

Marine Loading Arms

Model No.1810

A marine loading arm, also known as a mechanical loading arm, loading arm, or MLA is a device consisting of articulated steel pipes that connect a tank ship such as an oil tanker or chemical tanker to a cargo terminal.

A marine loading arm is an alternative to direct hose hookups that is particularly useful for larger vessels and transfers at higher loading rates and pressures. Controlled manually or hydraulically, a loading arm employs swivel joints and can, to some extent, follow the movement of a moored vessel. Many loading arm systems feature quick-connect fittings.

Persian GPE Loading arms can handle both liquids and gases, in a wide range of viscosities and temperatures. Cargoes from liquid sulphur to liquefied natural gas are moved through marine loading arms. Loading arms service vessels in a wide range of sizes, from small river barges to the largest supertankers.

Persian GPE Products are available in various designs, and specific installations can be tailored for a given port based on considerations such as Vessel size , cargo flow rate and cargo temperature. Environmental constraints, such as the range of tide, wind conditions, and earthquake tolerance can also affect choice of loading arm. Persian GPE loading arm installation include add-ons such as hydraulic or manual quick connect couplers, position monitoring systems, emergency release systems, and piggyback vapor return lines.





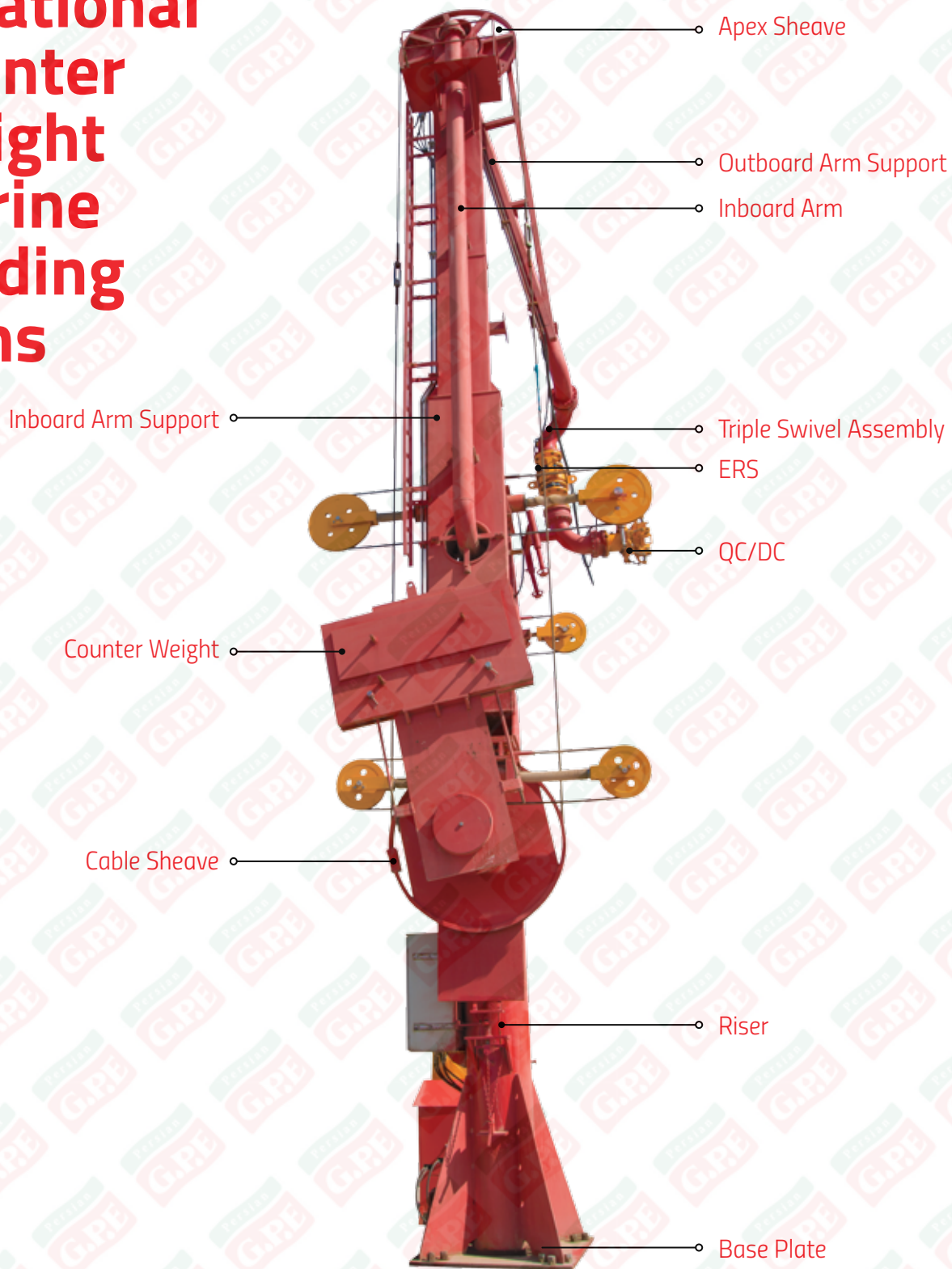
RC (Rotation Counterweight)

Marine Loading Arms

- Easy Operation & Easy Seal Change & Separate Support Structure
- The model RC features a separate support structure with its own generously sized mechanical bearings, which take up all major external load and flexible torque.
- The swivel joints and pipeline only are affected by the stress of internal pressure and weight
- Pipeline is attached to support structure by flexible parts for compensating overstress.
- Counterweight balancing system makes the loading arm to balance in all position, balancing inboard and outboard arm by moving counterweight
- The model RC developed especially to meet the increased requirements for loading critical media. Furthermore, the model can be designed for long reach capability.
- The model RC equipped with three hydraulic driving assemblies for independent movements of the inboard arm, outboard arm and the slewing movements around its vertical axis. The driving assemblies are interchangeable. The 3 cylinders are operated by electro/hydraulic control console. A portable remote control system can also be installed to control the arm movements from other points of the jetty or from tanker's deck.
- The model RC can be equipped with double ball valve or double disk valve / emergency release coupling (DBV/ERC, DDV,ERC) which are automatically actuated when the tanker manifold flange to which the loading arm is connected moves outside the working and safety envelope.
- The model RC marine loading arm can be equipped with QC/DC; it is suitable for different manifold flange of the vessel. In this case, the operation is very conveniently and quickly.
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- The model RC can be equipped with a vapor return line as per client's requirements



Rotational Counter Weight Marine Loading Arms



Electric-Hydraulic Quick Connect/ Disconnect Coupler

QC/DC

The quick coupler attached To front flanged of loading arm end provides a fast and simple way to make connections to vessel flange. The rugged and safe coupler makes up flange connections in seconds without any special tools, bolts or gaskets significantly saving manpower and unproductive hook up time. Also fast for securing blind flange. A standard quick coupler consist of one adapting plate three to eight standard hook assemblies depending upon size and pressure rating of flange. To make an installation the adapter plate contains O-ring seals on sides(Seals materials according to requirements)

ERC (emergency release coupling)

When the arm approaches the limit of the pre-determined working Range (i.e. the angle between inboard and outboard arm $\geq 135^\circ$)

- First alarm, intermittent audio and light alarming
- Sequentially a signal Trans to operator to stop the pump.
- Valve closing and draining valve opening.
- When the arm approaches the limit of maximum operating envelope (i.e. the angle between inboard and Outboard are $\geq 150^\circ$)
- Second alarm, continuously audio and light alarming
- Opening of the ERC, the arm is hydraulically broken in position.



Persian GPE Swivel Joints

Swivel Joints allow the rotation between two items of a product line whilst ensuring no product leakage, when under pressure or vacuum.

Main Characteristics are:

- Used for temperature from -46°C to 232°C
- In situ replaceable snap in ball races
- Used for pressures: ANSI 150, ANSI 300 for compressed natural gas(CNG)

