TECHNO MARINE

BALTIC BUREAU

JOINT STOCK COMPANY

60 YEARS


ТЕХНО
МАРИН
ЗАХВАТ
МЕНЮ
ВВОД
ПКИ-2


ТЕХНОМАРИН

Dear Colleagues, Partners and Customers!

This publication is dedicated to the 60th anniversary of Technomarine JSC.

Our company was originated by the highly talented people, genuine experts in management and engineering. They have created the effective structure of the plant and its design office, developed and implemented the system of rules, regulations and standards. They also have established the efficient school for design personnel training and set up ample infrastructure for task performance. Major achievements made in 1950s – 1970s will continue to remain Technomarine basis for many years hereafter.

People and interpersonal relations are above all. Hundreds of engineers, technicians and workers went through our gatehouse at different times. They drafted, made calculations, developed design packages; their hands were busy with turning, painting and soldering; their eyes scrutinized diagrams and instrument displays. Each of them made a contribution into development of our company.

Hereby we express our warm thanks to the predecessors.

Our business is developing continuously. Today engineers and programmers, workers and managers of new generation provide the equipment which makes people's lives safer and better.

Sincerely yours,

S.I. Detinenko

General Director,
Technomarine JSC

TECHNOMARINE HISTORY

Technomarine JSC is the successor of Baltic Central Design and Engineering Bureau of the USSR Maritime Transport Ministry (MMF or MORFLOT). It was founded on 25 July,1947 by resolution of the USSR Council of Ministers dated 21 July, 1947. The initial corporate name of the company was the USSR MMF Central Technology Design Bureau.

In the early post-war years the maritime fleet and its infrastructure were comprised mainly of the vessels delivered as war reparations and as land-lease supplies as well as ship-repair yards and seaports in need of restoration and upgrade.

In March 1946 the USSR Supreme Council approved the fourth five-year plan of post-war rehabilitation of industry, transport and war-shattered territories. The mission of Maritime Transport Ministry set fourth in the mentioned plan was not only to restore the fleet destroyed during the war but also to increase the marine transport operations turnover and to enhance the efficiency of fleet employment by 1950.

The major areas of activities of Central Technology Design Bureau (CTDB) as defined by the MORFLOT mission were as follows:

- design documentation development for manufacturing of replacement and spare parts of harbor and marine propulsion machinery and auxiliaries;
- engineering documentation develop-

ment for restoration and upgrade of vessels.

In 1950 our country was preparing to participate in the International Convention for Safety of Life at Sea and in this connection Maritime Transport Ministry received a task to equip the vessels with marine emergency radio equipment sets. CTDB was entrusted with development and production of emergency receivers, automatic feeders and alarm receivers.

Subsequently the production of this kind grew and became one of the company's basic directions of activities.

In the same year the USSR Supreme Council resolution was issued and the relevant MMF order was signed on establishment of CTDB experimental workshops for development and fine-tuning of equipment pilot samples.

By the early 1951 the activities of experimental workshops commenced.

At the same time, pursuant to the resolution of the USSR Council of Ministers and the MMF order dated 01.06.1951 for the purpose of production of marine radio and electrical equipment, automatic machinery and spare parts, there was founded Marine Radio Equipment Production Plant which occupied two sections of Passage storehouse in Leningrad,

The event which had defined further development of the company was the consolidation of Central Design and Engineering Bureau (CDEB) and Marine Radio Equipment Manufacturing Plant in 1957.

The amalgamation of the enterprises ensured the opportunity to carry out more complex experimental works, to develop and test pilot samples of the equipment and devices, their batch-wise and lot production.

By 1957 both CDEO and Manufacturing Plant were staffed with highly qualified technicians able to provide sophisticated solutions in harbor and marine mechanical and instrument engineering. By that time the marine merchant fleet of the country had substantially strengthened and developed in main aspects. The restoration and upgrade of vessels went by the wayside and the production of marine auxiliaries was handed over to specialized industrial enterprises. In the meantime there came into existence other tasks resulting from increase of shipping availability, offloading and intake capacities of the ports and mechanical aids of cargo handling operations as planned by the Government.

In 1966 Central Design and Engineering Bureau was given a new name of Baltic Central Design and Engineering Bureau and the plant was renamed into Baltic CDEO Pilot Production Plant.

In 1976 upon a series of restructures there was established Baltic Central Design and Engineering Bureau with pilot (experimental) production. By that time the traditional activities of the companies were formed, viz.:

- manufacturing automation at ports and on vessels;
- cargo-handling mechanization at seaports;
- development, production and installation of modern machinery, appliances and facilities for seaports;
- automation and development of up-to-date communication and radio navigation facilities;
- development of drawings and fabrication methods for spare parts for harbor and shipboard machinery and facilities for ship-repair yards;
- mechanical engineering and process improvement at ship-repair yards;
- marine systems and machinery maintenance improvement, ship retrofit;
- shipboard systems and appliances;
- organizational and methodological work.

Diversified areas of activities, stringent quality and lead-time requirements and in some instances lack of domestic and foreign peers made it necessary to create an efficient team of competent and experienced technicians. The availability of pilot production division in the company's own structure made it possible to implement the solutions of engineers in metal and to provide the fleet and ports with necessary equipment. From time to time our specialists brought their products into service and provided training for operators. A considerable part of technical solutions used in practice was protected by the certificates of authorship.

The items of equipment were demonstrated in various exhibitions both domestically and internationally where they were marked with certificates and won awards. By way of illustration the development of the following equipment should be mentioned: sets of machines, turrets and hoisting devices for cargo handling operations at ports, radio beacons of different generations for the Northern Sea Route which do not have any peers in global practice, a variety of marine emergency communication devices, specific navigational equipment, vessel automation systems, innovative technologies for ship-repair yards, seaborne machinery maintenance improvement systems and others.

By late 1990s a new profile of Technomarine had formed. The production of seaborne and airborne radio-navigation aids, special-purpose devices and light signaling equipment became the leading direction of the company's activities.

The employment geography of our products covers more than 400 facilities in Russia and in 17 foreign countries.

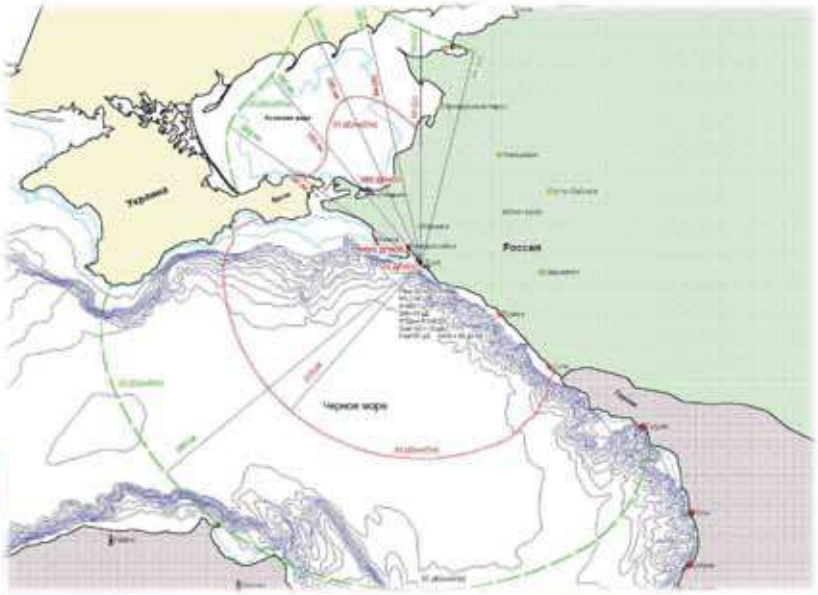
Hundreds of certificates of authorship, a great number of medals, certificates of merits and credentials, the State Prize and the Council of Ministers Award mark the contribution made by our company into outfitting of the Russian transport enterprises with innovative equipment.

20 years anniversary celebration ▲

RADIOCOMMUNICATION AND NAVIGATION EQUIPMENT

Lighthouse Shepelevsky, Gulf of Finland ▲

NDB ARM-150M in Yuzhno-Sakhalinsk airport ▲



NDB «Yantar» area of operation, Novorossiysk ▲

Equipment for GLONASS/GPS Differential Satellite Navigation Subsystems

In pursuance of RF Government resolutions No. 719 dated 07.03.95 and No. 1435 dated 15.11.97 our company has developed a radio beacon for transmission of GLONASS/GPS satellite systems differential corrections. Shepelevsky light tower on the Baltic Sea is the first Russian beacon facility equipped with Yantar-2M radio beacon developed and produced by Technomarine JSC.

Currently Technomarine JSC is the designer and manufacturer of the following Yantar series radio beacons for use in control-correcting stations (CCS): Yantar 2M-200, Yantar 2M-400, Yantar-1000.

The radio beacons of this series form integral part of differential satellite navigation subsystems installed in the areas of the Baltic Sea, the Black Sea and the Sea of Azov, on the coastline of the Arctic and Far East, etc. They are delivered to sea and river ports, State Unitary Hydrographic Enterprise, RF Ministry of Transport and Ministry of Defense customers.

The equipment meets the requirements of international standards and is compatible with Russian and foreign CCS.

Apart from Yantar radio beacons for GLONASS/GPS differential satellite navigation subsystems, the Technomarine production line includes the following:

- Umbrella-type antennas 20 m and 25 m
- T-shaped antennas 22 m and 30 m
- Antenna curtains, earth and air screens
- AK-1 monitoring antenna
- PKI-SH rod antenna
- ZNAK beacon antenna assembly
- PKI-M magnet antenna
- PKI-2 GLONASS/DGPS Receiver

PKI-2BK GLONASS/DGPS Receiver

MSK modulator

MSK-2BK modulator

SRB-1 Battery discharge indicator

GLONASS/DGPS mobile transmission station

Power sources, accumulator batteries and diesel-generator sets

Masts for satellite antennas

Containers equipped with life support systems.

All works of this direction are carried out with up-to-date hardware components and meet the requirements of international norms and rules, Radio Regulations, IALA and ICCR recommendations, International Convention for Safety of Life at Sea (SOLAS-74) and the requirements of Russian Maritime Register of Shipping specified in Rules for Seagoing Vessels Outfitting, Section IV.

Technomarine JSC specializes in development and manufacturing of the following:

- beacon antenna assemblies, including special-purpose systems for installation on high-rise buildings and structures, on buoys and lantern towers in the Arctic areas with dielectric underlying terrain, etc.;
- electric flashing and light signaling equipment;
- radiotelegraph equipment;
- automatic radio-receiving equipment for various applications;
- emergency communication equipment;
- remote-control equipment for monitoring, alarm signaling, diagnostics, power supply, etc.

▼ GLONASS/GPS NDB equipment in Arctic

▼ GLONASS/GPS NDB in Kerch, in the year 2003

▼ GLONASS/GPS Reference Station on island Mud'yug, White sea in the year 2004

AVIATION AND AERODROME EQUIPMENT

A great number of airdromes in Russia and abroad are outfitted with the following radio navigation equipment manufactured by Technomarine:

- aircraft homing beacons;
- radio markers;
- deck-based aircraft homing beacons;
- umbrella-type antennas;
- T-shaped antennas;
- special-purpose antennas for installation on high-rise buildings and structures;
- power sources, control and signaling devices.

The following aircraft radio beacons are being designed and manufactured by Technomarine: ARM-150M, ARM-150MA, MRM-97, PRIVOD-3. These radio beacons are designed with up-to-date hardware components using microprocessors, highly reliable power transistors, touch-sensitive directive screens and displays, etc.

It is possible to integrate the equipment into any computer-driven control system. All aircraft radio beacons have been certified by International Aviation Committee, and PRIVOD-3 radio beacon designed for use on floating facilities has a certificate by Russian Maritime Register of Shipping as well.

▲ Installation of AZM-8 antenna by Technomarine's specialists on General Dynamics site, Project Sakhalin-1

▲ Antenna «Koltso-2» and Homing NDB «Privod-3» on oil-and-gas drilling plate of Exxon Neftegas Limited (USA), Sakhalin shelf

▲ Helicopter homing equipment «Privod-3» on CASTORO-12 pipelayer ship of Saipem SpA company (Italy)

ALTERNATIVE POWER SOURCES

As a supplier of alternative power sources (APS), Technomarine JSC participates in International programmes for decommissioning of radioisotope thermoelectric generators which are still in use as power sources for navigation aids (NA) in Russia.

The APS system is designed for navigation beacons and radar transponder beacons installed in the coastal areas to ensure the emission of light signals according to light parameters of navigation aids.

The system includes the following:

- wind power generator and solar panel as alternative power sources;
- accumulator batteries;
- electric flashing and radar-beacon navigation equipment;
- meteorological station (sensors);
- monitoring and control system;
- container.

The APS system provides for:

- self-sufficient operation of consumers within a desired period of time;
- consumer switching on/off according to the established procedure;
- voltage regulation;
- energy accumulator charging from

solar modules and wind power generators;

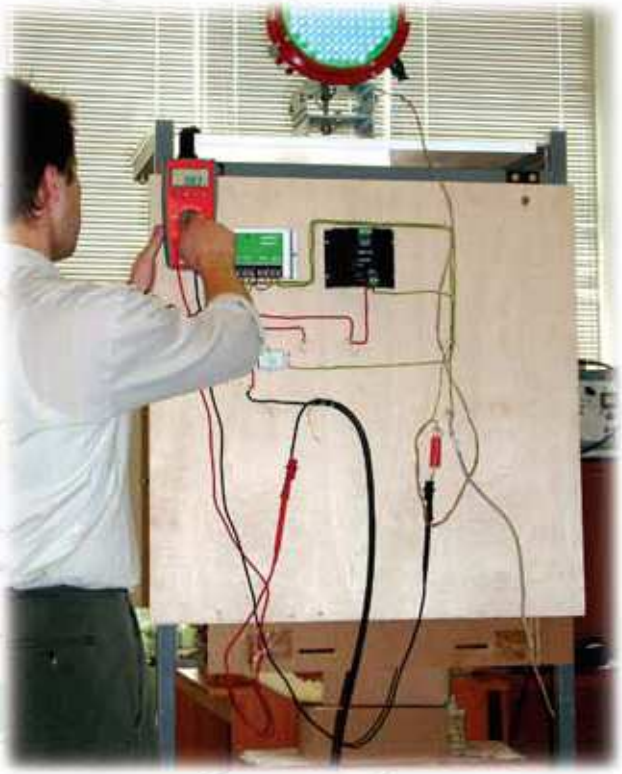
- facility control and monitoring including via satellite channels.

The APS system is rated for operation under the following environmental conditions:

- installation on the coastline of the Arctic Ocean;
- ambient temperature +35 to -50°C;
- wind force up to 30-40 m/s;
- possible icing;
- polar day period about 100 days;
- maintenance frequency – once a year during navigation season.

Technomarine provides the entire scope of work on a turnkey basis: from on-site weather conditions analysis and design development to commissioning and start-up, personnel training, warranty and post-warranty service.

Over the last two years Technomarine manufactured and put into operation in Russia more than fifty APS systems.



PRODUCTION

Around 100 skilled workers and engineers are employed in production activities.

The production division and testing laboratory are certified by Russian Maritime Register of Shipping and Interstate Aviation Committee.

The production division specializes basically in manufacture of communication, hydrographic and navigation equipment.

The production division provides such works as metal processing, dye forming, welding, thermal treatment, plastics and rubber moulding and pressing, fitting, painting, electroplating, printed wiring, coil and transformer winding and impregnation, engraving, assembly and tuning. The production division is provided with testing laboratory ensuring long-run loading testing of manufactured equipment.

The production division is equipped with a great number of process attachments and fixtures for manufacturing of items designed by the company's production engineering office.

QUALITY ASSURANCE AND QUALITY CONTROL DEPARTMENT

Currently the company has the efficiently functioning quality management system meeting the requirements of GOST R ISO 9001 – 2008 (ISO 9001:2—8) which is confirmed by the certificates of Test- St. Petersburg JSC and IQNet International Certification Network.

The equipment manufactured by the company contributes into the navigation and flight safety. The samples of new equipment are subjects of compulsory certification by the respective certification authorities: Russian Maritime Register of Shipping, Interstate Aviation Committee, RF Ministry of Transport, etc. The production division and testing laboratories undergo periodic compulsory inspection by supervision authorities issuing certificates. In the course of manufacture and acceptance the equipment is subjected to thorough and comprehensive testing and trials.

Technomarine's quality management system undergoes periodic checks by national supervision authorities. It is also important for overseas customers to verify that the product quality management system complies with international standards. Thus, in 2004 during the tendering process the examination of the documents, equipment and quality management system of Technomarine JSC by GENERAL DYNAMICS, USA, which is one of the world leading manufacturers of aeronautical and marine equipment, took a few months. As a result the radio navigation equipment procurement contract for Sakhalin-1 International Project was concluded and executed.

All aviation and dual-use equipment undergoes inspection by customer's representative.

Equipment FAT for ABB AS Automation Technologies Devision (Norway) in the year 2005

Equipment FAT for representatives of Alenia Marconi company and Japan Airport Consultant

PARTICIPATION IN INTERNATIONAL PROGRAMMES FOREIGN ECONOMIC ACTIVITY

Technomarine has fulfilled the contracts within the UN Development Programme for Russian seaport infrastructure development assistance. Under those contracts the company supplied GLONASS/DGPS radio navigation equipment for safety of traffic in the open seas.

As a supplier of radio navigation equipment for helicopter homing, Technomarine participated in Sakhalin-1 and Sakhalin-2 international projects for development of oil and gas fields on northeast shelf of Sakhalin Island.

As a part of International Programme for Nuclear and Radiation Safety with financial support from the US Department of Energy the company participates in supply of alternative power sources (APS) for replacement of decommissioned radioisotope thermoelectric generators (RTG) in Russia.

Furthermore, Technomarine is the manufacturer and supplier of equipment under the agreement between the Murmansk Region Administration and Finnmark Provincial Government, Norway, for RTG replacement by alternative power sources (APS).

Technomarine takes part in international tenders for the supply of internally manufactured equipment. Among Technomarine's overseas customers are:

ALENIA MARCONI, Italy; GENERAL DYNAMICS, USA; ABB AS, Norway; MCAA, Mongolia; SAIPEM SPA, Italy; EXXON NEFTEGAS LTD, USA; GMV SISTEMAS, S.A., Spain; VT Communications, UK, etc.