



# ANNEX «A» to TimeCharterParty

## M/V SANCO STAR

YOUR PARTNER IN MARINE SEISMIC OPERATIONS



<b>SHIP DESIGN</b>	MM 80 Seismic, Source / 2-D Seismic Survey Vessel
<b>CLASSIFICATION</b>	DNV-GL
<b>BUILDER</b>	Vaagland Båtbyggeri AS, Norway , build no. 140,
<b>BUILT</b>	Year 2008
<b>PORT OF REGISTRY</b>	Gibraltar
<b>FLAG</b>	Gibraltar
<b>IMO NUMBER</b>	9410313
<b>CALL SIGN</b>	ZDIT 8

<b>OWNER:</b>	<b>Sanco Holding AS</b> Moljevegen 32 N-6083 Gjerdsvika NORWAY	<b>MANAGER:</b>	<b>Sanco Shipping AS</b> Moljevegen 32 N-6083 Gjerdsvika NORWAY
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<b>MAIN DIMENSIONS</b>		<b>CLASS NOTATIONS</b>
Length O.A	80,5 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: 34704 Y
Length P.P	76,95 m	
Breadth	16,0 m	
Draft	5,80 m	
Gross Tonnage	3953	

Updated: July 2020

All specification given without guarantee, and subject to changes

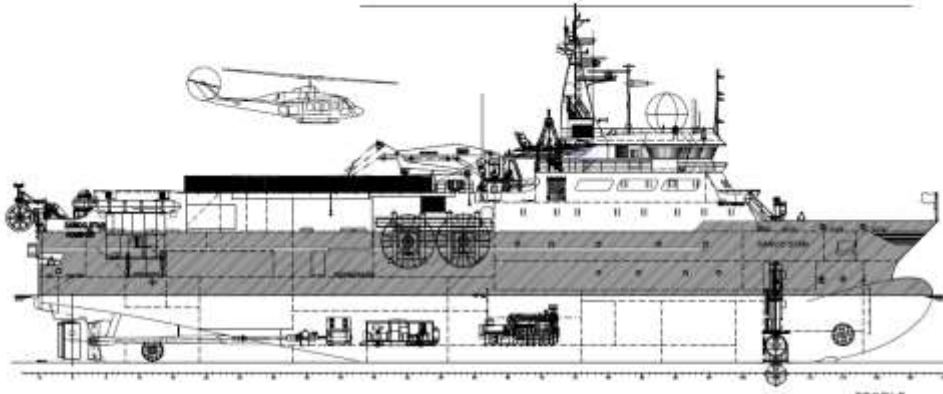
# OUTLINE SPECIFICATION M/V SANCO STAR

<b>MACHINERY AND PROPELLER PLANTS</b>	
Main propulsion:	STADT Stascho, 2 x 2500 kW, 690 V
Main engines:	3 x 1593 kW, ABC Diesel, 8 DZC, 900rpm
Main gear:	2 x Finnøy
Generators:	3 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
Rudder:	1 x RR Hince Flap rudder
Steering Gear:	2 x RR Tenford
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 8,6 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
Night camera:	Night Navigator Camera – Navigator 3
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:	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 BuoyLink EX, 2 pods pr Array
Acoustic / Transducer:	Finnøy HPR, USBL Sonardyne
Gyro:	Teledyne TSS Meridian, Seapath 300
<b>ENERGY SOURCE</b>	
Type:	Bolt 1900 LLXT Gun dual source
Number of Sub. Arrays:	6 pcs sub. arrays in use, 6 position each array and 2,5 meter between guns
Configuration:	Single / Dual source, 100 m separation
Tow width:	Dual source, 100 m max COS
Firing control:	Gun Link 2000
QC:	Gun Link
NFH:	All position
PT:	Pressure Transducer Last Position
Depth transducer:	3 per sub-array
Deflectors:	Baro DT 500-2000, Baro C 680-2000 & Seismec Midi 140% door
Tow system:	Baro Flex. 18' float syst. with diverters
Seismic compressors:	2 x Neuman & Esser, SAPS 62
Compressor capacity:	2 x 2200 cfm = 4400 cfm in total 2000 PSI
Power control:	Freq. drives with auto RPM control

<b>SPEED AND FUEL CONSUMPTION</b>	
Max. speed:	14 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 can be 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 Vacum DVZ
Helideck, Dayligh:	D-value 19,5 meter, 11 tonnes
<b>LIFE SAVING EQUIPMENT</b>	
Safety manning level:	10 persons
Rescue / FRC / MOB:	Norsafe 750 M, water jet
Workboat:	Weedo 700 FRB, Seismic work
Inflatable life rafts:	6 x 25 persons Viking DK 25
Life Jackets:	99 pcs + 4 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.:	49 persons
<b>COMMUNICATION</b>	
M/F & H/F:	Sailor 4000
VHF Stationary:	2 x Sailor 6222 + 1 x Sailor RT 2058
Handheld VHF radios:	3 x Sailor SP 3300
UHF stationary:	5 x Motorola GN 380
UHF portable:	4 x Motorola UHF GP 340
Internal communication:	Vingtor VMP-430
Satellite – Inmarsat Type C:	2 x Sailor H2095C
Nav. Tex.:	Furuno NX-700
Satellite com. Equipment:	Iridium
<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 34 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 15 x 2 bed with bathroom 2 x 3 bed with bathroom Hospital with bathroom

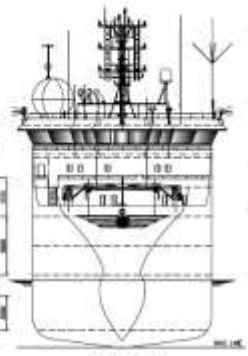


# DESIGN MM 80 SEISMIC

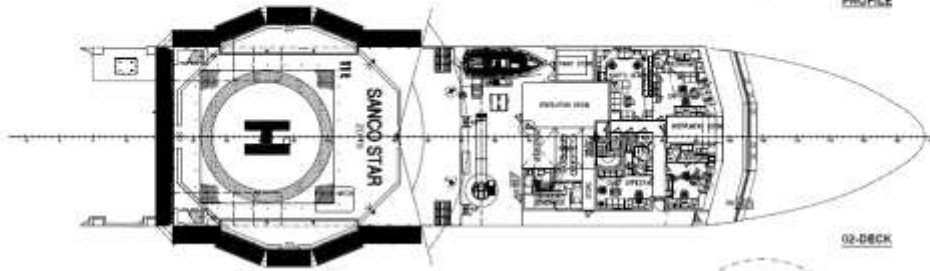


PROFILE

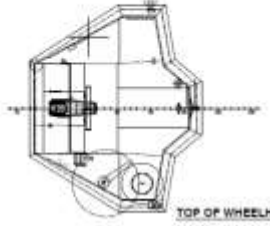
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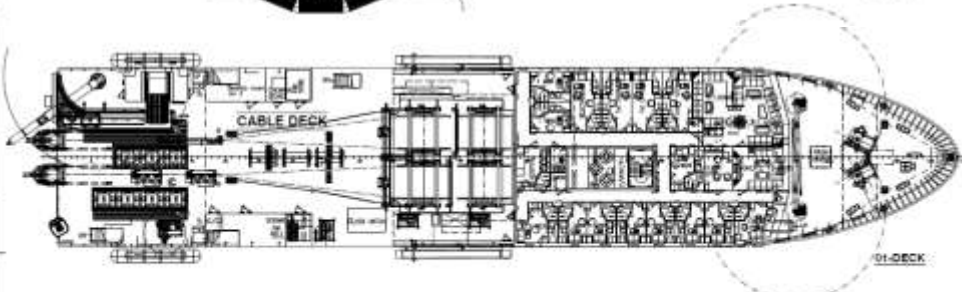
FRONT VIEW



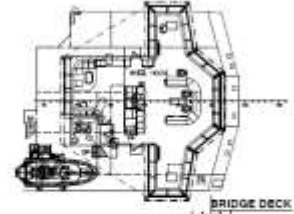
02-DECK



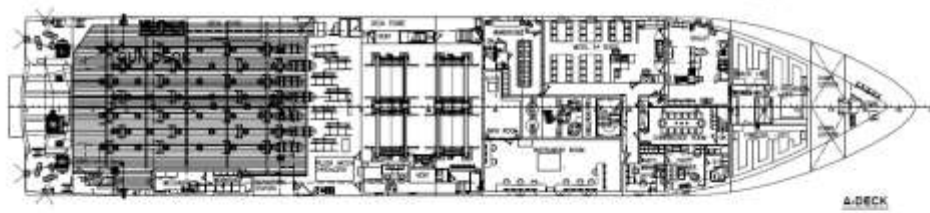
TOP OF WHEELHOUSE



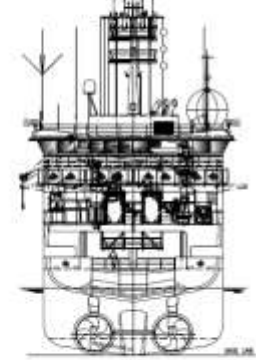
01-DECK



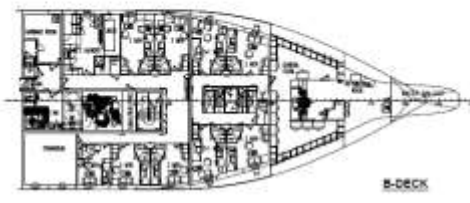
BRIDGE DECK



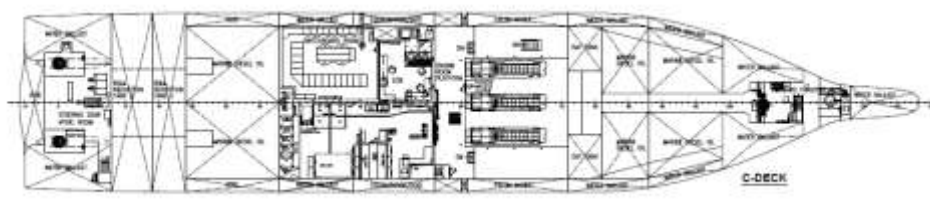
A-DECK



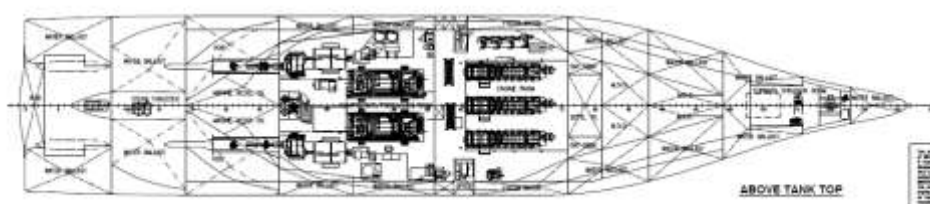
STERN VIEW



B-DECK



C-DECK



ABOVE TANK TOP

## MM 80 SEISMIC

### MAIN DIMENSIONS:

LENGTH OVER ALL	98.00 m
LENGTH BETWEEN LIP	78.00 m
BREADTH INCLUDING	18.00 m
DEPTH INCLUDING	8.80 m
SCAFFOLDING WATER LINE	8.10 m
DRUMS WATER LINE	5.75 m
WHEELHOUSE	12
DOUBLE CABINS	16
TREKING CHAIRS	16
SEISMIC EQUIPMENT FOR	40 PERSONS

### CLASS:

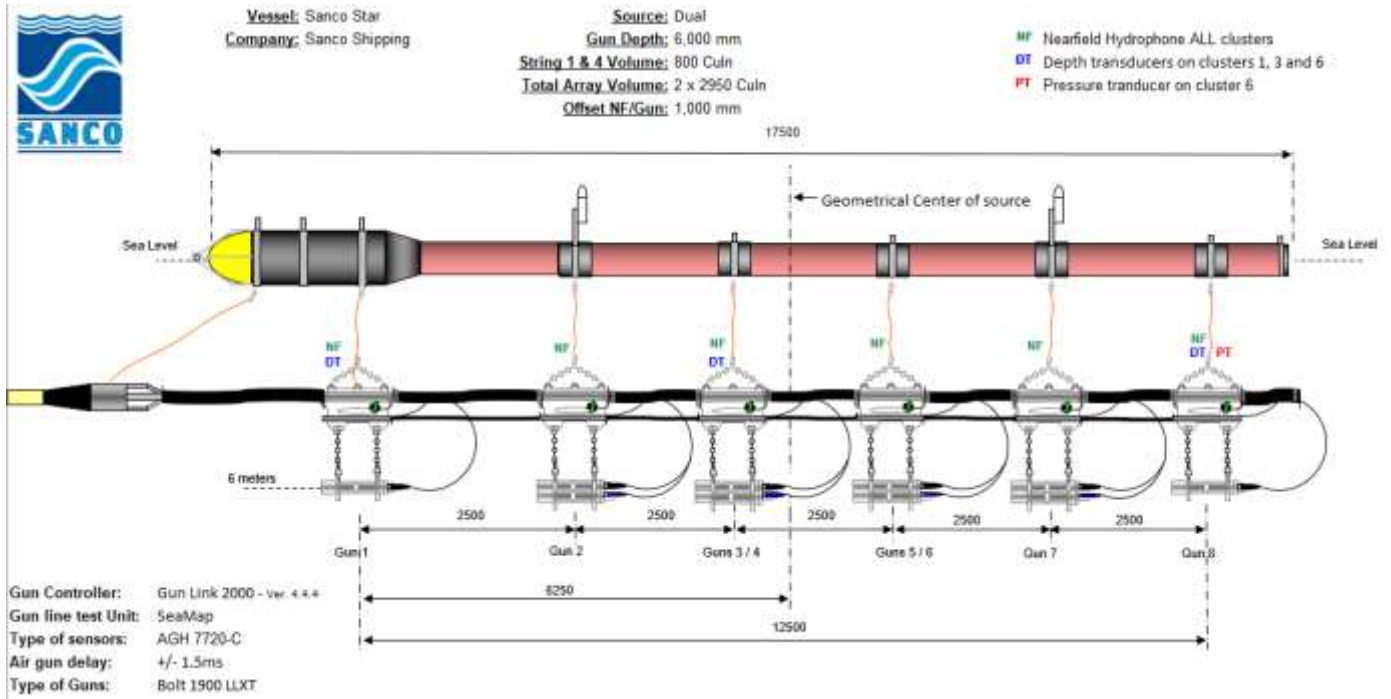
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IMO number: 9410213

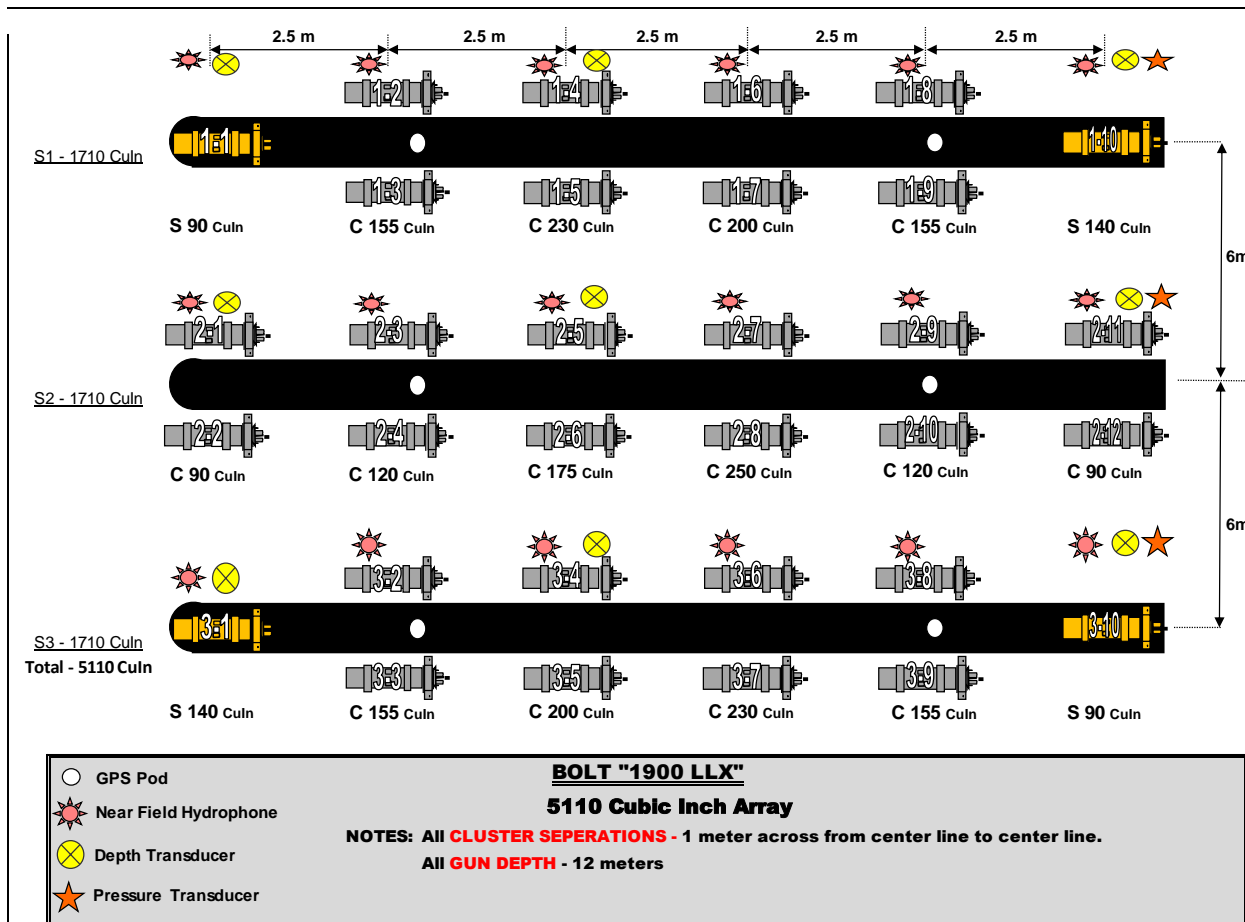
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5	Issue and Update	2012/02/01		
6	Issue and Update	2012/02/01		
7	Issue and Update	2012/02/01		
8	Issue and Update	2012/02/01		
9	Issue and Update	2012/02/01		
10	Issue and Update	2012/02/01		



# Sanco Star Gun String Offsets



## Example overhead view of 5110 cu.in. source layout used previously on Sanco Star



**We have the following Bolt guns & chambers onboard:**

1900 LLXT Bolt guns – 75 pcs which can be configured as clusters / singles as required

1900 LLXT and LLX chambers as per below table:

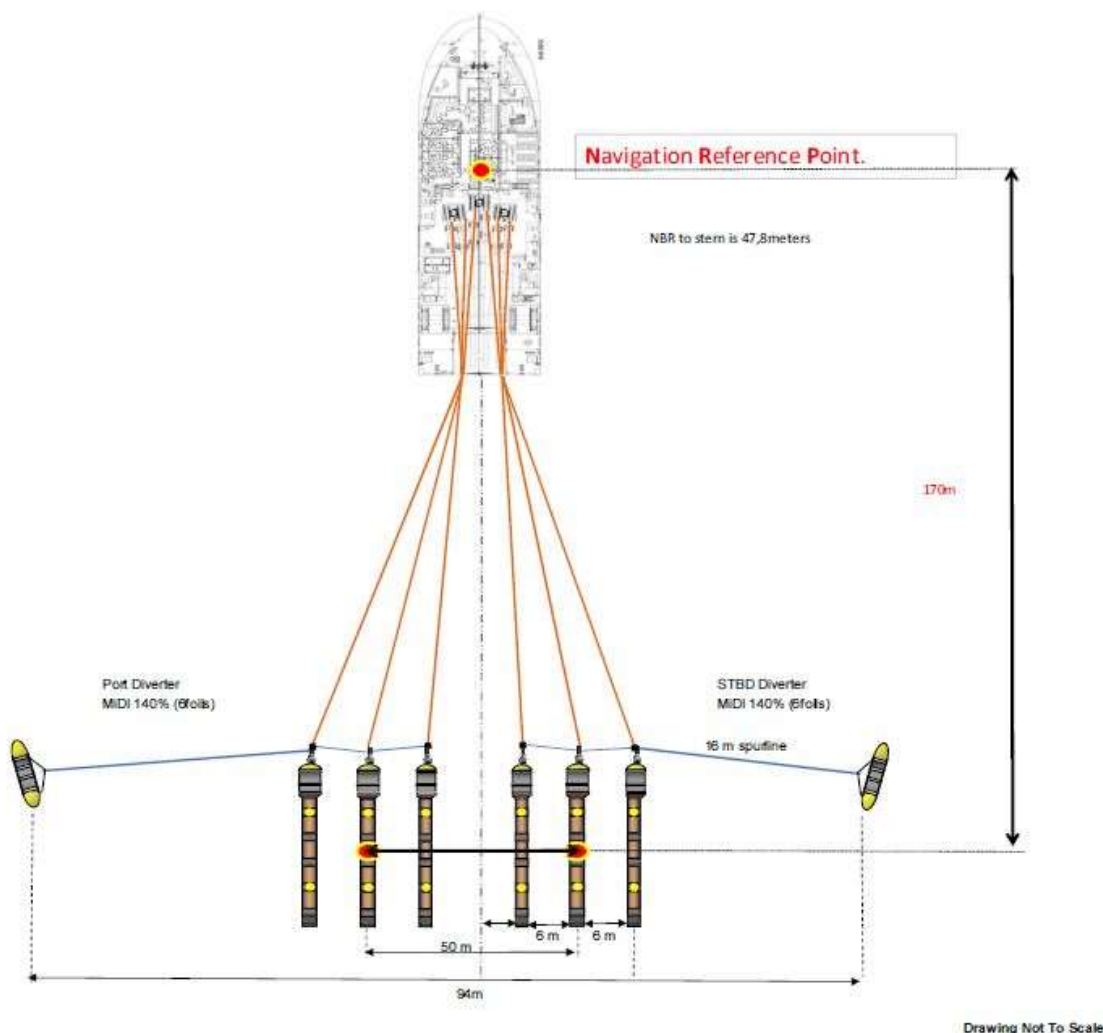
Volumes / Quantity on board

	Cuin	40	70	80	90	100	120	130	155	200	250
Chamber type	LLX	1	2	2	4	12	4	2	12	12	4
	LLXT	0	0	17	0	12	15	0	7	12	0

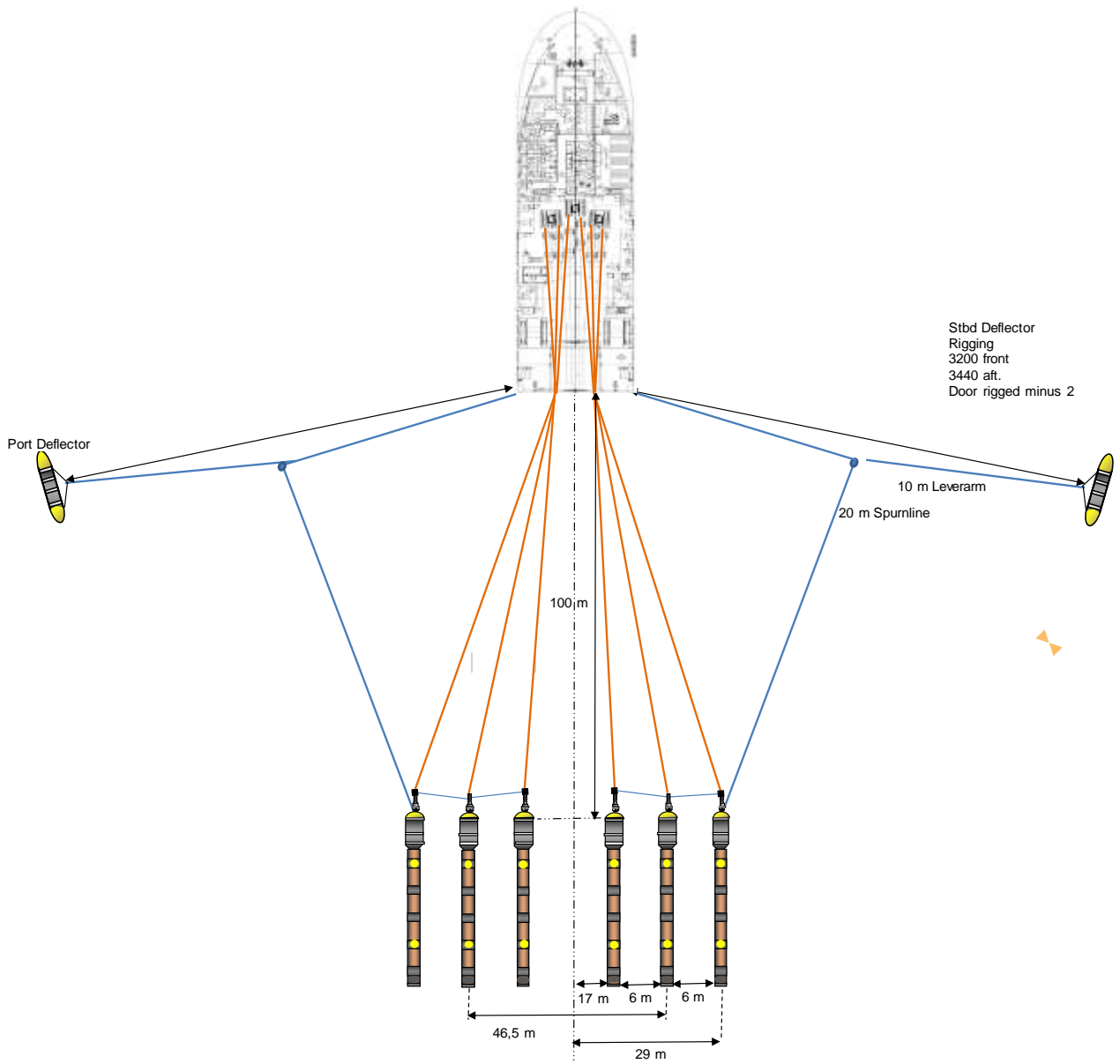
**Spreader bars**

1000 mm bar (can be used both upper & lower) = 128 pcs / 32 sets

**Sanco Star towing example (Midi Deflectors)**



# Sanco Star towing example (Baro C 680-2000 Deflectors)



Drawing Not To Scale

