



Hydro-Tech



HYDRO-TECH

Product Catalogue

| Make underwater exploration work better



Beijing Hydro-Tech Marine Technology Co., Ltd. is a national high-tech enterprise and Beijing "specialized, refined, differentiated and innovated" company that is engaged in the field of underwater exploration. Nowadays Hydro-Tech has developed completely independent and controllable core technologies in Hydrograph and still commit to constant iterative innovation.

Following company strategy, Hydro-Tech focuses on the standardization of underwater exploration equipment and overall procedure. We are the leading company in the development of multi-beam echo sounder and side-scan sonar, which had been widely applied in underwater exploration projects. With high quality and standardized product philosophy, Hydro-Tech products have been well accepted by the customers and occupied the leading market share since the day released in China.

Base on mass product applications and engineering service, Hydro-Tech's R&D team has gained a lot of accumulation in "matching hydrological environment and fusion information technology" and built up five product series, including multi-beam echo sounder system, side-scan sonar system, imaging sonar system, sound velocity profiling system, attitude & heading measurement system. The latest launching generation of products is based on these five major platforms and realized popular features of smaller size, lighter weight, lower power consumption and better performance, which can be used in diversified applications on water surface or underwater, autonomous platforms or portable devices.

Besides standard and customized products, we can also take advantage of our strong R & D know-how and hydrographic expertise to provide thoughtful consultation service or one-stop solution for special customer requirement.

With the principles of innovation, mindfulness, win-win, and sharing, we will realize the company vision of being the world leading company in underwater exploration field.

Considering what user needs and making underwater exploration easier is the mission of all Hydro-Tech people!

Development History >>>

YEAR OF 2021

- * Complete five major product series of multi-beam echo sounder, side scan sonar, imaging sonar, sound velocity profiler and attitude determination.
- * Mass production of MS400U multi-beam echo sounder system and SS900F all-in-one side-scan sonar system to be applied in unmanned surface vehicle.
- * Realize mass production of small side scan sonar SS900M equipped in ROV & AUV.
- * Finish the engineering sample of Portable Side-Scan Sonar SS900 being used for underwater exploration and emergency rescue.
- * Export to the United States, Italy, Russia, Japan and other countries.
- * The products of MS400P, MS8200 and SS3060 win the New Technologies and New Products Approval by Beijing Science and Technology Commission;

YEAR OF 2020

- * Complete the product platform compatible with small carrier, small submersible and shipborne. Launch the high-end small multi-beam echo sounder system MS400P (Elf) and small side-scan sonar system ES900 & SS900.
- * Develop High-end multi-beam side-scan sonar MSS300 and obtain widely application by users.
- * Win 6 championships in authoritative competition of the water surface & underwater unmanned platform in China.
- * Strategic cooperate with Applanix, a subsidiary of Trimble, and became the exclusive integrator of the POSMV attitude measurement products in China.
- * Open the Qingdao Hydro-Tech branch and start the official operation;
- * Win the first prize of Science and Technology Progress Award from the Ministry of Education.

YEAR 2018 - 2019

- * Breakthrough in muddy water bathymetry technology, high-definition side-scan imaging technology and broadband continuous frequency conversion technology.
- * MS400 and MS200 keep the record of zero defective rate.
- * Won 1 silver prize of Satellite Positioning and Navigation Science and Technology Award, 1 second prize of Surveying and Mapping Science and Technology Progress Award and 1 second prize of Science and Technology Award from China Chamber of Commerce.
- * Complete the new generation of underwater exploration technology system that matches hydrological environment and fusion information technology.
- * Launch multi-beam bathymetric products MS400P, MS400H & MS8200 together with single & dual frequency side-scan sonar series.
- * The company's products have obtained the assessment by provincial and ministerial-level, industry associations and municipal-level science and technology management departments and won the special prize of the Ocean Engineering Award & the second prize of the National Science and Technology Progress Award.

YEAR 2016 - 2017

- * MS400 multi-beam echo sounder system (Model Worker) was launched and took the lead in realizing the bottom-level fusion of inertial and acoustics .
- * Realize unique advantages such as installation-free calibration and inclination measurement at any angle.
- * Begin large-scale sales of domestic multi-beam echo sounder equipment for the first time in China.
- * Officially release the surface sound velocity sensor SVS 1500 and the sound velocity profiler SVP 1500.
- * Being authorized as a national high-tech enterprise.
- * Launch MS200 multi-beam echo sounder system.
- * Release SS3060 side-scan sonar.
- * Participate in the formulation of industry standards and test regulations for Shallow Water Multi-beam Echo Sounder, Sub-bottom Profiler and Side-scan Sonar organized by the Ministry of Communications

YEAR 2008 - 2015

- * Complete the accumulation of echo sounding technology and realize the technical architecture design of portable multi-beam echo sounder system.;
- * Breakthrough in the key technology of "time leap" pico-second time measurement.
- * Participate in setting national standard of Sound Velocity Profiler"
- * Propose a new concept of "Inertial & sounder fusion"
- * Finish the prototype & engineering sample of MS400 multi-beam echo sounder, whose specification and performance achieving the international main products.

Key Technology >>>

Hydro-Tech possess completely independent & controllable core technologies in underwater exploration and continuously upgrade it.

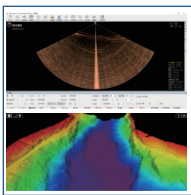
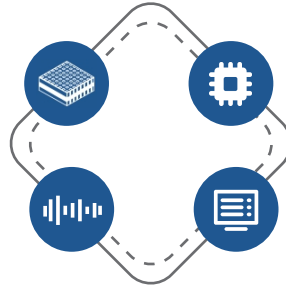
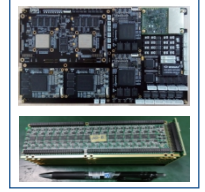


*Underwater Acoustics Transducer

Key technologies for design, manufacturing, testing and watertight structure of underwater acoustics transducer based on piezo-electric ceramics.

* Sonar electronic system

Key technologies for electronic hardware system design, production and test to make sonar smaller, large-scale production and low-power consump-

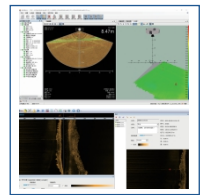


* Acoustic processing algorithm

Key technologies of high-performance acoustic signal processing and data processing algorithms combined with hydrological and geology environment design optimization.

* Application software and intelligent algorithm

Key technologies of data visualization software, system integration software and intelligent algorithm used in industry applications.



Industry Approval >>>

Company Qualification

- ★ "specialized, refined, differentiated and innovated" company authorized by Beijing Science and Technology Commission
- ★ National high-tech enterprise
- ★ National high-tech enterprise
- ★ ISO9001 quality management system certification enterprise



Honored Awards

- ★ 3 new technology and new product approval from Beijing Science and Technology Commission in 2021
- ★ One first prize of Science and Technology Progress Award from the Ministry of Education
- ★ One special prize of Ocean Engineering Award
- ★ One silver award for Satellite Positioning and Navigation Science and Technology Award
- ★ One second prize of Surveying and Mapping Science and Technology Progress Award



Industry Standard and Intellectual Property

- ★ Participate in setting a number of industry standards and test regulations together with the Ministry of Communications, including Shallow Water Multi-beam Echo Sounder, Sub-bottom Profiler, Side-scan Sonar and Scanning Sonar etc
- ★ Acquire more than 10 patents and 10 software copyrights



Applications >>>



Surveying

In the field of underwater surveying and mapping, Hydro-Tech had developed a full series of products, including multi-beam echo sounder system, side-scan sonar, sound velocity measuring instrument and attitude & heading measurement system, being widely used in the projects of ocean topography surveying, port channel topography surveying, hydrology & water conservancy surveying, underwater project surveying & structure surveying and integrated in miniaturized unmanned ships, AUVs, and ROVs.



Emergency

For the field of emergency rescue, Hydro-Tech multi-beam echo sounder & side-scan sonar had been broadly applied in underwater emergency rescue, hydrology emergency rescue and hidden pipe emergency checking for environmental protection. Our products have provide very convenient integration for miniaturized unmanned ships and ROVs, which is quite popular in the routine work of many water rescue departments and hydrological environmental protection departments.



Security

In the security field, Hydro multi-beam side-scan sonar, imaging sonar, passive sonar and other products have been extensively utilized in unmanned platform integrated detection and underwater monitoring.



Operation and maintenance

For the field of inspection and maintenance, Hydro-Tech standard hydrographic surveying products and system solutions have been preliminarily approved in wind power operation and maintenance, safety inspection of cross-sea bridges, and safe operation and maintenance of water conservancy facilities.

Product Series >>>

MS Series Multi-Beam Echo Sounder System



MS400P

Main Specifications

Working Frequency:400KHz | Number of Beams:512 | Resolution: 0.75cm
Swath Coverage:143° | Beam Width:1°×2°| Sounding Depth:0.2~150m

Key Features

Small size ; Light weight ; Easy to expand ; Single-person operation ; Tilt installation at any angleThe algorithm is stable & reliable and the sounding accuracy is fully guaranteed ; Mass production is with better quality and much more cost-effective.



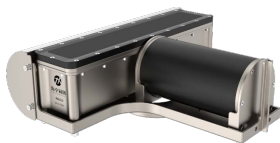
MS400U

Main Specifications

Working Frequency:400KHz | Number of Beams:512 |Resolution: 0.75cm
Swath Coverage:143° | Beam Width:1°×2°| Sounding Depth:0.2~150m

Key Features

Focus on unmanned platform ; Fully automatic calibration-free measurement ; All components in one integration
Small size ; Light weight ; Low power consumption ; High performance ; Easy installation



MS8200

Main Specifications

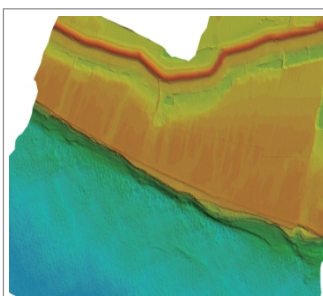
Working Frequency:200KHz | Number of Beams:512 | Resolution: 0.75cm
Swath Coverage:160° | Beam Width:1°×2°| Sounding Depth:0.5~400m

Key Features

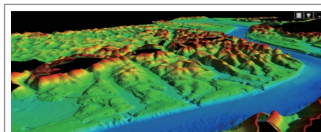
Wide coverage and ultra-efficient | Multi-functional | Wide range of applications | Specialization | High performance | Competent in muddy water | In-depth bathymetry application| Side-scan imaging | Water Volume imaging

Applications

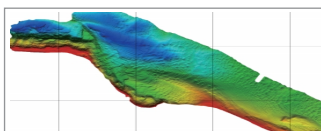
Engineering Surveying and Mapping ; Unmanned Carrier Integrated Surveying and Mapping
Marine Surveying and Mapping-Offshore Engineering ; Geological Mapping
Channel Surveying ; Inland River, Reservoir, Lake Surveying
Underwater structure detection-Wind power operation and maintenance
Archaeological Surveying ; Ecological Habitat Surveying ; Ocean Resources Surveying
Emergency & underwater rescue ; Marine defense & underwater security ; Law enforcement monitoring



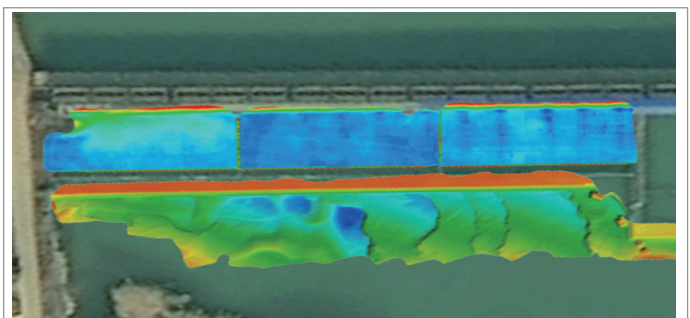
Water and land in one 3D surveying
A section of the Yangtze River
in Jingzhou, Hubei



Thousand Islands Lake underwater
3D topographic surveying



Monitoring the bank slope of the
Yangtze River in Yueyang, Hunan



Stilling pool of scouring detection
Thousand-Buddha Cliff Hydropower Station of Dadu River in Sichuan

SS Series Single/Dual Frequency Side-scan Sonar

Main Specifications

Working Frequency:300/600kHz ; Working Range:230/120m
Horizontal&Vertical Beam Width:0.28°/0.26° & 50°
Resolution Along&Across Track:0.24/0.23m@50m&2.5/1.25cm



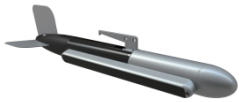
SS3060(Seagull)

Key Features

Dual-frequency synchronous work ; Large scanning width and high efficiency ; Integrated with attitude and pressure sensors ; Clearly viewing near and far ; Delicate Image | High Resolution

Main Specifications

Working Frequency:900kHz ; Working Range:75m
Horizontal&Vertical Beam Width:0.2° & 50°
Resolution Along&Across Track:0.07m@20m&1cm



SS900

Key Features

Dedicated for emergency rescue and underwater searching;
Quick deployment and easy operation;Clear image and quick target recognition;

Main Specifications

Working Frequency:900kHz ; Working Range:75m
Horizontal&Vertical Beam Width:0.2° & 50°
Resolution Along&Across Track:0.07m@20m&1cm



SS900F

Key Features

All-in-one Design, special optimized for fixed installation; Easy operation suitable for various industry application; Function customizable in order to provide hidden pipe searching algorithm.

MSS Series Multi-beam Side-scan Sonar

Main Specifications

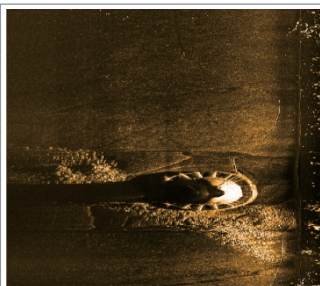
Working Frequency:900kHz ; Working Range:250m ; Top Speed: 9
Horizontal&Vertical Beam Width:0.25° & 40°
Resolution Along&Across Track:0.17m@50m&3.8cm



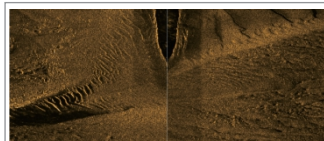
MSS300
Multi-beam
Side-scan Sonar

Key Features

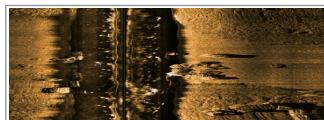
Suitable for high-speed & high-definition scanning operations;
Scanning width, speed, and clarity are guaranteed at the same time
Advanced anti-jamming algorithms are suitable for various platform applications.



Underwater structure
(pile foundation scour)
detection Jiangsu Rudong Wind Farm



Seabed terrain surveying



Ocean grazing land man-made
fish & coral positioning



Reservoir bottom terrain

ES Series Embedded miniature Side-scan Sonar

Main Specifications



**ES900/ES900M
ES450/ES4590**

Index	ES900	ES900M	ES450	ES4590
Working Frequency	900kHz	900kHz	450kHz	450/900kHz
Horizontal Beam Width	0.2°	0.4°	0.3°	0.2°
Vertical Beam Width	50°	40°	50°	50°
Working Range	75m	75m	150m	150m/75m
Resolution Along Track@50m	0.17m	0.17m	0.17m	0.24m/0.17m
Resolution Across Track@50m	1cm	1cm	1.25cm	2cm/1cm
Maximum Working Depth	1000m			

Key Features

Small and easy to integrate, specially designed for ROV/AUV/USV;
Multi-function to be used in diversified applications;

Applications

Terrain topography scanning; Obstruction scanning; Hydrographic mapping; Ocean geological surveying;
Marine ecological surveying;
Emergency rescue & searching; Water Police Evidence Collection; Small objectives searching;
Port security; Underwater construction monitoring;
Security-AUV, ROV, unmanned ship integration;
Environmental protection hidden pipe checking; Submarine cable and pipeline routing investigation
Archaeological Investigation · Research Teaching · Diving Assessment

Imaging/Passive Detection Sonar Series



**IS720/IS720M
Image Sonar**

Main Specifications

Working Frequency:720KHz ; Number of Beams:256 ;
Resolution: 0.75cm ; Horizontal Swath Coverage:120°
Vertical Swath Coverage:5°/20°; Horizontal Beam Width:1°

Key Features

Clear detection of small objectives in water and at bottom; Low power consumption and small size are suitable for unmanned platform integration; Open data interface and professional guidance for segmented applications



**PS037D
Passive Detection
Sonar**

Main Specifications

Detection Frequency:30~130KHz ; Detection Distance:1.5km
Viewing Range:120°; Optimal Angle Accuracy:≥5° ; Output Cycle:1S

Key Features

Broadband receive and compatible with multiple signals;
Small aperture high precision angle detection

Applications

Integrated in AUV, ROV & unmanned ship for obstacle avoidance
Underwater target detecting and tracking

POS Series Attitude Measuring Instrument

Main Specifications



POS25/15/08

Index	POS08	POS15	POS25
Heading	0.01°(4mBaseline) 0.02°(2mBaseline)	0.015°(4mBaseline) 0.03°(2mBaseline)	0.06°(4mBaseline) 0.08°(2mBaseline)
Attitude	0.01°(RTK) 0.008° (Post-processing)	0.02°(RTK) 0.015° (Post-processing)	0.03°(RTK) 0.025° (Post-processing)
Position	Horizontal:±8mm+1ppm/Vertical:±15mm+1ppm		
Heave	5cmor5%; 2cmor2%(Delayed uplifting or subsidence)		

Main Specifications

International advanced algorithm to ensure data accuracy; Complex working condition test to ensure product stability; Watertight structure design to achieve both wet and dry usage.

Applications

Provides position, attitude and heading data to single-beam echo sounders, multi-beam echo sounders, ADCP, 3D laser scanners and various ships.

SV Series Sound Velocity Measuring Instrument

Main Specifications

Sound Range:1400~1600m/s; Sound Resolution:0.001m/s; Data Rate: 1~30Hz
Sound Velocity Accuracy:0.05m/s;Temperature Accuracy:0.05℃;

Key Features

Necessary for underwater sound measurement; High precision;
High sampling and fast response; Stable performance with advanced technology;
Plug-and-play protocol available for customization;Stable measurement; Easy to use



SVS1500M
realtime Sound
Velocity Meter

Main Specifications

Sound Range:1400~1600m/s; Sound Resolution:0.05m/s;
Data Rate:1~30Hz; Maximum working Depth:300m; Working Hours:8h; Weight:3.2KG;
Memory:16G; Material:316LStainless steel

Key Features

Essential for underwater sound measurement; High precision;
Wide Measurement Range; High sampling; High Sensitivity
Large memory mass storage; 8 hours working life

Applications

Provide sound speed and temperature data for surveying & mapping, underwater navigation & positioning and underwater engineering etc.


Underwater sound experiment·Teaching research·Integration to AUV and glider
Marine surveying·Oil exploration·Coastal monitoring·Hydrological monitoring




SVP1500
Sound Velocity
Profiler



Beijing Hydro-Tech Marine Technology Co. Ltd.

 Address: No. 5 Building, No. 33 Jingsheng South 2nd Road,
Tongzhou Dist. Beijing

 Tel. : 86-10-5727 5310

 Mobile: 86-158 2165 3300

 Website: www.hydro-techmarine.com