

Lander K/MT 100

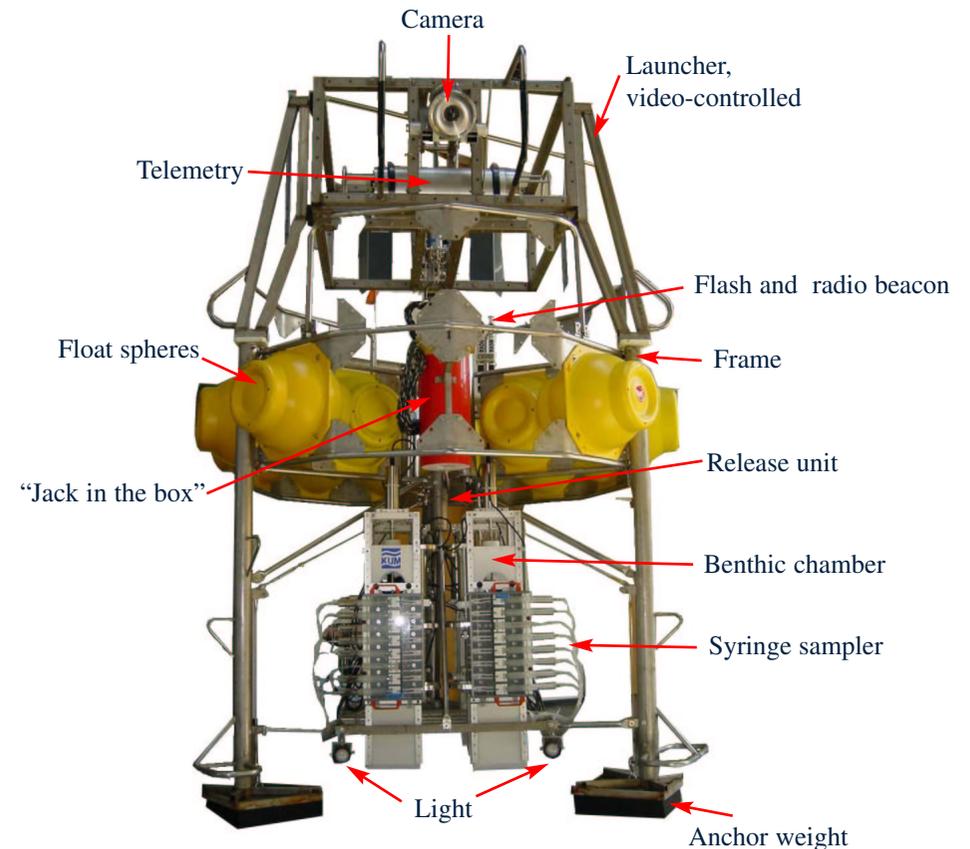
The instrument carrier “lander” is used for carrying one or more scientific instruments for water sampling and sea floor research.

The basic frame consists of an open tripod frame with weights, float units and different devices (radio beacon, strobe lights) to aid locations.

It is made from stainless steel, GRP or titanium for long-term investigations and to reduce weight (titanium is by 44% lighter than steel).

Particularly in deep sea research landers are perceived as an important means of obtaining data.

You can descend them up to a depth of 6000m and attach a variety of instruments, e. g. benthic chamber, sediment trap, syringe sampler etc..



Benthic Chamber Lander



We design and manufacture instrument carriers according to our clients' specific wishes.

Many times already marine scientists from e.g. IfM-GEOMAR, Leibniz-Institute for Marine Research Kiel, or MPI, Max-Planck-Institute Bremen, have successfully deployed our landers.



Lander with round benthic chambers (polycarbonate), syringe samplers, stirrer

Dr. Olaf Pfannkuche, IfM-GEOMAR
Deployment of Benthic Chamber Lander in the Irish Sea;
Ship: FS Poseidon, 26.04.-23.06.2000;
Project: BIGSET - investigation of biological and chemical processes in the sediment

GasQuant-Lander



This instrument carrier is a special manufacture, deployed from IfM-GEOMAR for the investigation of methane gas bubbles over cold vents to measure their quantity in proportion to time.

The giant titanium pressure tube at an air weight of 120kg (size: inner diameter: 400mm, length: 850mm) to hide the electronics gives this lander a special function and appearance.

Four powerful underwater batteries provide the electronics with energy.

It comprises a WINDOWS NT computer for data recording control as well as a Sea Beam 1000 for controlling the 180kHz Multibeam transducer.

Conditional on the lander's high total weight (appr. 2t air weight) 28 x 17" Benthos float units are necessary for its ascent.

Dr. Jens Greinert, IfM-GEOMAR
GasQuant-Lander deployment in the Pacific
(depths: 600 & 800m), Oregon (USA);
research vessel: FS Sonne, SO 165;
August - September 2002;
project: Lotus / Omega / Otega



Titanium pressure tube
(400 x 850mm)



Technical details

Basic equipment:	open tripod frame with weights, instrument carrier, float units
Option:	- flash, radio beacon, flag to aid location - marine research instruments: benthic chamber, syringe sampler, video camera etc.
Buoyancy:	1.) glass spheres with protection shells 2.) syntactic foam
Measures:	height: 2500mm diameter: 2200mm
Weight/frame:	steel: 160kg titanium: 110kg
Weight (frame/float) without anchor weights:	steel: 595kg titanium: 545kg
Payload (instruments):	steel frame: max. 210kg titanium frame: max. 260kg
Operation depth:	max. 6000m



Nearly exact positioning on the sea floor is carried out by the video-controlled launcher.

Deployment

The lander is ballasted to be negatively buoyant and descends to the sea floor at a speed of 0,5-1m/s where it lands softly. Here it is left autonomously for the whole research period.

Then the steel weights are dropped through time release or an acoustic signal.

The lander ascends to the surface, now positively buoyant, where it is recovered from the research vessel.