



# ANNEX «A»

## M/V SANCO SPIRIT

YOUR PARTNER IN MARINE SEISMIC OPERATIONS



<b>SHIP DESIGN</b>	MM 86 Seismic, Source / 2-D Seismic Survey Vessel
<b>CLASSIFICATION</b>	BV
<b>BUILDER</b>	Vaagland Båtbyggeri AS, Norway , build no. 141,
<b>BUILT</b>	Year 2009
<b>PORT OF REGISTRY</b>	Gibraltar
<b>FLAG</b>	Gibraltar
<b>IMO NUMBER</b>	9429936
<b>CALL SIGN</b>	ZDJN3

<b>OWNER:</b>	<b>Sanco Holding AS</b>	<b>MANAGER:</b>	<b>Sanco Shipping AS</b>
	Moljevegen 32 N-6083 Gjerdsvika NORWAY		Moljevegen 32 N-6083 Gjerdsvika NORWAY

<b>MAIN DIMENSIONS</b>		<b>CLASS NOTATIONS</b>  BV: + HULL, + MACH, + AVM-DPS, + AUT-UMS, ICE, + DYNAPOS AWAT R, SPS IMO A.534(13) HELDK-SH. Unrestricted navigation
Length O.A	86.5 m	
Length P.P	83,41 m	
Breadth	16.0 m	
Draft	5.80 m	
Gross Tonnage	4396	

Updated: December 2018  
All specification given without guarantee, and subject to changes

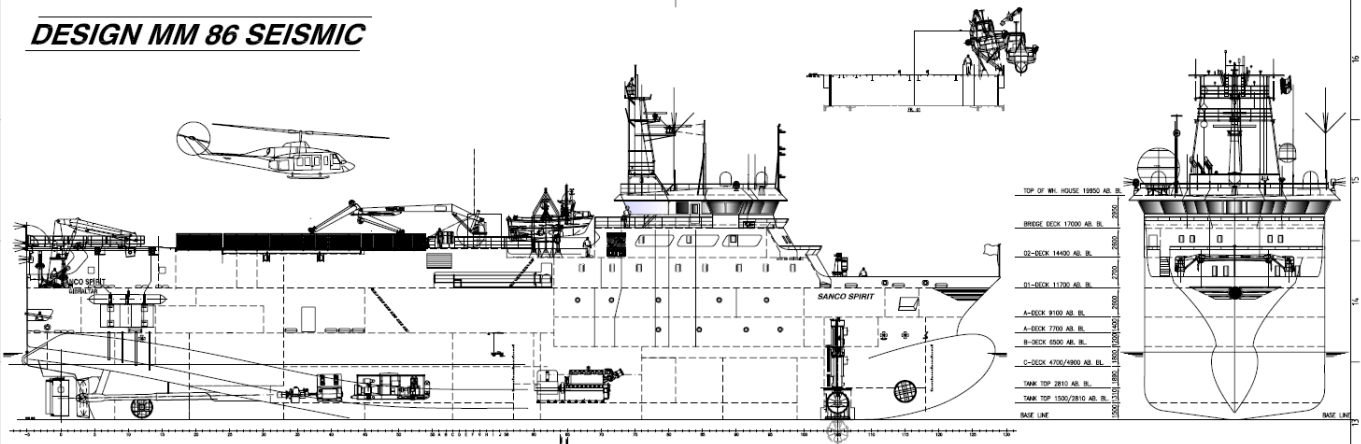
# OUTLINE SPECIFICATION M/V SANCO SPIRIT

<b>MACHINERY AND PROPELLER PLANTS</b>	
Main propulsion:	STADT Stascho, 2 x 2500 kW, 690 V
Main engines:	4 x 1593 kW, ABC Diesel, 8 DZC, 900 rpm
Main gear:	2 x Finnøy
Generators:	4 x AVK, 1612 kW each
Propeller:	2 x 4 bladed Finnøy, Ø=3100, 150/190 rpm
Emergency Aux.	1 x Scania, 352 kW
Bow thruster 1:	1 x Brunvoll tunnel, 700 kW
Bow thruster 2:	1 x Brunvoll, Azimuth, 700 kW
Stern thruster 1:	1 x Brunvoll tunnel, 700 kW
Rudders:	2 x RR Hince Flap rudder
Steering Gear:	2 x RR Tenfjord
Working air Compressors:	2 x Sperre . + 1 Atlas Copco
<b>ELECTRIC POWER</b>	
690 V, 440 V, 230 V all 60Hz	
<b>DECK MACHINERY</b>	
Crane, 02-deck:	1 x Triplex folded jib, SWL 5 T at 15 m
Crane, provision, 01 deck:	2 x Triplex crane, SWL 1,5 T at 6 m
Crane, 01 deck (streamer deck):	1 x MB Hydraulic, SWL 5 T at 15 m
Seismic Cable winches:	4 x 9000 m each, 60 mm diameter
Seismic Gun winches:	7 x 330 m each, 67 mm diameter
Auxiliary winches:	17 pcs on gun & streamer deck
Hydraulic power pack:	2 x 350 bar
<b>NAVIGATION EQUIPMENT</b>	
Auto Pilot:	Anschutz PilotStar D
GPS:	2 x Furuno GP-150
Radar 1:	1 x 3 cm Furuno FR 2117, Arpa
Radar 2:	1 x 10 cm Furuno FR 2137, Arpa
Radar 3:	1 x SeaHawk
Gyro 1 & 2:	2 x Simrad GC 80
Gyro 3:	Furuno SC-50
Electronic Chart navigation:	2 x Furuno TECDIS, Telco
DP system:	Kongsberg SDP 21
C-Joy with track steering:	Kongsberg with dedicated software
Echo sounder bridge:	Furuno FE 700
Echo sounder, dual frequency:	Simrad ES- 640, 12, 38 & 200 kHz
Speed log / Current meter:	Furuno DA-80
Voyage Data Recorder:	Furuno VR-3000
AIS:	Furuno FA-150 AIS
EPIRB:	1 x Sailor SE-406 II
<b>SEISMIC</b>	
On-line Nav. system:	
Primary Navigation:	
GPS receiver:	
Gun array tracking:	
Acoustic / Transducer:	Almek HPR, USBL Sonardyne
Gyro:	Teledyne TSS, Meridian
<b>ENERGY SOURCE</b>	
Type:	BOLT 1900 LLXT
Number of Sub. Arrays:	6 pcs sub. arrays in use, 6 position each array and 2,5 meter between guns
Configuration:	Single / Dual source/ Triple Source.
Tow width:	Dual /Triple source, 100 m max COS
Firing control:	Gun Link 2000
QC:	Gun Link and Gator
NFH:	All position
PT:	Pressure Transducer Last Position
Depth transducer:	3 per sub-array
Tow system:	Baro Flex. 18' float syst. with diverters
Deflectors:	Barovane type 3 or Midi 140 % door
Seismic compressors:	2 x Neuman & Esser, SAPS 62
Compressor capacity:	2 x 2200 cf m = 4400 cf m in total
Working pressure:	2000 Psi
Power control:	Freq. drives with auto RPM control

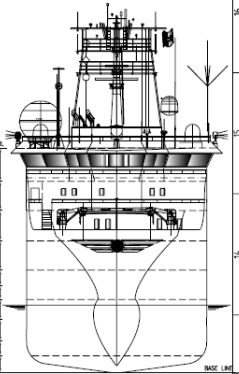
<b>SPEED AND FUEL CONSUMPTION</b>	
Max. speed:	15 knots – 27 m3/day
Service speed:	13 knots – 19 m3/day
Economic speed:	10 knots – 10 m3/day
Seismic shooting:	4,5 knots – 11 m3/day
Bollard pull:	40 tons
Endurance shooting:	90 days
Endurance economic speed:	100 days
<b>IN LINE BUNKERING CAPABILITY</b>	
The vessel is arranged with in line bunkering over the bow	
<b>CAPACITIES</b>	
Fuel:	1100 m3 (MDO)
Drinking water:	117 m3
Lube oil:	17 m3
Sewage:	50 m3
Grey water:	48 m3
Dirty oil / Sludge oil:	10 m3 + 4 m3
Fresh water generator:	ENWA Osmosis Plant, 21 m3/day
Sewage treatment plant:	DVZ-SKA-40 "BIOMASTER"
Ballast treatment plant:	MMC Green Technology 100 m3
Waste compactor:	Delitek, Type DT- 500 Mk II
Incinerator:	Teamtec Golar OG 400
Black water:	Jets Vacuum DVZ
Helideck, Day light:	D-value 19,5 meter, 11 tonnes
<b>LIFE SAVING EQUIPMENT</b>	
Safety manning level:	10 persons
Rescue / FRC / MOB:	MAGNUM 750, water jet
Workboat:	Malo 22' Seismic
Inflatable life rafts:	6 x 25 persons Viking DK 25
Life Jackets:	99 pcs + 5 kids
Life buoy:	11 pcs
Survival suits:	54 pcs
Emergency radios:	3 x Sailor SP 3520
Radar transponders:	2 x Sailor Sart II
Fire detection system:	Autronica Minerva T200 CV
Fire pumps:	2 x Allweiler 36 m3/h + 1 x 31 m3/h
Co2 system:	Autronica
Lifesaving capacity max.:	47 persons
<b>COMMUNICATION</b>	
Fixed satellite line, Iridium:	
Marlink VSAT KU band:	
Inmarsat C:	
M/F & H/F:	Sailor CU 5100
VHF Stationary:	2 x Sailor 6222 + 1 x Sailor RT 2048
Handheld VHF radios:	3 x Sailor SP 3520
UHF stationary:	5 x Motorola GN 380
UHF portable:	6 x Motorola UHF GP 340
Internal communication:	Alcatel Omini PCX
Satellite – Inmarsat Type C:	2 x Sailor TT 3606
Nav. Tex.:	Furuno NX-700
Satellite com. Equipment:	Iridium
Vessel E-mail:	bridge.spirit@sanco.no captain.spirit@sanco.no
<b>ACCOMMODATION</b>	
Instrument room:	1 pcs sep. aircon. with redundancy
Gun Shack:	1 pcs with air-condition
Work Shop:	2 pcs with air-condition
Seismic store:	2 pcs
Mess room:	Seating for 30 persons
Day rooms:	3 x day rooms 1 conference room 1 internet café
Gymnasium:	Yes
Air condition:	Techno Term HVAC system
Cabins:	13 x 1 bed with bathroom 17 x 2 bed with bathroom Hospital with bathroom



# DESIGN MM 86 SEISMIC

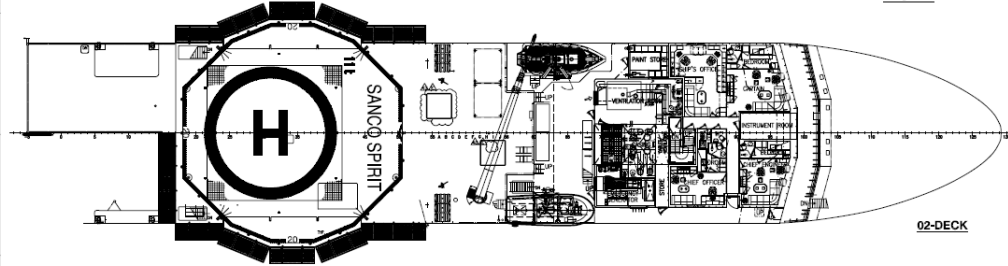


- TOP OF W. HOUSE 12800 AS. BL.
- BRIDGE DECK 17000 AS. BL.
- 02-DECK 14400 AS. BL.
- 01-DECK 11700 AS. BL.
- A-DECK 9100 AS. BL.
- B-DECK 7700 AS. BL.
- C-DECK 4700/4900 AS. BL.
- TANK TOP 2810 AS. BL.
- TANK TOP 1000/2810 AS. BL.
- BASE LINE

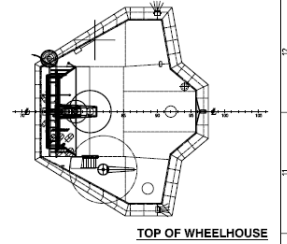


PROFILE

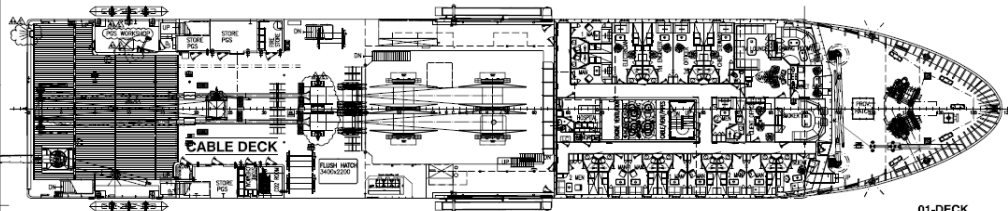
FRONT VIEW



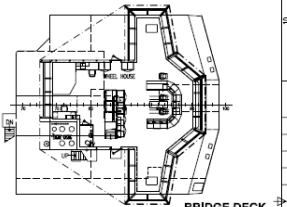
02-DECK



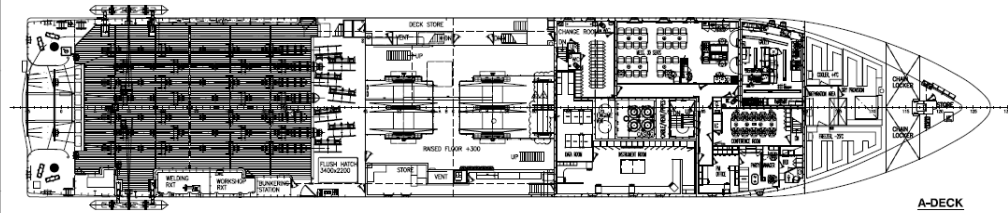
TOP OF WHEELHOUSE



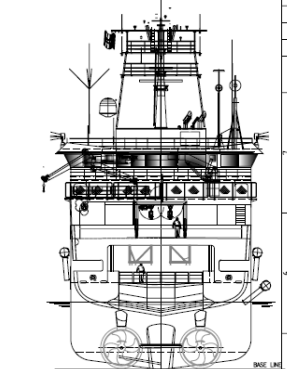
01-DECK



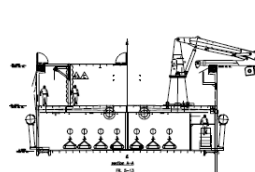
BRIDGE DECK



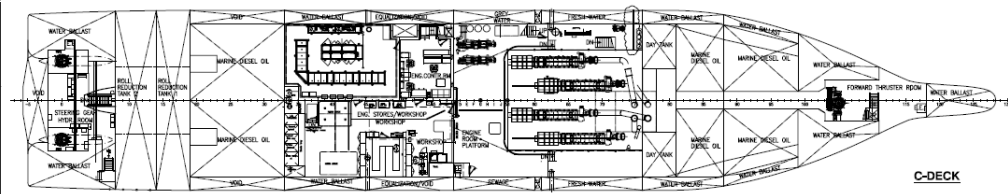
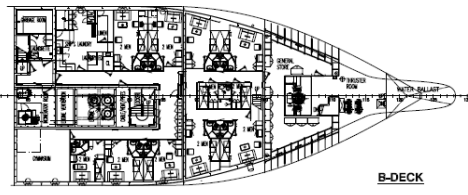
A-DECK



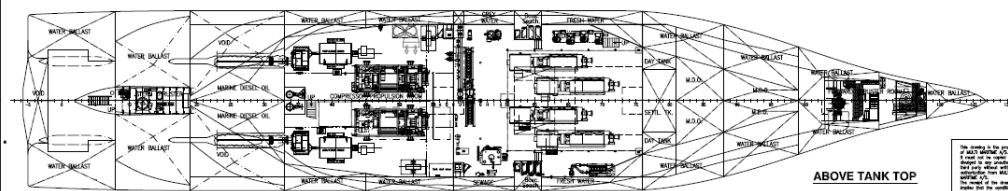
STERN VIEW



B-DECK



C-DECK



ABOVE TANK TOP

## MM 86 SEISMIC

### MAIN DIMENSIONS:

- LENGTH OVER ALL - 86.50 m
- LENGTH BETWEEN LPP - 79.40 m
- BREADTH MOULDED - 16.00 m
- LENGTH BETWEEN LPP (LOAD LINE) - 79.30 m
- LENGTH BETWEEN LPP (DIN Rule length) - 82.41 m
- DEPTH MOULDED TO FREEB. - 7,763,10 m
- SCANTLING WATER LINE - 6,110 m
- DESIGN WATER LINE (DWL) - 5,75 m
- SINGLE CABINS - 15
- DOUBLE CABINS - 18
- RESCUE EQUIPMENT FOR - 47 PERSONS

### CLASS:

DIN 1, ICB-C, EG, RP, DYNPOS-AUT, HELD-GH

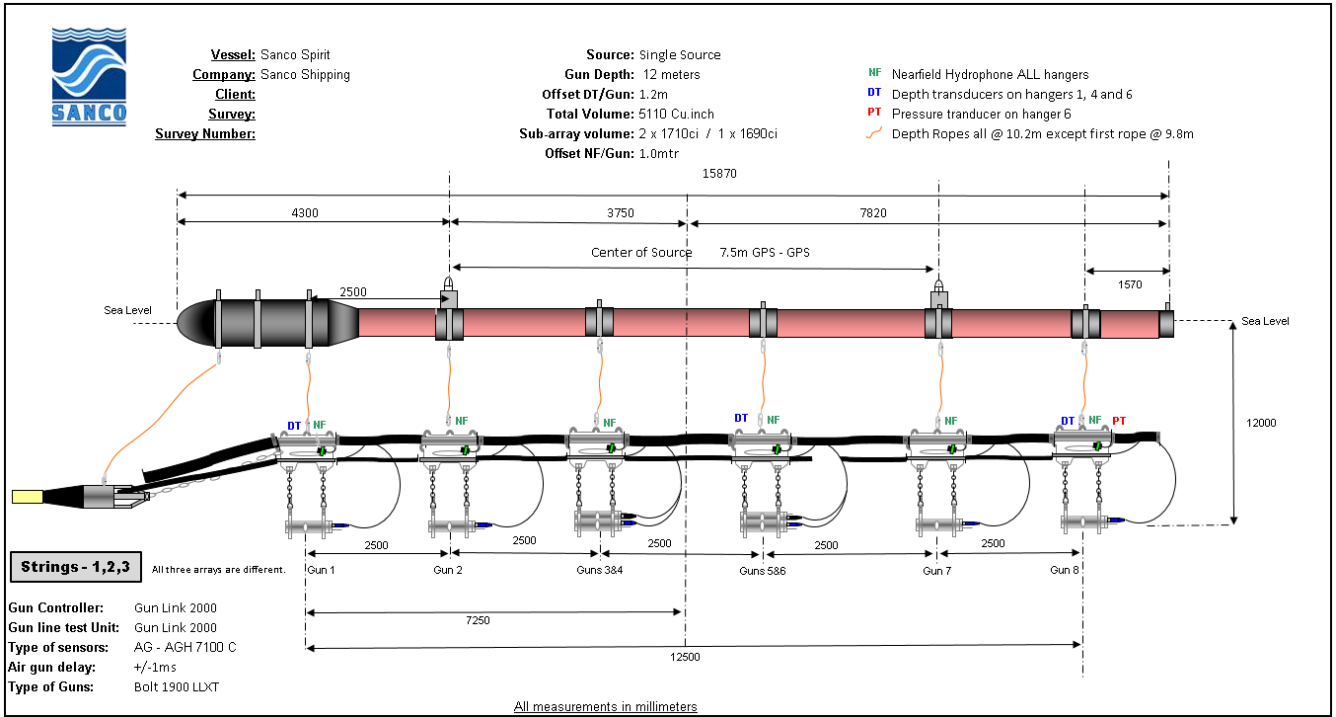
IMO No: 9429936

E	Owners comments 141010	111010	001
D	Owners comments 111010	111010	001
C	Owners comments	001010	001
B	Reassigned for POS	120010	001
A	As built logbook		

**VAAGLAND**  
 GENERAL ARRANGEMENT  
 MM 86 SEISMIC  
 PROJECT NO: 1102  
 SHEET NO: 250/26  
 DATE: 01/2008  
 FILE NAME: 7\_000000\_ND\_RVYD  
 E-mail: [vaagland@vaagland.no](mailto:vaagland@vaagland.no)



## Sanco Spirit Gun String Offsets



### Sanco Spirit has the following Bolt guns & chambers onboard:

1900 LLXT Bolt guns – 64 pcs which can be configured as clusters / singles as required

1200 - 511B - AT Solenoid – 64 pcs

1900 LLXT chambers as per below table:

**Volumes / Quantity on board**

Cuin	90	120	140	155	175	200	230	250	
LLXT	12	8	4	16	4	8	8	4	

### Spreader bars for Bolt Guns

1000 mm bar (can be used both upper & lower) = 112 pcs (28 assembled Cluster)



# Sanco Spirit Towing

