

Brand Portfolio

Safety. Quality. Reliability.



Blackmer

Where Innovation Flows

Blackmer® is the leading global provider of innovative, high-quality rotating pumps and reciprocating compressor technologies. Our portfolio includes vane, gear, regenerative turbine, and centrifugal pumps. Along with industry leading compressor technologies, Blackmer products are used for the safe and efficient transfer of liquids and gases all over the world. For more than a century, the Blackmer name has stood for unparalleled product performance, superior services and support, well-timed innovation,

and a commitment to total customer satisfaction. Supported by a worldwide network of distributors and original equipment manufacturers, Blackmer pumps and compressors are used in a multitude of applications in a wide range of markets including process, energy, transport and military & marine. Blackmer – headquartered in Grand Rapids, MI, USA – is a brand of PSG®, a Dover company.



LOCATION
 GRAND RAPIDS, MI USA
 FOUNDED IN MICHIGAN IN 1903
 GRAND RAPIDS BASED SINCE 1925

LEADER
 IN ROTATING
 EQUIPMENT &
 COMPRESSORS



Sliding Vane



Regenerative Turbine Pump



Gear Pump



Compressor



Centrifugal Pump

Blackmer

OVER
 275
 EMPLOYEES

CERTIFIED
 9001:2015
ISO

STATE-OF-
 THE-ART
 MANUFACTURING
 FACILITY

198,000
 Sq Ft



BLACKMER EQUIPMENT
 INSTALLED
 IN OVER
150 COUNTRIES

Grand Rapids, Michigan (USA)

– Officially founded in 1903, Blackmer has been proud to call Grand Rapids, MI, USA, home since 1925. This world-class facility is now known as PSG Grand Rapids Rotating Center of Excellence, and serves Blackmer technology with expert technical and customer support. With resources located around the globe, Blackmer can assist customers with their every need no matter where they are in the world.

The Blackmer legacy of innovation and reliability began in 1899 when Robert Blackmer invented the rotary vane pump. Since that breakthrough, our customer-first approach and impassioned commitment to performance, safety and world-class customer service, continue to drive everything we do at Blackmer. Our expert design and engineering teams utilize years of experience combined with the best available materials

to make Blackmer a global leader in rotating equipment and technology – including vane, gear, centrifugal and regenerative turbine pumps, along with a full line of premium compressors.

The exceptional quality of Blackmer products begins in our 198,000-square-foot ISO-certified manufacturing facility with over 275 employees dedicated to meeting the highest standards of product consistency and safety. We apply industry expertise and the latest best practices with a focus on environmental sustainability. This ensures we provide our customers with products and services that reduce needless energy consumption and preserve natural resources.

For more than 115 years, we have made it our mission to supply the safest, most dependable equipment in the industry, and that dedication to quality is what will propel us far into the future.

PSG® Center of Excellence

The **PSG® Rotating Equipment Center of Excellence** facility located in Grand Rapids, Michigan, is our commitment to continually increase capabilities, product advancement, and the support of our products and customers worldwide. Our expertise and disciplines that support Blackmer technologies are based in the same building where we assemble our equipment.





Blackmer® focuses on providing solutions to customers across a wide array of markets and industries. Our core competencies span six core markets that expand to cover nearly every aspect of daily life around the globe.



Energy

LPG | Oil & Gas | Liquid Terminals | Bulk Transfer



Transport

Bulk Transfer | Loading/Unloading Transfer/Storage | Rail Tank Cars



Military

Bulk Transfer | Loading/Unloading Transfer/Storage | Fueling/Defueling

Our Markets



Chemical Process

Chemical | Petrochemical |
Bulk Transfer



General Industrial

Food & Beverage | Filling/Batching |
Bulk Transfer



Liquid Terminals

Bulk Transfer | Transloading |
Blending Solutions

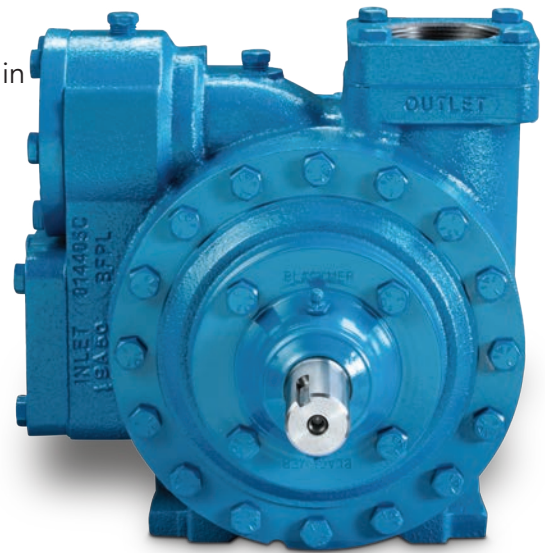
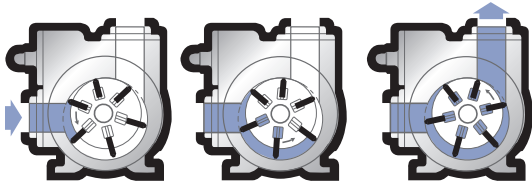
Reliable Durable Pumps for Fast and Quiet Operation

Blackmer® Vane Pumps

Blackmer® Vane Pumps have revolutionized the pumping industry with their unique sliding vane technology. This revolutionary rotary vane design allows the pumps to self-adjust for wear to help maintain flow rates. This sliding vane pump design creates excellent self-priming and dry-run capabilities, while also providing sustained performance and trouble-free operation.

How It Works

Sliding vane pumps work by using a rotor with sliding vanes that draw the liquid in behind each vane, through the inlet port and into the pumping chamber. As the rotor turns, the liquid is transferred between the vanes to the outlet where it is discharged as the pumping chamber is squeezed down. Each vane provides a positive mechanical push to the liquid before it.



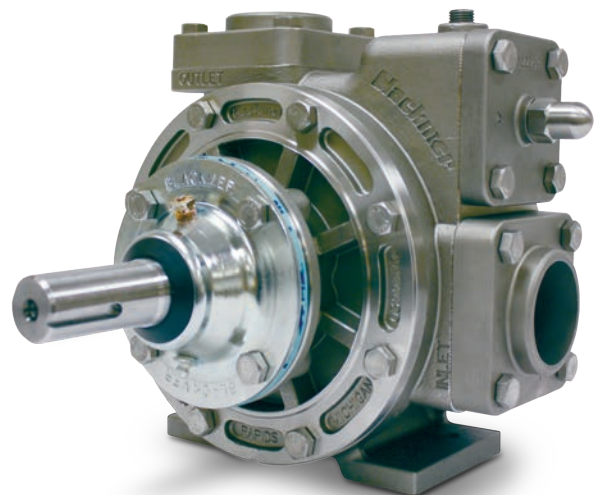
LGL2

Applications/Markets:

- Transfer, loading, unloading, and forwarding of liquids, liquefied gases, and multi-phase fluids
- Transport, industrial, process, chemical, and oilfield applications used for both stationary and mobile solutions

Features & Benefits

- Unique sliding vane pump design self-adjusts for wear to maintain flow rates
- Excellent self-priming and dry-run capabilities
- Sliding vane design provides sustained performance and trouble-free operation
- Easy maintenance: vanes can be easily replaced without removing the pump from the piping system
- High suction lift and line-stripping capabilities
- Low maintenance and low life-cycle costs
- Fluid diversity – pumps are built to withstand wide range of viscosities, pressures, and vapor properties of fluids
- Wide breadth of vane pump styles and sizes, including stainless-steel and magnetic drive options



STX 1200

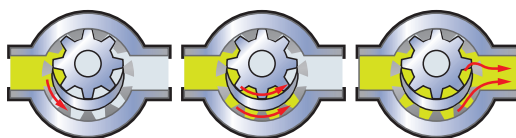


Blackmer® Gear Pumps

Blackmer® manufactures the highest-quality industrial gear pumps for the safe and efficient transfer of high-value and hard-to-seal fluids. With a combination of patented and standard designs, our mission is to engineer the world's safest and most reliable gear pumps by understanding our customers' needs and providing unparalleled customer service. Assembled in the United States and backed by an industry leading 5 year warranty, Blackmer Gear Pumps are second to none.

How It Works

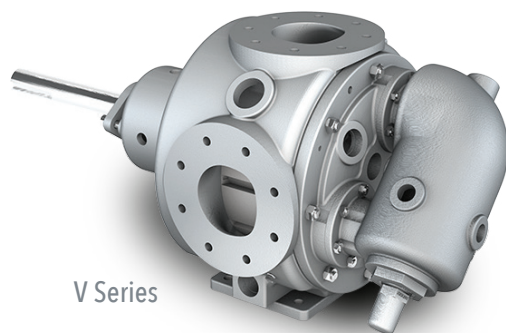
Liquid enters the suction port between the rotor (large exterior gear) and idler (small interior gear) teeth. It then travels through the pump between the teeth using the "gear-within-a-gear" principle. The crescent shape divides the liquid and acts as a seal between the suction and discharge ports. Once the pump head is flooded, the intermeshing gears of the idler and rotor form locked pockets for the liquid which assures volume control. The rotor and idler teeth mesh completely to form a seal equidistant from the discharge and suction ports. This seal forces the liquid out of the discharge port.



E Series



G Series



V Series

Applications/Markets:

- Adhesives
- Eatable oils
- Resins
- Lube oil and grease
- Surfactants
- Paint & Coatings
- Petroleum additives
- Polymers
- Asphalt
- Soap
- Polyurethane
- Oil & Gas

Features & Benefits

E SERIES MAGNETIC DRIVE GEAR PUMPS

- Seal-less, leak-free design
- Patented between-the-bearing support system
- Increased environmental and fluid handling safety
- Interchangeable with mechanically sealed and packed gear pumps

G SERIES UNIVERSAL BRACKETED GEAR PUMPS

- Pump and part interchangeability with competitor gear pump models
- Seal chamber with universal design and heavy-duty oversized bearing housing

V SERIES ASPHALT GEAR PUMPS

- 35% more jacket surface area
- Utilize jacketed head and PRV simultaneously
- World's first drop-in replacement for competitor asphalt pumps

Providing Unparalleled Product Performance

Blackmer® Compressors

Blackmer® Gas Compressors are available in three model series - LB, HD and NG. The LB Series is ideal for the transfer and recovery of gases including propane, butane, and anhydrous ammonia. The HD Series Reciprocating Gas Compressors are suited for the movement, transfer, and recovery of liquefied gases such as carbon dioxide and refrigerants, nitrogen, air, and numerous other industrial, petrochemical, and hazardous gases. The NG Series is built for usage with oil field natural gases.

How It Works

When transferring liquid, single-stage reciprocating gas compressors work by creating a slight pressure differential between the vessel being unloaded and the receiving tank. The suction stroke of the compressor piston draws in vapor and decreases the receiving tank pressure. The discharge stroke moves a measured volume of vapor at a higher pressure into the supply tank where it displaces an equal volume of liquid through a separate line into the receiving tank.

Applications/Markets:

- Liquefied gas transfer
- Vapor recovery
- Railcar unloading
- Transloading
- Tank maintenance
- Gas gathering and evacuation
- Upstream oil and gas production and storage operations

Features & Benefits

- Oil-free design
- Single- and two-stage compressor models available
- Air-cooled and liquid-cooled configurations available
- Single, double, or triple-seal models
- High-efficiency PEEK valves to move more gas volume
- Ductile-iron construction for greater resistance to thermal and mechanical shock
- Heavy-duty crankshafts
- Self-adjusting piston rod seals
- Wear-resistant crosshead assemblies
- Three different compressor series specifically designed for the following applications – LPG, industrial gases, and oil field natural gases



LB601



Blackmer® Centrifugal Pumps

Blackmer® Heavy-duty Centrifugal Pumps are highly reliable and perform exceptionally well in safely transferring critical and valuable fluids in the harshest of service conditions. These pumps are ANSI pumps that comply with key parts of the API 610 standard, bringing a full set of reliability and ease-of-use features not found in any other ANSI pump.

How It Works

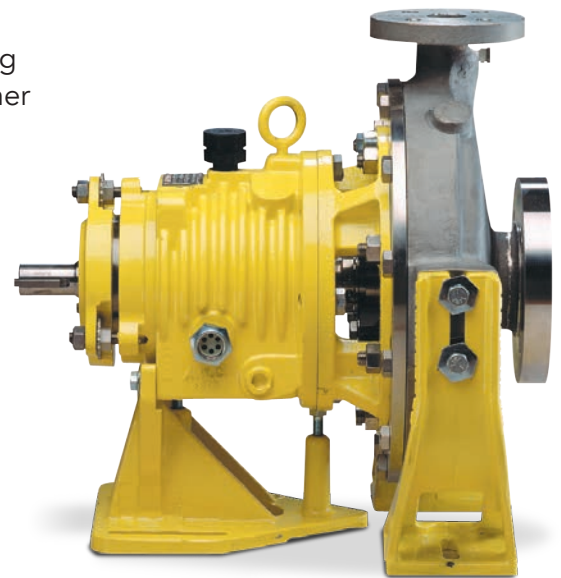
The simplest type of centrifugal pump is the single-stage machine that consists fundamentally of a rotating element, called an impeller, and a casing. Liquid is led to the eye or center of the impeller and is set into rotation by the impeller vanes. By virtue of centrifugal force, the liquid is thrown from the rim or periphery of the impeller with a considerable velocity and pressure. The casing, which closely surrounds the impeller, has a volute shaped passage of increasing area, which collects the liquid leaving the impeller, and converts a portion of its velocity energy into additional pressure energy. This casing passage leads to the discharge nozzle of the pump where it is forced into the discharge piping.

Applications/Markets:

- Transferring, loading, unloading liquids
- Military & marine
- Waste treatment
- Food and chemical processing
- Pulp and paper
- Agriculture

Features & Benefits

- Exceeds industry standards for durability and reliability
- Horizontal single-stage process pump with
- 1-year guarantee and 5-year warranty
- Specifically designed for severe applications where other alternatives fail
- Heavy-duty features such as oversized shaft and bearings, centerline casing support, and C-frame motor adapters
- Best shaft deflection index in the industry, yields unmatched resilience to harsh environments such as pressure fluctuations, temperature spikes, cavitation or vapor, and system throttling



LD 17

Superior Service, Support, Innovation, and a Commitment to Total Customer Satisfaction

Blackmer® Regenerative Turbine Pumps

Blackmer® Regenerative Turbine Pumps are known for efficiency, reliability, and performance. The secret to the success of these pumps is the innovative impeller design, which optimizes hydraulic performance resulting in high differential pressures even at low flow rates, a critical consideration for Autogas applications. Our regenerative turbine pumps also feature a smooth, quiet operation and long pump life.

How It Works

Though considered rotodynamic pumps, the operation of regenerative turbine pumps more closely resemble that of a PD pump. They operate using an impeller that is a rotating, non-contacting, freewheeling disc that has many small buckets or cells (typically about 60) on its periphery. When liquid enters the suction port of the turbine pump it is picked up by the impeller and instantly accelerated around in the narrow hydraulic channel (casing volute) surrounding the cells.

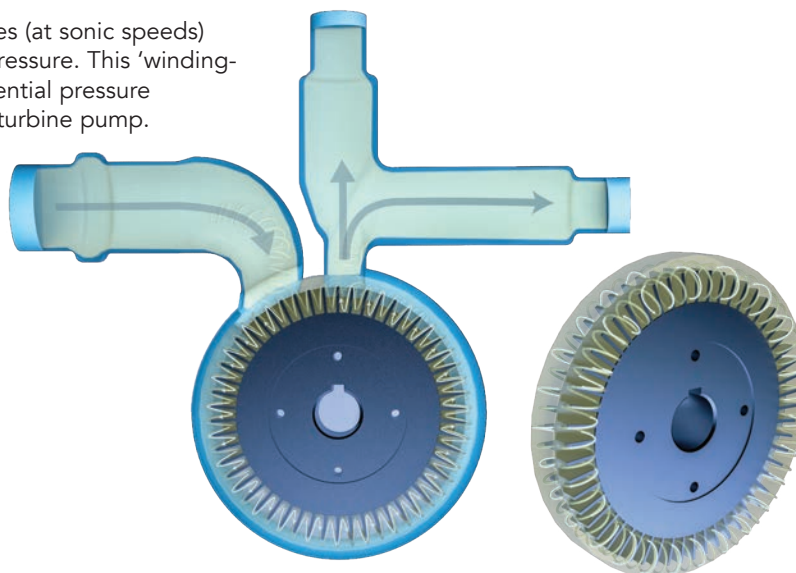
The spiraling – or ‘winding-up’ – of the liquid many times (at sonic speeds) within the one revolution incrementally builds energy/pressure. This ‘winding-up’ of the numerous small liquid cells creates the differential pressure capability of the pump – hence the name regenerative turbine pump.

Applications/Markets:

- LPG Autogas dispensers
- Industrial dispensing
- Autogas refueling
- Marine dispensing
- Portable tanks
- Cylinder filling
- Forklift refueling
- Direct burner or vaporizer feed
- Above ground and underground tanks
- Fleet refueling

Features & Benefits

- Specifically designed and precision built for high-pressure fluid transfer
- Optimizes hydraulic performance resulting in high differential pressures even at low flow rates
- Innovative impeller designs
- Smooth, quiet operation
- Long pump life





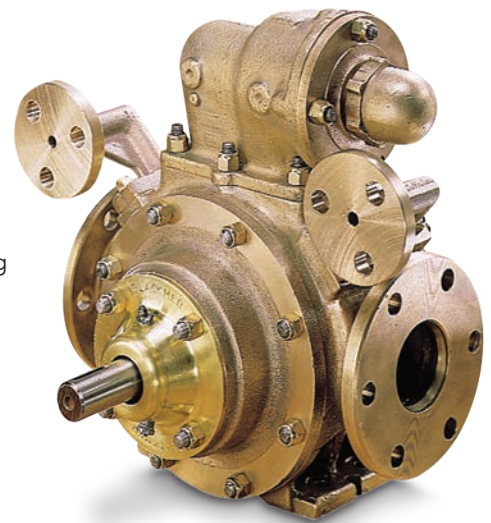
Blackmer® Military/Marine

With more than 100 years of service in the United States Military, Blackmer® Pumps are highly trusted in military marine applications in transfer, circulation, stripping, loading, and unloading a wide variety of fluids and many different applications. Designed to meet military specifications, and vetted and approved by the United States Military, Blackmer Vane and Centrifugal pumps are ready for anything. In fact, since 1940 virtually every capital ship in the U.S. Navy has had Blackmer Pumps on board.

Applications/Markets:

Blackmer Pumps are Found in All Areas of Military Fluid Transfer:

- AC Chilled Water Booster
- AC Saltwater Circulating
- AFFF
 - Injection
 - Proportioning
 - Replenishment
- Auxiliary Lube Oil Auxiliary Fuel Transfer
- Auxiliary Machinery Coolant Water
- Bilge Service
 - Pumping
 - Stripping
- Cargo JP-5 Stripping Cargo Oil Stripping
- Diesel Generator Lube Oil Transfer
- Evaporator Service
 - Condensate
 - Distillate
 - Feed
 - Brine
- Fresh Water Drain Collecting Fuel Oil
 - Service
 - Stripping
 - Transfer
- Hand Pumps
- SSTG
 - Auxiliary Salt Water Circulating
 - Auxiliary Condensate
- Helicopter Defueling
- Incinerator Fuel Transfer
- JP-5
 - Defueling
 - Service
 - Stripping
 - Transfer
- Lube Oil
 - Service
 - Transfer
- Main Feed Booster MOGAS Stripping Potable Water
- Shaft Bearing Lube Oil



BXL/BHXL Series



Ease of Doing Business

Blackmer CHOICE – Web-Based Pump Selection & Quote Tool

The Blackmer CHOICE tool is packed with useful features, including:

- Quote package creation including performance curve, pricing, and more
- Pump configuration and pricing
- Pump repair kits lookup
- Search for pumps based on system conditions
- Collaborative quoting with the Blackmer Application Team
- Quote equipment at: choice.psgdover.com

Blackmer+ App – Simplify and Enhance Your Blackmer Experience

Register, track, and maintain all your Blackmer products with the Blackmer+ app. Blackmer+ enhances your ownership of all your Blackmer pumps and compressors. The app will help save you time and money by offering timely support, and efficient maintenance management for your Blackmer equipment.

Blackmer+ offers the following features:

- Create a living catalog of all your Blackmer products
- Maintenance events can be put into your calendar
- Direct access to Blackmer support
- Access to the latest documentation
- Document specific notes for each product
- Download today at: blackmer.com/blackmer+

Blackmer Test Lab

Our in-house test lab provides a large number of testing, certification and special service capabilities for Blackmer products. The Blackmer Test Lab offers these services to provide demonstrated performance, ensuring the exacting standards and expectations that you have for your Blackmer equipment.

The test lab offers the following production tests, certified tests and reports:

- Dry Vacuum Test
- Pressurized Leak Test
- Relief Valve Setting Test
- Hydrostatic Tests
- Performance Test
- NPSH Test
- Mechanical Run Test
- Customer or Third-Party Witness
- And more



Blackmer Training

Our certified training experts will enhance your team's skills, bringing them to the next level as you grow your business.

Our training content can be tailored to your specific goals and is applicable for any group or skill level, including maintenance technicians, fleet operators, branch managers, engineers, sales, and truck drivers, among many others.

Training can accommodate your schedule from anywhere in the world. This flexible structure allows your team to opt for in-person training at a PSG facility, a third-party site or one of your choosing for live, in-person sessions. Prefer the comfort of your own office? We offer virtual training with live or pre-recorded sessions. Want the best of both worlds? We have that too. Choose the hybrid approach and we'll send the equipment to you for hands-on training lead virtually by one of our instructors.

Program Details:

- Learn about PSG programs that can help grow your business
- Tailored to your audience (sales, systems management, engineering)
- Share best practices for system design, layout, maintenance & operation
- Gain a better understanding of rotating equipment
- Review of pumps, compressors, and regenerative turbine products
- Hands-on training: Teardown, rebuild, inspection and troubleshooting
- Testing and individual certificates of completion
- Access to ongoing resources, support, and channel product
- Schedule training at: blackmer.com/training

Blackmer Warranties

For more than 115 years, Blackmer® has been building durable, high-quality pumps in Grand Rapids, MI, USA, that work flawlessly in the toughest conditions. Blackmer stands behind the quality of all our products and backs that belief with some of the best warranties in the pumping industry. Now that's a reputation you can count on!

Blackmer pumps are built to last and save you money by offering:

- Lower cost of ownership
- Genuine long-lasting parts
- Better performance over time
- Learn more at: blackmer.com/warranty

About PSG

Blackmer® is a brand within PSG®, a Dover Company – located in Oakbrook Terrace, Illinois, USA. PSG features world-class pump brands, systems and flow-control solutions that are manufactured on four continents — North America, Europe, Australia, and Asia. PSG offers state-of-the-art facilities that practice lean manufacturing and are ISO-certified. At PSG, we are passionately committed to innovating flow-control technologies that are safe, efficient and that positively impact the world. Our priority is providing the market expertise you need by delivering advanced and innovative fluid and material-transfer solutions today.

At PSG, we aim to answer a few simple questions: How can we make our customers better, faster and stronger? What can we do to make our customers more competitive and more successful? In order to answer these questions, we are continuously

improving our manufacturing processes and investing in R&D to deliver the “Total Cost of Ownership” you expect with leading technologies. We pride ourselves on delivering on these promises, and we look forward to solving the world’s toughest pumping and flow-control applications in the safest, most reliable and efficient manner possible.

We consider ourselves an important part of the global community with localized presence in more than 100 countries, servicing multiple industries such as Oil and Gas, Chemical, Food and Beverage, Pharmaceutical, Transport and Military/Marine, to name a few. At PSG, we are passionately committed to the development of innovative “sustainable” technologies. We are relentless in our pursuit of excellence and confident in the market knowledge and expertise we bring to our customers.

About Dover

Dover® is a diversified global manufacturer and solutions provider with annual revenue of approximately \$8 billion. We deliver innovative equipment and components, consumable supplies, aftermarket parts, software and digital solutions, and support services through five operating segments: Engineered Products, Clean Energy & Fueling, Imaging & Identification, Pumps & Process Solutions and Climate & Sustainability Technologies. Dover combines global scale with operational agility to lead the markets we serve. Recognized for our entrepreneurial approach for over 65 years, our team of over 25,000 employees takes an ownership mindset, collaborating with customers to redefine what's possible. Headquartered in Downers Grove, Illinois, Dover trades on the New York Stock Exchange under "DOV."



Pioneering History

The Blackmer® reputation for unparalleled product performance, superior service and support, innovation, and a commitment to total customer satisfaction have been a driving factor in the ethos of our organization for over 115 years. The company was founded in Petoskey, Michigan and moved to Grand Rapids in 1925. We are devoted to the people, partners, and the products that have allowed Blackmer go above and beyond with our passionate commitment to innovative technologies that positively impact the world.

Before the turn of the 20th century, a rotary pump was generally understood to be a "gear pump," consisting primarily of two meshing gears which trapped liquid between the gear teeth and the pump housing creating small sealing cavities that transported fluid as it rotated, forcing the liquid out the other side. But in 1899 R. M. Blackmer came up with a vane-type pump design that was an important departure from the old gear principle. In contrast to

the flow rate from a gear pump that drops steadily as the gear teeth wear away, the loss from a vane-type pump is practically negligible. As the vanes wear away at the tips, they simply move further out of the rotor slots to self-adjust and maintain the original rate.

Blackmer couldn't have picked a better time to invent this ingenious type of pump. The advent of the automobile was giving the country a new thirst for gasoline and oil. The petroleum industry was growing by giant strides and the young firm was prepared to expand with it. The original Blackmer vane pump has fathered a family of hundreds of different pump models.

Today, Blackmer markets these pumps along with other fluid and gas technologies worldwide into a multitude of applications within the Chemical Process, Energy, Transport, Military, Marine, General Industrial and Oil & Gas markets.



PSG Grand Rapids
1809 Century Avenue SW
Grand Rapids, MI 49503-1530
USA
P: +1 (616) 241-1611
info@blackmer.com
blackmer.com



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