



# ANNEX «A» to TimeCharterParty

## 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> Moljevegen 32 N-6083 Gjerdsвика NORWAY	<b>MANAGER:</b>	<b>Sanco Shipping AS</b> Moljevegen 32 N-6083 Gjerdsвика NORWAY
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<b>MAIN DIMENSIONS</b>		<b>CLASS NOTATIONS</b>
Length O.A	86.5 m	BV: + HULL, + MACH, + AVM-DPS, + AUT-UMS, ICE, + DYNAPOS AM/AT R, SPS IMO A.534(13) HELDK-SH. Unrestricted navigation BV ID Number: 34673 Q
Length P.P	83,41 m	
Breadth	16.0 m	
Draft	5.80 m	
Gross Tonnage	4396	

Updated: November 2021  
All specification given without guarantee, and subject to changes

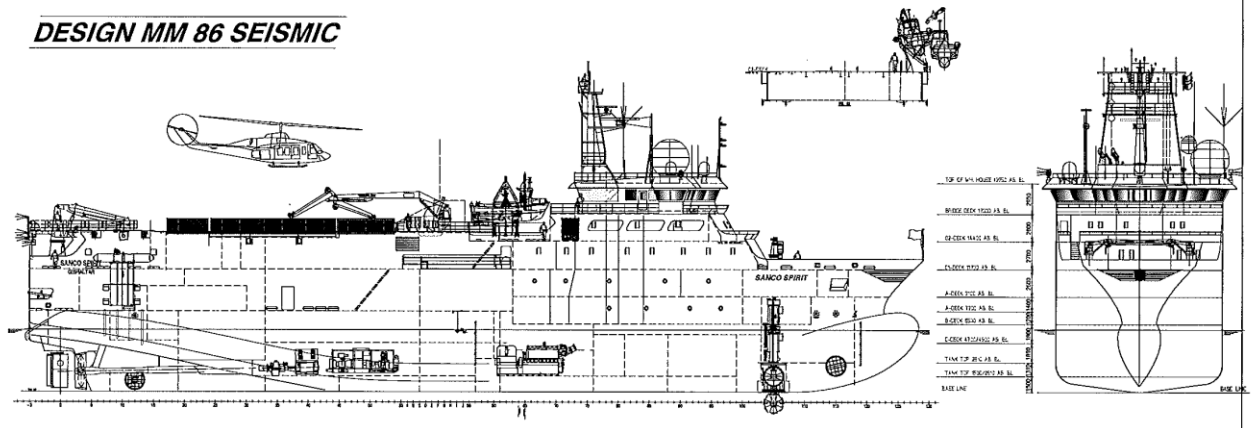
# OUTLINE SPECIFICATION M/V SANCO SPIRIT

<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
Hydraulic power pack:	2 x 350 bar
Seismic Gun winches:	10 x 550 m each, 72 mm diameter
Auxiliary winches:	17 pcs on gun & streamer deck
<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
Survey echo sounder:	Kongsberg EA-640, 18, 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:	ION Gator II
Primary Navigation:	Fugro Starfix.XP2/G4
GPS receiver:	Fugro StarPack and Starfix 9205
Gun array tracking:	Seamap BuoydLink 4DX, 2 pods pr Array
Acoustic Transducer, ADCP:	Almek HPR, USBL Sonardyne
Gyro:	Teledyme TSS, Meridian, Seapath 320
<b>ENERGY SOURCE</b>	
Type:	BOLT 1900 LLXT
Number of Sub. Arrays:	6 pcs subarrays in use, up to 7 position each array and 2,5 meter between guns
Configuration:	Single / Dual source/ Triple Source.
Tow width:	Dual /Triple source, 200 m max COS
Firing control:	Gun Link 2500
Navigation Processing:	FGPS SeisPos
NFH:	Dual NFH on all gunplates
PT & DT:	One on each gunplate
Tow system:	Baro Flex. 18' float syst. with diverters
Deflectors:	Baro C680-4000, Midi 140 %
Near Field Hydrophone QC:	RadExPro real time monitoring
Seismic compressors:	1 x Neuman & Esser, SAPS 51D
Compressor capacity:	2 x Neuman & Esser, SAPS 62 (1 x 1800) + (2 x 2200) = 6200 cfm 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, Daylight:	D-value 19,5 meter, 11 tonnes
<b>LIFE SAVING EQUIPMENT</b>	
Safety manning level:	10 persons
Rescue / FRC / MOB:	MAGNUM 750, water jet
Lifesaving capacity max.:	59 persons
Inflatable life rafts:	6 x 25 persons Viking DK 25
Life Jackets:	99 pcs + 5 kids
Life buoy:	11 pcs
Survival suits:	60 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
<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 dayrooms 1 conference room 1 internet café
Gymnasium:	Yes
Air condition:	Techno Term HVAC system
Cabins:	13 x 1 bed with bathroom 23 x 2 bed with bathroom Hospital with bathroom
Client office:	1



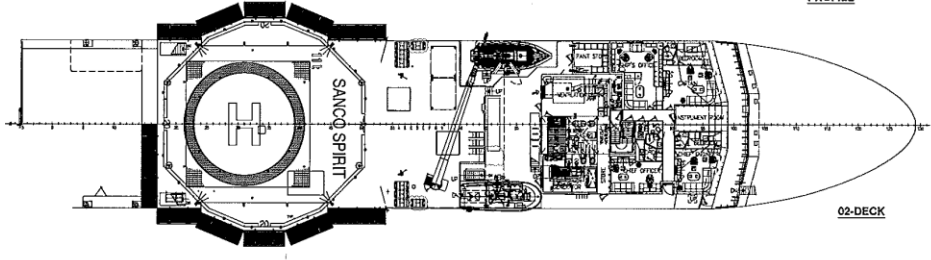
# DESIGN MM 86 SEISMIC



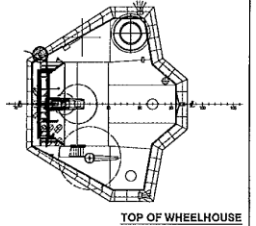
- TOP OF MAIN HOIST AS SL
- BRIDGE DECK 1520 AS SL
- DECK 1510 AS SL
- DECK 1490 AS SL
- DECK 1470 AS SL
- DECK 1450 AS SL
- DECK 1430 AS SL
- DECK 1410 AS SL
- DECK 1390 AS SL
- DECK 1370 AS SL
- DECK 1350 AS SL
- DECK 1330 AS SL
- DECK 1310 AS SL
- DECK 1290 AS SL
- DECK 1270 AS SL
- DECK 1250 AS SL
- DECK 1230 AS SL
- DECK 1210 AS SL
- DECK 1190 AS SL
- DECK 1170 AS SL
- DECK 1150 AS SL
- DECK 1130 AS SL
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- DECK 190 AS SL
- DECK 170 AS SL
- DECK 150 AS SL
- DECK 130 AS SL
- DECK 110 AS SL
- DECK 90 AS SL
- DECK 70 AS SL
- DECK 50 AS SL
- DECK 30 AS SL
- DECK 10 AS SL
- BASE LINE

PROFILE

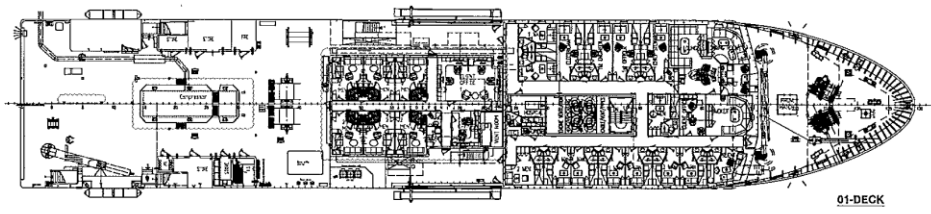
FRONT VIEW



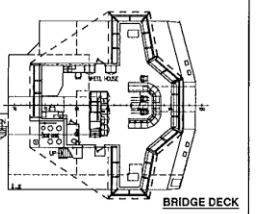
02-DECK



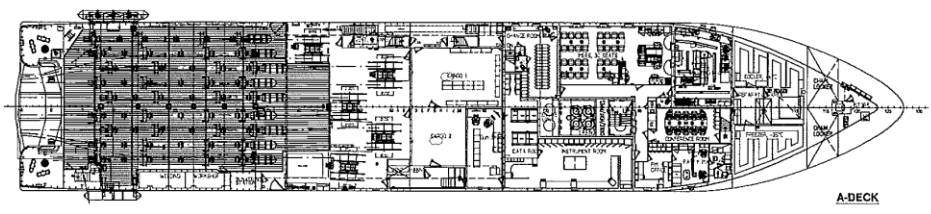
TOP OF WHEELHOUSE



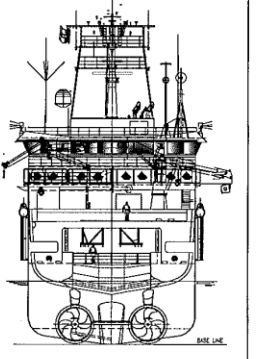
01-DECK



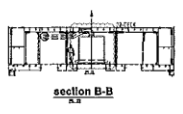
BRIDGE DECK



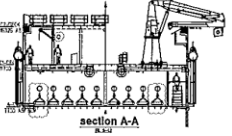
A-DECK



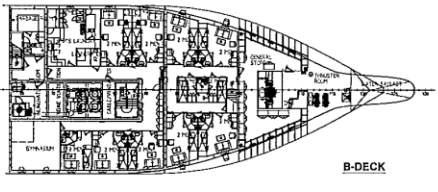
STERN VIEW



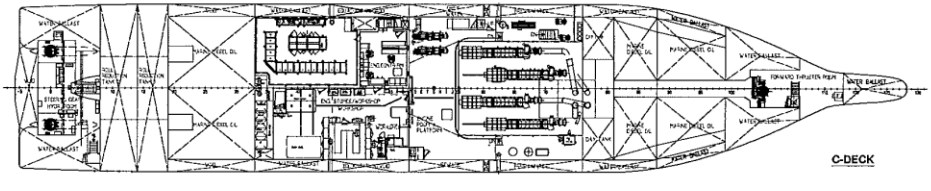
section B-B



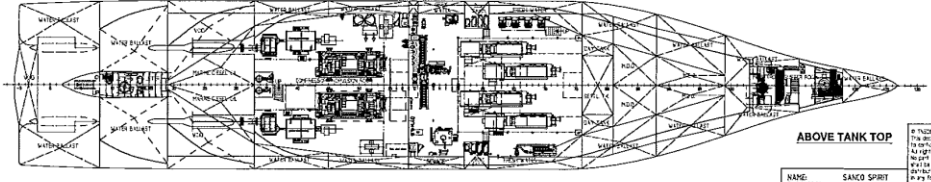
section A-A



B-DECK



C-DECK



ABOVE TANK TOP

## MM 86 SEISMIC

MAIN DIMENSIONS:

LENGTH OVER ALL	19550 m
LENGTH BETWEEN LPP	19460 m
BREADTH UNDOCKED	36200 m
LENGTH BETWEEN LPP (LOAD LINE)	19330 m
LENGTH BETWEEN LPP (SWA Rule length)	19241 m
DEPTH HOLDING TO FREE	13300/10 m
SCANTLING WATER LINE (BELOW WATER LINE EQUAL)	6.00 m
SINGLE CABINS	576 m
DOUBLE CABINS	15
RESCUE EQUIPMENT FOR	17 1641 PERSONS

PD No. 9123233  
 AUTHORITIES: GIBRALTAR  
 NOTATION: 804  
 HULL: A-HACH-A-VH-DPS-AUT-10MS-ICE-4-DYNOPS  
 ANXAT: R-SP-MS-A-31103-HELD-SH  
 Unranked classification

CORRESPONDING DRAW. BEFORE REBUILDING  
 1111011 GENERAL ARRANGEMENT

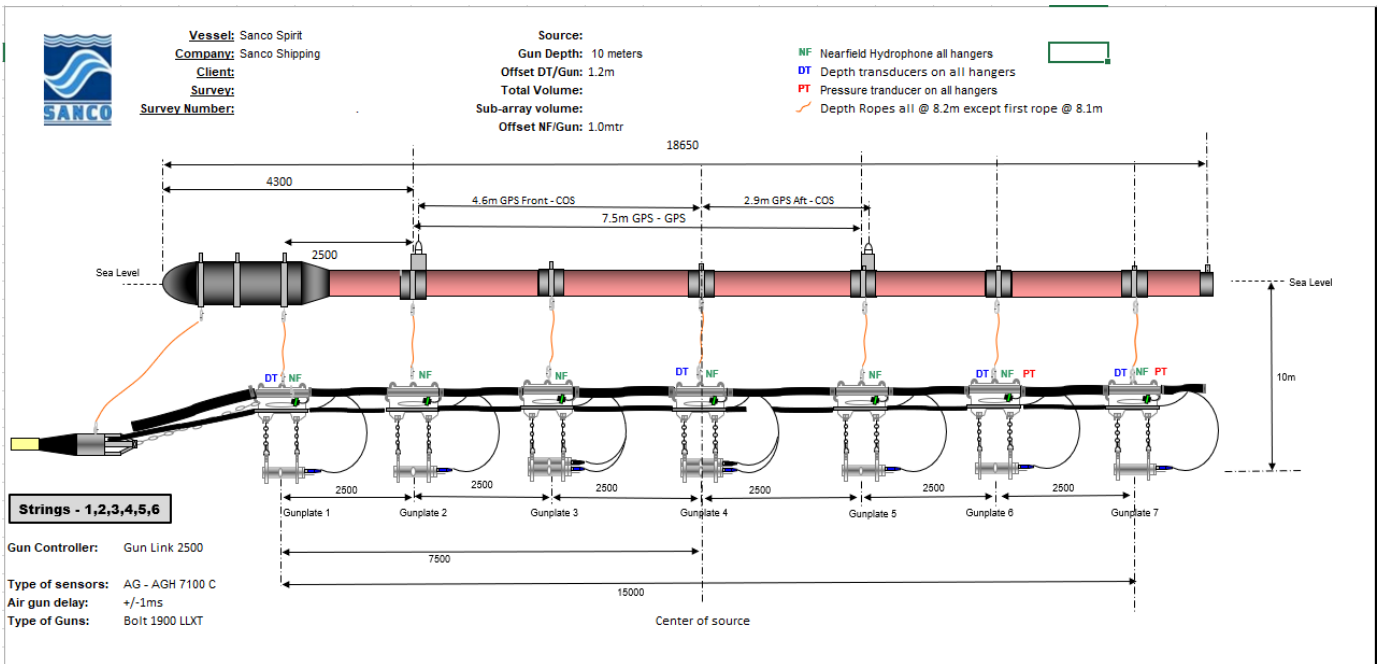
NO.	REVISION	DATE	BY	CHECKED	APPROVED
1	ISSUED TO OWNER FOR APPROVAL	2016-01-28	AS		
2	CONSTRUCTION APPROVAL FROM DANISH, NORWEGIAN, SWEDISH, FINNISH, POLISH, AND CZECH NAVY	2016-02-02	AS		
3	ISSUED TO OWNER FOR APPROVAL	2016-02-02	AS		

DESIGNED BY	Sanco Shipping AS
DESIGNED FOR	GENERAL ARRANGEMENT
DESIGNED IN	Refert 2021
DESIGNED AT	
DESIGNED BY	
DESIGNED FOR	
DESIGNED IN	
DESIGNED AT	
DESIGNED BY	
DESIGNED FOR	
DESIGNED IN	
DESIGNED AT	



## Sanco Spirit, Typical Gun String Offsets



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

1900 LLXT Bolt guns – 73 pcs which can be configured as clusters / singles as required

1200 - 511B - AT Solenoid – 80 pcs

1900 LLXT chambers as per below table:

**Volumes / Quantity on board**

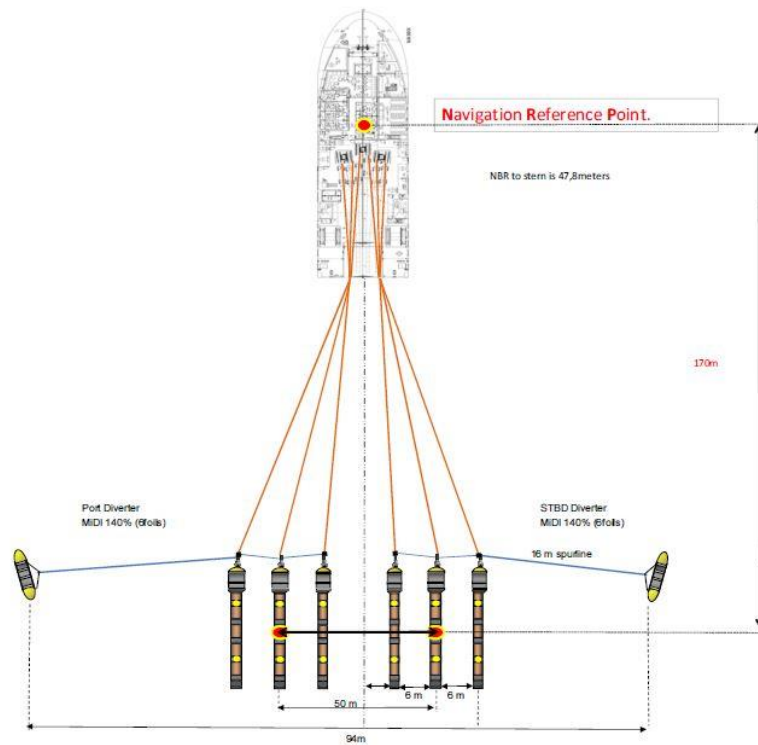
<b>Cuin</b>	<b>40</b>	<b>55</b>	<b>70</b>	<b>80</b>	<b>90</b>	<b>100</b>	<b>120</b>	<b>140</b>	<b>155</b>	<b>175</b>	<b>200</b>	<b>230</b>	<b>250</b>	<b>350</b>
<b>LLXT</b>	<b>12</b>	<b>12</b>	<b>10</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>8</b>	<b>18</b>	<b>8</b>	<b>17</b>	<b>11</b>	<b>10</b>	<b>0</b>

### Spreader bars for Bolt Guns

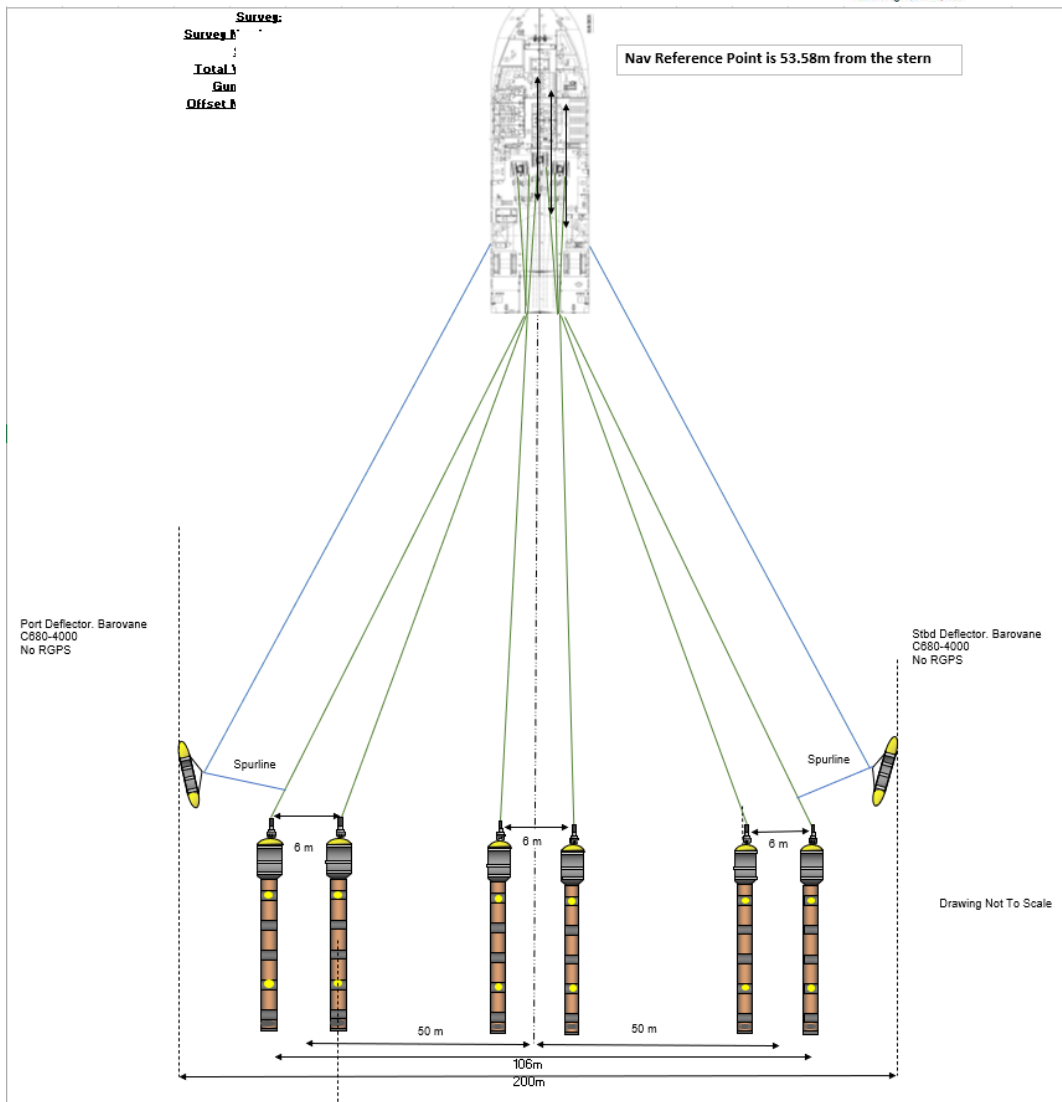
1000 mm bar (can be used both upper & lower) = 127 pcs



# Sanco Spirit, Typical Towing



Drawing Not To Scale



Drawing Not To Scale

