



# ANNEX «A» to Time CharterParty

## M/V SANCO SWORD

YOUR PARTNER IN MARINE SEISMIC OPERATIONS



<b>SHIP DESIGN</b>	ST 324, Seismic survey vessel with 3-D / 2-D & Source capability
<b>CLASSIFICATION</b>	BV
<b>BUILDER</b>	Kleven Myklebust Verft AS, Norway , build no. 358,
<b>BUILT</b>	Year 2014
<b>PORT OF REGISTRY</b>	Gibraltar
<b>FLAG</b>	Gibraltar
<b>IMO NUMBER</b>	9662100
<b>CALL SIGN</b>	ZDNE 7

<b>OWNER:</b>	<b>Sanco Holding AS</b>	<b>Technical &amp; Seismic Manager:</b>	<b>Sanco Shipping AS</b>
	Moljevegen 32, N-6083 Gjerdsvika, NORWAY		Moljevegen 32, N-6083 Gjerdsvika, NORWAY

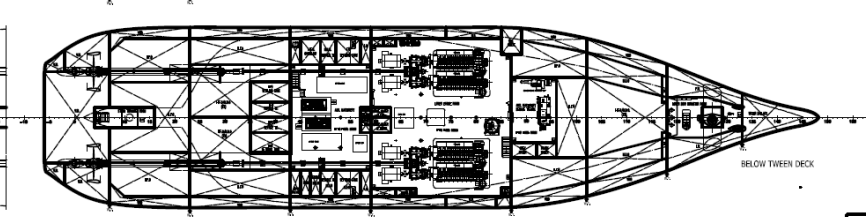
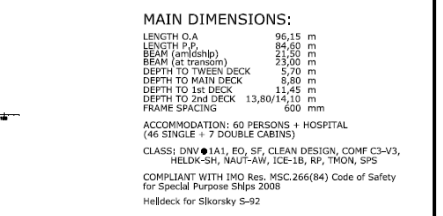
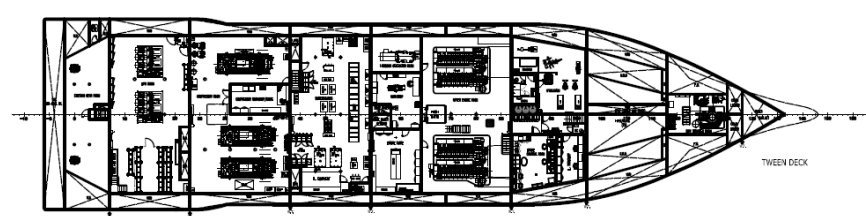
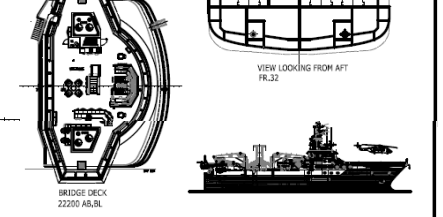
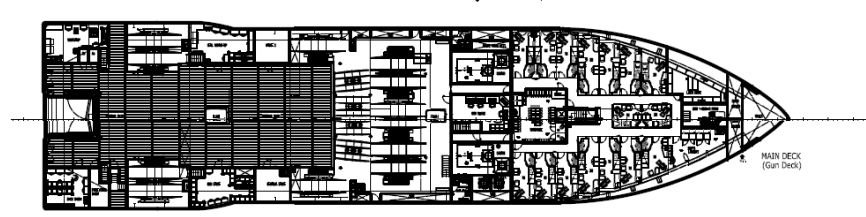
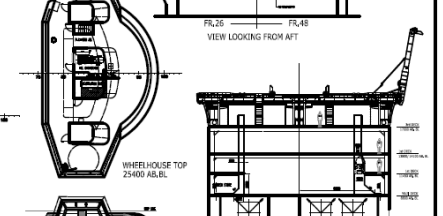
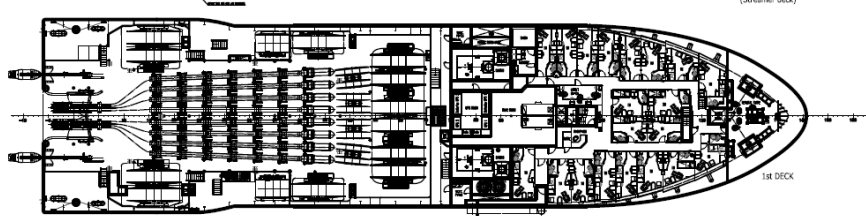
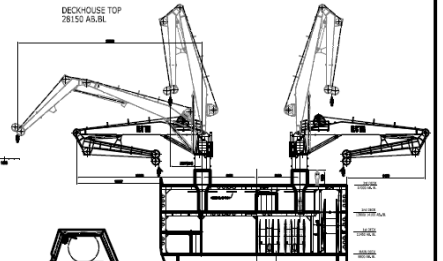
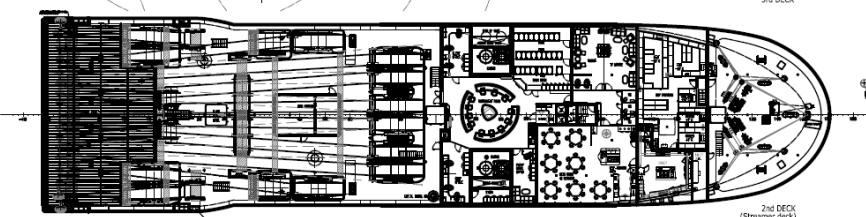
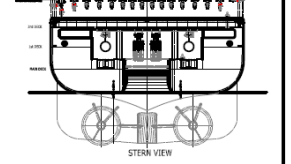
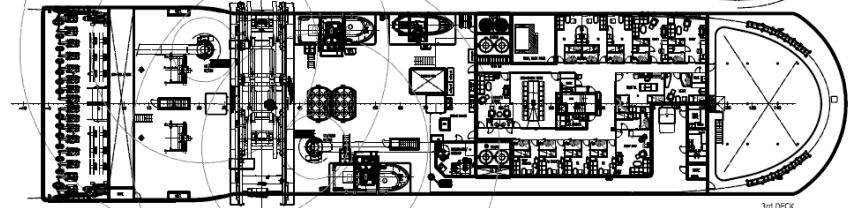
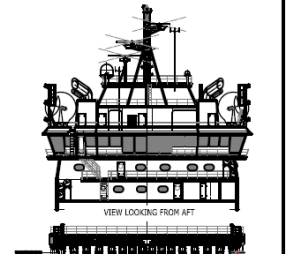
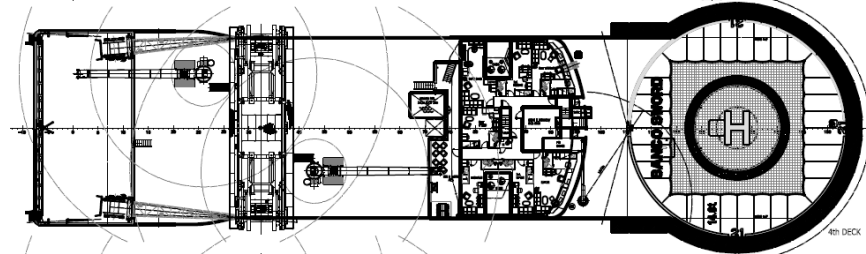
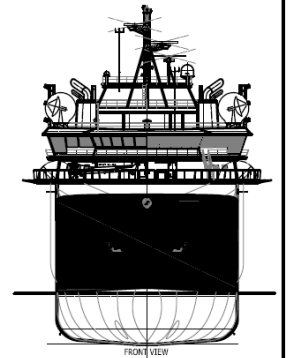
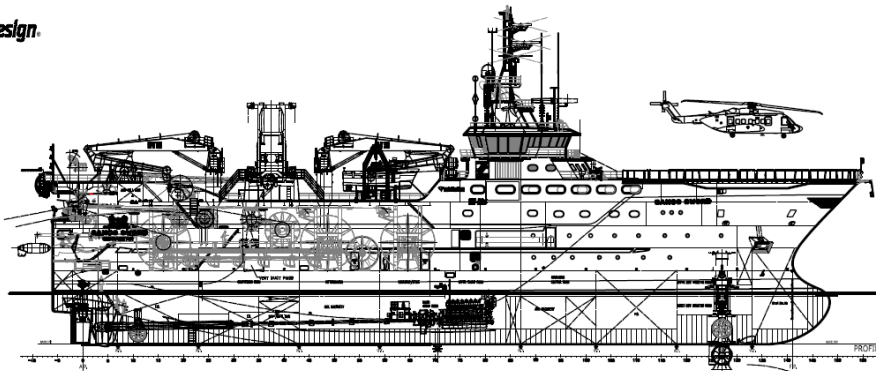
<b>MAIN DIMENSIONS</b>		<b>CLASS NOTATIONS</b>
Length O.A	96,15 m	BV: I +HULL, ICE CLASS 1B, AUT-UMS, SDS, COMF-VIB(3)-NOICE(3), AVM-DPS, CLEANSHIP Super, SYSNEQ-1, MON-SHAFT, SPS, HELDK-SH.  Unrestricted navigation BV ID Number: 34702 W
Length P.P	84,60 m	
Breadth	23.0 m	
Draft, loaded	7,00 m	
Gross Tonnage	8772	

Updated: Februar 2022  
All specification given without guarantee, and subject to changes

# OUTLINE SPECIFICATION M/V SANCO SWORD

<b>MACHINERY AND PROPELLER PLANTS</b>	
Main propulsion:	2 x Scana Volda, 2 x 5500 kW, Nozzle
Main engines:	4 x 4000 kW, MAN 32/40 Diesel, 600 rpm
Main gear:	2 x Scana Volda, twin in, single out
Generators:	4 x 2600 kW each
Propeller:	2 x 4 bladed Scana, Ø=3900, 139 rpm
Emergency Aux.	1 x 900 kW + 1 x 300 kW
Bow thruster:	1 x Brunvoll Retract./Tunnel, 1000 kW
Stern thruster:	1 x Brunvoll, tunnel, 800 kW
Starting/Working air Comp:	2 x Sperre . + 1 Atlas Copco
<b>ELECTRIC POWER</b>	
690 V, 440 V, 230 V all 60Hz	
<b>DECK MACHINERY</b>	
Deck Crane:	2 x 16T / 13,5M -5T / 22M
Provision crane:	1 x 1,5T / 13M
Hydraulic power pack:	2 x 280 bar
Seismic Cable winches:	12 x 12000 m each, + 4 spare winches
Seismic Gun winches:	8 x 1000 m each,
Tow points:	16 pcs.
Auxiliary winches:	18 pcs on gun & streamer deck
<b>NAVIGATION EQUIPMENT</b>	
Auto Pilot:	Anschutz Nautopilot 2025
GPS:	2 x Furuno GP-150
Radar 1:	1 x 3 cm Furuno FCR 2117, Arpa
Radar 2:	1 x 10 cm Furuno FCR 2137 S, Arpa
Electronic Chart navigation:	2 x Furuno TECDIS AW, type Telco
Gyro 1 & 2:	2 x Sperry Navigat Mk1
GPS compass:	Furuno SC-50
Survey gyro compass:	1 x TSS Meridian surveyor
AIS:	Furuno FA-150 AIS
C-Joy with track steering:	Kongsberg tracksteering with dedicated software
Echo sounder bridge:	Furuno FE 700
Echo sounder, dual frequency:	Simrad EA- 600 with 12, 38 & 200 kHz
Voyage Data Recorder:	Furuno VR-3000 6G
Water speed Log:	Nortek VMCP
Acoustic Current Profiler:	Nortek VMCP
<b>SEISMIC</b>	
On-line Nav. system:	ION Gator II / ORCA possible
Primary Navigation:	Fugro Starfix XP2/G4
GPS receiver:	Fugro StarPack
Gun array tracking:	Fugro StarTrack RGNSS, 2 per subarray
Acoustic / Transducer:	1 x 350 mm bottom valve installed
Nav Post Processing	FGPS SeisPos
<b>ENERGY SOURCE</b>	
Type, Bolt:	1900 LLXT & 1500 LL
Number of Sub. Arrays:	6 pcs sub. arrays in use, (8 arrays possible) 6 position each array (max 7 positions) and 2,5 meter between guns
Configuration:	Single / Dual / Triple source
Tow width:	Tripple source, (2 arrays pr source) 200 m max COS
Firing control:	Gunlink 4000
QC:	Gunlink
NFH:	2 NFH on each gunplate
PT:	1 PT on each gunplate
DT:	1 DT on each gunplate
Air Manifold:	Evotec high flow Air Manifold with non return valves. Installed in 2021
Deflectors:	Baro C 680-4000, Midi 140 %
Seismic compressors:	3 x Neuman & Esser, SAPS 62
Compressor capacity:	3 x 2200 cfm = 6600 cfm in total Working pressure 2000 Psi Freq. drives with auto RPM control
Tow system:	Partner plast Flex. 18' float system
<b>SPEED AND FUEL CONSUMPTION</b>	
Max. speed, approx.:	17 knots – 65 m3/day
Service speed, approx.:	12 knots – 30 m3/day
Economic speed, approx.:	10 knots – 23 m3/day
Seismic shooting, approx.:	4,5 knots – 20 m3/day
Bollard pull:	216 tons
Endurance shooting:	140 days
Endurance economic speed:	94 days
<b>IN LINE BUNKERING CAPABILITY</b>	
The vessel is arranged with in line bunkering over the bow	
<b>CAPACITY</b>	
Diesel oil, MGO:	2160 m3
Lube oil:	112 m3
Gun oil:	1,2 m3
Sewage:	16,5 m3
Grey water:	20,6 m3
Dirty oil / Sludge oil:	95,1 m3
Fresh water generator:	2 x Alfa Laval ( 2 x 20m3/day)
Sewage treatment plant:	Gertsen & Olufsen BR-011100 BVG
Ballast treatment plant:	MMC Green Technology 150 m3
Waste compactor:	Delitek, Type DT- 500 MC
Incinerator:	Team Tec GS 500 CS
Black water:	JETS FD/VPC-V
Helideck, Sikorsky S-92, Daylight:	D-value 21,0 meter, 14,6 tones
<b>LIFE SAVING EQUIPMENT</b>	
Safety manning level:	10 persons
Rescue / FRC / MOB:	Wedo 700, water jet
Workboat:	Westplast 950 Seisworker
Inflatable life rafts:	6 x 35 persons Viking DK 35
Life Jackets:	64 pcs + 6 kids
Life buoy:	21 pcs
Survival suits:	64 pcs
Emergency radios:	3 x Sailor SP 3530
Radar transponders:	2 x Jotron Tron
Fire detection system:	Tyco Marine Services Minerva Marine T2000CV
Fire pumps:	3 x Allweiler 1 x 247,4 m3/h + 1 x 125m3/h + 1 x 50 m3/h
Co2 system:	Heien Larssen
Lifesaving capacity max.:	60 persons
<b>COMMUNICATION</b>	
Fixed satellite line, Iridium:	
Marlink VSAT KU band:	
Inmarsat C:	Sailor 6100
M/F & H/F:	2 x SSB, Sailor 6300, 150W
VHF Stationary:	3 x Sailor
Handheld VHF radios:	3 x Sailor SP 3530
UHF stationary:	5 x Motorola GM 360
UHF portable:	8 x Motorola GP 380
Internal communication:	Alcatel - Lucent
Satellite – Inmarsat Type C:	2 x Sailor TT 6300
Nav. Tex.:	Furuno NX-700
Satellite com. Equipment:	Sailor 500
Vessel E-mail:	bridge.sword@sanco.no captain.sword@sanco.no
<b>ACCOMMODATION</b>	
Instrument room:	1 x sep. aircon. with 100% redundancy
Gun Shack:	1 pcs with air-condition
Work Shop:	2 pcs with air-condition
Seismic store:	3 pcs
Mess room:	Seating for 42 persons
Day rooms:	3 x dayrooms 1 conference room, 1 internet café
Gymnasium:	One, + Solarium and Sauna
Air condition:	Teknotherm Marine AS / Aeron
Cabins:	46 x 1 bed with bathroom 7 x 2 bed with bathroom Hospital with bathroom
Swimming pool:	Outdoor, heated





**MAIN DIMENSIONS:**

LENGTH O.A	96.15 m
LENGTH P.P.	84.20 m
BEAM (amidship)	21.50 m
BEAM (at transom)	23.00 m
DEPTH TO TWEEN DECK	5.70 m
DEPTH TO MAIN DECK	8.80 m
DEPTH TO 1st DECK	11.45 m
DEPTH TO 2nd DECK	13.80/14.10 m
FRAME SPACING	600 mm

ACCOMMODATION: 60 PERSONS + HOSPITAL (46 SINGLE + 7 DOUBLE CABINS)

CLASS: DNV (1A1), EO, SF, CLEAN DESIGN, COMP C3-V3, HELICOPTER, NAU-F-AW, ICE-1B, RF, TPKM, SPS

COMPLIANT WITH IMO Res. MSC.266(84) Code of Safety for Special Purpose SHIPS 2008

Helldeck for Sikorsky S-92



NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10	NO. 11	NO. 12	NO. 13	NO. 14	NO. 15	NO. 16	NO. 17	NO. 18	NO. 19	NO. 20	NO. 21	NO. 22	NO. 23	NO. 24	NO. 25	NO. 26	NO. 27	NO. 28	NO. 29	NO. 30	NO. 31	NO. 32	NO. 33	NO. 34	NO. 35	NO. 36	NO. 37	NO. 38	NO. 39	NO. 40	NO. 41	NO. 42	NO. 43	NO. 44	NO. 45	NO. 46	NO. 47	NO. 48	NO. 49	NO. 50	NO. 51	NO. 52	NO. 53	NO. 54	NO. 55	NO. 56	NO. 57	NO. 58	NO. 59	NO. 60	NO. 61	NO. 62	NO. 63	NO. 64	NO. 65	NO. 66	NO. 67	NO. 68	NO. 69	NO. 70	NO. 71	NO. 72	NO. 73	NO. 74	NO. 75	NO. 76	NO. 77	NO. 78	NO. 79	NO. 80	NO. 81	NO. 82	NO. 83	NO. 84	NO. 85	NO. 86	NO. 87	NO. 88	NO. 89	NO. 90	NO. 91	NO. 92	NO. 93	NO. 94	NO. 95	NO. 96	NO. 97	NO. 98	NO. 99	NO. 100
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GENERAL MARITIME	358
GENERAL ARRANGEMENT	1:200
NO. 201.2052	

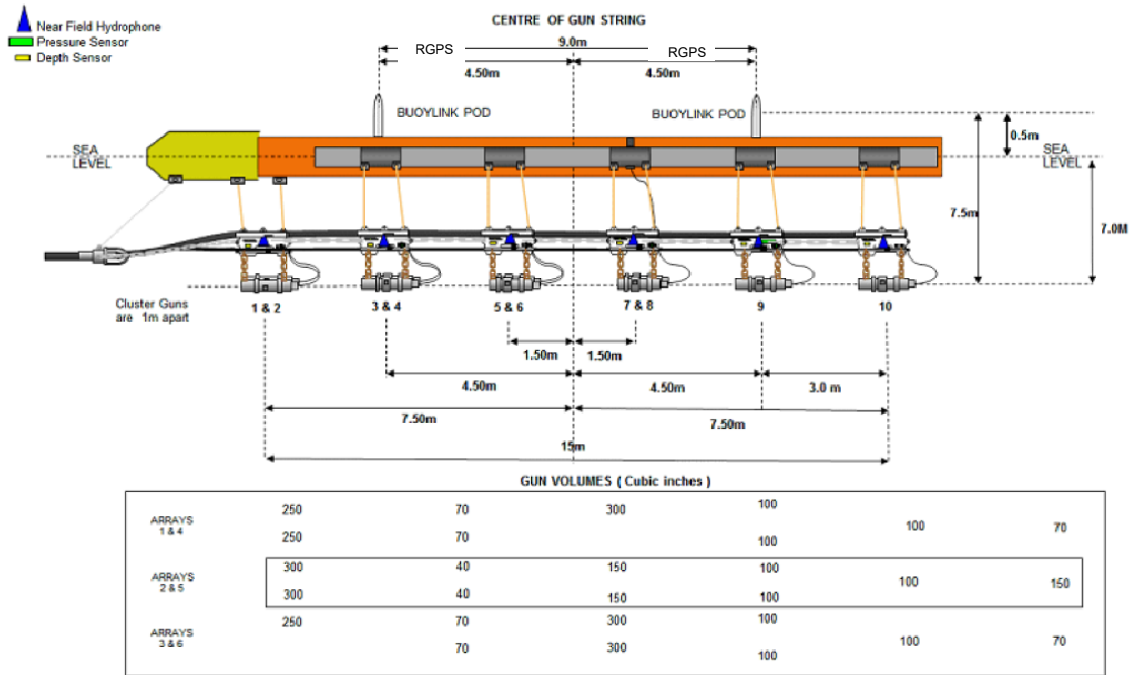
Skipsteknisk	358-101-001-8TEMP
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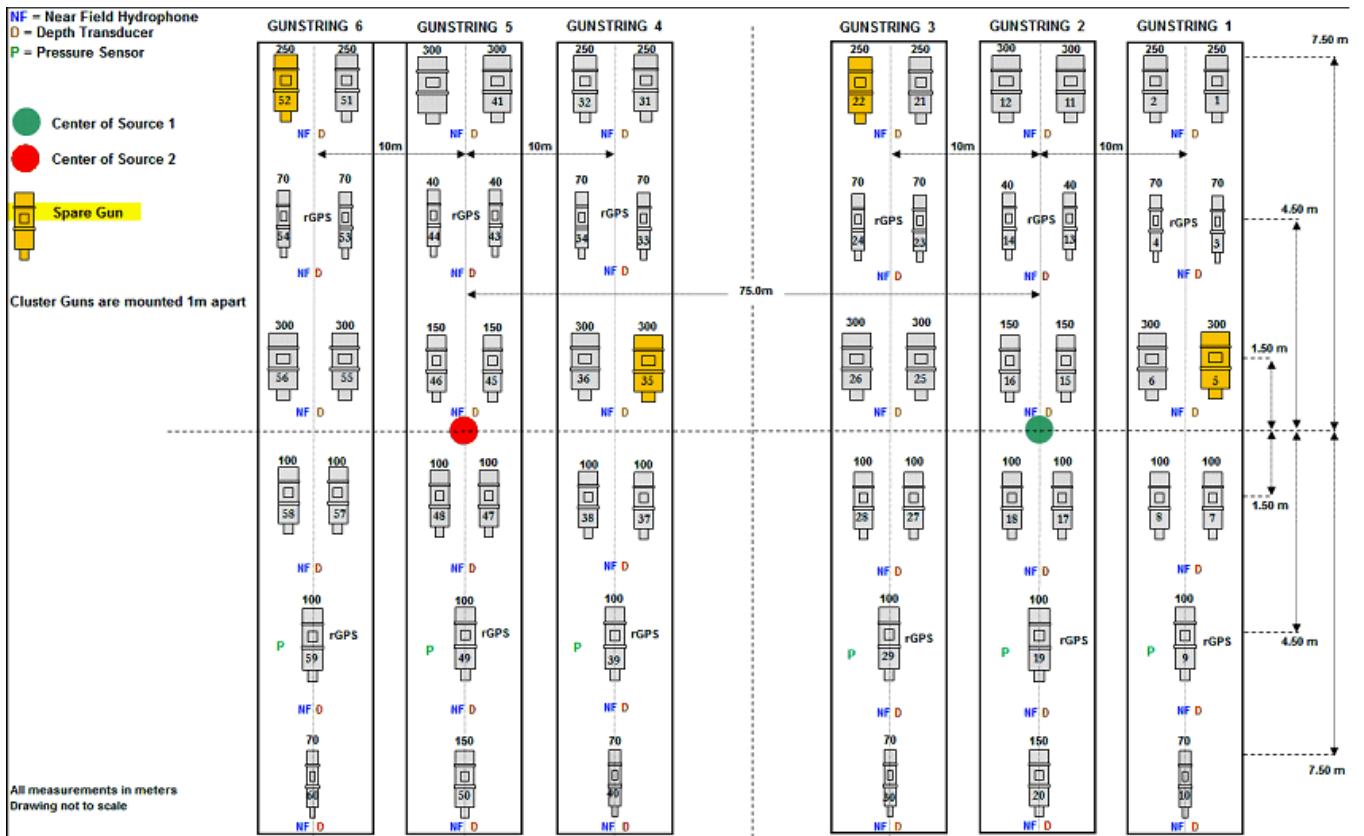


# Sanco Sword Gun String Offset example.

2.5 meter cluster separation and 7 clusters possible



Example of Sword gun set up.



## **Sanco Sword has the following Bolt guns & chambers onboard:**

(main housing & top housing counts as complete gun & all guns and chambers are cluster type)

**BOLT 1500 LL Guns**                      **Total = 25**

**1500 LL chambers as per below table:**

**Volumes / Quantity on board**

<b>Cuin</b>	<b>250</b>	<b>300</b>	<b>350</b>
<b>LL</b>	<b>12</b>	<b>14</b>	<b>0</b>

**BOLT 1900LLXT Guns**                      **Total = 70**

**1900 LLXT chambers as per below table:**

**Volumes / Quantity on board**

<b>Cuin</b>	<b>40</b>	<b>70</b>	<b>90</b>	<b>100</b>	<b>120</b>	<b>140</b>	<b>150</b>	<b>155</b>	<b>175</b>	<b>200</b>	<b>230</b>	<b>250</b>
<b>LLXT</b>	<b>20</b>	<b>25</b>	<b>14</b>	<b>21</b>	<b>10</b>	<b>6</b>	<b>31</b>	<b>18</b>	<b>6</b>	<b>10</b>	<b>10</b>	<b>6</b>

**Solenoid Air Thru type**                      **Total = 75 pcs**

### **Spreader bars**

#### **32mm (1900 guns)**

1000 mm        = 277 pcs

#### **44,5mm (1500 guns)**

1000 mm        = 73 pcs



# Example of Sanco Sword Towing

