

LARS TECHNICAL SPECIFICATION



Product Specifications

The BELL Launch & Recovery Systems (LARS) are specially designed compact option of the standard Launch And Recovery Systems.

The configuration offered in this specification is one of the most practical design for launch & recovery system of 2 diver's air basket. This A-Frame folds up and fit directly into a standard 20 foot container for transportation. A variety of other layouts are available and can be designed to any specific requirements.

Why Bell LARS

- **The LARS skid is a one of the most compact design.**
- **Rugged 1.5 ton rated A-frame for lifting the Basket and Guide-Weight**
- **Stainless steel Basket /Cage .(OPTIONAL)**
- **Stainless steel electric starter panels.**
- **Limit Switches basket topmost position .**
- **Stainless steel Hard piping , Hoses only on Tilting Rams.**

The **LARS** consists of the following major components .

- * Skid Base and A-Frame
- * Winches
- * Hydraulic Power pack
- * Diving Basket/Cage (Stainless Steel Optional)

Guidance Codes and Standards

IMCA D023: DESIGN – Diving Equipment Systems Inspection Guidance Note
IMCA D018 – Testing and Periodical Maintenances of Diving Equipment for Surface Orientated Diving Systems

Launch & Recovery Physical (approximate)

Description of Equipment	Length	Width	Height	Weight (Approx)
LARS ASSEMBLY (transport mode)	3175mm	2000mm	2100mm	4 ton
ALRS ASSEMBLY (onboard ship)	3175mm	2000mm	3780mm	4 ton

Skid & A-frame system

- The LARS skid is a one of the most compact design.
- Rugged 1.5 ton rated A-frame for lifting the Basket and Guide-Weight
- Hydraulic rams with stainless steel shafts/pins for luffing the A-frame
- Winches mounted above the power pack on the rear of skid
- Hydraulic power pack and controls mounted on rear of skid.
- Guide wire and main bell ropes route directly to sheaves on the A-frame
- The Structure is sand blasted and coated Heavy duty paint system
- Safety chains are provided on the A-frame.
- Clump weight is provided with grease points on the sheaves.

Basket Winch – BELL 1 Ton Man riding Series Winch

The winch specifications are as follows :

Minimum lift capability :	1 Ton (1000 kg)
Maximum lifting speed :	operator controllable up to 20m per minute
Wire diameter :	13mm non-rotating
Maximum drum wire capacity :	160 of 13mm (5 layers)(installed 90mtrs.)
Drive system :	Hydraulic Motor
Braking :	1. Automatic Multi Disc Brake. 2. Dynamic – Hydraulic over-center valve 3. Emergency – Drum brake band with manual activation.
Finish :	Painted steel construction, with primer and high gloss epoxy paint
Approximate dimensions :	Length – 917mm Width – 640mm Height – 505mm

Guide Weight Winch – BELL 1 Ton Man Ridding Series Winch.

The guide-wire winch used is same as above(Main wire winch) ,but the guide wire is double reeved through the guide weight sheave . The wire installed on the guide weight 150 mtrs.

Hydraulic power pack

The Hydraulic power pack is situated on the A-frame skid directly beneath the winch and control station. The power pack consists of the following :

Main pump and motor rated as follows :

- 11kW / 15 HP power 415 V/50/60 Hz. as determined.
- 36 ltr/min at 160 bar,

Secondary fixed displacement gear pump and motor rated as follows :

- 11kW/15 HP , 415 V/50/60 Hz power as determined
- 36 ltr/min at 160 bar

200 liter Common Hydraulic oil tank with partition up to full oil level , above which the tanks become common .

Hydraulic Oil filter system

The Control station has the following controls :

- A-Frame luffing IN and OUT
- Main wire winch raise and lower
- Guide wire winch raise and lower

An electrical control panel is mounted besides the hydraulic power pack on the skid.

Diving cage/basket

1.2 x 1.2 meter diving cage with overhead protection frame.

Cage includes diving cylinder securing brackets and safety access chain

Hand holds and diver emergency recovery hard point.

Safety lifting point for emergency recovery are provided on the basket.

Storage space for a 50 ltr cylinders (Cylinders Not included as part of the cage supply)

Guide-wire holding rollers

Cage is manufactured from tubular, steel sections Cage is supplied load tested.

An ID plate is fixed to the basket with TPI stamping. The SWL is marked on the basket.

Interfaces

Power Supply

- * Main supply – 415V, 50/60, Hz 3 phase

OPERATIONAL EQUIPMENT

SYSTEM OVERVIEW

The LARS comprises of the following main systems :

- A-frame operated via 2 Hydraulic cylinders for luffing inboard/outboard
- Dive cage / basket
- Skid with mounting positions for winches and Hydraulics
- Guide-wire winch with weight
- Primary/Main Cage winch
- Hydraulic Twin power pack with 2 pumps, control operating levers and electrical panel.

OVERVIEW OF ELECTRICAL SYSTEM

The Hydraulic power pack is supplied from a single electrical power source to a single control box for both Hydraulic motors.

OVERVIEW OF HYDRAULIC

The Hydraulic power pack comprises of Main and Standby Hydraulic pumps mounted single oil tank with partition. Ensure that only one of the two pumps is run at any point in time. The Hydraulic oil circulates to the main valve control bank. The main valve control bank controls both the movement of the A-frame, as well as controlling winches for launching and recovering of the cage and guide-wire weight. The relief valve is also part of the Main Valve Control Bank.

The Hydraulic pumps are protected by check valves

Sample of LARS DNV certificate

INSPECTION REPORT		DNV-GL Report No. O-EX- VERI/18/PP205798/13003A Rev.00 Dtd.:2 nd August 2018	
Item[s] inspected: Portable diving A-frame having Sr No 12545-025/1/A-FRAME with Man-riding winch Sr. No. W06Y50992, Basket Sr. No. 12545-025/1/BASKET & guide weight Sr. No. 12545-025/1/Guide Weight, guide weight hydraulic winches W06Y50993- Load test and post load NDT, review of wire rope certificates			
Manufacturer M/s. Bell Fluidtechnics Pvt. Ltd., Mahape, Navi Mumbai		Manufacturer's order no.	
Purchaser M/s. BELL LARS SAMPLE CERTIFICATE , DUBAI		Signed SFA/Purchaser's order no.	
Destination/ Supplementary information M/s. LARS SAMPLE CERTIFICATE , DUBAI			
SPECIFICATIONS/ STANDARDS			
IMCA D018		Any additional requirements	
SAMPLE CERTIFICATE ONLY			
Drawing no.:			
INSPECTION/ TEST RESULTS			
Inspection and test as indicated were carried out: on 02.08.2018 at vendor's premises. Note: A = acceptance - = not applicable			
A M TC - TC No. SPL/2018/2290 DT. 23.6.18 & Certificate of test no. H 372933/1 dtd. 16.3.16 reviewed.	A Load Test of A-frame sr. no. 12545-025/1/A-FRAME with main winch complete with diving cage connected through hydraulic winch sr. no. W06Y50992. The man riding winch has been load tested on independent brakes at test load of 1500 kg. [SWL: 1000 kg] - Witnessed	A Guide weight hydraulic winch sr. No. W06Y50993 with guide weight (Sr. No. 12545-025/1/Guide weight) of 250 kg having 13 mm dia steel wire. Man riding winch has been load tested on independent breaks of load 2250 kg. [SWL 1500 kg] - Witnessed	
A Calibration report of Load cell Sr. No. 1409008176	A Post load DPT	A Post load MPT	
- Visual inspection	- Pressure tests	-	
- RT films and records	- Markings	-	
Data/ inspection and test results attached are shown overleaf. Certificate attached.			
DNV GL Order completed: ☐ No ☒ Yes		DNV GL Order Completion date: 02.08.2018	
		Continued on separate attachment: ☐ Yes ☒ No	
Marking 	The item[s] were inspected and tested in the condition and are found to be in accordance with the above specification/ standard. Order No: PP205798 Mumbai Place _____ Date 02.08.2018		
	 ☐ Witnessed ☐ Reviewed And found to comply with: SAMPLE ONLY Date: _____ Sign: _____		
	Surveyor's sign / stamp		

DNV GL Headquarters, Veritasveien 1, P.O.Box 300, 1322 Høvik, Norway. Tel: +47 67 57 99 00. www.dnvgl.com

IR_OGIN_05_01 Rev 0 Dated. 2015-09-09 IR_LRS_BELL FLUID-1-05.08.2018 ok

Sample of Man-riding Winch

INSPECTION REPORT

DNV-GL

Report No. O-EX-
VERI/18/PP205798/13008A
Rev.00 Dtd.:2nd August
2018

Item[s] inspected: 1000 kg Hydraulic Man-riding winches Sr No W06Y50992 , W06Y50993 ,W07Y51383,& W07Y51384 for Portable diving A-frames.																										
Manufacturer M/s. Bell Fluidtechnics Pvt. Ltd., Mahape, Navi Mumbai.		Manufacturer's order no.																								
Purchaser SAMPLE CERTIFICATE FOR WINCH		Signed SFA/Purchaser's order no.																								
Destination/ Supplementary information SAMPLE CERTIFICATE FOR REF ,DUBAI.																										
SPECIFICATIONS/ STANDARDS																										
IMCA D018	Any additional requirements																									
DRAWINGS																										
Drawing no.:	Date approved:																									
INSPECTION/ TEST RESULTS																										
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