



Expert Solutions
for Liquid Terminal
Applications

LIQUID TERMINALS
Pump Guide



Where Innovation Flows

griswoldpump.com

CENTRIFUGAL PUMPS



Griswold™ Centrifugal Pumps

Used in Liquid Terminals

While there is no typical design for a liquid-storage terminal, there is a typical supply chain. This supply chain begins with the delivery of raw materials – either by barge, pipeline, rail or truck – to a refining facility. From the refinery, the finished products are transferred to various storage points along the supply chain (bulk plants, distribution hubs, petroleum-product racks, etc.) until final delivery to the end user.

Because of the crucial nature of pump uptime, the most commonly used pump technology in liquid-storage-terminal facilities is centrifugal pump technology. This reliance is due to a number of factors, including:

- Relatively low cost of ownership
- Ease of maintenance/reduction of maintenance costs
- Reliability/durability
- Optimal capacity utilization
- Efficiency in high-flow/continuous-duty applications

811 ANSI Centrifugal Pumps

These standard-setting pumps have been engineered for flexibility and durability when handling abrasive, corrosive and volatile substances.

Features

- Standard- and low-flow models
- Heavy-duty power frames
- Fully open impellers with rear adjustment capability
- Wide variety of mechanical seal options

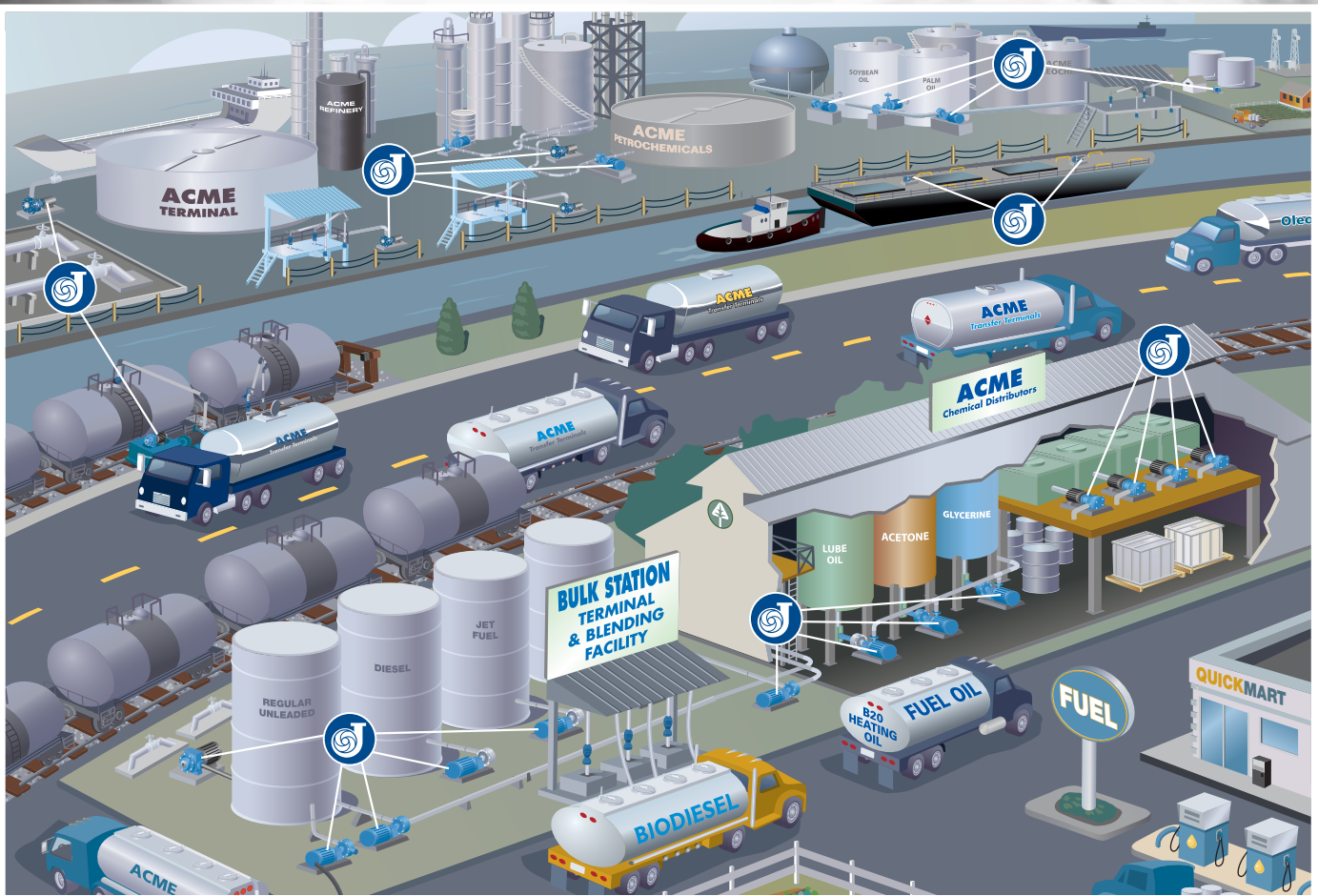
Technical Data

- Ductile iron, 316 stainless steel, CD4MCu and A-20 materials available
- Three stuffing-box options
- Multiple port sizes available
- Multiple seal-flush plans available
- Steel and composite baseplates available
- Certified testing and material certification

Performance Data

- Flow rates from 4 gpm (15 L/min) to 7,000 gpm (15,142 L/min)
- Maximum temperature: 500°F (260°C)





Serving the Liquid Terminals Market: Quality. Value. Delivery.

Griswold Pump Company is no newcomer to pumps. With product lines dating back more than 70 years, you'll find a wealth of industry knowledge and experience behind every Griswold product. At our facility in Grand Terrace, CA, USA, we manufacture a wide variety of centrifugal pumps suited for the liquid terminals market.

The current universe of liquid-storage terminals can be divided into three categories:

- **PETROLEUM TERMINALS.** Specialize in storing crude oil or various kinds of petroleum products and petrochemicals; are usually owned by oil producers, refiners and pipeline companies. These facilities tend to be proprietary, storing only the products of their owners.
- **MULTI-COMMODITY TERMINALS.** These facilities store and transfer a variety of liquid products, including various kinds of agricultural and industrial chemicals; various liquid edibles or food-grade products such as animal fats and oils, food acids, vegetable oils, molasses, syrups and sweeteners; and petroleum products and petrochemicals. These types of terminals are usually owned by commercial terminal-operating companies with tanks commissioned for use by such entities as oil producers, chemical

manufacturers, product manufacturers, food growers and producers, utilities, transportation companies, commodity brokers, and government and military agencies.

- **BIOFUEL ETHANOL TERMINALS.** Biofuels and biodiesels are fuels that are biodegradable and non-toxic. They are manufactured from vegetable oils, waste cooking oils, animal fats or tall oil (a by-product of the pulp and paper industry). Pure biodiesel tends to lose its viscosity or to gel at lower temperatures when compared to petroleum. This can be a concern for its use in colder climates.

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PSG
22069 Van Buren Street
Grand Terrace, CA 92313-5607 USA
P: +1 (909) 512-1262 • F: +1 (909) 783-3440
griswoldpump.com

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