




CAPABILITY STATEMENT





CRYENG GROUP ARE SPECIALISTS IN ALL STAGES OF ENGINEER-TO-ORDER CRYOGENIC STORAGE AND TRANSMISSION PROJECTS INCLUDING CONCEPT, DESIGN, FABRICATION, PROJECT MANAGEMENT, AND SITE BASED SERVICES

COMPANY PROFILE

Incorporated in 1965, Cryeng has grown from a small fabricator in Sydney, into a global company with offices in Australia, Thailand and Indonesia.

We recognise that our success depends on our clients and our philosophy of innovation to deliver improved performance, reliability, and safety, has allowed us to design and build over 2500 cryogenic vessels to repeat customers worldwide.

PRODUCT & SERVICES

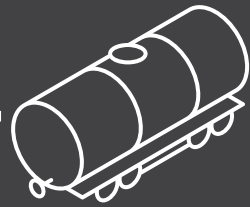
We manage our engineer-to-order projects from concept through to operation. Our specialist knowledge includes but is not limited to:

- ▶ Vacuum Insulated Pipe
- ▶ Road Tankers
- ▶ ISO Shipping Containers
- ▶ Static Storage Tanks
- ▶ Pipe Rack Modules
- ▶ LNG Floating Storage Units
- ▶ Site Works & Supervision
- ▶ Engineering Design and Consultation



5+ DECADES
IN BUSINESS

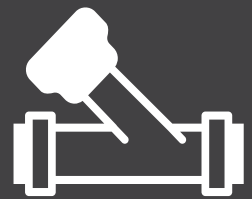
1000+
TANKS
MANUFACTURED



6 LOCATIONS
IN ASIA PACIFIC



1400+
VACUUM
INSULATED
SPOOLS DESIGNED AND FABRICATED

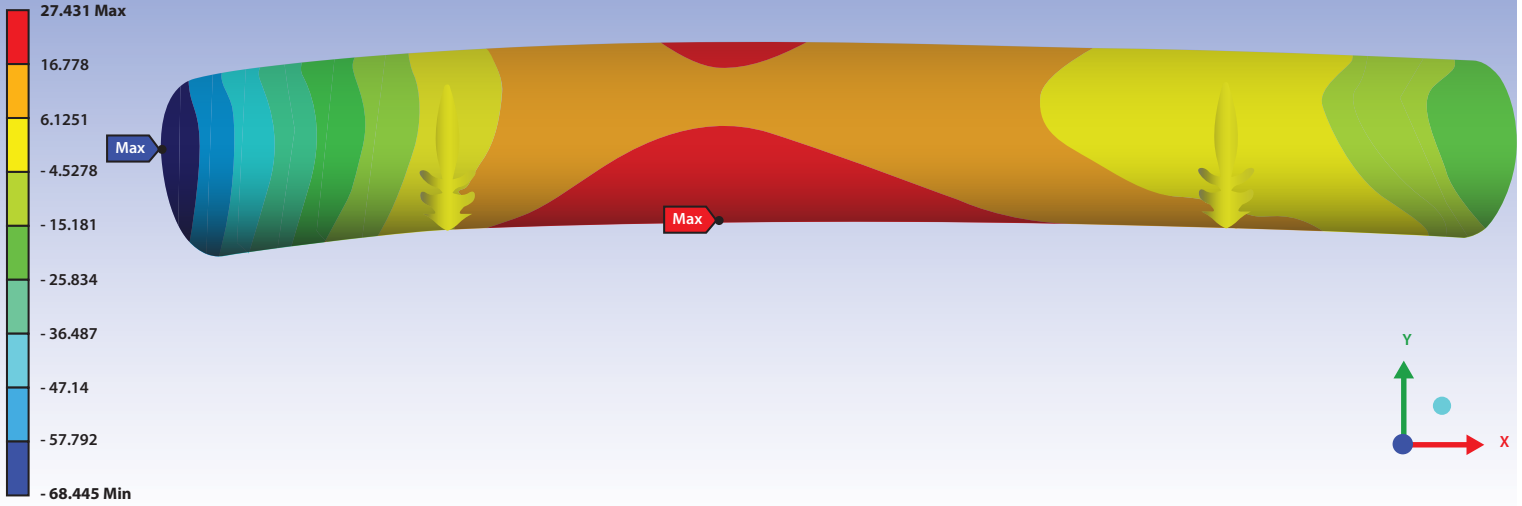


300+
EMPLOYEES GROUPWIDE



ANSYS / CAESAR II / PDMS / PDS / COMPRESS / SOLIDWORKS

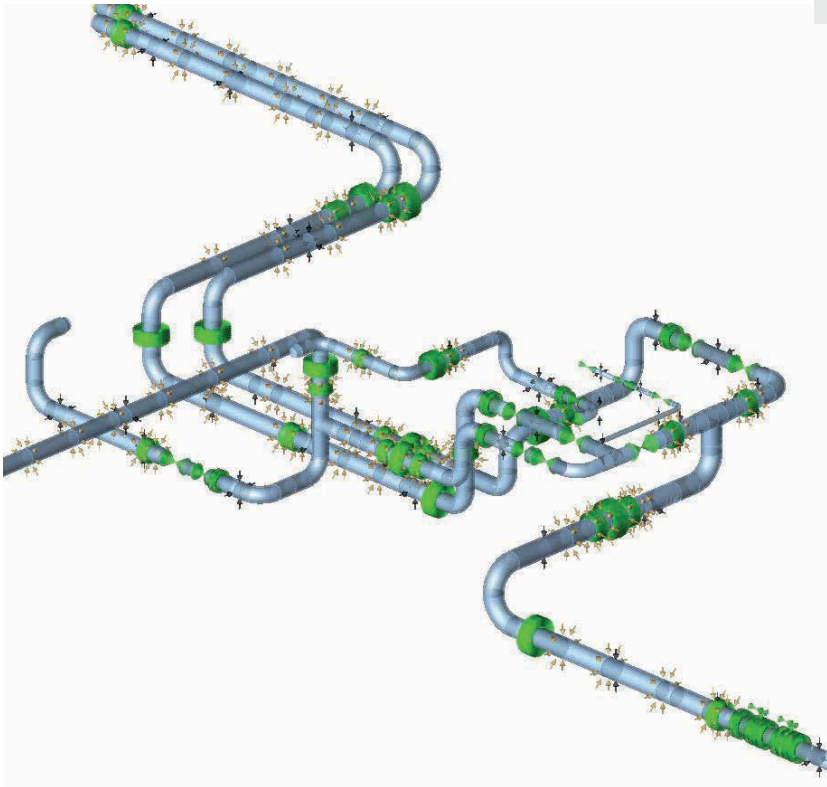
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 Directional Deformation
 Type: Directional Deformation (Y Axis)
 Unit: mm
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 Time: 1
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DESIGN & ANALYSIS

AT CRYENG, WE KNOW THAT THE KEY TO SUCCESS IS EXPERIENCE.

OUR SKILLED TEAM OF ENGINEERS COME FROM A DIVERSE RANGE OF BACKGROUNDS INCLUDING OIL & GAS, NUCLEAR, AUTOMOTIVE, MINING, AND RENEWABLE ENERGY.



Some of our design capabilities include:

- ▶ Pipe flexibility
- ▶ Surge loads
- ▶ Wind and seismic structural movements
- ▶ Vibration, life cycle
- ▶ Shipping and transportation flexibility
- ▶ Hydraulic and pneumatic system design
- ▶ P&ID process plans
- ▶ Structural
- ▶ Code calculations
- ▶ FERC analysis
- ▶ Thermal modelling



WE PERFORM DIGITAL MODELLING AND ANALYSIS OF OUR DESIGNS. OUR TEAM INTEGRATES SOFTWARE SUCH AS CAESAR II, ANSYS, PDMS, COMPRESS AND SOLIDWORKS, ALLOWING US TO TAKE A HOLISTIC VIEW OF EACH PROJECT.



We understand customer engagement is critical to capturing the complete project context, which is why we graphically represent each design phase. This means that anywhere in the world, our clients are able to review each design step, and contribute to the engineering process as much (or as little) as they desire.

IN 2013, BECHTEL AWARDED CRYENG GROUP WITH AN 'OUTSTANDING SUPPLIER' AWARD – SOMETHING ONLY GIVEN TO THE TOP PROJECT SUPPLIER ACROSS ENGINEERING DESIGN, FABRICATION QUALITY, AND ONSITE INSTALLATION SUPPORT.



STARTING AS CRYENG GROUP'S
FLAGSHIP PRODUCT IN 1965, OUR
STORAGE TANKS CAN BE FOUND
ACROSS AUSTRALIA – AND NOW
ACROSS THE GLOBE.

STORAGE TANKS

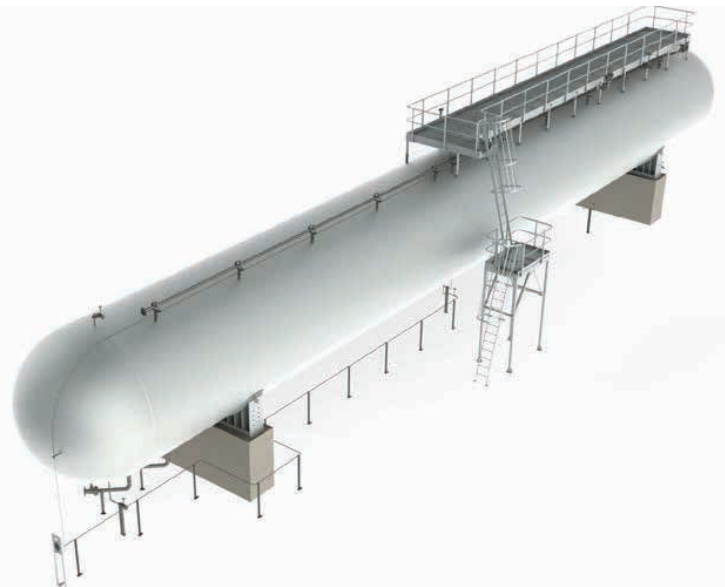
It doesn't matter what gas or liquid the tank has to hold, vertical or horizontal construction – our engineers can design and fabricate storage tanks to all relevant international pressure vessel codes and regulations.

RECENT PROJECTS

1. Golden Pass LNG (Sabine Pass, Texas, USA) -
1x 440kL Ethylene Storage Bullet
2. Cameron LNG (Hackberry, Louisiana, USA) -
2x 330kL Ethylene Storage Bullets
3. Supagas (Karratha, Western Australia) -
2x 205kL Liquid Nitrogen Storage Tanks
4. Bechtel (GLNG Plant, Curtis Island, Australia) -
3x 266kL Ethylene Storage Tanks
5. Bechtel (Stuart & Bowen Basins, QLD, Australia) -
2x 288kL Ethylene Storage Tanks
6. Bechtel (Surat Basin, QLD, Australia) -
4x 285kL Ethylene Storage Tanks
7. BOC (Citic Pacific Mining, Western Australia) -
1x 215kL CO2 Storage Tank
8. BOC (Karratha, Western Australia) -
3x 185kL LIN Storage Tanks
9. BOC (Westbury, Tasmania, Australia) -
2x 300kL LNG Storage Tanks



BOC
LNG
REFUELLERS





ROAD TANKERS

WE MAKE ROAD TANKERS TO TRANSPORT CARBON DIOXIDE, NITROGEN, OXYGEN, ARGON, LNG AND ETHYLENE.

From rigid trucks to road-trains, our designs ensure that maximum payload is achieved in addition to industry-leading hold times.

As the Australian market leader in cryogenic road tankers, we design with Solidworks, analyse with ANSYS, and we optimise each design with our client's input and our experience.



RECENT PROJECTS

1. Wesfarmers – LNG Road Train (55kL)
2. Mineral Resources – LNG Road Tanker (50kL)
3. Air Liquide – Semi Trailer for carrying Nitrogen, Oxygen, Argon (23kL)
4. Air Liquide – Rigid Argon Tanker (10kL)
5. Wesfarmers – Pocket LNG Road Train (40.5/43kL)



UN PORTABLE TANKS (ISO CONTAINERS)

WE BUILD, REPAIR & OVERHAUL
UN PORTABLE T75 ISO CONTAINERS.

It has been over three decades since we built our first ISO container. We have since manufactured both 20ft and 40ft containers to transport cryogenic bulk liquids globally by ship, road, and rail.

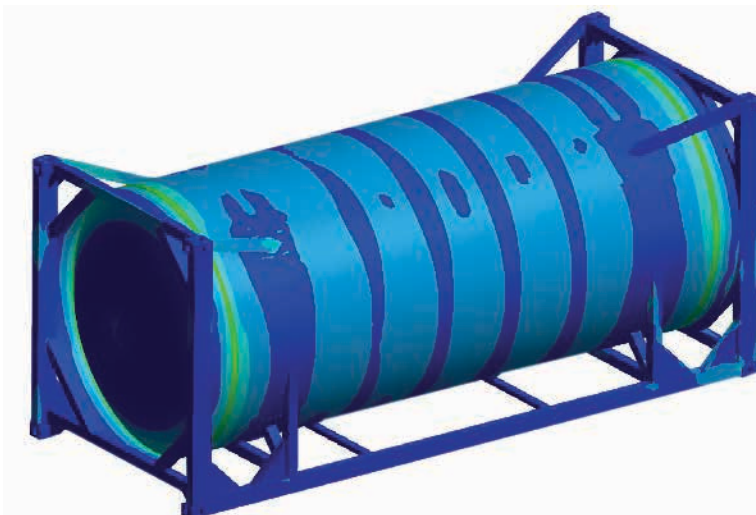
We have the engineering capability to optimise the tank capacity and pressure rating based on the clients required hold-time. We also have a range of pre-approved designs ready for manufacture.

Some of the products our clients carry in our ISO containers include ethylene, oxygen, liquid natural gas, nitrogen, argon, nitrous oxide, and carbon dioxide.

Our products are all certified to international design codes - ASME VIII, AS1210, UN Portable, ADR/RID, IMDG, CSC, ISO, TC, TIR and Lloyd's Register CCS.

PROJECTS

1. BOC / Air Liquide - 30+ ISO containers
2. APLNG / GLNG - 84 ISO containers





VACUUM INSULATED PIPE SPOOLS

OUR VACUUM INSULATED PIPE OFFERS THE LOWEST HEAT INLEAK, THE GREATEST DURABILITY, AND THE LONGEST LIFESPAN, OF ANY PRODUCT AVAILABLE ON THE MARKET.

UPHOLDING OUR 30-YEAR MAINTENANCE FREE PERIOD, WE SPECIALISE IN SMALL TO LARGE BORE LIQUIFIED GAS PIPE SPOOLS, WITH ELBOWS, TEES, BRANCH CONNECTIONS, REDUCERS, AND FIELD JOINTS, ALL ABLE TO BE VACUUM INSULATED.

FREEPORT PROJECT STATS:

- ▶ Jan '16 – Mar '17
- ▶ Pipeline Length: 6km
- ▶ Spools: 274
- ▶ NPS: 6", 8", 18", 20", 22", 24", 26", 30"
- ▶ 250+ vacuum insulated elbows, tees, reducers
- ▶ 25+ vacuum insulated branch connections

RECENT HIGHLIGHTS – LARGE SCALE PRODUCTION

Freeport LNG selected Cryeng Group's vacuum insulated pipe due to our superior thermal insulation, coupled with complete secondary containment legislated by the US Government (FERC).

Our team performed the complete flexibility & stress analysis of the pipeline. We were able to nearly eliminate all expansion loops, while accommodating complex design features such as underground road crossings and congested valve platform areas.

As the client's plant design matured, our scope changed significantly. But because we do all the fabrication inhouse, we were able to easily accommodate changes.

Partway through the Freeport LNG project, Cryeng Group was awarded the Freeport Train 3 Pipeline Project: a reflection of our excellent engineering design and support.





RECENT VIP PROJECTS:

1. Freeport LNG - 6" to 30" - 6km
2. Cameron LNG - 24" to 36" - 1.5km
3. Australia Pacific LNG - 8" to 60" - 4km
4. Queensland Curtis LNG - 6" to 48" - 3.8km
5. Darwin LNG - retrofit fittings to existing VIP





FABRICATION FACILITIES

At Cryeng Group, we believe in keeping the design, analysis, and fabrication all inhouse. This allows us to not only offer cost competitive solutions, but also allows for full integration between the design and fabrication staff, which leads to highly efficient fabrication lead times and project flexibility.

Cryeng Group has workshops in Australia, Indonesia, and Thailand.



THAILAND

7/241 Moo 6 Soi Pornprapha, T. Mabyangpornm A. Pluakdaeng, Rayong, 21140, Thailand

- ▶ Workshop No. 1: 1,536m² (under-roof) with Cranes: 15T + 2x 10T
- ▶ Workshop No. 2: 1,536m² (under-roof) with Cranes: 15T + 10T + 5T
- ▶ Workshop No. 3: 720m² (under-roof) with Cranes: 2x 15T
- ▶ Workshop No. 4: 4,020m² (under-roof) with Cranes: 50T + 10T + 4x 5T
- ▶ Holding Yard: 27,000m² (open)

AUSTRALIA

119 Toongarra Road, Ipswich, Queensland, 4305, Australia

- ▶ Workshop No. 1: 2,280 m² (under-roof) with Cranes: 16T + 10T + 6T
- ▶ Workshop No. 2: 1,280 m² (under-roof) with Cranes: 16T + 16T
- ▶ Workshop No. 3: Painting/Blasting, 2,220 m² (under-roof) with Cranes: 20T + 16T

INDONESIA

Jl. Raya Parung, Bogor Km.27, Situ Lebakwangi – Parung, Bogor 16330, Indonesia

GLOBAL PRESENCE & CLIENTS



- Job Location
- Cryeng Facilities



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<p>THAILAND 7/241 Moo 6, Soi Pornprapha, Amata City Industrial Estate, Rayong 1140, THAILAND</p>	<p>AUSTRALIA 119 Toongarra Rd, Ipswich, Queensland 4305, AUSTRALIA</p>



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