Certificate No:
TAP00002BR

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pumps

with type designation(s)
DW80, DW100, DW125, DW132, DW150, DW200, DW250, DW300

Issued to
Svanehøj Danmark A/S
Svenstrup J, Nordjylland, Denmark

is found to comply with
DNV rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Type:	Max. working press.:	Operating media:	Temperature range:
DW80	100 m	NH3 and VCM. LPG covering butadiene, propane, propylene, butane, buttane/propane mixed with butylene, LNG (methane)	-165 to 45 gr.C
DW100	140 m		
DW125	120 m		
DW132	120 m		
DW150	110 m		
DW200	130 m		
DW250	120 m		
DW300	110 m		

Issued at **Høvik** on **2021-09-22**
This Certificate is valid until **2025-08-31**.
DNV local station: **Denmark CMC**

Approval Engineer: **Dag Harald Williksen**

for **DNV**

Oddvar Deinboll
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description
Centrifugal deepwell cargo pump.

Application/Limitation
The pump is approved for piping systems handling liquified gas on board ships with the following main data:

Type	DW80	DW100	DW125	DW140	DW150	DW200	DW250	DW300
Volume rate of flow [m^3/h]	25	80	135	200	300	400	600	1000
Delivery head, [m]	100	140	120	120	110	130	120	110
Min. temperature, [C]	-165							
M.A.W.P., [bar]	40							
Revolution, [rpm]	1480/1770							
Casing material	AISI 304							
Impeller material	AISI 304							
Shaft, fluid wetted parts	AISI 304 / AISI 316							

Performance- and technical data see manufacturers data sheet & capacity curves

Type Approval documentation
Drawing no, ref to 14 643-15 HH and 14 644 – 15 HH, both dated 2015-08-31:

34199-00,02,03,32,33,34,41,42,43,44
35750-51,52,53,54,61,63
36246-63
11555-66
23196-20
35949-41
24655-00
11499-05
11519-02
11572-02
11591-02
11621-04
11629-20
12065-20
23495-10
23495-50
49583-00
11531-01
48484-00
12689-00
24671-01
34735-10
34389-01/02/03
34735-10
36624-00/01/02/03/04

Operations Manual,
Capacity Curve no:
34762-14, 36762-15

Marking of product
The product to be marked with manufacturer's name or trademark and type number identification

Periodical assessment
Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

In case where the type approved product is manufactured at other companies, the periodical assessment shall verify that the type approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore, periodical assessment shall be carried out randomly at these companies.

Other conditions
Pumps are subject to a performance test at the manufacturer´s works under attendance of a DNV Surveyor and are to be presented for final inspection.