CLAMSHELL BARGE OR SHIP UNLOADER

Cell Mounted Electric Powered River Barge Unloader

Ship Mounted Unloader
PLM is a 4-rope, hydraulic, duty cycle clamshell crane with unsurpassed reliability and ease of operations, low operating cost, and low fuel consumption specifically designed for continuous duty cycle clamshell unloading of ships and barges. Crane sizes range from 3 yd to 35 yd.

PLMs use three drums with two wire ropes from each drum. One drum is holding, one is closing, and the third is for the boom. PLM Cranes are available on crawler, rubber tires, pedestal, pontoon, gantry or fixed base platforms, and are available with electric or diesel power. Each crane is custom designed and manufactured to client specifications with their specific application and conditions in mind.

This photograph illustrates the arrangement of the wire ropes and drums. The holding and closing drums each have two wire ropes dead ending on opposite sides of the drum.
PLM cranes have the following features:

- High power using Cat or Cummins diesel engine. Electric power also available.
- 5000 psi hydraulic system running at 2500 psi.
- High capacity hydraulic cooler, 50% of the engine horsepower.
- No frictions, no brakes, no linkage
- Oil filtering on pressure and low pressure side.
- Closed loop hydraulics, one pump for each function of the crane.
- Oversized slew bearing with large rolling elements.
- Automatic lubrication systems.
- Self-contained to retain any spilled fluids inside the machinery house.
- Cast steel sheaves with aluminum bronze bushings.
- All wire ropes contained on one layer on the drums.
- Enhanced cab with heating, A/C and CD player.
- 260 fpm hoisting speed under full load.
- 350 fpm lowering speed.
- Several undercarriage options

**Hydraulics**

The hydraulic systems are closed loop, one pump for each function. 5000 psi is the design pressure, but PLMs run at 2500 psi to ensure the hydraulic pumps and motors will last up to 40,000 hours.
Engine
In order to get high line speeds you need horse power. PLMs are designed to hoist with full load at 250 ft per minute. Lowering speed is 350 ft per minute. PLM will furnish any engine manufacturer requested by the customer (the standard is Cummins or Cat). Engine size is chosen such that with all functions running simultaneously at full demand, only 75% of the engine power is utilized.

Construction of the Upper
The upper is a one piece heavy weldment with massive side girders. The weldment is constructed completely, including the boom hinges, winch mountings and slew bearing mounting flange; and is then line bored and machined.

This type of construction is exclusive to PLM and ensures that all components are maintained in perfect alignment. This is absolutely necessary to achieve the long life needed in a duty cycle crane.
**Automatic Lubrication**
PLM cranes come standard with automatic lubrication systems to ensure that all components are receiving grease as required.

**Camera System**
PLM provides a camera and monitor located in the operator's cab to give the driver a view of the winch drums at all times. He can determine at a glance if the ropes are lying properly on the drums.

**Undercarriage**
Undercarriage components are Caterpillar design. Hydraulic independent track drives are provided with Mannesman Rexroth motors and Lohman final drives. The PLM undercarriage is built to travel daily like an excavator with lifetime lubricated rollers. The crawler side frames are bolted or pinned to the center frame.

**Environmental Features**
PLM cranes are designed to retain all fluids inside the machinery house which is designed as a saveall. If a hose breaks or component fails, loss of pilot pressure is detected and the system immediately shuts down. Any oil that is lost is retained inside the machinery space.

**Operator's Cab and Controls**
The operator's cab is raised hydraulically and can be adjusted to suit the operation. The cab is spacious, is heated, air conditioned, with a cd player or mp3 connection. The crane operates with two joysticks. The right joystick opens and closes the clam and controls hoist and lower. The left joystick controls swing and luff. Buttons may be added to the joysticks for additional functions such as barge moving.
**Clamshell Bucket**

PLM evaluates your application and will supply a clam that suits your needs.

**Corrosion Protection**

Steel fabrications are blasted with steel grit to near white metal with a very deep blasting profile. They are then coated with zinc epoxy followed by two coats of epoxy anti-corrosive. A final polyurethane top coat is added. This system is suitable for service on the sea and is standard on all PLM cranes.

**Parts and Service**

PLM cranes use standard parts supplied by Mannesman Rexroth, Cat, Cummins, and others. There are no parts specific to PLM machines. The part numbers included in the PLM manuals are the original equipment maker's numbers, not PLM numbers so you can buy your parts off the shelf almost everywhere in the world. PLM stocks parts for a complete crane of every size at their factory in the Netherlands. PLM Cranes USA has sales, parts, and service in Granville, Illinois.