

APPLICATION BULLETIN

Explore How CORKEN
Compressors & Pumps Drive Safe
and Efficient NH₃ Operations

From Storage to Processing—Solutions You Can Trust

Why NH₃ Handling Is Challenging**Safety & Leak Risk**

NH₃'s pungent odor offers early detection, but high concentrations can be hazardous—making leak prevention paramount.

Purity Sensitivity

Many processes require NH₃ free from oil, moisture, and particulates.

High-Pressure Storage

Typically stored in bullets or spheres demanding robust equipment for transfer and vapor management.

Wide Capacity Needs

From small unloading tasks to high-throughput process service.

Material Compatibility

Equipment must resist NH₃ and possible mixtures without corrosion or degradation.

Utilities & Uptime

Storage yards are often remote; users prefer air cooled, energy efficient, and maintenance friendly equipment.

How CORKEN Solutions Address Ammonia

Handling Challenges

01

Leakage Control & Safety

Precision packing sets and engineered sealing help reduce fugitive emissions and improve safety.

02

Oil Free Gas Compression & Clean Process

Non lubricated wetted parts and separation of the oil chamber from the compression chamber help maintain NH₃ purity and protect downstream equipment.

03

Broad Pressure Range

Models with design pressures from 23.1 barg (≈335 psig) up to 113 barg (≈1,639 psig)—covering a wide range of NH₃ duties.

04

Wide Capacity Options

Small vertical to large horizontal machines, VFD ready for RPM control, available in single or two stage and single or double acting designs.

05

Built for Compatibility

Material options for compressor parts, gaskets/O rings, and protective coatings tailored to volatile and toxic gas service.

06

Lower Total Cost of Ownership (TCO)

Air cooled designs (no water required), lower power consumption, long life parts, and a maintenance friendly, break and build architecture for east & faster operations and shorter downtimes.

07

Maintenance friendly design

for quicker service and lower downtime

Corken Compressors for Ammonia Applications

A) Vertical and Horizontal orientation compressors for broad range of capacities required (5 HP to 100 HP).

Vertical 891



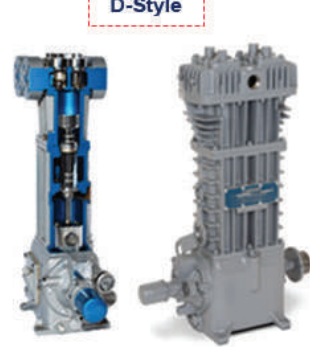
Horizontal HG601

B) Options for packing combination

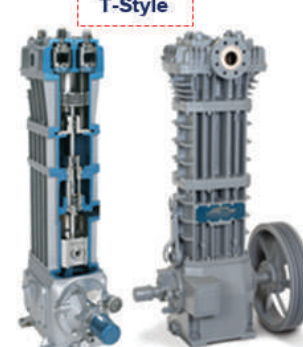
Plain



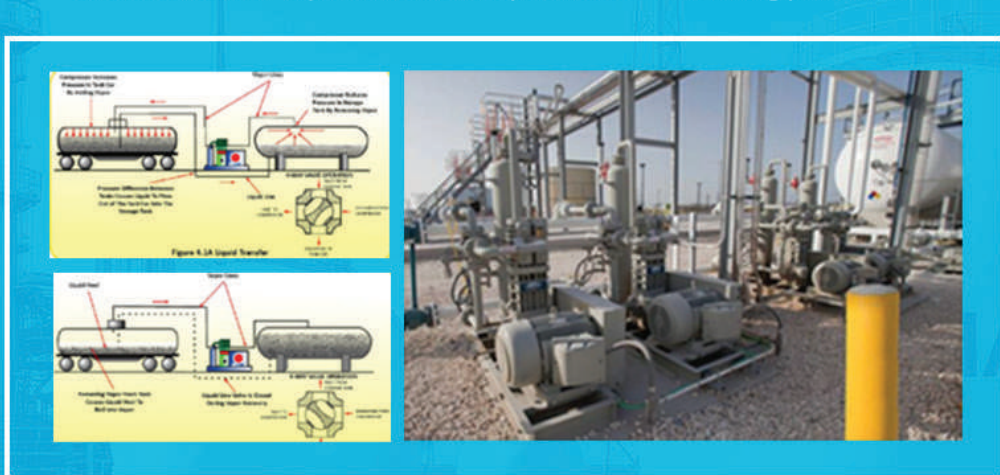
D-Style



T-Style

1) Liquid Transfer & Vapor Recovery
(Road Tankers / Railcars → Storage)

When unloading anhydrous ammonia from road tankers, railcars, or LPG carriers, CORKEN compressors create a pressure differential between the mobile vessel and the storage tank. This allows liquid ammonia to flow naturally through a dedicated liquid line into storage. After the liquid transfer, the same compressor recovers residual vapor from the transport vessel—minimizing product loss.



2) Storage Decommissioning & Integrity Checks

Global safety standards require periodic integrity checks on storage vessels—such as hydrostatic or other non-destructive tests—to detect leaks or cracks. During these inspections, CORKEN compressors enable safe and efficient transfer of liquid and vapor ammonia to alternate storage, preventing product loss and emissions. The same pressure differential principle used in tanker or railcar unloading ensures a controlled, reliable operation.



3) Process Gas Applications

In chemical and intermediate plants producing ammonia derivatives, compressors play a critical role in handling ammonia gas mixtures. Typical duties include:

Pressurized Gas Boosting

Feeding ammonia into reactors at controlled pressures for efficient reactions.

Residual Gas Recovery & Recycling

Capturing reactor off gases and boosting them for reuse after scrubbing or condensation.



Corken Pumps for Ammonia Applications

1) Coro-Vane® Series – Positive Displacement Sliding Vane Pumps

Designed for bulk liquid transfer of anhydrous ammonia, these pumps are ideal when only liquid movement is required, and vapor recovery is not needed.

Typical applications include:

- Tanker unloading (liquid-only transfer)
- Tank-to-tank bulk transfer where high flow rates and low differential pressures are involved

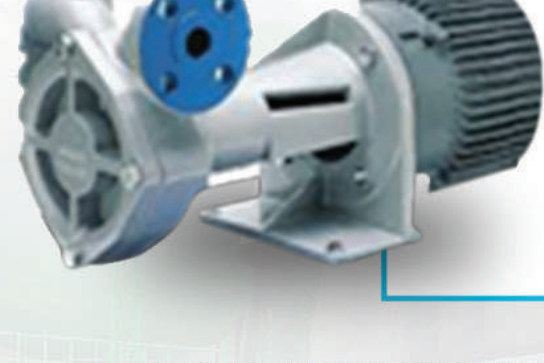


2) Coro-Flo® Series – Regenerative Turbine Pumps

Engineered for pressurized transfer of anhydrous ammonia, these pumps excel in applications requiring medium to high differential pressures at lower flow rates.

Typical applications include:

- Cylinder filling for smaller users
- Tank-to-tank or reactor liquid transfer and injection where precise, high-pressure delivery is essential



CORKEN compressors are engineered to handle all major grades of ammonia, including:

Crude NH ₃
Refrigerant Grade NH ₃ (R-717)
Metallurgical / Industrial Grade NH ₃ (5N)
Ultra-High Purity NH ₃ (7N)

Whether your application involves bulk transfer, vapor recovery, or high-purity process service, CORKEN offers reliable, material-compatible solutions for every grade.

CORKEN's air cooled, non lubricated reciprocating compressors and engineered pump solutions help you reduce leaks and cut downtime—from small unloading jobs to demanding process gas service.

Partner with CORKEN to elevate your Ammonia operations—because when precision matters, compromise isn't an option.

To know more drop us an email on marcomindia@idexcorp.com

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