

Celebrating 125 years

**MALIN  
ABRAM**

Established in 1899

# CONTRACT RECORD M345-CR-01

**3RD PARTY ASSURANCE**

*Linde*



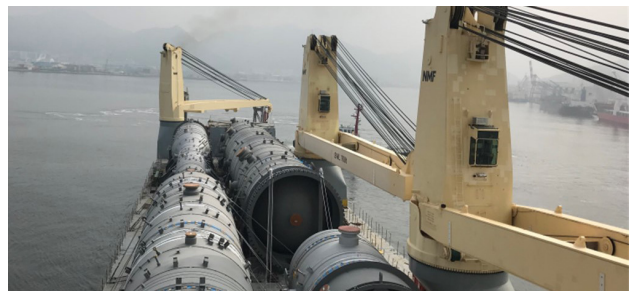
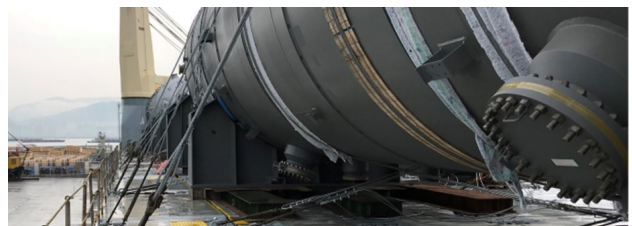
# CONTRACT RECORD M345

- **Scope:** To act as third party surveyor looking after Linde needs during the heavy lift, securing and transhipment operations in Masan, S. Korea.

Malin Abram's extensive experience in barge operations, barge towage and marine transportation helped to influence the transport engineering to ensure safe and timely delivery of all cargo. Malin Abram's scope included review of transport engineering documents, such as lifting:

- Heavy Lift Vessel (HLV) and barge vessel stowage plans
- Lifting method statements and calculations
- Cargo transportation accelerations analysis
- Sea fastening designs for both HLV and barges
- Transhipment loading operations; HLV to barges
- Ship stability and heavy lift ballast operations
- 3-hook lift analysis including HLV motions response and monitoring
- Mooring analysis of HLV and barges
- Barge towage procedures and towing arrangements
- Attendance during loading and transhipment operations

- **Client:** Linde
- **Cargo:** Demethaniser column



**Figures:**

- Demethaniser column on barge [1]
- Heavy lift loading of column [2]
- Three hook loading of Demethaniser column [3]
- Typical cargo lashing [4]
- Cargo loaded and secured [5]