



**ENTERPRISES LTD.**

*Since 1964*

# EQUIPMENT, PARTS AND SUPPLIES CATALOG





## **Supply House to the Processing Industries Since 1964**

**Trusted supply house of sanitary processing equipment, parts and supplies for the dairy and food, brewery, beverage and pharmaceutical industries.**

Harco Enterprises offers a diverse line of sanitary and hygienic processing equipment, parts and supplies including pumps, sanitary valves, separators, homogenizers, gaskets and fittings, sanitary hoses, and instrumentation as well as a variety of other products from world leading manufacturers such as Alfa Laval, Ampco, Tetra Pak, Burkert, Tri-Clover, Remco, Vikan, Carlisle, Haynes, Strahman, and more.

These products are distributed to dairy, food, beverage processing facilities as well as the pharmaceutical, brewing, and fisheries industries throughout North America.

Many of our products are customized in design due to strict sanitary and hygienic standards, and all are built to stand up to the demands of high production environments. Resourcefulness and quick delivery are important to you, and Harco always provides both.

Check out our large collection of equipment, parts and supplies, including our line of color-coded products available.

**Visit our website today at [www.harcosupply.com](http://www.harcosupply.com)**



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## SANITARY PUMPS

Harco is considered a leader in the sizing and supplying of pumping technology for hygienic industry practices. Specifically designed to meet the sanitary requirements of various industries, our high-efficiency pumps save energy and increase productivity.

A Sanitary pump is at the very heart of processing systems. Harco offer's a superior selection of pumps assuring that your pump meets the exact needs of your application. Our pumps and installation material offer solutions for all process stages and almost certainly the solution you need.

We supply a superior line of sanitary pumps to food, dairy, beverage and pharmaceutical industries.

Harco is a distributor for **Alfa Laval**, as well as **Ampco Pumps**. In addition, we also supply pumps and parts for the following brands including **FLUX**, **Murzan**, G&H Pumps, Crepaco, APV/SPX Pumps, Waukesha Pumps, Tri-Clover, Wilden Pumps, Jabsco, Fristam, LC Thomsen and more.

**Centrifugal (pg. 2)** Centrifugal pumps are used for general applications like water, intermittent product pumping, emptying tanks and drums, and even clean-in-place (CIP) duties.

**Positive Displacement (pg. 6)** Our positive displacement pumps are ideal for low-, medium- and high-viscosity media.

**Twin Screw (pg. 9)** Twin screw pumps can adapt to your needs according to the viscosity, temperatures, working pressures, and speed of your process lines.

**Air-Operated Double Diaphragm Pumps (pg. 10)** Diaphragm Pumps provide a safe and efficient transport of product

**Drum & Container Pumps (pg. 13)** They cover a wide range of applications from low to high viscosity fluid transfer and are easy to dismantle and clean.



Ampco Pumps Company



**MURZAN**  
PUMPS & PROCESSING SYSTEMS

## CENTRIFUGAL PUMPS

### LKH Series Pumps

The LKH pump from **Alfa Laval** is an efficient and economical centrifugal pump. It meets hygienic and gentle product treatment and chemical resistance requirements. And, since the LKH Series spans many sizes, you always have the most resourceful pump for your centrifugal needs.

With the shaft seal positioned outside the pump, difficult-to-clean components will not come into direct contact with the product. The front-loading design allows quick and easy replacement, providing more uptime with lower maintenance costs. Interchangeable single, flushed and double seals simplify spare parts inventory.

This pump's impeller design ensures efficient and gentle handling of the product as it moves through the pump. This ensures product integrity and minimizes NPSHr (Net Positive Suction Head required).

**Contact Harco for your Alfa Laval LKH Pump or LKH replacement part inquiries.**



### LKH Prime Pumps

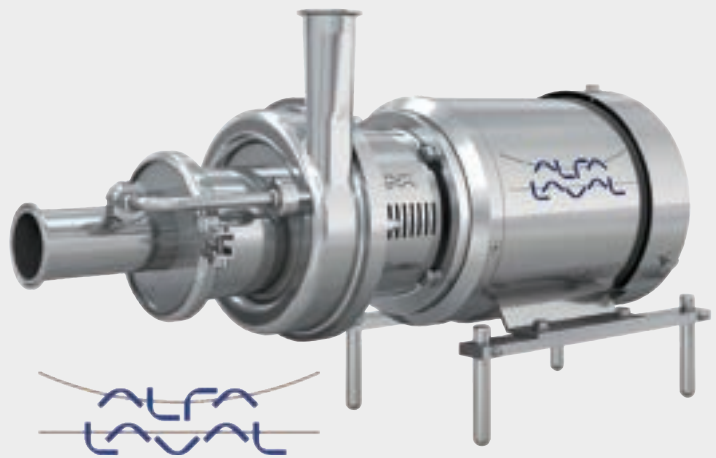
The LKH Prime from **Alfa Laval** is a highly efficient, versatile and hygienic self-priming pump that uses a combination of air-screw technology and advanced design to meet the most stringent requirements in a range of industries including food, dairy, beverage, pharmaceutical, home and personal care.

The ability to clear air from the suction pipe, combined with a low noise level and high pumping efficiency, makes the LKH Prime a CIP powerhouse. Ideal for tank emptying and CIP return applications, with verified effective CIP cleanability, LKH Prime can be used as a product pump as well.

The LKH Prime has an external single or a double mechanical shaft seal. Both have stationary seal rings made from stainless steel AISI 329, with sealing surface in silicon carbide and rotating seal rings in carbon.

The pump is easy and cost effective to service and maintain. By sharing common parts with other Alfa Laval LKH range pumps, the LKH Prime offers low cost of ownership and increased uptime, backed up by the security that comes from Alfa Laval's global service network.

**Contact Harco for your Alfa Laval LKH Prime Pump or LKH Prime replacement part inquiries.**



Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/lkh-prime-pumps/>

## LKHPF Pumps

The Alfa Laval LKHPF for High Inlet Pressure is a high pressure, high efficiency centrifugal pump ideally suited for high pressure filtration applications. Precision-engineered, the LKHP Filtration pump delivers greater energy efficiency than similar premium pumps. Its optimized design, premium motor, tight tolerances and advanced impeller design minimize recirculation and reduce energy consumption.

Designed for inlet pressures up to 40 bar and for Cleaning-in-Place (CIP), the Alfa Laval LKHPF pump is ideal for use in filtration systems across the food, beverage, home-personal care, biotechnology and pharmaceutical industries. LKH PF centrifugal pumps increase process productivity while providing high efficiency and gentle product handling.

The LKHPF pump is available in nine sizes to handle capacities up to 280 m<sup>3</sup>/h and differential pressures up to 11 bar at 50 Hz.

**Contact Harco for your Alfa Laval LKHPF Pump or LKHPF replacement part inquiries.**

Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/lkhpf-pumps/>



## LKH Multistage Pumps

The Alfa Laval LKH Multistage is designed to 3-A standards and available in two-, three or four-stage models. The LKH Multistage Pumps save space and energy by replacing up to three booster pumps in a line. Suitable for high-pressure applications with low-capacity requirements, and many types of filtration applications.

They withstand system pressures up to 40 bar and deliver differential pressures up to 19 bar at 50 Hz. Designed for Cleaning-in-Place (CIP), and meeting the hygienic requirements of the dairy, food and beverage, personal care, biotechnology and pharmaceutical industries.

The Alfa Laval LKH-110, LKH-110P and LKH-120P pumps are highly efficient multistage centrifugal pumps. Precision-engineered and available with up to four stages, these LKH Multistage Pumps deliver high energy efficiency, increasing process productivity and gentle product handling. Their optimized design, premium motor, tight tolerances and advanced impeller design minimize recirculation and reduce energy consumption.

**Contact Harco for your Alfa Laval LKH Multistage Pump or LKH Multistage replacement part inquiries.**

Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/lkh-multistage-pumps/>



## Solid C Series Pumps

The **Alfa Laval** Solid C centrifugal pump is a standard duty pump for basic transport duties in hygienic applications commonly used in food, dairy, beverage and pharmaceutical industries.

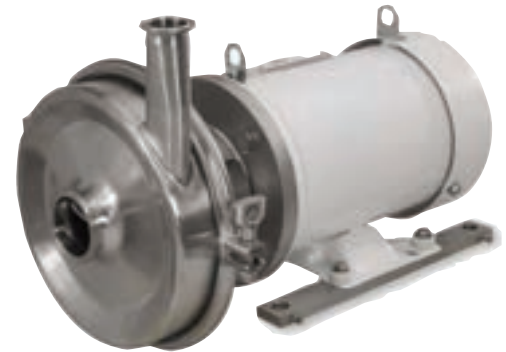
With its hygienic design, cost-effective operation and quick, easy maintenance, the Solid C ensures an excellent return on investment.

Solid C centrifugal pumps offer consistent performance and maximum cleanability. The pump interior is designed to control surface contamination and features O-rings with defined compression. Compliance with 3A, CE, FDA and EHEDG requirements offer an excellent level of hygiene.

The Solid C has a semi-open impeller, which provides gentle handling of the product. Smooth crevice-free surfaces eliminate any dead zones where bacteria can thrive. In addition, the Solid C is easy to clean and employs FDA-approved elastomers.

**Contact Harco for your Alfa Laval Solid C Pump or Solid C replacement part inquires.**

Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/solid-c-series-pumps/>



## AMPCO AC/AC+ Series Pumps

AC+ pumps are a cost-effective solution to a wide range of sanitary pump applications used in food, dairy, beverage and pharmaceutical industries.

The pumps feature an improved shaft design, while maintaining the hydraulic characteristics and external dimensions of the traditional AC Series. They also conform to 3-A sanitary standard.

### Other AC+ Series sanitary pump benefits:

- Clamped stub shaft and threaded impeller nut provide more stable performance
- External dimensions are the same as AC pumps; no need to change piping
- Hydraulic performance is identical to the AC pumps
- 316L stainless steel construction and adapter
- Parts are 100% interchangeable with competing brands

**Contact Harco for your Ampco AC/AC+ Pump or AC/AC+ replacement part inquires.**

Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/ac-ac-series-pumps/>

Ampco Pumps Company





## AMPCO CB+ Series Pumps

The CB+ is Ampco's centrifugal pump with an internal mechanical seal. This pump is designed specifically for brewing and distilling.

It features an internal seal which allows for easy cleaning, prevents pooling on the seal, and permits greater seal pressure with less leaking. It also includes the same shaft collar and threaded impeller nut as the Ampco AC+. The collar clamps down evenly on all sides of the drive shaft, preventing the slight wobble that can occur from set screws.

The impeller pin used on most C-Series pumps is replaced with a threaded impeller nut that secures the impeller in place. Two specialized gaskets are used to seal the shaft and to allow a CIP procedure to clean behind the impeller. Together, the collar and bolted impeller reduce rattling at lower speeds.

**Contact Harco for your Ampco CB+ Pump or CB+ replacement part inquiries.**

Visit our web site at <https://www.harcosupply.com/cb-pumps/>



Ampco Pumps Company



## AMPCO LC/LF/LD Series Pumps

Ampco created the LC, LF, and LD pump lines to be interchangeable with Fristam's FPX, FPR, and FP models; they're functionally and hydraulically identical to Fristam's products.

These pumps feature heavy-duty cast construction and high efficiency. All models feature a 304 stainless-steel adapter and conform to 3-A sanitary standards.

**AMPCO LC** - Ampco's LC Series is a tried and true single mechanical seal design. LC pumps are used for gentle and efficient applications, such as beverage and dairy.

**AMPCO LD** - LD Series is a close-coupled version of the LC Series, using a double mechanical seal. The LD is used with abrasive or volatile products, and in vacuum applications.



LC Series Pump



LF Series Pump

**AMPCO LF** - Ampco's LF is designed with a unique front-loading seal for easy maintenance and improved cleanability. Balanced impellers, a self-aligning shaft design and tight manufacturing tolerances, minimize vibration and improve seal life, making the LF a preferred choice for difficult-to-handle products.

Ampco Pumps Company



Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/lc-lf-ld-seriespumps/>

## AMPCO SP Series Pumps

The Ampco SP Series self-priming liquid ring pumps suit products with entrained air and CIP return applications. Entrained air is the cause of noise, vibration, seal failure, general performance reduction, or eventual pump failure.

Designed to handle entrained air conditions, while maintaining specified performance and efficiency levels, the SP is built with extremely tight manufacturing tolerances.

A unique vane-shaped or wagon-wheel style impeller design allows the SP to handle shear sensitive products efficiently, while maintaining peak pump performance.

**Contact Harco for your Ampco SP Pump or SP replacement part inquires.**



Visit our web site at <https://www.harcosupply.com/pumps/centrifugal-pumps/sp-series-pumps/>

## POSITIVE DISPLACEMENT PUMPS

### SRU Series Pumps

The **Alfa Laval** SRU rotary lobe pump is engineered to provide reliable performance, trouble-free operation, and superior energy efficiency for demanding applications.

The contamination-proof pump meets high standards of hygiene, low-shear and low-pulsation operation, and handles both Cleaning-in-Place (CIP) and Sterilization-in-Place (SIP).

The SRU's modular design offers greater flexibility to configure exactly the right solution for specific process requirements. For different process requirements, the pump features an R90 external shaft seal, which may be specified in various materials and configurations in order to ensure the correct shaft seal for the application. Alternatively, the SRU can be fitted with Hyclean mechanical seals and other seal solutions.

Along with its range of models and capacities available in horizontal or vertical porting, the SRU comes with other options, including standard and custom seals, heating/cooling saddles and jackets, an integrated pressure relief valve, and a rectangular inlet for pumping high viscosity fluids.

**Contact Harco for your Alfa Laval SRU Pump or SRU replacement part inquires.**



Visit our web site at <https://www.harcosupply.com/pumps/positive-displacement/sru-series-pumps/>

## DuraCirc® Pumps

The **Alfa Laval DuraCirc®** and **Alfa Laval DuraCirc® Aseptic** are revolutionary circumferential piston pumps for hygienic and aseptic applications. They deliver the perfect balance of durability, reliability, high efficiency and superior hygienic performance. Combined with a broad range of flow rates and pressures along with capabilities for simple service, both DuraCirc® and DuraCirc® Aseptic keep your processes up and running.

The Alfa Laval DuraCirc® and Alfa Laval DuraCirc® Aseptic circumferential piston pumps (CPP) deliver it all – high volumetric efficiency, EHEDG and 3-A conformance, and quick and easy service. DuraCirc® Aseptic is engineered for aseptic process applications in the dairy, food and beverage industries, primarily for packaging where extended shelf life is required.

Simplify service in terms of complexity and time with user-friendly features including a truly front-loading, self-setting single mechanical seal, use of a single long-life oil lubricant, and external shimming.

- **Alfa Laval DuraCirc®** has high process flexibility and reduced capital costs due to the broad range of model sizes, flow rates and pressures
- **Alfa Laval DuraCirc® Aseptic** is truly aseptic with the ability to provide a steam barrier on all interfaces between the product media and the outside atmosphere

Visit our web site at <https://www.harcosupply.com/pumps/positive-displacement/alfa-laval-duracirc-pumps/>



Alfa Laval DuraCirc®



Alfa Laval DuraCirc® Aseptic

## AMPCO ZP1 & ZP2 Series Pumps

The **ZP1 pump** is considered an industry workhorse. With a proven design, the ZP1 is a simple choice, with 9 models to choose from to do the job. It has a large installed base in both sanitary and non-sanitary applications. With seal modifications like the PTFE double-lip seal, the ZP1 is dedicated to the toughest applications. It's also well suited for sanitary industrial and chemical applications, and is commonly used in oil, gas and fracking industries. The ZP1 is versatile, durable and resistant to chemical wear, and also conforms to 3A sanitary standards.

The **ZP2 Series** has a stainless steel gearcase and is built for Cleaning-in-Place (CIP) ability, with enclosed rotor nuts. It's designed to withstand higher pressures with its large 17-4ph stainless steel shafts. The ZP2 is capable of withstanding pressures of up to 500 PSI and is 3A certified.

**Contact Harco for your Ampco ZP1/ZP2 pump or ZP1/ZP2 replacement part inquiries.**

Visit <https://www.harcosupply.com/pumps/positive-displacement/zp-series-pumps/>



Ampco Pumps Company



## AMPCO ZP3 Pumps

The patented **ZP3** is built for Cleaning-in-Place (CIP), without being modified or losing efficiency. The front-loading seals allow for fast and easy maintenance, without maintenance personnel having to disconnect the pump from piping.

The unique rotor case removes all dead zones within the pump, making the ZP3 the top CIP choice in sanitary positive displacement pumps. The ZP3 is EHEDG-certified and conforms to 3A standards and ATEX Directive.

Front-loading seals are located closer to the product flow, offering improved CIP-ability with no disassembly required.

The ZP3 pump is mounted on a ZP2 gear case, including shafts, to maximize parts interchangeability. Existing ZP2 pumps can upgrade to the ZP3 design with new rotors, seals and re-machining the existing rotor case.

**Contact Harco for your Ampco ZP3 pump or ZP3 replacement part inquires.**



Ampco Pumps Company



Visit <https://www.harcosupply.com/pumps/positive-displacement/zp-series-pumps/zp3-series-pumps/>

## NEW AMPCO ZP 4 Series Pumps

***The Most Compact Circumferential Piston Pump in the Industry***

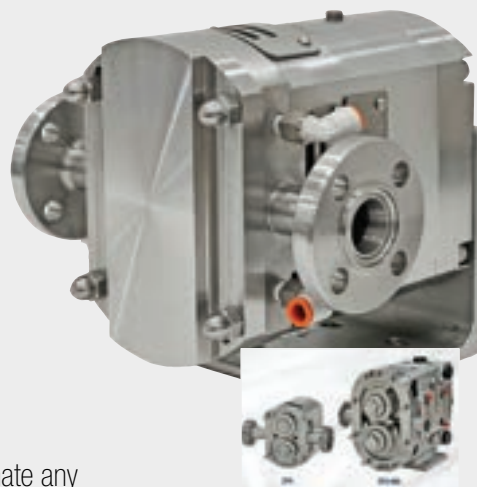
Harco proudly presents the **NEW Ampco ZP4 Series positive displacement pump**, a compact marvel engineered for unparalleled precision, reliability, and efficiency in positive displacement pumping. In this category of sanitary pumps, the Ampco ZP4 pumps compact design stands out, ensuring optimal performance for low-flow and dosing applications.

What truly distinguishes the Ampco ZP4 Series positive displacement pumps from other options are its innovative ZERO rotor to rotor contact design and robust stainless-steel construction. This combination not only enhances durability but also ensures a reliable and efficient pumping process.

Furthermore, the Ampco ZP4 Series circumferential piston pump is crafted to eliminate any potential for product zone contamination arising from pump wear. Making it an ideal choice for applications where maintaining product integrity is paramount. Elevate your pumping experience with the Ampco ZP4 Series positive displacement pump – the epitome of compact, efficient, and contamination-free positive displacement pumps from Harco.

**Contact Harco for your Ampco ZP4 pump or ZP4 replacement part inquires.**

Visit <https://www.harcosupply.com/pumps/positive-displacement/zp-series-pumps/zp4-series-pumps/>



Ampco Pumps Company



## TWIN SCREW PUMPS

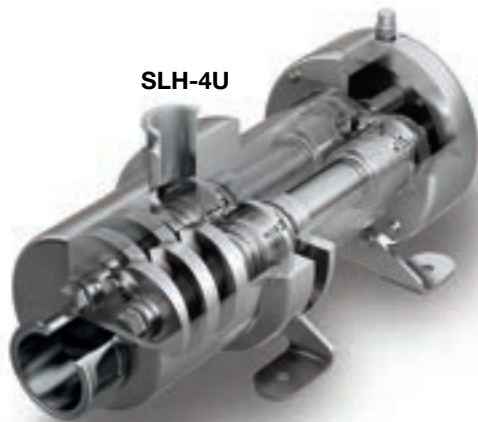
### Bornemann SLH Series Pumps

**Bornemann SLH Series** is the leader in twin screw pump technology. The SLH models are offered in three configurations: SLH-4U standard model, the SLH-4G premium design and the SLH-5G the next generation in dual-duty. All models are 3A- and EHEDG-certified for sanitary standards and provide tremendous capabilities.

Product handling features include a maximum viscosity of 1 million cP, pressure rated over 360PSI/25bar, flow rates over 1300 GPM/300m<sup>3</sup>/hr and particle sizes as large as 2.3"/58mm.

Designed for the gentle handling of soft solids and viscous products, the SLH is virtually pulsation-free. Being capable of processing and Clean-in-Place (CIP), without additional pump requirements, makes the SLH a dual-duty pump.

**Contact Harco for your Bornemann Pump or Bornemann replacement part inquiries.**



SLH-4U



SLH-4G



SLH-5U



Ampco Pumps Company

Visit our web site at <https://www.harcosupply.com/bornemann-slh-series/>

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## AIR-OPERATED DOUBLE DIAPHRAGM PUMPS

### MURZAN PI-50 PUMPS

#### The Murzan PI 50 Sanitary Pump Gently Handles the Widest Range of Viscosities and Particle Sizes Up to 6" (15 cm).

Harco offers the Murzan PI-50 diaphragm pump, the only pump specifically designed to meet the exact requirements of the sanitary industries such as the food and beverage, meat poultry and seafood, cosmetic, pharmaceutical and biomedical industries.

The Murzan PI-50 air-operated double diaphragm pump is built entirely of the highest quality stainless-steel. The calculated design of the PI-50 allows for easy and complete disassembly to provide total visual inspection of all wetted parts.

Each Murzan PI-50 diaphragm pump is equipped with the high efficiency, non-lubricated, oil-free air valve, ensuring the most sanitary environment for your plant and your product. User safe and efficient transfer of foods, cosmetics and pharmaceuticals — USDA listed, FDA approved, the PI 50 Series is manufactured to meet general 3-A standards.

#### Construction

**PI 50 DL — 304 SS Wetted Parts**

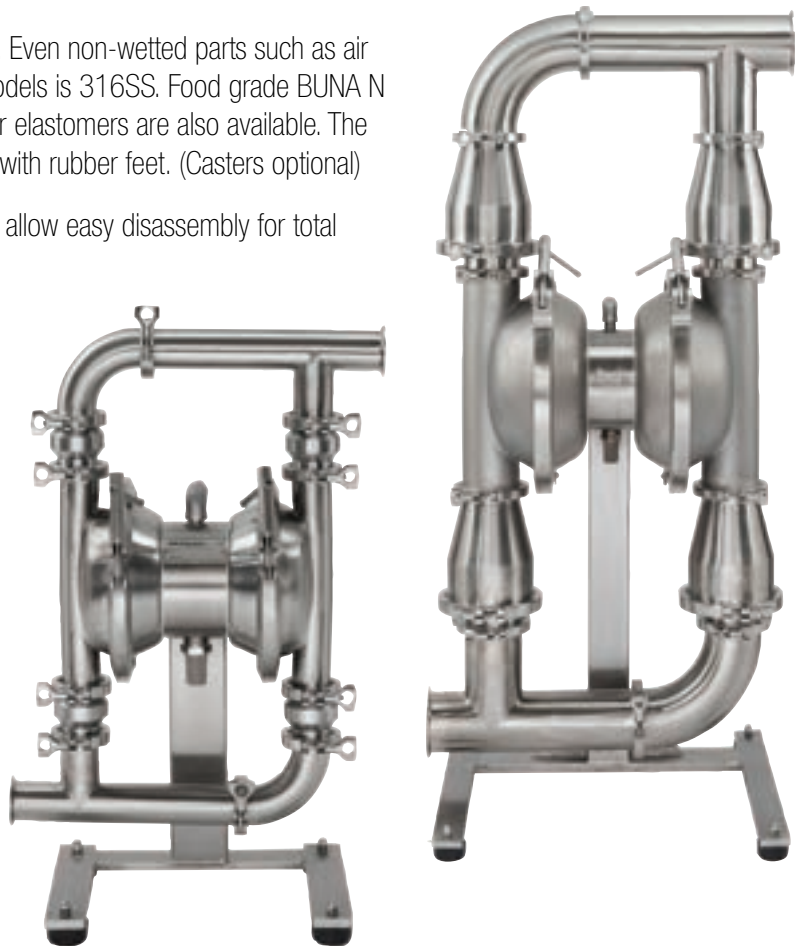
**PI 50 SL — 316L SS Wetted Parts**

All wetted parts polished to number 4 finish — 180 grit. Even non-wetted parts such as air chambers are also polished. Valve center block on all models is 316SS. Food grade BUNA N is standard for diaphragms, gaskets and valve balls; other elastomers are also available. The base is constructed of polished 304SS and is equipped with rubber feet. (Casters optional)

- **TOTAL VISUAL INSPECTION** - Sanitary tri-clamps allow easy disassembly for total visual inspection of all wetted parts.
- **HIGH FLOW CHECK VALVES** - High flow, maintenance free check valves can handle any variety of product, from the most viscous products to the more delicate solids and semi-solids.
- **NON-LUBRICATED AIR VALVE** - Non-lubricated oil free air valve ensures the most sanitary plant environment.
- **CIP READY** - Full Clean-In-Place (CIP) capability

**Contact Harco for your Murzan PI-50 Pump or replacement part inquiries.**

**MURZAN**  
PUMPS & PROCESSING SYSTEMS



Visit <https://www.harcosupply.com/pumps/air-operated-double-diaphragm-pumps/murzan-pi-50/>

## PUMP CARTS

### Custom Portable Sanitary Centrifugal & PD Pump Carts

Harco offers highly **customized centrifugal and positive displacement pump carts** to fit all of your application needs and built exactly to your specifications. We can supply, design and fabricate your sanitary pump carts for the pharmaceutical, food, dairy, brewery, and beverage processing industries.

Harco's custom built Centrifugal and PD Carts are lightweight and robust, designed for maximum mobility. They are constructed of corrosion-free 304 stainless steel tubing, durable and corrosion resistant polypropylene wheels. Each versatile cart is built to customer specifications, and can include any of our centrifugal pumps using the LENZE VFD's.

Carts are ergonomically designed for ease of use in tight spaces. Built to withstand harsh working environments – inside and out – our pump carts can stand up to whatever the application.

**Contact Harco to discuss your specific application requirements, options and pricing.**



Visit our web site at <https://www.harcosupply.com/pumps/pump-carts/positive-displacement-pump-carts/>

## MOTORS, DRIVES & VFD'S

### Stainless Steel Motors & Drive Units

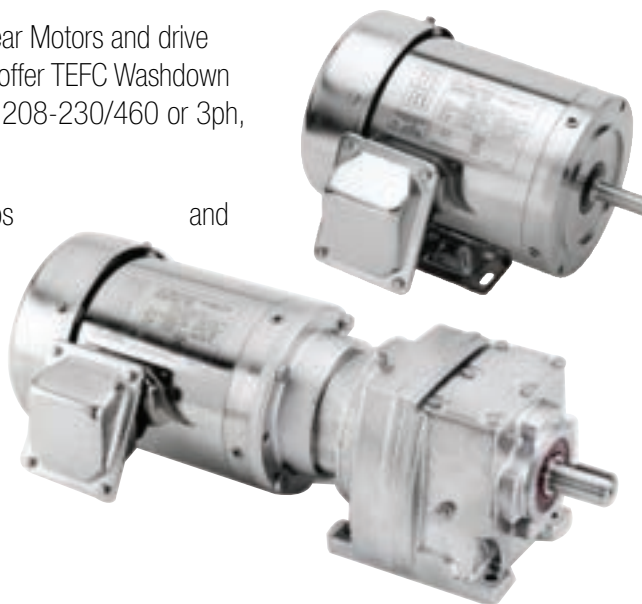
Harco offers a wide range of stainless steel motors as well as Inline Gear Motors and drive units to fit all pumps we supply, as well as stand-alone items. We also offer TEFC Washdown protected or stainless-steel motors and drive units in 1ph/ 110v, 3ph, 208-230/460 or 3ph, 575V.

Harco has the ability to offer a complete customized package of pumps and motors assembled on a stainless steel base with VFD's to fit your specifications.

#### Application Specific Motors & Drives

- Designed to meet customer's mechanical and/or electrical requirements

**Contact Harco for your Motor and Drive Unit or Motor and Drive replacement part inquires.**



Visit our web site at <https://www.harcosupply.com/pumps/motors-drives-vfds/motors-drives/>

### VFD's - Variable Frequency Drives

Variable frequency drives (VFDs) connect to a motor's electrical supply and vary the frequency of the electricity powering the motor. This controls the motor's performance and reduces the amount of energy the motor consumes. VFDs work with three-phase vector (inverter) motors in constant-torque and variable-torque applications.

#### SMVector/Washdown Duty Inverter – Flexible, simple, economical, robust.

The SMVector continues its price leadership tradition in the highly competitive AC drive market. Its performance and flexibility make it an attractive solution for a broad range of applications including:

- Food processing machinery
- Packaging machinery
- Material handling/conveying systems
- HVAC systems

The SMVector makes good its promise of price leadership in delivering unparalleled performance and simplicity. The SMVector is the right choice when you need it all – performance, power, packaging and intuitive programming.



Visit our web site at <https://www.harcosupply.com/pumps/motors-drives-vfds/vfds/>



## DRUM PUMPS

### The FLUX FOOD Series for Hygienic Applications

The FLUX FOOD series includes the barrel and container pumps FP 427 FOOD and FP 430 FOOD and the eccentric worm-drive pump F560 FOOD. All FOOD pumps are in stainless-steel. They cover a wide range of applications from low to high viscosity fluid transfer and are easy to dismantle and clean. Moreover, the FP 430 FOOD barrel pump features explosion protection for the transfer of alcohols.

Their light weight design makes the pumps ultra-portable while ease-of-use of both pump and motor make installation a breeze. Sealed, top pull-out designs for easy cleaning as well as sealless designs with run-dry capability are both available in high head and ATEX options. 3A Certified and FDA compliant versions available.

Pump tubes are interchangeable with wide array of FLUX motors, offered in both electric and compressed air options.

These pumps are especially designed to meet the specific requirements of the food, cosmetic and pharmaceutical industries. Models can be used in mobile and fixed installations.

**Contact Harco to discuss your specific application requirements, options and pricing.**

#### **F427 Sanitary Barrel Pump -** Can be taken apart completely

The pump F/FP 427 is ideal for hygienic applications and suitable for conveying media out of drums, totes, IBCs and other containers. The pump has minimal dead spots. The drive shaft, the inner and the outer tube are made of stainless steel (316 Ti resp. 1.4581).



#### **F430 Sealed Barrel Pump -** Explosion-proved

The universal F/FP 430 pump can be used for various media and is suitable for conveying out of drums, totes, IBCs and tanks. Examples of media - acids, alkalis, flavours and spirits.

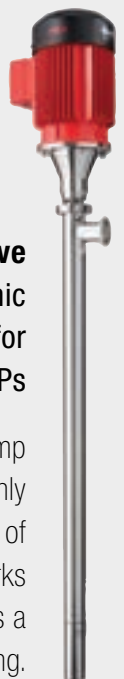


#### **F560 GS Gear drive pump -** For hygienic applications with planetary gear drive for liquids up to 50,000 cPs

The FLUX F560 GS progressive cavity pump with planetary gear is suitable to pump thin to medium viscosity liquids. This positive displacement pump works smoothly at a constant pressure and ensures a gentle, pulsation-free pumping.

#### **F560 S Direct Drive Progressive Cavity Pump -** For hygienic applications with bearing flange for liquids up to 100,000 cPs

The FLUX F560 S progressive cavity pump with bearing flange is suitable to pump highly viscous products and liquids just capable of flowing. This positive displacement pump works smoothly at a constant pressure and ensures a gentle, pulsation-free pumping.



Visit our web site at <https://www.harcosupply.com/pumps/drum-pumps/>

## DRUM UNLOADING SYSTEMS

### ADU Sanitary Drum Unloading Systems

#### *Highly Efficient, Gentle and Cost-effective*

Unload drums quickly and easily with up to 99% or better product removal when you use the ADU from Ampco Applied Products. The ADU utilizes the Bornemann SLH-4G sanitary twin screw pump paired with an inflatable drum seal suction head that stays secured to the edge of the drum as it moves down unloading the contents. The SLH-4G and included cleaning module are fully CIP-able.

The ADU can unload a wide range of products with viscosities from 1-1,000,000cP with ease. The gentle conveyance and low pulsation operation of the SLH-4G maintains product integrity as the contents are emptied.

The ADU sanitary drum unloading system offers greater energy efficiency when compared to air driven units. The main system utilizes an electrically powered pumping system and controls, requiring only a small amount of air to lift/lower and seal the bladder to the drum.

Drums can be quickly positioned for unloading from the ground or from a pallet via the drum stops on the unloading deck and a v-block stop is available for pallets. The ADU's sturdy modular design offers affordability and ease of maintenance.

Visit our web site at <https://www.harcosupply.com/drum-unloading-systems-2/ampco-adu-drum-unloading-system/>



**AMPCO**  
APPLIED PRODUCTS

### VISCOFLUX-family drum unloading systems

#### *For pumping highly viscous products from drums*

FLUX drum emptying systems VISCOFLUX are constructed to deliver high viscous substances, which do not flow by themselves. These VISCOFLUX systems are working with FLUX high viscosity liquid pumps, positive displacement pumps, constructed according to the eccentric screw principle for a smooth pumping with very little turbulences.

VISCOFLUX drum unloading systems are specifically designed for emptying containers of high viscosity products such as tomato paste, vaseline, greases and more. All systems have the ability to achieve residual amounts of less than 1% (under 2% for drums with liners). These systems are available for use in hygienic, food, pharmaceutical and industrial applications.

Where the VISCOFLUX lite is ideal for pumping high-viscosity media barely capable of flowing, the VISCOFLUX mobile is capable of pumping those products which are not capable of flowing on their own.

We offer you different drum emptying systems individually designed for your application. Our drum emptying systems must have an air and an electrical connection.

**Contact Harco for your VISCOFLUX Drum Unloading System or replacement part inquires.**

Visit our web site at <https://www.harcosupply.com/drum-unloading-systems-2/flux-viscoflux-family-drum-unloading-systems/>



**FLUX**

## SANITARY VALVES

Harco supplies a wide variety of sanitary valves to the dairy processing, food service and pharmaceutical industries from a range of suppliers including **Alfa Laval**, **Burkert** and **Dixon**. Our sanitary valves can fit all of your application needs.

Designed to provide superior safety, efficiency and hygiene yet with low cost of ownership, these valves enable you to deal with the full spectrum of your changing requirements. We also supply parts for discontinued valves like the Alfa Laval SRC, and names like De Laval, G&H, and Crepaco.

**Butterfly (pg. 16)** Alfa Laval's butterfly valve is a straightforward on/off routing valve, with a substantial opening area and low flow resistance.

**Check Valves (pg. 16)** The LKC's non-return valve ensures the single directional product flow through process lines and provide safe, easy installation and high, consistent quality.

**Mixproof (pg. 18)** Alfa Laval's unique mixproof valve enables simultaneous flow of two products or fluids through the same valve, without risk of cross-contamination.

**Single Seat (pg. 18)** Versatile single seat valves for virtually every kind of hygienic process installation. Available in on-off, change over and 10 other purpose-built valve configurations.

**Regulating (pg. 20)** Alfa Laval's regulating valves are used for adjusting or monitoring flow volumes and flow directions. They are the ideal solutions for precision control of flow rate or pressure.

**Automation (pg. 20)** To monitor and control an efficient flow system, Automation systems provide reliable status feedback at all times, and are easy to both set-up and operate.

**Ball (pg. 21)** Offering a range sanitary ball valves (manual and pneumatic) to fit your individual needs. Ideal for handling viscous liquids or liquids containing particles in the food, beverage, chemical and pharmaceutical industries.

**Sampling (pg. 22)** Alfa Laval sampling valves make it possible to obtain representative samples of food and beverage, personal care and biopharm products.

**Shutter Valves (pg. 23)** The Koltek valve is a manually or pneumatically operated valve, designed for use in the food, chemical, pharmaceutical and other industries where valves of sanitary design are needed.

**Vacuum Breakers/Relief Valves (pg. 23)** These are highly reliable valves used to ensure single directional product flow through process lines.

**Diaphragm Valves (pg. 24)** Our diaphragm valve solutions (control, on/off and hygienic specialty valves) that meet the requirements of most sterile and ultra-hygienic processes, including in the pharmaceutical and biotech industries.

## BUTTERFLY VALVES

### Alfa Laval LKB Valves

Alfa Laval's butterfly valve is a straightforward on/off routing valve, with a substantial opening area and low flow resistance. Where hygiene standards are important, this valve is ideal to use with low- and medium-viscosity liquids.

The butterfly valve range has modular units designed to meet the full spectrum of requirements at working pressures, from full vacuum to 10 bar. All valves are FDA-compliant, designed to use in a range of stainless steel pipe systems, and can be built to comply with virtually any installation standard.

This valve can be complemented with a lockable handle for manual operation with an actuator, combined with either a valve indication unit or Alfa Laval ThinkTop valve sensing and control units.

For manual operation, Alfa Laval provides a selection of handles, including a multi-position lockable handle.

For automated operations, different actuators are available; the special double-spring design enables application of maximum torque to the valve disc at breakaway and seal positions. This makes it easy to integrate these valve units into larger systems operated from a central point, and/or to operate them automatically for maximum efficiency. Alfa Laval LKB parts are available.



Visit our web site at <https://www.harcosupply.com/valves/butterfly/>

## CHECK VALVES

### LKC Check Valves

#### LKC 2 Check Valve

Specially designed for use in stainless steel pipe installations, Alfa Laval's LKC-2 non-return valve ensures the single directional product flow through process lines. This provides protection for process equipment that can be affected by reverse flow and prevents pressure surges and/or system shutdown. Widely used in various processes throughout the sanitary industry, these standard non-return valves are safe and highly reliable.

#### LKC UltraPure Check Valve

Designed to meet the specific demands and strict standards of the biotech, pharmaceutical and personal care industries, the LKC UltraPure non-return valve provides safe, easy installation and high, consistent quality.

**Alfa Laval LKC & LKC UltraPure parts are available.**

LKC UltraPure  
Check Valve



LKC 2  
Check  
Valve

Visit our web site at <https://www.harcosupply.com/valves/check-valves/>

## Alfa Laval 45BYMP Y Body Check Valves

Alfa Laval's 45BYMP Y Body Check valve is designed to enable the product to pass through the valve with no restrictions with a minimal pressure drop while preventing reverse product flow in hygienic stainless steel pipe installations. Capable of being installed in either a vertical or horizontal position, the valve features a seat and stem angled at approximately 45° to the pipe axis.

Durable and long-lasting, the valve operates at a wide range of pressures and flow rates. Because the sealing check ball moves completely out of the process flow when open, the valve offers low pressure drop and easily handles viscous products or liquids containing solid particles.

The Alfa Laval 45BYMP Y Body Check Valve is widely used across the dairy, food, beverage, home-personal care and chemical industries.

Alfa Laval's 45BYMP Y Body Check Valves consist of a single-piece, stainless steel body with an elastomeric ball, available in Buna, SFY and Nylon. The "Y" branch of the valve maintains a Tri-Clamp® connection along with an associated Tri-Clamp, end-cap, and gasket. The valve is polished internally and externally and is authorized to carry the 3A symbol.

These 45BYMP Y Body Check Valves from Alfa Laval are available both weld and tri-clamp connections and in 1.5"-3" connections.

### Materials

- Product wetted steel parts: Stainless steel AISI 316L
- Other steel parts: Stainless steel AISI 304
- Ball Materials: Buna, SFY, Nylon (max. 140°F)
- Finish: 32 Ra standard

Visit <https://www.harcosupply.com/valves/check-valves/45bypm-y-body-check-valve/>



## Alfa Laval Air Blow Check Valves

Harco offers Alfa Laval's 62-174/326 Tri-Clover® brand Air Blow Check Valves, designed to evacuate lines of product or CIP media, or for air agitation of product in tanks and other vessels across the dairy, food, beverage, home-personal care and chemical industries.

The Alfa Laval 62-174/326 Air Blow Check Valve consists of a valve body, gasket, adapter, plug assembly, return spring, stem guide, filter disc, perforated disc and buna gasket, washer and clamp.

The valve easily installs in any horizontal or vertical position on tanks or other vessels for product agitation using a Tri-Clamp, a gasket, and a mounting ferrule. No other fittings are required.

### Standard Design

- Fail Safe Operation – backflow of product or CIP solution prevented by simple air to open, spring to close operation.
- Easy Assembly/Disassembly – Tri-Clamp® connections permit quick disassembly and assembly for replacing Filter Media, cleaning or inspection.
- Remotely Controlled – can be remotely controlled by controlling the supply of air to the valve.
- Rugged Construction – type 316 stainless steel is standard. Spherical plug assembly is bonded EPDM rubber.
- Conforms to 3A Accepted Practices – for applications requiring a final filtering of air prior to entering tank or pipelines.

Visit <https://www.harcosupply.com/valves/check-valves/alfa-laval-air-blow-check-valve/>



## MIXPROOF VALVES

### Mixproof Valves

**Alfa Laval's Unique Mixproof valve** enables simultaneous flow of two products or fluids through the same valve, without risk of cross-contamination. Its state-of-the-art double-seat design provides long-lasting, spill-free operation thus minimizing the risk of product contamination. The use of double-lip seals provides added protection to ensure a safe and hygienic operation.

The Unique Mixproof valve is a normally closed valve that is controlled from a remote location by means of compressed air. To separate the two liquids, the valve has two independent plug seals. The space between the two seals forms an atmospheric leakage chamber. In the rare case of accidental product leakage, the product flows into the leakage chamber and is discharged through the leakage outlet.

When the valve is open, the leakage chamber is closed. The product can then flow from one line to the other without spilling. The valve can easily be cleaned and protected against the effects of water hammer, according to the specific requirements of the process and the configuration of the valve. There is no product spill during valve operation. Alfa Laval Mixproof parts are available.

Visit our web site at <https://www.harcosupply.com/valves/mixproof/>



## SINGLE SEAT VALVES

### Unique Single Seat Valves

The Alfa Laval unique single seat valve (SSV) is a robust, reliable and versatile pneumatic valve designed for uninterrupted production in a broad range of hygiene-critical applications.

The unique SSV is an air-operated seat valve, that can be remotely controlled. It can be configured as a shut-off or change-over valve with various actuators NO, NC or two-step for smoother operation to avoid pressure peaks and/or over filling of a tank.

Valve bodies, plugs and actuators of these control valves can be configured to meet virtually any requirement, resulting in cost-effective solutions that meet high standards of hygiene and aseptic compatibility.

The unique SSV range of food grade valve is engineered to provide excellent hygiene and cleanability. With a surface finish of  $Ra \leq 0.8\mu m$ , the smooth, weld-free valve body eliminates crevices that can trap bacteria. The design of the plug supports enhanced cleaning-in-place (CIP) capabilities, and a double-acting lip seal that minimizes any risk of cross-contamination.

Thanks to its straightforward, reliable design, the unique SSV range provides a long service life, reduced product loss, greater product safety and more processing uptime. Alfa Laval unique SSV parts are available.



Visit our web site at <https://www.harcosupply.com/valves/single-seat/unique-ssv/>

## Tri-Clover® 700 Series Valves

The Alfa Laval Tri-Clover 700 Series is a range of air-operated single-seat valves that provide years of reliable performance, and have been installed for decades in various food, dairy and beverage plants across the U.S.

700 Series valves can be configured with either a short- or long-stroke actuator. The 761 valve has a flexible sanitary design, allowing it to be used in a wide range of applications, as a stop valve with two or three ports or as divert valve with three to five ports.

The valves feature a durable and dependable design with rugged plastic stem bushings, which eliminate metal-to-metal galling. In addition, the stem is threaded to the actuator shaft, eliminating the coupling between the stem and actuator, thereby ensuring proper alignment. Bushings at each end of the cylinder support stem also ensure perfect alignment. Finally, each valve features a heavy-duty bonnet and body ferrule design that will stand up to years of pounding from hydraulic shock.

Tri-Clover 700 Series valves are available in both long and short actuators, including a wide selection of shut-off and divert valves. Sizes range from 2" (50 mm) to 4" (102 mm), in normally opened or closed positions. Alfa Laval Tri-Clover 700 Series parts are also available.

Visit our web site at <https://www.harcosupply.com/valves/single-seat/tri-clover-700-series/>



Tri-Clover Inc.

## Bürkert Single Seat Valves

Harco offers a range of Bürkert valves for sanitary and utility use. Bürkert is unique in its product offering for measuring, controlling and regulating fluids. Their products are designed to be configured, delivered and installed as simply as possible.

Their vast portfolio (28,000 types) of German-engineered products are precision manufactured solely to contribute to the efficiency of your process. Whether your area of process control involves temperature, pressure, pH, conductivity, flow or level, Bürkert has the products that can make your life simpler.



**bürkert**  
FLUID CONTROL SYSTEMS

Visit our web site at <https://www.harcosupply.com/valves/single-seat/burkert-ssv/>

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## REGULATING VALVES

### CPM Valves

Alfa Laval's Constant Pressure Modulating (CPM) valve is a pneumatic regulating valve that maintains a constant inlet or outlet pressure in hygienic process lines. Thanks to a quick response diaphragm, these compact valves immediately react to any change in product pressure, adjusting position to keep the pressure at pre-set values.

A CPM valve features a self-draining design and crevice-free, bowl-shaped valve body with welded valve seat to enable thorough cleaning, thus eliminating potential entrapment areas. The unique diaphragm with PTFE on the lower diaphragm also contributes to excellent cleanability.

Designed to maintain a constant pressure at the valve inlet or outlet, using different plug sizes and different Kv values.

The diaphragm in the valve enables it, under aseptic conditions, to react effectively to any changes in product pressure by shifting position against a constant air pressure. Alfa Laval CPM parts are also available.

Visit our web site at <https://www.harcosupply.com/valves/regulating/cpm/>



## AUTOMATION

### V20/V50/V70 ThinkTops

The compact **Alfa Laval ThinkTop V50 and V70 valve control units** are the second-generation of the leading sensing and control units for hygienic valves. It ensures unmatched control of all Alfa Laval valves used in the dairy, food, beverage, brewery and pharmaceutical industries.

The ThinkTop V50 and V70 valve control units offer a single-sensor solution for butterfly, single-seat and mixproof valves; a single control unit can be fitted with up to three solenoid valves. ThinkTop converts the electrical PLC output signals into mechanical energy to energize or de-energize the air-operated valve, using the physical sensor target mounted on the valve stem.

Boost process productivity and secure product traceability with the **Alfa Laval ThinkTop V20 valve indication unit**. Reliable and cost-effective, it provides intuitive sensing of the hygienic valve status and position in real time. Easy to install on Alfa Laval valves with standard mushroom connections, the valve sensor is suitable for hygienic applications across the dairy, food, beverage, home and personal care, biotechnology, pharmaceutical and many other industries.

*Also available is the ThinkTop and ThinkTop Basic combine Alfa Laval's quality with standard functionality for automated sensing and control of sanitary valves.*

Visit our web site at <https://www.harcosupply.com/valves/control-tops/>





## Burkert 8681 Control Head

A Burkert Control Top is an excellent alternative which fits many valve designs. With the control head 8681, its status display is bright and its talent shines through in its central role in decentralized automation.

Universally adaptable, combining with all valve forms, it takes on the complete pneumatic control, feedback and diagnostic and even bus communication. Since it's made of chemically stable materials, has a high IP protection and is easy to clean, the 8681 is perfectly suited for hygienic applications.

### Features:

- Universal attachment for hygienic process valves
- Contactless position measurement system with 3 switching points (teach-In function)
- Coloured status display
- Manual override to be used with closed housing
- Communication interfaces AS-Interface and DeviceNet



Visit our web site at <https://www.harcosupply.com/valves/automation/burkert-control-tops/>

## BALL VALVES

### Alfa Laval Sanitary Ball Valves

Alfa Laval's sanitary ball valves (SBVs) are full-bore flow valves that provide on/off control with minimal pressure drop. The valve opening has a constant pipeline diameter, which enables fluids to flow freely through the valves when open. Flow restriction is comparable to that of a straight tube.

This makes the SBVs suitable for handling fluids that are viscous or contain solid, semi-solid or abrasive particles, for pigging of process lines is a major consideration, applications that require gentle product treatment and Clean-in-Place applications.



Visit our web site at <https://www.harcosupply.com/valves/ball-valves/alfa-laval-ball-valves/>

### Burkert Sanitary Ball Valves

Burkert has a full range of manual and pneumatic ball valves. Burkert's valves are offered in sizes ½" to 4" diameter and in Butt weld, NPT and Socket weld connection. With a variety of valve body and seal materials available to meet your specifications, there is a valve to meet your application.



Visit our web site at <https://www.harcosupply.com/valves/ball-valves/burkert-ball-valves/>

## Dixon Sanitary Ball Valves

Harco offers a full line of Dixon sanitary and non-sanitary 2- and 3-way ball valves with a manual handle or air actuation.



A number of sizes and connection types are available.

**Applications:** Isolation, Diversion, Control, Material, CF8M

### Features:

- 5 encapsulated seat materials available
- ISO 5211 mounting pad standard
- Optional 2-way V-port seat
- Various actuation and control packages

**Sizes:** 1/2" to 4"



**2-Way 3 Piece Encapsulated Ball Valves - BV2CV-200CC-A**



**3-way Multi-port Sanitary Stainless Steel Ball Valve - BV3SVLF150C-A**



**Pneumatically Actuated 3-Piece Sanitary Stainless Ball Valve - BV2CV-200CC-BBC**

Visit our web site at <https://www.harcosupply.com/valves/ball-valves/dixon-ball-valves/>

## SAMPLING VALVES

### Alfa Laval Sampling Valves

#### Unique Sampling Valves

With Alfa Laval's unique sampling valves, you can take representative samples in a variety of hygienic processes within processing industries. These reliable single and double-seat valves provide the high accuracy, exceptional reproducibility and excellent reliability required for high quality, cost-effective sampling.

#### A30 Sampling Valve

The A30S sampling valve is available with a tri-clamp or plain bevel seat connection, designed to connect directly to a port in the side of a tank. The sample is taken with a simple press of the spring return manual actuator.

#### Keofitt Sampling Valve

The Keofitt sampling valve is designed for steam sterilization before and after each sampling. The valve consists of three parts, a valve body, a valve head and a membrane. The rubber membrane is placed on the stem of the valve head and works as a stretchable plug. The valve bodies and valve heads are interchangeable.



Visit our web site at <https://www.harcosupply.com/valves/sampling-valves/>

## SHUTTER VALVES

### Alfa Laval Shutter Valve (Koltek)

The Koltek valve is a manually or pneumatically operated valve, designed for use in the food, chemical, pharmaceutical and other industries where valves of sanitary design are needed.

A PTFE shutter is operated by means of a handle or an actuator. A spring system presses the shutter against the inside cylindrical surface of the valve body, thus ensuring complete tightness.

The air actuated valve can be fitted with ThinkTop® or a laterally-fitted indication unit for remote indication of the valve position. The manually-operated valve can be fitted with laterally indication units (used for LKLA actuators). The actuator for the valve comes in two versions: single acting or double acting.

The single acting actuator operates with one main piston, whereas the double acting actuator operates with two main pistons. Koltek parts are available.



Visit our web site at <https://www.harcosupply.com/valves/shutter-valves/>

## VACUUM BREAKERS/RELIEF VALVES

### Alfa Laval's Vacuum Breakers/Air Relief Valves

#### Alfa Laval Unique 7000 Relief Valves

The Unique 7000 vacuum breaker from Alfa Laval provides relief from vacuum in process lines, along with the latest in sanitary design and cleanability. This air operated vacuum breaker is used to eliminate vacuum on the downstream side of the pasteurizer in an HTST system or other situations where a vacuum can occur in a process line.

#### B44MP Vacuum Breaker

The B44MP vacuum breaker is available in 1½" and 2" tri-clamp connection. It uses a teflon plug and o-ring design. Positive pressure keeps the o-ring sealed against the base. During vacuum, the plug and o-ring drop down allowing air into the system. The standard o-ring is Buna, but can be changed to other elastomers.

#### LKUV-2 Air Relief Valve

The LKUV-2 air relief valve is designed for use when air removal from a process line without product loss is a primary concern. These provide solid safety, efficiency and low cost of ownership for processing where hygiene standards are essential.

The LKUV-2 air-relief valve is an automatic double-seat valve engineered to relieve excess air in industrial processing lines. Vertically installed, this valve is ideal for use on the top of a pipeline, container, or before a pump inlet.



Visit our web site at <https://www.harcosupply.com/valves/vacuum-breakers-relief-valves/>

## Diaphragm Valves

### Alfa Laval Unique DV-ST UltraPure Diaphragm Valves

The Alfa Laval Unique Diaphragm Valve UltraPure meets the requirements of most sterile and ultra-hygienic processes. With a fully modular design and enhanced compatibility, Alfa Laval's DV-ST UltraPure diaphragm valves offer solutions for all hygienic industries. Their customizability allows you to create a complete valve system to meet virtually any demand in the pharmaceutical and biotech industry.

The Alfa Laval Unique DV-ST UltraPure Diaphragm Valve has two modes of operation: manual operation by means of a handle and pneumatic operation by means of a pneumatic actuator. For manual operation, a simple turn of the handle lifts the compressor upwards, moving the diaphragm away from the weir of the valve body thereby opening the valve. Turning the handle in the opposite direction pushes the compressor downwards onto the diaphragm, pressing the diaphragm against the weir of the valve body, thereby closing the valve.

For pneumatic operation, the pneumatic actuator controls the axial movement of a piston, thereby opening or closing the valve depending on the actuator function.



Visit our web site at <https://www.harcosupply.com/valves/diaphragm-valves/alfa-laval-unique-dv-st-ultrapure/>

### Burkert Diaphragm Valves

Bürkert offers a broad range of diaphragm valve solutions (control, on/off and hygienic specialty valves) to fit your individual needs. Configure your valves from the very best ingredients of actuator, diaphragm and body from a single source with proven Bürkert quality. Choose the innovative Tube Valve Body for example and regain production time due to shorter heat-ups and cool-downs. You can combine it with your desired diaphragm and actuator.

All the materials used in making the Burkert diaphragms are traceable. This gives you the assurance that only the "best of ingredients" have been used for your diaphragm. In addition to this, you can choose from a wide variety of materials (and therefore diaphragm types), providing for maximum flexibility to suit your processing task. A number of diaphragms from our range are suitable for CIP (Cleaning-in-Place) and SIP (Sterilization in Place), and it goes without saying that they are internationally certified for use in hygienic processing.



Visit our web site at <https://www.harcosupply.com/valves/diaphragm-valves/burkert-diaphragm/>

## MIXERS & BLENDERS

Harco offers a variety of sanitary mixers and blenders to ensure you have the solution you need. From powder and ingredient systems to in-line blenders and mixers, we have you covered.

Manufactured by **Ampco Applied Products (AAP)**, the products are highly-engineered mixing, blending and milling systems for precise performance. Traditional configurations and complex system designs all receive high level support from the AAP Engineering team.

Systems include POWDER-max, DRY-blend, SIMPLE-blend, SHEAR-blend, SHEAR-max, SBH/ SBI Blenders, JET-shear and ROLEC DH Systems for the brewery industry.

Ampco mixers and blenders are customized to use on a wide range of batch sizes, varying media, ergonomics and end-user requirements. AAP is driven to provide a tailored solution that reduces processing time and results in a better end-product. Teeth thickness, number of teeth, radius and Cartesian coordinates can all be specified per customer.

**Powder & Ingredient Systems (pg. 26)** These systems encompass a line of products designed to mix and blend powders with liquids efficiently while improving the texture and dispersion of the finished product.

**Inline Blenders & Mixers (pg. 28)** The applications for inline mixers and blenders are limitless. Products requiring the highest shear levels will benefit from the SHEAR-max high shear mixer, capable of mixing and efficiently pumping product with its hybrid impeller design.



Visit our web site at <https://www.harcosupply.com/mixers-blenders/>

## POWDER & INGREDIENT SYSTEMS

### POWDER-max

The POWDER-max reduces processing time and provides optimal product consistency with zero batch size limitations. An innovative design allows POWDER-max to quickly mix wet and dry ingredients in a single, fully portable unit. POWDER-max combines Ampco's SP Series liquid ring pump and High Shear Blender in-line to facilitate unlimited production runs. The sanitary design is suitable for food.



Visit our web site at <https://www.harcosupply.com/powder-max/>

### SHEAR-blend

The SHEAR-blend portable tabletop hopper system is designed for ergonomic small batch blending, where shear is required but a larger two-pump system is unnecessary. The SHEAR-blend system combines powder induction and fluid pumping as an economical solution to moderate powder induction applications. The combination of shear teeth and pumping vanes on the Ampco SBI blender efficiently shear and pump the product.



Visit our web site at <https://www.harcosupply.com/shear-blend/>

### SIMPLE-Blend

The SIMPLE-blend is a lower cost option, with a simple design. The system is designed to induce powders at a highly efficient rate, with minimal shear. An Ampco SP Series pump powers this unit and the self-priming SP provides the suction for the induction process. A typical application for the SIMPLE-blend unit would require little to no shear and induce easily dissolved products. These units can be completely customized per application and process layout.



Visit our web site at <https://www.harcosupply.com/simple-blend/>

### DRY-blend

The DRY-blend system can efficiently and thoroughly blend wet and dry ingredients. Powered by an Ampco AC+ centrifugal pump, this proven tube within a tube design eliminates foaming, lumping and fisheyes, while consistently blending with every batch. All wetted components are 316L stainless steel. The DRY-blend system is easy to maintain and operate, and is suitable for food, dairy, beverage, and pharmaceutical applications.



Visit our web site at <https://www.harcosupply.com/dry-blend/>

## DRY Hopping

The ROLEC DH units use an Ampco SBI blending pump to safely induce dry hop pellets, fruit, spices, coffee, cocoa nibs straight into the stream of beer, while recirculating the fermenter.

All three systems use carbon dioxide to eliminate oxygen from the hop chamber. Pellets can be induced into fermenting, finished, or crashed beer. The induced media is chopped to maximize the surface area, flavor and aroma.

### ROLEC DH features:

- 3 models: DH45/DH90/DH250
- Pressurized tank with glass-top manway on the DH90 and DH250 allows for balancing
- Fermenter pressures and visual monitoring
- The DH45 is a lower cost, non-pressurized system designed for smaller craft breweries
- Gauges and sight glasses aid the user in monitoring induction and pressures
- Minimal dissolved oxygen (D.O. pick-up) less than 5 PPB
- All components are sanitary and can be cleaned in place (CIP) (no additional CIP pump is required)
- The fully-portable DH can be used on many fermenters and fits well in cramped cellars
- Recirculation can be done as long as desired (3-4 fermenter turnovers are recommended)
- Improved aroma and flavor profile, faster tank turnovers and safe, ground level induction



**AMPCO**   
APPLIED PRODUCTS

Visit our web site at <https://www.harcosupply.com/dry-hopping/>

## INLINE BLENDERS & MIXERS

### SHEAR-max High Shear Inline Mixer

Ampco's SHEAR-max delivers high shear inline mixing with a twist. This mixer offers particle size reduction, emulsification and dispersion with tight tolerances for high shear applications and very efficient flow.

The curved rotor and various stator designs make it one of the most efficient and hygienic designs on the market. The SHEAR-max can disperse, dissolve, emulsify, de-agglomerate, homogenize or simply blend.

#### SHEAR-max features:

- Integrated impeller and dynamic shear teeth
- Clean-in-place
- 316L stainless steel construction/ 304 stainless steel adapter
- Dynamically balanced impeller
- Available in single or multi stage design
- Max flow rate: 400 GPM / 91 M3/hr

**AMPCO**  
APPLIED PRODUCTS



Visit our web site at <https://www.harcosupply.com/shear-max-high-shear-inline-mixer/>

### SBH/SBI Series Blenders

Offering two moderate shear blender model series: SBH / SBI. These shear blenders are suitable for such applications as food, beverage, and pharmaceutical industries.

The high shear blending capability of the **SBH** is facilitated by the greater number and expanded rows of rectangular-shaped teeth with radial slots for the higher shear rates. Different cover and impeller sets are available for varying application requirements.

The **SBI** Pump Series pumps and blends product in a single stage. This innovative design can move product and create considerable pressure by way of a hybrid impeller.



#### SBH features:

- High shear blending
- 316L stainless steel heavy wall construction
- 304 stainless steel adapter
- Dynamically balanced impeller
- 316L stainless steel shaft
- Max flow rate: 200 GPM/ 45 M3/hr

#### SBI features:

- Medium shear blending
- 316L stainless steel wetted construction
- Combination integrated impeller with dynamic shear teeth
- 304 stainless steel adapter
- Dynamically balanced impeller
- 316L stainless steel shaft
- Max flow rate: 510 GPM/ 116 M3/hr
- Max powder induction rate: 150 lbs/min / 68 kg/min



Visit our web site at <https://www.harcosupply.com/sbh-sbi-series-blenders/>



## JET-mix

Ampco's in-tank JET-mixers will rapidly mix, disperse, and suspend solids in liquids covering a wide range of applications in food, personal care, clean chemical, and pharmaceutical industries. The modular construction of the JET-mix makes it ideal for a wide viscosity range and batch sizes up to 6,000 gallons in open or closed tanks, drums, and tote processing.

### JET-mix features:

- 25 – 6,000 Gallon Batches
- ½ – 3 HP motor on standard model
- Up to 20 HP motor on custom models
- 316 stainless steel removable shaft
- 316 stainless steel bearing frame
- High efficiency impellers 4" – 20" (welded or adjustable)
- Designed to 3A standards
- CIP-able
- Multiple mounting configurations
- Shaft lengths up to 84" on standard design
- Custom options available



## JET-shear

Ampco's in-tank mixer is used to hydrate, dissolve, disperse and emulsify products consistently and efficiently. It covers a wide range of applications in the food, chemical and pharmaceutical industries. The JET-shear is used in open or closed tanks and totes, creating smooth consistent blends in tanks as large as 1,000 gallons. The JET-shear is much more than an in-tank agitator, capable of creating emulsions under 10 microns.

Visit our web site at <https://www.harcosupply.com/jet-shear/>



## SANITARY HOSES

Harco offers a complete line of instrumentation, including sanitary and industrial pressure gauges, digital and bi-metal thermometers, flow measurement devices for various liquids, gases and steam, as well as chart recorders and pens. We supply products from industry leaders such as Burkert, Endress+Hauser, Chicago Stainless, Alfa Laval and more.

## SANITARY HOSES

### Gates Food & Beverage Master Suction & Discharge Hose

The Gates Food and Beverage Master hose is commonly used for the transfer of milk, juice, soft drinks, pharmaceutical products, cosmetics or water-based products that are requiring FDA sanitary hose. This hose is available in a gray or white cover and is crush and kink resistant and is available with a variety of stainless-steel connections.



### Rubber Fab Hoses

Rubber Fab FDA approved rubber hoses are designed to transport a wide variety of fluids without imparting odor or taste and are specifically designed for sanitary suction and discharge applications. FDA rubber hoses are recommended for the transfer of milk, juice, soft drinks, yogurt, pharmaceuticals, cosmetics, and oil based or water-based products.

Rubber Fab hoses are available with a variety of stainless-steel, and non stainless connections.

### Novaflex® Sanitary Hoses

Novaflex® has the ideal hose for hygienic application for transfer of grains, powders, flour, dry foods, oil, syrup, dairy products like milk and cream, juices, beer, wine, potable water and more. Novaflex® Beverage and Food Hoses are characterized by reliability, safety; long service life, and easy, trouble free handling. Novaflex® food hoses are specifically designed for the transportation of beverages and foodstuffs.

Novaflex® hoses are designed to meet the most challenging and demanding applications in the exacting cleaning cycles required in the food and beverage processing industry. Novaflex's precision constructed hoses provide clean, robust, worry-free service for the most diverse processing and transfer operations. Hoses are highly functional and designed to meet both stringent safety standards as well as ease of operation. Novaflex® food hoses meet European standards REACH and ADI. International standards: FDA, USDA and 3-A (Certificate #1376), Canadian Food Inspection Agency (File: N267) regulations, and are resistant to Cleaning In Place solutions.



Visit our web site at <https://www.harcosupply.com/sanitary-hose/>

## HEAT EXCHANGERS

Heat transfer is among the preeminent functions in today's food processing industry. Its assignment is to heat or cool sensitive products to exactly the right temperature at exactly the right time, with the least possible effect on taste and consistency. It must satisfy today's high demands on hygiene and product safety. And, it must effectively and carefully process foodstuffs that the consumers like, recognize and can depend on.

Harco offers shell and coil heat exchangers, brazed and fusion bonded heat exchangers, tubular heat exchangers, scraped-surface heat exchangers and plate heat exchangers as well as replacement plates and gaskets for:

- Tetra Pak Heat Exchanger
- Alfa Laval Heat Exchangers
- APV Heat Exchangers
- DeLaval Heat Exchangers
- AGC Heat Exchangers
- AIC Heat Exchangers

**Gasketed Plate (pg. 32)** The Tetra Pak® Plate Heat Exchanger features a durable design with plate geometry, optimized for food applications.

**Scraped-Surface (pg. 33)** The Contherm® Scraped-Surface Heat Exchanger is suited for hygienic heating and cooling of sticky and particulate food products.

**Tubular (pg. 33)** The Tetra Pak® Tubular Heat Exchanger combines straight and corrugated tubes, offering optimal performance, long production time and low maintenance.

**Shell & Coil (pg. 34)** The JAD Shell and Coil Heat Exchangers are distinctly characterized by their angular connections, and by the concentric layers of helically corrugated tubes within the shell.



Visit our web site at <https://www.harcosupply.com/heat-exchangers/>

## GASKETED PLATE

### Tetra Pak® Plate Heat Exchanger

The Tetra Pak® plate heat exchanger features a durable design with plate geometry, optimized for food applications.

It provides gentle, energy-efficient heating, optimized to maintain product quality. It's easy to clean, service and maintain, and can even be rebuilt for new applications or different capacities. Its long equipment lifespan is thanks to the robustness of gaskets and plate-pressing technology.

Tetra Pak's clip-on gaskets have a robust T-clip design, and are easy to remove and reassemble. They also have specific features to enhance safety, such as a safety groove in the seal chamber. If a leakage occurs anywhere on the gasket, it can be seen from the outside of the unit, thereby preventing the risk of cross contamination between product and media.

The connections in the Tetra Pak's plate heat exchanger is bolted, rather than welded to the connection plates, which makes it easy to adapt and rebuild units for different capacities and products.

The tall and narrow shape of the heat exchangers' plates, the surface pattern, and the size of the portholes where the product enters are all specially designed for food processing. Together, they allow an even product flow and distribution over the entire plate and an efficient, even heat transfer.

This design has no low-velocity areas, which reduces fouling and, as a result, enables longer production runs. Even flow rates also make cleaning more effective and faster.

Tetra Pak Plate heat exchanger spare parts are also available.



Visit our web site at <https://www.harcosupply.com/heat-exchangers/gasketed-plate/>

### Brazed Plate Heat Exchangers

Alfa Laval brazed heat exchangers are a compact and efficient solution for heating and cooling duties using water, evaporation and condensing, coolants, oil and refrigerants.



**CB brazed plate heat exchangers** provide high thermal efficiency.

Optimized for demanding duties, **Alfa Laval's patented AlfaNova** is a unique fusion-bonded heat exchanger made from 100% stainless steel.



## SCRAPED-SURFACE

### Contherm® Heat Exchangers

The Contherm® Scraped-Surface Heat Exchanger is suited for hygienic heating and cooling of sticky and particulate food products. The product is pumped into the lower end of the vertical heat exchanger and flows through the cylinder. It's continuously agitated and removed from the cylinder wall by the scraping blades. Heating and cooling media flow in the annular space between the heat transfer cylinder and the insulated jacket.

These heat exchangers can be connected in series for in-line heating and cooling.

Features:

- Vertical installation eliminates air pockets
- Driving unit on top
- 4 sizes with heating area, from 0,28 to 0,98 square meters

Benefits:

- Minimal floor space
- Easy to open for inspection and exchange of scraping knives
- Ideal for sticky, lumpy food products

 Tetra Pak



Visit our web site at <https://www.harcosupply.com/heat-exchangers/scraped-surface/>

## TUBULAR

### Tetra Pak® Tubular Heat Exchanger

The Tetra Pak® Tubular Heat Exchanger has been successfully used by the liquid food industry for decades. Combining straight and corrugated tubes, it offers optimal performance, long production time and low maintenance.



The inner and outer tubes and the connections in the heat exchanger are floating, not fixed or welded. This allows for thermal expansion or contraction in the tubes without the risk of cracking. It eliminates the risk of product contamination (due to expansion cracking), enables the inspection of all parts, and secures easy exchangeability of parts.

The heat exchanger's frame, tubes and other parts are assembled in such a way as to allow for easy dismantling and rebuilding. This makes it possible to customize the heat exchanger for different recipes and capacities and to run different products.

Visit our web site at <https://www.harcosupply.com/heat-exchangers/tubular/>

## SHELL & COIL

### JAD LINE HEAT EXCHANGERS

#### STAINLESS STEEL AND COIL HEAT EXCHANGERS

JAD Shell and Coil Heat Exchangers are distinctly characterized by their angular connections, and by the concentric layers of helically corrugated tubes within the shell. This unique design optimizes the performance and heat transfer efficiency of the units.

This line of heat exchangers is primarily designed for vertical installations and combined with their compact size, the JAD heat exchangers can be installed in virtually any application where space is a constraint.

#### JAD-Line Compact Vertical Heat Exchangers - Quality & Unique Fabrication

##### Features

- Angular connections
- Concentric layered coils
- Helically coiled tube bundles
- Small to large applications
- H-Type for straight connections
- Standard class flange or NPT connections
- Easy to install in series or parallel

##### Shell & Coil Models are available in:

- Smooth or corrugated tubes
- H-Type: Straight, 90° angle connections

##### Standard Materials

- Stainless Steel 316L
- Complete welded structure

##### Maximum Working Pressure

- Up to 300 PSI (2.07 MPa)

##### Maximum Working Temperature

- Up to 422°F (216°C)

Contact Harco for your JAD Heat Exchanger or replacement part inquiries.



jad

Visit our web site at <https://www.harcosupply.com/heat-exchangers/shell-and-coil/>

## Homogenizers & Separators

Harco sells Tetra Pak® homogenizers and separators built for your application. Our team can help you determine what size and configuration will fulfill your production requirements.

Homogenization is used to achieve a variety of different results: to prevent a cream line and sedimentation in milk products; to improve the viscosity, taste and texture of cream or juice-based drinks, to improve the mouth feel of soy beverages, and to prevent the separation of the whey in yogurt.

Industry-unique centrifugal separators are also used to achieve excellent product quality. Since its invention more than 130 years ago, the centrifugal separator has become an indispensable piece of equipment in the food and beverage industry. Today's cutting-edge separation technology from Tetra Pak® gives clear advantages in terms of product quality and safety, operational efficiency and production flexibility.

### SEPARATORS

#### TETRA PAK® Separators

Harco is a proud supplier of the Tetra Pak® separator for your dairy and food processing needs.

The Tetra Pak® separator is for sanitary applications and ensures high capacity and efficient performance in milk skimming. Its smooth product treatment results in greater skimming efficiency and reduced energy consumption. The separators maintain the quality of your products by preventing air from entering the process. The air tight technology features a completely filled separator bowl. An advanced inlet and outlet design ensure gentle treatment during the entire separation process.



 Tetra Pak

### HOMOGENIZERS

#### TETRA PAK® Homogenizers

Harco is a proud supplier of the Tetra Pak® homogenizers for your dairy and food processing needs.

Tetra Pak® is known for high performance homogenization. This homogenizer is designed for engineering excellence that increase cost efficiency and reduce environmental impact, without compromising food safety.

##### Quick facts

Homogenizer to reduce particle size and improve product quality.

##### CAPACITY

55 to 63,600 l/hr

##### APPLICATIONS

High or low acid liquid food products. Aseptic or non-aseptic homogenizing. Use as high-pressure pumps, e.g. for powders.



 Tetra Pak

Visit our web site at <https://www.harcosupply.com/homogenizers-separators/homogenizers/>

## Filters and Strainers

Filters and strainers provide versatile, cost-effective filtration. Designed for maximum application flexibility within process filtering, especially where strainers of sanitary design are required. Stainless steel filters and strainers are ideally suited for use in sanitary processing applications within dairy, food, beverage, meat and poultry, pharmaceutical and other hygienic industries.

### Alfa Laval Streamline™ In-Line Filter/Strainer

Available in long and short models, Streamline™ filters and strainers provide versatile, cost-effective filtration. Designed for maximum application flexibility, the Streamline housing accepts a wide range of disposable filter and reusable strainer media. They are ideal for use in the dairy, food, beverage, meat and poultry, cosmetics, and pharmaceutical industries.



### Alfa Laval LKSF Slot Strainer

The LKSF has a wide range of applications within process filtering, especially where strainers of sanitary design are required. Both strainer types consist of a housing in three parts, LKSF-BL has housing in two parts (101.6 mm)(4") in which the strainer element is placed.

The housing is assembled by clamps, (the upper clamp ring has a wing nut for manual operation) for quick dismantling for cleaning. The strainer element is fitted centrally in the housing and has direct access to the end cover of same where a welded-on handle facilitates dismantling when cleaning is required.



### Alfa Laval LKVF

LKVF has a wide range of applications where removal of flow particles is required, e.g., for protection of a pump or other sensible equipment. The strainer consists of a casing with inlet and outlet. Inside the casing the filter element is fixed so that the flow is forced through it. This element consists of a perforated tube which is welded to a flange with a handle. This flange fits a ferrule on the casing to which it is clamped.



### Rodgers Side Discharge Filters & Strainers

Stainless steel filters and strainers are ideally suited for use in sanitary processing applications within dairy, food, beverage and other hygienic industries. A modular concept allows the process designer the ability to build a product tailored to the application's requirements.



Visit our web site at <https://www.harcosupply.com/filters-and-strainers/>



## TANKS

Harco provides a range of tank accessories for enhancing the tank itself. These include machine and tank feet in a variety of constructions, door gaskets, peepsight gaskets, agitators, agitator seals, a broad selection of tank covers, and more. We distribute for Alfa Laval and Mueller and also offer parts and gaskets for many other brands including Cherry Burrell, De Laval, Crepaco, Walker and Damrow.

## AGITATORS

### Mueller Agitators

Mueller mixers feature more straight-grade 316 stainless steel than any competitive product line for years of durable service in CGMP environments. The mechanical seals also feature low-noise silicon carbons for quieter operation.

Every mixing application is unique with different needs for agitation level, shear, suspension, and many other factors.

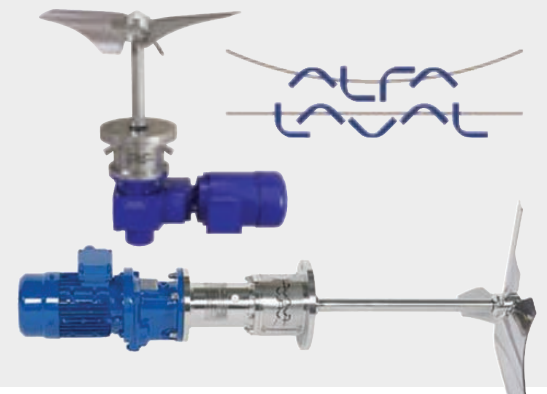
Mueller mixers are the perfect match for all of your sanitary mixing applications including pharmaceutical, cosmetic, food and beverage.



### Alfa Laval Agitators

Alfa Laval's side mounted agitator (ALS) and bottom mounted agitator (ALB) offers mixing solutions to meet any requirements in food, dairy, beverage, pharmaceutical, biotechnology and cosmetic applications.

ALS and ALB agitators can be sized for several applications for both atmospheric and pressurized tanks. Configuration for use in sterile/aseptic applications is also possible. Sizing and customizing the agitator to the specific task ensures optimized power consumption and pricing.



## SPRAY BALLS

### Alfa Laval Rotary Jet Heads

Alfa Laval Rotary Jet Heads enable processing and manufacturing companies to use the least amount of resources while achieving the most effective tank clean. Rotary jet heads are specifically engineered to use the pressure and flow available to create high impact cleaning jets. Automated and fluid-driven, these devices maximize mechanical force, which reduces the amount of time, temperature and cleaning solution needed to effectively clean.

The rotary spray head tank cleaning device provides exceptional cleanability, better end-product quality, greater overall output and reduced operating costs. It is designed for hygienic, biotechnology and pharmaceutical applications. Available in various sizes and different configurations covering any tank size.



Visit our web site at <https://www.harcosupply.com/tanks/>

## SIGHT GLASSES

Harco offers various Sight Glasses, a specialized type of instrument used in various processing industries including the pharmaceutical, dairy, food and beverage industries. A sight glass — which is also called a sight window or view port — is a transparent window. Making them critical instruments used to determine the condition and level of fluids and media in both tanks and pipelines.

Another specialized type of sight glass called a sight flow indicator — also known as a sight glass tube. Sight flow indicators are transparent tubes installed in pipes. Providing a visual means of verifying the flow direction and flow rate of fluids; and inspect products or media flowing through process lines.

## HYGIENIC SIGHT GLASSES

### HSC-Series Hygienic Sight Glass

Harco introduces Dixon HSC-Series Hygienic Sight Glasses for fluid transfer. Ideal for the transfer of liquid products where identification of product flow or color is required. Used widely in the food, dairy, and beverage sanitary processes to view products and fluids.

#### Applications

- Used widely in the food, dairy, and beverage sanitary processes to view products and fluids
- Can be used in industrial applications when you want to CIP and require 316L stainless steel construction



### In-Line Sight Glass B54BMP

Harco introduces Dixon's In-Line Sight Glass B54BMP (sight flow indicator/sight glass tube) for fluid transfer. In-Line sight glasses are transparent tubes installed in pipes to provide a visual means of verifying the flow direction and flow rate of fluids; and inspect products or media flowing through process lines. Used widely in the food, dairy, and beverage sanitary processes to view products and fluids.



### Viewport In-Line Sight Glasses

The strongest, most secure sanitary sight glass indicator available, Viewport's mechanically prestressed windows are available in a sanitary clamp design for sight ports in processing applications or inline visual flow indicators. Unlike some other sight glasses, Dixon's Viewport in-line sight glasses meet the USP Type 1 standard for pharmaceutical use.

Viewports are manufactured to fit sanitary clamp connections. With simple and fast installation with no risk of breakage, this sleek, compact, one-piece design provides a cleaner look, less bacteria traps and unsurpassed safety. The Dixon Viewport in-line sight glass can be used as a sight glass indicator mounted on a ferrule, a "cross" for inline visual flow indication or as a light port. Many other connection types are also available. Materials available include 2205 Duplex Stainless Steel, Hastelloy®, Monel® and Inconel®.



Visit our web site at <https://www.harcosupply.com/products/sight-glasses/>

## FITTINGS & GASKETS

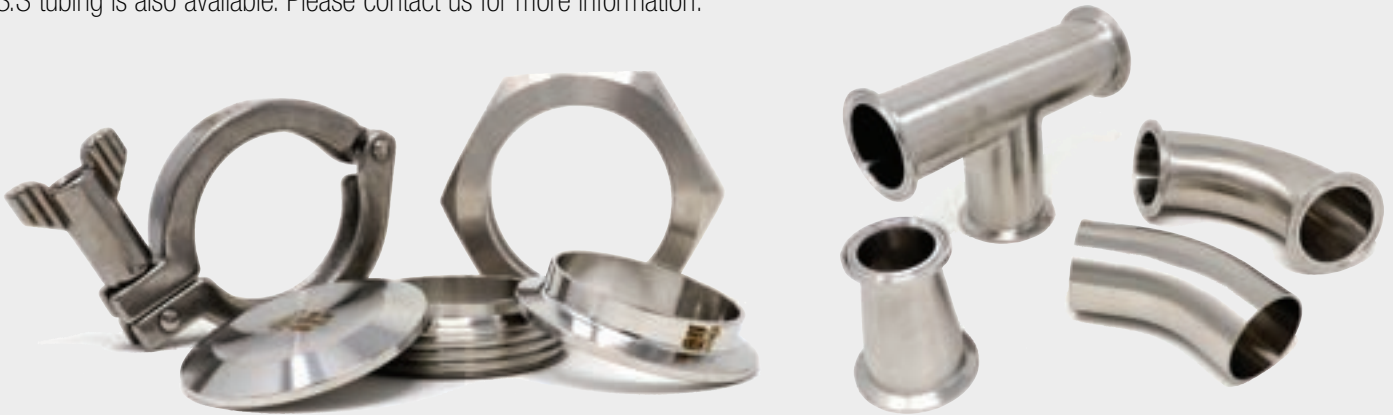
Harco carries a range of sanitary gaskets and fittings in various materials in stock for same day shipments.

### FITTINGS

#### Sanitary Fittings

Our stainless-steel sanitary fittings are ideal for a wide range of applications, in both 304 S.S and 316 S.S. Our line of fittings includes products for use in food and beverage processing, bio-pharmaceutical operations, straining, filtering and many other applications.

S.S tubing is also available. Please contact us for more information.



### SANITARY GASKETS

#### Sanitary Gaskets




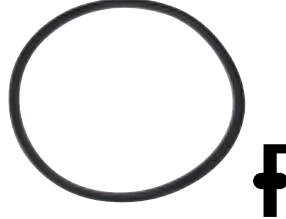
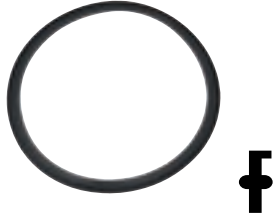

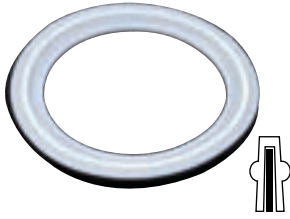



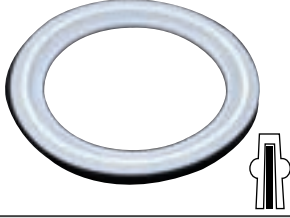

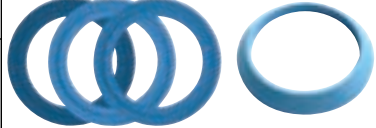
Our sanitary pipeline gaskets come in a number of styles and materials to fit your application, including:

- Tri-Clamp Gaskets
- Schedule 5 Gaskets
- Bevel Seat Gaskets
- John Perry
- Q-Line & I-Line Gaskets
- Mesh Screen
- Perforated Plate Gaskets
- Orifice Plates















Visit our web site at <https://www.harcosupply.com/tubes-fittings-gaskets/>

# SANITARY GASKETS

TUBE O.D./FRACTIONAL Mini Clamp Gaskets	Standard Clamp Gaskets	Flanged Clamp Gaskets	Flanged Clamp Gaskets																																																
																																																			
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<p><b>Detector® Gaskets</b></p>	<p>Tri-Clamp Gaskets available in: Buna, EPDM, Silicone &amp; Viton</p> <p>Bevel Seat available in: Buna-N</p> <p>Sizes Available 0.5", 0.75", 1", 1.5", 2", 2.5", 3", 4", 6" &amp; 8"</p>																																																		

# SANITARY GASKETS

<p><b>Orifice Plates</b></p>	<p><b>Sock Screen Gaskets</b></p>	<p><b>Screen Gaskets</b></p>	<p><b>Perforated Plate Gaskets</b></p>								
											
<table border="0"> <tr> <td>A80MP-U Buna-N A80MP-SFY Viton™ A80MP-E EPDM A80 MP-G Teflon™ A80MPG-TSS Tuf-Steel</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", 4", &amp; 6"</td> </tr> </table>	A80MP-U Buna-N A80MP-SFY Viton™ A80MP-E EPDM A80 MP-G Teflon™ A80MPG-TSS Tuf-Steel	Sizes Available 1", 1.5", 2", 2.5", 3", 4", & 6"	<table border="0"> <tr> <td>T-SOCK-size</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", &amp; 4"</td> </tr> </table>	T-SOCK-size	Sizes Available 1", 1.5", 2", 2.5", 3", & 4"	<table border="0"> <tr> <td>40MP-US Type 316 stainless steel; .025 dia. wire; width of opening .075 inch between wires; O/A 56.8%; 100 openings per square inch. 40MPG-TSS Tuf-Steel</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", 4", &amp; 6"</td> </tr> </table>	40MP-US Type 316 stainless steel; .025 dia. wire; width of opening .075 inch between wires; O/A 56.8%; 100 openings per square inch. 40MPG-TSS Tuf-Steel	Sizes Available 1", 1.5", 2", 2.5", 3", 4", & 6"	<table border="0"> <tr> <td>40MP-UP Type 316 stainless steel; .033" dia. straight line centers; 324 holes per square inch; 28% O/A. Other size perforated discs are available.</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", 4", &amp; 6"</td> </tr> </table>	40MP-UP Type 316 stainless steel; .033" dia. straight line centers; 324 holes per square inch; 28% O/A. Other size perforated discs are available.	Sizes Available 1", 1.5", 2", 2.5", 3", 4", & 6"
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<p><b>Snaptite</b></p>	<p><b>D40</b></p>	<p><b>SMS</b></p>	<p><b>APC Elastomeric Gaskets</b></p>								
											
<table border="0"> <tr> <td>HS-size HST-size</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", 4", &amp; 6"</td> </tr> </table>	HS-size HST-size	Sizes Available 1", 1.5", 2", 2.5", 3", 4", & 6"	<table border="0"> <tr> <td>D40-size</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", 4", &amp; 6"</td> </tr> </table>	D40-size	Sizes Available 1", 1.5", 2", 2.5", 3", 4", & 6"	<table border="0"> <tr> <td>SMS-40</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", 4", &amp; 6"</td> </tr> </table>	SMS-40	Sizes Available 1", 1.5", 2", 2.5", 3", 4", & 6"	<table border="0"> <tr> <td>101H-size Buna-N</td> <td>Sizes Available 1", 1.5", 2", 2.5", 3", &amp; 4"</td> </tr> </table>	101H-size Buna-N	Sizes Available 1", 1.5", 2", 2.5", 3", & 4"
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<p><b>Q-Line Gaskets</b></p>	<p><b>I-Line Gaskets</b></p>	<p><b>ISS</b></p>	<p><b>Cam Groove</b></p>								
											
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CG-size	Sizes Available 1", 1.5", 2", 2.5", 3" & 4"										

Custom options may be available.

## CLEANING & WASHDOWN EQUIPMENT

Harco Enterprises offers a full line of cleaning and wash down equipment from Strahman and Archon Industries as well industrial hoses and tubing for a wide variety of applications serving all industries. From mixing stations, to spray nozzles to hoses, tubing and hose reels we have a product to fit your application.

## CLEANING & WASHDOWN EQUIPMENT

### Cleaning & Washdown Equipment

High-quality, high-efficiency, long-service products. A wide variety of cleaning and washdown products for the dairy, food, brewing, pharmaceutical and many other industries across North America. Products include hoses, mini nozzles, spray nozzles, steam and water mixing stations, as well as many other mixing stations and products.



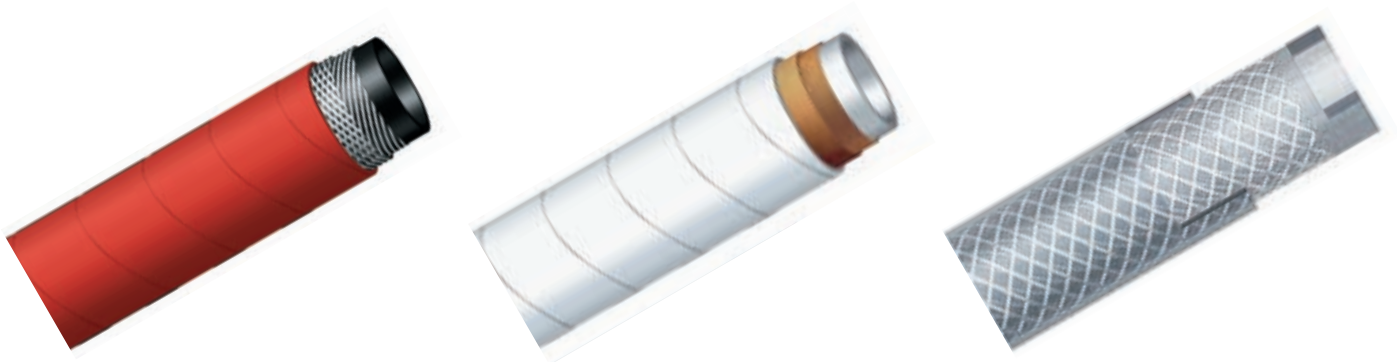
# ARCHON

*Strahman*

## HOSE & TUBING

### Hose & Tubing

Harco offers a large variety of hoses, tubing, couplers, adapters and fittings for whatever your application requirements may be. Our Catalogue includes many different types of hoses including general purpose, air hoses, water discharge and suction tubing, high temperature and steam tubing, petroleum hose, and many more.



Visit our web site at <https://www.harcosupply.com/cleaning-wash-down-equipment/>

## LUBRICANTS

Harco offers various sprays and lubricants from Haynes, McGlaughlin Oil Company, and Moovit, along with our very own CFIA-approved sanitary spray, the HL-7.

Our lubricants are blended from the highest quality ingredients and perform well in a wide range of applications. Most of the lubricants we supply are FDA and CFIA-approved.

### Lubricant brands we carry:

- Haynes Manufacturing Lubricants – LubriFilm, Haynes 500, CIP film
- Haynes Spray, Homogenizer Oil
- Petrol Gel
- C.I.P Lube
- Moovit lubricants
- Harco HL-7
- Sanitary food-grade lubricants

**Haynes Lubricants (pg. 44)** Designed for maximum efficiency, specifically formulated with the highest quality base oils and additives to meet the unique demands placed on all types of food processing equipment.

**Petrol Gel (pg. 48)** The number one sanitary lubricant used in the dairy industry and soft serve machines. The popularity of the technical white grease, has expanded to all areas of food manufacturing.

**Moovit (pg. 45)** Blended from the highest quality natural ingredients, uniquely formulated to loosen rusted, seized parts, nuts and bolts with ease.

**Harco HL-7 (pg. 44)** Harco's Sanitary Lubricating Spray HL-7 is suitable for use on dairy and food processing equipment, where contact with food may occur.







Visit our web site at <https://www.harcosupply.com/lubricants/>

## SANITARY LUBRICANTS




HARCO	Description	Pack	Unit
 <p><b>HL-7 Spray</b> Spray Cans</p> <p>CFIA Approved</p>	<p>A light duty sanitary lubricant packaged in handy aerosol spray cans for fast application on food processing equipment as well as drawer slides, doors, hinges, etc.</p> <p>Harco's Sanitary Lubricating Spray HL-7 is suitable for use on dairy and food processing equipment, where contact with food may occur.</p> <p>It contains FDA and USDA accepted ingredients and is odorless, tasteless and non-toxic.</p> <p>USP* Liquid Petrolatum allows it to be used safely for food processing equipment.</p> <p>Harco's Sanitary Lubricating Spray HL-7 contains no animal or vegetable fats, will not turn rancid and remains absolutely neutral when in contact with food products.</p> <p><b>Applications:</b> Sanitary Valve And Stems, Pistons And Rings, Conveyors, Mixers, Sliding Pump Parts, Slicers, Cutters, Fillers, Wrappers, Gates, Wheels, Hinges.</p>	12	11 oz.
HAYNES	Description	Pack	Unit
 <p><b>Lubri-Film Spray</b> Heavy Duty 11.25 oz. Spray Cans</p> <p>CFIA &amp; FDA Approved</p>	<p>Heavy duty sanitary lubricant with high load bearing, low friction properties. Authorized by the NSF (rated H1) for use in food processing plants for incidental food contact.</p> <p>Provides a protective coating to all metal parts. A thin film will retain effectiveness on bearings, slides, and other lubricated surfaces despite moisture. Corrosion of metal is minimized. Highly resistant to separation or bleed. It will not dry or gum.</p> <p><b>Applications:</b> Positive Pumps, Homogenizer Pistons, Size Reduction Equipment, Plug Valves, Dispensing Units, Centralized Lubrication Equipment, Beverage Equipment, Freezers, Stainless Steel Threads, Separators, Clarifiers.</p>	6	11.25 oz.
 <p><b>Haynes Spray</b> Light Duty 9 oz. Spray Cans</p> <p>CFIA &amp; FDA Approved</p>	<p>A light duty sanitary oil lubricant for all sanitary machine parts. This lubricant is authorized by the NSF (rated H1) for use in food processing plants for incidental food contact.</p> <p>This U.S.P.* Light Duty Sanitary Spray can be used as an oil lubricant for food processing equipment. And can be used safely on drawer slides, doors, hinges, wheels, carts, or anywhere a light duty oil is needed in and around the food processing area. Contains no animal or vegetable fats and is absolutely neutral. It will not turn rancid, contaminate or taint food products. It is odorless, tasteless, colorless and non-toxic.</p> <p><b>Applications:</b> Valve Stems, Homogenizer Pistons &amp; Rings, Positive Pump Parts, Wheels (carts, chairs, equipment), Hinges (doors, windows, equipment), Slides, Internal Machinery Parts, Anti-Rust Film, Release Agent, Filling Machines, and Gates.</p>	6	9 oz.



HAYNES	Description	Pack	Unit
 <p><b>Haynes Silicone Spray</b> 12 oz. Spray Cans Drums</p> <p>CFIA &amp; FDA Approved</p>	<p>A sanitary spray lubricant for a variety of machine parts. This lubricant is authorized by NSF (rated H1, 3H) for use in food processing plants for incidental food contact.</p> <p>Minimizes cleanup time and sticking problems on food packaging and processing equipment. Can be used as a release agent on plastic/rubber mold equipment and as an anti-rust film on equipment. Has one of the highest percentage of Silicone, to achieve the optimal effect on the food processing/packaging equipment.</p> <p><b>Applications:</b> Belts, Slides, Fillers, Valves, Conveyors, Mandrels, Guide Rails, Anti-Rust Film, Transfer Chutes, Release Agent, Packaging Equipment, Plastic Injection Mold Equipment.</p>	6	12 oz.
 <p><b>Haynes 500 PLUS Sanitary Synthetic Lubricating Spray</b> 11.25 oz. Spray Cans</p> <p>CFIA Approved</p>	<p>Designed specifically to reduce friction and wear in high-speed bearings. A high drop point (500°F) which extends your lubrication intervals and extends the lubricant's performance in higher temperature applications. This synthetic grease has an excellent resistance to water washout, steam, chemical attack, and other contaminants. Compatible with virtually all elastomers. This lubricant has excellent load carrying properties and is ideal in both low and high temperature applications. The recommended operating temperature is -40° to 400°F and intermittent use up to 500°F. This lubricant is NSF rated H1, Kosher Certified, and Halal Certified.</p> <p><b>Applications:</b> Pumps, Valves, Bearings, Ovens, Packings, Plug Valves, High Load Bearing Equipment, Ball Joints, Universal Joints, Positive Pumps, Meat Processing Equipment and Perpetual Moving Slicing Equipment.</p>	1 or 10	11.25 oz.
MOOVIT	Description	Pack	Unit
 <p><b>Moovit High Performance Penetrating Lubricant</b> Aerosol #11014</p> <p>CFIA Approved</p>	<p>Blended from the highest quality natural ingredients, uniquely formulated to loosen rusted, seized parts, nuts and bolts with ease. Moovit's molecular capillary action combined with superior lubrication reduces torque and thread wear, requiring less replacement of parts, machinery and equipment.</p> <ul style="list-style-type: none"> <li>• Non-Toxic -- Non-Flammable (as a liquid)</li> <li>• Non-Solvent -- Non-Synthetic -- Non-Silicone</li> <li>• Non-Conductive -- Non-Abrasive -- Non Alkaline</li> <li>• Will not evaporate</li> <li>• Will withstand extreme pressure</li> <li>• Clean, Non-tar or creosote formula</li> <li>• Compatible with all metals, alloys, plastic, and rubber</li> </ul> <p>Use as threading and tapping oil, air tool oil lubricant, bearing and shaft lubricant, tire mounting, unseize seized motors.</p>	12	14 oz.
 <p><b>Precision Pump</b> Non-Aerosol #13045 CFIA Approved</p>	<p>Non-Aerosol. One press of the nozzle delivers a teetered spray of 0.12 ml. Press lightly to deliver a fine stream. Press firmly to deliver a spray or mist. Nozzle accepts a 4" extension tube for hard-to-reach areas. A great delivery system for Moovit. 100% active ingredient non-solvent formulation. - 2360 sprays</p>	12	4 oz.

HAYNES	Description	Pack	Unit
 <p><b>Lubri-Film Tube</b> 4 oz. Tubes</p> <p>CFIA &amp; FDA Approved</p>	<p>Heavy duty sanitary lubricant with high load bearing, low friction properties. Authorized by the NSF (rated H1) for use in food processing plants for incidental food contact.</p> <p>Provides a protective coating to all metal parts. A thin film will retain effectiveness on bearings, slides, and other lubricated surfaces despite moisture. Corrosion of metal is minimized. Highly resistant to separation or bleed. It will not dry or gum.</p> <p><b>Applications:</b> Positive Pumps, Homogenizer Pistons, Size Reduction Equipment, Plug Valves, Dispensing Units, Centralized Lubrication Equipment, Beverage Equipment, Freezers, Stainless Steel Threads, Separators, Clarifiers.</p>	12	4 oz. tube
 <p><b>Lubri-Film Cartridge</b> 12 oz. Cartridge Drums</p> <p>CFIA &amp; FDA Approved</p>	<p>Heavy duty sanitary lubricant with high load bearing, low friction properties. Authorized by the NSF (rated H1) for use in food processing plants for incidental food contact.</p> <p>Provides a protective coating to all metal parts. A thin film will retain effectiveness on bearings, slides, and other lubricated surfaces despite moisture. Corrosion of metal is minimized. Highly resistant to separation or bleed. It will not dry or gum.</p> <p><b>Applications:</b> Positive Pumps, Homogenizer Pistons, Size Reduction Equipment, Plug Valves, Dispensing Units, Centralized Lubrication Equipment, Beverage Equipment, Freezers, Stainless Steel Threads, Separators, Clarifiers.</p>	1 or 12	12 oz. cartridge
 <p><b>Lubri-Film PLUS</b> 4 oz. Tubes Drums Pails</p> <p>CFIA &amp; FDA Approved</p>	<p>Heavy duty sanitary lubricant with extended performance, low friction properties. This lubricant is authorized by the NSF rated H1 for use in food processing plants for incidental food contact.</p> <p>Designed for longer lubrication intervals, eliminating downtime to relubricate the equipment. This lubricant wears evenly on all moving parts, preventing metal to metal contact and equipment damage. Will not dry or gum on the equipment and is highly resistant to separation or bleed. It is a time saver because it cleans off of the equipment easily.</p> <p><b>Applications:</b> Pumps, Meat Slicing Equipment, Cheese Processing Equipment, Dispensing Units, Bearings, Packings, Plug Valves, Mixers, Slicers, Batch Freezers, Soft-Serve Machines, Shake Machines, Frozen Drink Machines, Cappuccino Machines, Yogurt Machines, Pasta Machines, Dispensing Units, Hospital Beds, Beverage Equipment.</p>	12	4 oz.
 <p><b>Haynes CIP Film</b> 4 oz. Tubes Drums Pails</p> <p>CFIA &amp; FDA Approved</p>	<p>NSF registered H1 for use in food processing plants for incidental food contact. And was specifically formulated for Clean-In-Place Systems. This lubricant has a low melting point of 120°F and is ideal on food processing equipment with frequent lubrication intervals. It is completely odorless, tasteless and non-toxic.</p> <p><b>Applications:</b> Fittings, Positive Pumps, Threads, Valves, Multi-Port Flow Selectors, Plug Valves, All Sanitary CIP Systems Parts Requiring Daily Lubrication.</p>	12	4 oz. tube

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HAYNES	Description	Pack	Unit
<p style="text-align: center;"><b>Haynes 500</b> 14 oz. Cartridge Drums Pails</p>  <p style="text-align: center;">CFIA &amp; FDA Approved</p>	<p>Designed specifically for the food processors with high temperature/high load bearing applications. And has extreme pressure qualities and boundary friction protection.</p> <p>It has a high drop point which extends your lubrication intervals and extends the lubricants performance in higher temperature applications. It has an excellent resistance to water, steam, chemical attack, and other contaminants. Is NSF rated H1 for use in food processing plants for incidental food contact. And is also Kosher Certified and Halal Certified.</p> <p><b>Applications:</b> Pumps, Ovens, Bearings, Packings, Plug Valves, Positive Pumps, Meat Processing Equipment, High Load Bearing Equipment, Ball Joints, Universal Joints and Perpetual Moving Slicing Equipment.</p>	1 or 10	14 oz. car- tridge
<p style="text-align: center;"><b>Haynes 500 PLUS</b> 4 oz. Tubes 12 oz. Cartridge Drums Pails</p>  <p style="text-align: center;">CFIA &amp; FDA Approved</p>	<p>Designed specifically to reduce friction and wear in high-speed bearings. A high drop point (500°F) which extends your lubrication intervals and extends the lubricant's performance in higher temperature applications. This synthetic grease has an excellent resistance to water washout, steam, chemical attack, and other contaminants. Compatible with virtually all elastomers. This lubricant has excellent load carrying properties and is ideal in both low and high temperature applications. The recommended operating temperature is -40° to 400°F and intermittent use up to 500°F. This lubricant is NSF rated H1, Kosher Certified, and Halal Certified.</p> <p><b>Applications:</b> Pumps, Valves, Bearings, Ovens, Packings, Plug Valves, High Load Bearing Equipment, Ball Joints, Universal Joints, Positive Pumps, Meat Processing Equipment and Perpetual Moving Slicing Equipment.</p>	1 or 10	14 oz. car- tridge
<p style="text-align: center;"><b>Haynes Silicone Grease</b> 4 oz. Tubes Drums Pails</p>  <p style="text-align: center;">CFIA &amp; FDA Approved</p>	<p>A food-grade grease that can be used on a variety of application in food and pharmaceutical plants where incidental food contact may occur. NSF rated H-1. This sanitary grease complies with all regulatory agencies.</p> <p>Specifically formulated with the highest quality silicone fluid and additives to meet the unique demands placed on all types of food processing equipment. This grease will prevent valves and o-rings from sticking in both high temperature and low temperature (freezing) conditions. Can be used in high vacuum or pressure systems to seal synthetic rubber and plastic parts that come in contact with metal. The grease is inert and will resist many chemicals. It can be effectively used on EPDM seals where grease compatibility is a concern.</p> <p><b>Applications:</b> Valve Seats, O-Rings, Flow Meters, Plug Valves, Electrical Connectors, Dielectric Grease, Assembly Lubricant for Rubber and Plastic Parts, EPDM Seals, and High Vacuum or Pressure Systems.</p>	12	4 oz. tube

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HAYNES	Description	Pack	Unit
<p><b>Haynes® Anti-Seize and Lubricating Compound</b> 2 oz. Container 7 oz. Jar, Pails, Drum</p>  <p>CFIA &amp; FDA Approved</p>	<p>A premium food grade lubricant which meets FDA/NSF requirements for incidental food contact. It is virtually odorless, colorless, tasteless, and non-staining. This multi-purpose grease can be used for a variety of applications in and around the food processing area.</p> <p>Provides maximum lubrication up to 475°F. Keeps parts working longer with less wear. Prevents rust and corrosion. Resists water and chemical washout. Non-staining. Suitable for pipe threads used with potable water-will not impart odor or taste. Prevents water and contaminants from entering the bearing.</p> <p><b>Applications:</b> Nuts, Bolts And Screws, Pipe Fittings, Stainless Steel Fittings, Valve Stems &amp; Assemblies, Pumps Gears, Chain Drives &amp; Sprockets, Gasket Release Agent, Bushings, Press Fit Assemblies, Conveyor &amp; Oven Bearings, Packaging Machinery, Worm Gears, Slow Speed or Highly Load Bearing &lt;500 RPM, Rollers and Bottling Machinery.</p>	1	2 oz.
McGLAUGHLIN OIL COMPANY	Description	Pack	Unit
<p><b>Petro-Gel</b> CFIA &amp; FDA Approved</p>  <ul style="list-style-type: none"> <li>• Tasteless and odorless</li> <li>• Will not taint</li> <li>• Impervious to water</li> <li>• Operating Temp 0°-185°F</li> <li>• High melting point 195°F</li> <li>• Technical white grease</li> </ul>	<p>The number one sanitary lubricant used in the dairy industry and soft serve machines. The popularity of the technical white grease, has expanded to all areas of food manufacturing... to such industries as meat and poultry packing, bakery, beverage, brewery and distilleries, food packaging manufacturers, fruit and juice canners, vegetable canners and many more.</p> <p>It is the purest of lubricants, made with an odourless, tasteless high viscosity index paraffinic base oil. Compounded with appropriate food grade additives to meet the performance demands for all recommended applications. Authorized by USDA (H-1) as a lubricant for use where incidental contact with food.</p> <p><b>Applications:</b> Sanitary Fittings, Stainless Steel Valves, Homogenizer Pistons, Filling Machine Pistons, Centrifugal Pumps, Guides and Slides Mechanisms, Continuous Direct Draw Ice Cream Freezers, Gaskets &amp; Seals and O-Rings.</p>	6 or 12	4 oz. tube
HAYNES	HAYNES		
 <p><b>Haynes Oil</b> 2.5 Gallon Pour Container</p> <p>CFIA &amp; FDA Approved</p>	 <p><b>Haynes Homogenizer Oil</b> 5 Gallon Pails Drum</p> <p>CFIA Approved</p>		

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## INSTRUMENTATION

Harco offers a complete line of instrumentation, including sanitary and industrial pressure gauges, digital and bi-metal thermometers, flow measurement devices for various liquids, gases and steam, as well as chart recorders and pens. We supply products from industry leaders such as Burkert, Endress+Hauser, Chicago Stainless, Alfa Laval and more.

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## PRESSURE GAUGES & THERMOMETERS

### Sanitary Pressure Gauges &

We are suppliers of a wide variety of modular and unimodular digital thermometers and pressure gauges for the dairy, food services, beverage, industrial and pharmaceutical industries across North America from Chicago Stainless and Winters Instruments.

We can offer a large range of products, including:

- Sanitary Digital Thermometers
- Bi -Metal Thermometers
- Sanitary Pressure Gauges
- Pharmaceutical Pressure Gauges
- Homogenizer Pressure Gauges
- Industrial Stainless-Steel Pressure Gauges
- Sanitary RTD's & Temperature Transmitters

### Thermometers



## FLOW METERS

### Sanitary & Industrial Flow Meters

Harco can offer a complete line of sanitary and industrial flow meters from industry leaders such as Endress + Hauser, Burkert, and Alfa Laval. Whether it is water, gas, chemicals or steam, Harco realizes that all applications are different and can offer a customized solution to fit you're your specifications.

Endress+Hauser 



## STAINLESS STEEL PAILS, UTENSILS & SINKS

Reduce the risk of bacterial migration and cross contamination with stainless steel products. The easy cleaning ability of stainless steel makes it the first choice for strict hygienic conditions, which is critical in food, beverage and pharmaceutical processing facilities. Stainless steel's hygienic properties, corrosion resistance, strength and formability are important benefits to users in this sector.

We supply a full line of stainless-steel pails, utensils and sinks ideal for food and dairy beverage processors, pharmaceutical, brewing, fisheries, and other industries throughout Canada and North America.

### STAINLESS STEEL PAILS & UTENSILS

#### Sanitary Stainless Steel Pails & Utensils

Harco carries a wide variety of sanitary pails and utensils, including:

- Stainless steel long handle dippers
- Sampling dippers
- Special bacteriological dippers
- Flat-back round-bottom scoops
- Round-back round-bottom scoops
- Flat scoops
- Stainless steel storage containers
- Beakers
- Stainless steel forks
- Shovels
- Scoops and dippers
- Stainless steel pails and containers
- Cans
- Measures and funnels
- Cheese plant accessories



### STAINLESS STEEL SINKS

#### Stainless Steel Hand Wash Sinks & Wash Stations

Harco carries a full line of Columbia Products, a leading manufacturer of stainless steel hand wash sinks and wash stations. They have been providing high-quality sinks to the food processing and commercial industries since 1949. They specialize in hands-free operation with a focus on sanitation to prevent cross contamination that can cause food-borne illness. Years of manufacturing and engineering knowledge have made Columbia the standard in the food processing industry.

**COLUMBIA  
PRODUCTS**



Visit our web site at <https://www.harcosupply.com/stainless-steel-pails-utensils-sinks/>

## OUR CAPABILITIES



**Harco is a Peterborough-based company that is a leader in the supply, design, fabrication and repairs of sanitary components and stainless steel equipment for the pharmaceutical, food, dairy, brewery, and beverage processing industries.**

We are proud to provide quality service and support to customers throughout North America since 1964. Offering high quality brands and materials, our custom work is of the highest quality and we ensure it is upheld from start to finish.

Harco offers a full range of sanitary stainless steel processing equipment, from pumps and valves, mixers and blenders to homogenizers and separators and custom fabrications. We back what we sell by offering extensive parts, repairs and customer support.

*We're committed to creating forward-thinking solutions that drive your bottom line and keep your business top of mind.*

**Visit our website for more information at  
<https://www.harcosupply.com/capabilities/>**



Harco partners with leading manufacturers in the industry to bring you an innovative range of sanitary and hygienic processing equipment and supplies. With experience in design, manufacturing and support, our partners are selected for their quality, reliability, and advanced products.

