in minimum 10 points.  
The measured values as well as pump, motor, and test data are noted on test certificate.
- 2) The NPSH test can be offered as an option.
- 3) Pressure test of pump: The pressure, for which the pump or parts of this is to be pressure tested for at least 30 minutes. If class certificate is required, a representative from the classification society will witness the pressure test.

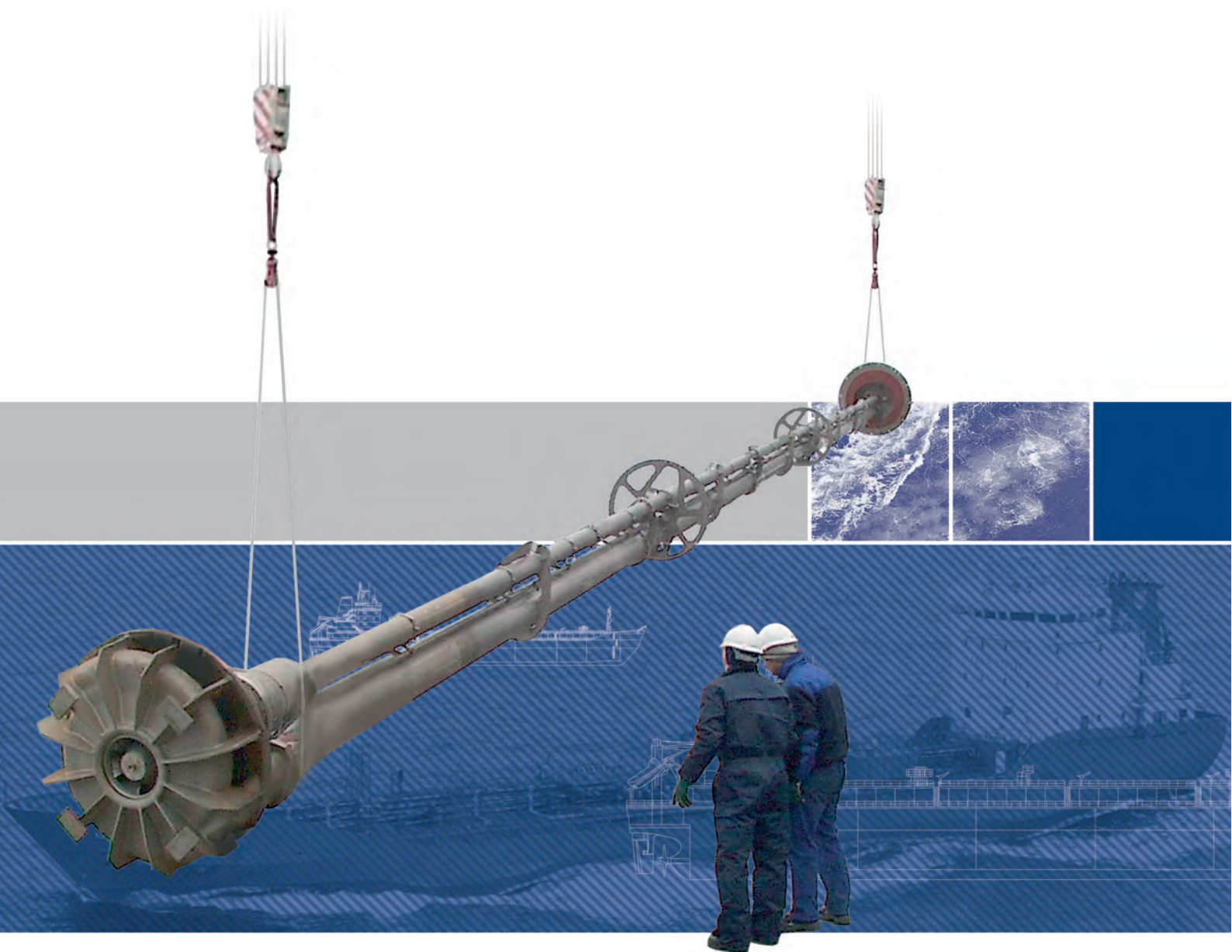
## Complete through-life support



With worldwide support and service we are well placed to offer you effective maintenance backup on your Hamworthy Svanehøj A/S pumping system.

With our close connection to the marine industry over many years, our spares organisation is capable of responding to service requirements within a matter of hours.

From installation to in-service operation Hamworthy Svanehøj's pumps are backed up by dedicated engineers to ensure you have complete through-life security and support.



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The manufacturer reserves the right to alter the specification and data to incorporate improvements in design. Certified drawings will be issued on request.

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