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# Technical Diving Equipment

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## **POMMEC LARS SYSTEM**

EASILY CONVERTED TO

## **WET BELL SYSTEM**



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## POMTEC 2 DIVER LAUNCH AND RECOVERY SYSTEM WITH DIVING BASKET

This Launch and Recovery System is specifically designed to provide a compact option to the standard launch and recovery systems offered by our competitors. This system is very easily transportable because it fits exactly in a 20' container. We realise the necessity to use the least amount of deck space onboard a vessel and ensure that shipping & mobilisation costs are kept to a minimum. The configuration offered in this specification is viewed as being the most practical solution for a mobile launch & recovery system that complies with IMCA's diving standards and your specification requirements.

### Summary of Specifications

This 2 Diver Diving Basket Launch and Recovery System comprises the following main equipment and is clearly specified within this technical specification.

- Skid Base and A-Frame handling system
- Winches and Hydraulic Power pack
- Stainless steel Diving Basket



Fixed wetbell/diving basket hydraulic control on the skid, portable electrical main switchboard and alarm panel. The system requires only main and standby electrical power and external gas supply to be fully operational. The panel and electrical control system is designed to be mounted on the skid or to be mounted in a client supplied control room/container.

Design standard : Lloyds Rules  
Certification authority : Lloyd's Register of Shipping

#### Safe working load:

- Diving Basket : 1000 kgs
- Bell/Basket winch : 2000 kgs dynamic
- Guide wire system : (1350) 2700 kgs dynamic (two-fold purchase)

#### Fail safe brake rating:

- × Bell/Basket winch : 2500 kgs dynamic / 3000 kgs static
- × Guide wire system winch : 2700 kgs dynamic (two-fold purchase)

#### Main power supply

Requirement : 15 kW 380 V 50 Hz or 440 V 60 Hz 3-phase

#### Standby power supply

requirement : 15 kW 380 V 50 Hz or 440 V 60 Hz 3-phase



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## Launch & recovery physical data

Description of Equipment	Length	Width	Height	Weight Approx
Diving Basket & Skid (transport mode)	4.00m	2.30m	2.35m	8 ton
Diving Basket & Skid (onboard ship)	4.00m	2.30m	3.20m	8 ton

## Guidance Codes and Standards

- × IMCA D023: DESIGN - Diving Equipment Systems Inspection Guidance Note for Surface Orientated Diving Systems (Air & Mixed Gas) – Feb 2000
- × IMCA D014: International Code of Practice for Offshore Diving
- × Lloyds Rules and Regulations for offshore structures

## TECHNICAL SPECIFICATIONS

### 1. One (1) portable Diving Basket Skid & A-frame

- 1.1. **Skid** - Rugged steel base framework with stiffening gussets and sacrificial deck fastening positions. The working area is decked with galvanized steel grating to ensure non slip safe operation and to reduce water entrapment.
- 1.2. **A-frame** - A rugged A-frame is provided to launch the wetbell over the ships side. The A-frame is designed to be rigid in operation and handle the required design loading as specified in Lloyd's requirements for offshore structures. As an additional safety feature for man riding purposes the A-frame is provided with safety stops should a failure in the rams or hydraulics occur.



**Hydraulic Cylinders** – Hydraulic cylinders are supplied with stainless steel shafts as a standard to provide trouble free operation in the marine environment. The cylinders are used for luffing the A-frame. Flow dividers are provided to ensure simultaneous extension of the rams. Dual hydraulic over centre valves are also hard piped onto the cylinders to prevent uncontrolled movement of the rams due to a loss of hydraulic pressure. This ensures a safe operation of the system at all times.

**Hydraulic piping** – All hydraulic pipe work is of mild steel construction hoses and cadmium plated fittings. The pipe work is securely fitted to the frame using pipe clamps. All flexible connections and interconnects are kept to a minimum.

**Painting** - The framework is shot blasted and painted to a marine grade paint specification. A Jotumastic or Carbomastic heavy duty marine aluminium primer with a polyurethane top coat. Final DFT is 200 microns plus.

- 1.3. **Wire sheaves** - The A-frame is fitted with sheaves on the top of the frame and these sheaves provide movement in 3 axes thereby preventing the chance of the wire jumping



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off. In addition the wear on the sheave is uniform and any side movement due to currents or vessel movement will not create excessive shear forces on the pins. An emergency recovery pad eye is provided should all systems fail and a separate winch or manual system be needed to recover the bell.

- 1.4. **Safety protection** - A safety chain is provided across the sea side of the A-frame and is clipped in position after launching. Safety eyelets are provided on the skid frame to clip operators in should they be working over the side.
- 1.5. **Main Wire Lift System** - The wetbell/diving basket is lifted to and from the working depth using the main wire winch as the primary means. The winch is routed through the A-frame using standard sheave assemblies and is directly connected to the wetbell using a wire socket with castle nut and pin.

**Winch Spooling device** – To guide the wire exactly in the right position on the winch drum in every layer, a winch stainless steel spooling device is mounted

*The Offshore man rider winch specifications are as follows:*

Minimum lift capability	: 2 Ton (2000 kg) (2N)
Maximum lifting speed	: Operator controllable up to 20m per minute
Maximum drum wire capacity:	100m of 16 mm (3 layers)
Wire diameter	: 16 mm non-spin
Wire Breakload	: 19 Ton (19000 kg) (188 kN)
Wire weight	: 109 kg p/100 mtr
Wire length supplied	: 100 m
Drive system	: Direct hydraulic
Braking	: 1. Shaft mounted, non rotating multi disc internal gearbox : 2. Dynamic – Hydraulic over-centre valve : 3. Two (2) hydraulic driven disc brakes
Level wind	: Bare drum
Finish	: Painted steel construction, with marine grade primer and heavy duty topcoat. Stainless Steel Safety guards are fitted for safety
Approximate dimensions	: Length – 1000 mm : Width – 700 mm : Height – 795 mm : Weight – 550 kg



- 1.6. **Guide Wire System** – The guide wire system provides a means of guiding the bell to the sea bed and maintaining the bell in a set orientation and perpendicular position to the vessel. This reduces the effect of strong currents and vessel movements.

The guide wire system also serves the purpose of providing a secondary means of recovery and is the reason for the guide wire winch being rated for man rider purposes. The winch has a two fold purchase with the standing part secured to the top of the A-frame.

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The winch is rated for approx 36m/min ascent speed (18/min actual two fold purchase). This is to provide adequate speed during work where surface decompression is required and the distance from sea level to system is high. Typically rig support where freeboard height is in excess of 20m.

**Winch Spooling device** – To guide the wire exactly in the right position on the winch drum in every layer, a winch stainless steel spooling device is mounted

*The guide wire winch specifications are as follows:*

Minimum lift capability	: 1.35 Ton (1350 kg) (1.35kN)
Maximum lifting speed	: Operator controllable up to 36m per minute
Maximum drum wire capacity:	200m of 13 mm (4 layers)
Wire diameter	: 13 mm non-spin
Wire Breakload	: 12,5 Ton (12500 kg) (124 kN)
Wire weight	: 72 kg p/100 mtr
Wire length supplied	: 200 m
Drive system	: Direct hydraulic
Braking	: 1. Shaft mounted, non rotating multi disc internal gearbox : 2. Dynamic – Hydraulic over-centre valve : 3. Two (2) hydraulic driven disc brakes
Level wind	: Bare drum
Finish	: Painted steel construction, with marine grade primer and heavy duty topcoat. Stainless Steel Safety guards are fitted for safety
Approximate dimensions	: Length – 1000 mm : Width – 700 mm : Height – 795 mm : Weight – 550 kg

- 1.7. **Clump weight** - The clump weight supplied with the system is provided with dual sheave wheels and is provided with finger guard protection, etc. ***The clump weight weighs 400kgs.***
  
- 1.8. **Main Hydraulic Power Pack** - Hydraulic power pack is situated on the A-frame skid near the winch and control station. The power pack consists of the following:
  - \* **Main** pressure compensated piston pump and motor rated as follows:
    - \* 15 kW power with a flow of 47 l/min at 180 bar
    - \* 380V 50Hz with IP56 rating
    - \* 150 litre oil reservoir
    - \* Sight glass with level switch
    - \* Oil filter system 10u filter system
    - \* High oil temperature cut out
  
- 1.9. **Secondary Hydraulic Power Pack** - Hydraulic power pack is situated on the A-frame skid near the winch and control station. The power pack consists of the following:
  - \* **Secondary** pressure compensated piston pump and motor rated as follows:

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- \* 15 kW power with a flow of 47 l/min at 180 bar
- \* 380V 50Hz with IP56 rating
- \* 150 litre oil reservoir
- \* Sight glass with level switch
- \* Oil filter system 10u filter system
- \* High oil temperature cut out

*An electrical control box is supplied at the skid for operating the system hydraulics.*

All hydraulic fittings will be standard cadmium plated. All hydraulic pipe work used will be painted and covered with grease impregnated tape. All hose fittings pipe crimping ferrules and other hydraulic fittings will be off the O-ring or flair type to minimize the chance of leakages. Heavy duty pipe clamps are used throughout to clamp all pipe runs to the skid. Two wire hydraulic hose will be used exclusively on all relevant flexible areas on the skid.

## 1.10. Hydraulic Control Panel

The hydraulic control panel provides all the hydraulic controls for bell and guide wire weight deployment and umbilical handling. It is positioned on the frame to provide the operator with a clear view of the bell/basket recovery and launch position.

Controls are provided for:

- \* A-frame luff out and in
- \* Main wire in and out
- \* Guide wire in and out

Pressure gauges are provided for:

- \* Main pump Hydraulic system pressure
- \* Secondary pump hydraulic system pressure

## 1.11. Main Electrical Switchboard

The main electrical switchboard provides controls for the bell/basket, bell/basket handling system and diving control room. The switchboard is fitted with isolating transformers, circuit breakers and control switches with system status indicator lamps for all consumers. It supplies power to:

- \* Main hydraulic pump
- \* Standby hydraulic pump
- \* Hydraulic power pack control system (Temperature)
- \* Deck lights

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## 2. **Two Diver Basket** designed to accommodate two diver's

**Dimensions** - Inside diameter – 1,4m

**Safe work load** – 1000 kgs

**Weight** - ± 500 kgs fully equipped (without divers)

**Stainless steel construction** – Provides superb wear and corrosion resistance to the harsh marine environment. The base of the basket is mild steel, double dipped galvanised and painted. In addition all boltable interfaces are directly through the base plate thereby ensuring no threaded steel is open to the corrosive environment. All bolts are supplied with nylocks and spring washers. Fitted with protection at the top to prevent injury to the divers from dropped objects.

**Lifting points** – The basket is fitted with a central lifting point and three additional eyelets for attachment of the basket kellems grip and for emergency recovery.

**Guide wire system** - Stainless steel guide wire guides with nylon bushes are provided for securing the bell to the guide wires.

**Diver Hand Holds** – The basket is fitted with several suitable internal hand holds for divers

**Onboard Gas Supply** - 2x securely mounted 50ltr-200Bar onboard gas supply cylinders with content gauges, 1st stage regulators and demand valves with a SCUBA mouthpiece on a valved flexible hose for air supply.

