

用户至上
Customer First

质量为本
Quality Oriented

服务一流
First Class Service

技术创新
Technological Innovation

ABOUT US

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2.1 Modular portable air gun source

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PART 01

COMPANY INTRODUCTION

公司介绍

ABOUT US

Company Profile

公司简介

Tianjin Xingheng Petroleum Equipment Manufacturing Co., Ltd is a well-known manufacturer of high-end marine geophysical exploration equipment in China. Established in 2002, the Company is headquartered in Binhai New Area Tianjin, covering an area about 30,000 m2. The Company has two manufacturing bases and R&D design centers and over 50 R&D personnel with senior professional titles. The Company has passed ISO9001 international quality system certification, API 7K certification and HSE management system certification, and was recognized as a national high-tech enterprise in 2017.

Over the past 20 years, the Company has cooperated with domestic famous universities and colleges. On the basis of independent innovation, the Company has possessed over 30 patents for invention and utility model. Its main products include petroleum & seismic acquisition equipment, OBN deployment & retrieval system, special equipment and cable for geophysical exploration sources, and high-pressure fluid connector etc., and are widely used in seismic acquisition, oil & gas exploration and development, shipbuilding and other fields.

Modular array deployment & retrieval system, OBN deployment & retrieval system, GII air gun, bolt gun and other special equipment for geophysical equipment, digital & optical fiber cable, and special cable for seismic source etc. manufactured by the Company have been completely localized and replaced imported products, and filled the gap of professional source equipment and special cable in the domestic market. Mobile geophysical exploration source floating platform, array float, floating fish, self-adjusting tail tag, winch and other products have been widely used in offshore seismic acquisition operations, and won good reputation and high popularity in the marine geophysical exploration industry at home and abroad.

Aimed at “customer first, quality first, first-class service and technological innovation”, the Company has formed an excellent culture with “adhere to the integrity and innovation, quality and moral integrity together” as the core values.



Production Equipment

生产设备



Testing Equipment

检测设备



Company Qualification

公司资质

- 🏆 ISO9001 international quality system certification
- 🏆 API7K certification
- 🏆 National high-tech enterprise
- 🏆 Offshore equipment maintenance qualification certificate
- 🏆 Patent for utility model
- 🏆 Occupational health & safety management system certification
- 🏆 Environment management system certification
- 🏆 HSE management system certification



PART 02

PRODUCT INTRODUCTION

产品介绍

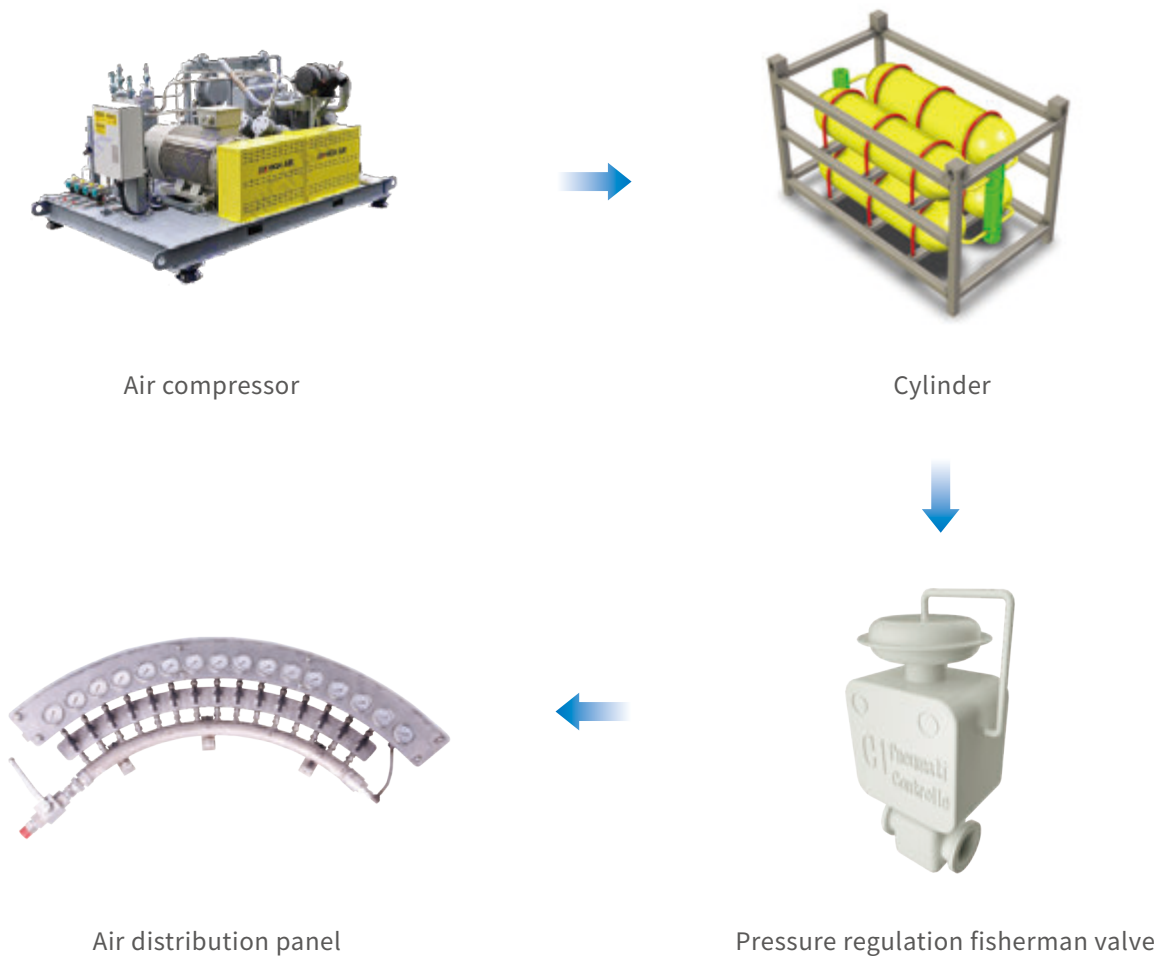
Seismic source system for marine
geophysical exploration

2.1 Modular portable air gun source

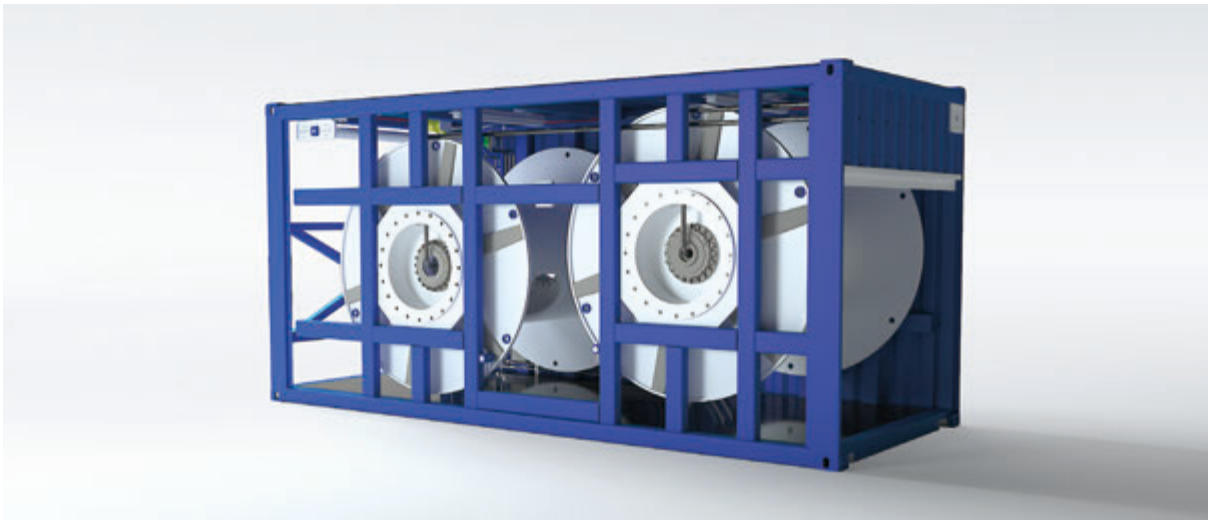
Modular source is a kind of assembled product that breaks up the air gun source into parts, so as to realize the portability. It is characterized by easy transportation, construction and operation in inland waters under the premise of completing the geological tasks and assuring the safety.

HP air system

Main processes of this system are described as follows: air is filtered and flown from the compressor inlet into the compressor cylinder; after the first ~ fifth stage of compression and pressurization, cooling, oil and water separation, air will enter into the cylinder group for pressure buffer and storage. Air emitted from the cylinder group will flow through the pressure regulation fisherman valve to output the required pressure to the air distribution panel, and then divided by the panel into multiple paths and entered into the high-pressure air gun equipment.



Streamer winch



Technical parameters	Container Internal Configuration
Linear velocity: ≥ 40 m/min, (inner ring)	① Two streamer winches shall be placed in a reinforced 20-feet standard container.
Rotation speed: ≥ 11 rpm	② Hydraulic motor shall be Rexroth or other imported products.
Cable capacity of single winch: $\Phi 50$ mm cable 1725m; $\Phi 24$ mm preamble segment 200m; $\Phi 65$ elastic segment 50m. Allow for an excess of 1.5 layers.	③ Hydraulic operating valve shall be imported Danfoss integrated plate-type combination valve. Winch shall share one set of combination valve with spooling gear and be placed in the front part of the container.
Winch inner ring diameter: 1200 mm	④ Hydraulic pipe connecting the streamer winch container with the air gun umbilical container shall adopt hose connection. At the container interface, joints shall be used, to ensure the tightness.
Tensile force (inner ring): 4 tons	⑤ Hydraulic pipe connecting the streamer winch with the gun winch shall adopt the quick coupling structure at the inlet, to prevent oil leakage in the process of disassembly.
Braking force: ≥ 5 tons	⑥ Spooling gear shall be installed in the front of the container.
Cable form: built-in; hydraulic stepless speed regulation.	⑦ The container is reinforced type and the skeleton is made of high-strength square tubes for ship use. Stainless steel diamond plates are laid on the bottom. The top and sides are made of special-purpose container plates and are pre-treated. The bottom steel beams shall receive the overall zinc coating or special preservative treatment. Before painting, the container shall receive the sand blasting (S2.5) treatment while the container outside shall be applied with marine paint. Inside the container, marine alkyd enamel shall be used, in white.
Wireless remote control distance: 50 meters	⑧ It can be customized according to the customers' requirement.

Gun winch

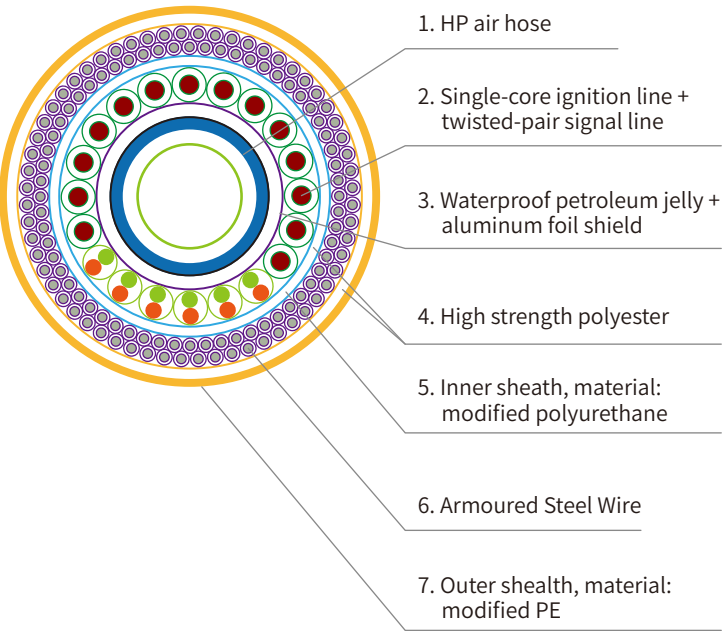
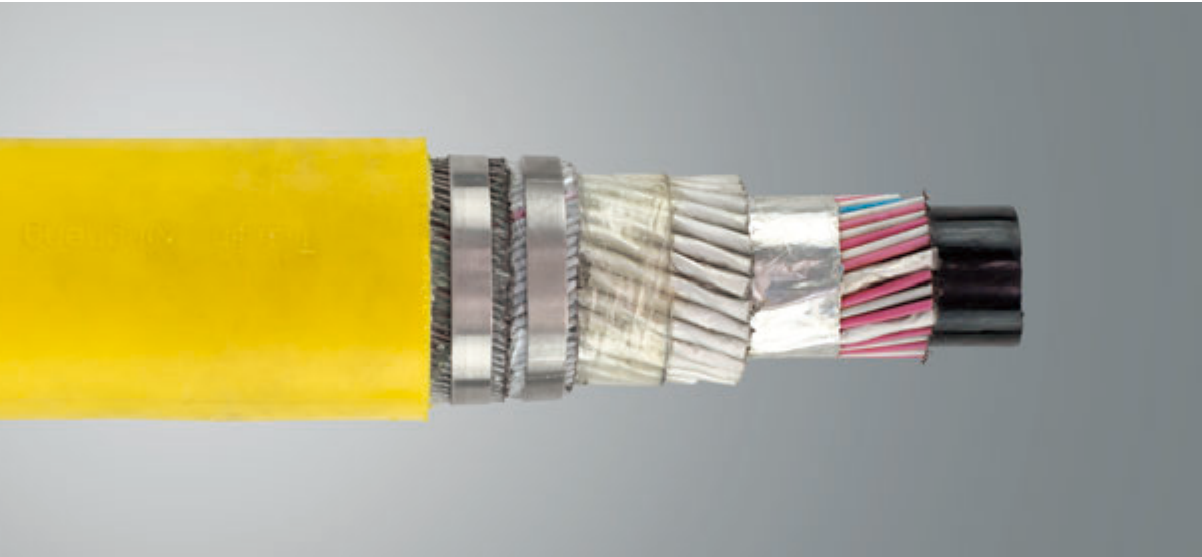


Technical parameters
Configured with double hydraulic motors, with hydraulic lock and balance valve.
Speed: ≥ 40 m/min, (inner ring)
Capacity: 200 m, (cable diameter 68 mm), with 2 surplus circles.
Inner ring diameter of winch: ≥ 1,450 mm
Tensile force of inner ring: 4 tons; braking force: ≥ 5 tons
Pressure resistance of high-pressure manifold box and high-pressure gas pipeline: 5,000 psi
Local and wireless remote control operation. Wireless remote control distance 50 meters.

Interior configuration of container
1 Container is reinforced standard 20-feet high cube. The external dimension is 6,058 mm * 2,438 mm * 2,896 mm.
2 Inside the container, 2 gun winches are installed and can meet the requirements for deployment and retrieval of dual-array air guns.
3 Inside the container, one set of dual hydraulic pump station is installed. Two hydraulic pumps can work simultaneously in parallel, and one can be used while the other standby.
4 On the hydraulic pump station, one set of distribution cabinet is installed, to provide 220V lighting power supply for air gun umbilical, cable and array containers, 380V motor power, 24V power supply for remote control, as well as control power supply for its own use.
5 Imported electric and pneumatic slip rings are provided.
6 All pipe inlets and outlets adopt the over-cabin joints, which can realize indoor & outdoor tightness and are provided with special dust covers.
7 Inlet and outlet for hydraulic pipe between two containers shall adopt quick coupling connection. The quick coupling should be reliable and fixed dust cover, oil tray and stainless steel cap shall be provided.
8 Cables shall adopt over-cabin stuffing box. The insulation class is IP56. Power lines for the container and ship shall be routed in the upper part.
9 The container is reinforced type and the skeleton is made of high-strength square tubes for ship use. Stainless steel diamond plates are laid on the bottom. The top and sides are made of special-purpose container plates and are pre-treated.The bottom steel beams shall receive the overall zinc coating or special preservative treatment. Before painting, the container shall receive the sand blasting (S2.5) treatment while the container outside shall be applied with marine paint. Inside the container, marine alkyl enamel shall be used, in white.
10 Can be customized according to customer requirements.

Air gun umbilical

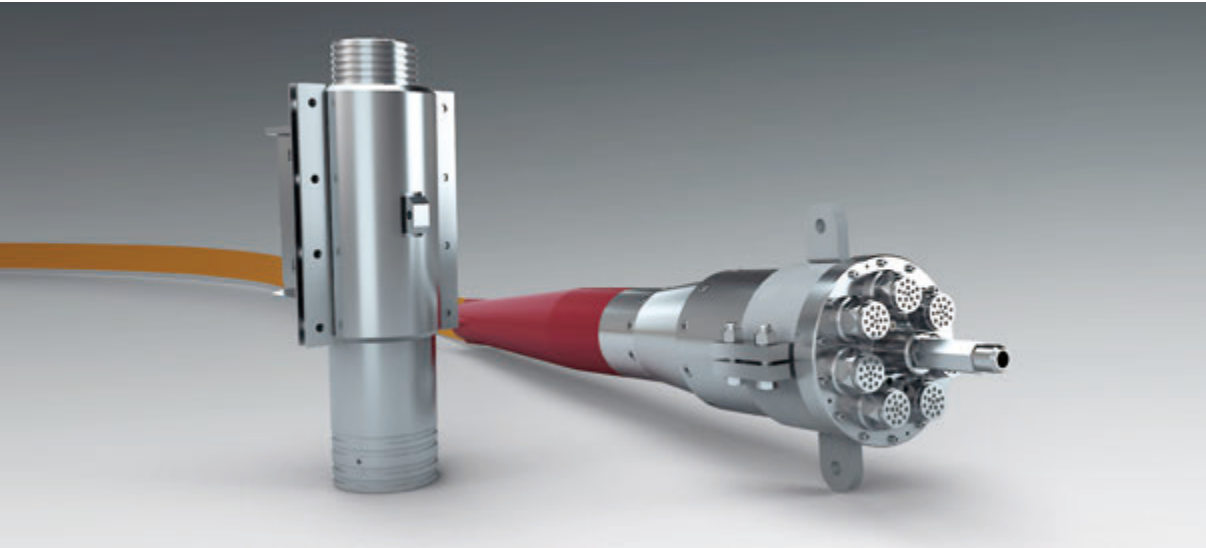
Air gun umbilical is used for marine geophysical exploration and acquisition operations and can provide air gun communication and high-pressure air transmission. Now, there are four types:



Order No.	Item	Specification/ model
XH-AGU01	1	AGU-18/8-3/4"
XH-AGU02	2	AGU-40/27-3/4"
XH-AGU03	3	AGU-16/11-1"
XH-AGU04	4	AGU-20/12-1"
XH-AGU05	5	AGU-26/8-1"
XH-AGU06	6	AGU-40/30-1"

Bellhousing

It is used as the underwater terminal connection device of air gun umbilical for marine geophysical exploration and can be divided into two types, i.e. glue filling and wiring. It is a kind of reusable air pipe and line switching device. It is installed at the air gun umbilical terminal, and can connect air pipe and line, protect the air pipe and line against damage caused by underwater obstacles and seawater intrusion, and provide array drag force.



Electric slip ring

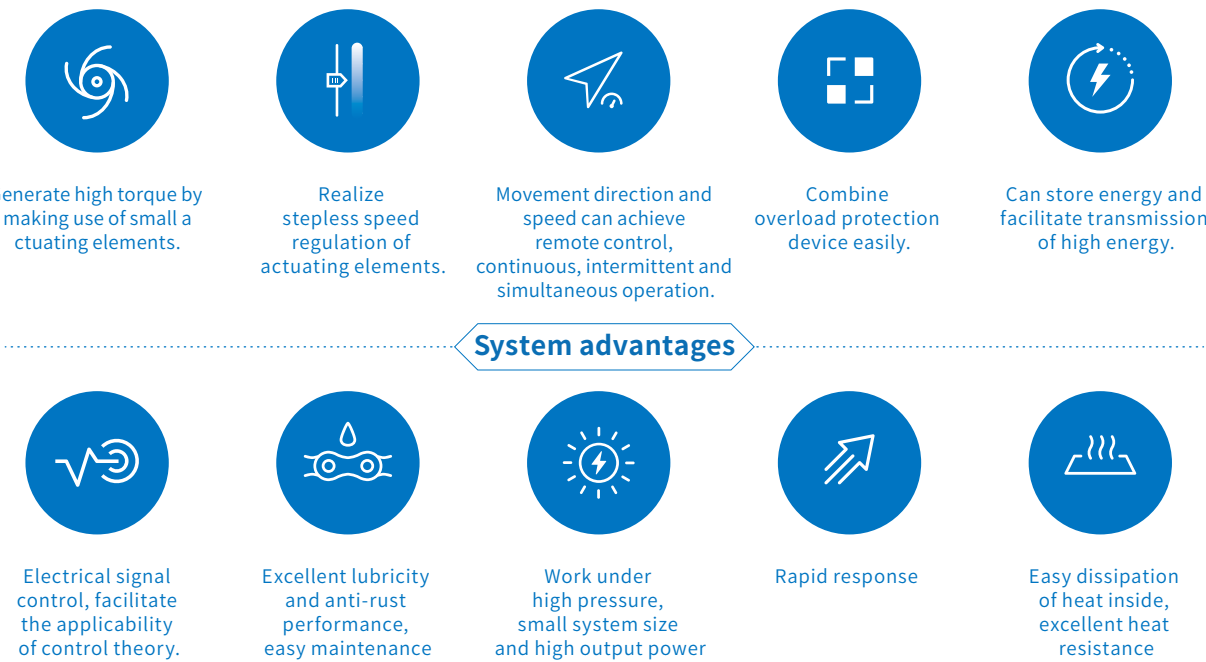
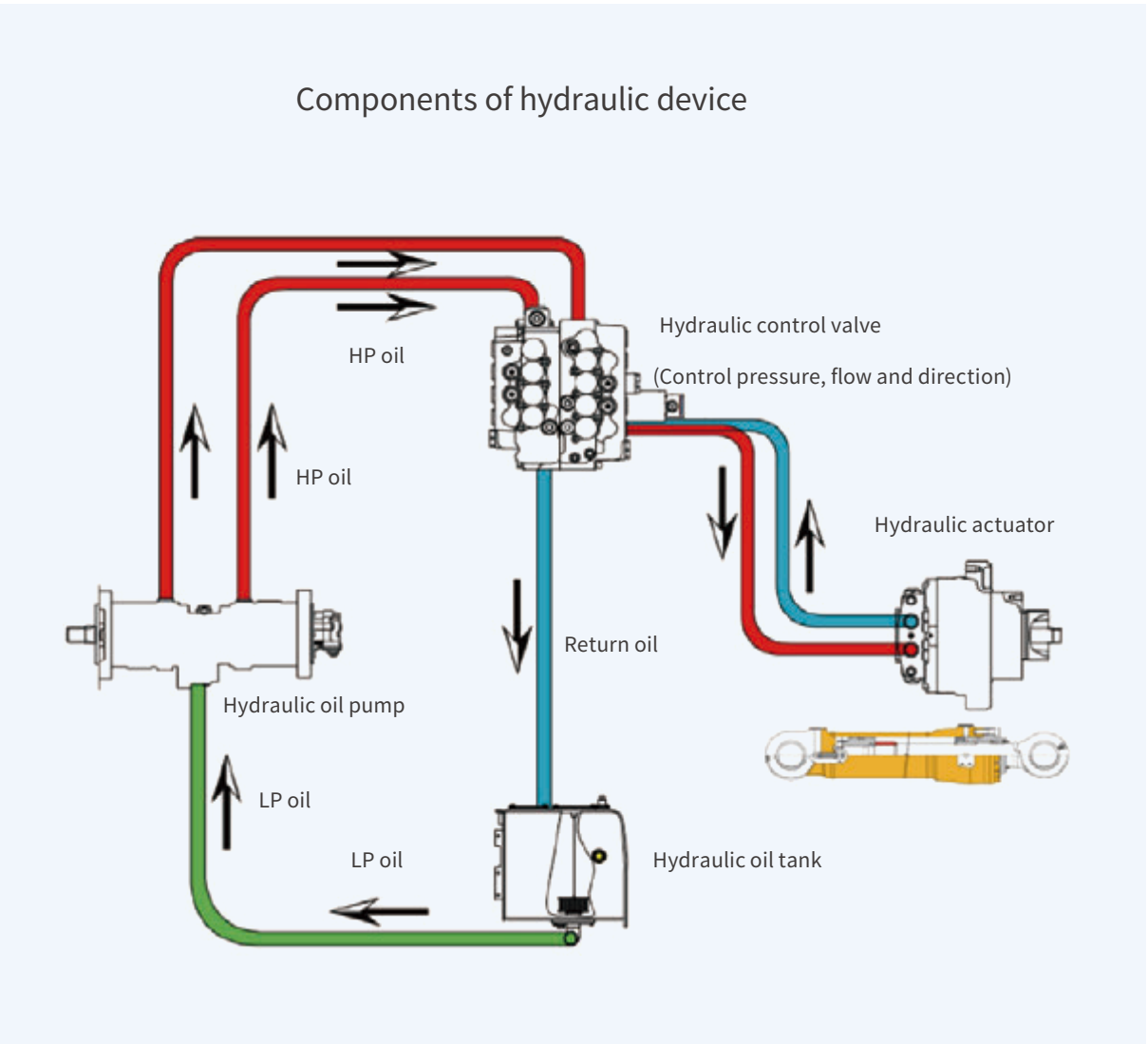
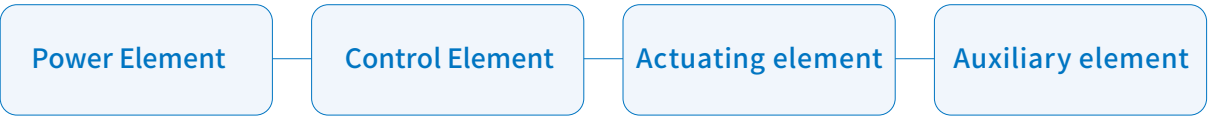
Both stator and rotor are provided with circular connectors, which can facilitate assembly, disassembly, replacement and installation, eliminate the trouble of welding wire, improve the stability and reliability, achieve easy maintenance and replacement, with the protection class IP65 and the specification Han10B 44DD, Han16B 72DD. The advanced cluster brush type precious metal multi-point contact is used and it can assure reliable contact under extremely low friction.



Hydraulic system

Hydraulic system is a kind of mechanism that uses hydraulic pump to supply pressure energy for hydraulic oil with lubricity and appropriate viscosity and leads hydraulic oil to actuating elements through pipeline, various valves and other accessories, and then, make machinery act by controlling the hydraulic power.

Hydraulic system is consisting of four parts:



- Among which:
- Power element refers to various kinds of hydraulic pump; control element refers to various kinds of hydraulic valve; actuating element refers to various kinds of hydraulic motor and oil cylinders; and, auxiliary elements include rubber tubes, joints, fuel tanks, accumulators and hydraulic accessories etc.
 - Typical structural form is: hydraulic pump station → pipeline → control valve → pipeline → hydraulic motor/ cylinder (integrated balance valve). Refer to the layout diagram of hydraulic system for details. Hydraulic pump station integrates motor, oil pump, hydraulic oil tank and its accessories, control valve and radiator. It can be used as the power control source for hydraulic system and converts electric energy into hydraulic energy, so as to offer hydraulic power to the hydraulic system.
 - Oil suction/ return filter, air filter, oil temperature sensor, heater, level gauge, cleaning cover, magnet, pressure gauge and other hydraulic accessories are installed on the hydraulic oil tank.
 - Hydraulic system can be designed into quantitative, variable, open and closed types as required.
 - Pump station parameters: matching design can be done as per the load required by the customer.
 - According to the operating conditions and requirements, two types of coolers can be chosen, i.e. air-cooled and water-cooled.
 - All motors, hydraulic pumps, hydraulic valves and such key components shall choose international first-class brands, to ensure their reliability.
 - Pipe layout: mainly use rigid tube, but combine rigid tube with hose, so as to ensure its assembly and maintainability besides attractive and tidy appearance. Rapid coupling with dust cover can be installed at the junctions, to facilitate connection.

Electronic control system



Electrical control system refers to a combination of several electrical components that can realize the control over one or some objects, so as to ensure the safe and reliable operation of controlled equipment. Main functions include: automatic control, protection, monitoring and measurement. It is mainly consisting of three parts: input (i.e. sensor, switch and button etc.), logic (i.e. relay and contact etc.) and execution part (i.e. solenoid coil and indicator light etc.)

Technical Advantages:

- ① Improve the operation efficiency and level of electrical system;
- ② Ensure the safety performance of electrical system;
- ③ Realize the modernization of power industry;
- ④ Soft start system is mostly used for the purpose of achieving smooth start of motor and mechanical load, mitigating the influence of starting current on power grid and protecting the power grid and mechanical system. Soft starter controls the soft start and stop of motors via step-down, compensation, frequency conversion or such technical means.



When there are other requirements such as speed regulation, frequency converter control system can also be used. Frequency converter drive has the following advantages, i.e. speed regulation, soft start/ stop, high-frequency starting/ braking, forward/ reverse rotation without contactor, electrical braking, motor speed control in harsh environment, and high-speed operation. In addition, several motors can be controlled by one frequency converter for speed regulation, and it can lower down the power capacity when the motor is started.

It enables electrical control cabinet operation, local and remote control. According to the operating conditions on board, wireless remote control system can be used, with the remote control distance over 50 meters. Transmitter for the remote controller can be handheld or harness type and reach IP65 waterproof rating. Contents of control include forward/ reverse rotation, stop, emergency stop and speed regulation etc. of several equipment.

Air gun array deployment & retrieval system

The array module is consisting of a 40-foot frame container, a 2.5 t small hydraulic winch and two guide rails.



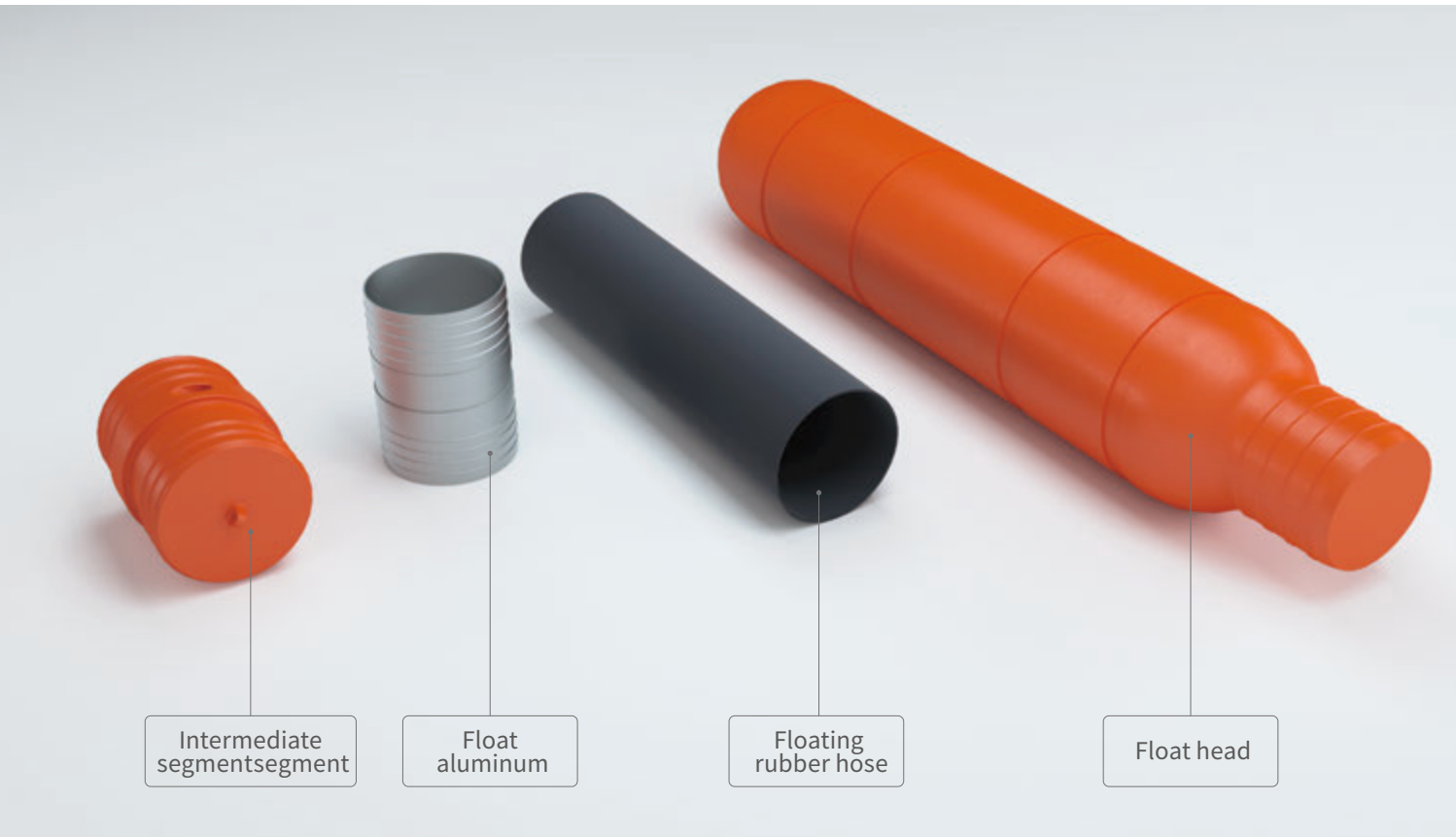
- 1 The detachable guide rails extending outside the container are designed into an asymmetric shape that can fit to the on-board facilities.
- 2 The module can hold the array of air guns hung in two parallel columns, with several groups of guns hung in each column.
- 3 One set of 2.5 t hydraulic winch shall be installed in the front and rear parts of the container each, for dragging the gun array.
- 4 Operating valves for small winch and gun winch are integrated into a group of valve blocks. One wireless remote control is used for its operation.
- 5 The external guide rails are detachable, to facilitate transport. Inside the container, corresponding small pulleys and guide chains are equipped.
- 6 The container is reinforced type and the skeleton is made of high-strength square tubes for ship use. Stainless steel diamond plates are laid on the bottom. The top and sides are made of special-purpose container plates and are pre-treated. The bottom steel beams shall receive the overall zinc coating or special preservative treatment. Before painting, the container shall receive the sand blasting (S2.5) treatment while the container outside shall be applied with marine paint. Inside the container, marine alkyl enamel shall be used, in white.
- 7 It can be customized according to the customers' requirement.

Float

Float is a kind of product that is made of linear polyethylene resin, formed by rotational molding and PU foaming.

It is characterized by light weight, large buoyancy, impact resistance, low absorption rate, acid/ alkali corrosion resistance, and long service life etc.





Name	Order No.	Specification (unit:mm)
Rigid float	XH-FT01	Φ670*6600
	XH-FT02	Φ810*6990

Name	Order No.	Specification (unit:mm)
500L header	XH-FT03	Φ550*2030
1000L header	XH-FT04	Φ735*3850
2500L header	XH-FT05	Φ1250*3890
3000L header	XH-FT06	Φ970*930*3895

Name	Order No.	Specification (unit:mm)
Float linkage section (tail)	XH-FT07	φ 300
	XH-FT08	φ 400
	XH-FT09	φ 450
	XH-FT10	φ 480
	XH-FT11	φ 500
	XH-FT12	φ 550
	XH-FT13	φ 600

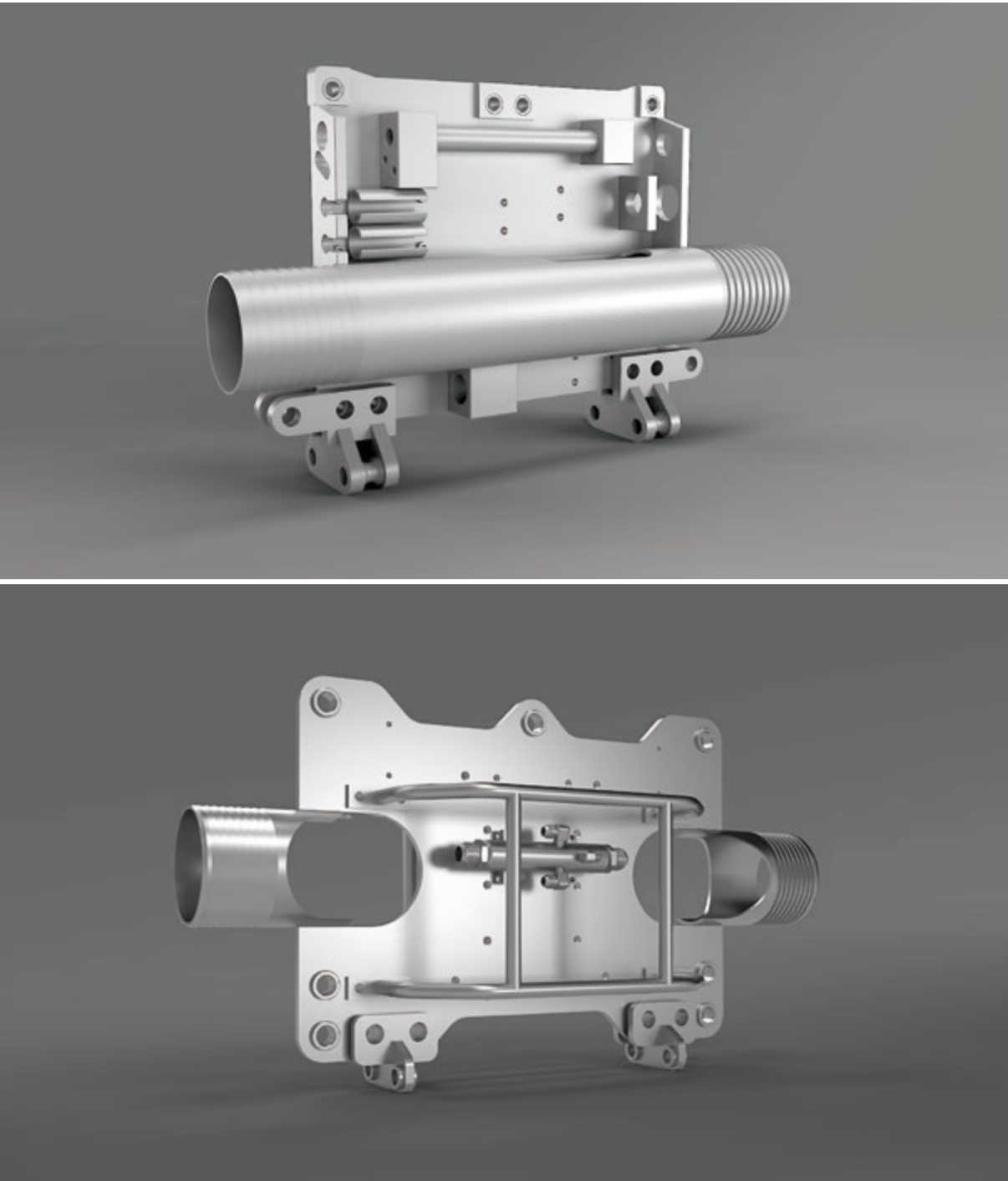
Name	Order No.	Specification (unit:mm)
12 inch float head	XH-FT14	Φ308*Φ700*3560
12 inch float head	XH-FT15	Φ308*Φ600*2432
16 inch float head	XH-FT16	Φ400*Φ650*2900
18 inch float head	XH-FT17	Φ455*Φ800*2500
20 inch float head	XH-FT18	Φ480*Φ650*2500
20 inch float head	XH-FT19	Φ500*Φ700*3324
20 inch float head	XH-FT20	Φ500*Φ800*3990

Name	Order No.	Specification	Operating pressure	Bursting pressure
Floating rubber hose	XH-FT21	φ 300mm*10mm	0.5 MPa	2 MPa
	XH-FT22	φ 400mm*10mm	0.5 MPa	2 MPa
	XH-FT23	φ 450mm*10mm	0.5 MPa	2 MPa
	XH-FT24	φ 480mm*10mm	0.5 MPa	2 Mpa
	XH-FT25	φ 500mm*10mm	0.5 MPa	2 Mpa
	XH-FT26	φ 550mm*10mm	0.5 MPa	2 Mpa
	XH-FT27	φ 600mm*10mm	0.5 MPa	2 Mpa

* Other specifications/models may be customized.

Gun lifting plate

It is mainly used for lifting of high-pressure air gun for seismic source array for exploration vessels. It can be divided into general and reinforced types and customized according to the application circumstances of various users.



HP air hose

Sr. No.	Order No.	Specification/ Model	Operating pressure	Test Pressure
1	XH-QG01	3/16	4000psi	6000psi
2	XH-QG02	1/4		
3	XH-QG03	5/16		
4	XH-QG04	3/8		
5	XH-QG05	1/2		
6	XH-QG06	5/8		
7	XH-QG07	3/4		
8	XH-QG08	1		
9	XH-QG09	3/16	5000psi	7500psi
10	XH-QG10	1/4		
11	XH-QG11	3/8		
12	XH-QG12	1/2		
13	XH-QG13	1		
14	XH-QG14	1/4	10000psi	15000psi
15	XH-QG15	5/16		
16	XH-QG16	3/8		



Air hose fitting & adapter

Fittings and adapters are made of forged stainless steel rods. Compared with common materials, their service life and strength can be extended by 30% approximately.

1 JIC stainless steel hose fittings



Sr. No.	Order No.	Specification	Size	Operating pressure
1	XH-QG17	1/4"	7/16--20	4000~5000PSI
2	XH-QG18		9/16--18	4000~5000PSI
3	XH-QG19	3/8"	9/16--18	4000~5000PSI
4	XH-QG20	1/2"	3/4--16	4000~5000PSI
5	XH-QG21	3/4"	1-1/16--12	4000~5000PSI
6	XH-QG22	1	1-5/16--12	4000~5000PSI

2 NPT reinforced hose fittings



Sr. No.	Order No.	Specification	Size	Operating pressure
1	XH-QG23	3/8" (short)	3/8"NPT	4000PSI
2	XH-QG24	3/8" (long)	3/8"NPT	4000PSI

3 JIC/ JIC transition joint and tee



Sr. No.	Order No.	Specification	Operation pressure
1	XH-QG25	7/16--7/16--20	5000PSI
2	XH-QG26	7/16-20---9/16-18	5000PSI
3	XH-QG27	1/2--1/2--20	5000PSI
4	XH-QG28	1/2-20---9/16-18	5000PSI
5	XH-QG29	9/16--9/16-18	5000PSI
6	XH-QG30	3/4--3/4--16	5000PSI
7	XH-QG31	3/4-16---7/8-14	5000PSI
8	XH-QG32	3/4-16---1-1/16-12	5000PSI
9	XH-QG33	1-1/16--1-1/16--12	5000PSI
10	XH-QG34	1-1/16-12---1-1/15-12	5000PSI
11	XH-QG35	1-5/16--1-5/16--12	5000PSI

4 JIC/NPT transition connector



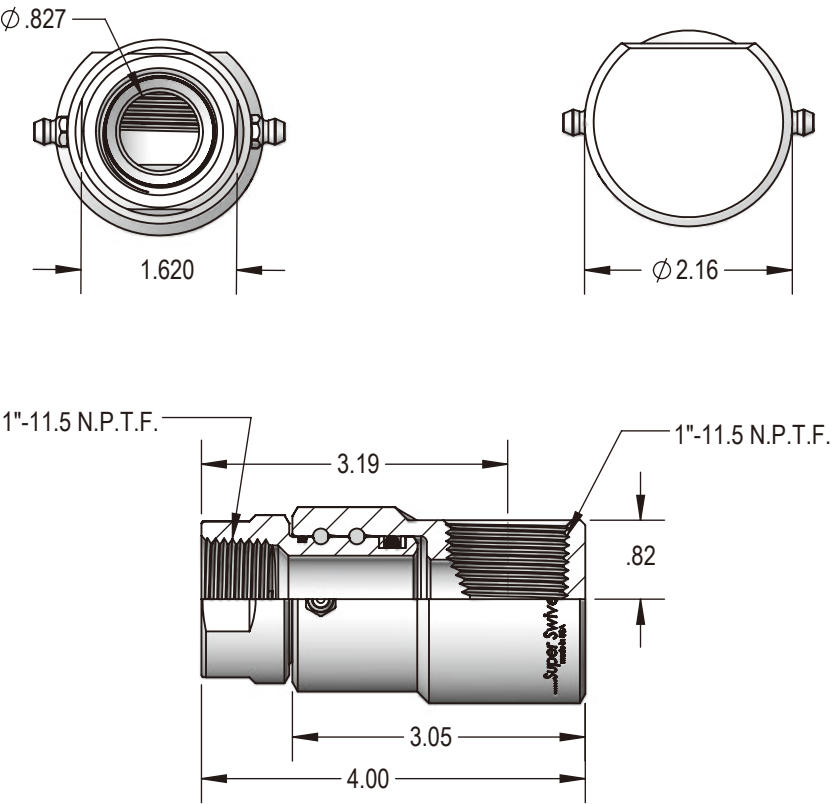
Sr. No.	Order No.	Specification	Operation pressure
1	XH-QG36	JIC 1/2--NPTM 1/2	5000PSI
2	XH-QG37	JIC 1/2--NPTM 3/8	5000PSI
3	XH-QG38	JIC 9/16--NPTM 3/8	5000PSI
4	XH-QG39	JIC 3/4--NPTM 3/8	5000PSI
5	XH-QG40	JIC 1-1/16--NPTM 3/4	5000PSI
6	XH-QG41	JIC 1-5/16--NPTM 1	5000PSI

5 Gas tube fitting plug



Pneumatic slip ring

High-pressure pneumatic slip ring will offer multi-bearing-race design for extra-heavy universal joint, to provide excellent lateral load strength and add the load support. It can transfer compressed air, with the max operating pressure of 4,500 PSI, 90° rotation - double bearing race, made of stainless steel, specification 1” NPTF—1” NPTF. Structural dimension is shown as follows:



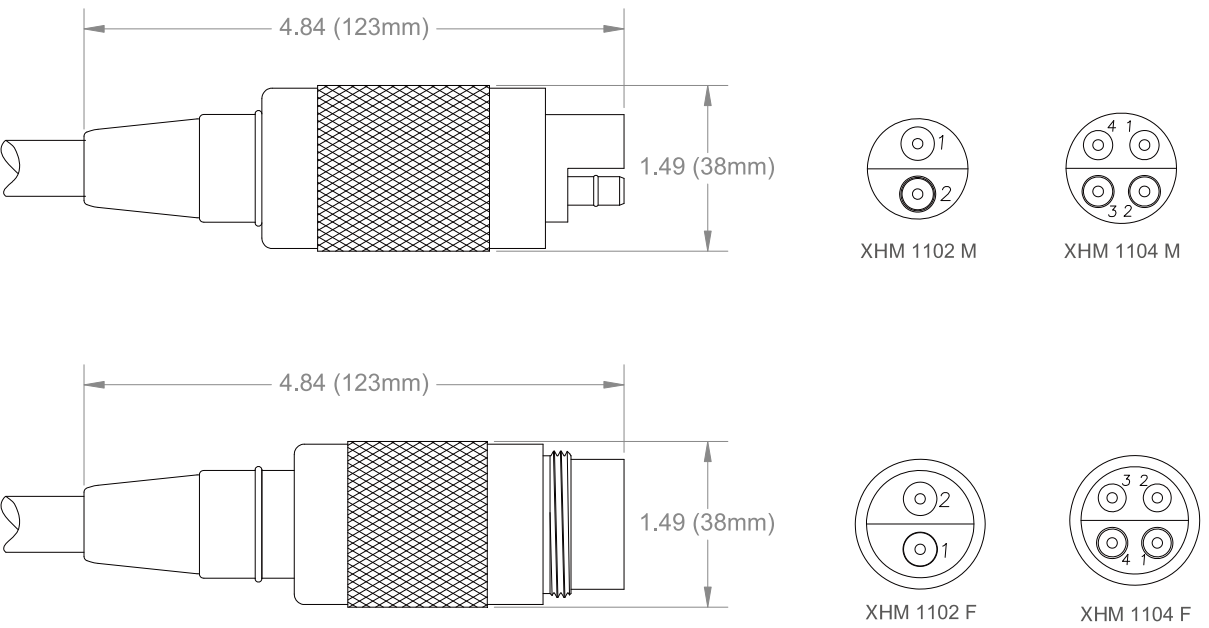
PART NUMBER
9 SS 16 DB FP 100 X FP 100

MAXIMUM P.S.I.G.
4,500

Special cable for marine geophysical exploration

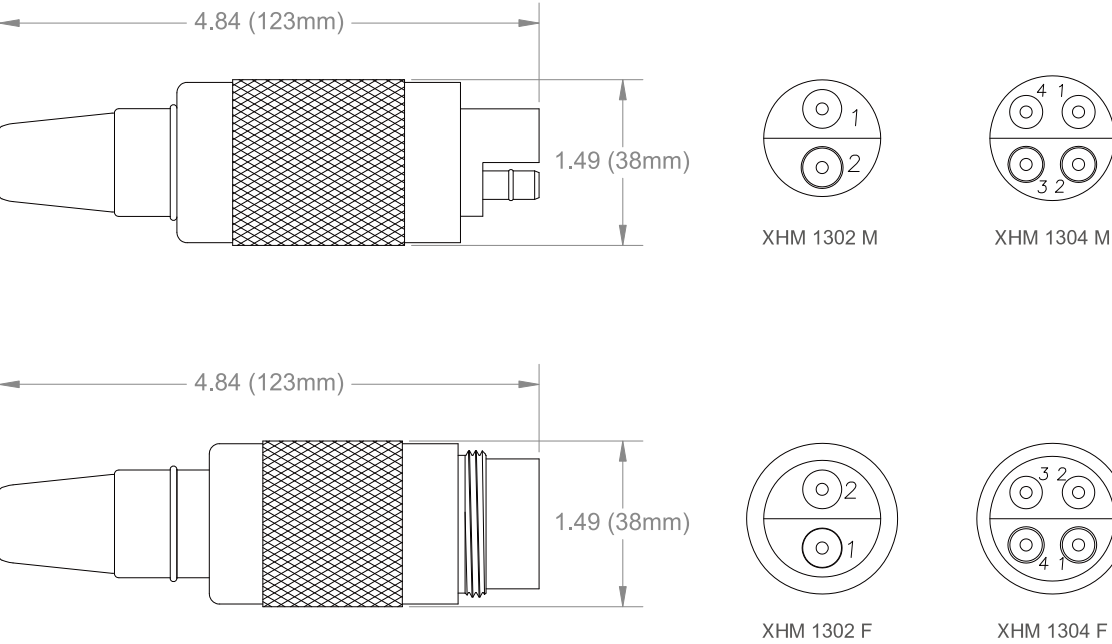
Series XHM (in common with Series AGM)

1 XHM marine waterproof connector

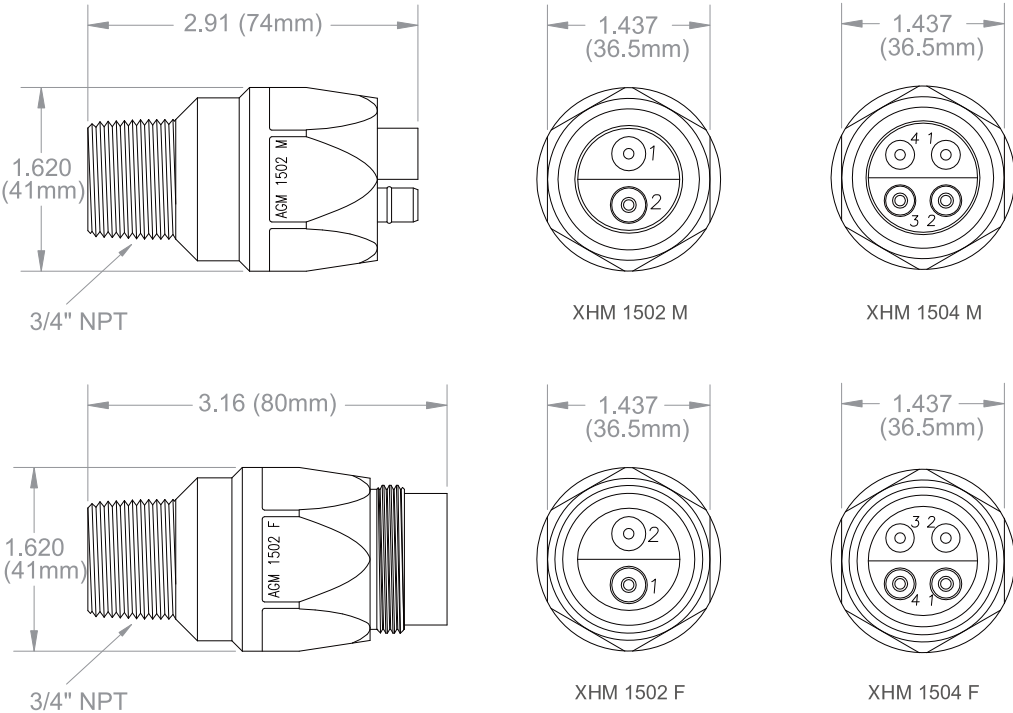


Product name	Specification/model
Two-core cable	XHM1102M-XHM1102F
Two-core cable	XHM1102M-XHM1102M
Two-core cable	XHM1102F-XHM1102F
Four-core cable	XHM1104M-XHM1104F
Four-core cable	XHM1104M-XHM1104M
Four-core cable	XHM1104F-XHM1104F
Four-core cable	XHM1104M-XHM1102F

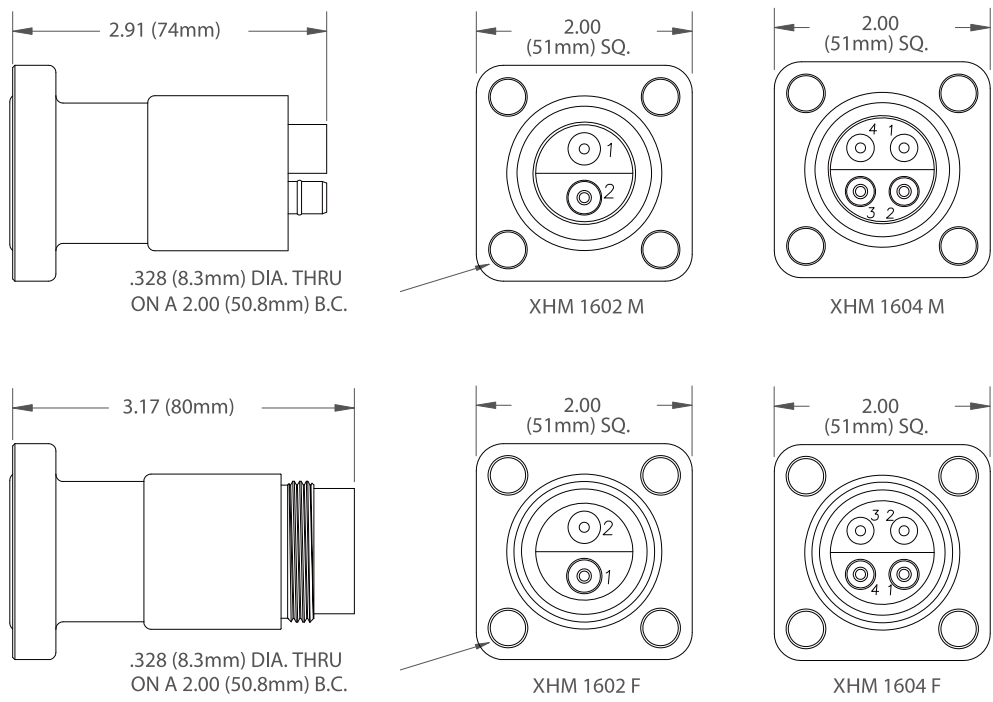
2 XHM series cable plug



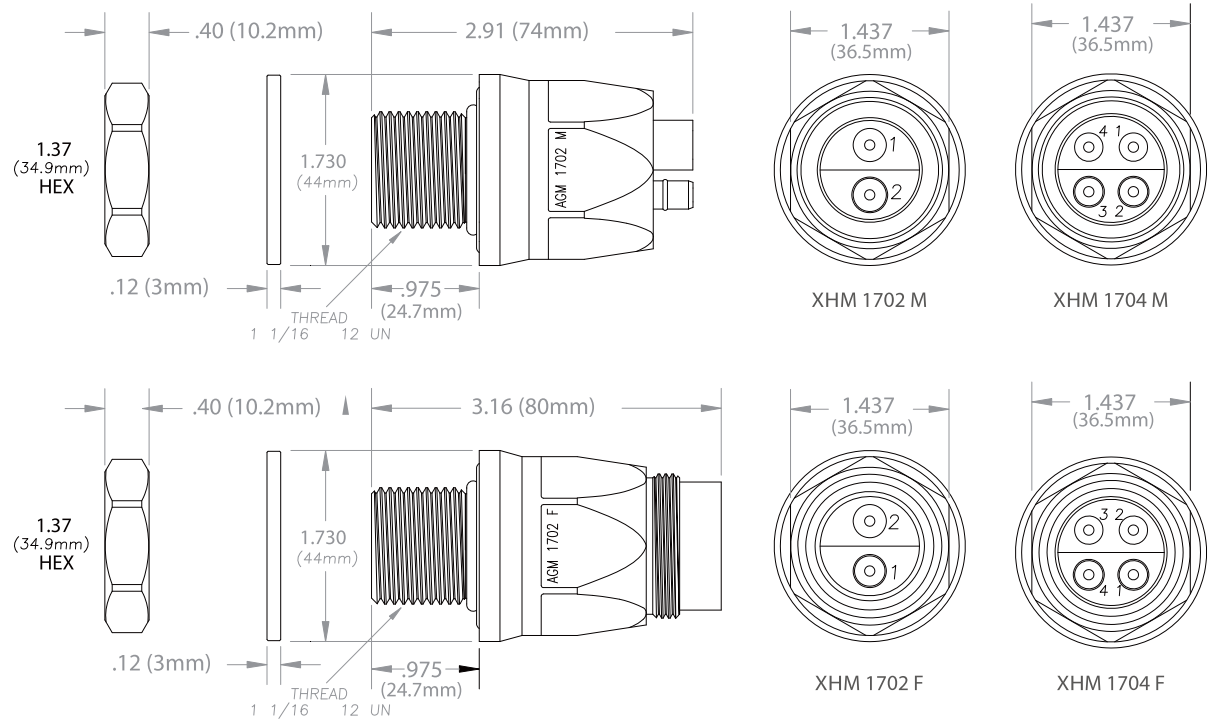
3 XHM Marine Bulkhead Connectors-NPT Style



4 XHM marine bulkhead connector - flange connection

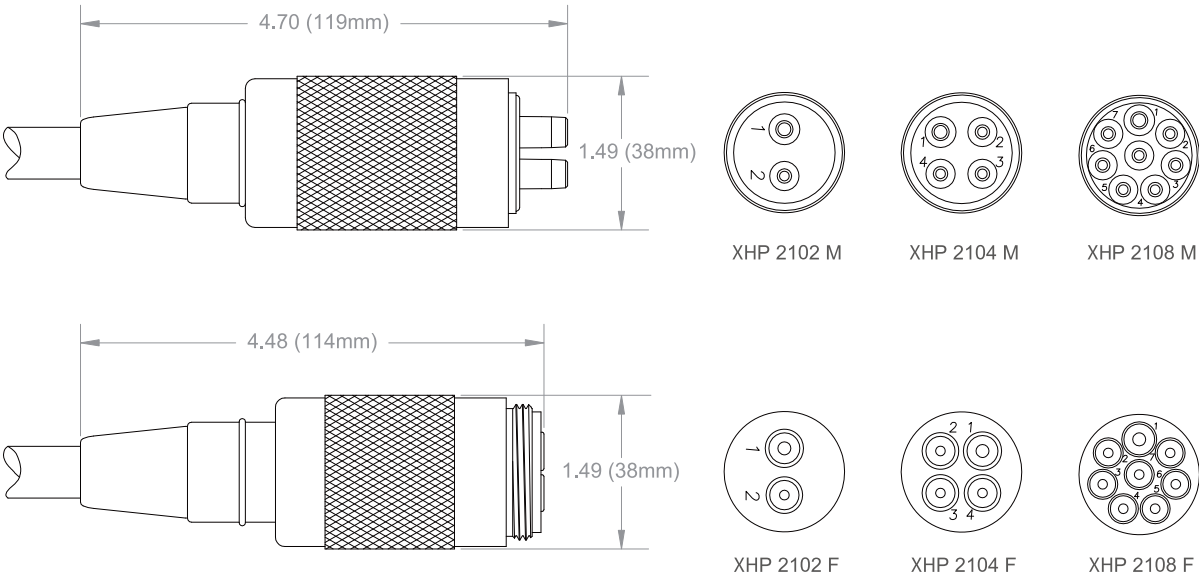


5 XHM marine bulkhead connector - straight thread

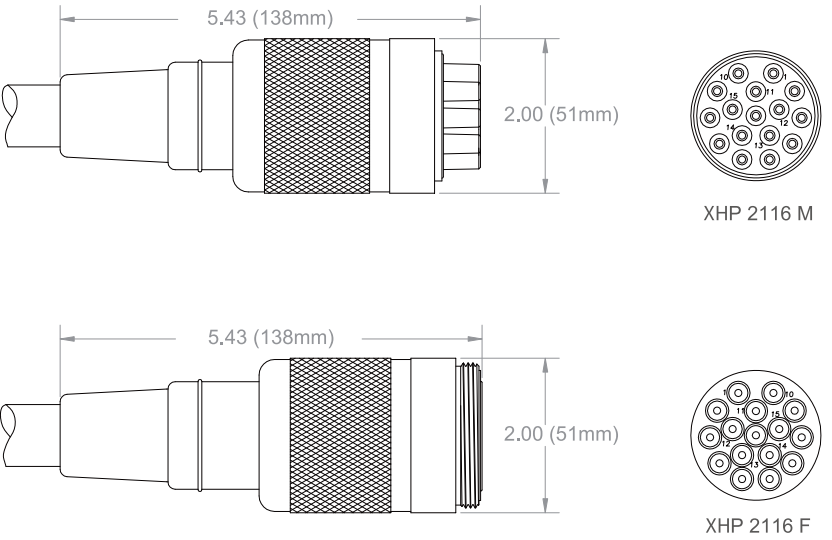


Series XHP (in common with Series AGP)

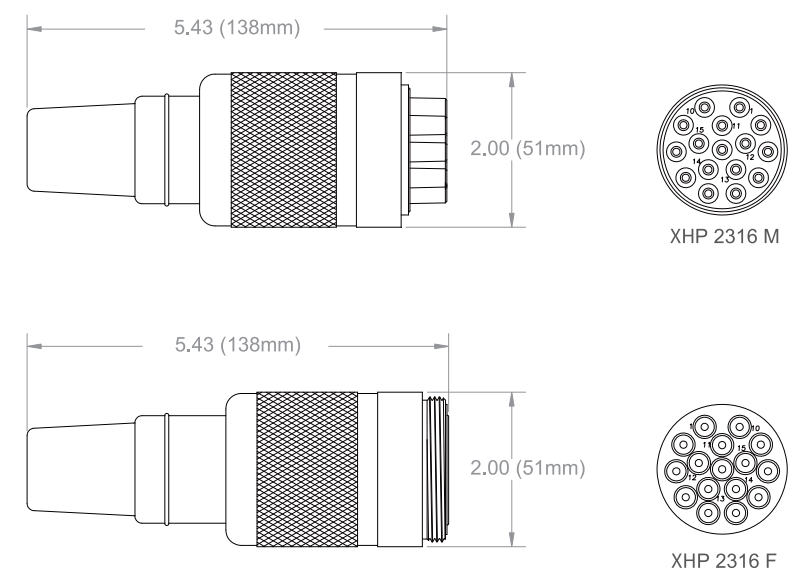
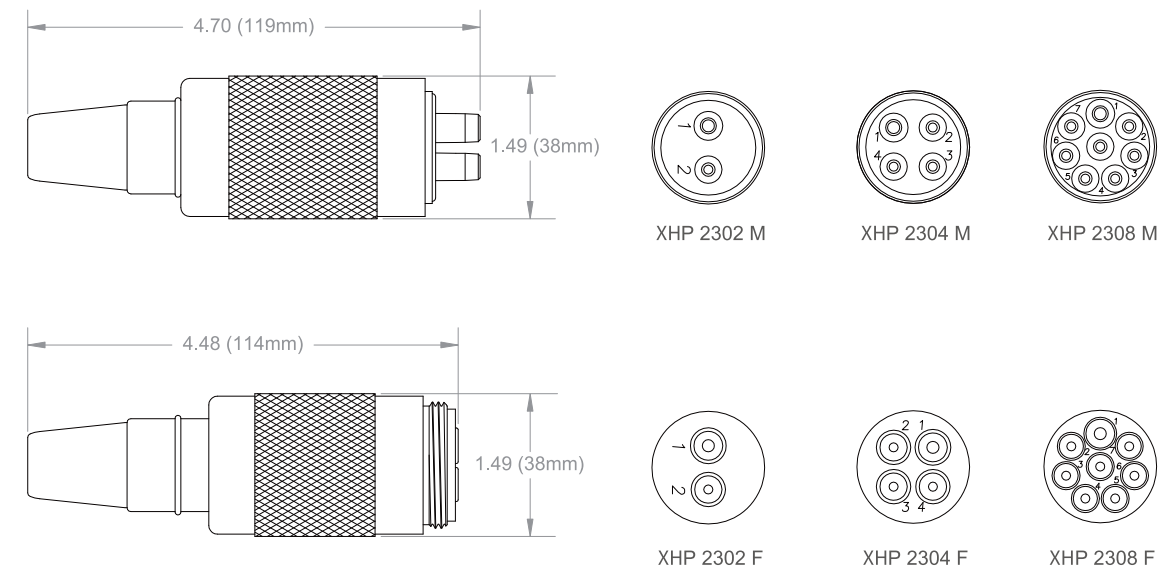
1 XHP marine waterproof connector



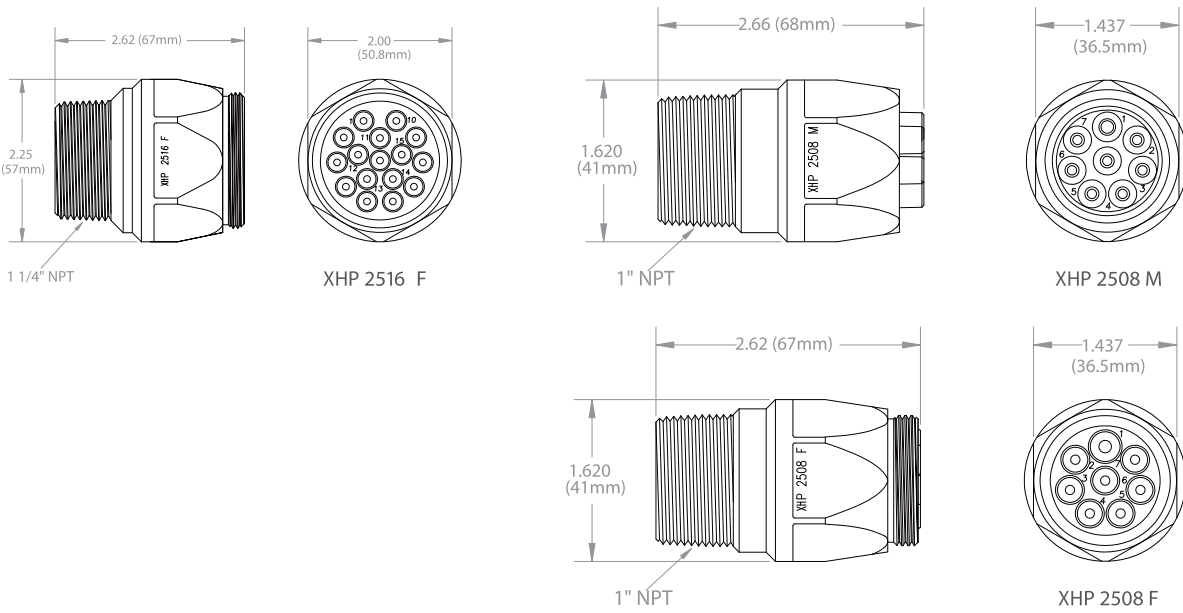
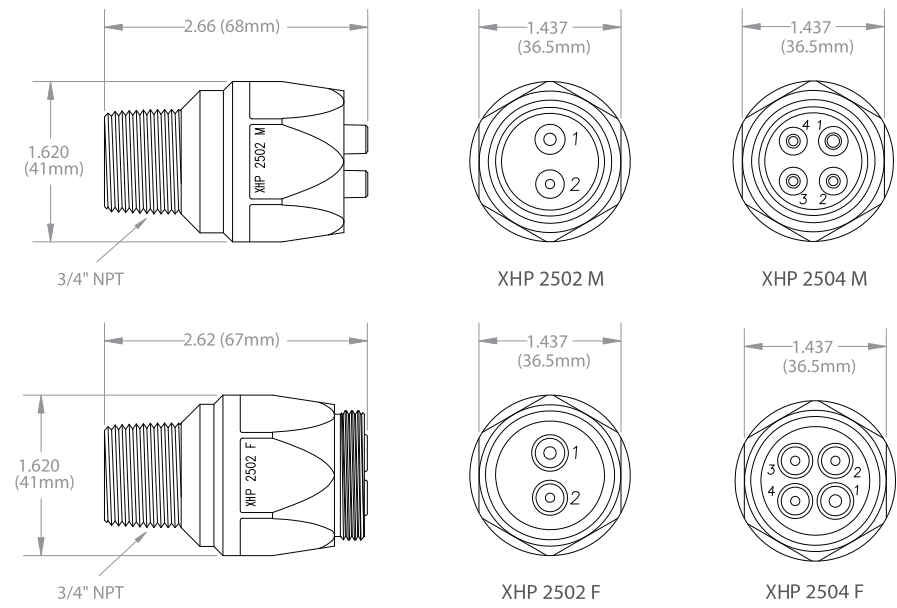
Product name	Specification/model
Two-core cable	XHP2102M-XHP2102F
Two-core cable	XHP2102M-XHP2102M
Two-core cable	XHP2102F-XHP2102F
Four-core cable	XHP2104M-XHP2104F
Four-core cable	XHP2104M-XHP2104M
Four-core cable	XHP2104F-XHP2104F
Eight-core cable	XHP2108M-XHP2108F
Eight-core cable	XHP2108M-XHP2108M
Eight-core cable	XHP2108F-XHP2108F
Sixteen-core cable	XHP2116M-XHP2116F
Sixteen-core cable	XHP2116M-XHP2116M
Sixteen-core cable	XHP2116F-XHP2116F



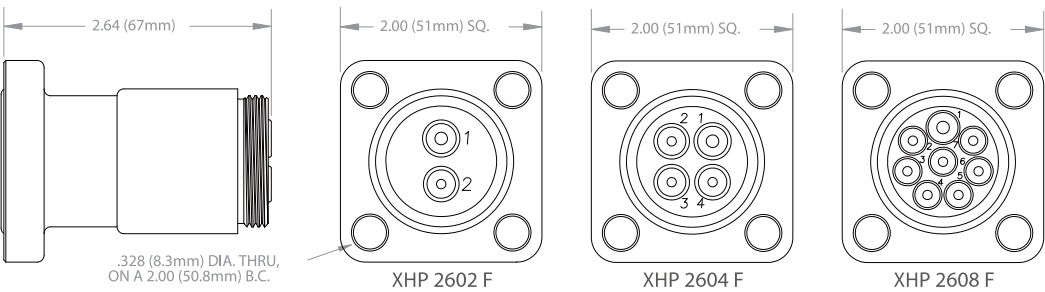
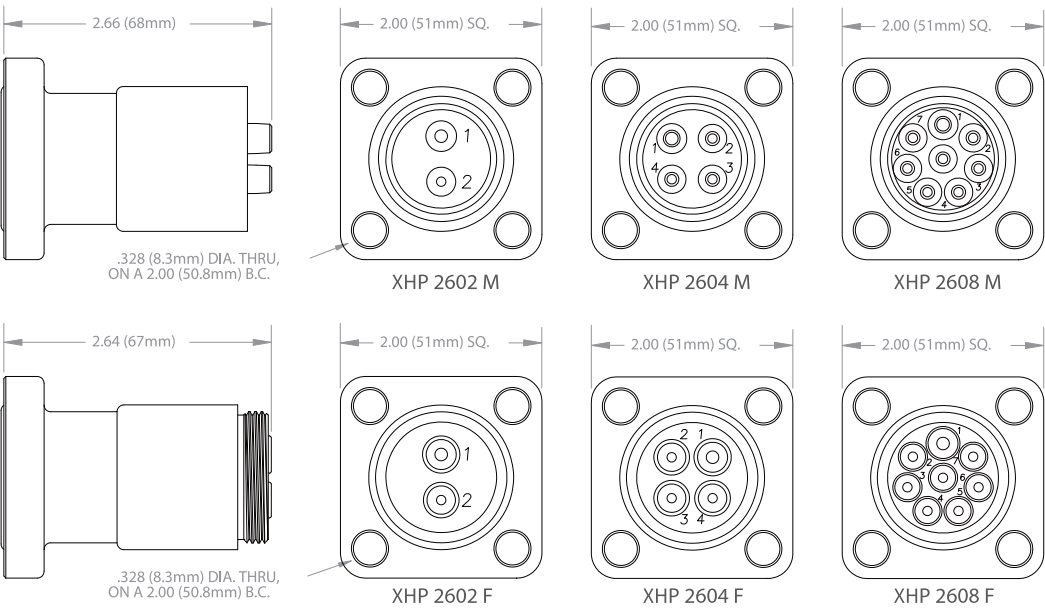
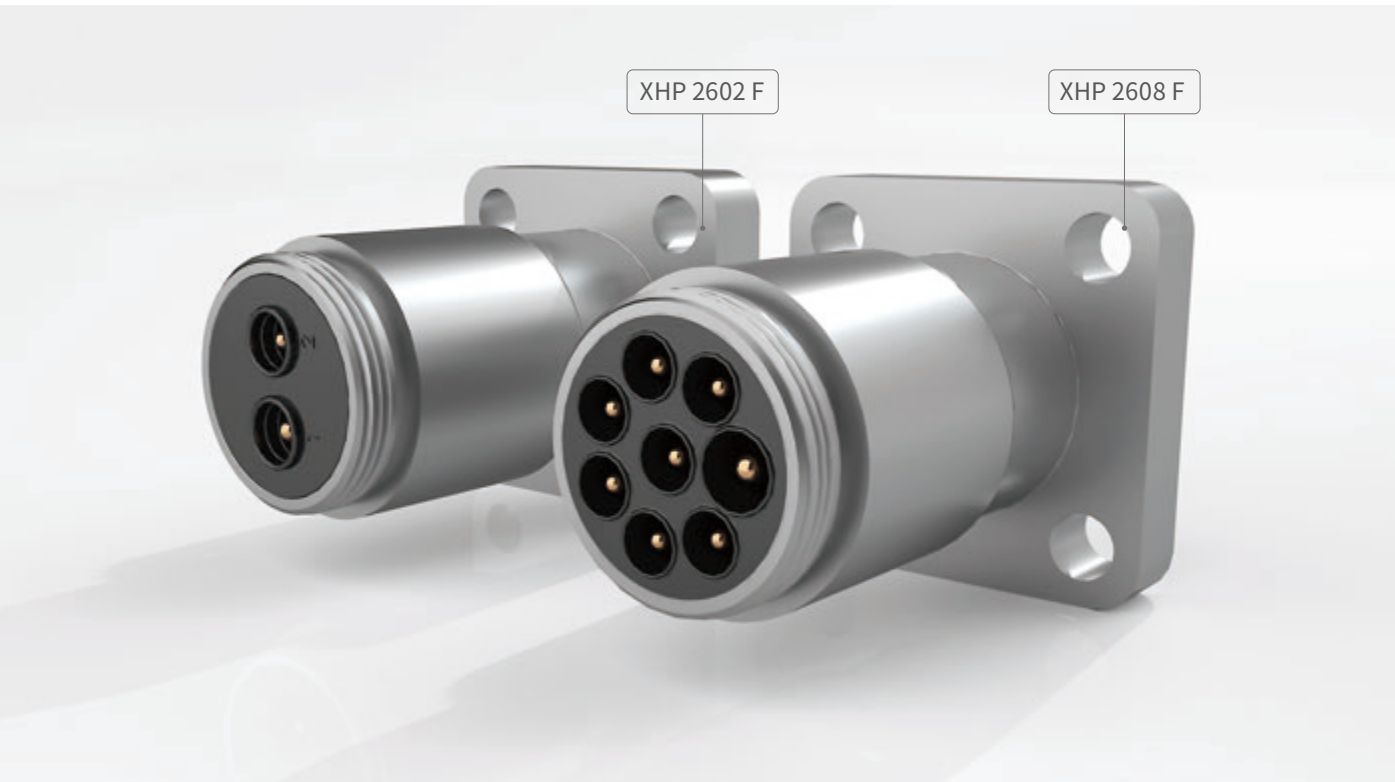
2 XHP marine cable plug



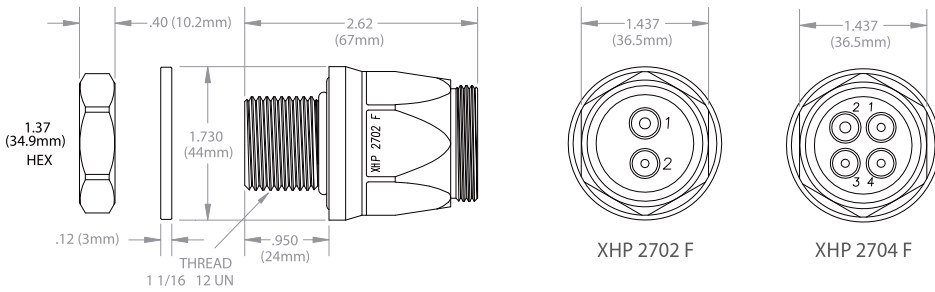
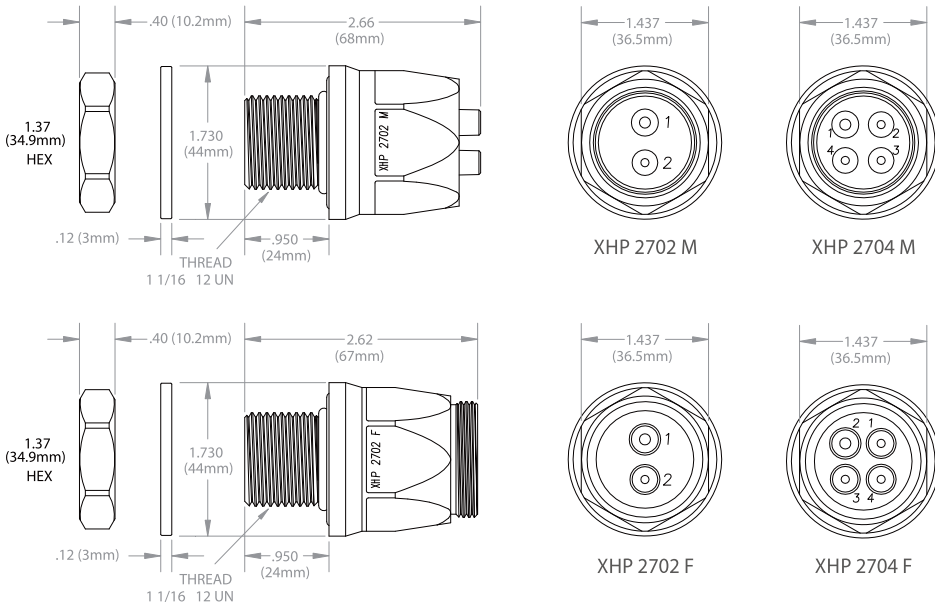
3 XHP marine bulkhead connector - type NPT

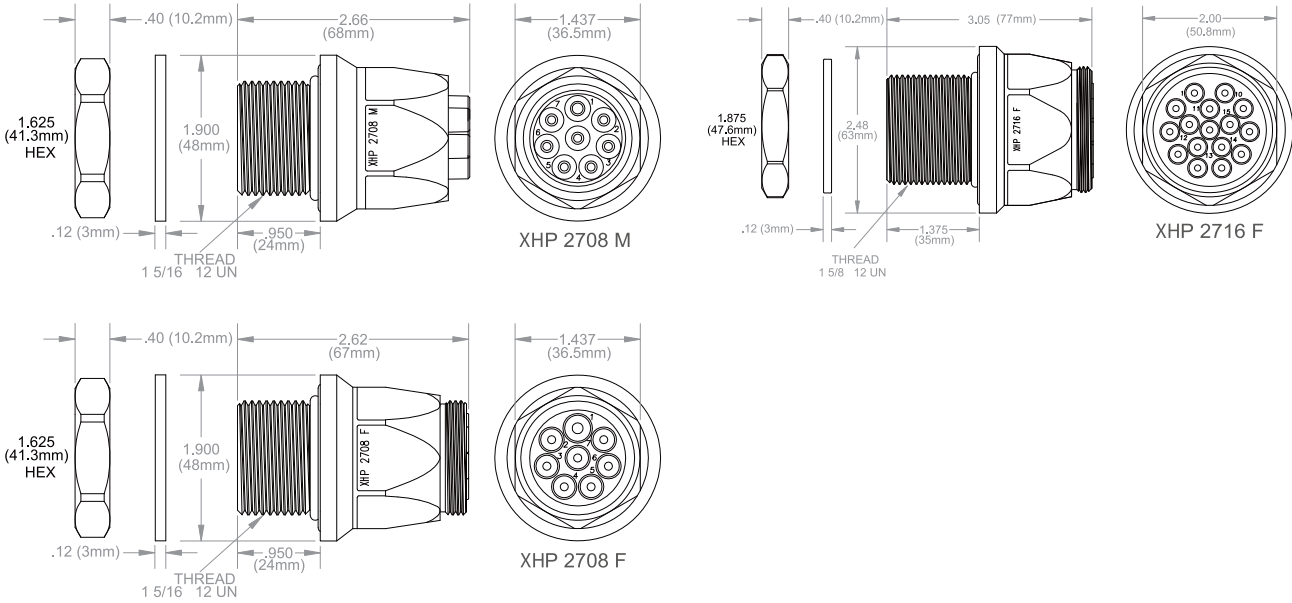


4 XHP marine bulkhead connector - flange connection



5 XHP marine bulkhead connector - straight thread

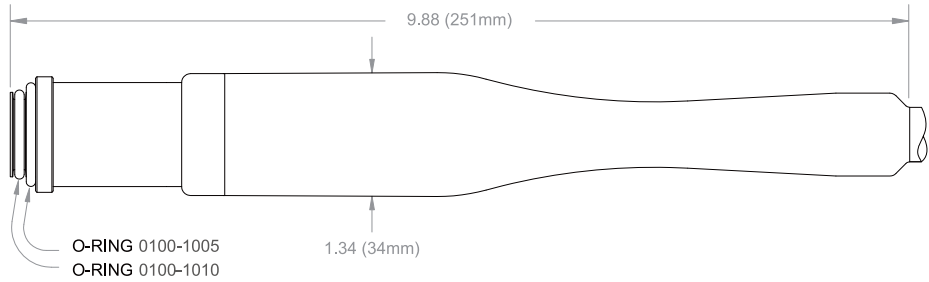




Series XHS (in common with Series AGS)

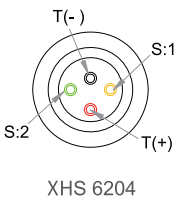
1 Bolt gun pigtail wire

Product name	Specification/model
BOLT gun pigtail wire	XHS6204-XHM1104M
BOLT gun pigtail wire	XHS6204-XHP2104M



WIRING TYPES XHS 6204

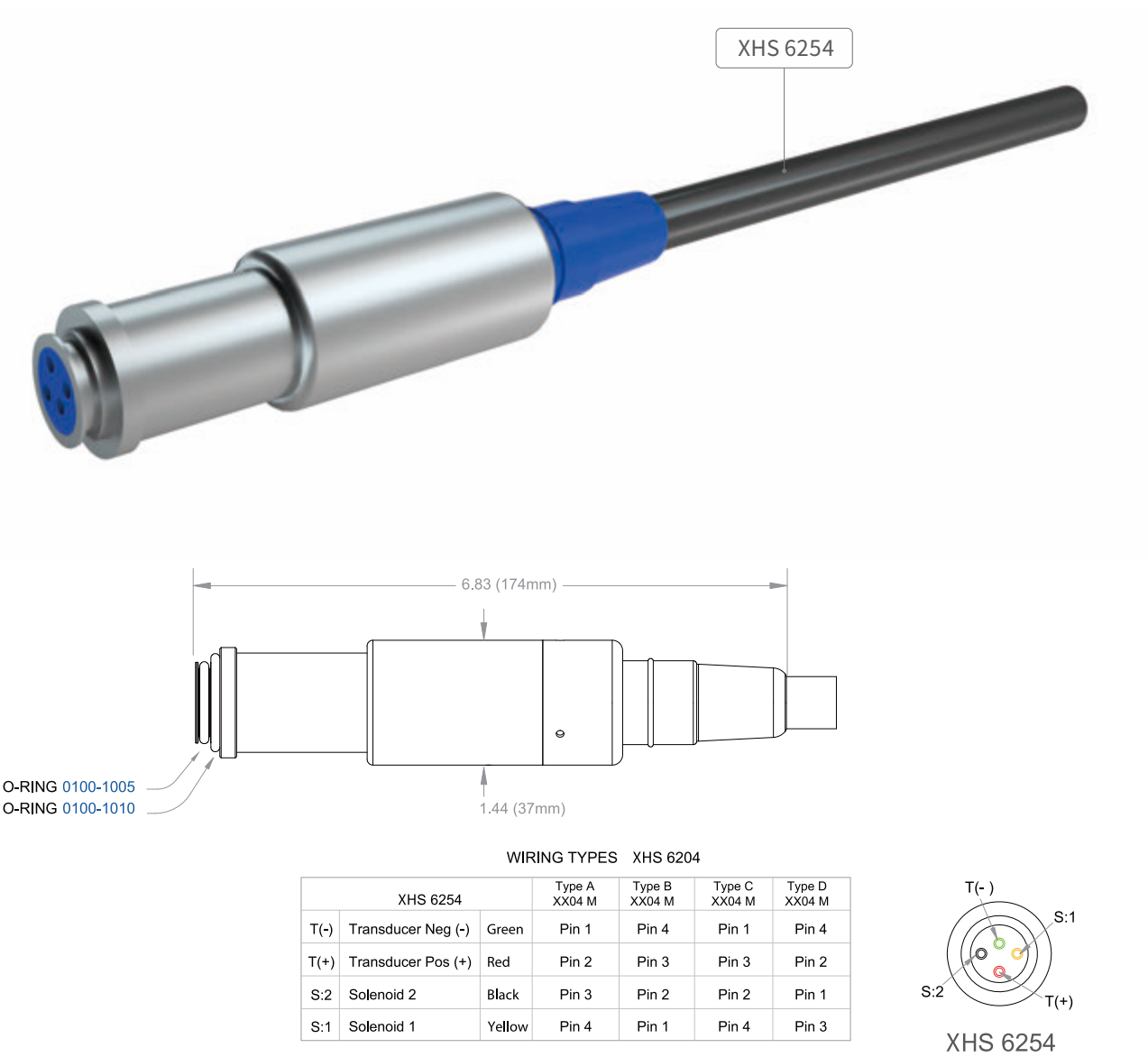
	XHS 6204	Type A XX04 M	Type B XX04 M	Type C XX04 M	Type D XX04 M
T(-)	Transducer Neg (-)	Black	Pin 1	Pin 4	Pin 1
T(+)	Transducer Pos (+)	Red	Pin 2	Pin 3	Pin 3
S:2	Solenoid 2	Green	Pin 3	Pin 2	Pin 2
S:1	Solenoid 1	Yellow	Pin 4	Pin 1	Pin 4



Heavy Duty
Recommended for all Bolt Air Guns

2 Reinforced Bolt gun pigtail wire

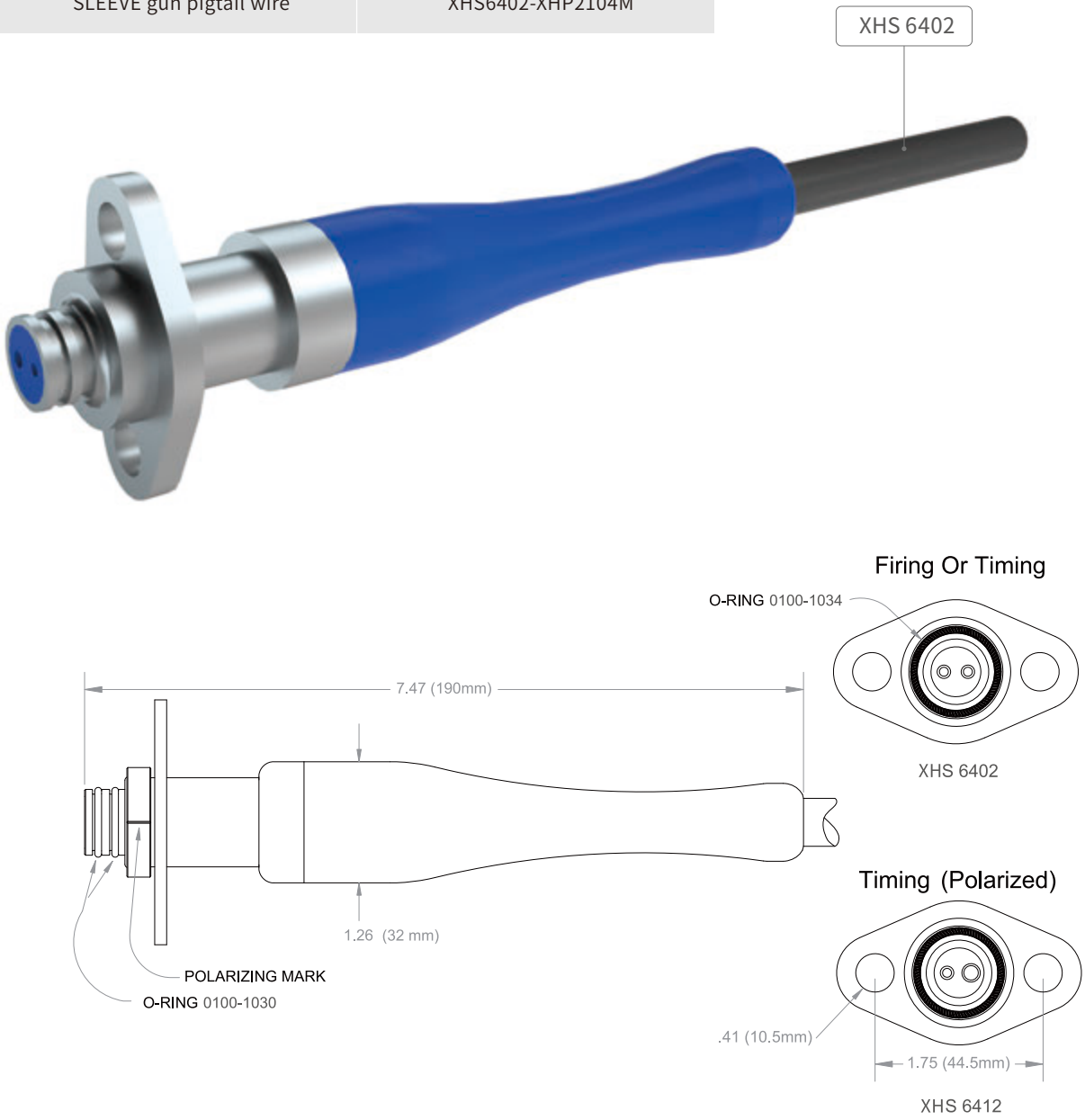
Product name	Specification/model
Reinforced Bolt gun pigtail wire	XHS6254-XHM1104M
Reinforced Bolt gun pigtail wire	XHS6254-XHP2104M



Ruggedized for large airguns and extended service life

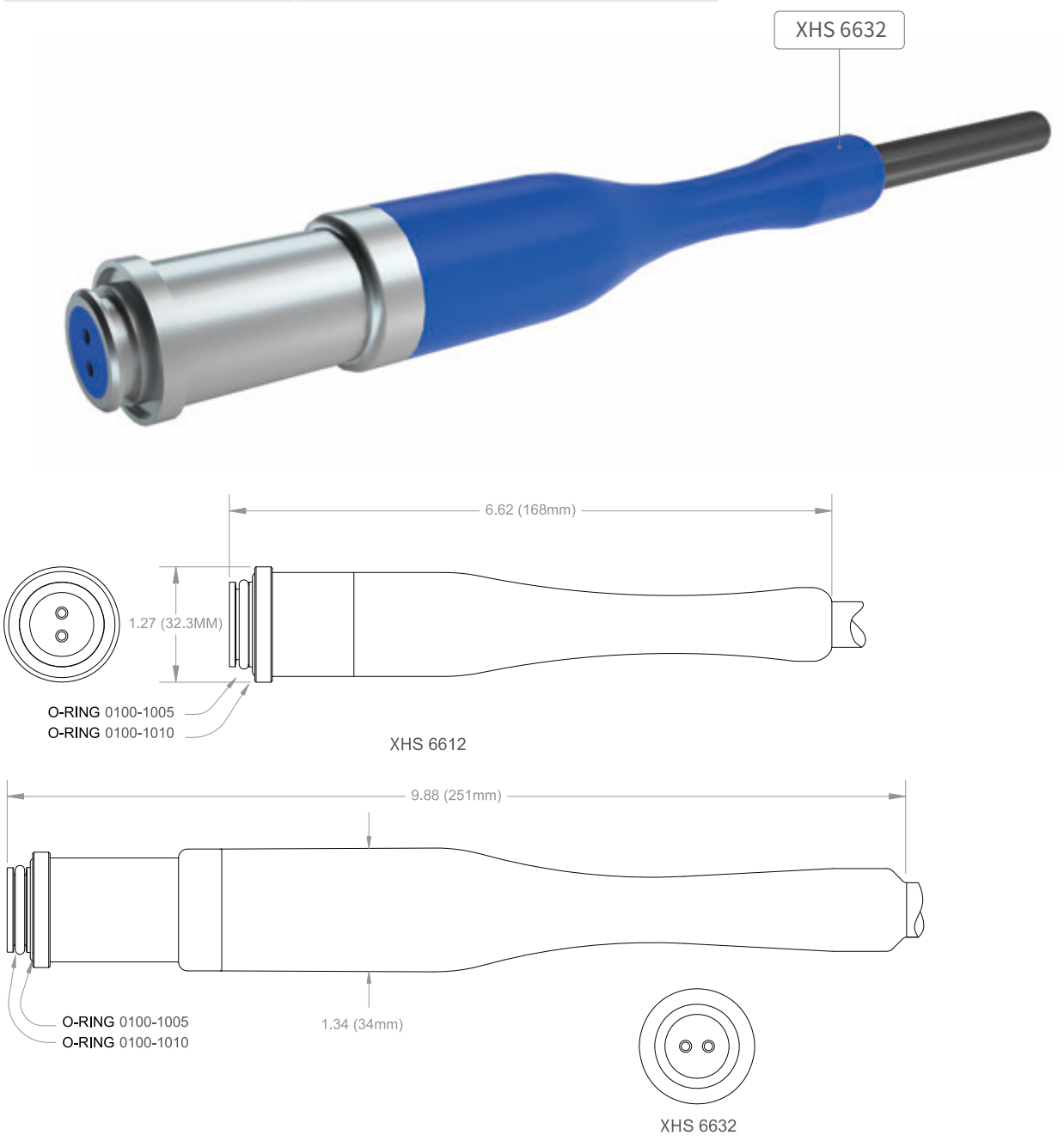
3 SLEEVE gun pigtail wire

Product name	Specification/model
SLEEVE gun pigtail wire	XHS6402-XHM1102M
SLEEVE gun pigtail wire	XHS6402-XHM1104M
SLEEVE gun pigtail wire	XHS6402-XHP2102M
SLEEVE gun pigtail wire	XHS6402-XHP2104M



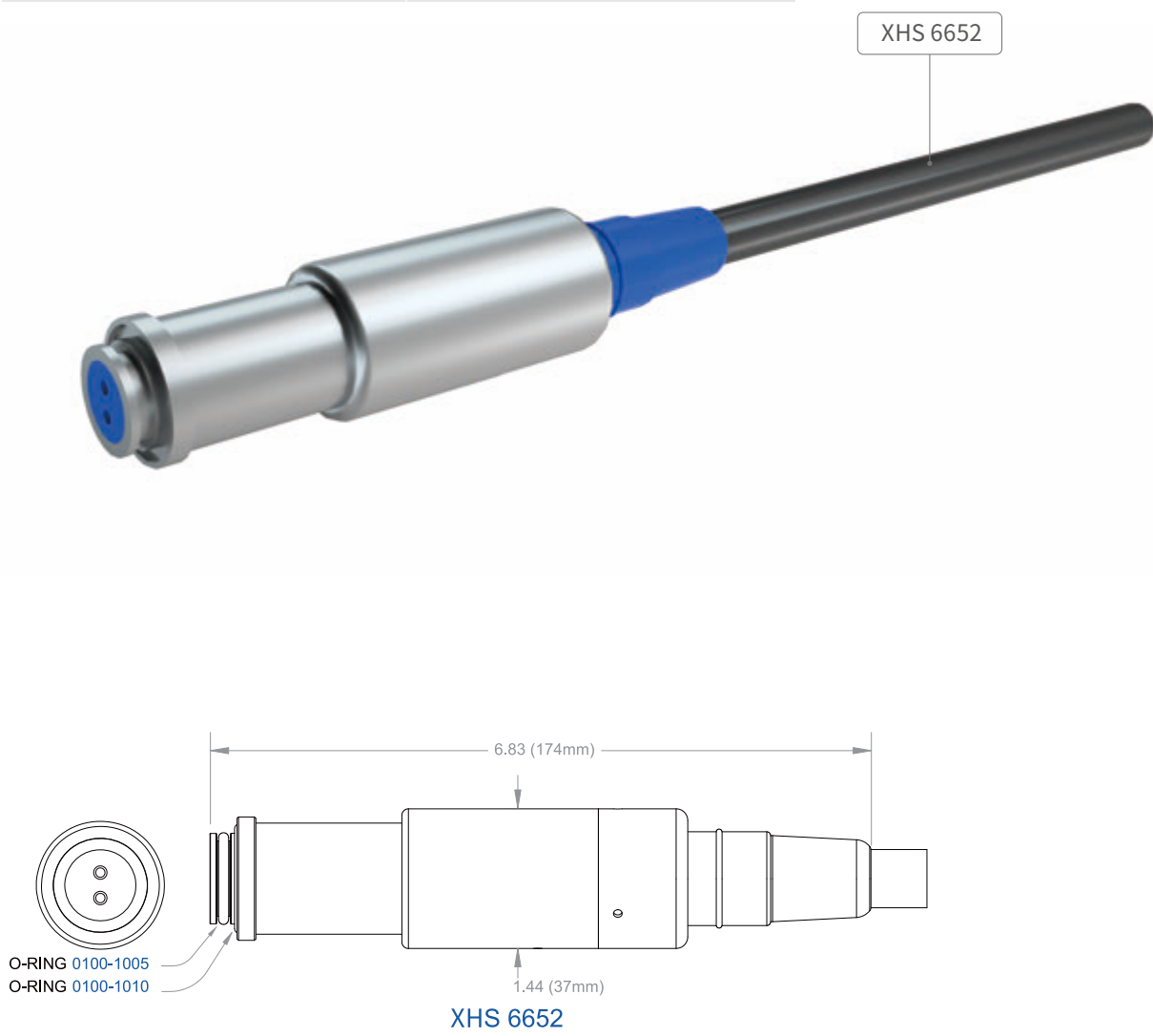
4 GII gun pigtail wire

Product name	Specification/model
GI gun pigtail wire	XHS6612/XHS6632-XHM1102M
GI gun pigtail wire	XHS6612/XHS6632-XHM1104M
GI gun pigtail wire	XHS6612/XHS6632-XHP2102M
GI gun pigtail wire	XHS6612/XHS6632-XHP2104M



5 Reinforced GII gun pigtail wire

Product name	Specification/model
Reinforced GI gun pigtail wire	XHS6652-XHM1102M
Reinforced GI gun pigtail wire	XHS6652-XHM1104M
Reinforced GI gun pigtail wire	XHS6652-XHP2102M
Reinforced GI gun pigtail wire	XHS6652-XHP2104M



Series XHH

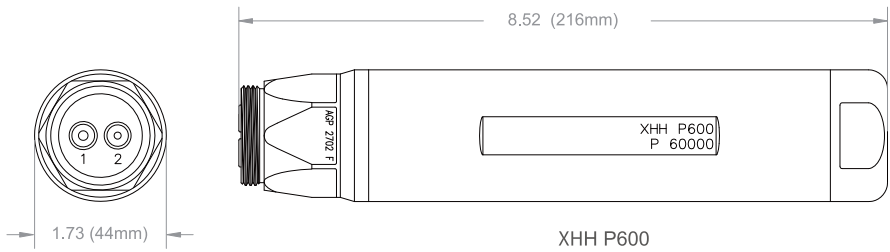
1 Depth sensor

Weight	1.8kg
Diameter	1 3/4 "
Connector	XHP2702F
Input	30VDC Max
Wiring	Pin1+ Pin2-
Output	2KHZ
Precision	Calibrated to ± 10CM
Resolution	1 HZ
Use Temperature	-10°C/+60°C



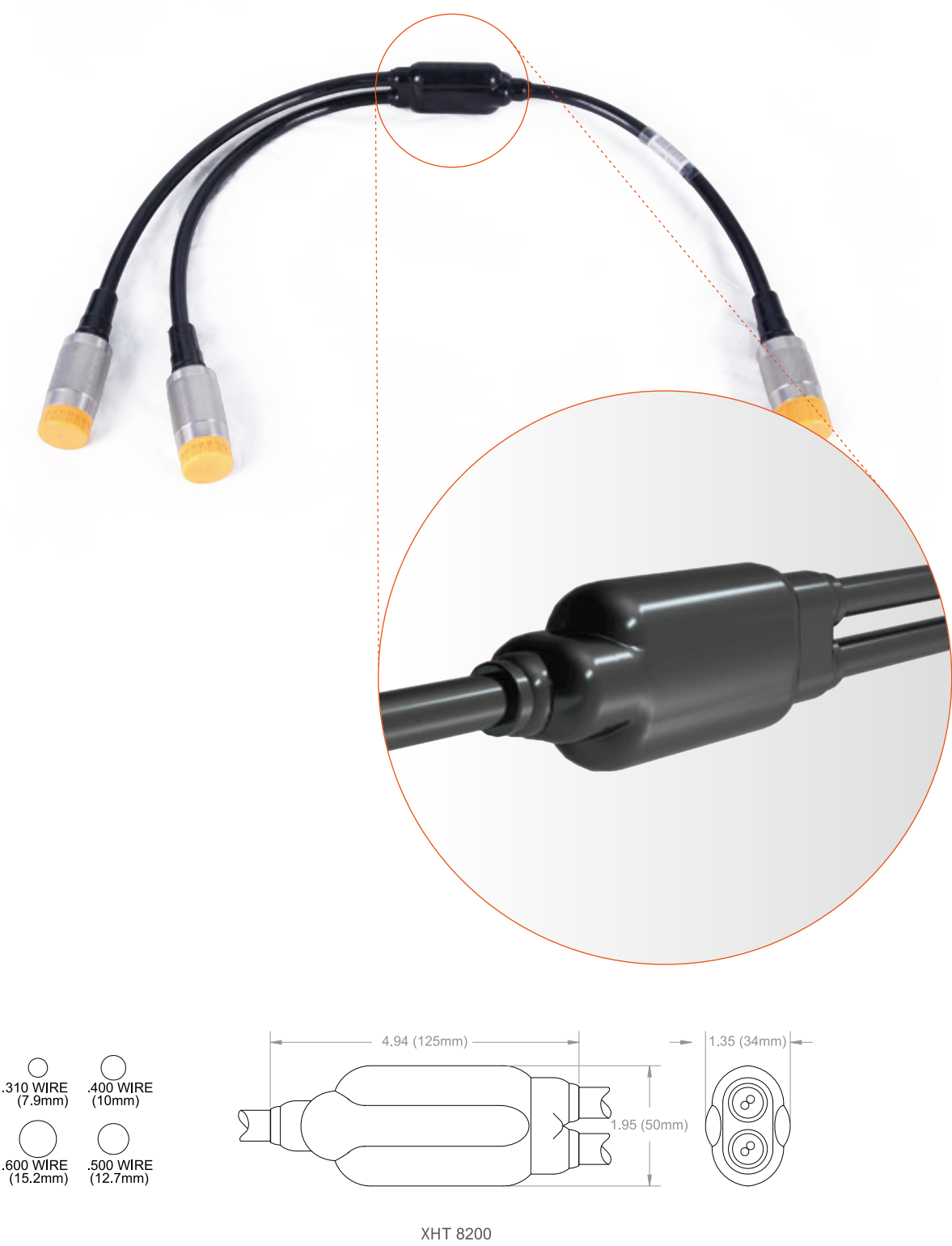
2 Pressure sensor

Weight	1.8kg
Diameter	1 3/4 "
Connector	XHP2702F
Input	30VDC Max
Wiring	Pin1+ Pin2-
Output	2KHZ
Precision	Calibrated to ± 10CM
Resolution	1 HZ
Use Temperature	-10°C/+60°C
Connector Size	1/4NPT



Series XHT

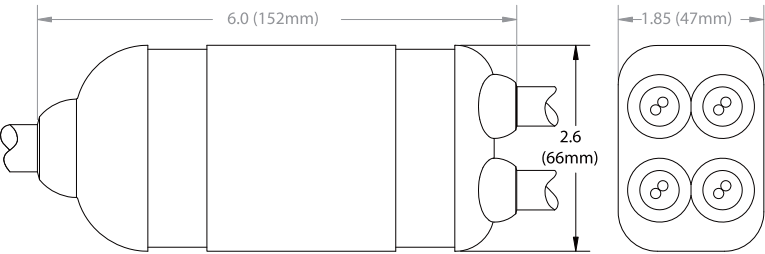
1 Splitter, one into two



2 Splitter, one into three

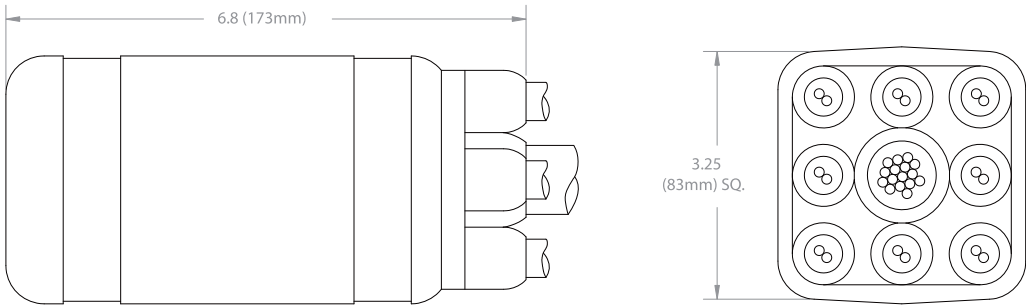
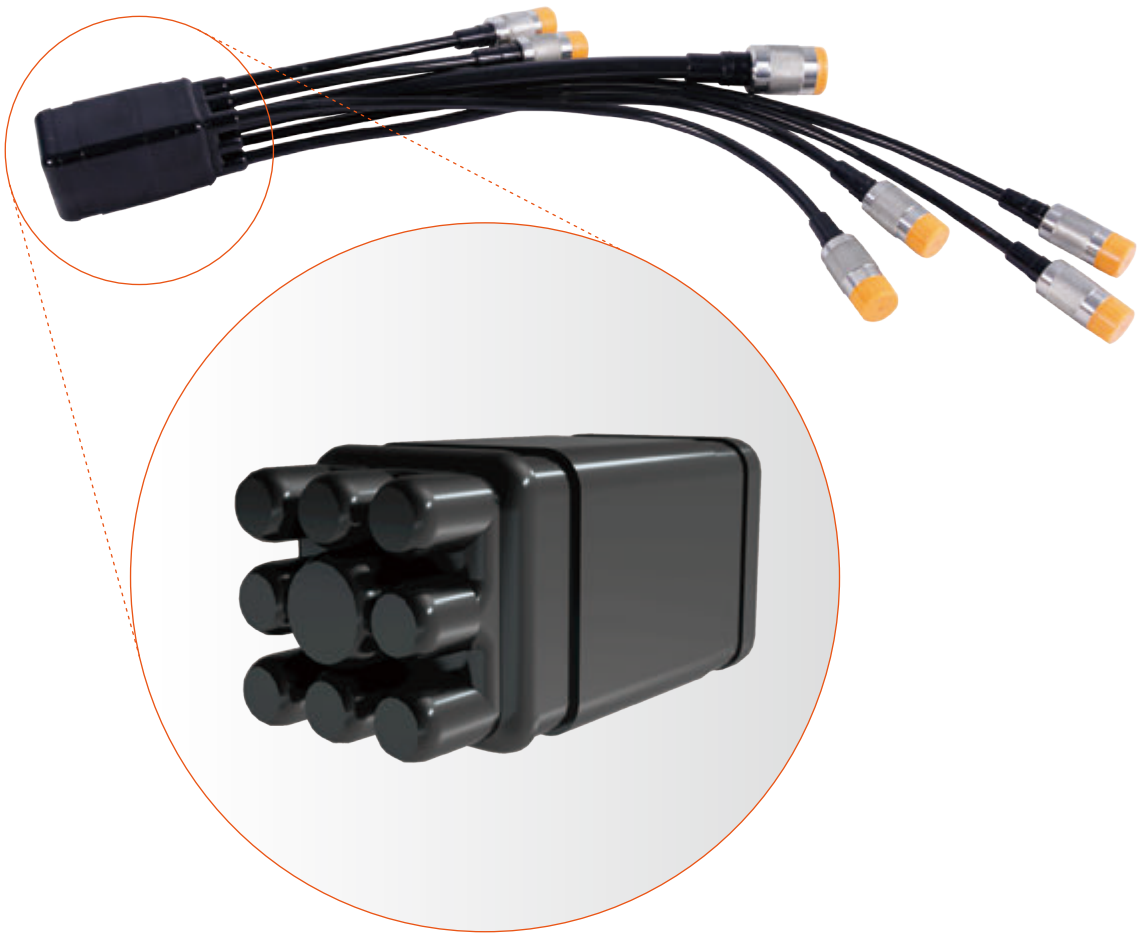


3 Splitter, one into four



XHT 8400

4 Splitter, one into eight



XHT 8798-5












High pressure air gun

Air gun is the core equipment of the whole seismic source system. The air gun source system is a kind of new pollution-free equipment for marine seismic exploration and one of the fastest growing geophysical methods. Its principle is to explore the underground geological conditions by utilizing the propagation law of artificially excited seismic wave in strata with different elasticities. When the air gun is excited, high-pressure air will be released into water from the gun and formed into spherical bubbles rapidly. Since bubble pressure exceeds the surrounding hydrostatic pressure, bubbles will expand rapidly, to form the first pressure pulse, i.e. main pulse of the air gun. This pulse is spread to form seismic wave. AT present, there are following models, Bolt-1500, Bolt-1900, Bolt-2800, GII-150, GII-250 and GII-380.

GII gun and accessories



1 Special tools for installation and removal

		
3/16"Allen Wrench 603-2203 Order No. XH-T01	5/8"Allen Wrench 603-2201 Order No. XH-T02	Back Up Ring(B.U.R) Tooling 603-2122 Order No. XH-T06
		
Screw Nb 5 UNF 621-3103 Order No. XH-T10	Handle 603-2104 Order No. XH-T03	O-Ring Puller 603-2202 Order No. XH-T05
		
Pusher 603-2107 Order No. XH-T04	Torx Screwdriver 621-3102 Order No. XH-T09	Screwdriver Bit. T20 Torx 621-3104 Order No. XH-T11
		
Inner Cap Ring Pliers 721-3110 Order No. XH-T07	Shuttle Closing Tool 721-3120 Order No. XH-T08	

2 Component and No.

		
BODY 150 721-101 Order No.:XH-G01	BODY 250 747-101 Order No.: XH-G01-1	S.V.CLAMP 721-111 Order No.: XH-G08
		
SHUTTLE 721-105 Order No.: XH-G04	HALF FLANGE 621-109 Order No.: XH-G09	SEALING RING HOLDER 623-105 Order No.: XH-G07
		
ROD 721-103 Order No.: XH-G03	SEALING RING CLAMP 623-103 Order No.: XH-G06	SLEEVE 721-102 Order No.: XH-G02

Repair Kit	Item	Order No.	Description	Part No.
721SHM	1	XH-P06	O-ring	623-301
	2	XH-P07	Sealing Ring	603-107
	3	XH-P08	Back-up Ring I	721-109
	4	XH-P09	Back-up Ring II	721-108
	5	XH-P10	D-Ring Red	621-303
	6	XH-P11	Cap-Ring II	721-313
	7	XH-P12	G. Gun II Cap Ring 20	721-302
	8	XH-P13	G. Gun II Cap Ring 21	721-303
	9	XH-P14	Wiper Ring	603-308
	10	XH-P15	Shuttle Bearing A	603-112
	11	XH-P16	Shuttle Bearing B	603-113
	12	XH-P19	D-ring	721-309
	13	XH-P20	D-ring	721-310



Repair Kit	Item	Order No.	Description	Part No.
621HK	1	XH-M1	Hexagon Head Screw	16-155
	2	XH-M2	Nyloc Hexagon Nut	16-159
	3	XH-M3	Clavette	621-106
	4	XH-M4	Socket Head Cap Screw	603-314
	5	XH-M5	Hi-collar Spring Lock Washer	603-310
	6	XH-M6	Socket Head Cap Screw	16-417
	7	XH-M7	Torx Screw	622-201
	8	XH-M8	Torx Screw	656-202

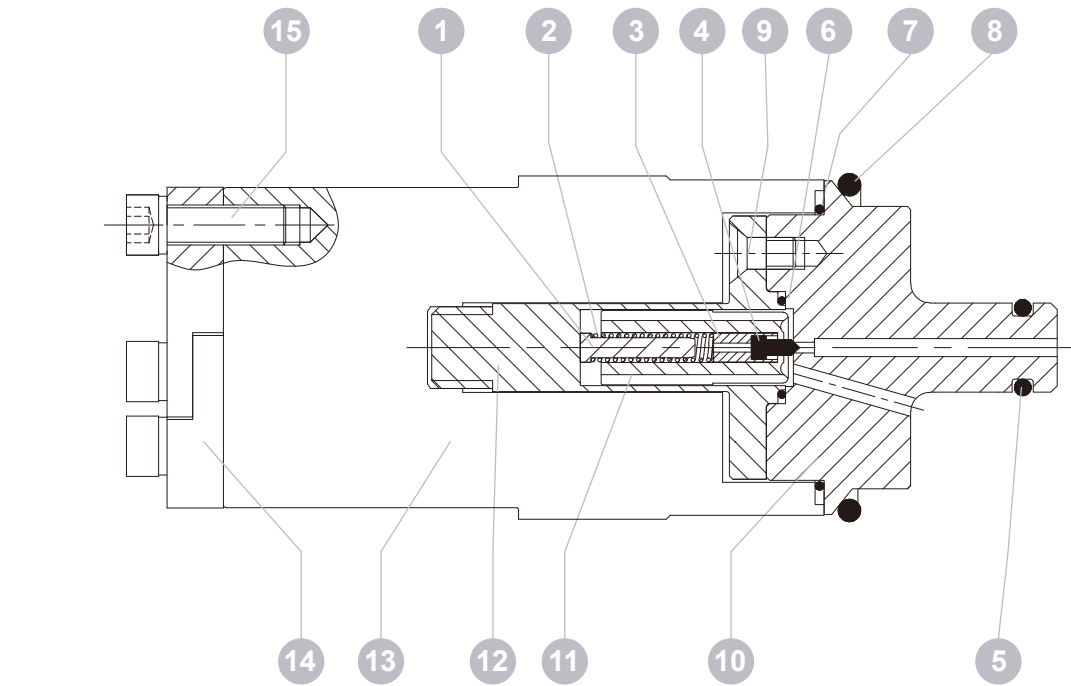


Repair Kit	Item	Order No.	Description	Part No.
721SSM	1	XH-P01	O-ring	721-306
	2	XH-P02	O-ring	603-311
	3	XH-P03	O-ring	603-306
	4	XH-P04	O-ring	603-305
	5	XH-P05	O-ring	603-301



3 Solenoid valve

This valve is the control switch for GII gun and mainly consisting of two parts, i.e. solenoid coil in the upper part, and control switch in the lower part.

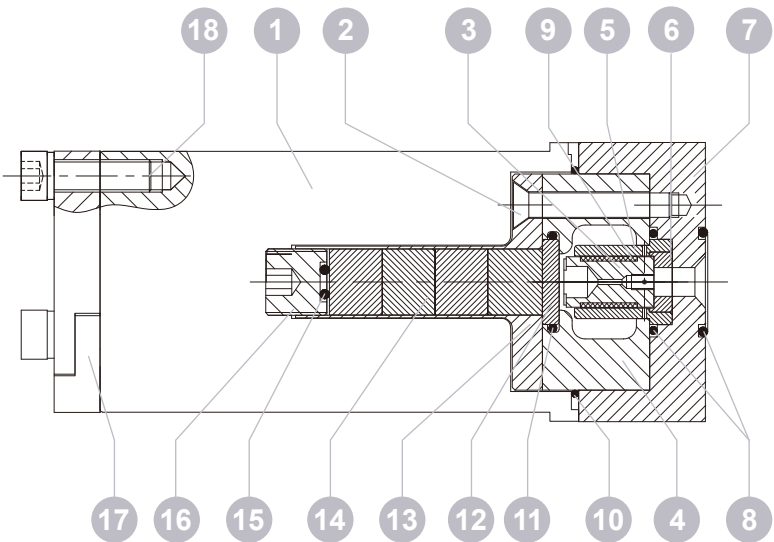


Item	Order No.		Description	Part No.	
1	XHRK-MSK	XH-GSV-01	Block stop	621MSK-2	668-3105
2		XH-GSV-02	Spring		16-3103
3		XH-GSV-03	Retainer seat		668-3102
4		XH-GSV-04	Poppet		16-361
5		XH-M7	Torx screw		16-411
6		XH-GSV-07	O-ring		16-141
7		XH-GSV-05	O-ring		16-416
8		XH-P21	O-ring		603-309
9	XH-GSV-06		O-ring	622-201	
10	XH-GSV-08		SV base	603-401	
11	XH-GSV-09		plunger	16-3101	
12	XH-GSV-10		Sub assembly	16-3104	
13	YFSV		SV coil sub assembly	16-4200	
14	XH-G12		SV split flange assembly	603-405	
15	XH-M6		Socket head cap screw	16-417	



4 TB valve

External coil on the top of air gun will generate M/P time interval signal when the gun is excited actually. This coil/magnet system will detect the pressure drop inside the air gun chamber via magnetic switch.



Item	Order No.		Description	Part No.	
1	YFTB		TB coil assembly	656-4200	
2	XH-M8		Torx screw	656-202	
3	XH-GTB-07		TB shuttle	656-105	
4	XH-GTB-09		TB reservoir	656-104	
5	XH-GTB-08		Cylinder	656-106	
6	XH-GTB-06		Stop	656-109	
7	XH-GTB-05		TB Base	656-103	
8	XHRK-TBK	XH-GTB-02	O-ring	656-TBK	656-204
9		XH-GTB-03	Bearing		656-107
10		XH-P21	O-ring		16-416
11		XH-GTB-01	O-ring		656-203
12	XH-GTB-10		Disk	656-108	
13	XH-GTB-11		Sheath	656-102	
14	XH-GTB-13		Magnet Set	656-205	
15	XH-GTB-04		O-ring	226-148	
16	XH-GTB-12		Thread plug	656-110	
17	XH-G12		SV split flange assembly	603-405	
18	XH-M6		Socket head cap screw	16-417	



5 Volume reduction block



• G. GUN II 150:

Item	Order No.	Specification/model	P/N
1	XH-JRK01	G. GUN II 45 cu. in.	721-5045
2	XH-JRK02	G. GUN II 50 cu. in.	721-5050
3	XH-JRK03	G. GUN II 60 cu. in.	721-5060
4	XH-JRK04	G. GUN II 70 cu. in.	721-5070
5	XH-JRK05	G. GUN I 80 cu. in.	721-5080
6	XH-JRK06	G. GUN II 90 cu. in.	721-5090
7	XH-JRK07	G. GUN II 100 cu. in.	721-5100
8	XH-JRK08	G. GUN II 110 cu. in.	721-5110
9	XH-JRK09	G. GUN II 120 cu. in.	721-5120
10	XH-JRK10	G. GUN II 130 cu. in.	721-5130
11	XH-JRK11	G. GUN II 140 cu. in.	721-5140





• G. GUN II 250:

Item	Order No.	Specification/model	P/N
12	XH-JRK12	G. GUN II 180 cu. in.	747-5180
13	XH-JRK13	G. GUN II 200 cu. in.	747-5200
14	XH-JRK14	G. GUN II 210 cu. in.	747-5210
15	XH-JRK15	G. GUN II 220 cu. in.	747-5220

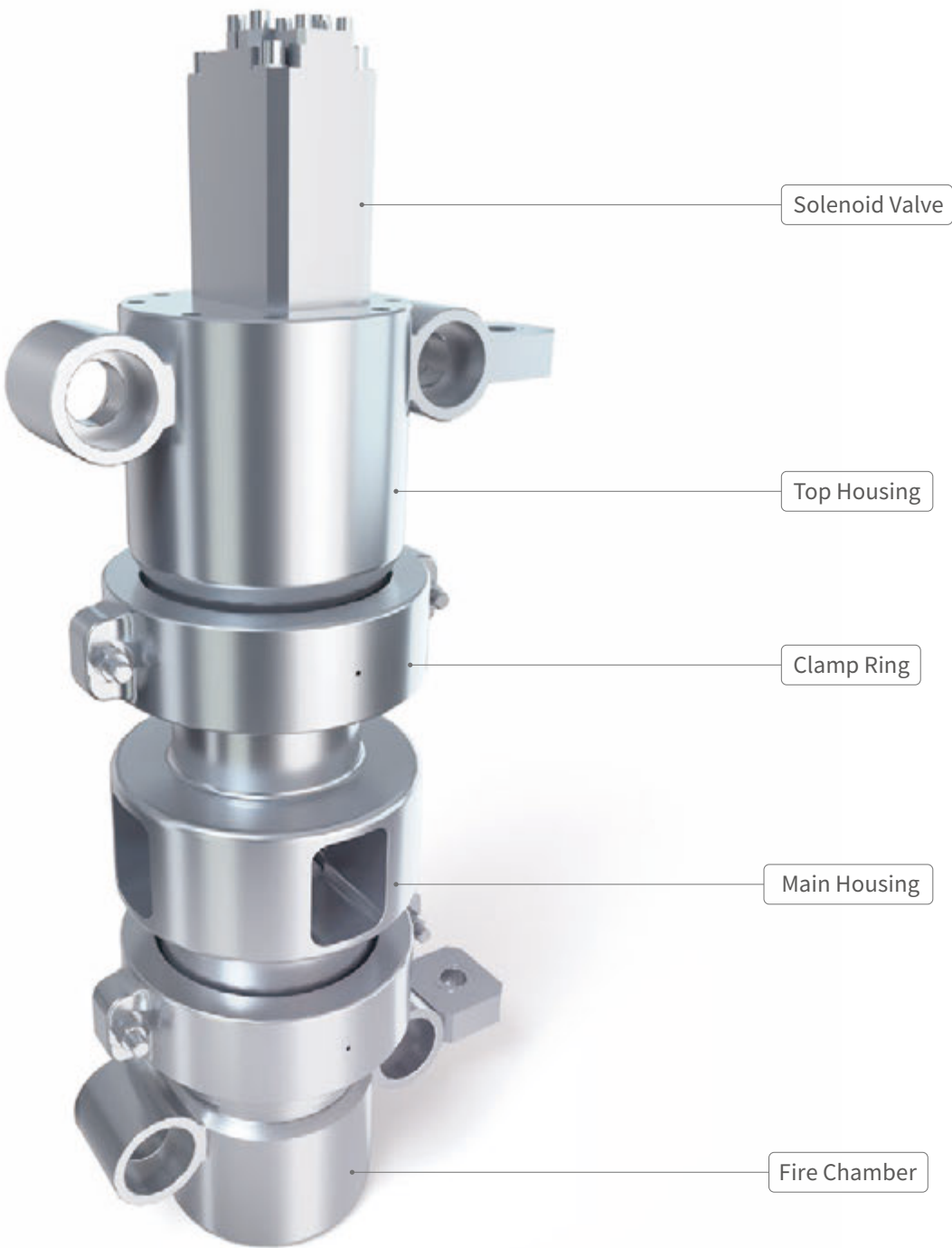
Bolt gun and accessories


1 BOLT-1500 assembly and number



			
Main Housing 1504-512 Order No.:XH1510		Top Housing 1505-519 Order No.:XH1521	
			
Spring Holder 1803-507ND Order No.:XH1513	Clamp Ring 1529-511 Order No.: XH1519		Shuttle 1528-521 Order No.:XH1515
			
Nut, Shuttle 1534 Order No.:XH1522	Seat, Operating Seal 1507-505 Order No.:XH1517	Ring 1519 Order No.:XH1520	Seal Support Ring 1802-502 Order No.:XH1512
			
Liner, Top Housing 1507-506 Order No.:XH1518	Liner, Sleeve 1503-519 Order No.:XH1516	Retainer, Top Shaft Seal 1562-514 Order No.:XH1514	Shuttle Flange 1506-517 Order No.:XH1511

2 BOLT-1900 assembly and number



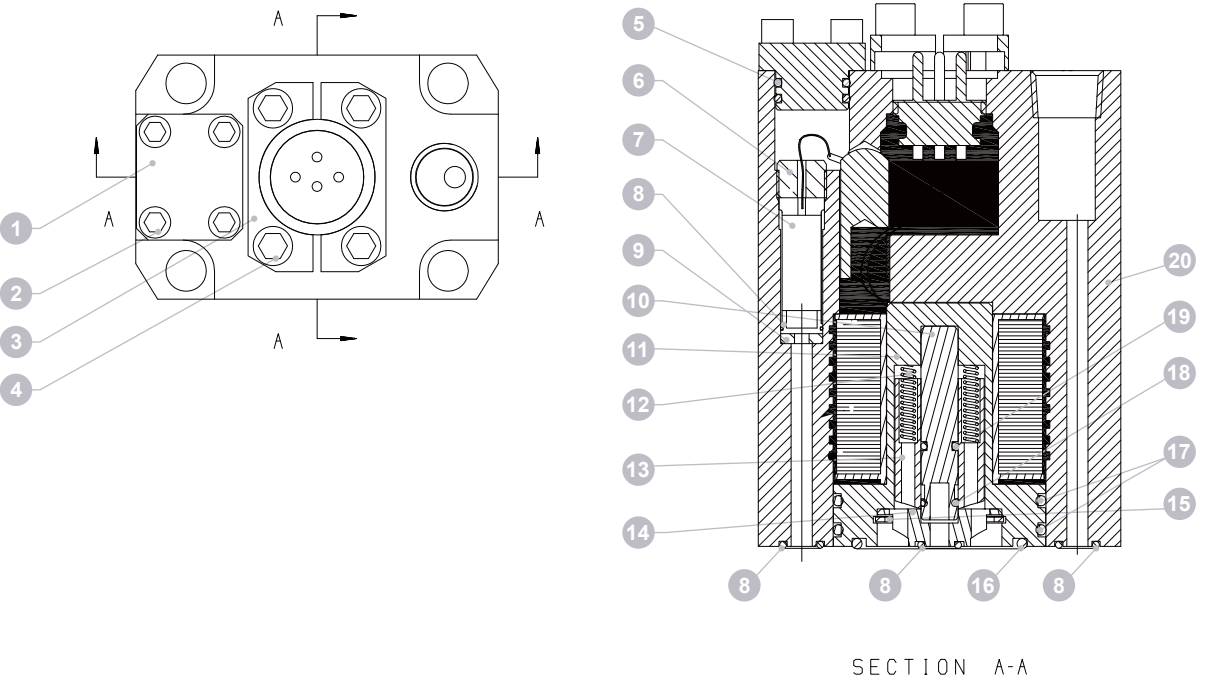
			
Main Housing 1958-531 Order No.:XH1911		Top Housing 1955-527SB-AT Order No.:XH1917	
			
Spring Holder 1963-520 Order No.:XH1914	Shuttle 1905-526 Order No.:XH1916	Clamp Ring 1964-515 Order No.:XH1920	Shuttle Flange And Nut 1908-528 Order No.:XH1912
			
Top Shaft Seal Retainer 1957-524 Order No.:XH1915	Retainer, Operating Seal 1902-525 Order No.:X211919	Liner, Top Housing 1902-522 Order No.:XH1918	Seal Support Ring 7131-524 Order No.:XH1913

3 BOLT gun chamber



No.	Order No.	Name	Specification (in³)	Operating pressure	Test pressure
1	XHQS01	Bolt Gun 1900	35	2000-3000PSI	5000PSI
2	XHQS02	Bolt Gun 1900	40		
3	XHQS03	Bolt Gun 1900	50		
4	XHQS04	Bolt Gun 1900	60		
5	XHQS05	Bolt Gun 1900	70		
6	XHQS06	Bolt Gun 1900	75		
7	XHQS07	Bolt Gun 1900	80		
8	XHQS08	Bolt Gun 1900	90		
9	XHQS09	Bolt Gun 1900	100		
10	XHQS10	Bolt Gun 1900	110		
11	XHQS11	Bolt Gun 1900	120		
12	XHQS12	Bolt Gun 1900	130		
13	XHQS13	Bolt Gun 1900	140		
14	XHQS14	Bolt Gun 1900	150		
15	XHQS15	Bolt Gun 1900	180		
16	XHQS16	Bolt Gun 1900	200		
17	XHQS17	Bolt Gun 1900	220		
18	XHQS18	Bolt Gun 1900	230		
19	XHQS19	Bolt Gun 1900	250		
20	XHQS20	Bolt Gun 2800	60		
21	XHQS21	Bolt Gun 2800	80		
22	XHQS22	Bolt Gun 2800	120		

4 Solenoid valve for bolt gun



Item	Order No.	Description	Part No.
1	XHBT14	Cover Plate	2075-510
2	XHBT15	Screw, Socket Head Cap	1404-501
3	XHBT16	Ring, Split	1235-510
4	XHBT17	Screw, Socket Head Cap	844
5	XHBT04	O-ring	12016-1
6	XHBT13	Nut, Transducer	2025-509
7	XHBT12	Transducer	2018-502
8	XHBT05	O-ring	12011-8
9	XHBT06	Washer	2088-514
10	XHBT20	Shaft	1224-510
11	XHBT21	Plunger Housing	1237-510
12	XHBT22	Spring	1244-502
13	XHBT23	Plunger	1238-510
14	XHBT24	Retainer	1223-510
15	XHBT25	Retaining Ring	2087
16	XHBT03	O-ring	12129-8
17	XHBT02	O-ring	12135-7
18	XHBT10	O-ring	12010-8
19	XHBT01	O-ring	12010-7
20	XHBT11	Housing Assembly	1264-511-AT

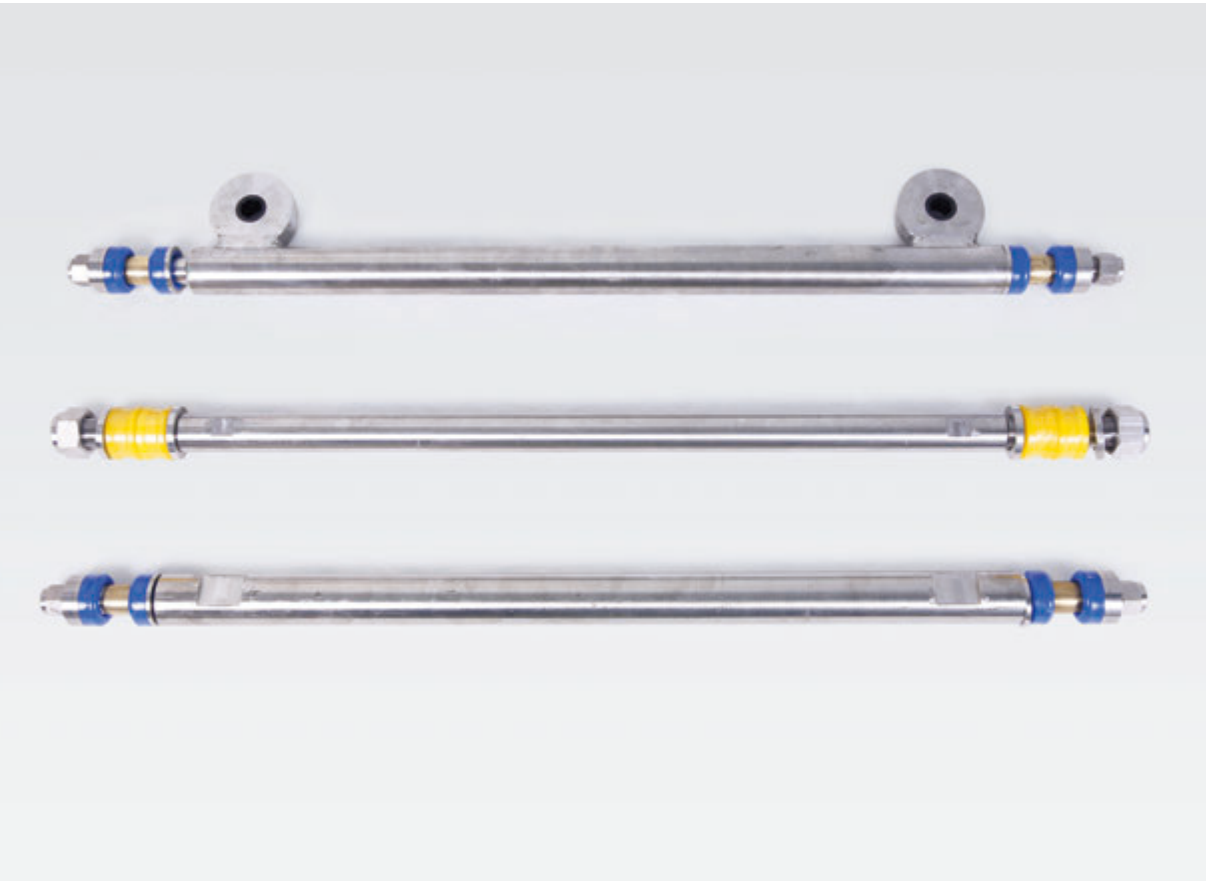
5 Bolt gun repair kit



Repair kit	Item	Order No.	Description	Part No.
Bolt Gun 1500	1	XH1501	O-ring	1525
	2	XH1502	O-ring	12349-8
	3	XH1503	O-ring	1524
	4	XH1504	O-ring	1554
	5	XH1505	O-ring	1539
	6	XH1506	O-ring	1540
	7	XH1507	O-ring	1538
	8	XH1508	O-ring	640
	9	XH1509	Bearing, Shuttle	1512-513
Bolt Gun 1900	1	XH1901	O-ring	1967
	2	XH1902	O-ring	1967-90
	3	XH1903	O-ring	1920
	4	XH1904	O-ring	1947/12337-10
	5	XH1905	O-ring	1949
	6	XH1906	O-ring	12212-8
	7	XH1907	O-ring	12014-7
	8	XH1908	Sleeve Liner	7130-510
	9	XH1909	Shuttle Bearing	7125-525
	10	XH1910	O-ring	640
Bolt Gun Solenoid Valve	1	XHBT01	O-ring	12010-7
	2	XHBT02	O-ring	12135-7
	3	XHBT03	O-ring	12129-8
	4	XHBT04	O-ring	12016-1
	5	XHBT05	O-ring	12011-8
	6	XHBT06	Washer	2088-514
	7	XHBT07	O-ring	12119-7
	8	XHBT08	O-ring	12019-1/1245-1
	9	XHBT10	O-ring	12010-8

6 Air gun barrel

It is mainly used for horizontal connection of combined gun and common specifications include 800 mm, 900 mm and 1,000 mm etc.



Aux winch

Aux winch can be divided into three types, i.e. manual, electric and hydraulic, according to driving force.

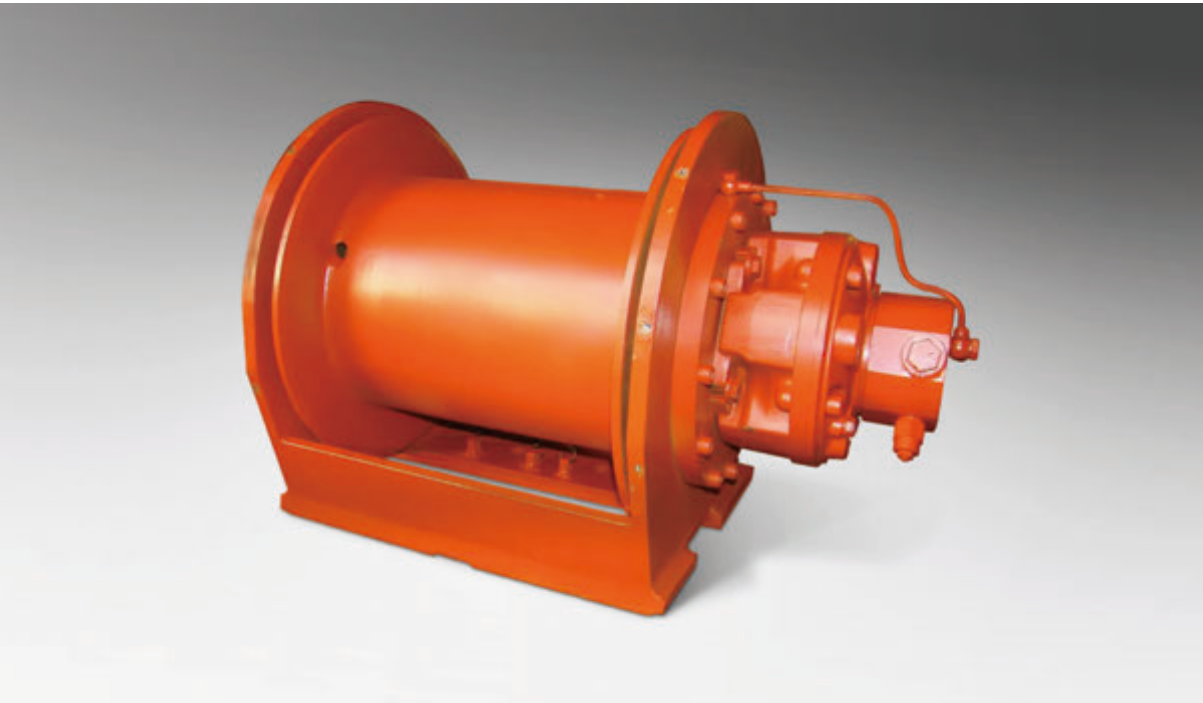
Stoppers (ratchet and pawl) are installed on the transmission mechanism for handle rotation of the manual winch, to keep the weight at the required position. Manual winch used for assembling or lifting the weight shall also be equipped with safety handle and brake. Manual winch is generally used in places with low lifting capacity, poor facility conditions or no power supply.

Electric winch is widely used in places with heavy workload and high traction required. Electric motor for the single-drum electric winch (shown in the figure below) drives the drum via speed reducer and a brake is installed between motor and reducer input shaft. To meet the requirements for lifting, traction and rotation etc., there are also double-drum and multi-drum winches.

Winches with the rated load less than 10T are generally designed as electric type.

Hydraulic winch is mainly used for higher rated load. 10T ~ 5,000T winches are generally designed as hydraulic type.

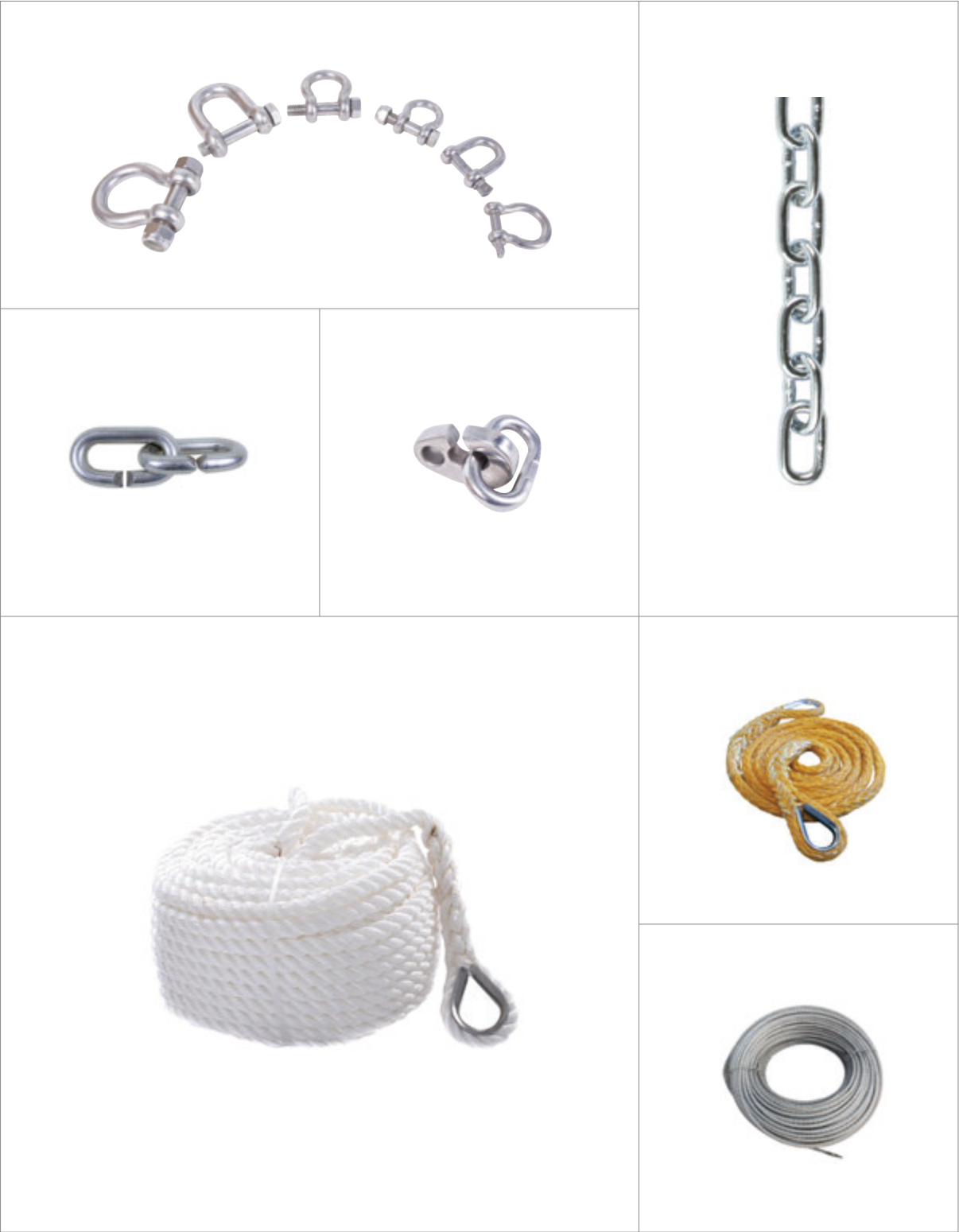
Main technical indicators of winch are rated load, support load, rope speed and capacity etc.



Slings & riggings

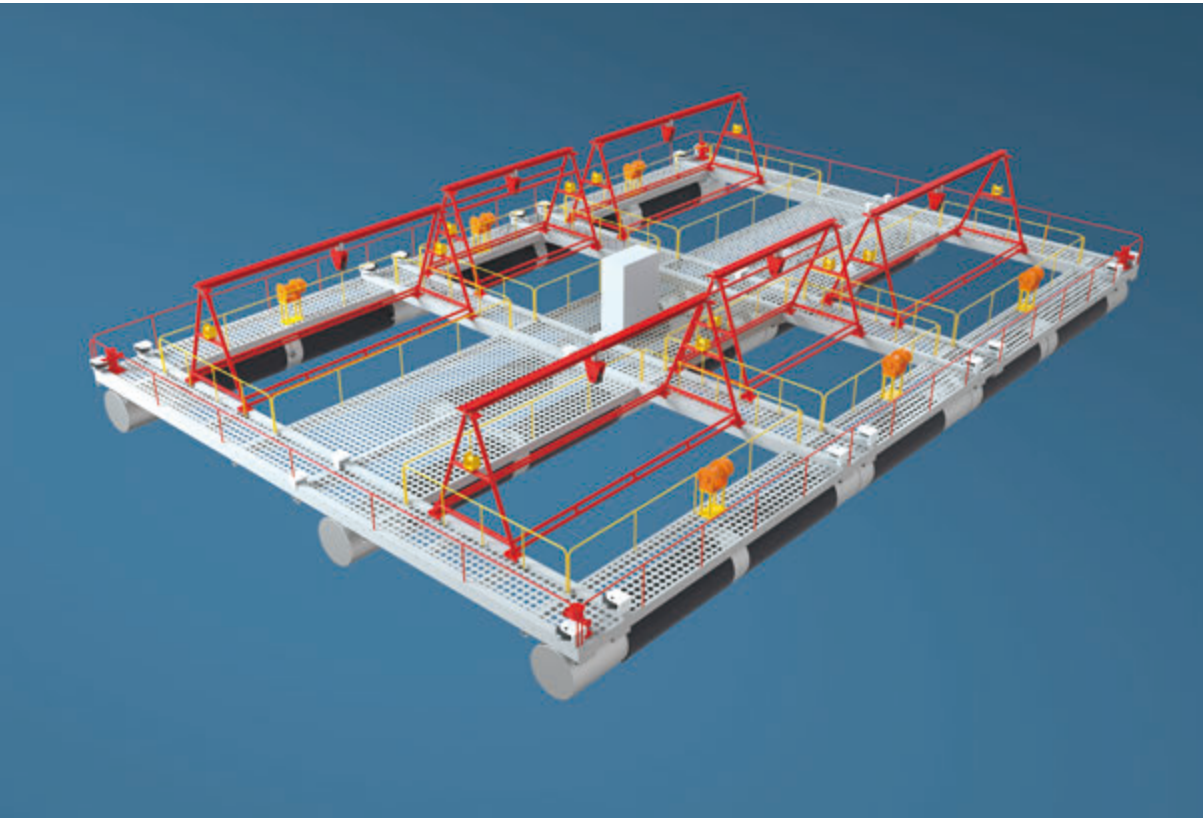
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Crane slings & riggings include wire rope, chain, lifting belt, sounding rope and various shackles etc.



2.2 Geophysical exploration source - floating platform for shallow water

Floating platform is mainly suitable for inland lakes, rivers, extremely shallow sea and such shallow water areas and used as the hanging platform for gun source for marine geophysical exploration, with good stability & earthquake resistance, convenient assembly and easy operation. It is a kind of portable hoisting platform. This platform is comprised of several parts, to facilitate transport and ensure its stability in water. Buoyancy is provided by a number of special anti-seismic and anti-aging floats. Air gun hanger is installed in the upper part of the platform, and manual winch is installed on the hanger, to extend and retract air guns smoothly. Since the vessel has wide hull and runs stably in water, it can also be used as the platform for other operations. Small vessels are equipped with air compressor and air gun controller and can tow this platform, to form a set of small gun source system.



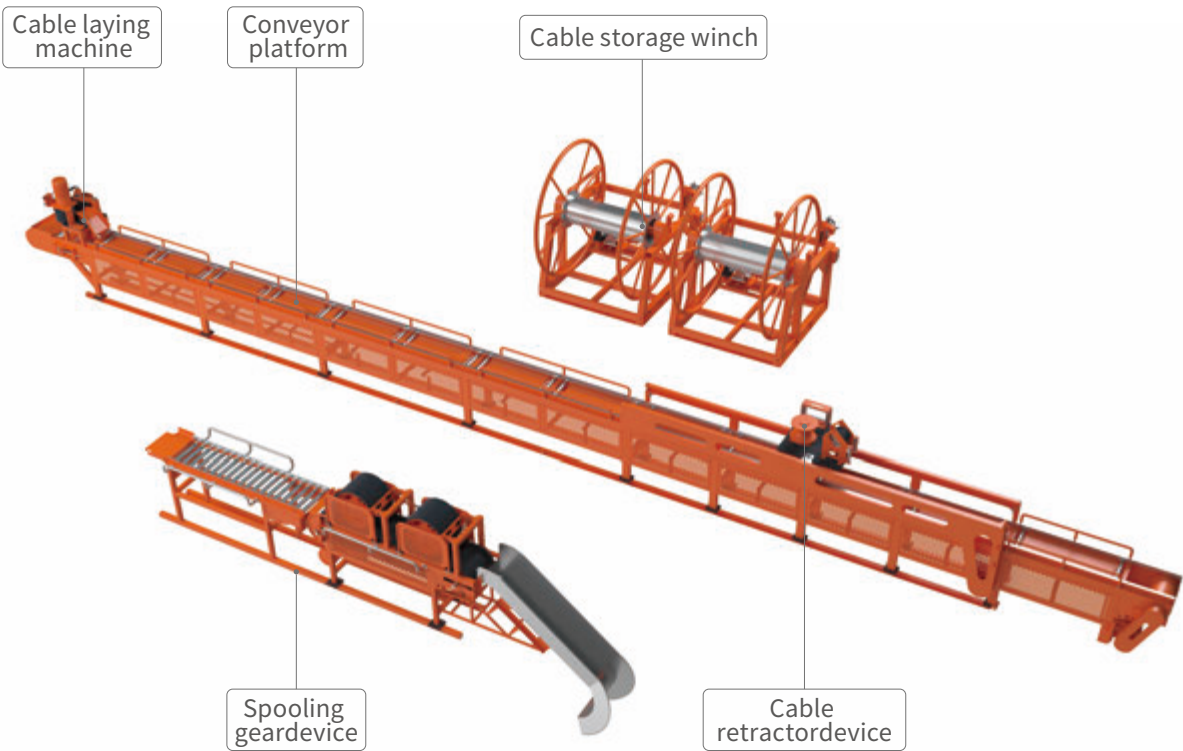
2.3 Deployment & retrieval system for OBN & OBC

Purpose of OBN deployment & retrieval system

This system is a kind of new OBN deployment, retrieval and transmission system and can realize installation and removal on cable-laying ship deck, combining equipment installation & fixation with ship structure. This equipment is easy to operate, meets the requirements for operation channel and ship loading stability, and adapts to important operating conditions such as navigation under Level-6 sea state.

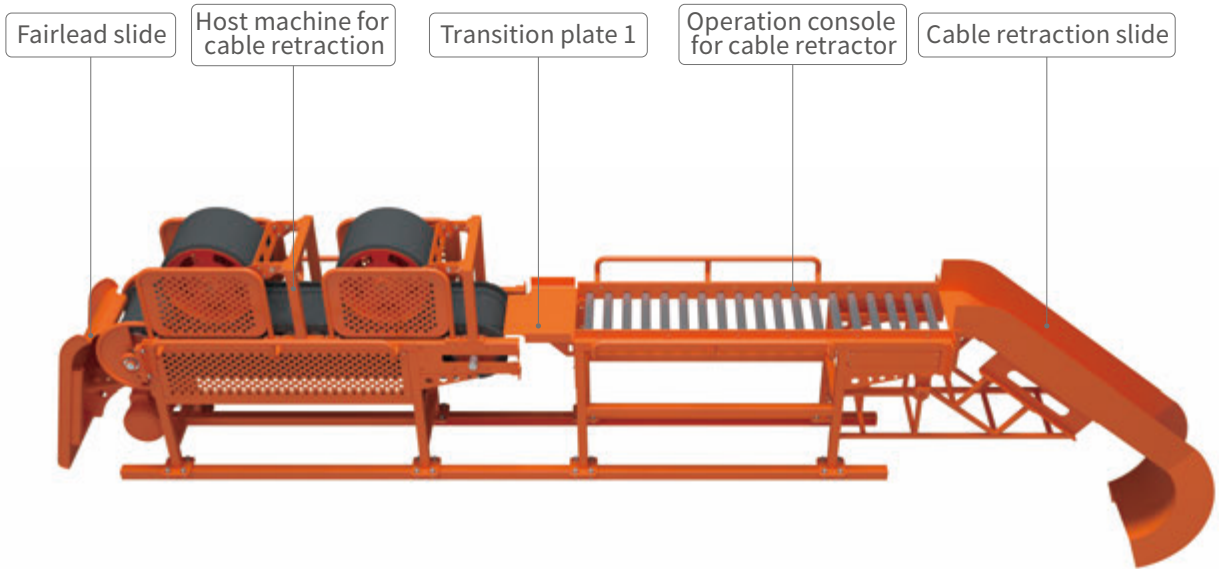
Structure of OBN deployment & retrieval system

This system is consisting of 5 components, i.e. cable retractor, conveyor platform, spooling gear, cable storage winch and cable laying machine. It can realize the retraction and storage of cable and nodes. It conducts mechanized retracting and unwinding of cables and manual picking and hanging of nodes, which will fall freely. The construction water area is below 100 meters, with 0~1.5 m/s adjustable speed, around 10 m longitudinal deviation and 10 m horizontal deviation.

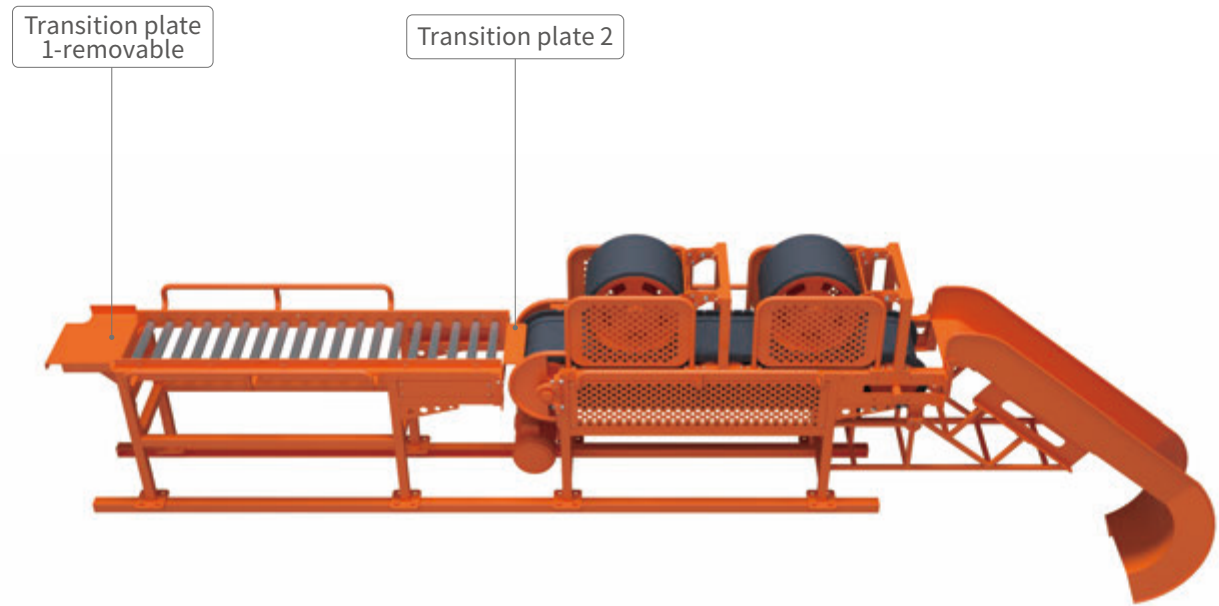


Cable retractor will pull cable and OBN out of water by making use of the friction produced between roller gravity and conveyor belt. According to the user's operation process, cable retractor can work in the following two modes.

(1) Operation console + host machine: retract cable after picking OBN.



(2) Host machine + operation console: pick OBN after retracting cable and OBN



2.4 Others

Compass bird battery

Storage life	Decreased by 2% capacity every year @25°C
Chemical composition	Lithium thionyl chloride
Cathode type	Liquid
Quantity of units	Consisting of two battery packs; each pack is consisting of two cells.
Open-circuit voltage	7.2V
Capacity	60AH
Safety	4-A fuse/ airtight structure/ waterproof packaging
Nominal dimension of battery pack	Diameter: 46.7 mm (1.84 in) Length: 331.2 mm (13.04 in) Weight: 1.1Kg (2.42 lb)



Acoustic bird battery

Storage life	Decreased by 2% capacity every year @25°C
Chemical composition	Lithium Sulfite Chloride
Cathode type	Liquid
Quantity of units	Consisting of 10 cells
Open-circuit voltage	36V
Rated capacity	1200Wh
Safety	0.75-A time-delay fuse/ airtight structure/ waterproof packaging/ reverse polarity protection
Nominal dimension of Battery	Diameter: 77.7 mm (3.06 in) Length: 301.6 mm (11.875 in) Weight: 3.1 Kg (6.8 lb)



Bird clamp

This clamp is an important fixing part for external “compass bird” , consisting of two parts, i.e. internal and external clamps.



Bend stiffener

Bend stiffener is mainly used to protect the leading segment cable, air gun umbilical and submarine cable for marine geophysical exploration.



Multi-core cable

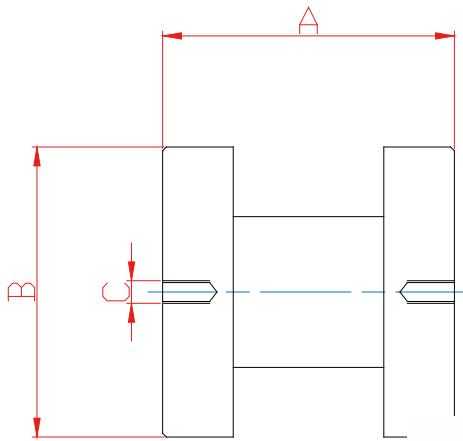
Multi-core cable for circular connector is customized as per the signal transmission requirements. It mostly adopts the low-smoke halogen-free unarmored type of marine communication cable and can be used for signal transmission & control system for telecommunication, electronic computer and information processing equipment. It is also applicable to various companies in the metallurgy, chemical engineering and electric power industries. Circular connectors are mostly used in fields of navigation, aviation and electric power etc.

Core number	2~85 core cable (determined as per the operating requirements)
Length	Determined as per the operating requirements.
Insulation property	Withstand voltage 100V, insulation resistance 110 MΩ



Drift diameter gauge

Specification/ dimension	2--7/8"	3--1/2"	4"	5--1/2"	7"	7--5/8"	10--3/4"
A	1000	1000	1000	600	155	305	305
B	ø159	ø72	ø86	ø121	ø153	ø171	ø251
C	M8	M12	M12	M12	M12	M16	M16



Module Seal

Specification/ dimension	3.25"	3.88"	4"	4.75"	6"
A	Φ83	Φ99.2	Φ102.4	Φ121	Φ153
B	Φ73	Φ88.5	Φ92.2	Φ104.8	Φ139.8

