RESCUE SHIPS & FLOATING DOCKS
ALMAZ CENTRAL MARINE DESIGN BUREAU

The Russian ship designers have a long hands-on experience on constructing auxiliary ships for the Russian Navy, special floating facilities including floating docks of various purposes. The Almaz Central Marine Design Bureau, St. Petersburg has taken this experience of great value in such a specific area.

It is the first floating ship-lifting facilities designed in Europe at the beginning of the eighteenth century that moved the Russia ship designers to construct such facilities too, which is proved by the first official recorded patent on a floating dock issued to S. Yanitsky in 1872.

Between the nineteenth and twentieth centuries Metal Plant, St. Petersburg constructed a number of floating docks being at service in the Baltic Sea ports and the Far East of Russia. The Dockvodstroy All-Union Trust existing in the 1920–1930s in the USSR built a series of floating docks with lifting capacity of 4,000 t and 6,000 t. One of such floating docks has been in service in St. Petersburg so far.

Now, Almaz Design Bureau is the successor of such Leningrad design bureaus as Balsudoproekt Central Design Bureau and Zapadnoe Design Bureau which continued to design floating docks in the post-war period.

In 1950–1960s, under the naval and commercial shipbuilding programs the following floating docks were constructed: special transport floating docks of Type 769 (1956), Type 769A (1960), Type 1753 (1961), Type 1767 Neva; transport-and-launching floating docks of Type 1757 Amur (1966), and repair floating docks of Type 1759 Vuoksa (1968) and Type 1759R Dvina.

In 1972-1975 the Type 1769 Baltika launching and repair floating docks of lifting capacity 13,000 t were constructed for Yantar Baltic Shipyard and Severnaya Verf Shipyard.

Almaz Design Bureau designed such unique ship-lifting floating facilities as the first world-known repair floating dock equipped with slipway and having internal environment (Type 1780 Shilka (1977)), the first Russian all-welded floating dock and the largest aluminum-magnesium alloy floating dock (Type 00187 (1986)). The unique Type 2121 Sukhona launching floating dock with lifting capacity of 25,000 t was constructed for Sevmash Northern Machine-Building Enterprise. Also the Type 17571 Zeya transport-and-launching floating dock capable of performing ocean transport operations was created for the Amur Shipyard where it has been in service since 1991 until now.

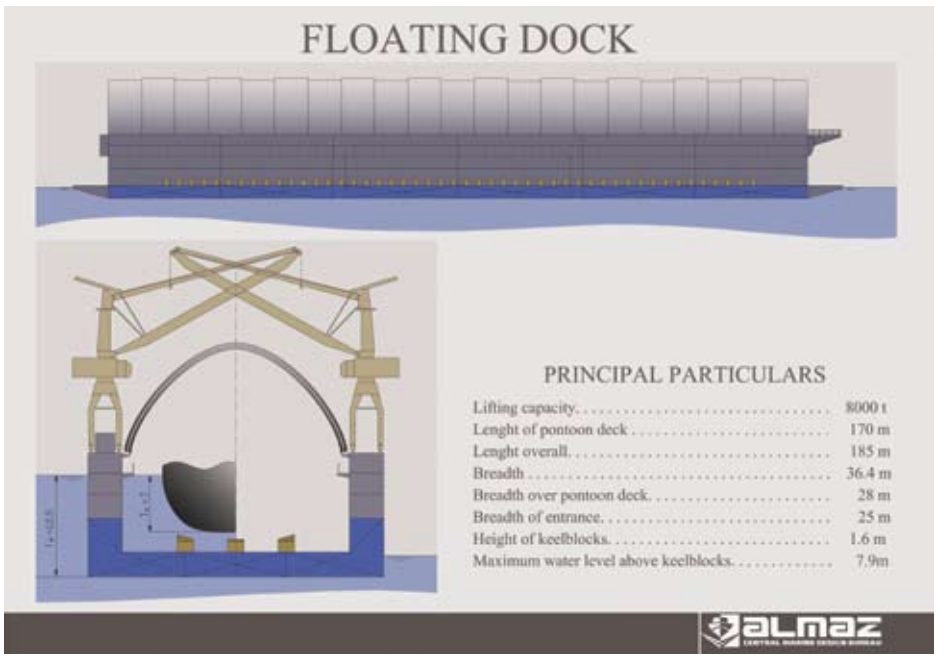
Safety of such complex operations as rolling a large ship from the shore to the floating dock and out of the floating dock is based on the mathematical models developed by Almaz Design Bureau. Among the transfer docks should be pointed the floating dock supported by one shore pier capable of performing ship off-shore and on-shore rolling operations under strong tidal conditions. To increase safety, Almaz designed facilities to monitor submerging / emerging and launching. The floating docks located in St. Petersburg, Novorossiysk and Murmansk are equipped with such packages with advanced computing and automatic facilities.

A total of fifty floating docks were built and twenty floating docks of 400... 60,000 t were modified by Almaz Design Bureau, which are now in operation not only in Russia but in Finland, Bulgaria, Estonia, Lithuania, the Ukraine.

Based on the analysis of the potential needs of the Indian Navy and predicted increase of the Navy list, Almaz Design Bureau has developed proposals on several types of floating docks, including:

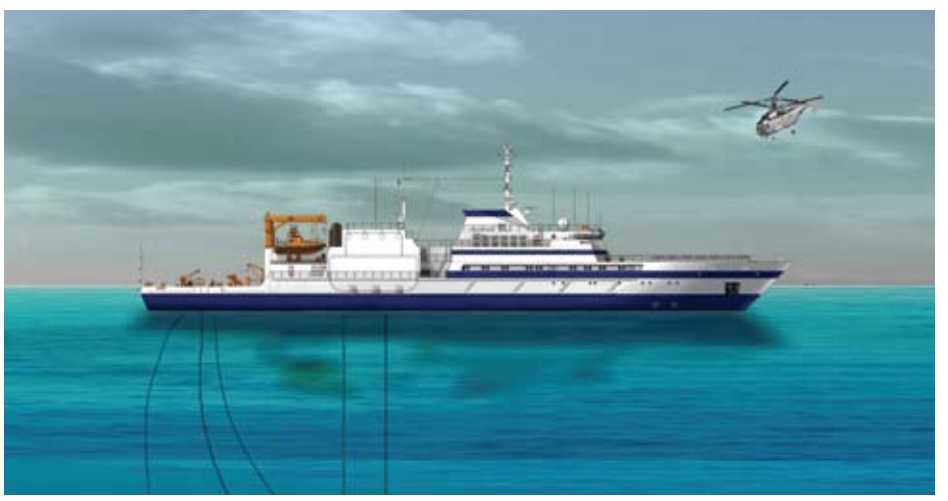
- floating dock with lifting capacity of 8,000 t, dock floor dimensions 170 x 28 m, 12.5 m molded draft, equipped with two crane hoists with lifting capacity of 15 t each;
- transfer pontoon dock with capacity of 2,000 t, dock floor dimensions 120 x 16 m, pontoon dock with 4 m height;
- floating dock with dock floor about 290 m long.

Almaz Design Bureau dominates in the designing special-purpose submarine



rescue ships and ships for diving and underwater operations. Over the number of the previous years the multipurpose ships of Type 527/527M designed by Almaz Design Bureau and built in the 1960s has been unrivalled both in the Russian and foreign Navies. The unique Type 530 Karpaty salvage ship (1967) has been in service in the Russian Navy so far. The Type 537 Elbrus lead ship (1980) enabled divers to effect underwater operations at a depth of 200 m, its rescue vehicles at a depth of 500 m, the Poisk-2 search-and-research vehicles at a depth of up to 2,000 m. The ship was equipped with the television system MTK-200 to inspect underwater objects, high-power bailers (4,000 m^3/h), towing engine (60/30 t) and fire-fighting equipment to rescue submarines staying on the surface and surface ships. Also there was the area for deployment of the KA-27PS helicopter. In the mid 1980s, Almaz Design Bureau designed the Type 05430 rescue ship, which in 1988 was used to build the Hindukush rescue ship. The ship was designed for carrying the rescue submersible and the advanced dynamic positioning system.

Designing mobile rescue systems such as NSRS or SRDS and building the advanced rescue ships can contribute much in the development of search and rescue support for the submarines of the Indian Navy. The best variant is a rescue ship equipped with an advanced rescue submersible and an underwater diving system. Almaz Design Bureau developed the proposals to meet the customer's needs.



The vessel with displacement of about 4,500 t and computer-aided dynamic positioning system will be equipped with a hangar and a launching system for the Bester-1 rescue submersible, a deep-sea underwater system for depths of 300 m, unmanned undersea television and work vehicles for depths of up to 1,000 m, a decompression system for 60 men. The diesel-electric propulsion with two steering propulsion columns of 2,400 kW each provides cruising range of up to 3,000 miles at 12 knots. The vessel is designed for the crew of 97 plus 12 extra accommodations. Drinking water and provisions will last for 30 days and in case there are rescued men on board for 10 days. The vessel ensures effective rescue operations at sea state 4.

Almaz Design Bureau and the Indian Navy started cooperating as early as the 1960s when the former supplied combatant crafts. That is why, this cooperation is most likely to continue in constructing rescue ships and floating docks.

For more information please visit www.almaz-kb.ru