

**3560 MT
MULTIROLE- ROV- & SUPPORT VESSEL**



CLASS AND : Det Norske Veritas (DnV)

**NOTATIONS : +1A1, CLEAN, COMF-V (3), DK (+),
DYNPOSAUTR, EO, HELDK-S,
NAUT-OSV (A), SSC
SPS code applicable.**

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1. Introduction:

The Vessel is designed for the general offshore field supply duties for a safe and economic worldwide service. The Vessel will have Diesel Electric Frequency Controlled propulsion system driving two highly efficient Azimuth Thrusters and Dynamic Positioning System.

2. Classifications:

DNV CLASS Notation +1A1, CLEAN, COMF-V (3), DK (+), DYNPOS-AUTR, E0, HELDK-S, NAUT-OSV (A), SSC

Other Compliances:

IMO Intact and Damage Stability, COLREG – 1972, MARPOL Annex1, Regulation 12A, SOLAS 1974, SPS Code 2008

3. Brief outline of Technical Specifications:

Principal Particulars:

Hull No	:	26784
Date of Keel Laying	:	14 July 2008

Principal Dimensions:

Design	:	MT 6012 MK II
Length overall	:	93.50 m
Length (bp)	:	86.60 m
Breadth (Moulded)	:	19.70 m
Depth (Moulded)	:	7.70 m
Design Draft (Moulded)	:	6.30 m
Max Draft	:	6.30 m
Gross Tonnage (GRT)	:	4863
Net Tonnage (NRT)	:	1459
DWT	:	3600 T
Displacement	:	7724 MT at 6.3 m draft
Speed	:	14.5 knots at 4.5 m draft
Complement	:	100
Fuel Type	:	ISO – F – DMC (Marine Diesel Oil)
Cargo Deck Area	:	800 m ² approx.
Deck Strength	:	5 – 10 t/m ²
Moon pool	:	6 m x 6.6 m, Location Midship

Tank Capacity:

Fresh Water	:	621 m ³
Fuel Oil	:	1721 m ³
Anti-Heeling	:	565 m ³
Lub Oil	:	39 m ³
Water Ballast	:	3321 m ³
Bilge	:	10 m ³
Sewage	:	23 m ³
Hydraulic Oil	:	11 m ³
Waste Oil	:	8 m ³
Miscellaneous Tanks	:	220 m ³

4. Main Machineries:

Main Generators (2 sets)	<p>Diesel Engine:</p> <p>2 x 2600 kW x 900 rpm WARTSILA W8L26</p> <p>2 x 1480 kW x 900 rpm WARTSILA W8L20</p> <p>Alternator : AVK DSG 99 K1/8W</p> <p>1770 kVA x 690 V x 60 Hz x 3 ph x 900 rpm</p>
Azimuth Thrusters (2 sets)	<p>Thruster: WARTSILA LIPS FS275-S/WN</p> <p>2 x 2600 kW @ 900 rpm</p> <p>Propeller: 251 rpm, 2600 mm diameter, 5blades fixed pitch</p> <p>Electric Motor: HYUNDAI HRN7 712-88E</p> <p>2 x 2600 kW x 690 V x 60 Hz</p>
Bow Thruster (3 sets)	<p>Thruster: KAWASAKI KT-157 B5</p> <p>3 x 1050 kW @ 880 rpm</p> <p>Propeller: 2200 mm diameter, 4 blades controllable pitch</p> <p>Electric Motor: HYUNDAI HRN7 505-88Y</p> <p>3 x 1050 kW x 690 V x 60Hz 3 ph</p>

5. Auxiliary Equipment:

Emergency Generator (Diesel Engine)	:	265kw@1800 rpm, D9-MG HE/KC/RC, AB VOLVO PENTA, Sweden
Starting Air Compressors	:	2 x 40m ³ / hr – 30bar, HATLAPA Germany
Working Air Compressors	:	150m ³ / hr – 7bar, HATLAPA Germany
Instrument Air Drier with 1 x 60 liter receiver	:	Air flow 183 m ³ /hr, HATLAPA Germany
FO purifier	:	ALFA LAVAL, India
Oily Bilge Water Separator	:	RWO GmbH, Germany
Sewage Treatment Plan	:	EVAC OY, Finland
Calorifier	:	750 liters CASCADE ELECTROTHERMICS PVT LTD
RO Fresh Water Maker	:	35 tons / day, TECNOCOMAR
Incinerator	:	OG 400C 580 kw, Team Tec AS Norway
Box Coolers	:	4U1525 KAS100/4, NRF B. V. Mill, Netherlands
Lighting System	:	Glamox, Norway

6. Deck Machinery:

Winches:

Anchor / Mooring Windlass Winch	:	2 x SWL 11.2 T, MACGREGOR
Mooring Capstan Winch	:	2 x SWL 10 T, MACGREGOR
Tugger Winch	:	2 x SWL 15 T, MACGREGOR
Cargo Securing Winch	:	4 x SWL 3 T, MACGREGOR

Deck Cranes:

Deck Cranes	:	2 x 5 T - 15 m TTS MARINE ASA
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Pumps:

Pumps for Ship's Common Systems:

FW Cooling System	LT Cooling for ME stand by	2 x 60m ³ /h, 2 x 76m ³ /h,
	HT Cooling for ME stand by	2 x 39m ³ /h, 2 x 45m ³ /h,
	Tunnel Thruster Cooling	6 x 20m ³ /h – 3.0 bar,
	Prov. Freeze Comp Cooling	2 x 12m ³ /h – 2.5 bar,
	Main Prop. System Cooling	4 x 80m ³ /h – 3.0 bar,
FO System	FO Separator	2 x 2050 L/h, ALFA LAVAL
	FO Transfer	2 x 10m ³ /h – 20 mwc, 1 x 1m ³ /h – 2.5 bar, ALLWEILER
Potable Water System	Hydrophore Pumps	2 x, ALLWEILER
	Pr. Hold Pump Fire System	1 x 3m ³ /h – 7 bar,
	Hot Water Circulation Pump	1000 L/h
Bilge System	Bilge Water Separator RWO	1 x 3m ³ /h
	Bilge Pumps	3 x 65 m ³ /h - 15mwc
Anti-Heeling System	Anti-Heeling Pumps	2 x 1200 m ³ /h - 12mwc, Hoppe
LO System	LO Transfer Pump, Aft Thruster	1 x 5m ³ /h – 2 bar, ALLWEILER
	LO Transfer Pump, ME	1 x 5m ³ /h – 2 bar, ALLWEILER
	LO Stand by Pump, ME	2 x 32m ³ /h – 4 bar 2 x 75m ³ /h – 6 bar
	LO Hand Pumps	6 nos.
SW Cooling System	For Chiller Unit	2 x 146m ³ /h, HEINEN & HOPMAN

Fire Pumps:

Fire Pump	:	2 x 50m ³ /h – 7 bar, ALLWEILER
Combined Fire / Ballast Pump	:	2 x 200m ³ /h – 9 bar, ALLWEILER

Cargo Pumps:

Fresh Water Pump	:	0 - 200m ³ /h – 9 bar, ALLWEILER
Ballast Pump	:	2 x 200m ³ /h – 9 bar, ALLWEILER
FO Transfer Pump	:	2 x 10m ³ /h – 20 mwc, ALLWEILER

	1 x 1m ³ /h – 2.5 bar, ALLWEILER
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7. HVAC & Refrigeration:

Chiller Plants	:	2 x 430 Kw, Hienen& Hoffman
Split AC Units in Bridge & Sky Lobby	:	2 x 2TR , Carrier
AC Package Unit for MSB Room	:	10 TR, Carrier
Refrigeration Plant	:	2 x 7.5 Kw, Hienen& Hoffman

8. Fire Fighting Equipment:

Fire Fighting System – Combined Fi-Fi System prepared for Class II

Foam System- A foam monitor system for protection of helicopter deck

Water mist Fire Fighting System, NOVENCO Denmark

For engine room, emergency generator room, switch board room, the incinerator room and the galley hood, according to the authority's requirements.

Fire Fighting System With Hand Extinguishers- Hand extinguishers at various locations, according to the authority's requirements.

Fire Alarm and Detection System–TYCO, Singapore

9. Life Saving Appliances:

Total number of Lifeboats	:	2 nos. SCHAT HARDING
No of persons accommodated by Lifeboats	:	100
Total number of Rescue boats	:	1 no. NORSAFE
Total number of Life rafts	:	6
No of persons accommodated by Life rafts	:	100
No of Lifebuoys	:	12
No of Lifejackets	:	105 for adults + 10 for children
No of immersion suits	:	105

10. Communication / Navigation Equipment:

Communication System:

Equipment	Qty	Manufacture
GMDSS Area 3 with 2 Mini "C", VHF & MF / HF	1	Thrane&Thrane, Denmark
Inmarsat Fleet 250 Broad band	1	Thrane&Thrane, Denmark
EPRIB	2	Thrane&Thrane, Denmark
SART	2	Thrane&Thrane, Denmark
Portable GMDSS VHF	3	Thrane&Thrane, Denmark
SSAS	1	Thrane&Thrane, Denmark
Sound Power Telephone	1 lot	Amplidan
Auto Telephone	1 lot	Phonetech
TV/AM/FM Antenna and socket outlets	1 lot	Seatel 6004
UHF	3	Motorolla, Japan
PA System & Loud Hailer	1 lot	VINGTOR
Heli Deck Monitoring System	1	KONGSBERG
Heli Communication	1	JOTRON
Heli Beacon System	1	Southern Avionics Co. USA

11. Navigational Aids:

Gyro compass	3	Sperry Marine Germany
Autopilot	1	Raytheon Anschutz, Germany
Magnetic Compass	1	Cassens& Plath, Germany
Radar – X-Band, 21" 96NM	1	FURUNO, Japan
Radar – S – Band, 23", 96 NM	1	FURUNO, Japan
Watch Keeping Receiver	1	
Navtex Receiver	1	Japan Marina Co. Ltd
Echo Sounder	1	JRC Japan
Speed log	1	AMESYS
DGPS	2	JRC Japan
AIS	1	JOTRON
VDR	1	Kelvin Hughes
TECDIS	1	FURUNO, Japan
BINWAS & BAS	1	ULSTEIN, Norway
Acoustic reference: HiPAP 500	1	KONGSBERG

12. VCS System: (Comply to DNV Classification Rules)

High level of Automation (VCS), Equipment and system provided to be in compliance with the Classification Rules and regulations.

CONVERTEAM (Designer and Supplier of the system)

The system comprises the following key elements:

Controllers, Field stations, Work stations & Dual Ethernet Network

Load and Stability Calculator	: 1 no
Alarm and Event Printers	: 2 in nos.
VCS Controller	: 2 in nos.
Watch Call Panels	: 2 in nos.

13. DP-II System:

Dynamic Positioning System according to DNV class DYNPOS AUTR.

Equipment System & Configuration:

KONGSBERG (Designer and Supplier of the system except for the Gyro-compass)
Equipment and system provided to be in compliance with the Classification Rules and regulations.

The system main features comprises of the following:

Redundancy requirement	: Yes
DP control computer	: 2 units
Position Reference system	: 2 x DGPS
Wind speed & Direction Equipment	: 2 units
Vertical Reference Unit	: 2 in nos.
Motion Reference Unit	: 2 in nos.
Printer for alarm data Log	: 2 in nos.

14. Accommodation Space:

100% high end accommodation, COMF-V (3) compliance.

Total Accommodation	:	100 Berths, Fully Air-conditioned
1 man Cabin	:	24
2 men Cabin	:	30
4 men Cabin	:	04
Hospital	:	Yes
Day Room	:	1no, 36 seats
Additional Work Rooms	:	Workshop, Gymnasium
ROV Control Rooms	:	1
ROV Workshop	:	1
Conference Room	:	2
Offices	:	2

15. Other Features:

- With provision for Moon pool for ROV support function.
- ROV Equipment for launch & rescue operation.
- Absence of Hazardous Material like – Asbestos.
- Vessel designed for the provision for the following Equipment:
 1. AHC Offshore HydramarineCrane, 100 ton @ 15m
 2. 22m Diameter Aluminum Helideck for Sikorsky S92 & S-61N
- Any exemptions required from the flag state will be the responsibility of the buyer.

16. Spare Parts:

Class Standard requirements applied.

17. Bridge & Accommodation Photographs:



Bridge



1 Man Cabin



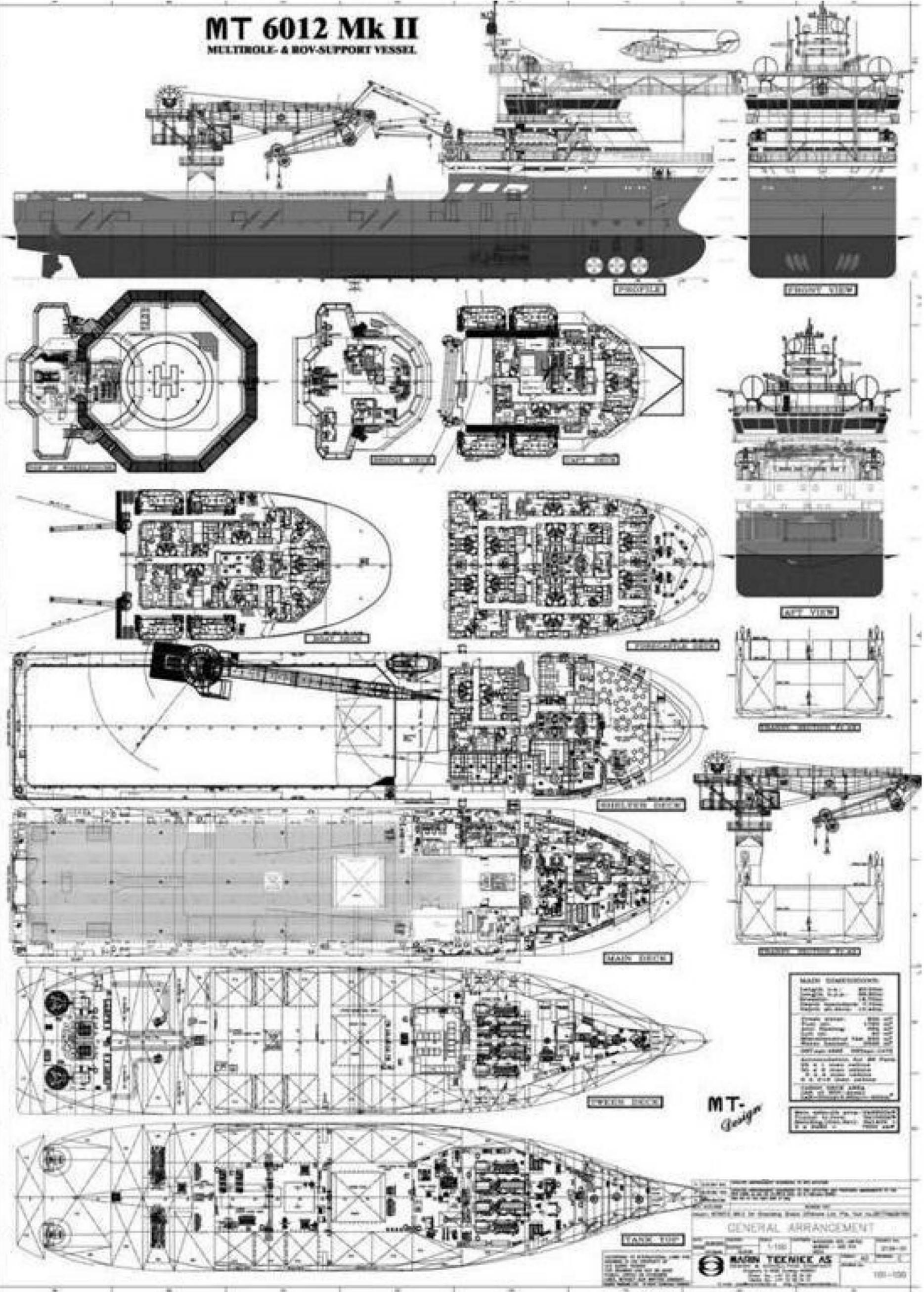
Two Men Cabin



Four Men Cabin

MT 6012 Mk II

MULTIROLE- & ROV-SUPPORT VESSEL



MAIN DIMENSIONS	
Length	120.00 m
Breadth	18.00 m
Depth	10.00 m
Displacement	1200 t
Power	1200 kW
Speed	12 knots
Range	1000 nm
Endurance	30 days
Complement	20 crew
Armament	2000 kg
Stores	1000 kg
Deck area	1000 m ²
Deck height	10.00 m
Deck width	18.00 m
Deck length	120.00 m
Deck area	1000 m ²
Deck height	10.00 m
Deck width	18.00 m
Deck length	120.00 m

MT-
Design

GENERAL ARRANGEMENT

MAIN TECHNICAL AS

100-100