

bluewater

# CALM Buoy

From standardized design to custom needs



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## Standard/custom design

For more than 35 years, Bluewater has successfully designed and delivered very cost effective Turret Buoys to recognized marine terminal operators, oil majors and refineries worldwide, to allow offshore and near shore loading and/or offloading tankers of any size.

The Turret Buoy is a field proven system showing flexible operability and extremely low maintenance thanks to its high quality and technology. This system remains the preferred choice of our clients. Bluewater offers a standard Turret Buoy design, allowing quick turnaround and short delivery times. Standardized options are also available for our Turntable buoy.

### Deckhouse

The Turret Buoy is provided with a deckhouse. The main bearing and other mechanical and electrical components are located inside the deckhouse. This lay-out enables the client to operate the buoy with extremely low maintenance.

### Hose system

Hose system connection to midship manifold of vessel allows the transfer of fluids of any kind and size, from Handymax to VLCC.

### Flat deck

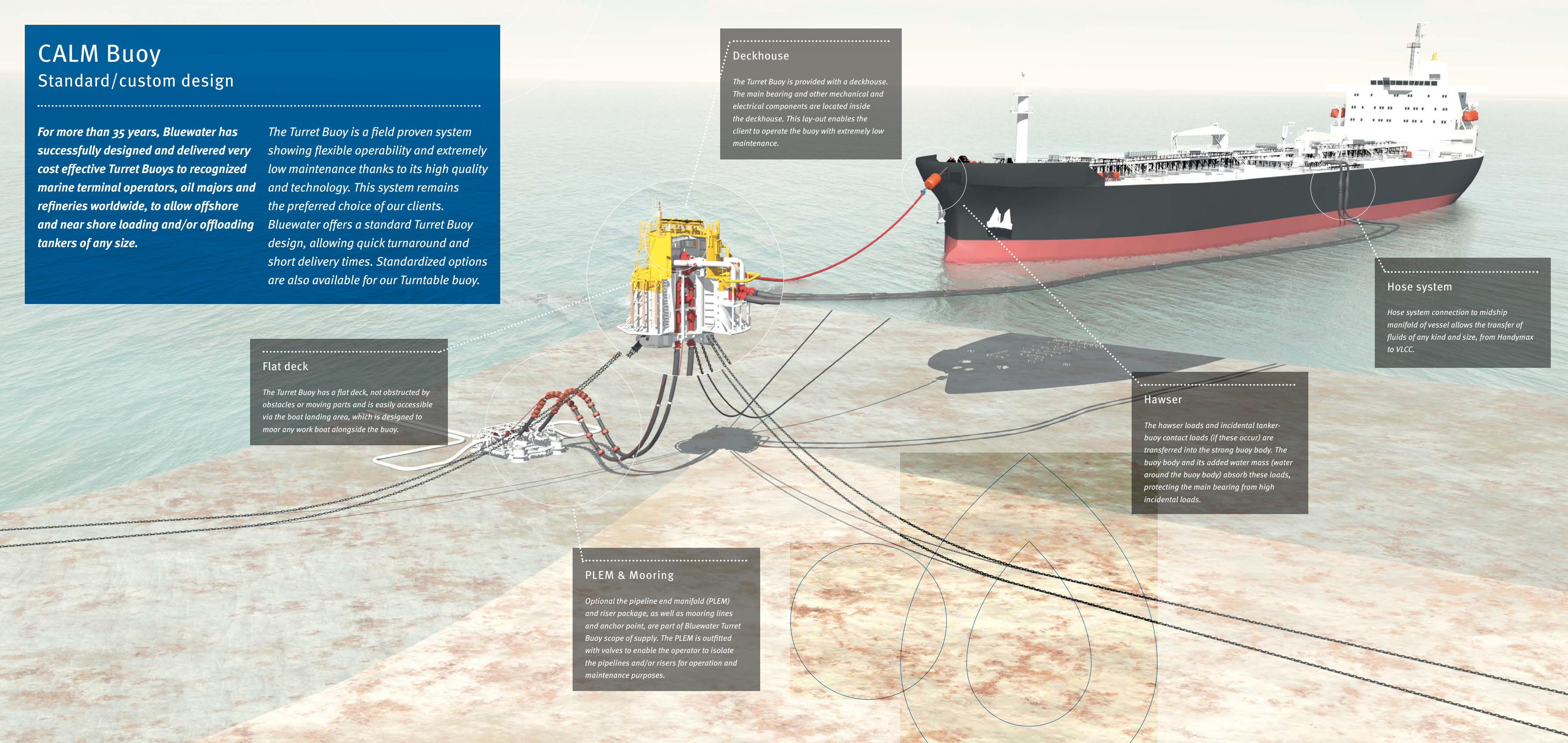
The Turret Buoy has a flat deck, not obstructed by obstacles or moving parts and is easily accessible via the boat landing area, which is designed to moor any work boat alongside the buoy.

### Hawser

The hawser loads and incidental tanker-buoy contact loads (if these occur) are transferred into the strong buoy body. The buoy body and its added water mass (water around the buoy body) absorb these loads, protecting the main bearing from high incidental loads.

### PLEM & Mooring

Optional the pipeline end manifold (PLEM) and riser package, as well as mooring lines and anchor point, are part of Bluewater Turret Buoy scope of supply. The PLEM is outfitted with valves to enable the operator to isolate the pipelines and/or risers for operation and maintenance purposes.



# General Specifications

## Buoy & Tanker

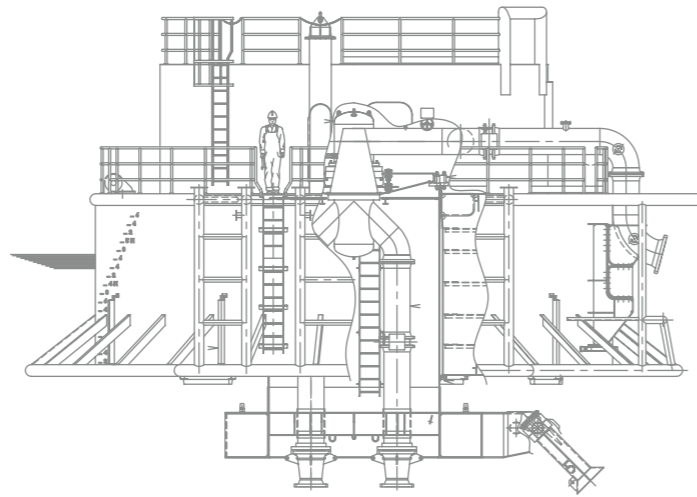
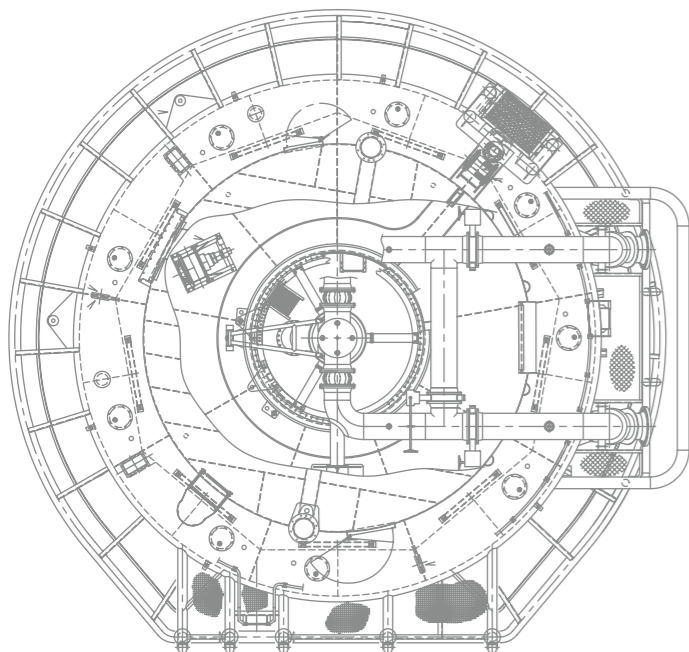
<b>Hull diameter</b>	12m
<b>Hull height</b>	4.4m
<b>Mooring configuration</b>	6 x 1 leg
<b>Number of water tight compartments</b>	9
<b>Piping</b>	24 inch – ANSI 300 lbs flanges
<b>Boat landing</b>	Included
<b>Overall Weight</b>	250 T incl. ballast
<b>Tanker size</b>	From Handymax to ULCC
<b>Certification</b>	ABS

## Product transfer

<b>Number of flow paths</b>	Dual product Paths
<b>Swivel size</b>	36 inch
<b>Type of liquids</b>	Stabilized crude and refined hydrocarbon products
<b>Design temperature</b>	-5 to 85 degrees
<b>Pressure rating</b>	Compatible with ANSI 300 lbs
<b>Piping and valve class</b>	ANSI Class 300 lbs

## Environment

<b>Water depth</b>	20-100m
<b>Ambient temperature</b>	-5 to 50 degrees



## Installation aids

<b>Chain tensioning</b>	Hydraulic winch
<b>Working load</b>	10,000 kg on 3 <sup>rd</sup> layer
<b>Line speed</b>	10m/min on 1 <sup>st</sup> layer
<b>Wire on drum</b>	85m, 20mm cable in 3 layers
<b>Power pack</b>	No (available from installation vessel)

## Buoy options

<b>Surge Protection System</b>	Surge Tanks, including surge valves prevent excessive pressure during a surge event
<b>Load Monitoring</b>	Hawser Load Monitoring System, which monitors the hawser load and emits an audible and visible signal if a certain load limit is exceeded.
<b>PLEM Control System</b>	Hydraulic Pressure Unit (HPU) to operate the PLEM Valves

## Optional system components

<b>Mooring system</b>	Mooring legs, Anchors and Hawser arrangement
<b>Hoses</b>	Submarine and Floating Hose arrangement
<b>PLEM</b>	Pipeline End Manifold
<b>Extended Buoy Control</b>	Telemetry System to monitor and operate the SPM system
<b>Umbilical</b>	Hydraulic link between SPM and PLEM to operate PLEM valves

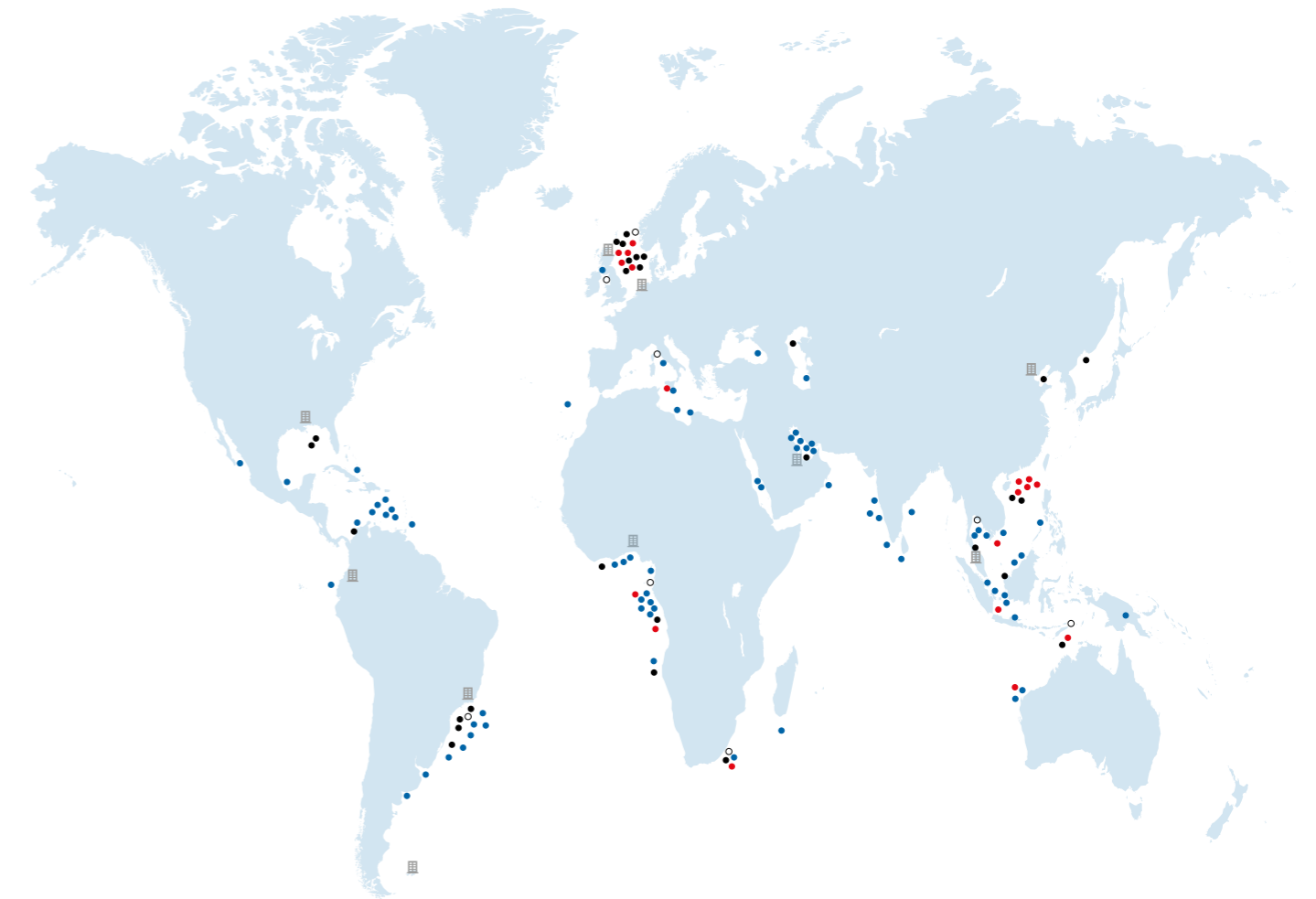
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# References



■	Bluewater Offices
●	FPSO & FSO Systems: 20+
●	Turret & Tower Mooring Systems: 35+
●	Buoy Terminal Systems: 100+
○	Swivel Stacks: 20+



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