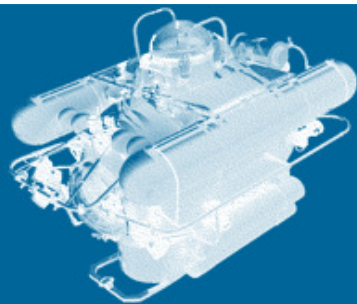


EurOcean_LEXI



EUROPEAN LARGE EXCHANGEABLE EQUIPMENTS

Infrastructure name	JAGO
Code	
Owner/Institution	GEOMAR
Manager	Karen Hissmann (khissmann@geomar.de) Jürgen Schauer (jschauer@geomar.de)
Equipment type	Manned Submersible
System description	400m depth rated manned submersible
WEB LINK	http://www.geomar.de/go/jago
WEB LINK TECH SPECS	http://www.geomar.de/go/jago
Vessels normally used	Global and oceanic R.V.s, regional vessels, operated from on board RV ALKOR, POSEIDON, MARIA S. MERIAN, SONNE, METEOR, POLARSTERN, PELAGIA, GARCIA DEL CID
Ship requirements	Deck space for storage of a 20' container (with 3 m space in front for loading and unloading) and storage of the submersible at launching position. Sufficient storage capacity for supplies and support equipment if the submersible container has to be left on shore Launch and recovery by any crane system (stern A-frame, marine knuckle boom crane etc) rated to lift min. 5 tons (SWL) at an outreach of min. 3 m off the ship's stern / side (A-frame inner height min. 6.5 m, beam min. 4 m). Work boat (rigid-hulled inflatable craft) with 40 HP outboard engine for towing the submersible.
Weight	3000kg, Pressure Hull steel, 15-18mm length 3.2m, beam 2.0m, height, 2.5m
Battery :	
Technology	Lead Acid Block Batteries
Charging time	3-8 hours
Voltage, capacity	24VDC-13KW
Dives	
People inside the sub	1 pilot, 1 observer
Duration	2 dives a day, 3-5 hours
Speed	1 knot survey speed (0,5 m/s) descent + ascent speed: 10m/min
Up and down technology (surface to bottom)	dynamic and static diving
periodicity	every day
Autonomy in rescue mode	96 man hours life support
Technical requirements	

Power	
Frequency	Battery charger 230 VAC/single phase 50 Hz 16 Amp, for high pressure air compressor 380-400VAC/3 phases/50Hz 16 Amp.
Voltage	
KVA	
Hydraulic	
Pressure	
Flow rate	
Compressed air requirements	
Cooling water	
Subsea positioning requirements	
Compatible USBL systems	USBL ORE systems LXT, TrackPoint3
Vessel GPS Feed or other requirements	
	GPS or DGPS
Networking requirements	
No. of System configurations possible	
	Basic systems
Configuration 1	720 l diving tanks for buoyancy at surface, 40 l buoyancy tank for vertical movements, 2 oxygen high pressure cylinders, 3 high pressure air cylinders, filter for CO2 absorption (air regeneration)
Configuration 2	Rescue systems emergency drop weight, dead man safety system, generation of >500 kg positive buoyancy at max. depth, emergency buoy (500m line) with rescue device
Configuration 3	
Configuration 4	
Deck Layout Drawing	
Configuration 1	
Configuration 2	
Configuration 3	
Configuration 4	
System weight/COG in each configuration	
Configuration 1	Sub 3000kg, 1 x 20' container with support equipment on main deck ca. 4000-5000 kg
Configuration 2	
Configuration 3	
Configuration 4	
Number of containers/Items, Footprint Area required	
Configuration 1	1 x 20' standard container total weight 7000-8000 kg (depending on equipment according to mission)
Configuration 2	
Configuration 3	
Configuration 4	
Deck securing arrangements	
Configuration 1	container twist locked into standard iso 20' and chain ratcheted down

Configuration 2	
Configuration 3	
Configuration 4	
Deck strength/Deck loading	
Configuration 1	
Configuration 2	
Configuration 3	
Configuration 4	
Transportation requirements (total weight and number of loads)	
Configuration 1	7-8 tons, 1 x 20' standard container shippers own
Configuration 2	
Configuration 3	
Configuration 4	
V.A.T. + Customs clearance practice	T2L + Proforma Invoice, INF.3, A.T.A. carnet
Mobilisation Details	
Typical Mobilisation duration	1 day minimum
Typical Mobilisation cost	ca. 1000 € crane + truck costs (home port), costs for sea freight etc depending on place of delivery
Typical Demobilisation duration	1 day minimum
Typical Demobilisation cost	ca. 1000 € crane + truck costs (home port), costs for sea freight etc depending on place of delivery
Insurance arrangements	
Own use	GEOMAR self-insurance of public / governmental institutions
Barter	
Charter	accident insurance for pilot and observer while diving
Co-operation	
Transportation insurance	Covered for all risks during container transport and while on deck of RV
Technicians	
Number and type of technicians required to operate system in various scenarios	2-3 technicians (1 sub supervisor, 1 pilot, 1 surface diver "hookman")
System payloads	
Total maximum payload	250 kg
Existing specific payloads	underwater navigation and positioning system (USBL ORE), compass, depth gauges, vertical and horizontal scanning sonar, underwater acoustic telephone communication UT 10 kHz, Xenon and Halogen lights, flash lights, laser scaling, digital video (SONY HDV1080i) and still cameras for documentation, CTD, hydraulic manipulator arm with exchangeable claws, sampling devices for organisms, gas, water, fluids, sediments, rocks

