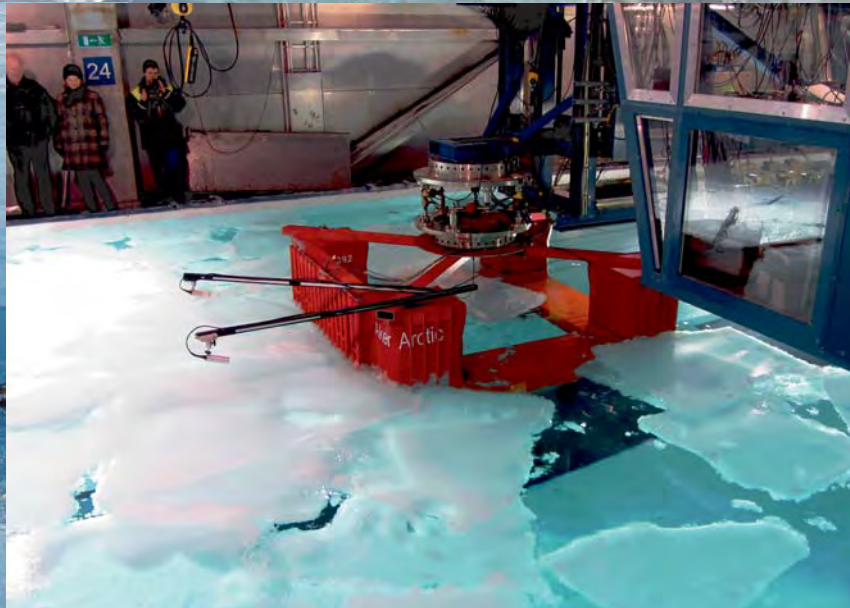


# Aker Arctic

*Ensure Your operations with*

# Aker Arctic Offshore Services



Aker Arctic Offshore provides services in Ice loads, Ice Management, Ship and Structure design and Winterization and Model testing.

Our comprehensive knowledge in Ice and in freezing climate is essential when operating in Arctic areas.

In icy offshore our services are widest.

**The Ice Technology Partner**

# Aker Arctic's experience in offshore ensures safe and economical operations

## Aker Arctic Offshore Services:

- Ice data & weather
- Ice management
- Ice load calculations
- Ice breaking
- Operational windows
- Supply operations
- Winterization
- Offshore concepts
- Model testing
- Oil spill combatting
- Platforms
- Drillships



Harbour operations and structure planning



Icebreaking supply vessels



Ice management



Ice operation planning and vessel designs

## More than 1 300 designs and tests over 45 years

**Aker Arctic Offshore** solutions have provided the backbone of today's environmentally safe and cost-effective Arctic industry for decades.

In offshore, our unique knowledge of ice, cold weather and climate conditions means we can meet all of our customers' needs in a variety of fields.

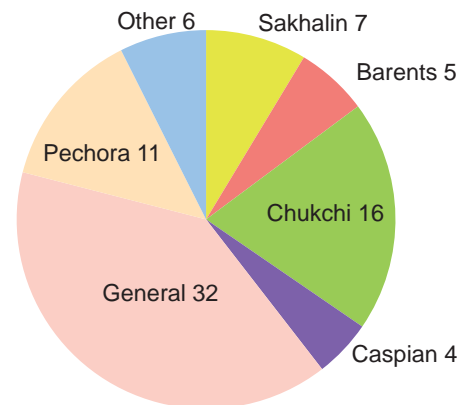
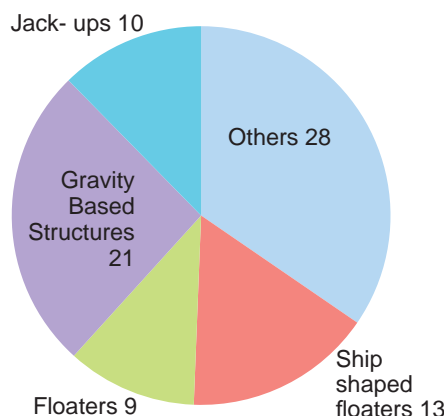
Aker Arctic has more than 45 years of systematic experience in developing ships for efficient operation in ice through design, model testing, full-scale testing, collecting of ice data and assistance in ship construction.

Our full-scale correlation database is the widest in the world.

We can be your ideal partner, from preliminary concept evaluation to construction supervision.

Concept Type	Number of different structures	Tested Ice Condition				Total
		Level ice	Floe ice/ managed ice	Ridge/ rubble	Other ice conditions (2)	
Floater	9	50	12	18	0	80
GBS:s	21	188	83	21	25	317
Jack-up	10	162	17	98	0	277
Ship shape	18	80	7	219	1	307
Other (1)	28	107	46	133	72	358
<b>Total</b>	<b>81</b>	<b>567</b>	<b>165</b>	<b>489</b>	<b>98</b>	<b>1339</b>

- (1) Jackets, artificial islands, rubble generators, loading arrangements etc.  
 (2) Ice channels, multi-year ice fragments etc.



A total of 81 structures (left) for different sea regions (right) have been tested in Aker Arctic's ice model basins.

# We have comprehensive references in offshore operations



■ Multimodel tests



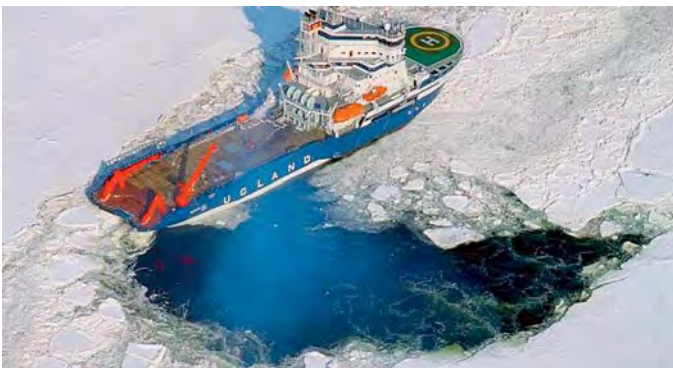
■ Mooring



■ Drillships



■ Structures



■ Dynamic positioning



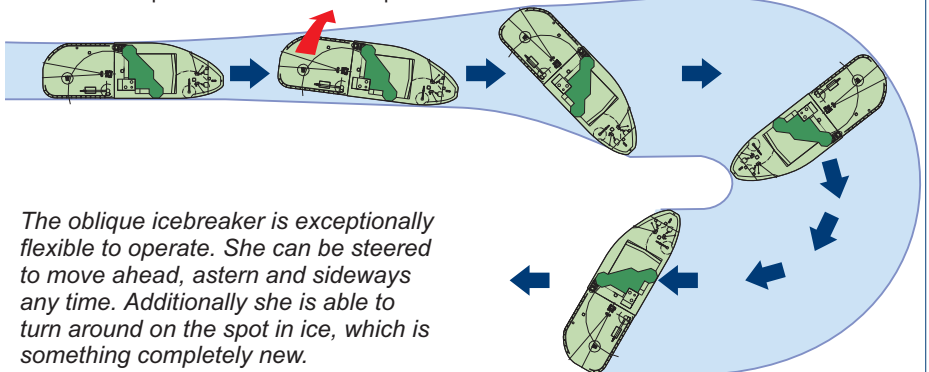
■ Loading towers



■ Oil spill combatting

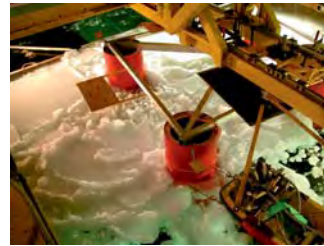
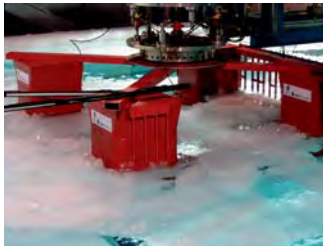
Harbour operation assistance:  
breaking space for manoeuvring operation in harbour area

1. In level ice at maximum speed
2. Start to create wider channel by turning to oblique mode with full power
3. Proceeding sideways
4. Turning around



*The oblique icebreaker is exceptionally flexible to operate. She can be steered to move ahead, astern and sideways any time. Additionally she is able to turn around on the spot in ice, which is something completely new.*

## Aker Arctic Technology Inc - The Ice Technology Partner



### Aker Arctic Technology Inc

Aker Arctic is specialized in development, design, engineering, consulting and testing services for ice-going vessels, ice-breakers, offshore structures, marine transport solutions and harbours.

Company operates a special ice model testing facility in Helsinki.

The Aker Arctic full bridge Ice Navigation Simulator provides real-time reactions and realistic features for training ice navigation and offshore operations.

### Areas of core competence

- Vessel designs for arctic offshore
- Offshore structure analyses and engineering
- Winterization of rigs, vessels and structures
- Ice load calculations and ice modelling
- IMP: Ice Management Plans for offshore applications
- OSR: Oil Spill Response studies and plans
- Aker Arctic Ice Simulator

### References

The Company has designed a number of successful ship concepts and logistic solutions for Arctic operations.

References include 60% of the world's icebreakers, many Arctic or Antarctic research vessels, and a large variety of cargo vessels and concepts for offshore structures.

Aker Arctic has performed hundreds of model scale and full-size ice tests during 45 years of ice model testing services.

