DesCan – Canned Deepwell Pump (CDW)

Reliable transfer of liquefied CO_2

New Green Solutions

DESMI
Make life flow

Critical Value Chain

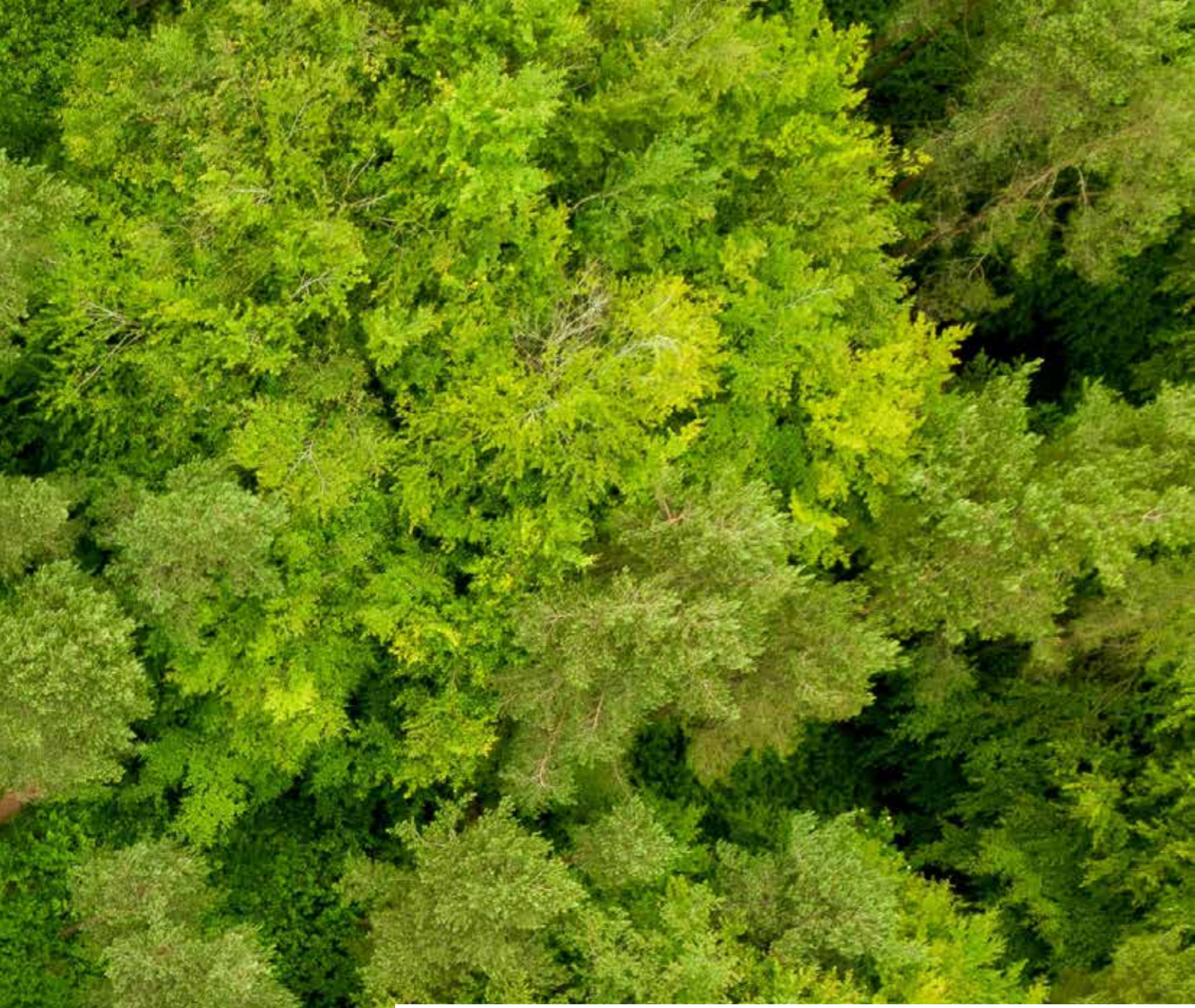
Carbon capture and storage infrastructure is expanding rapidly

Reliable transfer of liquefied CO_2 between capture plants, storage tanks, pipelines and ships is a critical part of the value chain.

DESMI's DesCan pump is developed specifically for these applications. The design builds on DESMI's experience with deep well cargo pumps and combines proven hydraulic principles with a configuration optimized for CO_2 terminals and hub infrastructure.

The pump is installed in a can or sump below liquid level. This ensures flooded suction conditions and stable hydraulic operation even in systems with very low available NPSH.

Typical use cases include CO_2 hubs, ship loading terminals, truck unloading stations and transfer to pipelines and intermediate storage.



CONTENT

Designed specifically for liquified CO_2

Vertical pumps in gas terminals

Most vertical pumps used in gas terminals originate from LNG or LPG service, where the physical properties of the fluid are significantly different from those of liquefied CO^2.

Liquefied CO_2 behaves differently in several important ways:

- Higher fluid density and increased hydraulic loads compared to typical LNG and LPG applications
- Very low NPSH margins and operation close to saturation conditions, requiring careful hydraulic design
- Higher sensitivity to local flashing at the pump inlet, impacting stability and performance

Key design considerations include:

1. Suction geometry engineered to prevent local flashing
2. Hydraulic design optimized for high density fluids
3. Stable operation at extremely low NPSH conditions
4. Controlled inlet conditions through the can mounted configuration
5. Materials and sealing concepts suited for low temperature CO_2 service

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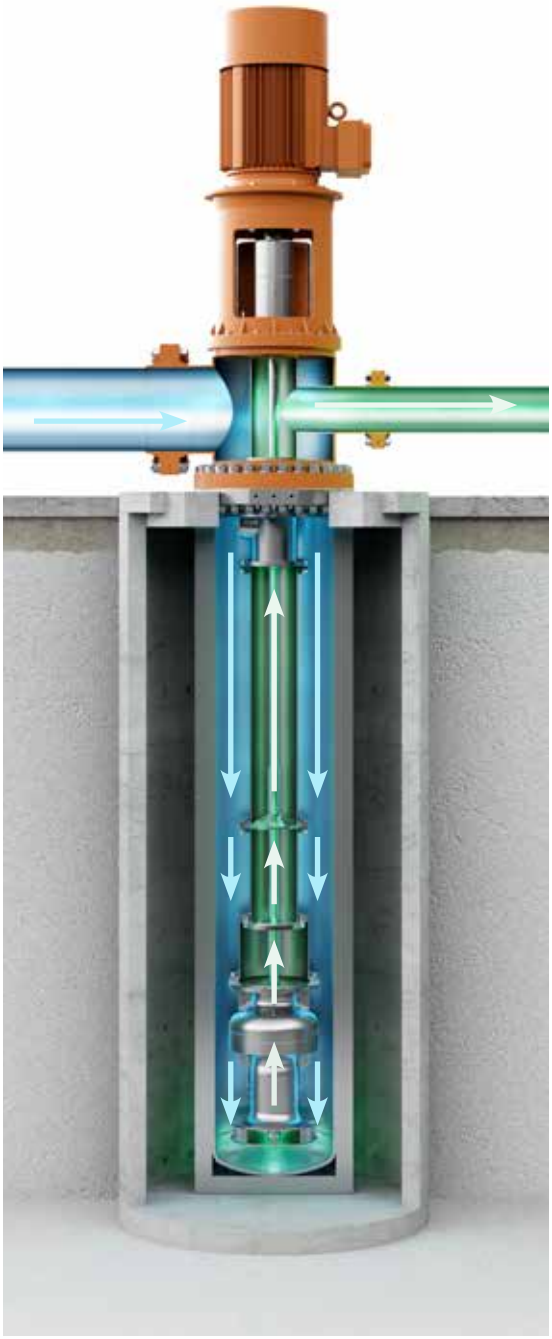


Technical Specifications	
Pump Type	Can mounted vertical pump (API VS6 concept)
Flow range	80 to 1200 m^3 per hour
Head	Up to 200 mLC
Temperature range	+50° C to -100° C
Materials	Stainless steel 304 or 316
Sealing	Dual mechanical seal, API Plan 53C, other options available
NPSHr	0.2m or lower depending on configuration

The can geometry and suction nozzle design are engineered and CFD verified to ensure stable single phase inlet conditions and to prevent local flashing.

Inlet flow

Outlet flow

Key features

Engineered for reliable operation, safe liquid handling, and simplified maintenance.

Extremely low NPSH requirement

The hydraulic section is installed below liquid level and operates under flooded suction conditions. This allows stable operation even in challenging suction systems.

No priming required

The pump is permanently flooded by design which eliminates the need for priming systems and auxiliary equipment.

High operational reliability

Submerged hydraulics operate under stable suction conditions independent of surface piping variations.

Compact footprint

The vertical configuration allows high hydraulic performance without occupying large horizontal space.

Service friendly design

Motor, thrust bearing and mechanical seal are located above liquid level which simplifies inspection and maintenance.

Eliminates pump pits

Unlike many horizontal pump installations, the can-mounted vertical design eliminates the need for pump pits to secure NPSH. The pumped liquid is contained below grade inside the pump can, reducing the risk of CO_2 accumulation, leaks and spray in confined spaces, and improving safety during service and maintenance.

Design your system around your processes – not around the pump

The can-mounted vertical design gives engineers greater flexibility to design terminal layouts based on process requirements rather than pump limitations. This can reduce system complexity, minimize civil work and contribute to a lower overall CAPEX.

System Value

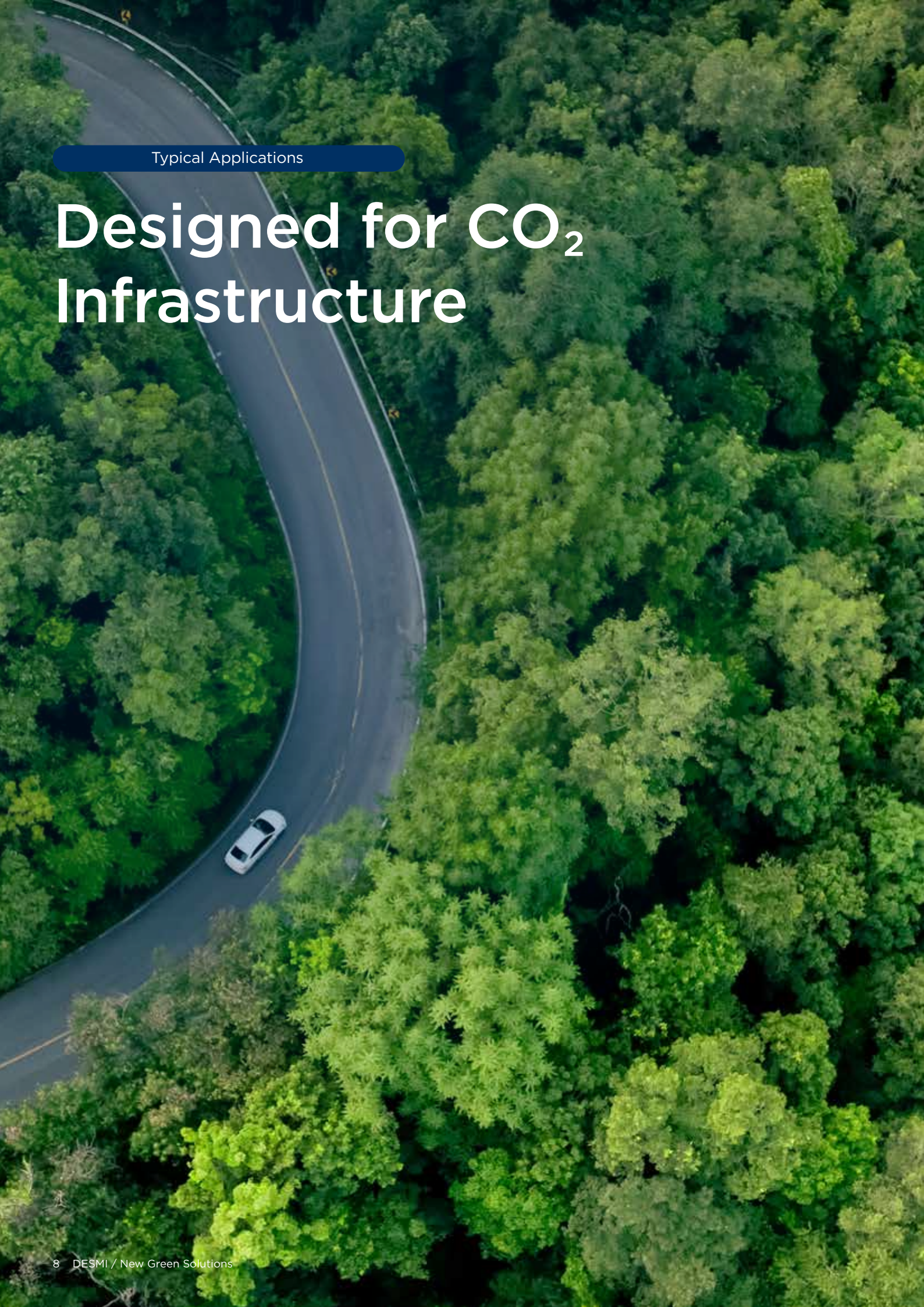
Traditional horizontal pumps often require complex suction arrangements, priming systems and careful tank elevation to maintain sufficient NPSH.

The can-mounted vertical design removes many of these constraints by placing the hydraulic section below the liquid level, enabling a simpler and more robust system layout.

In practice, this results in a more flexible plant design with fewer layout limitations and more predictable, stable long-term operation. It also supports higher availability for terminal operators while reducing overall operational complexity.

Key benefits include:

- Greater design freedom with reduced need for civil work and elimination of pump pits in typical installations
- Lower project complexity and cost, with less redesign during FEED and detailed engineering and potential CAPEX reductions



Typical Applications

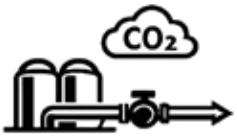
Designed for CO_2 Infrastructure

Designed for CO_2 hubs, export terminals, and pipeline interfaces

The can-mounted vertical pump provides stable operation while simplifying plant design and infrastructure requirements.

CO_2 hubs

Centralized hubs receiving CO_2 from multiple capture sites including truck unloading and buffer storage transfer.



CO_2 pipeline interface

Transfer between storage systems and onshore or near shore pipelines with stable continuous operation.

CO_2 export terminals

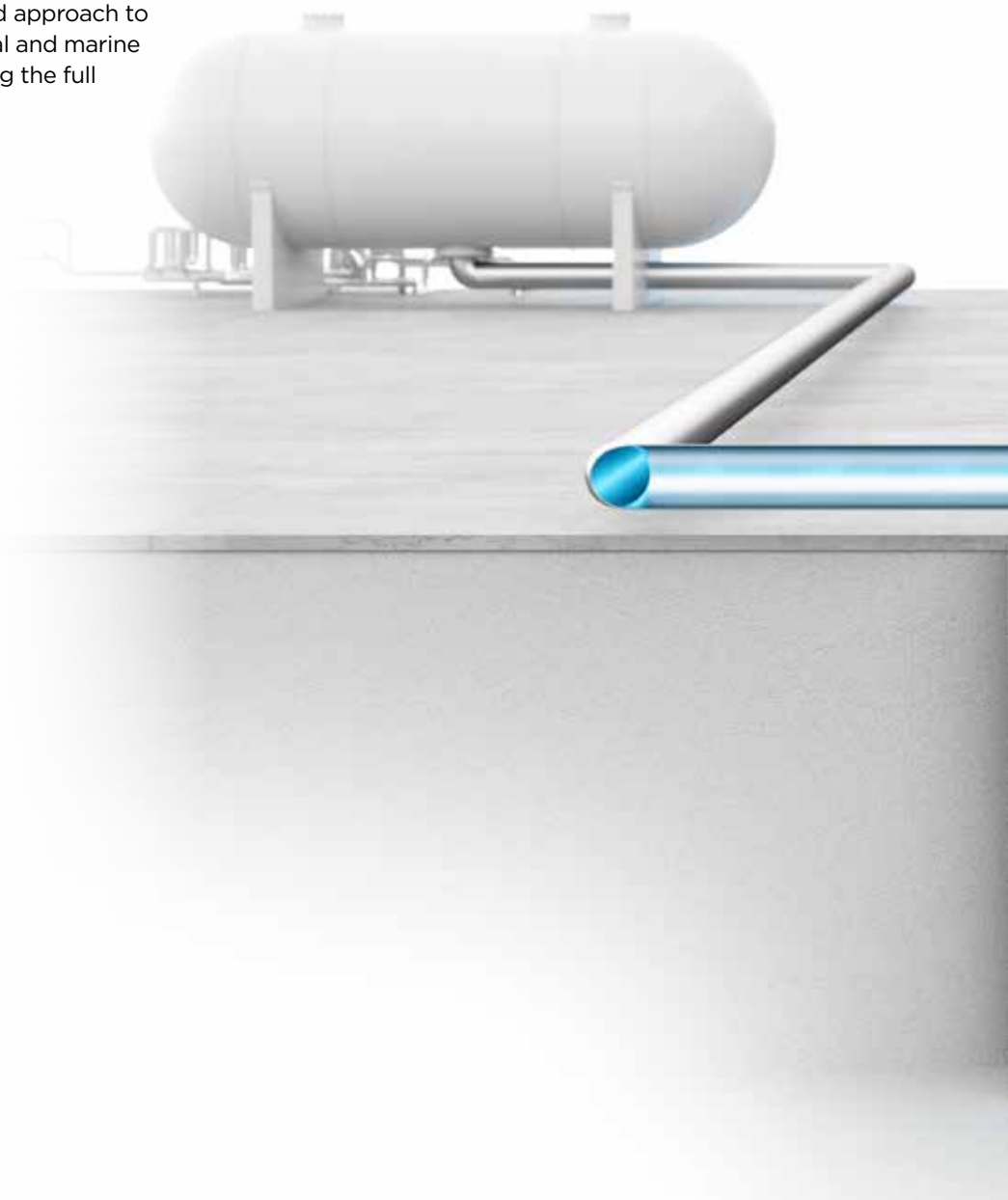
Liquefied CO_2 transfer from storage tanks to ship loading systems including batch transfer and ship loading operations.

Captured CO_2

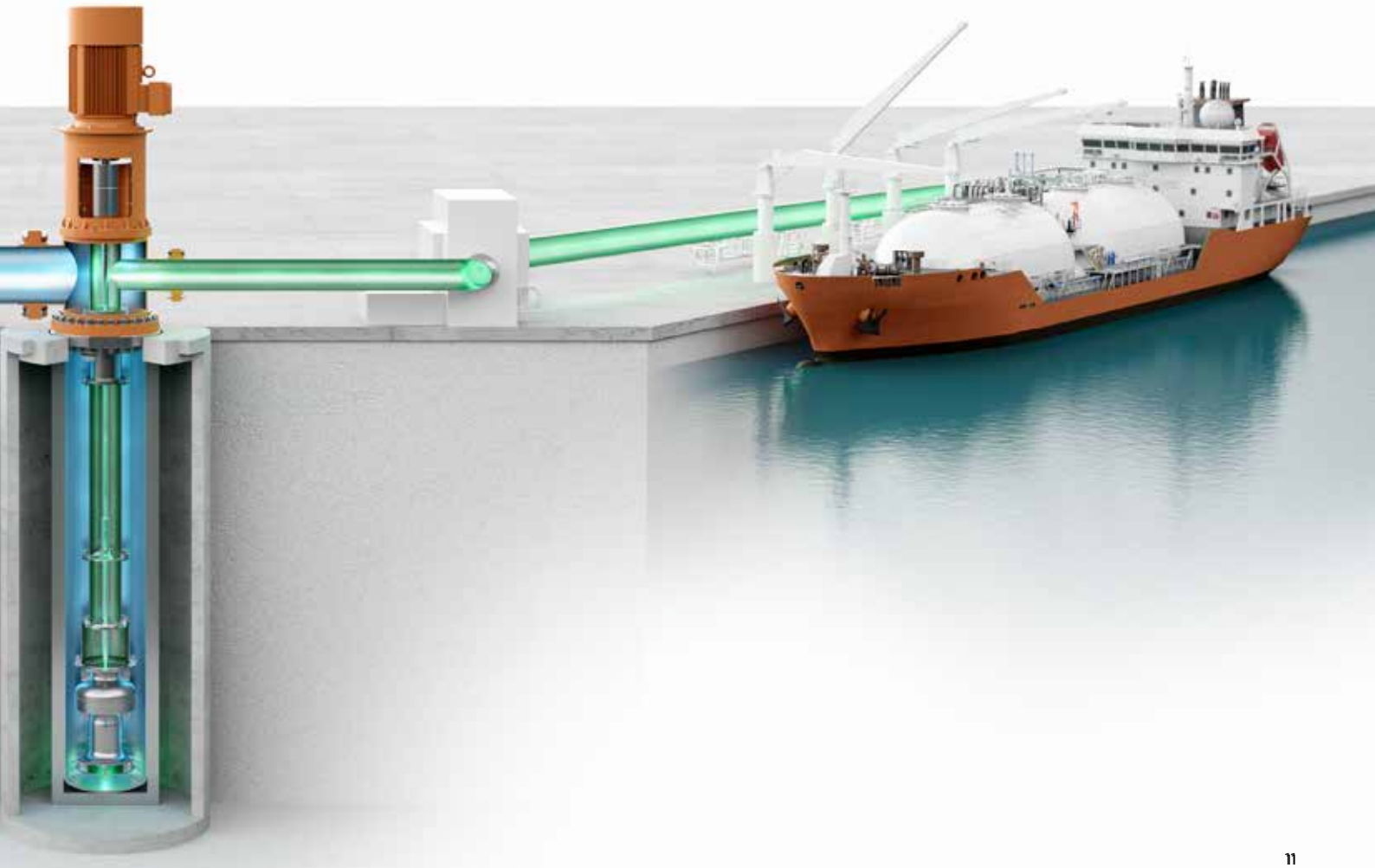
Typical CO_2 Terminal Transfer System

Captured CO_2 is transported to terminal facilities where it is temporarily stored and transferred for further transport or permanent storage. The pump installation enables reliable transfer of liquefied CO_2 from storage tanks into pipelines or ship loading systems.

DESMI also supplies deepwell cargo pumps for CO_2 carriers, supporting onboard transfer operations. This enables a consistent and integrated approach to liquid CO_2 handling across both terminal and marine applications – with one supplier covering the full transfer chain.



The pump installation enables reliable transfer of liquefied CO_2



We exist to keep your business flowing

With decades of proven expertise in handling challenging fluids, DESMI delivers trusted high-performance solutions for CCS projects and CO_2 transport and terminal infrastructure worldwide.. Our pumping technologies and extensive experience ensure safe and efficient carbon capture and storage, helping industries accelerate their transition to a low-carbon future.

At DESMI, our focus has never been on discovering what we can do – it's about pushing the boundaries of what we can do for you. Our class-leading equipment, solutions, and services are designed specifically for your applications and help you achieve your objectives, even in very complex applications.

Founded in Denmark in 1834, we have provided the expertise, solutions, and aftermarket support our customers need for nearly two centuries. We help you reduce climate impact and contribute to a decarbonized future whilst realizing your ambitions for reliable performance, compliance, and growth.

Together, we can make a difference, whatever the future holds. Because we, like you, are here to **make life flow**.

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