

bluewater

# Advanced Loading Tower





# The Advanced Loading Tower

*The Advanced Loading Tower (ALT) enables safe and year-round (off) loading of tankers with bow station offshore, both in open sea and ice-infested waters without the need for a harbour or breakwater. The large diameter, aerial hoses enable year-round transfer of hydrocarbons as well as cryogenic liquids like LNG and LH2. The Tower rotates unrestricted either actively or freely when the tanker is connected. It features highly specialized structures, materials and equipment being field proven in worlds' coldest and most remote locations.*

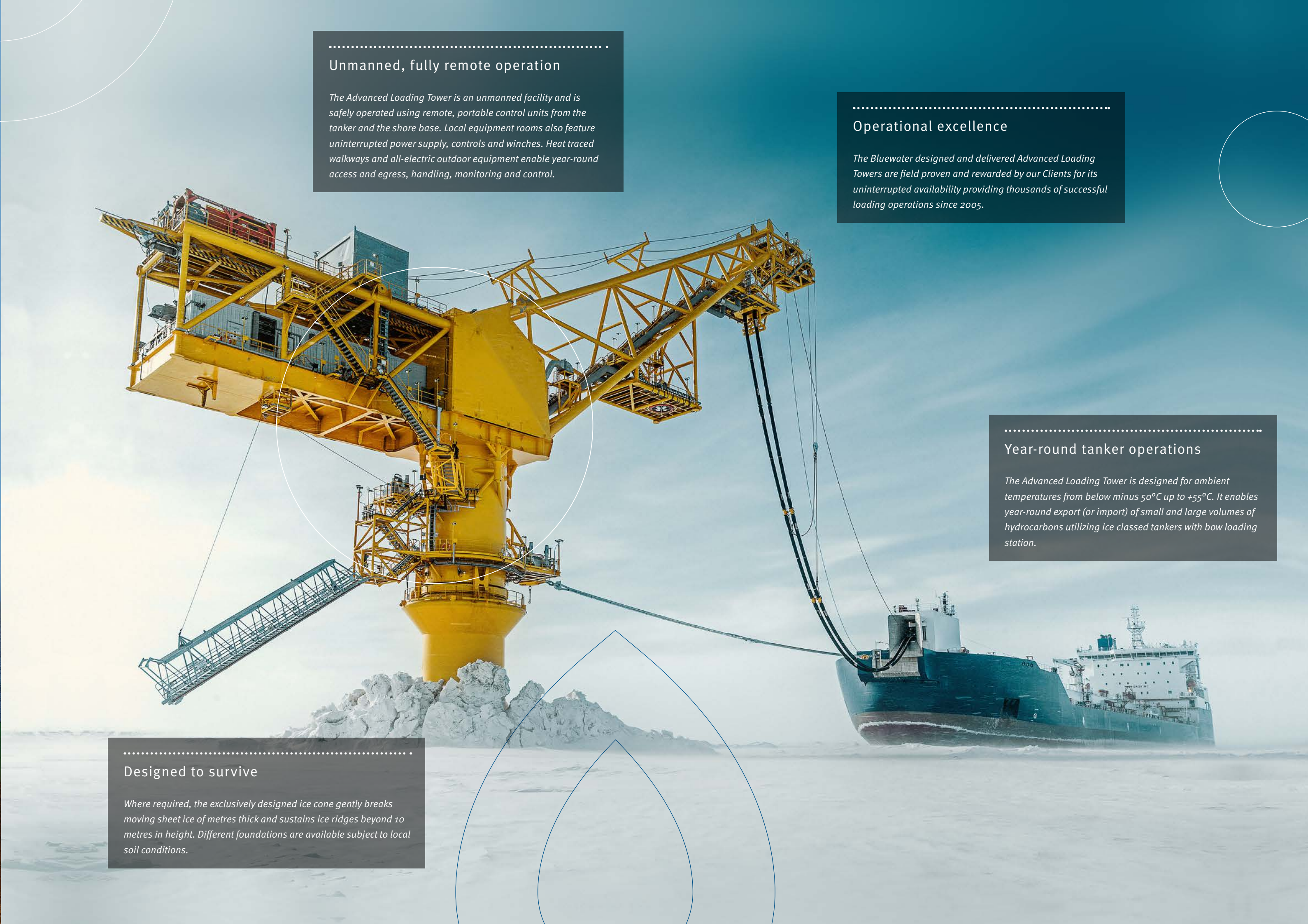


## Unmanned, fully remote operation

*The Advanced Loading Tower is an unmanned facility and is safely operated using remote, portable control units from the tanker and the shore base. Local equipment rooms also feature uninterrupted power supply, controls and winches. Heat traced walkways and all-electric outdoor equipment enable year-round access and egress, handling, monitoring and control.*

## Operational excellence

*The Bluewater designed and delivered Advanced Loading Towers are field proven and rewarded by our Clients for its uninterrupted availability providing thousands of successful loading operations since 2005.*



## Year-round tanker operations

*The Advanced Loading Tower is designed for ambient temperatures from below minus 50°C up to +55°C. It enables year-round export (or import) of small and large volumes of hydrocarbons utilizing ice classed tankers with bow loading station.*

## Designed to survive

*Where required, the exclusively designed ice cone gently breaks moving sheet ice of metres thick and sustains ice ridges beyond 10 metres in height. Different foundations are available subject to local soil conditions.*



# Specifications

## Advanced Loading Tower

<b>Tanker range:</b>	Up to VLCC size and Q-Max LNGC
<b>Tanker configuration:</b>	Bow loading station
<b>Tanker type:</b>	Conventional or ice class
<b>Arctic configuration:</b>	With ice breaking cone
<b>Hose &amp; hawser transfer:</b>	Remotely operated winches on the Tower
<b>Hawser:</b>	Single or double hawser
<b>Tower rotation:</b>	Unrestricted, electrical driven and passive (free) weathervaning when tanker connected
<b>Power &amp; utilities:</b>	From shore through subsea umbilical
<b>Communications:</b>	Through subsea umbilical or telemetry

## Operations

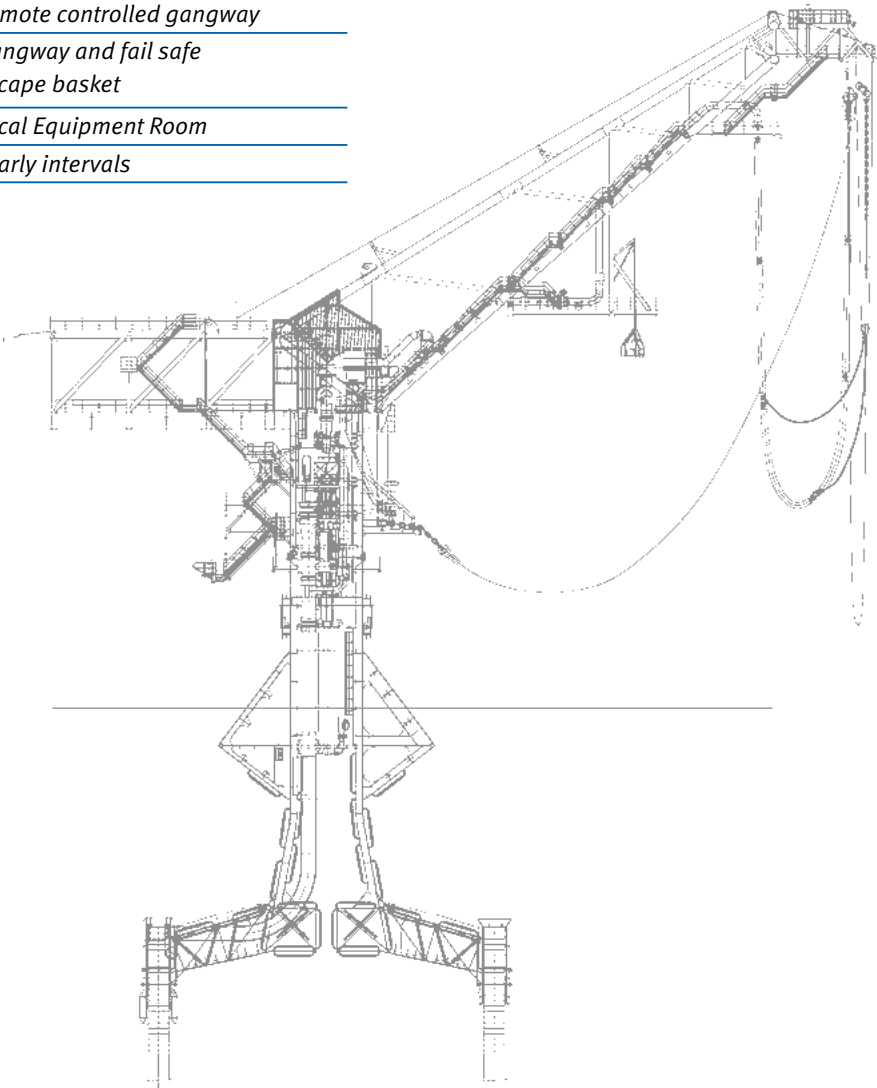
<b>Control:</b>	Fully remote controlled and monitored from portable telemetry units and shore station
<b>Access:</b>	Remote controlled gangway
<b>Egress:</b>	Gangway and fail safe escape basket
<b>Shelter:</b>	Local Equipment Room
<b>Planned maintenance:</b>	Yearly intervals

## Product transfer

<b>Pipeline:</b>	Single or multiple
<b>Pipeline pigging:</b>	Loop configuration
<b>Swivel:</b>	Multipath, up and beyond 36 inch
<b>Transfer rate:</b>	Typically up to 12,000 m3/hr
<b>Hoses:</b>	Single or multiple aerial hoses
<b>Products:</b>	Conventional, refrigerated and cryogenic hydrocarbons (and hydrogen/ammonia/CO <sub>2</sub> )
<b>Vapor return:</b>	Optional
<b>Design temperature piping:</b>	- 196°C to + 130°C
<b>Pressure rating:</b>	Typically 150# or 300# class
<b>Piping material:</b>	CS / LTCS / SS or Duplex

## Environment

<b>Water depth:</b>	10 – 35 meter (not limited to)
<b>Ambient Temperature:</b>	- 50°C / + 55°C
<b>Suitable for:</b>	Benign and harsh environment, arctic environment



## References

