

**LAUNCH AND RECOVERY SYSTEM COMPLETE WITH - A FRAME GALVANIZED STEEL CAGE (BASKET) & HYDRAULIC WINCHES.**

THE DESIGN PARAMETERS OF THE SYNERGY LAUNCH AND RECOVERY SYSTEM ENABLE THE INSTALLATION OF EXTREMELY PORTABLE COMPACT AND ECONOMICAL LARS SYSTEMS. THIS ENABLES MINIMUM UTILIZATION OF SPACE ON BOARD DIVING VESSELS AND BARGES, AS SPACE IS A PREMIUM ON ALL VESSELS. THE FOOT PRINT OF THE LARS IS DESIGNED IN SUCH A WAY THAT A COMPLETE UNIT WOULD EASILY FIT INTO A 20FT STANDARD CONTAINER, THUS REDUCING SHIPPING COSTS AND PROVIDING EASE OF TRANSPORTATION. A LARS SYSTEM TYPICALLY CONSISTS OF AN 'A' FRAME COMPLETE WITH BASE, 2 X HYDRAULIC WINCHES (MAIN CAGE AND GUIDE WEIGHT).



**The LARS system is built as per the guidelines of IMCA as below**

IMCA D023	DESIGN for Surface Oriented (Air) Diving Systems
IMCA D018	Code of Practice for The Initial and Periodic Examination, Testing and Certification of Diving Plant and Equipment



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IMCA D018 –Code of Practice for The Initial and Periodic Examination, Testing and Certification of Diving Plant and Equipment



**Code of Practice for  
The Initial and Periodic  
Examination, Testing and  
Certification of Diving  
Plant and Equipment**

IMCA D023 –DESIGN for Surface Oriented (Air) Diving Systems



**Diving Equipment Systems  
Inspection Guidance Note**

**DESIGN for Surface Oriented  
(Air) Diving Systems**

**LAUNCH AND RECOVERY SYSTEM COMPLETE WITH - A FRAME GALVANIZED STEEL CAGE (BASKET) & HYDRAULIC WINCHES.**

Description	Length	Width	Height	Weight
LARS Assembly (Transport Mode)	3600mm	1700mm	2200mm	3.5 ton (aprox.)
LARS Assembly (On Board Ship)	3600mm	1700mm	3300mm	3.5 ton (aprox.)

**TECHNICAL SPECIFICATION**

Depth Capability	50 Meters for Air Diving
Design Guidelines	IMCA D023
Testing Standards	IMCA D018
Certification	IMCA D023 & IMCA D018
Testing Witness	DNV GL
Basket Material	C S Galvanized
Basket/Cage Cylinder	1 or 2 x 50 Liter @ 200 Bar
Main Lift Wire	13mm dia. Length 160mtrs. Nonrotating (90M installed)
Clump Weight Wire	13mm dia. Length 160mtrs. Nonrotating(160M installed)
Transportation	Fits into a standard 20ft shipping container in resting position

**The A frame with Skid**

Keeping in mind the restrictions on space and the weight of the LARS system, the base has been designed to Ensure minimum utilization with maximum effect on the diving vessel or barge. The system consists of the main A frame (Rated to 1.2 ton). The paint is double epoxy heavy duty marine grade paint.

**Main Winch for the Basket / Cage**

The main winch is manufactured by Bell Fluidtechnics and is certified for Man riding purposes. It is hydraulic 1000 kg SWL and tested to 1.5 tons. as per IMCA guidelines. The winch is operator controlled to 18 mtr per min. The winch is powered by heavy duty Radial piston motor coupled to the drum via a planetary gear box. There are three independent braking systems on the winch, one internal disc brake second hydraulic over center valve and the third Manuel band brake. The length of the 13mm wire installed on the winch is 90 mtrs (Drum capacity 160 M)

**Guide Weight Winch**

The main winch is manufactured by Bell Fluidtechnics and is certified for Man riding purposes. It is set and tested to 1.5 tons. as per IMCA guidelines. The winch is operator controlled to 18 mtr per min. The winch is powered by heavy duty Radial piston motor coupled to a planetary gear box. There are three independent brakes on the system, one internal disc brake second hydraulic over center valve and the third Manuel band brake. The length of the 13mm wire on the winch is 160 mtrs. The winch wire is double reeved through the Guide weight to the A frame to be used for SWL of 1.2 ton and the system tested for 1.8 ton.

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### Galvanized Steel Basket

The Two Diver Basket (1200 L x 1030 B mm outer dimensions) provided with the LARS is thus ensuring long life and rust proof service. 1 or 2, 50 ltr x 200 bar breathing air cylinder, along with a panel for mounting the 1 st stage regulator, manifold etc. for the cylinder are provided with the basket. Appropriate hand holds are provided at regular intervals. The design of the basket has taken into account the height (Aprox. 2.2M) in the center of a fully dressed diver with a diving helmet, mounted camera / light etc. A groove with Teflon roller (which can be opened and closed) to tread the diving umbilicals to the basket is provided on the frame of the basket. The basket is provided with a zinc anode.



### Clump Weight

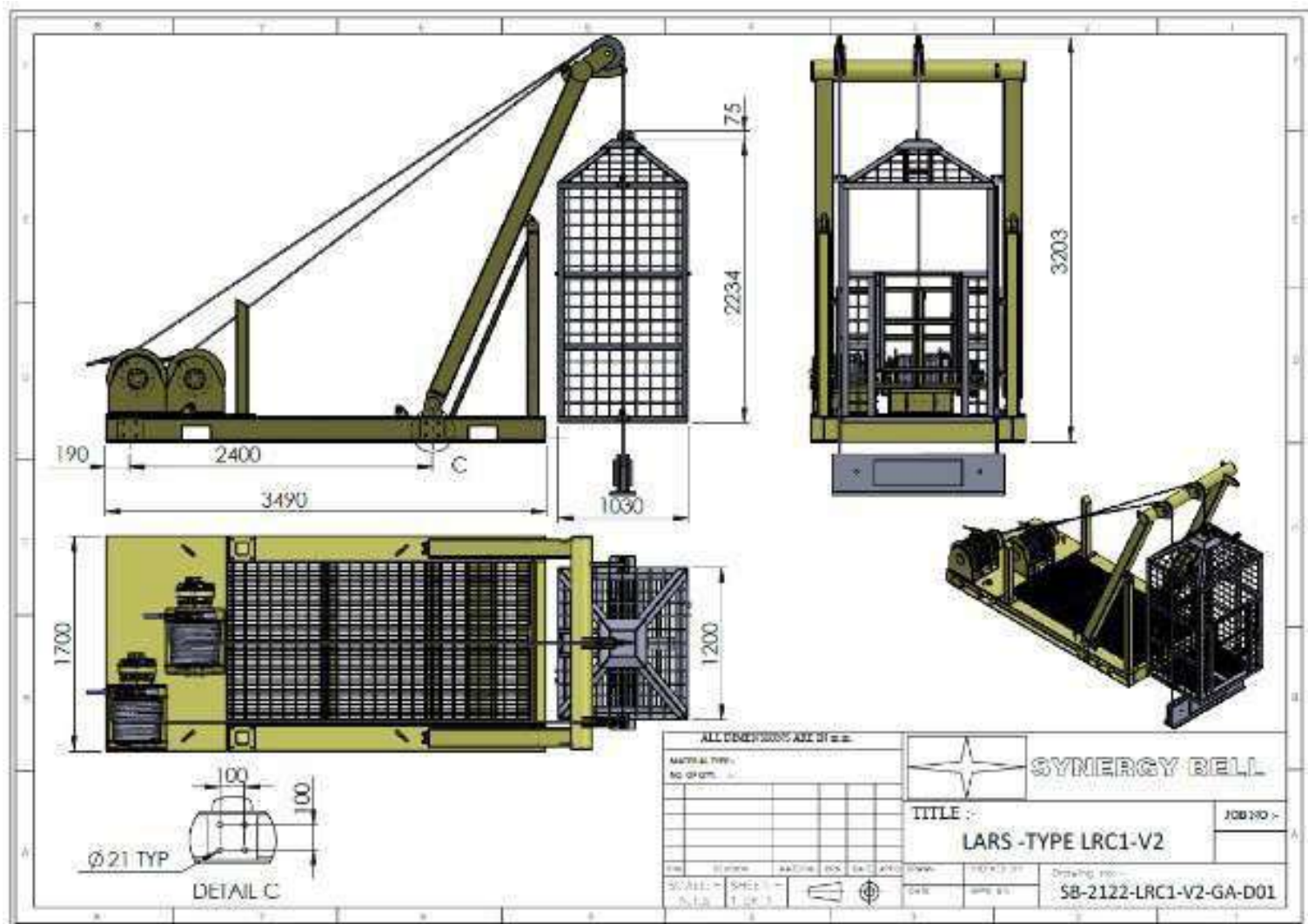
The clump weight provided is 200 kg in weight. It is designed to reduce drag when in difficult current conditions underwater. The clump weight is provided with a zinc anode installed also.

### The Control station

The Control station has the following controls:

- Cage wire winch raise and lower
- Guide wire winch raise and lower

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**FREQUENTLY ASKED QUESTIONS**

- MAIN WINCH TO BE CAPABLE TO LIFT MAIN BASKET WITH GAS BOTTLE AND 2 DIVERS-- YES
- SWL MAIN BASKET SYSTEM -- 900 KG (MAX. GROSS MASS)
- SELF WEIGHT OF THE BASKET < 300 KG.
- PAY LOAD 2 X 200 (KG/DIVER) =400 Kg +2 CYLINDERS 140 < 600 Kg PAY LOAD
- SWL OF THE GUIDE / CLUMP WEIGHT SYSTEM 1200 KG. IN TWO FALL SYSTEM (DOUBLE REEVED WIRE ROPE)
- SELF WEIGHT OF GUIDE WEIGHT 200 KG
- TOTAL 1200 KG. SWL OF GUIDE WEIGHT SYSTEM AND A FRAME
- DESIGN TEMPERATURE - 3 C
- OPERATING SEA STATE 2 MTRS. SIGNIFICANT WAVE HEIGHT

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### CERTIFICATIONS PROVIDED WITH THE SYSTEM

- AS PER IMCA D018 AND IMCA D023
- MAN RIDING WINCHES CERTIFICATION FROM MANUFACTURER, TEST CERTIFIED BY DNV.
- LIFTING LOAD TEST CERTIFICATION AND WIRE ROPE CERTIFICATE.
- NDT CERTIFICATION (MPI TEST)
- DNV OR BV WITNESS TEST FOR ENTIRE LAUNCH AND RECOVERY SYSTEM.
- LIFTING SLINGS PROVIDED WITH THE LARS WITH CERTIFICATION.

**NOTE :** DIMENSIONS AND SPECIFICATIONS MAY CHANGE / VARY WITHOUT NOTICE.

### TWIN POWER PACK


- THE POWER PACK CONSISTS OF THE FOLLOWING:
- PRIMARY MOTOR & PUMP RATED AS FOLLOWS:
- 11KW /15 HP POWER 415 V/50/60 HZ. (POWER AS DETERMINED).
- 39 LTR/MIN AT 150 BAR,
- SECONDARY MOTOR AND PUMP RATED AS FOLLOWS:
- 11KW/15 HP, 415 V/50/60 HZ (POWER AS DETERMINED).
- 39 LTR/MIN AT 150 BAR
- 200 LITRE COMMON HYDRAULIC OIL TANK WITH PARTITION UP TO FULL OIL LEVEL.
- HYDRAULIC OIL FILTER SYSTEM X 2
- TWO INDEPENDENT ELECTRICAL STAINLESS STEEL CONTROL PANELS ARE MOUNTED ON THE POWER PACK SKID, FOR PRIMARY AND SECONDARY POWER PACK, REMOTE START AND STOP AVAILABLE ON LARS OPERATING STATION.

### INDEPENDENT POWER PACK




- THE POWER PACK CONSISTS OF THE FOLLOWING:
- PRIMARY MOTOR & PUMP RATED AS FOLLOWS:
- 11KW /15 HP POWER 415 V/50/60 HZ. (POWER AS DETERMINED).
- 39 LTR/MIN AT 150 BAR,
- 150 LITRE HYDRAULIC OIL TANK.
- HYDRAULIC OIL FILTER SYSTEM .
- 1 INDEPENDENT STAINLESS STEEL ELECTRICAL CONTROL PANELS IS MOUNTED ON THE SKID
- THESE INDEPENDENT POWER PACKS CAN BE USED AS PRIMARY OR SECONDARY POWER PACK.

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