

KANON has developed an extremely straightforward and robust hydraulic quick connect / disconnect coupler with multi-size capability^{PATENT PENDING} which has proved itself extensively in the field to full satisfaction of terminal operators located from northern territories to (sub) tropical regions.

Another development in marine loading arm technology

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Making ship-to-shore connections easier

The transfer of fluids from a storage facility to a tanker vessel always includes a flexible part. This flexible part is needed to follow the ship's movements in the horizontal plane, like drift and sway, and in the vertical plane as a result of the water level.

Marine loading hoses and marine loading arms are in fact the only two available alternatives to transfer liquids from a storage tank to a tanker.

Ship-to-shore connections made by hoses to load and unload tanker vessels incorporate tear and wear, limited lifetime and relatively inconvenient operation. Automatic emergency release provisions with 'zero' spillage are not or hardly available.

Marine loading arms provide the nearest way to achieve a fully rigid connection with the possibility to follow all the ship's movements by the use of swivel joints in between the steel pipes, in that way



KANON hydraulic QCDC^{PATENT PENDING} can replace existing conventional hydraulic designs

solving the disadvantages of loading hose usage. In addition they can be executed with automatic 'none'-spillage emergency release couplers and powered quick couplers to increase personal safety and to protect the environment.

Marine loading arms of conventional design still have their particular issues, such as a considerable amount of

regular scheduled maintenance and restrictions in loads and leak tightness of swivel joints.

However, latest developments show that modern and well-balanced design of marine loading arms can provide virtually maintenance-free loading arms with extremely reliable swivel joints.

The highly efficient and

symmetric marine loading arms that are marketed by KANON fully comply with these features, with extra attention to a simple and intuitive way of operation.

For easy and comprehensive procedures they will leave the acting operator more time and attention to comply with the local safety procedures and regulations.

How to make the ultimate safe and easy flange-to-flange connection

Close attention should be paid to the actual connection between the flanges of the marine loading arm and the ship, this being a critical event during the loading sequence. The connection can be performed in three ways:

- Bolted flange connecting
- Manual quick connect/disconnect coupler (manual quick coupler)
- Hydraulic quick connect/disconnect coupler (hydraulic quick coupler)

Bolted flange connecting requires the operator to turn a MLA swivel joint to match the hole patterns of both flanges, and the large number of bolts take a considerable amount of time and effort to fasten, especially in case of a high wind speed; a wind speed of 22.5 m/s during operation is a common requirement. Moreover, as a result of the ship's movement the operator turns a risk of squeezing his fingers while trying to move both flanges close to each other.

Manual quick couplers increase the speed and convenience of connecting, but the fact still remains that the connection cannot be made at a remote distance, and that both flanges need to be moved at a very small distance to each other before the coupler can be fastened.

Hydraulic quick couplers offer the possibility of connecting the marine loading arm to the ship's manifold by means of a single push button, from a remote distance.

Moreover there are a number of good reasons to seriously consider using a hydraulic quick coupler:

- Time to connect. Instead of 5 – 20 minutes for a manual coupler or bolted flanges, a hydraulic coupler will take only a few seconds
- Safety. Nobody needs to work next to the manifolds
- Emergency. The hydraulic coupler can easily and quickly be disconnected in situations where operators can not get close to the manifolds
- Residue. If residues still happen to be in the



outboard arm, or the line is still pressurised, the operator can get covered up by the contents when disconnecting manually.

These features are important enough to apply hydraulic quick couplers wherever reasonable possible.

However, conventional hydraulic couplers which have been marketed throughout the years are very expensive and complex and often require OEM service personnel for maintenance and repairs.

On the way to a maximize convenient and safe ship-to-shore connection, KANON has developed a hydraulic quick coupler with multi-size capability^{PATENT PENDING}, which eliminates all mentioned issues involved in using the manual type or the hydraulic types which are currently available on the market. A few features:

- The clamps are completely protected by the guidances.
- The clamps will grab the

ships flange from a distance of not less than approx 80mm (for a 16" 150# flange).

- The clamps will stay positively locked by a self-limiting thread in case the hydraulic power fails.
- The clamps can be disconnected manually in case the hydraulic power fails.
- The clamps are all single units and are exactly the same for a wide range of flanges diameters (6" – 20" and larger). In case of failure of one of the clamp units, there is no need to replace the whole coupler, only the concerning clamp unit needs to be replaced.
- The KANON hydraulic quick coupler with multi-size capability^{PATENT PENDING} can be made suitable for two sizes smaller: within only 5 minutes and without any tools, some adapter pieces will transform a 16" coupler into a 12" or even a 10" quick coupler.

**Top: kanon - Marine arms need to follow the ship's movements
Left: kanon - Kanon hydraulic quick couplers**

- The same coupler can be made suitable for all possible applications, from heated applications down to cryogenic service.
- Attractive, reasonable price level.

The greatest thing is the simple, straightforward design. The clamp units are very robust and need basically no maintenance. If any work on the clamp units might be needed, everything including replacement of a clamp unit can easily be done by the terminal's own maintenance crew instead of calling in for help from OEM service personnel.

And because the weight is relatively low, the KANON hydraulic quick coupler with multi-size capability^{PATENT PENDING} can replace existing hydraulic ones of conventional design already installed on marine loading arms, to increase the ease of connection and almost eliminate further maintenance costs.

In case your aim is to achieve the safest and most convenient ship-to shore connection, please visit our website at www.kanon.nl to make an appointment for a demonstration. ●

MORE INFORMATION

■ www.kanon.nl