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Application Bulletin

Refrigerant Transfer

Industry Applications & Engineered Solutions

When it comes to handling refrigerants, precision and safety are non-negotiable. **Corken, a trusted name in gas and liquid handling solutions, delivers unmatched performance across a wide range of refrigerant transfer applications.** Whether you're transferring liquid, recovering vapor, or managing complex decommissioning tasks, Corken compressors are engineered to exceed expectations.

Various Applications Across the Refrigerant Lifecycle

Refrigerants play a vital role across a wide range of industrial and commercial operations—from transportation and storage to process integration and recovery.

Corken provides refrigerant transfer solutions across wide types of refrigerants: R-134a, R-1270, R-12, R-152a, R-142b, R-717, R-22, R-290, R-32, R-410a, R-404a, R-407c, R-454b, R-502, R-1233zd(E), R-1234yf, and many other halocarbons.

Understanding these applications is essential to selecting the right equipment for safe, efficient, and compliant refrigerant handling.

1. Liquid Transfer & Vapor Recovery – Road Trucks to Storage

Application Overview:

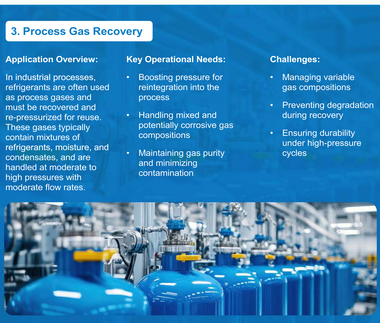
This process involves transferring refrigerants from road tankers to stationary storage tanks using a pressure differential. This method is also employed in manufacturing and reselling plants for loading and unloading operations.

Key Operational Needs:

- Efficient pressure differential creation for liquid and vapor movement
- Simultaneous vapor recovery to reduce emissions and product loss
- Safe handling of volatile refrigerants under pressure
- Fast turnaround to minimize logistics downtime

Challenges:

- Managing two-phase flow
- Preventing refrigerant loss and over-pressurization
- Adapting to various refrigerant types and container sizes



2. Storage / Vessels / Decommissioning

Application Overview:

As per global safety standards, refrigerant storage vessels and pipelines require periodic testing. During these operations, refrigerants must be safely transferred to alternate storage to avoid gas loss. The same pressure differential principle used in tanker unloading is applied here.

Key Operational Needs:

- Safe evacuation of refrigerants from vessels and pipelines
- Compliance with environmental and safety regulations
- Portable systems for on-site decommissioning
- Handling of residual refrigerants and contaminants

Challenges:

- Recovering refrigerants from complex piping systems
- Operating in confined or remote locations
- Ensuring complete evacuation for compliance

3. Process Gas Recovery

Application Overview:

In industrial processes, refrigerants are often used as process gases and must be recovered and re-pressurized for reuse. These gases typically contain mixtures of refrigerants, moisture, and condensates, and are handled at moderate to high pressures with moderate flow rates.

Key Operational Needs:

- Boosting pressure for reintegration into the process
- Handling mixed and potentially corrosive gas compositions
- Maintaining gas purity and minimizing contamination

Challenges:

- Managing variable gas compositions
- Preventing degradation during recovery
- Ensuring durability under high-pressure cycles

4. Tank-to-Tank Bulk Liquid Transfer

Application Overview:

Used in intermediate chemical, specialty chemical, and polymer industries, this application involves bulk liquid refrigerant transfer between storage tanks. In cases where vapor recovery is not preferred, pumps are used to move refrigerants across medium to high differential pressures at small to moderate flow rates.

Key Operational Needs:

- Efficient handling of large refrigerant volumes
- Reliable operation under varying pressure conditions
- Leak-proof systems to prevent product loss
- Compatibility with a wide range of refrigerants

Challenges:

- Avoiding cavitation and vapor lock
- Maintaining product integrity
- Integrating with automated systems

Corken Solutions

Precision-Engineered for Refrigerant Transfer

Corken's compressors and pumps are engineered to meet the most demanding refrigerant transfer applications, offering unmatched reliability, safety, and performance.

Compressor Technology Highlights

Precision-Engineered for Refrigerant Transfer

Positive Displacement, Reciprocating Piston Design

Built to API 618 compliance, Corken compressors deliver robust, reliable performance across a wide arge of refrigerant gases.

Non-Lubricated Gas Compression

Gas compression chambers are completely isolated from the oil chamber. Self-lubricating internal components eliminate the need for oil in wetted parts—critical for industrial process applications where oil contamination must be avoided.

Leakage Control for Inflammable Refrigerants

Featuring D-style (dual packing) and T-style (triple packing) configurations with positive seal piston V-ring/segmented packing, Corken compressors offer superior fugitive emission control & precision leakage management.

Flexible Capacity Options

From compact vertical units for mobile or low-capacity needs to large horizontal machines for plant-scale operations. Options include:

- Single- and two-stage designs
- VFDs for variable RPM
- Suction unloaders for capacity control

Material Versatility

Wide range of materials, gaskets, O-rings, and protective coatings to handle volatile, toxic, or mixed refrigerant streams.

Pump Technology Highlights

Sliding Vane & Regenerative Turbine Pumps

Designed to handle entrained vapor, making them ideal for liquefied gas applications like refrigerants.

Mechanical Seal Integrity

Equipped with silicon carbide seal seats and carbon faces, Corken pumps are built for high-pressure refrigerant service with minimal leakage risk.

No Oil in Wetted Parts

Except for grease-lubricated bearings, all wetted parts are oil-free, ensuring clean transfer and low contamination risk.

Smooth & Silent Operation

With proper installation, Corken systems operate quietly within industry noise limits, enhancing workplace safety and comfort.

Corken's Pumps & Compressors are designed for Lower Total Cost of Ownership (TCO)

- **User-Friendly Design**
  allows for easy maintenance, quick part replacement, and minimal downtime.
- **Parts Interchangeability**
  Simplifies inventory management and enhances user confidence in field operations.

Corken – Your Trusted Partner in Refrigerant Transfer

From road tanker unloading to critical process gas recovery, Corken's compressors and pumps are purpose-built to deliver safe, efficient, and clean refrigerant handling. With a legacy of engineering excellence and a focus on total cost efficiency, Corken is the partner of choice for industries worldwide.

Let's Build Your Refrigerant Transfer Solution

Contact us today to speak with a Corken application expert and discover how we can tailor a solution to your specific needs.

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

Mumbai Office IDEX India Pvt. Ltd. First Floor, Solitaire Corporate Park, 167, Guru Hargovindji Marg, Chakala, Andheri (East), Mumbai - 400 093