

Demonstration facility in Nagaoka (Niigata Prefecture) Factory

Demonstration for Automatic connection of Loading Arm with Dynamic Test Bench with 3-dimensional movement



Dynamic Test Bench

By inserting sea status and vessel data in the Dynamic Test Bench, we can virtually recreate tanker manifold movement anywhere in the world whether in the Pacific Ocean or in the Gulf of Mexico

 **TB Global Technologies Ltd.**

 **TOKYO
BOEKI**

TB-NIIGATA

70 YEARS OF EXPERIENCE IN ENERGY TRANSFER

CHOKUSEN

Automatic Connection System

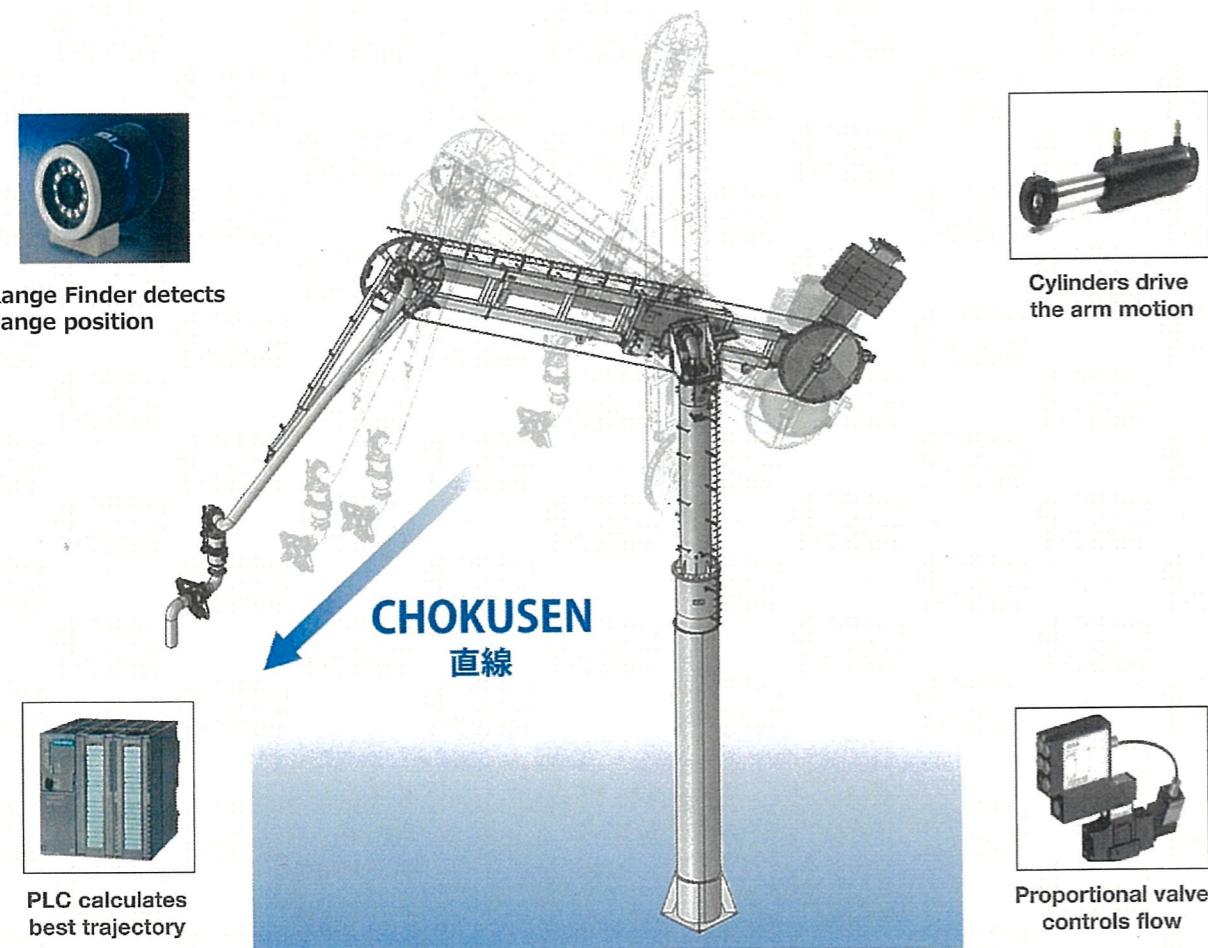
CHOKUSEN is a distinctive and enhanced feature that allows the loading arm to move straight to the ship manifold mating flange and can ensure automatic connection for both onshore and offshore applications.



 **TB Global Technologies Ltd.**

Technologies for Ship to Ship Transfer, Safety enhancement and Labor savings

Originally the Choksen System was developed to simplify and safely perform complex connection operations in short time, which are awkward for humans to execute, as both the FLNG and the LNG tanker are in motion. It is also true that this system contributes to safety enhancement and labor savings through its automated connection capability. (Ships Masters supervision is required by regulation)



	Conventional MLA	Chokusen
Operation Details	<p>The command corresponds to the movement of one cylinder ⇒ Operator must always estimate and 'correct' the trajectory ⇒ Arm to ship connection is not easy and requires skilled operator</p>	<p>The command corresponding to simultaneous movement of three cylinders ⇒ The control calculates the ideal trajectory ⇒ Arm to ship connection is facilitated, thus faster</p>

CHOKUSEN AUTOMATIC CONNECTION



1. Start

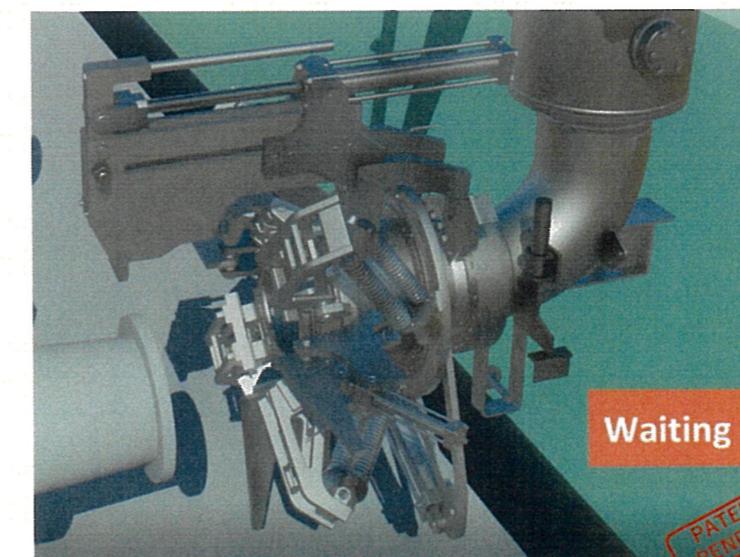


2. Observation

Learning movement of manifold



Range Finder View



3. Waiting
for the best timing to hook



4. Hooking and Clamping