



CLV Freja

**Yard No. 962, 2024, VARD
Norway**

A hybrid multipurpose CLV/SOV vessel designed for low-emission offshore construction and service operations, and the first CLV equipped with a fixed W2W gangway.



CLV Freja – A Hybrid Multi-Purpose Vessel for Offshore Works

CLV Freja is a modern and highly versatile cable installation vessel designed to support a wide range of offshore construction, survey, and subsea intervention operations. Built to deliver reliable performance in demanding offshore environments, the vessel combines advanced cable installation technology with powerful subsea equipment and flexible operational capabilities.

The vessel performs cable burial using an integrated **1 MW subsea trencher**, equipped with a specially designed **dual inline jetting sword** capable of operating effectively across a variety of seabed conditions.

CLV Freja is equipped with **two onboard electric WROVs**, enabling efficient subsea inspection, and survey. Operational awareness is enhanced by **an integrated outdoor monitoring screen on the cable deck**, providing real-time visual feedback directly within the working area.

The vessel is fully equipped with **an integrated survey spread**, including **a hull-mounted multibeam echosounder** and associated survey sensors, enabling CLV Freja to perform high-quality hydrographic surveys, seabed mapping, route surveys, and inspection work during offshore operations.

In addition, CLV Freja can operate as a **Service Operation Vessel (SOV)**, supported by a **Seaonics motion-compensated Walk-to-Work (W2W) gangway system and boat landing**, enabling safe and efficient personnel transfers between offshore installations.

With its flexible design and advanced equipment, CLV Freja is capable of supporting a wide range of offshore operations, including:

- Installation of power and fibre optic subsea cables
- Riser and umbilical installation
- Power cable repair, protection, and burial operations
- Fibre optic cable installation and lifecycle maintenance
- High-capacity trenching using the integrated 1200/1000 kW subsea trencher
- ROV-assisted pipeline inspection and survey services
- General seabed survey and inspection operations
- SOV support services utilizing the Seaonics Walk-to-Work system
- PLGR operations and route clearance
- UXO detection and clearance
- Boulder detection and clearance
- Hydrographic surveys

CLV Freja delivers a **flexible, efficient, and technically advanced platform** for offshore cable installation and subsea support operations across the offshore industry.



General Information

Name	Freja
Design	Vard 9 01
Built	2024
IMO no.	1017505
Call sign	OUIT2
MMSI Number	21903485
DNV identification number	45687
Flag State	Denmark
Port of Registration	Klintebjerg
Classification	□1A Cable laying vessel BIS Battery (Power) BWM(T) Clean (Design) COMF (C-3, V-3) DYNPOS (AUTR) E0 LCS NAUT(AW) Recyclable SPS ER(SCR) *
Owner / Manager	NCT Offshore A/S Middelfartvej 228 5200 Odense V Denmark

Main Particulars

Dimensions	
Length overall	95,3 m
LPP (ILLC 1969)	84,952 m
Rule Length	85,463 m
Breadth	21,5 m
Max Draught, summer water line	7,1 m
Min Ballast Draught	4,3 m
Frame Spacing	0,60 / 0,70 m

Tonnage	
Gross Tonnage	8660 t
Net Tonnage	2613 t
Lightship displacement	4597,1 t
Deadweight, summer draught	5251,7 t

Power and Propulsion

Power	
Main Generators	MAN 12V 175D-MEM
Engine speed	1800 rpm
Engine Power output (MCR)	1800 kW
Rated power	1728 kW _e
Battery Pack	1492 kWh (Max 1790kW)
Power Plant Monitoring	SeaQ PMS
Emergency Generator motor	Scania type D113 75M
Emergency Generator Alternator	Stamford type HCM534C2
Emergency Gen-Set output	3 x 690V / 60 Hz; 419 kVA - 335 kW at 1800 RPM
Shore Power Connection	2 v 300A
Electrical Power	690V/60Hz 3ph; 440V/60Hz 3ph; 230V/60Hz. 24V DC

Propulsion	
Propulsion	Diesel/hybrid electric
Main Propulsion	Kongsberg Azimuth Thruster US 255P30 FP
Bow Tunnel Thrusters	2 x Kongsberg TT2650 DPN FP (power in 1200kW)
Swing-up azimuth thruster	1 x Kongsberg TCNS075-M-170 (power in 880 kW)
Bollard pull	75 t

Dynamic Positioning DP2

General Information	
DP Classification	DYNPOS(AUTR)
Manufacturer	GE
Type	DP2 with 3 operator stations and independent joystick

Reference System	
DGNSS	1 x SAAB R6 NAV PRO 2 x Veri-pos LD 900
HIPAP	HiPAP 502 SSBL
Laser Reference	SceneScan

Sensors	
Gyro	3 x Raytheon Anschütz STD22NX (same for Navigation)
Wind Sensors	3 x Gill Instruments WindObserver 65
MRU	3 x InertialLabs MRU B2



Bridge Equipment

Navigation	
Navigation GPS	2 x Furuno dGP170 1 x Seanav-320
Radar 10cm (X-band)	Furuno FAR-3210 - BB
Radar 3 cm (S-band)	Furuno FAR-3220-BB
ECDIS	2 x Furuno FMD-3200 & 1 x Furuno FMD-3100
Navigational Echo Sounder	Skipper ENS 100
Gyro Compass	3 x Raytheon Anschütz STD22NX
Speed Log	Skipper EML 224 Dual Axis
Current Indicator	Furuno CI-68 (5 level indication)
Auto Pilot	Anschütz NP5400
AIS	Furuno FA-170
Voyage Data Recorder (VDR) Fixed	Furuno VR-7020

Operation	
CCTV	Milestone Integrated 32 cameras and 6 operator stations. Camera coverage of all operational critical equipment
Independent Joystick system for DP	GE

Capacities

Freshwater Capacity and Production	
Capacity	467,4 m ³
Reverse Osmosis	Norwater
Hydrophore system	Grundfos Hydro MPC-E 2 (6 m ³ /h – 6 bar)
Bunker station / connection	Connection STB+PS main deck

Ballast Capacity and Pumps	
Capacity	2537,0 m ³
Ballast pumps	1 x Centrifugal pump 150 m ³ 1 x Two-Spindel screw pump 150 m ³
Ballast treatment system	Alfa Laval PureBallast 3.2 170 Compact (170m ³)

Cable Carousels

Carousel no. 1 (Forward)	
Diameter outer bullring (inside)	15600 mm
Diameter inner core (outside)	4510 mm
Segmentation diameter (centre)	11800 mm
Height (stacking)	Up to 3650 mm
Weight capacity (design) / (max load of Fuel and Fw)	1750 T / 1250 T

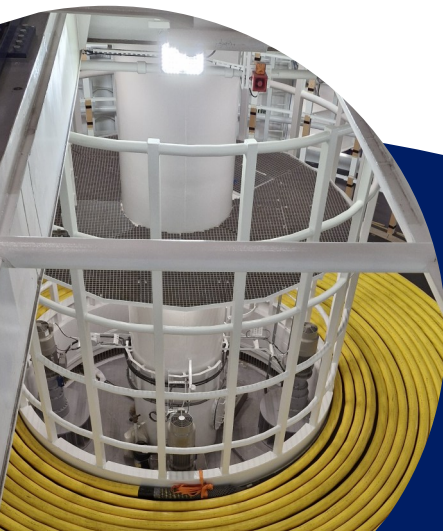
Communication	
GMDSS Equipment	SAILOR
Inmarsat C	SAILOR 6110 Mini-C
Iridium	Thrane LT-3100S
VSAT Communication	1 x Intellian v130NX KU-KA 1 x StarLink (Dural Marine) 1 x Wavehunter Multidirectional 5G
MF/HF	SAILOR 6310
Navtex	SAILOR 6391
VHF (Fixed)	2 x SAILOR 7222 (DSC) & 2 x SAILOR 6210
VHF (Portable)	2 x SAILOR 6204
UHF Radio (Fixed)	4 x Motorola Type DM4400
Internal communication	ClearCom

Fuel Capacity and spec	
Capacity	1069,4 m ³
Specification	MGO
Bunker station / connection	Connection STB+PS main deck
Urea capacity	81,4 m ³

CPS Capacity

CPS Room Storage	3 x compartments of L:9,7m x W:6,0m x H:1,7m 1 x compartment of L:3,1m x W:6,0m x H:1,7m
CPS containers	8 container positions on B-Deck, subject to other equipment

Diameter outer bullring (inside)	17642 mm
Diameter inner core (outside)	4900 mm
Segmentation diameter (centre)	13000 mm
Height (stacking)	Up to 46500 mm
Weight capacity (design) / (max load of Fuel and Fw)	2500 T / 1350 T



Deck Equipment

Main Deck	
Length	71,7 m
Breadth	12,0 m in Hangar / 21,5 m on aft deck
Deck Area	A- deck Aft: 341m2, Cable Hangar: 752m2, B-deck: 200m2
Deck Strength	10t/m2 aft of frame 20, cable hangar 3t/m2
Chute	Width 9m, radius 5m
Hangar Length	Max. Length 55,3 m

Deck Outlets	
Fresh Water	FW outlets available on all decks.
Working Air	7 bar outlets, 3 pcs B-deck, C-deck, and ROV hangar, 8pcs main deck
Power	10pcs utility stations with 690V,440V,230V outlets
High Pressure Water	18 HP water outlets distributed on all decks

Walk to Work Gangway

Maker	Seaonics
Type	ECMC Gangway 22m
Maximum outreach	22 m
Trolley system	Trolley for transportation of goods.
Windspeed operation limitation	<25m/sec
Windmill interface	Bumper
Load capacity on gangway	650kg load + trolley + operator at max outreach. SWL 1T/22m
Minimum width on access platform	1200mm



Cranes

A-Frame	
Manufacturer	NCT Offshore/SRC Nordic/Arcim
Type	SWL 30t, SWL 15t AHC winch
Max Outreach	3,5m from chute
Max lifting height above deck	9,5m
Main winch wire	130m, 30mm wire, winch speed
Active Heave Compensation	Yes

Quadrant and Quadrant Handler	
Manufacturer	NCT Offshore / SRC Nordic
Type	SWL 15t
Quadrant radius	3,5 m for array setup, maximum 4 m
Quadrant Handler	SWL 15t, from horizontal to vertical position
Quadrant winch	150kN pull force, 120m 24mm wire, 12m/min

Main Crane	
Manufacturer	Aukra
Type	ADK150
Working range	5T/24m – 10T/15m
Wire	80m Compact, non-rotating
Slewing Range	360
Personnel handling/Manriding	N/A
Active Heave Compensation	N/A

Traverse cranes (Hangar)	
Manufacturer	Aukra
Type	2pcs, SWL 5000kg traverse crane with electric hoist

Mono beam cranes (CPS room)	
Manufacturer	Aukra
Type	8pcs, SWL 1000kg mono beam cranes

Aux. Crane	
Manufacturer	Aukra
Type	ADF50
Working range	2T/15m
Wire	40m Compact, non-rotating
Slewing Range	360
Personnel handling/Man-riding	N/A

Deck work crane	
Manufacturer	Iron Fist
Type	IFG247M5A SWL4,3T
Working range	14m
Wire	12mm
Slewing Range	360deg
Personnel handling/Man-riding	No



Track Tensioners

2 x LCE 15T	Arcim 150kN tensioner. Speed 0-25m/min
	Central control from Cable Control room.
	Track length 3400mm
	Static brake capacity 200kN
	Track opening 533mm, Product diameter 40-300mm
Adjustable pinch force 1500-15.000Kg	

3 x LCE 3 T	Arcim 32kN tensioner. Speed 25m/min
	Central control from Cable Control room.
	Track length 1000mm
	Static brake capacity 40kN
	Track opening 500mm, Product diameter 40-300mm
Adjustable pinch force 500-3000kg	

PLGR Winch System

PLGR system	ARCIM 2023010-01
Storage unit /winch	1 st layer pull/speed: 35kN / 20 m/min
	5 th layer pull/speed: 30kN / 25 m/min
Wire Capacity	Ø34 mm / 350 m
Tensioner winch	Pull force 350 kN / speed: 20 m/min

Tugger Winch

Winch system	ARCIM
Brake holding force	4.5 t / layer 1
Wire Capacity	120 m / 3 layers
Pull force	3 t

Anchor and Mooring winches

Maker Forward anchor and Mooring winch	Palfinger
Type combined anchor and Mooring winch	AW50-50K3-1CL-1MD-1WE (pull 12 tons first layer)
Type Aft Mooring winch	MW12-1MD-1WE (pull 12 tons first layer)
Mooring lines	Ø52mm synthetic / drum capacity 180 m

Boat Landing

Dimensions	Length: 6900mm, Bumper diameter 457mm, Center to center distance between bumpers 1450mm, Stepper distance 500mm-650mm depending on CTV dumper design
Positions	A-deck PS, platform 11800mm above base line



Survey Spread

System	Type	Accuracy
2x DGNSS	Veripos LD900	Veripos APEX PPP: 2.5 cm RTK: 1 cm + 1ppm
2x Gyro/MRU	Teledyne SATURN10 INS	Gyro: +/-0.1 ⁰ sec lat RMS Roll/Pitch: 0.01 ⁰ RMS Heave: 5 cm
2x Online INS Systems	Teledyne SATURN10 INS	Gyro: +/-0.1 ⁰ sec lat RMS Roll/Pitch: 0.01 ⁰ RMS Heave: 5 cm
1x Barometer	Vaisala Precision Barometer PTB330	Range: 500 – 1100 hPA Resolution: 0.01 hPA Accuracy: 0.20 hPA
1x Current meter	Furuno CI-68 5-level Current indicator	Accuracy: +/- 2% Depth range: 2 to 75% of water depth up to 150 m
2x Online Navigation System	EIVA NaviPac on Primary NAV EIVA NaviPac on Secondary NAV	N/A
1x Online Data Acquisition System	EIVA NaviScan on Secondary NAV	N/A
2x Offline processing system	DelphINS EIVA NaviEdit EIVA NaviModel	N/A
9x EIVA Remote Helmsman's display	Aft Bridge, Fwd. Bridge, OIM Office, Client Office, TROV Control, Cable Control, WROV146 Control, WROV147 Control, Cable chute hut	N/A
3x Software Dongles	NaviPac Pro NaviScan NaviModel, NaviEdit	N/A
2x Timebox	EIVA ATTU mk II	Accuracy: < 50µSec Time sync: GNSS
3x Time / PPS Splitter	1x RTS PPS Distribution Panel 2x MBG Tech PPS2-G10	Accuracy: < 50µSec Accuracy: < 55 µSec
6x Data Storage and Backup	2x NAS (primary and backup) 4x External HDD (Backup/data transfer)	Each 16 TB
1x USBL System Option for installation of one additional system	HIPAP 501 USBL System	0,5% Slant range Angular accuracy: 0 dB S/N – 0.30 ⁰ 0 dB S/N – 0.18 ⁰ 0 dB S/N – 0.12 ⁰
1x Kongsberg cNode	MiniS 34-180 Cymbal wide band (Tripod)	Accuracy: <0.02 m
4x Kongsberg cNode	Mini 34-180 Cymbal wideband	Accuracy: <0.02 m
Multi Beam Echo Sounder	Teledyne Reson T51	Frequencies: 350-430 kHz and 700-800 kHz No. of beams: 10 – 1024 Swath: 10-170 ⁰ Across track beam width: 0.5 ⁰ / 0.25 ⁰ Along track width: 1.0 ⁰ / 0.5 ⁰
Sound Velocity Profiler	Teledyne Valeport SWiFT SVP	Range: 1375-1900 m/s Resolution: 0.001 m/s Accuracy: +/- 0.02 m/s
1x LiDAR	Ouster OS0	+/- 5 mm
1x Video recording system	Option Videologger, 4x HD cam recording	N/A
1x Vessel CCTV System	Milestone	N/A
Draught sensor FWD	MAS2600-G40-05-4/1P	Range: 800 – 3500 mbar Accuracy: 0.25% FS
Draught sensor AFT	MAS2600-G40-05-4/1P	Range: 800 – 3500 mbar Accuracy: 0.25% FS

WROV & TROV

2 x WROV	
Maker	Argus
Type	Worker ultra compact
Power	67kW
Class	III

TROV	
Maker	NCT Offshore
Type	TROV109-1300
Power	956kW
Class	IV



Accommodation

Public areas	
Mess room	Main-deck, 42 seats
Private dining	Main-deck, 10 seats
Laundry	Main-deck, 6 pcs washing machines, 6 pcs tumble dryers
Cinema	Main-deck, 15 seats (cinema seats)
Dayroom 2	Main-deck, 19 seats (sofas, recliners)
Duty mess	A-deck, 6 seats
Change Room	A-deck, 60 lockers, toilets, sinks
Dayroom 1	C-deck, 18 seats (sofas, recliners)

Crew and Client cabins	
Cabins	60pcs, single cabins with shower, toilet, daylight, TV, Phone, LAN network, Wi-Fi

Gymnasium	
Large gym with modern equipment.	The Gymnasium is equipped with treadmill, rowing machine, exercise bike, multistation, cross trainer and dumbbells in various sizes.