Blackmer
A DOVER COMPANY

Experts in

MISSION CRITICAL

Transfer and Process Flow Solutions For



Soap and Detergents

Process | Energy | Transport | Military & Marine



Soap & Detergents Manufacturing Process Flow Solutions

Blackmer offers a comprehensive line of transfer solutions for the world's most critical Soap & Detergents manufacturing missions – yours.

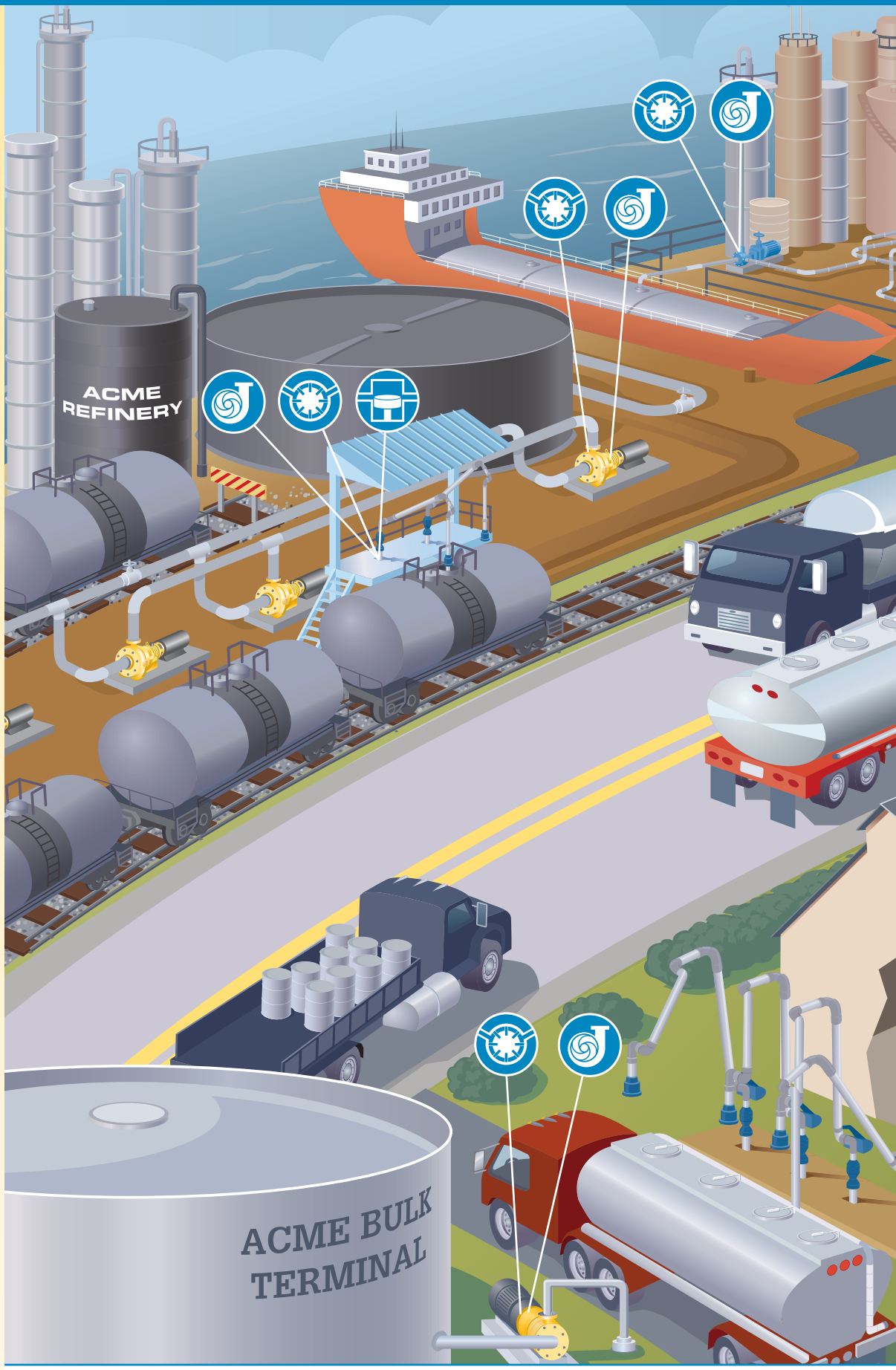
Blackmer pumps move natural and synthetic raw material feed stocks from petrochemical and oleo chemical processing facilities to storage and transports, then throughout the blending, filling and bottling processes within the detergent manufacturing facility or the batch or continuous process at the soap plant.

From animal fats, vegetable or fish oils to glycerin, and alkaline solutions such as caustic soda and potash or surfactants, builders, enzymes, additives, fragrances, and brighteners to fillers, Blackmer pumps are specifically designed to meet the rigorous demands of modern synthetic detergent and soap manufacturing. This means:

- Improved operational efficiencies and productivity
- Improved product loss prevention
- Improved environmental protection
- Improved process economics
  - Increased throughput and uptime
  - Reduced maintenance time and costs
  - Reduced energy consumption

With Blackmer's 100+ years of proven industry experience, when it comes to Soap & Detergents process flow solutions, successful manufacturers and their raw material suppliers share a common demand…**Better Get Blackmer**.

Blackmer
A DOVER COMPANY
ISO 9001 Certified



SNP Sliding Vane Pump

SMVP Mag-Drive Sliding Vane Pump

ProVane® Motor Speed Sliding Vane Pump

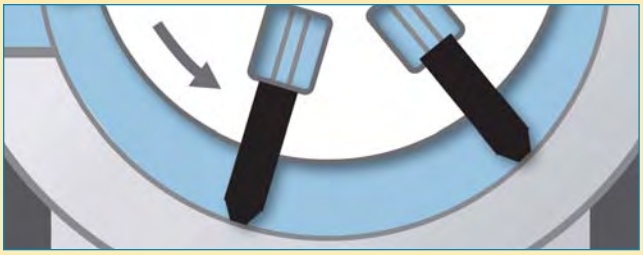


C-Series
(Mouvex Technology)
Eccentric Disc Pump

System One®
Centrifugal Pump

Abaque Peristaltic
(Hose) Pump

Reciprocating
Gas Compressors



Blackmer Vane Pumps

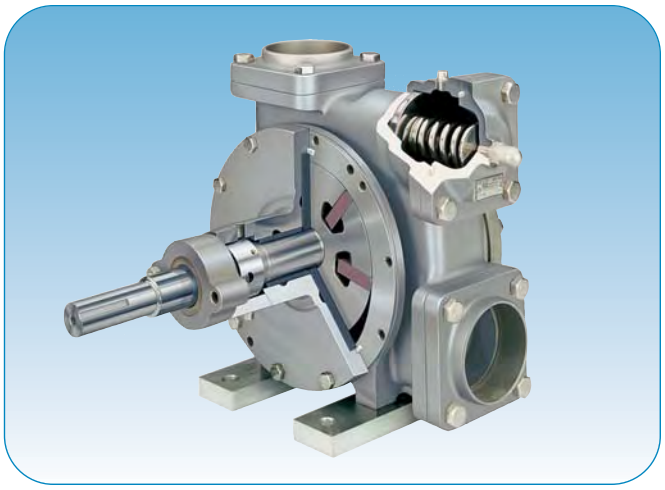
Blackmer rotary vane positive displacement pumps offer significant performance and life cycle cost advantages over other pump technologies in moving raw material feed stocks from processing facilities to storage and transports, and throughout the soap and detergents manufacturing processes:

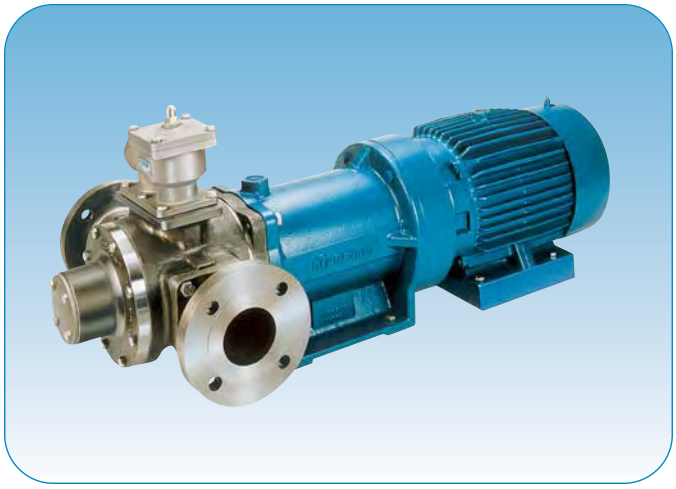
- **Superior Pumping Efficiency on:**
  - Vegetable Oils
  - Fatty Acids
  - Sulfonic Acid
  - Amines
  - Anionic Surfactants
  - Non-ionic Surfactants
  - Cationic Surfactants
  - Additives
  - Enzymes
  - Builders
  - Neat Soap
  - Glycerin
  - Concentrated Perfumes and Dyes
- **Superior Shear-Sensitive Handling** – smooth, sliding vane action has no metal-to-metal contact which reduces pump friction, eliminates galling and minimizes agitation of liquids, allowing for shear-sensitive, mild handling of thin fluids and increased pump life
- **Superior Self-Priming and Line Stripping Capabilities** – the sliding vane principle offers unmatched vacuum capabilities to clear lines, tanks and pumps of valuable product
- **Superior Volumetric Performance** – unlike gear and lobe pumps that lose volumetric performance as they wear, sliding vane pumps utilize self-adjusting vanes that sustain pump volumetric performance levels over time, resulting in productivity gains and energy savings
- **Superior Selection** – vane pumps are available in stainless steel and ductile iron housings and a variety of vane materials and options to meet specific soap and detergents process requirements
- **Seal-Less Peace-of-Mind** – for handling hard-to-seal surfactants, builders, additives, concentrated dyes and fragrances, Blackmer offers magnetically coupled-drive, seal-less vane pumps
- **Lower Life Cycle Costs**

SNP Sliding Vane Pumps

SNP pumps are built for soap and detergents manufacturing, from the raw material unloading and transfer stage throughout the entire soap and detergents manufacturing process. SNP pumps are designed for handling caustic fluids, such as fatty acids, brines and alkalis, as well as tallow, vegetable oils, sodium hydroxide, crude glycerins, builders, additives, surfactants and virtually any soap and detergents ingredients and formulas.

- **Superior top and bottom unloading** – through exceptional vacuum, line stripping and tank clearing capabilities. The SNP allows you to unload oleochemical and petrochemical raw materials from rail, transports, and storage tanks faster and more completely than other pump technologies
- **Handles a wide range of viscosities** – capable of handling in excess of 4,250 cP (20,000 ssu), the SNP is also equipped with a removable drain valve plug for complete self draining
- **Unmatched pumping performance in thin liquids** – vane technology principles of the SNP ensure superior sealing even after significant in-service time eliminating efficiency-robbing “slip” that minimizes lobe and gear pump life
- **Sustained performance** – unlike gear and lobe pumps that lose efficiency as they wear over time, the self-adjusting vanes of the SNP ensure optimum performance levels over time
- **Gentle, shear sensitive fluid handling** – of additives, builders, surfactants, concentrated dyes and perfumes and D.I. water during pre-mix and mixer/blending, filling/bottling and packaging processes of liquid detergents and the batch and continuous processes in the manufacture of bar and liquid soaps.
- **Stainless Steel and Ductile Iron models available**



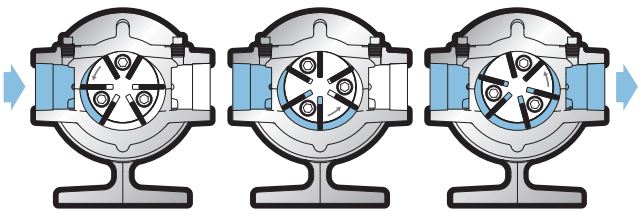




SMVP Seal-less Mag-Drive (Magnetically Coupled) Sliding Vane Pumps

Offering all the vane pump benefits of SNP pumps, SMVP Seal-less Mag-Drive pumps are typically used in the pre-mixer and mixer/blending processes of liquid detergents and throughout all aspects of the batch and continuous processes during the manufacture of soap.

- **"Zero Shaft Leakage"** – helps prevent product loss and messes when handling hard-to-seal surfactants, fatty acids and oils, glycerin, builders, additives, concentrated dyes, expensive fragrances and other fine chemicals during the pre-mix, mixer/blender, filling and packaging processes of liquid detergents, and the batch and continuous processes of bar and liquid soap manufacturing. Also used to move concentrated perfumes and dyes from totes to the pre-mixer.
- **Exceptional flow rates and temperature ranges** – 4 to 333 U.S. gpm (15 to 1,260 lpm) and operating temperatures of -40ºF to 200ºF (-40ºC to 96ºC)
- **Wide Viscosity Range** – up to 5,250 cP (25,000 ssu)
- **Exceptional Thin Fluid Transfer** – no other technology offers the efficiency in thin fluids as vane technology. The SMVP is highly efficient in moving anionic surfactants, dishwashing liquids, fabric softeners, fatty acids, hydrochloric acid, cationic surfactants, liquid detergents, lye, neat soap, nigre, non-ionic surfactants, and sulfonic acid, as well as concentrated dyes and perfumes.



How a Sliding Vane Pump Works

ProVane® Motor Speed Vane Pumps

The ProVane® Motor Speed Vane Pump is specifically designed to move high-purity chemicals, acids and caustics throughout soap batch and continuous processes and in moving concentrated dyes and perfumes from totes to liquid detergents pre-mixer operations, and additives, builders and surfactants to mixer/blenders. Offering all the benefits of traditional vane technology and more:

- **Motor Speed Capacities** – up to 3,600 rpm with capacities to 210 gpm (795 lpm).
- **Continuous Duty Process Pump Rating** – with self-adjusting vanes, this pump is capable of providing continuous (24/7) operation while maintaining optimum volumetric efficiency, delivering higher productivity for continuous process operations.
- **Exceptional Self-priming and Line Stripping Capabilities** – offering unmatched vacuum capability for clearing tanks, lines and pump chambers when making in-line material changes
- **One Mechanical Seal and Sealed-for-Life Bearings** – significantly reduces leak risks and product loss potential of expensive raw materials, concentrated dyes and fragrances
- **Direct Drive Capability Eliminates Gear Boxes** – offering upfront equipment, installation and energy savings and a small, compact footprint
- **High Mechanical Efficiency** – offers the highest level of consistent performance, while doing so with premium efficiency to lower HP (kW) usage and lower operating costs

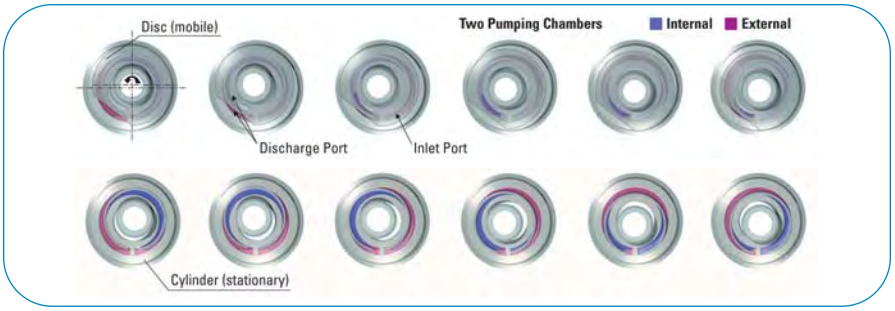


Blackmer Mouvex Eccentric Disc Pumps for Soap & Detergents

Used throughout virtually every fluid handling aspect of soap and detergents manufacturing, from raw material transfer to in-plant processes, the Blackmer Mouvex C-Series Eccentric Disc pump is unlike any other pump technology in the world. Capable of delivering high volume efficiency while completely maintaining its shear sensitive, gentle fluid handling nature, the C-Series is used to move everything from:

- Animal Fats and Vegetable Oils
- All Surfactants Types
- Builders and Additives
- Amines
- Enzymes
- Concentrated Dyes and Perfumes
- Caustics
- Glycerin
- Brine and Sodium Hydroxide
- Nigre
- Bleaches
- Fatty Acids
- D.I. Water

No matter the application, whether moving raw materials from storage tanks, containers or transport vessels to in-plant liquid detergents blending, filling and packaging processes or soap making batch or continuous processes, this seal-less pump will help you improve productivity, reduce maintenance costs, product loss and messes.



C-Series Pumps

The Blackmer Mouvex Eccentric Disc C-Series Pump is a seal-less sensation in soap and detergents manufacturing. As raw material, concentrated dye and fragrance costs continue to rise any degree of productivity or product loss is unacceptable. The C-Series seal-less pump significantly improves mean time between failure over lobe and gear pumps and ensures your product stays where it belongs and is delivered to the next stage of your process as efficiently as required. The C-Series offers:

- **Seal-Less Peace-of-Mind** – for handling hard-to-seal surfactants, enzymes, builders, additives, concentrated dyes and fragrances
- **Constant flow rates at varying pressures and low viscosities**
- **Superior Shear-Sensitive Handling** – smooth, eccentric disc action minimizes agitation of liquids, allowing for shear-sensitive, mild handling particularly of thin fluids
- **Solids and Abrasives Handling Capabilities** – capable of passing solids up to 3 mm (depending on pump size), unlike lobe or gear pumps, the gentle eccentric disc action allows the pump to process abrasive additives without performance degradation.
- **Superior Self-Priming and Line Stripping Capabilities** – exceptional vacuum capabilities and air compression (over 50 psi depending on pump size) to clear lines, tanks and pump intake and discharge lines of valuable residual product and reduce product waste and cross contamination
- **Clean-In-Place** – perfect for multi-purpose pumping applications, and frequent changes of colors and fragrances
- **Superior Volumetric Performance** – unlike gear and lobe pumps that lose volumetric performance as they wear, eccentric disc pumps sustain pump volumetric performance levels over time, resulting in productivity gains and energy savings
- **Handles a wide range of viscosities** – capable of handling 10,000 cP (46,000 ssu)
- **Eliminates Pulsation**
- **3A Approved Certification**
- **Designed per EHEDG** (European Hygienic Equipment Design Group) recommendations
- **Lower Life Cycle Costs**





System One® centrifugal pumps are used throughout soap and detergents manufacturing processes to move hard-to-seal products that typically plague other centrifugal pumps with chronic seal failures, causing unnecessary and expensive downtime and product loss. Designed around the seal where 90% of pump failures occur, the System One® has a larger, heavy-duty shaft and ball bearings resulting in the widest operational window off the BEP than any standard process pump. This means you get reliable, leak-free constant flow with no pulsation when moving oils and fragrances, additives, builders and surfactants to per-mixers and mixer/blenders, or from mixers to the bottling processes.

In batch soap-making processes, the System One® offers superior performance in moving sodium hydroxide, vegetable oils and tallow to and from bleach blenders and hot caustic alkali solutions from saponification kettles. Within the soap-making processes the System One® provides maximum uptime by delivering reliable, leak-free transfer of brine, ferric chloride hydrochloric acids and brine/sodium hydroxide solutions, ingredients that typically challenge the seal integrity of other centrifugal pumps.

In continuous processes, because of its rugged durability and seal integrity, the System One® is the reliable centrifugal pump choice for moving hot water to the hydrolyser and fatty acids from the hydrolyser to flash tanks.

Specified by the U.S. Military to handle its toughest, mission-critical applications, the System One® has earned its reputation for extreme durability and performance, and delivering peace-of-mind through:



- **Consistent, reliable flow**
- **Improved productivity**
- **Low life cycle cost**
- **Reliable seal integrity**
- **The Best Guarantee in the Industry** – 5-Year Power End Performance Assurance and One Year Mechanical Seal Performance Assurance

Blackmer System One® Heavy-Duty Centrifugal Pumps for Soaps & Detergents

Designed for high-volume, severe-duty applications, the System One® centrifugal pump line offers unmatched reliability and performance in unloading raw materials from barges, railcars and transports to raw material processing facilities and transferring these feeder stocks to soap and detergents manufacturers' loading platforms, pre-mixers and blenders, filling tanks and bottling operations, and throughout batch and continuous process soap making operations.

The System One® is a high-strength, low-maintenance pump, built for the toughest duty soap and detergents applications, such as moving:

- **Oil-based alcohols derived from vegetable oils and animal fats, such as:**
  - Fatty acids
  - Fatty alcohols
  - Glycerin
  - Amines
- **Petroleum-based products, such as:**
  - Ethylene-based fatty alcohols
  - Linear alkylbenzene sulfonate (LAS)
  - Sulfonic acids



Blackmer Abaque Peristaltic (Hose) Pumps

From aggressive to shear-sensitive and viscous materials, the Blackmer Abaque Series Peristaltic Hose pumps can handle the toughest applications in the handling of raw materials and soap & detergents manufacturing processes.

Abaque Hose pumps offer tremendous fluid transfer versatility, ranging from waste stream removal to offering an alternative solution to seal-less gear pumps when handling highly shear-sensitive products. The pumps also offer excellent lift capabilities, high discharge pressures and smooth tubing transfer of material.

Abaque Hose pumps are designed with high-reliability performance in mind. This pump offers:

- Wide Viscosity Range
- Eliminates the Need for Double or Tandem Shaft Seals
- Improves Productivity
- Exceptional Vacuum
- Excellent Abrasives Handling
- Low Shear Rate
- Dry Run Capability
- Durability
- Seal-Free



- High Discharge Pressures – pressures to 217.5 psi (15 bar)
- Lower Capital Equipment Cost – less expensive than gear or lobe pumps for applications over 100 psi

Blackmer Oil-Free Gas Compressors

Blackmer heavy-duty process compressors provide efficient, quiet delivery of oil-free gas or air. These heavy-duty single and two-stage compressors combine advanced design technology and state-of-the-art materials to give maximum performance with minimum maintenance.

These compressors are well-suited for handling a wide range of industrial gases, including propane, butane, butadiene, propylene, vinyl chloride and chemical intermediates, as well as many others, such as ammonia, carbon dioxide, refrigerants, air and nitrogen.

Models available:

- Single- and Two-Stage
- Air-Cooled and Liquid-Cooled
- Single, Double and Triple Seal

Application Flexibility

- Liquefied Gas Transfer
- Gas Gathering
- Gas Transfer
- Gas Evacuation
- Gas Blanketing
- Propellant/Vapor Recovery
- Pressure Boosting

Heavy-Duty Construction

- High-Efficiency, PEEK Valves
- Live Loaded Piston Rod Seals
- Single and Double Distance Piece
- Heavy-Duty Precision Ground Crankshaft
- Ductile Iron Construction
- One-Piece Piston



Single-stage models are available in 7 sizes with piston displacements to 125 cfm (212 m^3/hr) and working pressures to 765 psia (52.74 bar) for use on low to moderate compression ratio applications. Three sizes of two-stage models are available for higher compression ratio requirements.

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"DAIS GLOBAL " LTD
3, Poruchik Nedelcho Bonchev Str., fl. 5
1528 Sofia, Bulgaria
tel: +359 2 973 27 67
e-mail: office@daisglobal.eu

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World Headquarters
1809 Century Avenue SW, Grand Rapids, MI 49503-1530 USA
T 616.241.1611 F 616.241.3752

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