УДК 004.9

ATMOSPHERIC DIVING SUITS

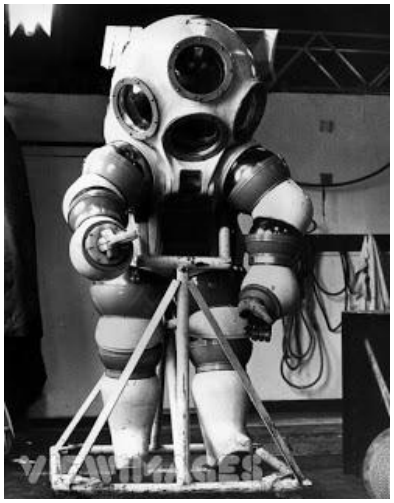
Kyznecov R.R., Egorov I.B.,
Scientific adviser: senior teacher Labusheva T.M.
Siberian Federal University

In our lives, information technology is found almost in everything - in smart stoves and in supercomputers. And atmospheric diving suits are not an exception. The report is dedicated to them. It will show the way they are connected to our future profession and what they can do. The most important periods of the atmospheric diving suit evolution are given below:

LETHBRIDGE 1715 (UK)

The first recorded attempt at protecting a diver in a rigid armor was done by John Lethbridge of Devonshire. It happened in England in 1715. The oak suit offered by him had a viewing port and holes for the diver's arms. Water was kept out of the suit by greased leather cuffs which sealed around the operator's arms. The device was said to have made many working dives to 60ft/18m. Lethbridge's device probably performed as claimed. It is known from the painstaking work of Belgian expert, Robert Stenuit. Working under the protection of Comex with assistance from Comex's founder, Henri Delauze, Stenuit imitated and operated as the "Lethbridge Engine," using only materials and techniques available in day time.

JIM



In 1960s an English company called DHB was interested very mush in Atmospheric Diving Suits. With the help of the government it started to perfect the Peress Tritonia suit from 1930 that it found out by coincidence and luck. After performing some tests with the old suit it became obvious that the joints had to be designed again. The test suit that was made had the name JIM after Jim Garrett. He was the first diver to test the old Tritonia suit. Many tests were done in tanks and in the open sea at the depths up to 145 meters.

Hardsuit

The Hardsuit is the world's most advanced Atmospheric Diving Suit (ADS). It is produced by Ceanic Corporation. The Hardsuit is the product of improvements to existing ADS technology and an innovation breakthrough in a rotary joint development that allows to do low friction movements under an extremely high pressure. This innovative technology enables trained operators to work in water depths up to 305 meters.

Hardsuit Thruster Pack Technical Information

The recently developed Hardsuit thruster pack allows the Hardsuit to work at various depths in the water column, and increases mobility greatly. The thrusters attach directly to a specially made waist ring and can be installed quickly onto the suit.

The two thruster units can be mounted on the port and starboard side of the suit at the waist area, just aft of the arms. Each thruster unit consists of a 1.5 HP motor driving two variable pitch propellers.

The complete thruster pack consists of the auxiliary power unit, the power control unit on the surface, and the suit mounting ring. The suit mounting ring consists of the power supply receptacle, mixer board receptacle, the propulsors, and the internal control system.

Sidescan Sonar

Side scan sonar use acoustical signals to paint a picture of the sea bottom. The sonar consists of a towfish attached to an umbilical cable, which is connected to a monitoring system. The monitoring system interprets information from sensors in the towfish to create a two dimensional profile of the sea floor surface. Items as small as two inches can be detected.

Automation atmospheric diving suits

Producing every new model of atmospheric diving suit manufacturers try to make diving conditions better and increase diving depths but they don't think about automation of diving. If ADS is able to understand diver's commands at breaks like depressurization or freezing the diver will give a command and the suit will start balancing the situation itself. If the important information could be seen on diving suit glass, the human would try his best in the emergency situation. The system could guarantee data transmission about its condition, and in case of serious problems it could be controlled from a land. Creators of this system can make a list of elementary automatic actions for various problems and open the access for non-professionals.

Nowadays the evolution of the IT and robotization is gaining an extreme speed, but suits are not interesting, but in vain, because the depth is the same space for humanity.