Topaz Resolve

51 M - DP 2 - Multi-Purpose Supply Vessel

Vessel Specifications

TOPAZ MARINE

Vessel Specifications

Registration

Flag	Marshall Islands
Class	+HULL, +MACH, Supply Vessel, Unrestricted navigation, +AUT-UMS, INWATERSURVEY, +DYNPOS AM/AT R
Year built / builder	December 2015 / Nico Craft Abu Dhabi LLC
Port of registry	Majuro
IMO number	9544308
Registry number	6667
Call Sign	V7PW2

Dimensions

Length overall	50.9 m
Length between perpendicular	44.4 m
Breadth with sponsons	15 m
Depth moulded	4.9 m
Design draft	4 m
Deadweight	611 t
Displacement of vessel at full load	1760 t
Deck cargo capacity	150 t
Registered tonnage	1160

Machinery

Main engines	2 x Caterpillar 3512B, 1425 bkW @ 1600 rpm
Main generators	2 x Caterpillar 3406 CTA, 320 kW / 60 Hz / 1800 rpm 1 x Caterpillar C32, 730 kW / 60 Hz / 1800 rpm 1 x Caterpillar C18, 500 kW/ 60 Hz / 1800 rpm 1 x Caterpillar 3406TA, 358 bkW @2100 rpm
Emergency generator	1 x Caterpillar C4.4 72e kW / 60 Hz /1800 rpm
Gear box - main propulsion	2 x Ratio 4.63:1, Twin Disc MGX 5600 DC
Bow tunnel thruster	2 x Schottel STT1 CP, 300 kW, CPP, electric driven
Stern tunnel thruster	1 x Schottel STT1 CP, 320 kW, CPP, electric driven
Pump jet thruster	1 x Schottel SPJ 132T, 330 kW @ 1900 rpm, diesel driven
Propulsion system + rudder + kort nozzle	2 x straight shaft + FPP, Teignbridge
Steering system	1 set Wills Ridley

4 Point Mooring Equipment

Mooring Winch	4 x Electro-Hydraulic Winches with Drum Capacity: 600m x 28mm. Rated Pull: 16T x 0-15 m/min, With local and remote controls. Make: Nor Crane
Anchors	4 x HHP 2475 kg stockless anchor
SWR	4 x 28mm dia x 600 meter SWR, Break Strength of minimum 44T
Capstan	3 x Nor Crane, pull 5 tonnes @ 10 m per min

Deck Crane	1 x Offshore Crane 25T @8m (Sea State 2), 18T @ 8m (Sea State 4), 12.5T at 17m (Sea State 4)

Ancilliary equipment

Sewage treatment plant	1 x Tecnicomar, 56 person capacity.
Oily water separator	1 x Ocean Clean, 0.5 m^3 per hr @ 15 ppm
Freshwater maker	1 set

Towing and anchor handling equipment

Rubber Bow fenders	W-type fender

Performance

Trial Speed @ 100% MCR	12 knots

Vessel Specifications

Capacities

Fuel oil @ 98%	259.4 m^3
Fresh water @ 100%	185.4 m^3
Water ballast @ 100%	212.6 m^3
Lube oil @ 98%	6.8 m^3
Sewage @ 98%	56.38 m^3
Hydraulic oil @ 98%	2.82 m^3
Oily bilge @ 98%	5 m^3
Sludge @ 98%	2.4 m^3
Deck wooden area	166 m^2 approx.
Clear deck length	21m long

Auxiliary Machinery

Fuel oil transfer pump	2 x 5 m3 per hr @ 2 bar Azcue (Internal Transfer)
Fresh water maker	1 set
FW hydrophore set , 500L	2 x 5 m3 per hr @ 4 bar Azcue
SW hydrophore set , 500L	2 x 5 m3 per hr @ 4 bar Azcue
Sludge pump	1 x 2 m3 per hr @ 2.5 bar Azcue
AC cooling pump	2 x 60 m3 per hr @ 2bar Azcue
LO transfer pump	1 x 2 m3 per hr @ 2.5 bar Azcue
Breathing air compressor	1 set Bauer or equivalent
Hydraulic oil transfer pump	1 x 3 m3 per hr @ 2.5 bar Azcue / Gianneschi
Hot water circulating pump	1 x 2 m3 per hr @ 2 bar Azcue
Hot water calorifiers	1 x 500 litres, 4 x 3 kW heater OSO Hotwater - UK
Fuel oil purifier	1 x 1200 litres per hr Alfa Laval
Bilge / oily water separators	1 x Ocean Clean 0.5 m3 per hr @ 15ppm
Work air compressor	1 x 25 m3 per hr @ 7 bar, electric driven, Ingersoll Rand
Air receiver	1 x 300 litres @ 7 bar
Control air bottle	1 x 100 litres @ 7 bar
Bilge / ballast	1 x 35 m3 per hr @ 5 bar Azcue
Bilge / ballast / fire / deck wash pump	1 x 35 m3 per hr @ 5 bar Azcue

Communication and navigation equipment

Satcom and type	
SART	2 x Jotron or equivalent
SSAS	1 x Sailor or equivalent
ECDIS	1 x Transas
Voyage data recorder (VDR)	1 x DanElec
GMDSS console	1 set Sailor or equivalent
Portable GMDSS handheld radio	3 x Sailor or equivalent
Inmarsat-C	1 x Sailor or equivalent
Handheld VHF	4 x Motorola
UHF portable radio	1 x ICOM
EPIRB	1 x Jotron
Navtex receiver	1 x JRC
DP system	IMO DP2
Radar X-Band, ARPA	1 x JRC
Radar S-Band, ARPA	1 x JRC
Gyrocompass with repeater	1 x Alphatron
Auto pilot	1 x Navitron or equivalent
DGPS	2 x Koden or equivalent
Echo sounder	1 x JRC
Doppler speed log	1 x JRC
Anemometer	1 x Walker

Vessel Specifications

Fire fighting and anti-pollution equipment

Fixed Internal Fire Fighting System	
Water mist system	1 x Heien-Larssen FlexiFOG
External FiFi system	1 x FiFi ½ CounterFire with dedicated CAT C18 engine
Fire monitors	2 x 600 m3 per hr each minimum
Fireman outfits	6 x Fireguard
Foam fire extinguisher	22 x 9 litres Eversafe
Dry chemical powder extinguisher	4 x 5 kg Eversafe
Emergency fire pump	1 x 25 m3 per hr @ 5 bar Azcue

Safety equipment

Inflatable life rafts	6 x 20 persons Viking / Zodiac or equivalent
Rescue boat	1 x 6 person Zodiac or equivalent
Lifebuoys ring w/ heaving line	8 x Canepa & Campi / Cosalt / lalizas
Safety harnesses w/ lifelines	4 x CITEX or equivalent
Davit for rescue boat	1
Rigid life jackets	67 nos. ACR USA / Cosalt / VSG
Immersion suits	12

Accommodation

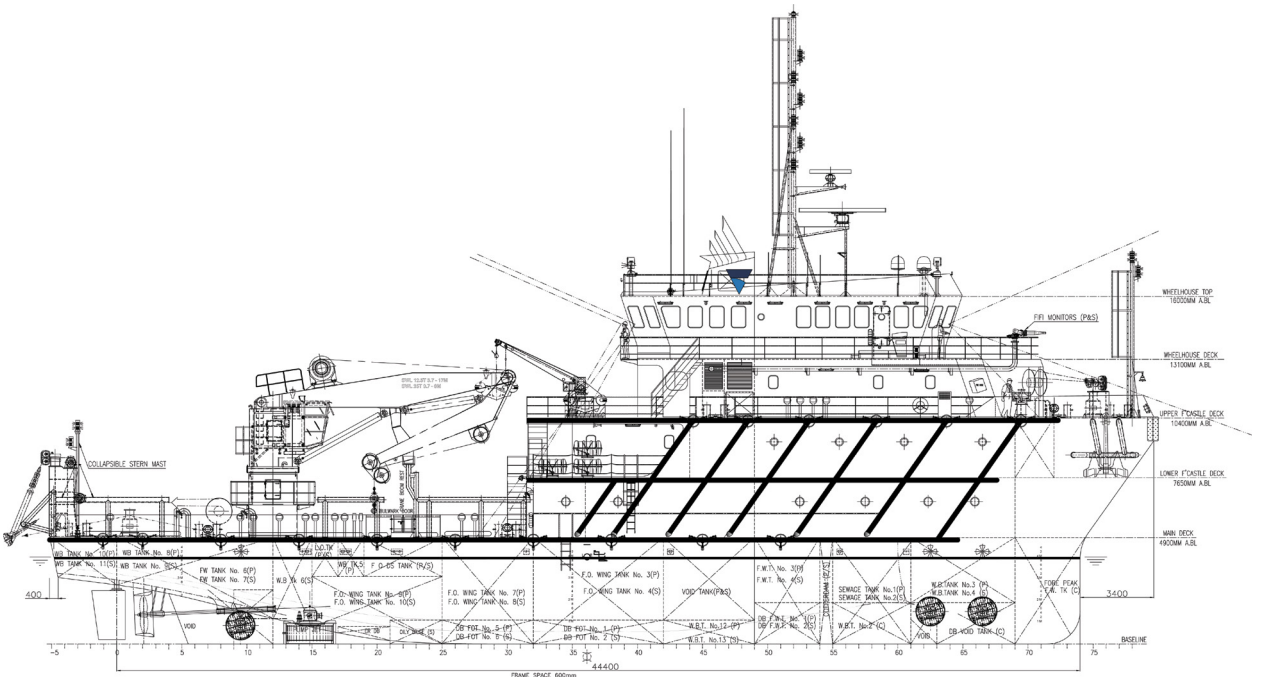
Treatment room	1 berth
Main Deck	5 x 2 berths
Lower forecastle deck	4 x 4 berths
	8 x 1 berths
	4 x 2 berths
Upper forecastle deck	2 x 4 berths
	6 x 1 berths
Total	56

Last Revision August 2017

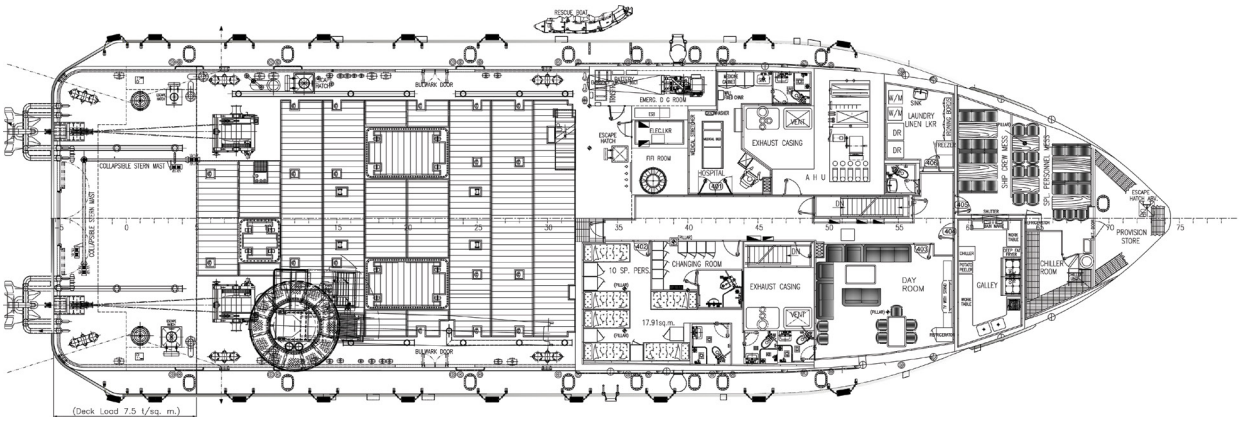
Tank Capacities

Tanks	SG m^3	Fuel oil 0.850	Pot water 1.000	Drill water 1.000	Ballast water 1.025	Liquid mud 2.800	Brine 2.500	Base oil 0.830	Glycol 1.120	Dry bulk 2.40	Oil recovery 1.00
FOREPEAK TK	125.30			125.30	128.43						
DB/WING TK 1 PS	125.60		125.60								
DB/WING TK 1 SB	120.50		120.50								
DB/WING TK 2 PS	120.40		120.40								
DB/WING TK 2 SB	112.30		112.30								
DB/WING TK 3 PS	157.00	133.45									
DB/WING TK 3 SB	112.10	95.28									
SLUDGE TANK	13.10										
OILY WATER TK	13.10										
OVERFLOW TK	15.70										
DIRTY OIL TK	15.70										
DB TK 4 PS	60.20	51.17									
DB TK 4 SB	60.20	51.17									
DB/WING TK 5 PS	199.10	169.23									
DB/WING TK 5 SB	199.60	169.66									
OVERFLOW TK AFT	41.70										
DB/WING TK 7 PS	107.70	91.54									
DB/WING TK 7 SB	107.70	91.54									
SEWAGE TK	14.20										
HOT WATER	13.40										
SERVICE TK SB	29.30	24.90									
FOAM TK	18.70										
SERVICE TK SB	29.30	24.90									
WING TK 4 PS	112.80							93.62			
WING TK 4 SB	112.80							93.62			
TANK 6 PS	57.10			57.10	58.52		142.75				
TANK 6 SB	57.10			57.10	58.52		142.75				
WING TK 8 PS	95.20			95.20	97.58		238.00				
WING TANK 8 SB	95.20			95.20	97.58		238.00				
DB/WING TK 9 PS	60.40	51.34									60.40
DB/WING TK 9 SB	60.40	51.34									60.40
AFT PEAK PS	246.50		246.50								
AFT PEAK SB	246.50		246.50								
TK 7 PS	83.80										
TK 7 SB	83.80										
C/D	201.40				206.43						
STAB TK 1	240.60			240.60	246.61		601.50				240.60
STAB TK 2	337.40			337.40	345.83						337.40
STAB TK 3	313.30			313.30	321.13						313.30
HO TK	4.50										
LO THR TK	4.50										
AUX ENG LO TK	4.50										
GEAR OIL TK	4.50										
LO STORE TK MAIN ENG	17.90										
SETTLING TK	30.10	25.58									
SERVICE TK EM GEN SET	2.70	2.29									
TK 2 PS	79.30			79.30	81.28	222.04	198.25				
TK 2 SB	79.30			79.30	81.28	222.04	198.25				
TK 3 PS	79.30					222.04					
TK 3 SB	79.30					222.04					
TK 4 PS	88.10					246.68					
TK 4 SB	88.10					246.68					
TK 5 PS	88.10					246.68					
TK 5 SB	88.10					246.68					
VOID TK	14.20										
SERVICE TK INCINERATOR	0.20	0.17									
FW DRAIN TK	13.80		13.80								
TK 1 PS	79.70			79.70	81.69		199.25				
TK 1 SB	79.70			79.70	81.69		199.25				
C/D	29.40										
C/D	9.00										
C/D	9.00										
C/D	1.40										
C/D	16.00										
DRY TK FWD	7.90										
Weight in tonnes		**1033.60**	**985.60**	**1639.20**	**1886.61**	**1874.88**	**2158.00**	**187.25**			**1012.10**
Volume in m^3		**1216.00**	**985.60**	**1639.20**	**1840.60**	**669.60**	**863.20**	**225.60**			**1012.10**

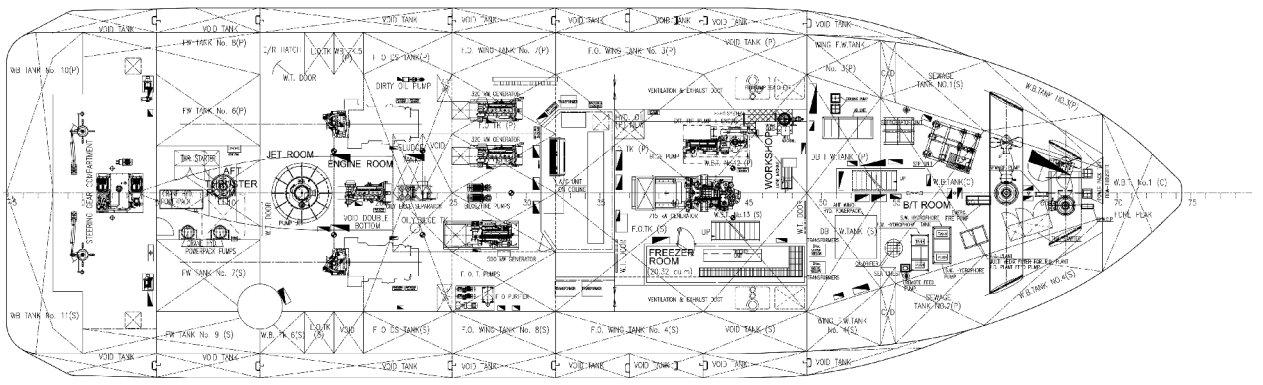
GA Specifications



Outboard profile

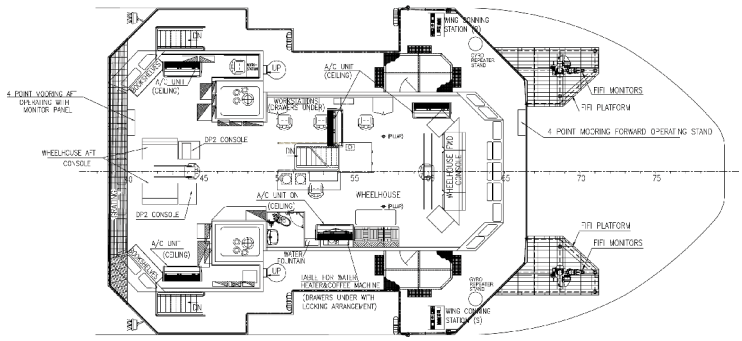


Main deck

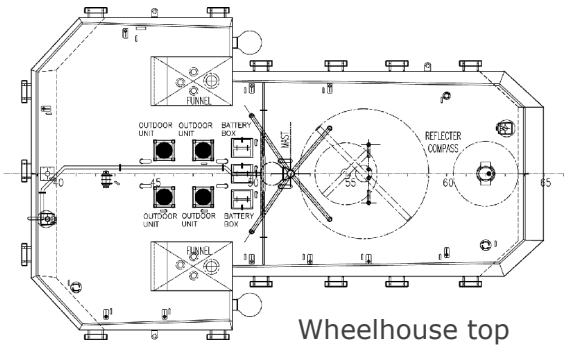


Below main deck

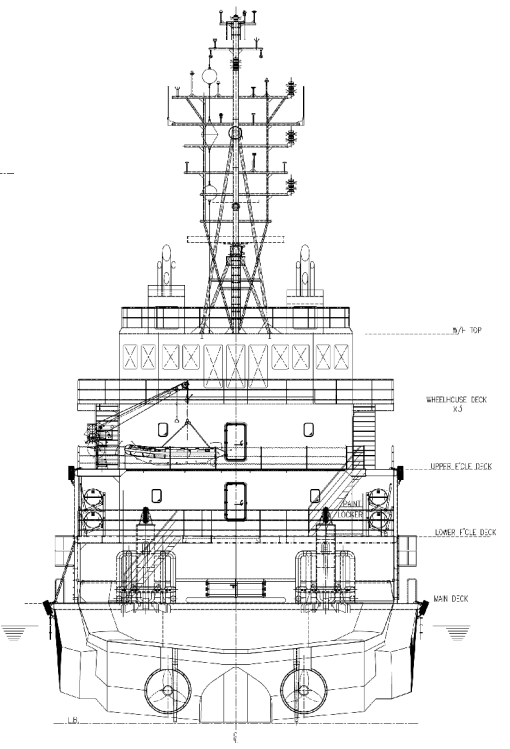
GA Specifications



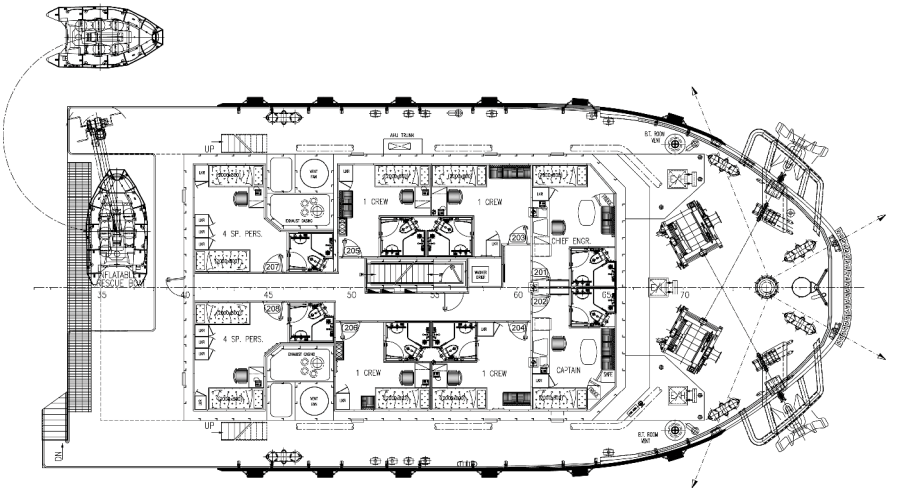
Wheelhouse deck



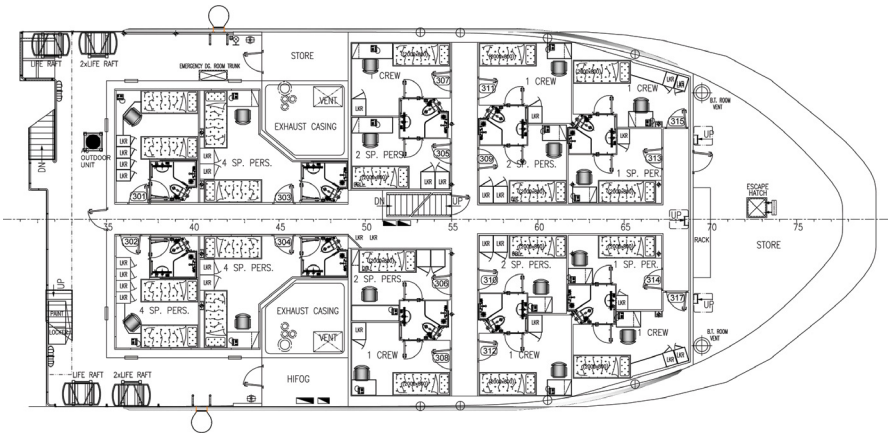
Wheelhouse top



Aft view @ Transom



Upper forecastle deck



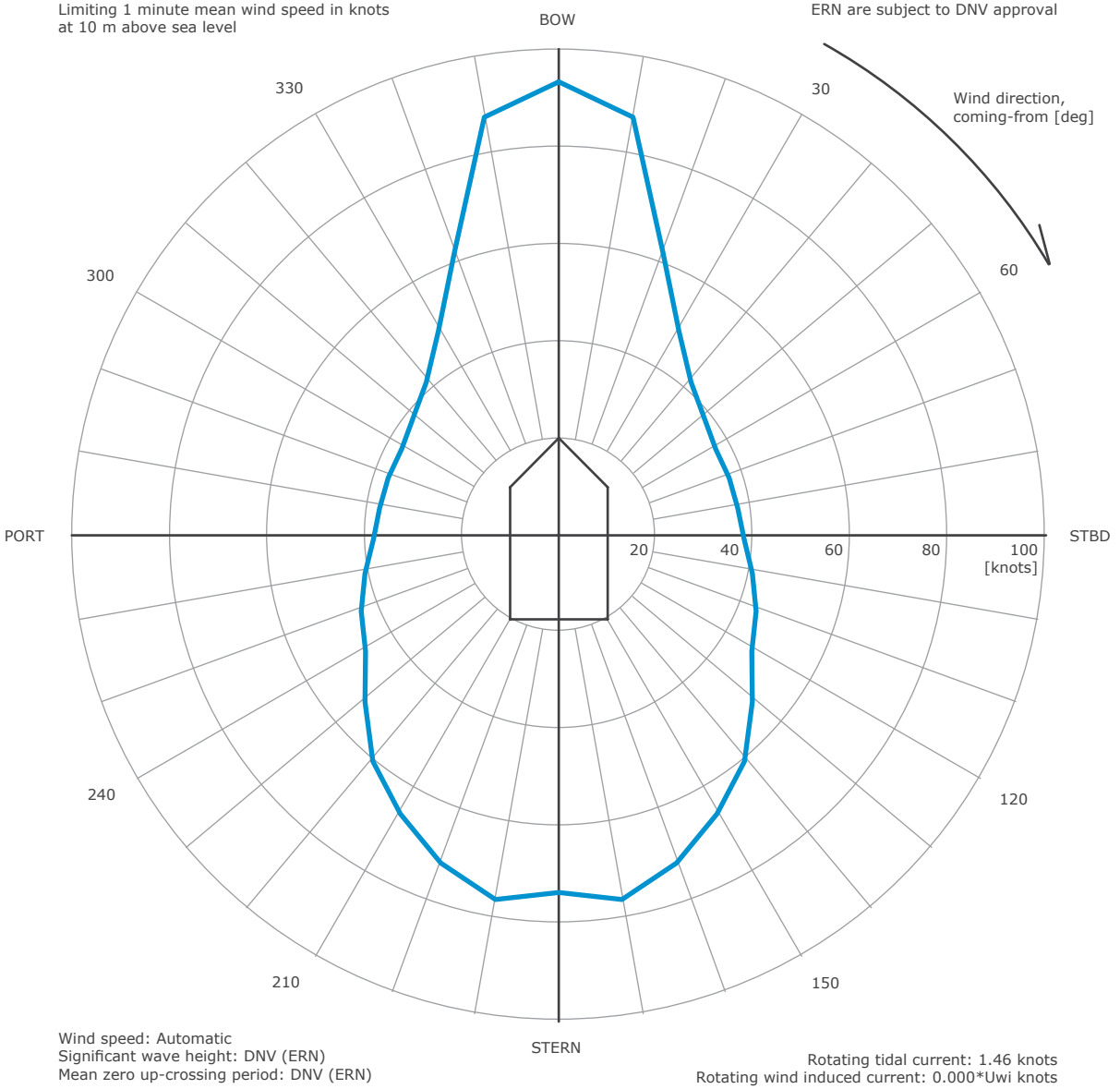
Lower forecastle deck

DP Capability Plot

DP capability envelope for case 1

VARIABLE WIND AND WAVES
Limiting 1 minute mean wind speed in knots
at 10 m above sea level

ERN = 97
ERN are subject to DNV approval



Wind speed: Automatic
Significant wave height: DNV (ERN)
Mean zero up-crossing period: DNV (ERN)

Rotating tidal current: 1.46 knots
Rotating wind induced current: 0.000*Uwi knots

KONGSBERG

Case number	:	1
Case description	:	Optimum use of all thrusters
Thrusters active	:	T1-T5
Rudders active	:	
Input file reference	:	Foot_2543C.scp
Last modified	:	2011-02-21 14.55 (v. 2.8.0)
Length overall	:	97.0 m
Length between perpendiculars	:	80.8 m
Breadth	:	18.8 m
Draught	:	6.2 m
Displacement	:	6800.0 t (Cb = 0.70)
Longitudinal radius of inertia	:	20.2 m (= 0.25 * Lpp)
Pos. of origin ahead of Lpp/2 (Xo):		0.0 m
Wind load coefficients	:	Calculated (Blendermann)
Current load coefficients	:	Calculated (Strip-theory)
Wave-drift load coefficients	:	Database (Scaled by breadth / length)

Tidal current direction offset	:	0.0 deg
Wave direction offset	:	0.0 deg
Wave spectrum type	:	JONSWAP (gamma = 3.30)
Wind spectrum type	:	NPD
Current - wave-drift interaction	:	OFF
Load dynamics allowance	:	1.0 * STD of thrust demand
Additional surge force	:	0.0 tf
Additional sway force	:	0.0 tf
Additional yawing moment	:	0.0 tf.m
Additional force direction	:	Fixed
Density of salt water	:	1026.0 kg / m³
Density of air	:	1.226 kg / m³ (15 °C)
Power limitations	:	OFF
Thrust loss calculation	:	ON

#	Thruster	X [m]	Y [m]	F+ [tf]	F- [tf]	Max [%]	Pe [kW]	Rudder
1	TUNNEL	33.8	0.0	10.8	-10.8	100	883	
2	TUNNEL	30.8	0.0	10.8	-10.8	100	883	
3	AZIMUTH	25.3	0.0	14.4	-8.4	100	883	
4	AZIMUTH	-40.4	5.5	28.3	0.0	100	1600	
5	AZIMUTH	-40.4	-5.5	28.3	0.0	100	1600	

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