

## ROV & Survey Support Vessel

### DIMENSIONS

Length 65.5m & Beam 16m

### ACCOMMODATION

60 persons

### MAIN DECK AREA

630m<sup>2</sup>

### MAIN CRANE

20t Electro-Hydraulic  
Knuckle Boom

### DIVE SYSTEM (OPTIONAL)

Air Dive System

### ROV EQUIPMENT

Capacity for 2 x XLX or  
Commanche ROV  
Mezzanine Deck

### OTHER SERVICES

Moon Pool – 4.5m x 4.5m



OFFSHORE SOLUTIONS UNLIMITED

# TECHNICAL SPECIFICATIONS

## MAIN PARTICULARS

Owners	Harkand Atlantis Marine Investments Inc
Builder	PT ASL Shipyard, Batam, Indonesia
Flag	Singapore
Port of Registry	Singapore
Call Sign	9V7528
Classification	American Bureau of Shipping (ABS)

## PRINCIPLE DIMENSIONS

Length Overall	65.5 metres
Breadth Moulded	16 metres
Depth Moulded to Main Deck	6.8 metres
Design Draft	4.5 metres
Deadweight (maximum)	1213.85 metres
GRT	2503
NRT	751
Deck Strength	5.0 MT/m <sup>2</sup> Uniform Loading
Clear Deck Area	630m <sup>2</sup>

## PERFORMANCE

Maximum Speed	12.5kts
Economical Speed	10.5kts
Type of Fuel	Marine Diesel

## TANK CAPACITIES

Fuel Oil	541.9m <sup>3</sup>
Fresh Water	319.4m <sup>3</sup>
Ballast Water	463.8m <sup>3</sup>
Portable Water	276m <sup>3</sup>
Cement	168m <sup>3</sup>
Freezer/Chiller	10m <sup>3</sup>

## PUMP CAPACITIES

Cargo Fuel Oil 1x Gear Pump Capacity:

- 100m<sup>3</sup>/hr @ 75m Head

Bilge/Ballast/Fire – 2x Self Priming Centrifugal Capacity:

- 65m<sup>3</sup>/hr @ 60m head

G.S/Fire/Bilge Pump – 1 x Self Priming Centrifugal Capacity:

- 75m<sup>3</sup>/hr @ 50m head

Fresh Water/Drill Water – 2 x Vertical Centrifugal Capacity:

- 100m<sup>3</sup>/hr @ 70m head

Potable Water – 1 x Self Priming Centrifugal Capacity:

- 100m<sup>3</sup>/hr @ 70m head

## AUX MACHINERY

Oily Water Separator	1 x 1.0 m <sup>3</sup> /hr with 15ppm alarm Approved to IMO resolution MEPC 107(49)
Fresh Water Maker	1 x 15m <sup>3</sup> per day Reverse Osmosis Type
Sewage Treatment Plant	1 x STP Unit approved to IMO Resolution MEPC 159(55) Capacity: 100 men

## PROPULSION SYSTEM

Main Engines	2 x 1838kW, 750 RPM Niigata 6L28HX Diesel
Shaft Alternators	2 x 900kW Stamford PMT36F2, Front M/E PTO
Main Generators	4 x 500kW@0.8pf, 1800RPM, 440/3/60Hz, Caterpillar C3412DITA w/ Stamford Alternator
Emergency Genset	1 x 150kW@0.8pf, 1800RPM, 440/3/60Hz, Caterpillar C9 w/ Leroy-Somer Alternator
Bow Thrusters	2 x Berg BTT 418, Electric Motor Driven, Approx. 10mt thrust.
Propulsion	2 x Niigata ZP-41CP, 360° z-Drive Propeller Mono-block Construction, 4-bladed, Controllable Pitch in Kort Nozzle, Thruster mounted electro- hydraulic motor for steering control.

## ACCOMMODATION CAPACITY

- Berths 6 x Two man cabins.  
27 x Two men cabins. Total berths for 60 men.
- Sick Bay 2 bed with well-equipped facilities

All cabins are fully air conditioned/heated with attached module toilets.

## DYNAMIC POSITIONING SYSTEM

- Kongsberg K-Pos Dynamic Positioning
- 2 x K-Pos OS Operator Station
- cJoy Independent Joystick System

Position Reference Sensors – 1 x HiPAP 500 System, 2 x DGPS Trimble  
DSM 232, 3 x MRU's, 3 x Gill Wind Sensors

# TECHNICAL SPECIFICATIONS

## INTEGRATED AIR DIVE

Moon pool 1 x 4.5m x 4.5m

## INTERNAL COMMUNICATIONS / ENTERTAINMENT

CATV	NAVAL Model Mark 22CA with distribution up to 14 outlets
Sound Powered Telephone Internal Communications	VINGTOR VSP Battery Less Telephone VINGTOR ACM-Marine Integrated Telephone/Command System
Public Address System Talkback	VINGTOR SPA PA/GA VINGTOR TALKBACK

## DECK EQUIPMENT

<b>Anchor Windlass</b>	1 x Electro-Hydraulic Anchor Windlass suited for 44mm U2 Anchor Chain
Duty Pull	12t x 10m/min, Overload @ 12.6t Static
Brake Holding	49.6T Static
Brake/Clutch	Manually Operated
Warping End	Rated Pull Low Speed – 5.0T x 15m/min @ 1st Layer, 30m/min @ 1st Layer, Slack Speed – 30m/min @ 1st Layer
Control	Local And W/H Remote Control
Anchors	2 x HY-14 HHP Anchors
Chain	44mm Grade U2
<b>Tugger Winch</b>	1 x Electro-Hydraulic Winch Units Drum
Rated Pull	250m x Dia. 22mm SWR @ 7 Layers
Brake Holding	5T x 15m/min (1st Layer)
Control	15T (Static, 1st Layer) Local Stand
<b>Capstan</b>	2 x Electro-Hydraulic Vertical type capstan
Rated Pull	5T x 15m/min
Capstan Head Size	380mm
<b>Deck Crane</b>	1 x Electro-Hydraulic Haean Knuckle Boom
Capacity	20T @ 10m
Hoist Speed	18m/min
Hoist Height (Max)	300m
Slewing Speed	0.5 RPM
Luffing Speed	135 sec (ave up/down)
<b>Provision Crane</b>	1 x Deck Crane for Provision/General Cargo
Capacity	3T @ Max 7m outreach. Min 2m
Hoist Speed	15m/min
Hoist Height (Max)	20m
Slewing Speed	1RPM
Luffing Speed	60 sec

## FIRE FIGHTING EQUIPMENT

- Emergency Fire Pump - 1 x Horizontal Self Priming Centrifugal Pump, Capacity 55m<sup>3</sup>/hr

Complete CO2 Protection System in Engine room and Bow Thruster Room. Complete Fire Detection and Alarm System for vessel, designed to ABS regulations.

## SAFETY EQUIPMENT

Liferafts	8 x SOLAS Approved Inflatable Life rafts each of capacity 25 men stored in over side cradles
Rescue Boat	1 x SOLAS Approved Rescue Boat, c/w launching davit, Capacity 6 men c/w 25HP outboard motor
Lifebuoys	10 x lifebuoys as per SOLAS requirements
Lifejackets	75 x lifejackets as per SOLAS Requirements

## ROV EQUIPMENT

Vessel designed to accommodate up to 2 of the following ROV systems:

### Sub-Atlantic Comanche Light Work Class

- 75HP 1000m depth rated
- In-built ROV Control Room and ROV Workshop facilities

### Triton XLX Work Class System

- 150HP 3000m depth rated
- 400m (option of 750m) of flying Tether on TMS
- Dynacon Launch & Recovery System capable of Sea State 6 Operations

### ROVs capable of being positioned on purpose built

#### Mezzanine Deck and/or Main Deck (ROV simops capable)

- Dual purpose Mezzanine ROV grillage capable of accommodating XLX or Comanche
- Dual 380-440vac 400amp ROV power supplies on Mezzanine Deck
- Single 380-440vac 200amp ROV power supplies on Main Deck
- Multiple 240vac and 110vac ROV power supplies on both Decks
- Data/Comms/Video wiring to accommodate twin ROV Systems
- Dedicated ROV Superintendent/Project Room

# TECHNICAL SPECIFICATIONS

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## RADIO & NAVIGATION

### GMDSS

Furuno Model RC-1800T 250W GMDSS Radio Console System with Inmarsat-C Model FS 2575C / FM 8800S MF VHF DSC Watch Receiver  
Model FELCOM-15 LRIT Inmarsat C Complete Set  
Model FELCOM-15 SSAS Inmarsat C Ship Security Alert System

### Radars

Furuno Model FAR-2117 21-in, 12kW, 96NM TR-up, X-Band ARPA Radar  
24RPM Furuno Model FAR-2137S 21-in, 30kW, 96NM TR-up, S-Band ARPA Radar

### DGPS

Two units Furuno Model GP-150 6-in LCD IMO-approved DGPS Navigator Set

### Magnetic Compass

John Lilley Gillie LTD. Type: SR4 Anschuetz STD 22 110-233  
Triple Gyro Compass for DPS-2 compliance

### Autopilot

Anschuetz Model PILOTSTAR D Digital Autopilot

### Echo Sounder

Furuno Model FE-700 6.5-in IMO Type Approved Navigation Echo Sounder

### Speed Log

Furuno Model DS-80 Doppler Type Speed Log 9-10 to 40 knots) Complete Set

### NAVTEX

Furuno Model NX-700B

### Wind Sensors

Three units RM Young Model 05103-58 Wind Monitors

### AIS

Furuno Model FA-150 Automatic Identification System (AIS)

### EPIRB

McMurdo Model S4 9Ghz GMDSS Search & Rescue Transponder Complete Set

### VHF Radio

Three units McMurdo Model R2, 2.5W, 25kHz, 19 channels Waterproof GMDSS VHF Log 9-10 to 40 knots) Complete Set

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## OTHER FACILITIES

Recreation Room	1 provided
Meeting Room	1 with seating capacity for 10 persons
Mess Room	1 with seating capacity for 30 persons
Offices	4

# DP Capability Plot

## 65.5M RSV

Case number : 1  
 Case description : All thrusters are available  
 Thrusters active : T1-T4  
 Rudders active :

Input file reference : Foot\_4314.ssp  
 Last modified : 2012-03-26 11:40 (v. 2.8.0)

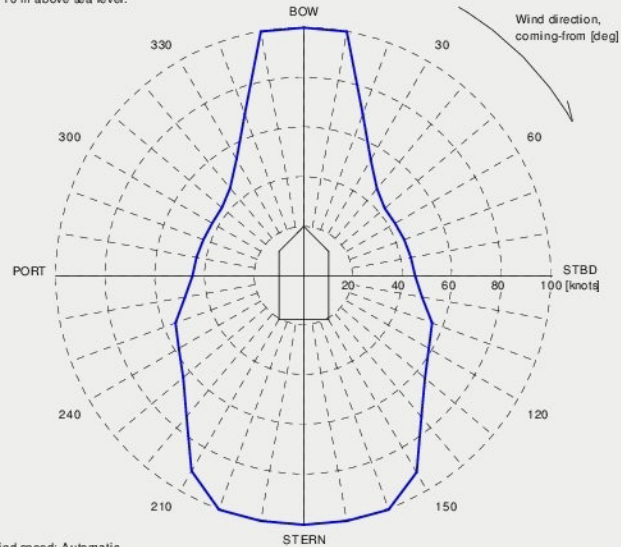
Length overall : 65.5 m  
 Length between perpendiculars : 62.9 m  
 Breadth : 16.0 m  
 Draught : 4.5 m  
 Displacement : 3500.0 t (Cb = 0.75)  
 Longitudinal radius of inertia : 15.7 m (= 0.25 \* Lpp)  
 Pos. of origin ahead of Lpp/2 (Xo) : 0.0 m  
 Wind load coefficients : Calculated (Blendermann)  
 Current load coefficients : Calculated (Strip-theory)  
 Wave-drift load coefficients : Database (Scaled by Breadth/Length)

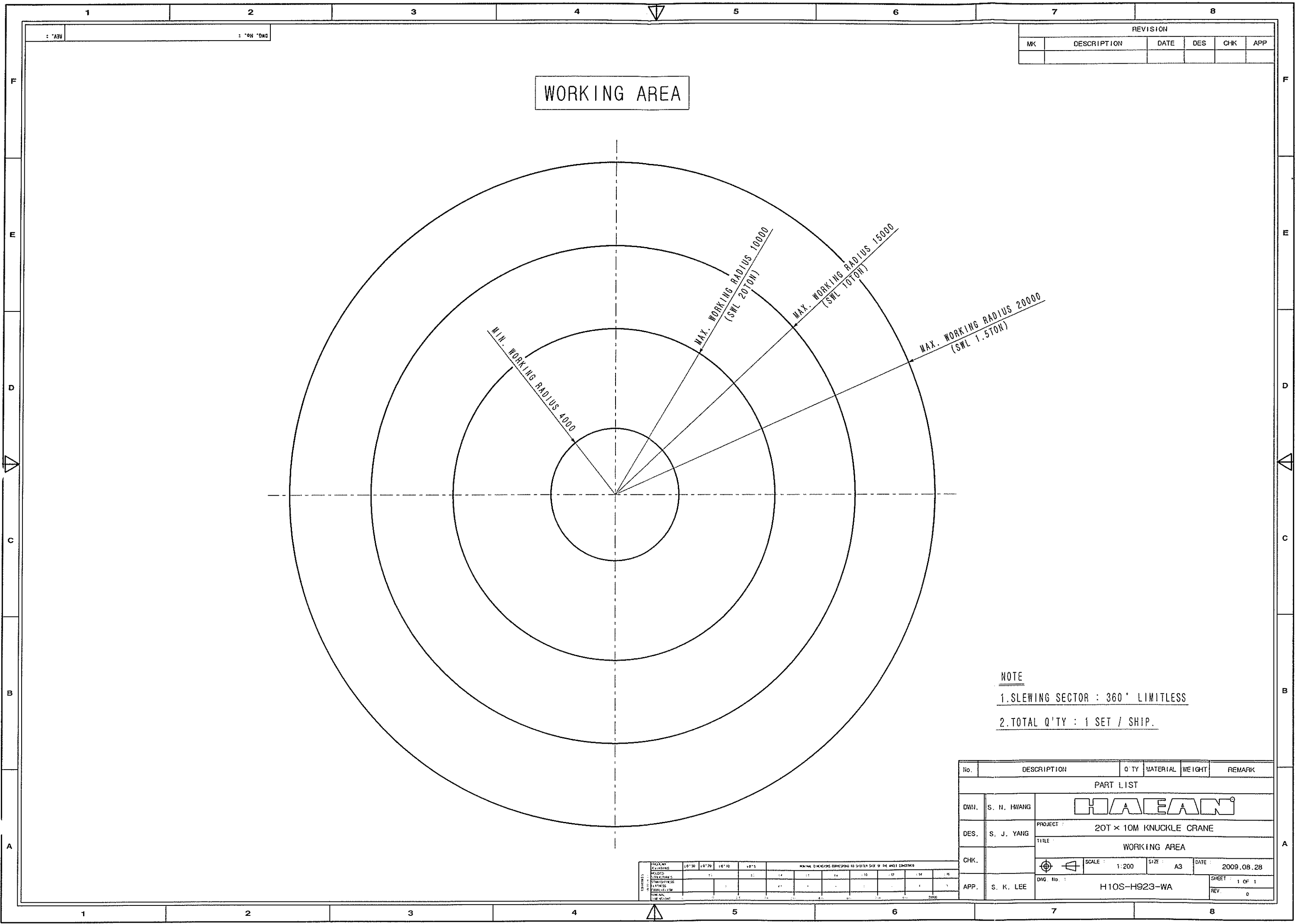
Tidal current direction offset : 0.0 deg  
 Wave direction offset : 0.0 deg  
 Wave spectrum type : JONSWAP (gamma = 3.30)  
 Wind spectrum type : NPD  
 Current - wave-drift interaction : OFF  
 Load dynamics allowance : 1.0 \* STD of thrust demand  
 Additional surge force : 0.0 tf  
 Additional sway force : 0.0 tf  
 Additional yawing moment : 0.0 tf.m  
 Additional force direction : Fixed  
 Density of salt water : 1026.0 kg/m<sup>3</sup>  
 Density of air : 1.226 kg/m<sup>3</sup> (15 °C)

Power limitations : OFF  
 Thrust loss calculation : ON

#	Thruster	X [m]	Y [m]	F+ [tf]	F- [tf]	Max [%]	Pe [kW]	Rudder
1	TUNNEL	27.4	0.0	9.5	-9.5	100	600	
2	TUNNEL	25.1	0.0	9.5	-9.5	100	600	
3	AZIMUTH	-26.8	-4.0	35.5	0.0	100	1838	
4	AZIMUTH	-26.8	4.0	35.5	0.0	100	1838	

VARIABLE WIND, Constant current and waves  
 Limiting 1 minute mean wind speed in knots  
 at 10 m above sea level.





REVISION					
NO.	DESCRIPTION	DATE	DES	CHK	APP

**NOTE**  
 1. SLEWING SECTOR : 360° LIMITLESS  
 2. TOTAL Q'TY : 1 SET / SHIP.

No.	DESCRIPTION	Q'TY	MATERIAL	WEIGHT	REMARK
PART LIST					
DWIN.	S. N. HWANG	<b>HAEGAN</b>			
DES.	S. J. YANG	PROJECT : 20T x 10M KNUCKLE CRANE			
CHK.		TITLE : WORKING AREA			
APP.	S. K. LEE	SCALE : 1:200	SIZE : A3	DATE : 2009.08.28	SHEET : 1 OF 1
DWG. No. : H10S-H923-WA					REV. : 0

PROJ. NO.	DATE	SCALE	SIZE	DATE	SHEET

