

CMOS, A JOINT VENTURE BETWEEN



CMOS INSTALLER

88 M - 5935 kW - DP2 - Cable Lay Vessel



VESSEL SPECIFICATIONS

Shallow draft, highly maneuverable cable laying vessel with proven track record

VESSEL SPECIFICATIONS

REGISTRATION

Year built / builder	1999 / De Hoop B.V. Lobith, The Netherlands
Year upgraded / builder	2012 / Astander Shipyard, Spain
Flag	BE
Class	I ✕ Hull Special Service / Cable laying ship Unrestricted navigation ✕ DYNAPOS AM / AT R INWATERSURVEY ✕ MACH
Call sign / IMO No.	ORQV
Owner & Operator	Combined Marine and Offshore Services NV

DIMENSIONS

Length overall	88.2 m (92.1 m including the stern chute)
Breadth moulded	24 m
Depth moulded	5.5 m
Maximum draft	4.5 m
Deadweight	Around 4677 t
Registered tonnage	GRT: 4904 / NRT: 1472

MACHINERY

Propulsion system	Diesel-electric propulsion system with DEIF PPM-300 PMS
Main propulsion	2 x Schottel SRP 1212 FP azimuth thrusters, 1200 kW each
Bow thrusters	1 x Schottel SRP 1212 ZSV retractable azimuth thruster, 1200 kW 1 x Schottel STT 1010 LK FP tunnel thruster, 1100 kW 1 x Schottel STT 4 CP tunnel thruster, 1044 kW
Bollard pull thrust (v=0kn)	2 x 23.7 t BP SRP 1212 FP + 1x 23.7 t BP SRP 1212 ZSV
Generators	4 x Caterpillar 3512 B engines, 1424 kW, 480 V 3ph 60 Hz each
Emergency generator	1 x Scania DS-9 95 175 kW, 480V 3ph 60 Hz

DP EQUIPMENT

DP Class	DP Class-II
DP System	Converteam DPS21 Duplex DP with remote Joystick fwd and aft control
Reference Systems	<u>DGPS-</u> 1 x Fugro Seastar 8200HP 1 x Fugro Seastar 9200G2 1 x Fugro Seastar 9205NSS <u>USBL-</u> 1 x HPR Sonardyne Ranger 2 <u>VRU-</u> 2 x TSS DMS-525RP (0.25° RMS – surface unit) <u>PRS-</u> 1 x Radarscan

CAPACITIES

Fuel oil	640 m³
Fresh / drill water	793 m³
Ballast tanks	2476 m³
Chiller	1 x 20 m³ + 1 x 15 m³
Freezer	2 x 20 m³
Clear deck area	931 m² total 1 x 350 m² main deck @ 10 t / m² 1 x 100 m² tensioner deck 1 x 54 m² ROV platform 1 x 27 m² ROV control platform 1 x 400 m² carousel

OFFSHORE AHC CRANE

Make	TTS marine A/S, Model GPOKAC 2000-70-30
Type	Knuckle boom active heave compensation (AHC) crane
Maximum water depth	300 m
Personnel lift	1.5 t
Lifting capacity - Main	SWL 35 t @ 5-30 m single fall SWL 70 t @ 5-14 m double fall
Lifting capacity - Aux	SWL 5 t @ 30 m
Hoisting speed	Main: 0-24 m per min Aux: 0-50 m per min
Slewing	360 degrees continuous
Operational limits	Maximum wind velocity: 24 m / s Maximum trim: 2 deg Maximum heel: 5 deg

CABLE HANDLING EQUIPMENT

Turntable / carousel	Maximum capacity 3560 t (4000 t optional*) Inside diameter 8 m Outside diameter 24 m Height of carousel 4 m + 1.5 m Volume of ring 1608 m³ + 603 m³ Surface ring 379 m² Turntable speed 2 rpm max Main loading arm installed Max product diameter 350 mm Max product weight 150 kg / m Cable divider installation is optional
Hoisting winches	1 x Electric planetary hoist winch with CT mode
Fiber optic drum	Fiber-optic cable bin is not avail., but optional Inside diameter: 3 m Outside diameter: 7 m Height of drum: 1.8 m
Cable splice area	100 m² tensioner deck
Trenching winch (optional)	150 t - 1000 m
Flexible pipe laying (optional)	Max product diameter 350 mm

VESSEL SPECIFICATIONS

PERFORMANCE

Max speed	9 knots
Service speed	7 knots

WINCHES & 4 POINT MOORING SYSTEM

Mooring winch	4 x Kraaijeveld electric self-tensioning winches Pull: 2 x 60 t FWD + 2 x 30 t AFT Hold: 2 x 150 t FWD + 2 x 60 t AFT Drum capacity: 1000 m FWD, 950m AFT
Anchors	Delta flipper HHP anchors FWD: 2 x 3.5 t, AFT: 2 x 5 t, Spare: 1 x 2.5 t
Windlass	1 x Kraaijeveld electric windlass; Type KA-5E
Capstans	2 x 5 tonnes electro hydraulic

NAVIGATION EQUIPMENT

Inmarsat C	1 x Furuno -Felcom 15
GMDSS	2 x Sailor 6110 system, A1 + A2 + A3
V Sat system	1 x Orange Sailor 900 VSAT
Radars (ARPA)	1 x Furuno RDP 115 A, 1 x Furuno RCU-014
GPS	1 x Garmin GPS 128, 1 x Furuno GP-150, 1 x Furuno GP-170
ECDIS	2 x PC Maritime C-Map
AIS	1 x Furuno FA-150
Autopilot	1 x Anschutz Pilotstar D
Navtex receiver	1 x Furuno NX500
Gyro compass	2 x C-Plath SR 180 MK-1, 1 x Sperry Navigat MK-1
Gyro repeaters	2 x Classens Plath
Magnetic compass	1 x Classens Plath
Communications: data / fax/ phone	1 x Nera Mini M, Nera S
MF / HF Radio	1 x Furuno FS2575C
SSB	1 x Furuno FS2575C
VHF	2 x Furuno (DSC) FM-8500, 1 x Sailor RT2048 + 3 x GMDSS sets (handheld)
Echo sounder	1 x Furuno FE-700, 1 x Navisound -210
Depth indicator	1 x Furuno ED-222
Doppler speed log	1 x Doppler Sonar DS-70
SART	2 x Jotron
EPIRB	1 x McMurdo E3 Pains Wessex

TENSIONER

Make	Parkburn
Type	Electric 2 Trade multi product
Maximum tension	20 t
Grip force	50 kn / m - 300 kn / m
Maximum product diameter	50 mm - 350 mm

ROV

ROV	According to project requirements
ROV platform	1 x 54 m ² ROV platform
ROV control platform	1 x 27 m ² ROV control platform
Communications	Equipped with DP traffic light system + ClearCom + fiber optic network
CCTV	17 x CCTV camera – recording on HD (fixed + PTZ)

FIRE FIGHTING AND SAFETY EQUIPMENT

Life rafts	As per class requirements
Fast rescue boat / davit	1 x 15 men Noreq-FRB 650
Fire extinguishers	As per class requirements
Fire pump	1 x 90 m ³ per hr
Emergency fire pump	1 x 50 m ³ per hr
Fixed CO2	Fixed flooding system in the generator room, paint locker and galley

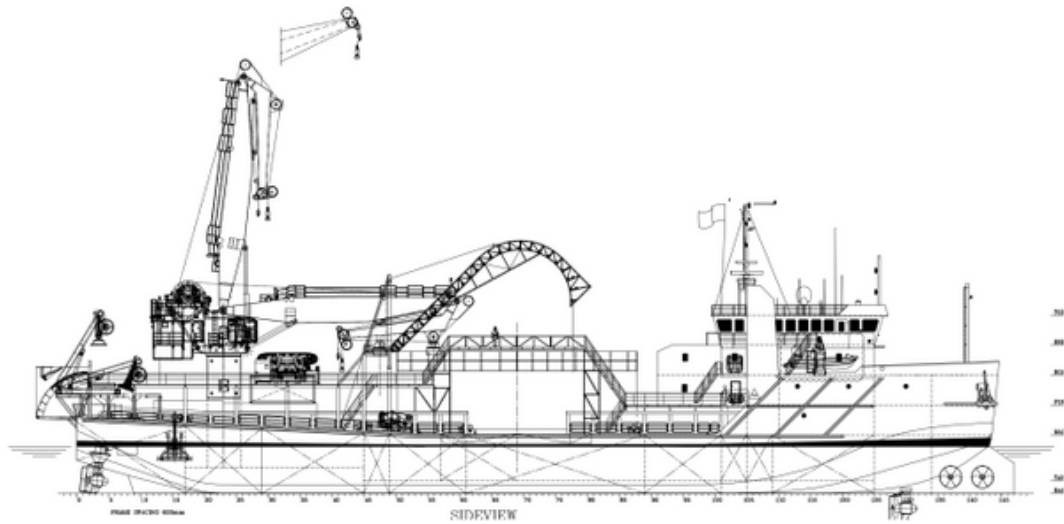
ACCOMODATION

Berths	10 x 1 berth cabins = 10 berths 30 x 2 berth cabins = 60 berths
Facilities	1 x Hospital 3 x Client office (2 offices + 1 survey room) 1 x Conference room 1 x Client survey area bridge (15 m ²) with CCTV on wall monitors
Certification	SPS certification for 50 SPS personnel
Max.POB	70 pax

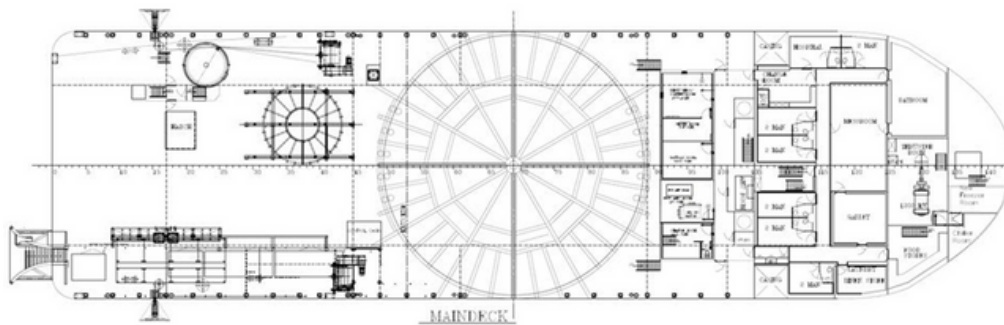
FEATURES

Boat landing	Transfer boat docking station available
Anti-heeling system	Framo; 1300 m ³ / hr – 9 m head
Engineered grounding capability	Designed for engineered grounding operations
Rotating converter container	50 Hz to 60 Hz converter 3*400 V, 50 Hz (max 570A)

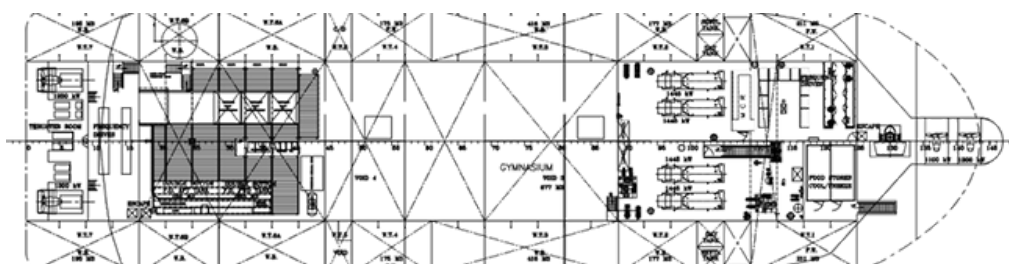
GA SPECIFICATIONS



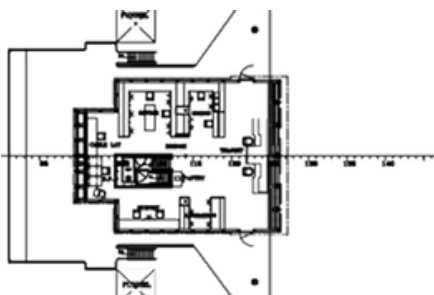
Profile



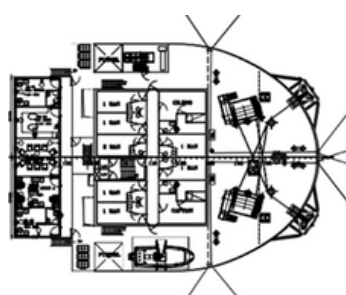
Main deck



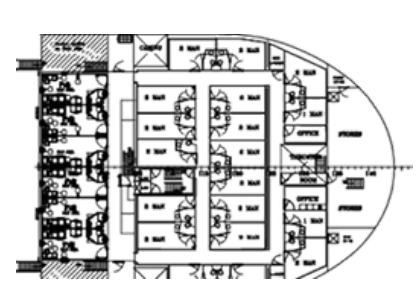
Tank Top



Bridge deck



Boat deck



Forecastle deck

CAPABILITY PLOTS

Capability plot varying wind. 2 tunnel thrusters, 2 azimuth thrusters, 2 tunnels on the bow, 1.5 knot current stepped

- Wind angle is stepped from 0 to 360 deg.
- Wave angle is stepped from 0 to 360 deg.
- Current angle is stepped from 0 to 360 deg.
- Wind speed is set automatically.
- Wave height is derived from wind speed.
- Current speed is 1.5 knots.

COORDINATES

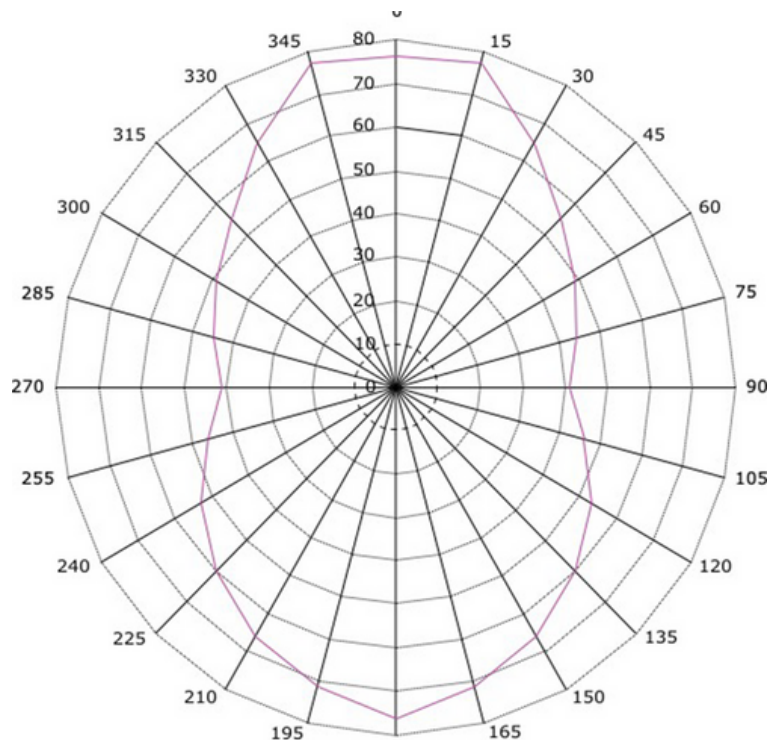


SHIP DIRECTION



WEATHER DIRECTION

Wind at 0 degrees
Current waves at 90 degrees

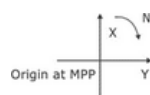


Wind speed in knots

Capability plot varying wind. 1 tunnel thruster, 3 azimuth thrusters, 1 tunnel and 1 azimuth thruster on the bow, 1.5 knot current stepped

- Wind angle is stepped from 0 to 360 deg.
- Wave angle is stepped from 0 to 360 deg.
- Current angle is stepped from 0 to 360 deg.
- Wind speed is set automatically.
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COORDINATES

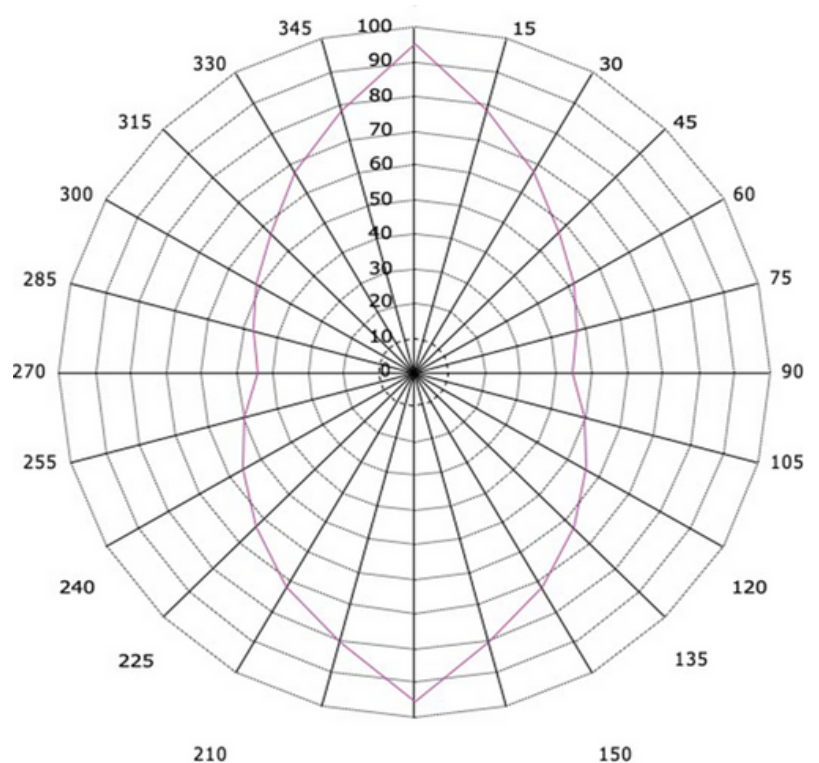


SHIP DIRECTION



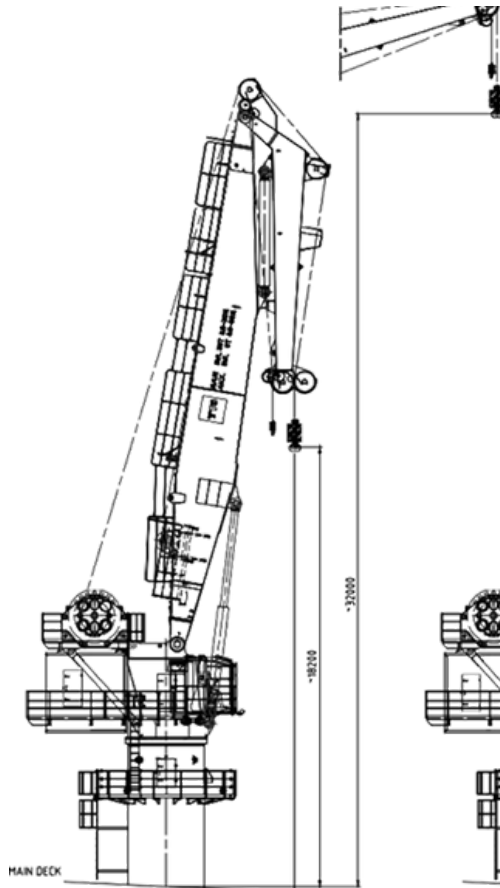
WEATHER DIRECTION

Wind at 0 degrees
Current waves at 90 degrees



Wind speed in knots

CRANE LOAD CHART



MAIN DATA

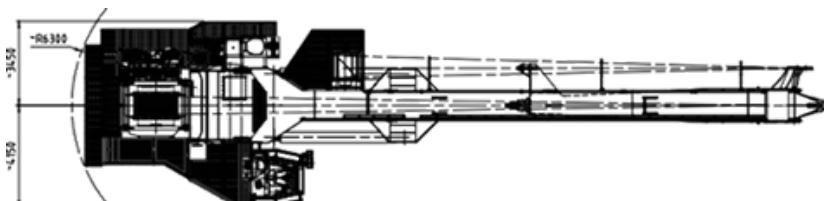
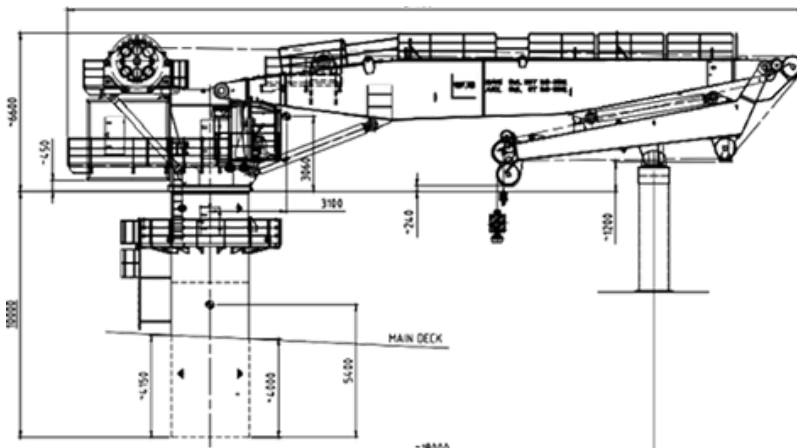
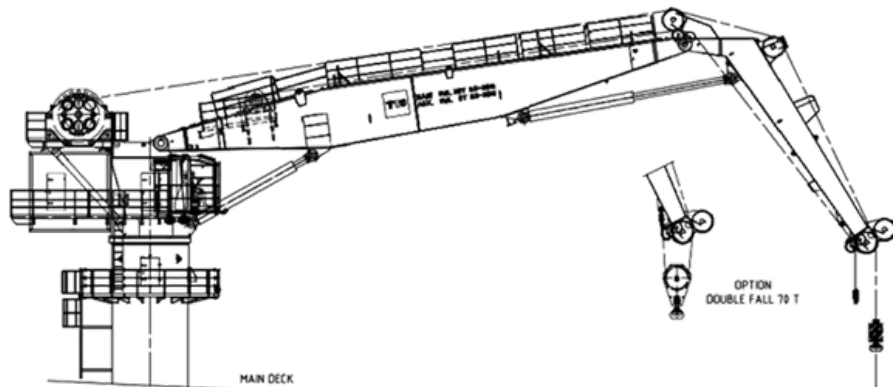
- Dynamic moment: 2200 t
- Dynamic vertical force: ~190 t
- Total weight of crane (without pedestal): ~117 t Total weight of pedestal: ~23.6 t

MAIN HOOK SINGLE FALL

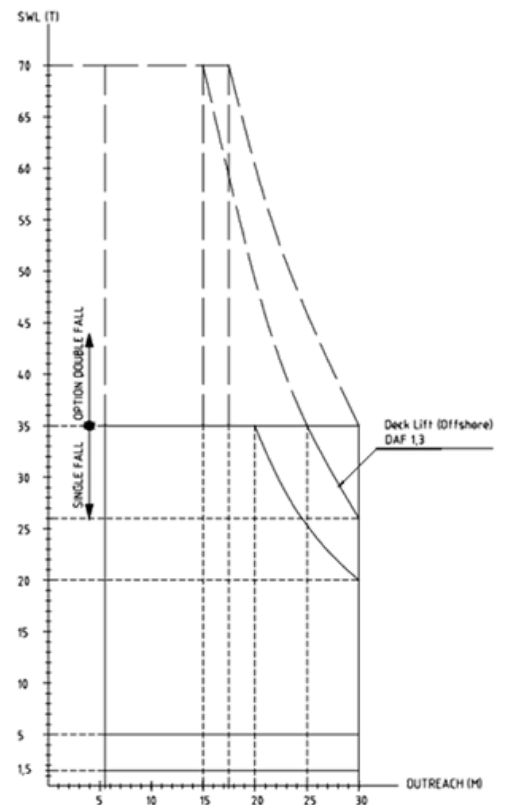
- Hook speed SWL: 0-24 m / min
- Hook light speed load: 0-95 m / min
- Lifting height: 300 m

AUX. HOOK

- SWL load: 5 t - 30 m
- Lifting height: 300 m
- Hook speed SWL: 0-50 m / min
- Hook speed light load: 0-50 m / min



LOAD DIAGRAM





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