

DMS Courageous

70 M - 5000 BHP - DP I - Platform Supply Vessel

Vessel Specifications

TOPAZ
MARINE



Vessel Specifications

Dimensions

Length overall	70 m
Breadth moulded	16.8 m
Depth moulded	7.5 m
Draft	6.1 m
Deadweight	2700 t
GRT / NRT	2349 t / 704 t

Registration

Year built / builder	2007, Fujian Mawei Shipbuilding Industry Group, China
Port of registry	Marshall Islands
Class	ABS + A1 Fire Fighting Class 1, Offshore Support Vessel (E) AMS + DPS - 1
Managers	Topaz Marine

Machinery

Main engines	5000 bhp - 2 x 2500 bhp @ 1600 rpm, Caterpillar 3516B
Propellers	2 x fixed pitch HRP 360° Azimuths, HRP 8000
Bow thrusters	Brunvoll Controllable Pitch Tunnel Thrusters 1. Typ Fu - 63-LTC-1550 @ 610 kw 7 t thrust 2. Typ Fu - 63-LTC-1550 @ 575 kw 7 t thrust
Main generators	3 x Caterpillar 3508B, 800 kw each, 415 V, 3 ph, 50 Hz
Harbour generator	1 x Caterpillar 3408, 280 kw, 415 V, 50 Hz
Emergency generator	1 x Caterpillar C4.4, 86 kw, 440 V, 3 ph, 50 Hz
Fresh water maker	1 x 5 t / day fresh water maker
Sewage treatment plant	1 x sewage treatment plant suitable for 40 persons Type ST-6
Oily water separator	1 x oily bilge water separator, capacity 1.0 m ³ / hr with oil content less than 15 ppm

DP system

DP Class- 1, Kongsberg - K Pos
Reference systems: 2 x Sea Star 9200-G2

Capacities 100%

Fuel oil	1182 m ³
Fresh water	403 m ³
Drill water	380 m ³
Ballast water	151 m ³
Liquid mud	463 m ³
Bulk cement	204 m ³ (4 x 1800 ft ³)
Brine	185m ³
Lubricant oil	18 m ³
Dispersant and foam	21 m ³ each
Freezer and cooler	11 m ³ each
Provision stores	15.4 m ³
Clear deck area	600 m ²
Deck cargo capacity	800 t @ 5 t / m ²

Transfer rates

Fuel oil	1 x 200 m ³ / hr @ 90 m head
Fresh water	1 x 150 m ³ / hr @ 90 m head
Drill water	1 x 200 m ³ / hr @ 90 m head
Liquid mud	2 x 75 m ³ / hr @ 90 m head
Bulk cement	35 t / hr with 5.6 max working pressure
Brine	1 x 60 m ³ / hrs @ 50 m head

Vessel Specifications

Navigation and communication

Inmarsat C	Mes with EGC, Furuno
GMDSS	Furuno area A1+ A2 + A3
X-band radars	2 x Furuno - 1 x 96 nm X-band radar (ARPA) - 1 x 96 nm S-band radar
GPS Plotter	2 x Furuno - 1 x GP 32, 1 x GP 150
AIS	1 x Furuno - FA 150
Autopilot	1 x Anschuetz - Pilotstar D
Navtex receiver	1 x Furuno - NX 700
Gyro compass	1 x Anschuetz standard 22
Magnetic compass	1 x Anschuetz
Communications: data / fax / phone	Inmarsat Fleet F 77 - Felcom 70
MF / HF SSB radio	1 x Furuno - FS 2570
Echo sounder	1 x Furuno - FE 700
MF / HF transceiver	1 x Furuno - FS 2570
2-way VHF radio	2 x McMurdo
SART	1 x McMurdo S4 Rescue SART
Doppler log	1 x Furuno - DS 80
Weather fax receiver	1 x Furuno - Fax 408
Anemometer	1 x He Li Pai
EPIRB	1 x EB 10
Aneroid barometer	1 x DYM 3
Chronometer	1 x Polaris
Inclinometer	1 x Bakelite QJ-70
Joystick control	1 x Kongsberg - C Joy
VSAT System	1 x Astra

Deck and auxiliary equipment

Anchors	2 x 2460 kg stockless bower
Chain	467.5 m x 44 mm U2 stud link chains
Anchor windlass	1 x electrohydraulic with 2 cable lifter and 2 warping heads
Winch rating	13 t @ 18 m / min for 4 mm dia. chains
Capstan	2 x 10 t @ 25 m / min electrohydraulic
Tugger winch	1 x 10 t electrohydraulic
Deck crane	Pedestal crane, SWL maximum capacity: 2.2 t @ 3 m to 12.2 m radius

Performance

Max speed	12 knots
Service speed	10 knots

Fire fighting and life saving equipment

FiFi system	FiFi class 1 with water spray curtain
Pumps	1 x 1500 m ³ / hr @ 14 bar / 140 mlc / 1800 rpm, PTO from main engines 1 x 1200 m ³ / hr @ 12 bar (with remote control)
Fire monitors - (water)	1 x 1200 m ³ / hr @ 12 bar
- (water / foam)	1 x 300 - 1200 m ³ / hr @ 12 bar
Emergency fire pump	35 m ³ / hr @ 50 m head
Rescue boat	1 x 6 person diesel powered rescue boat
Life rafts	2 x 20 person inflatable life rafts
Safety equipment	As per the LSA

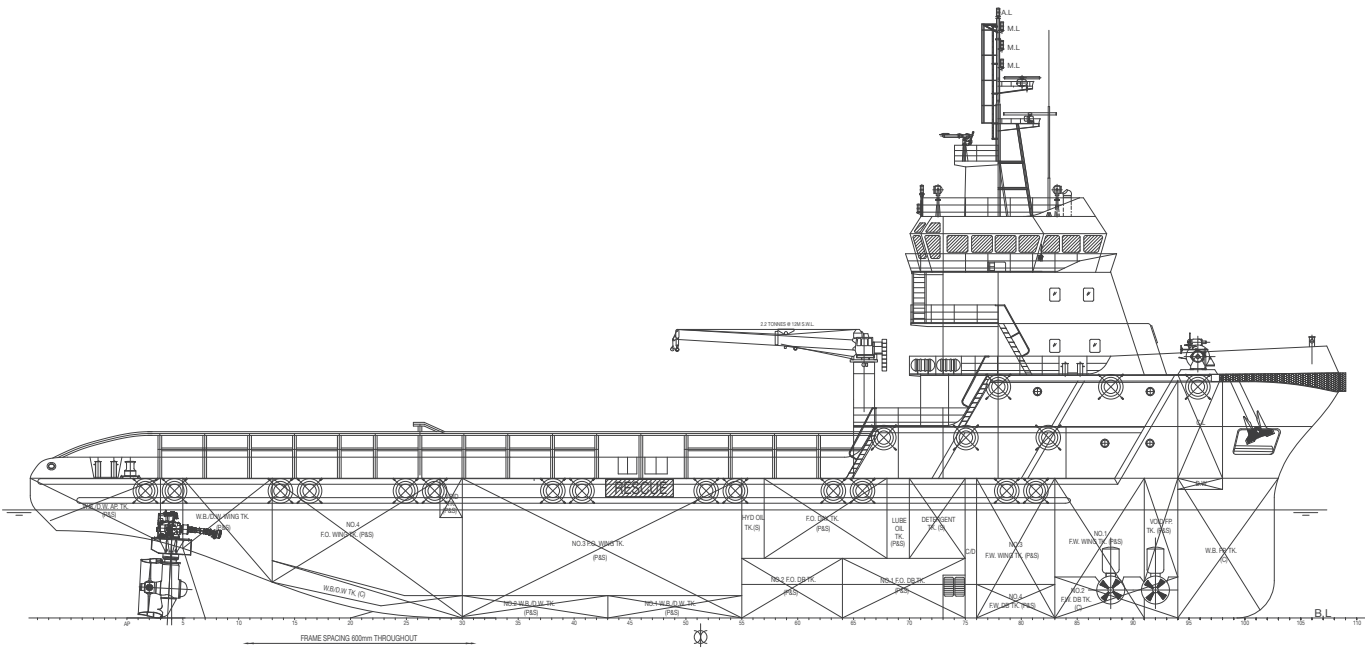
Accommodation (26 bunks)

Cabins	4 x 1 person cabins = 4 berths 5 x 2 man cabins = 10 berths 3 x 4 man cabins = 12 berths 1 x hospital
Total	26 berths

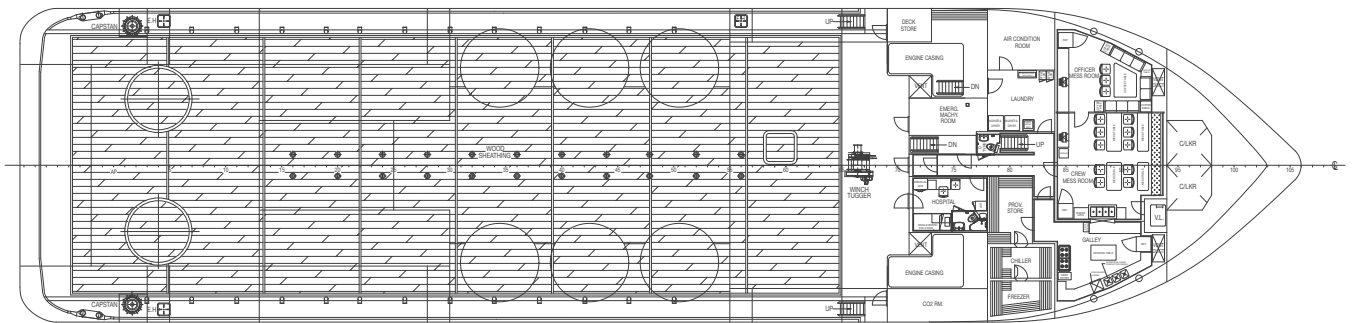
Tank Capacities

Tanks	SG M3	Fuel oil	Pot water	Drill water	Ballast water	Liquid mud	Brine	Base oil	Glycol	Dry bulk	Oil recovery
		0.850	1.000	1.000	1.025	2.500	2.500	0.830	1.120	2.40	1.00
No. 1 F.W. wing tank port	77.86		77.86								
No. 1 F.W. wing tank stbd	77.86		77.86								
No. 2 F.W. DB tank centre	58.99		58.99								
No. 3 F.W. wing tank port	56.89		56.89								
No. 3 F.W. wing tank stbd	56.89		56.89								
No. 4 F.W. DB tank port	37.21		37.21								
No. 4 F.W. DB tank stbd	37.21		37.21								
WB FP tank (C)	151.64				155.43						
No. 1 DW/WB tank port	31.29			31.29							
No. 1 DW/WB tank stbd	31.29			31.29							
No. 2 DW/WB tank port	33.48			33.48							
No. 2 DW/WB tank stbd	33.48			33.48							
No. 3 DW/WB tank centre	46.81			46.81							
WB/DW wing tank port	31.85			31.85							
WB/DW wing tank stbd	31.85			31.85							
WB/DW AP tank port	27.83			27.83							
WB/DW AP tank stbd	27.83			27.83							
WB/DW AP tank centre	84.94			84.94							
No. 1 FO DB tank port	81.59	69.35									
No. 1 FO DB tank stbd	80.61	67.15									
No. 2 FO DB tank port	83.74	69.76									
No. 2 FO DB tank stbd	83.74	69.76									
No. 3 FO wing port	232.23	193.45									
No. 3 FO wing stbd	232.23	193.45									
No. 4 FO wing port	144.12	120.05									
No. 4 FO wing stbd	144.12	120.05									
FO day tank port	49.87	41.54									
FO day tank stbd	49.87	41.54									
Liquid mud tank No. 1 port	77.10					192.75					
Liquid mud tank No. 1 stbd	77.10					192.75					
Liquid mud tank No. 2 port	77.10					192.75					
Liquid mud tank No. 2 stbd	77.10					192.75					
Liquid mud tank No. 3 port	77.10					192.75					
Liquid mud tank No. 3 stbd	77.10					192.75					
Brine tank centre	185.48						463.70				
Lube oil tank port	8.99										
Lube oil tank stbd	8.99										
Hyd tank stbd	9.10										
Foam tank	21.41										
Detergent tank	21.42										
Bilge holding tank	7.55										
Dirty oil tank	7.55										
Dry bulk No. 1	51.00									122.40	
Dry bulk No. 2	51.00									122.40	
Dry bulk No. 3	51.00									122.40	
Dry bulk No. 4	51.00									122.40	
Total weight in tonnes		986.10	402.91	380.65	155.43	1156.50	463.70			489.60	
Total volume in m³		1182.12	402.95	380.65	151.64	462.60	185.48			204.00	

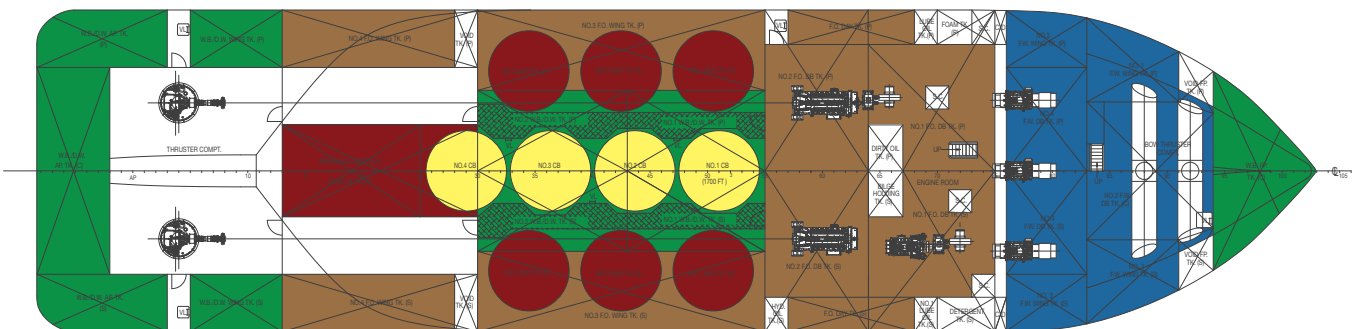
GA Specifications



Outboard profile

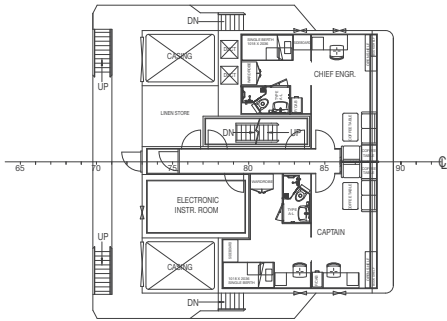


Main deck

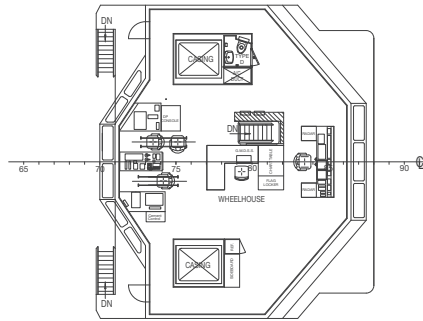


Below deck

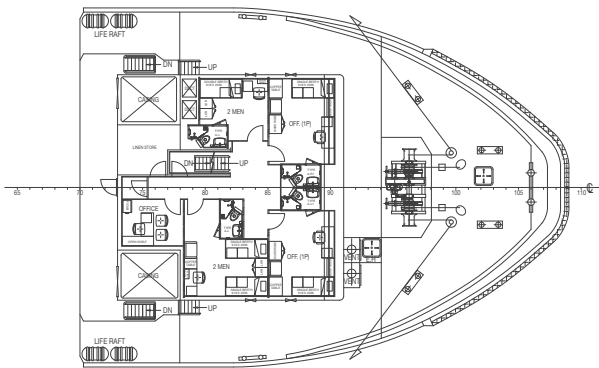
GA Specifications



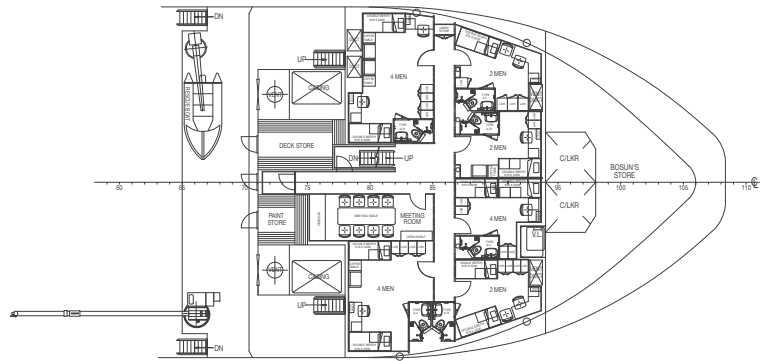
Officer deck



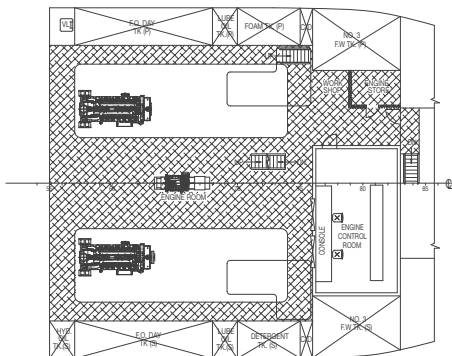
Bridge deck



Upper forecastle deck



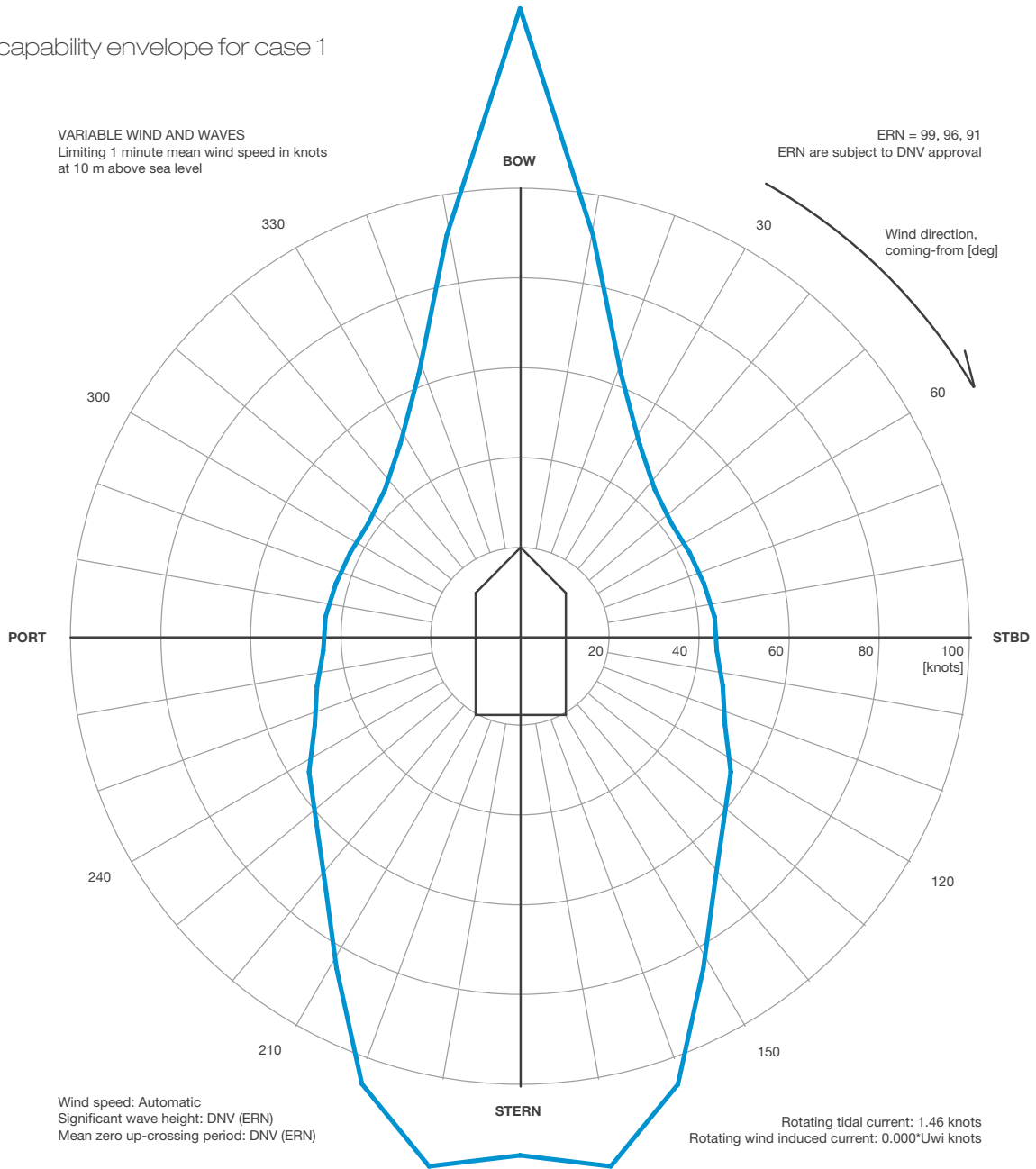
Forecastle deck



Tween deck

DP Capability Plot - DMS Courageous

DP capability envelope for case 1



KONGSBERG

Case number : 1
 Case description : ERN calculation
 Thrusters active : T1-T4
 Rudders active :

Input file reference : foot3373_A.scp
 Last modified : 2010-02-09 10.07 (v. 2.7.1)

Length overall : 70.0 m
 Length between perpendiculars : 61.0 m
 Breadth : 16.8 m
 Draught : 2.8 m
 Displacement : 1749.0 t (Cb = 0.59)
 Longitudinal radius of inertia : 15.3 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)

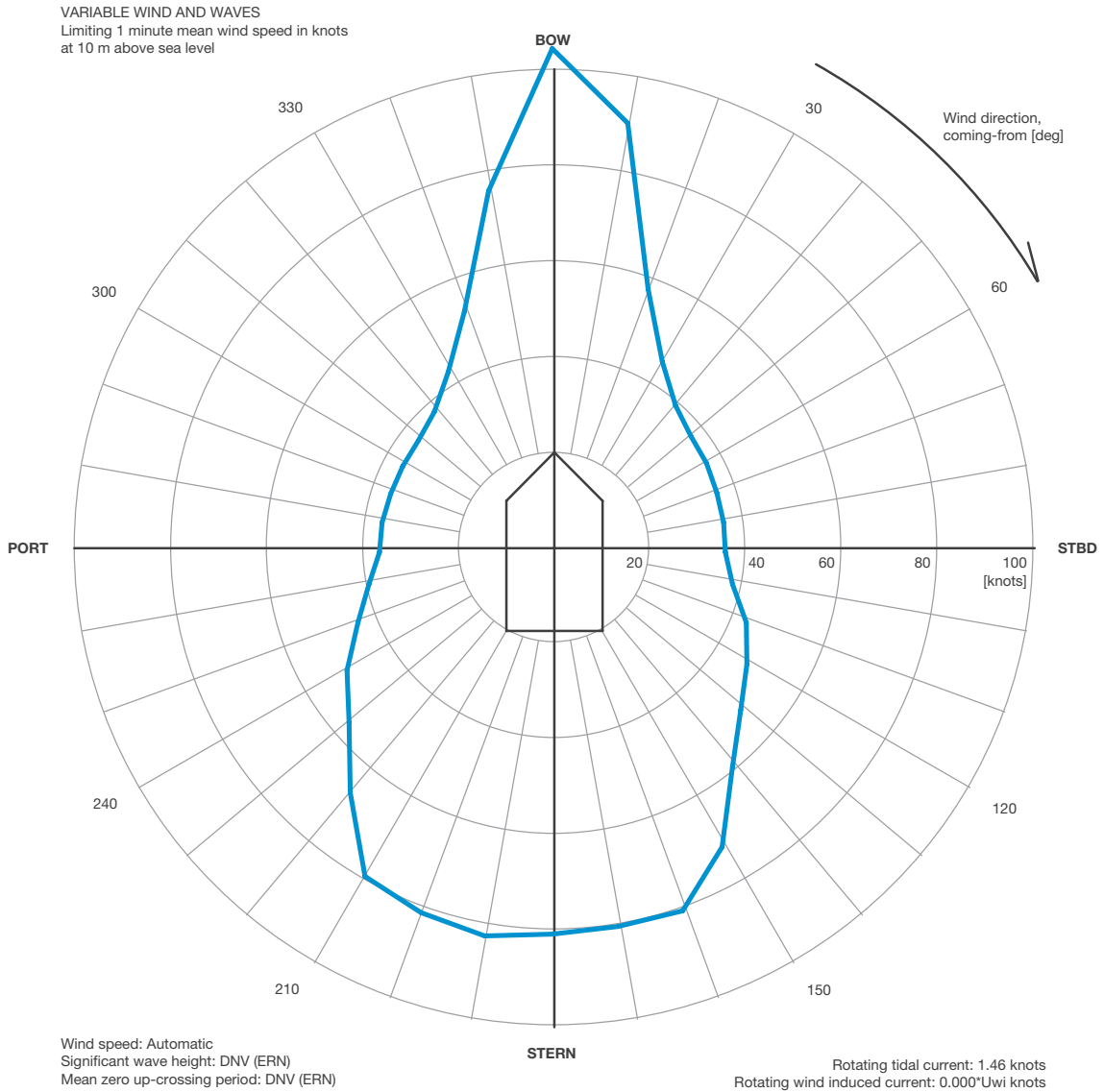
Tidal current direction offset : 0.0 deg
 Wave direction offset : 0.0 deg
 Wave spectrum type : JONSWAP (gamma = 3.30)
 Wind spectrum type : NPD
 Current - wave-drift interaction : OFF
 Load dynamics allowance : 1.0 * STD of thrust demand
 Additional surge force : 0.0 tf
 Additional sway force : 0.0 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	23.0	0.0	7.0	-7.0	100	570	
2	TUNNEL	20.0	0.0	7.0	-7.0	100	610	
3	AZIMUTH	29.7	-3.5	32.9	-20.2	100	1860	
4	AZIMUTH	-29.7	3.5	32.9	-20.2	100	1860	

DP Capability Plot - DMS Courageous

DP capability envelope for case 2



KONGSBERG

Case number : 2
Case description : Loss of least significant thruster
Thrusters active : T1-T3
Rudders active :

Input file reference : foot3373_A.scp
Last modified : 2010-02-09 10.07 (v. 2.7.1)

Length overall : 70.0 m
Length between perpendiculars : 61.0 m
Breadth : 16.8 m
Draught : 2.8 m
Displacement : 1749.0 t (Cb = 0.59)
Longitudinal radius of inertia : 15.3 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)

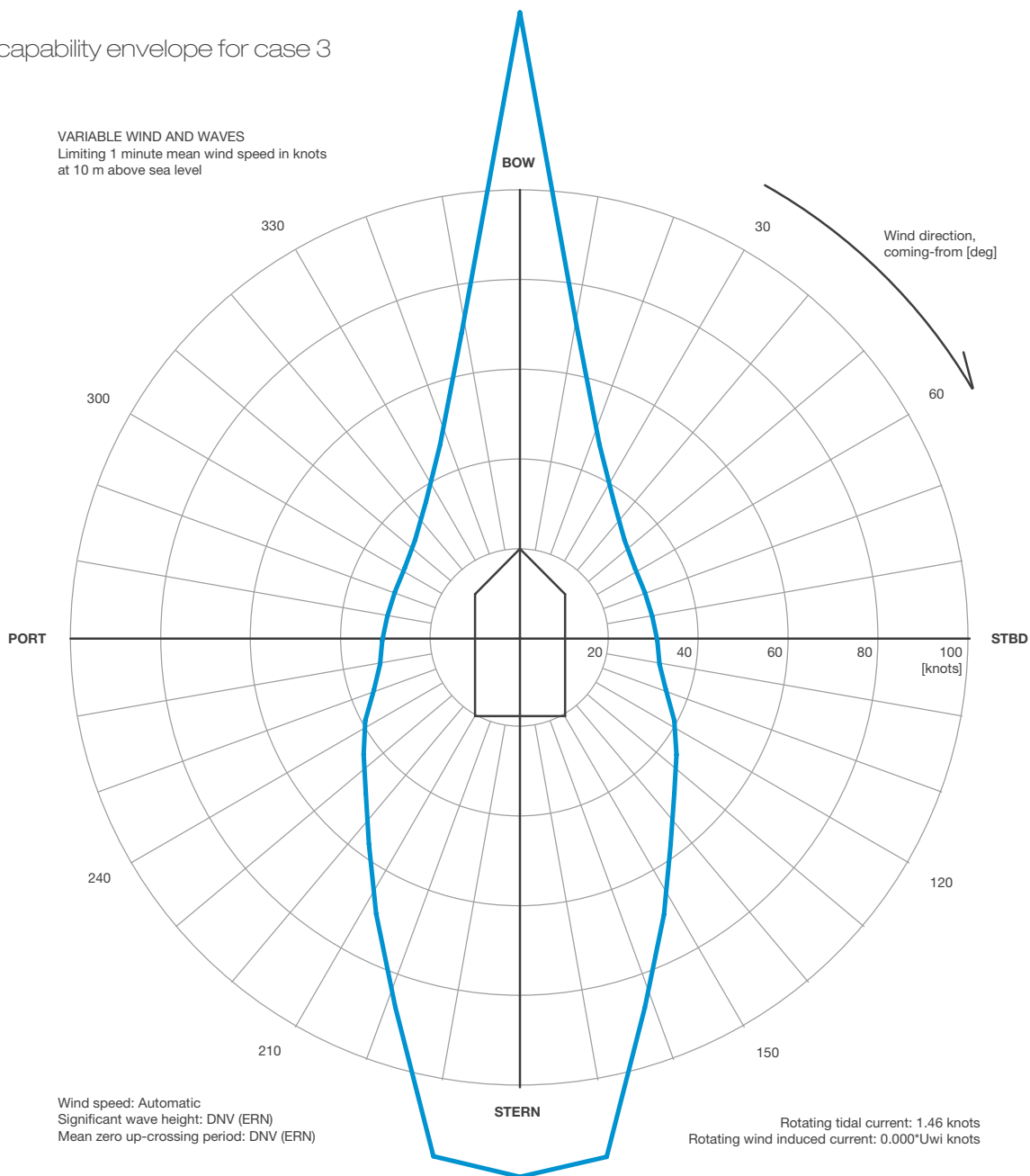
Tidal current direction offset : 0.0 deg
Wave direction offset : 0.0 deg
Wave spectrum type : JONSWAP (gamma = 3.30)
Wind spectrum type : NPD
Current - wave-drift interaction : OFF
Load dynamics allowance : 1.0 * STD of thrust demand
Additional surge force : 0.0 tf
Additional sway force : 0.0 tf
Additional 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	23.0	0.0	7.0	-7.0	100	570	
2	TUNNEL	20.0	0.0	7.0	-7.0	100	610	
3	AZIMUTH	29.7	-3.5	32.9	-20.2	100	1860	
-4	AZIMUTH	-29.7	3.5	32.9	-20.2	100	1860	

DP Capability Plot - DMS Courageous

DP capability envelope for case 3



KONGSBERG

Case number : 3
Case description : Loss of most significant thruster
Thrusters active : T2-T4
Rudders active :

Input file reference : foot3373_A.scp
Last modified : 2010-02-09 10.07 (v. 2.7.1)

Length overall : 70.0 m
Length between perpendiculars : 61.0 m
Breadth : 16.8 m
Draught : 2.8 m
Displacement : 1749.0 t (Cb = 0.59)
Longitudinal radius of inertia : 15.3 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	23.0	0.0	7.0	-7.0	100	570	
2	TUNNEL	20.0	0.0	7.0	-7.0	100	610	
3	AZIMUTH	29.7	-3.5	32.9	-20.2	100	1860	
4	AZIMUTH	-29.7	3.5	32.9	-20.2	100	1860	

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