



Demonstration facility
Dynamic Test Bench
in Nagaoka (Niigata Prefecture) Factory

Demonstration for Fully Automated Connection System by full scale 16" MLA and Dynamic Test Bench with 3-dimensional movement.



Dynamic Test Bench

Based on sea status, vessel characteristics and loading conditions, the Dynamic Test Bench, can simulate the tanker manifold motion anywhere in the world whether in the Pacific Ocean or in the Atlantic Ocean.



 **TB Global Technologies Ltd.**

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TB-NIIGATA

OVER 70 YEARS OF EXPERIENCE IN ENERGY TRANSFER

CHOKUSEN

means "straight" in Japanese

Fully Automated Connection Solution



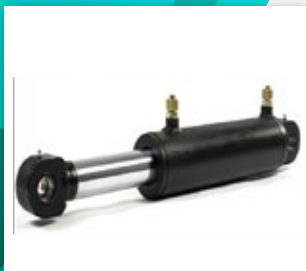
Technologies for Ship to Ship Transfer, Safety enhancement and Labor savings.

Fully Automated Connection Solution

Originally, CHOKUSEN was developed to simplify and safely perform complex connection operations-which are difficult for humans to manage when both the FLNG and LNG tanker are in motion-without mechanical link between the FLNG and the LNG tanker.



Range Finder detects flange position



Multi Cylinders Simultaneously drive the arm motion



Proportional valve controls flow



PLC calculates best trajectory

Furthermore, this system is a distinctive, enhanced system that contributes to improved safety and labor savings both onshore and offshore through its automatic connection function, which directly moves the loading arm to the mating flange of the vessel manifold.



CHOKUSEN AUTOMATIC CONNECTION



① Start



② Observation
Analyzing movement of manifold



③ Final Approach & Waiting
for the best timing to hook



④ Hooking and Clamping