

MICROBULK FOR MAXIMUM REVENUE

**How Superior System Technology Helps Distributors
Gain Leverage in the Packaged Gas Market**

WHITE PAPER



Traditional high-pressure cylinders have long been used for distribution and storage of packaged gases. However, technological advances in cryogenics and telemetry give MicroBulk distribution and storage products a significant advantage over basic storage and transportation processes.

Today's MicroBulk designs are ideal for the transportation of liquid nitrogen, oxygen and argon. MicroBulk technology features fast on-site tank filling, low maintenance operation and accurate electronic flow measurement capabilities. Generally speaking, MicroBulk Solutions represent a lower-cost and higher-efficiency alternative to packaged gas distribution.

As MicroBulk Solutions continue to gain acceptance and popularity, companies across a wide spectrum of disciplines have come to rely on complete systems from technology leaders such as Chart Industries for safe, cost-effective distribution and storage of industrial gases.

How it works

Chart's complete Orca MicroBulk delivery system is a reliable and effortless way to manage MicroBulk and small bulk industrial gas needs.

Chart's patented solution consists of an Orca delivery vehicle, Perma-Cyl® storage vessels and telemetry systems. These systems service the needs of a wide range of smaller volume industrial gas customers by allowing continuous storage of liquid/gas on-site.

The system starts with an Orca truck, which enables quick and easy filling into Perma-Cyl storage vessels. When the liquid contents of the Perma-Cyl vessel dip below a predetermined level, one of Chart's optional telemetry systems will notify the gas supplier. The supplier then returns with an Orca truck and quickly refills the

cylinders. Customers need only check periodically to ensure that the entire system is functioning correctly to have a virtually effortless operation.

The Perma-Cyl product represents an innovative design, evolving from proven technology that Chart has used for years on its liquid cylinders. This Perma-Cyl design offers several revolutionary advantages, including: fast-fill capability; no-loss fill with automatic fill termination; extended hold time; and telemetry compatibility.

Reducing Costs – Expanding Opportunities

The Orca PT-1000 delivery tank is an innovation in pump-less “pulse transfer” MicroBulk technology that can radically improve customers’ packaged gas distribution processes. This system significantly reduces operating costs by eliminating the pump, components such as power take off (PTO), the high output alternator, and other accessories. By lowering costs, the PT-1000 system opens new sales channels.

The system also takes advantage of Chart’s innovative HP² pressure-building technology, using “cold” self-powered pressure transfer for fast, lightweight and low-cost transfer. This allows for pressures up to 350 psi while maintaining low saturation pressure within the cryogenics.

The PT-1000 delivery tank represents a true MicroBulk application; it enables distributors to offer secondary gases less expensively. The smaller, medium-duty, single-axle truck costs less to purchase, license, operate and maintain. By eliminating the pump and its associated costs, users can realize even greater cost and operational efficiencies. The PT-1000 unit also greatly improves safety. Its patented automatic shut-off ensures correct fill levels and it eliminates the handling of heavy, clumsy cylinders (preventing tip-over accidents). It also utilizes much lower operating pressures than traditional high-pressure cylinders.

As it continues to gain popularity, the Orca PT-1000 product will expand the MicroBulk market by lowering distribution barriers and costs, improving customer satisfaction compared to traditional full-for-empty cylinders.

Chart's distribution system has been designed to complete an entire fill operation in approximately three minutes – from the moment the driver comes to a stop to the time the flow meter terminates the operation. The high efficiency of the Orca truck allows users to reduce labor costs and serve more customers.

This system performs fast, on-site filling of Perma-Cyl vessels and small bulk tanks. It features instantaneous push-button delivery of the product and has no complex valves to operate. Its “smart” flow metering system reduces required operator training, while the special delivery hose and purge connector keeps contamination and cool-down time to a minimum.

The Orca truck's rugged vessel is designed for even the harshest road conditions and its electronic control allows for fast in-and-out deliveries, invoicing and electronic data transfer. Stainless steel plumbing and bronze valves add valuable reliability, and a low-maintenance submerged pump allows for instant starts and continuous delivery.

The Chart delivery system features a robust inner support system, and the National Institute of Standards and Technology (NIST) / California Weights and Measures approve the metering system.

Applications

MicroBulk distribution and storage equipment has wide applicability for metal-working industries such as laser cutting, plasma cutting, heat-treating and precision welding. In each case, the MicroBulk Solution represents an ideal way to ensure the purity and pressure quality of gases and the resultant quality of welds and cuts.

In addition to the metal-working market, MicroBulk gas distribution is beginning to gain popularity in medical, laboratory and restaurant beverage dispense industries. This offers distributors the opportunity to grow their business by expanding their customer base into applications that require specialty, higher-margin gases.

Advantages Over High-Pressure Cylinders

MicroBulk technology enjoys advantages over high-pressure cylinders in three primary areas:

Productivity and Profitability. The MicroBulk Solution helps companies realize significant savings in several ways:

- Eliminates downtime from cylinder change-outs
- Reduces labor costs associated with cylinder handling, along with Workers' Compensation, insurance premiums, and lost cylinder costs
- Eliminates the return of residual product in cylinders
- Realizes lower maintenance costs
- Reduces inventory maintenance costs
- Decreases the quantity of invoices, purchase orders, and other administrative paperwork associated with traditional storage and transportation processes
- Enables companies to convert floor space from cylinder storage to production
- Eliminates costs from broken high-pressure regulators and cylinder tools and wrenches
- Eliminates damage to facilities, such as door frame damage, floor damage, and rust stains
- Reduces the total number of deliveries
- Eliminates the need for a driver to enter a facility – deliveries can be made outside of business operation hours

Improved Safety. MicroBulk Solutions reduce the risk of injuries from cylinder handling. Also eliminated are potentially dangerous high-pressure tank farms, the need for safety chains, and elevated concerns about cylinder leaks and regulator damage.

Improved Quality. The dedicated low-pressure tanks of the MicroBulk Solution eliminate any opportunity for contamination. They offer higher product yield and they ensure uniform, consistent purity. Advanced telemetry technology also enables uninterrupted supply.

Supplier Considerations

Not all MicroBulk suppliers are created equal. When selecting a supplier, keep these factors in mind:

- **Experience and industry reputation:** Look for suppliers with a successful track record of innovation, reliability and customer service.
- **Application expertise:** Choose systems that are designed and manufactured to match the exact specifications of your application. Manufacturers should have a strong record in analyzing customer requirements and designing complete, cost-effective and reliable solutions.
- **Single-source accountability:** Sourcing system components from different manufacturers can add time and hassles to the purchasing process and increases service and repair headaches if something goes awry. Make sure the company that provides your MicroBulk solution can source all components within that system.
- **Large installation base:** Consider products and systems from manufacturers who have overwhelmingly been chosen as the supplier of choice in several markets.

The Bottom Line

For continuous storage of industrial liquid/gas on site, MicroBulk systems have far outpaced their traditional rivals in areas of technology, reliability and performance. Now is the time to discover the many benefits of this advanced approach. Leading manufacturers such as Chart Industries continue to serve as pioneers in MicroBulk system development while working to ensure complete customer satisfaction in all areas of sales, installation and service.

For more information on Chart Industries' Orca MicroBulk Delivery Systems, visit http://www.chart-ind.com/app_csd_microbulk.cfm.



Innovation. Experience. Performance.™

For information on Chart Industries, visit www.chart-ind.com

Product and Application Information: 1-952-758-4484 or 1-800-400-4683

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