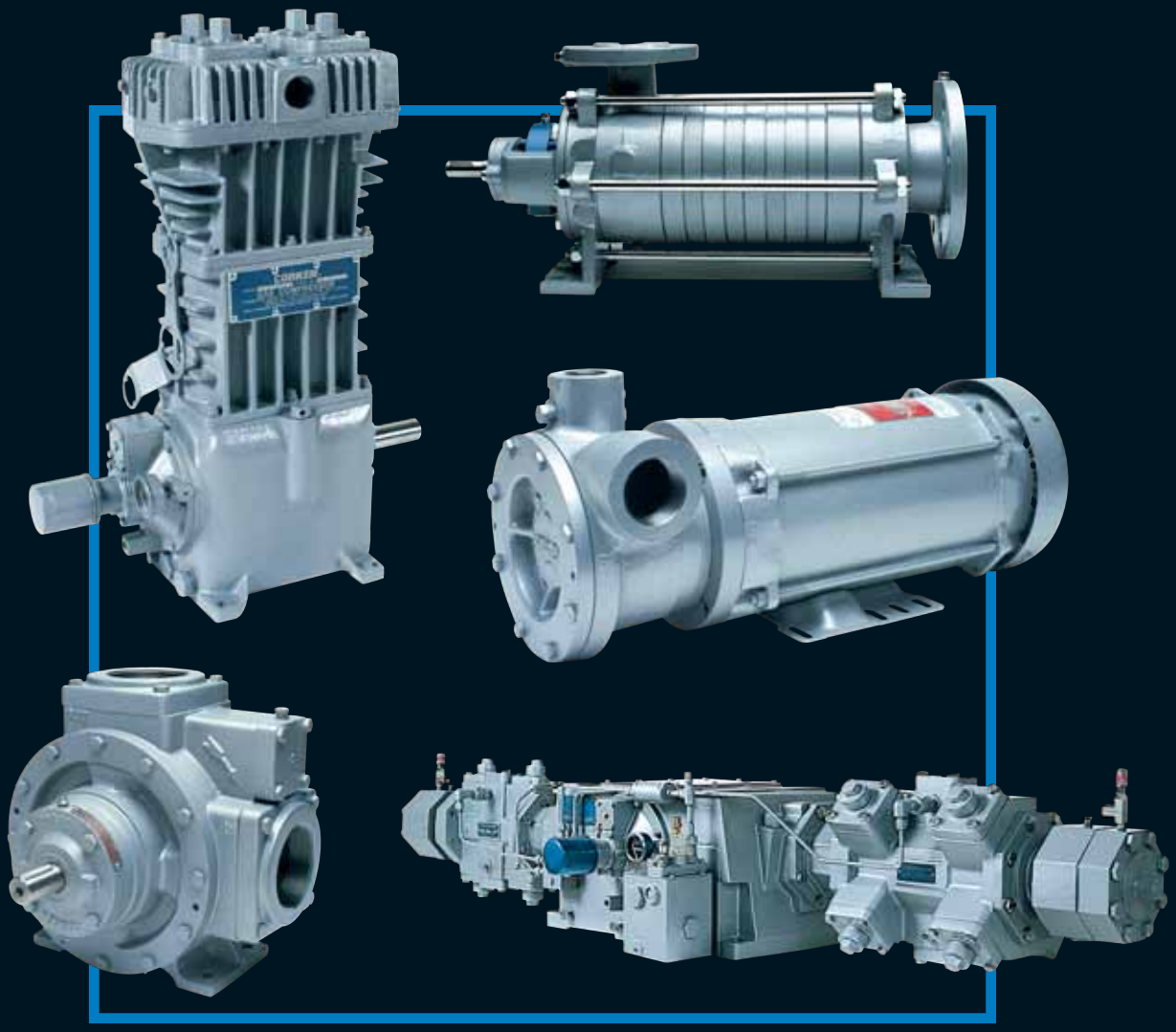
LPG-Series

Pumps and Compressors

For LPG and NH_3 Stationary Applications



Solutions beyond products...

CORKEN®

IDEX

A Tradition of Excellence

Corken, Inc. is recognized as a world leader in the manufacture of LPG pumps and compressors. Corken's exceptional reputation in the LPG industry is built upon decades of maintaining the highest quality and customer service standards. This, combined with an absolute dedication to product performance, makes Corken a company recognized worldwide for its manufacturing leadership.

Located in Oklahoma City, Oklahoma, USA, Corken was founded in 1924 and quickly gained a reputation for excellence in customer service. In the early 1950s, the company entered the liquid petroleum gas (LPG) industry, which proved to be a turning point. In the years to follow, Corken quickly gained market recognition for its quality line of compressors and pumps for the propane, butane and anhydrous ammonia industries.

In 1991, Corken became part of the IDEX Corporation, a manufacturer of proprietary fluid handling and industrial products that are recognized as market leaders. Through the years, a total commitment to customer service, product integrity and strong dedication to technological innovation have made Corken a recognized world leader in the compressor and pump markets.

Corken designs and manufactures products meeting industry standards, including Underwriters' Laboratories (UL), Canadian Standards Association (CSA), High Pressure Gas Safety Institute of Japan (KHK), Bureau Veritas of France, European Union's Pressure Equipment Directive (PED) and ATEX Directive for Machinery and many others. Corken is very proud to join the elite group of companies that have achieved registration with the International Quality Standard ISO 9001 and the Environmental Management Standard ISO 14001.

Today, Corken is a diversified company that serves a worldwide customer base. Corken truck pumps, stationary pumps, compressors and engineered packages are used by a wide range of companies throughout the world, including the Far East, Asia, Africa, Europe, the Middle East, South America and North America. Corken serves each of its customers through an extensive network of distributors—each sharing the same commitment to customer service that Corken has demonstrated for more than 80 years.

QUALITY
ISO 9001
SYSTEM

ENVIRONMENTAL
ISO 14001
MANAGEMENT
SYSTEM

LPG Product Overview

Coro-Flo® Pumps

Regenerative Turbine Liquid Pump

Applications:

- Propane cylinder filling
- Bottle filling
- Stand-by systems
- Asphalt plants
- Autogas pumping
- Agricultural ammonia
- LP-Gas vaporizer feed

Coro-Vane® Pumps

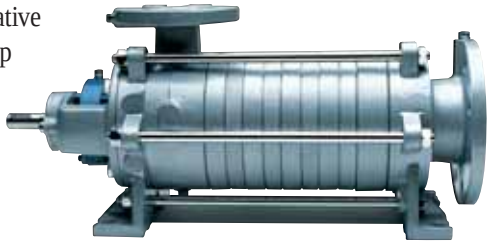
Sliding Vane Positive Displacement Liquid Pump

Applications:

- Propane/butane bulk transfer
- Truck/delivery applications
- Barge unloading
- Tank/railcar unloading
- Agricultural ammonia

Side Channel Pumps

Multistage Regenerative Turbine Liquid Pump



Applications:

- Propane/butane bulk transfer
- Carousel cylinder filling
- Multi-port butane bottle filling
- Barge unloading
- Tank/railcar unloading
- Agricultural ammonia

Gas Compressors

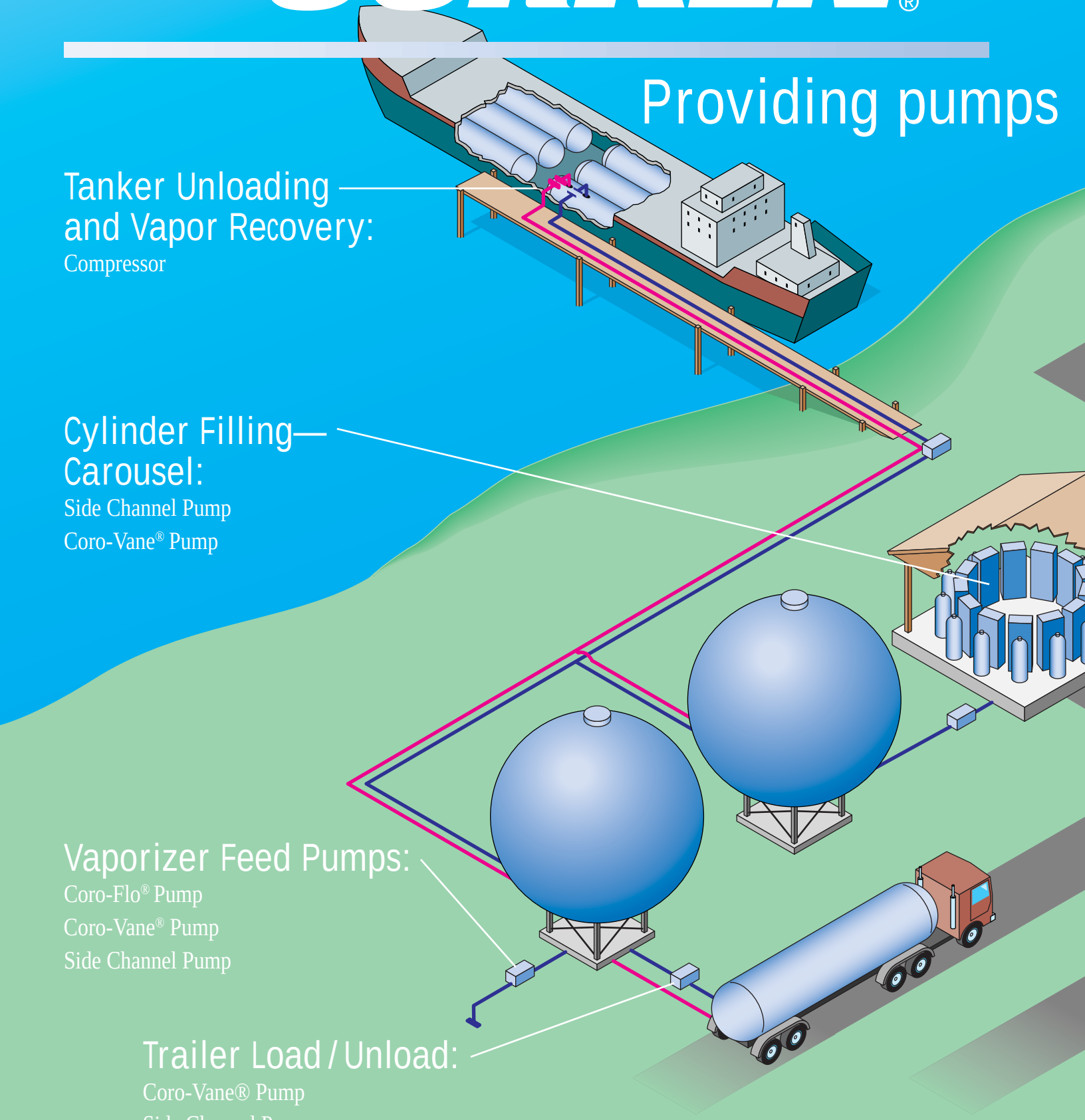
Single Stage, Lube/ Non-Lube Gas Compressor

Applications:

- Propane cylinder filling
- Bulk transfer
- Truck/barge/railcar unloading
- Liquid transfer/vapor recovery
- Tank evacuation for maintenance
- LPG/butane/ammonia
- Inert gas pad

CORKEN®

Providing pumps



Tanker Unloading and Vapor Recovery:
Compressor

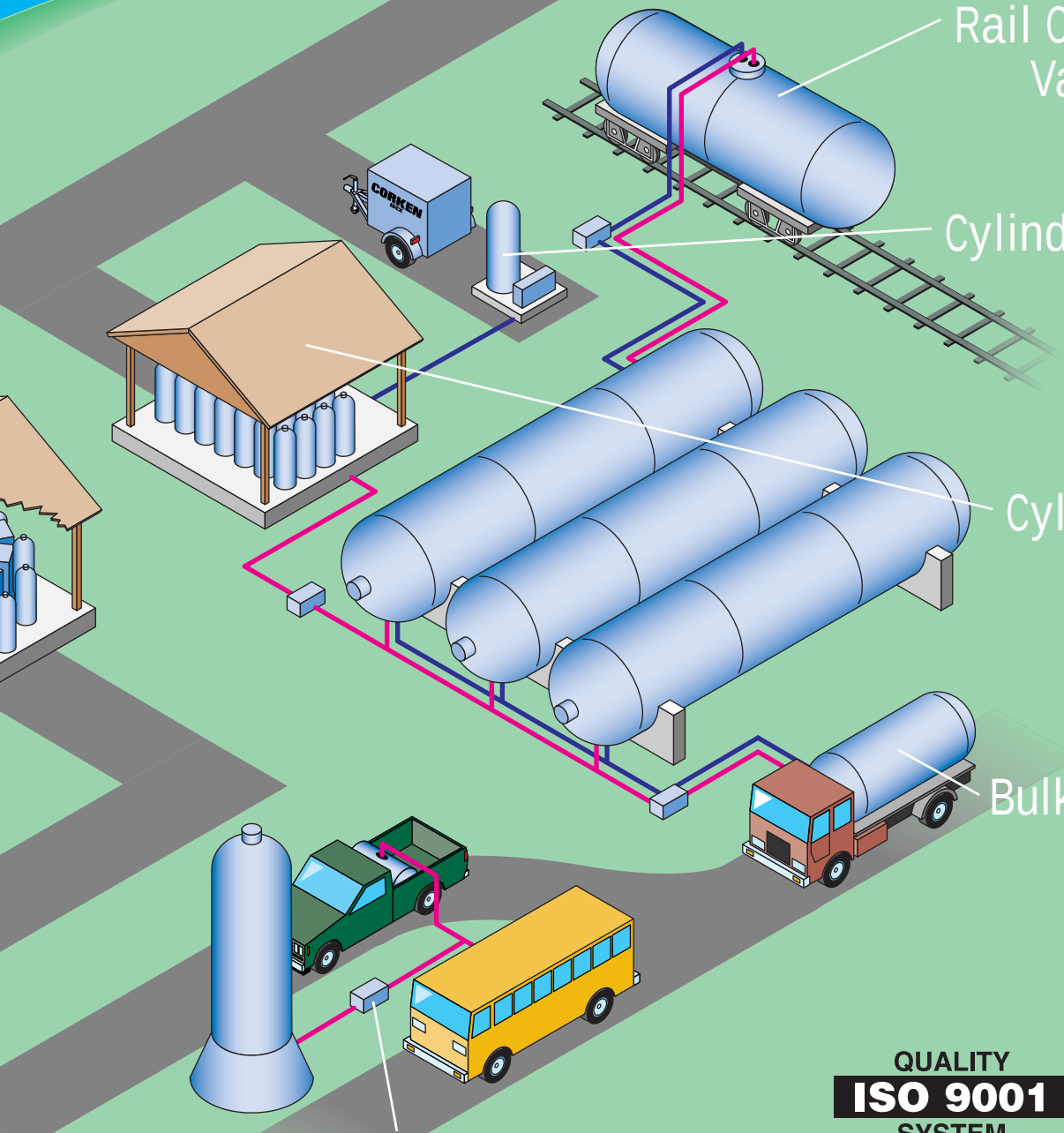
Cylinder Filling—Carousel:
Side Channel Pump
Coro-Vane® Pump

Vaporizer Feed Pumps:
Coro-Flo® Pump
Coro-Vane® Pump
Side Channel Pump

Trailer Load / Unload:
Coro-Vane® Pump
Side Channel Pump
Compressor

Terminal, Bulk Plant, Industrial & Automotive Applications

and compressors to meet all your needs



Rail Car Unload and Vapor Recovery:
Compressor

Cylinder Evacuation:
Compressor
Coro-Flo® Pump
Coro-Vane® Pump
Side Channel Pump

Cylinder Filling—Scales:
Coro-Flo® Pump
Coro-Vane® Pump
Side Channel Pump

Bulk Load / Unload:
Coro-Vane® Pump
Side Channel Pump
Truck Pump
Compressor

Automotive Filling:
Coro-Flo® Pump
Coro-Vane® Pump
Side Channel Pump

QUALITY
ISO 9001
SYSTEM

ENVIRONMENTAL
ISO 14001
MANAGEMENT
SYSTEM

Solutions beyond products...

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Coro-Flo® Turbine Pumps Stationary Applications

Designed specifically for LPG...

The Corken Coro-Flo® pump was designed for LPG, NH_3 and other light liquids. For low-capacity, medium-head pumping, the Coro-Flo pump is the pump of choice. Extremely quiet and free of vibration and pulsation, the Coro-Flo pump provides trouble-free service and long life for volatile liquids such as LPG. The exclusive turbine construction provides smooth continuous flow through the pump case, resulting in higher efficiency and greater capacity and pressure for the same size motor. The one moving part, the impeller, floats on the shaft without contacting adjacent surfaces, thus extending pump life.

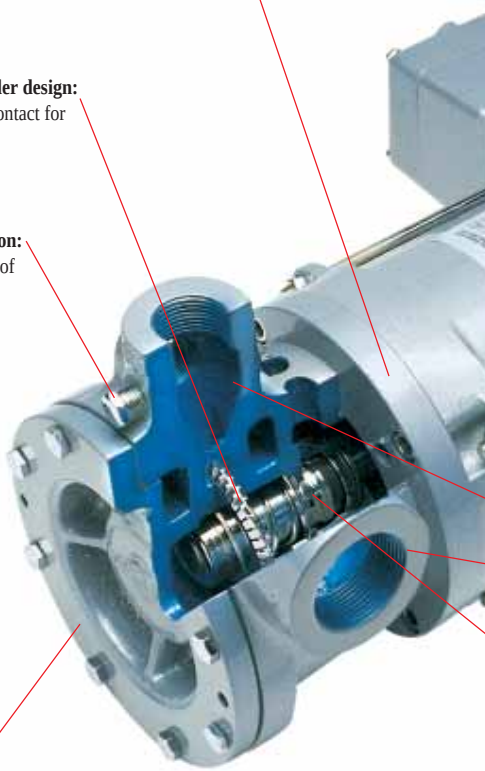
Simple to service...

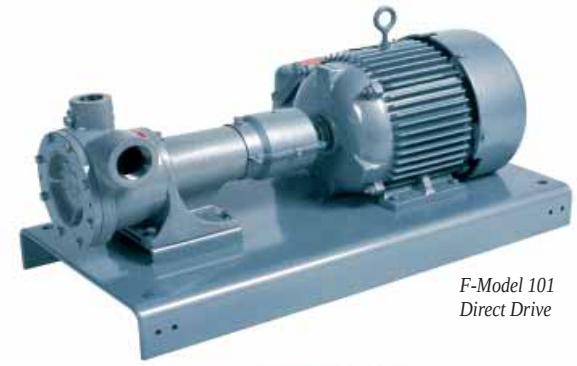
The Coro-Flo® pump has been designed for simplicity of inspection and service. The cover can be removed and the impeller and seal serviced without disturbing the piping. The balanced mechanical seal is furnished with its own sleeve, providing extremely reliable service.

Applications...

Although the Corken Coro-Flo® pump was originally developed to fill propane cylinders, it has found its way into many other applications, especially where volatile liquid transfer is involved. It is commonly used to feed industrial vaporizing and aerosol filling systems, and to transfer liquified gases like NH_3, CO_2, SO_2 and refrigerant gases. In process plants, the Coro-Flo pump is used as a boiler feed pump and for handling condensate.

Every Corken Coro-Flo® pump is thoroughly inspected and tested to assure its quality and performance. The Coro-Flo pump is listed by Underwriters' Laboratories, Inc. for use in LP-Gas and anhydrous ammonia service.





F-Model 101
Direct Drive

C-Model w/Close-Coupled Motor

FF-Model w/ANSI Flange Connections

DS/DL-Model
Direct Mounted

Vaporizer Feed, Cylinder & Automotive Filling

Specifications & Performance

Continuous-duty motors:
Fan-cooled motors with permanently lubricated ball bearings ensure years of trouble-free service.

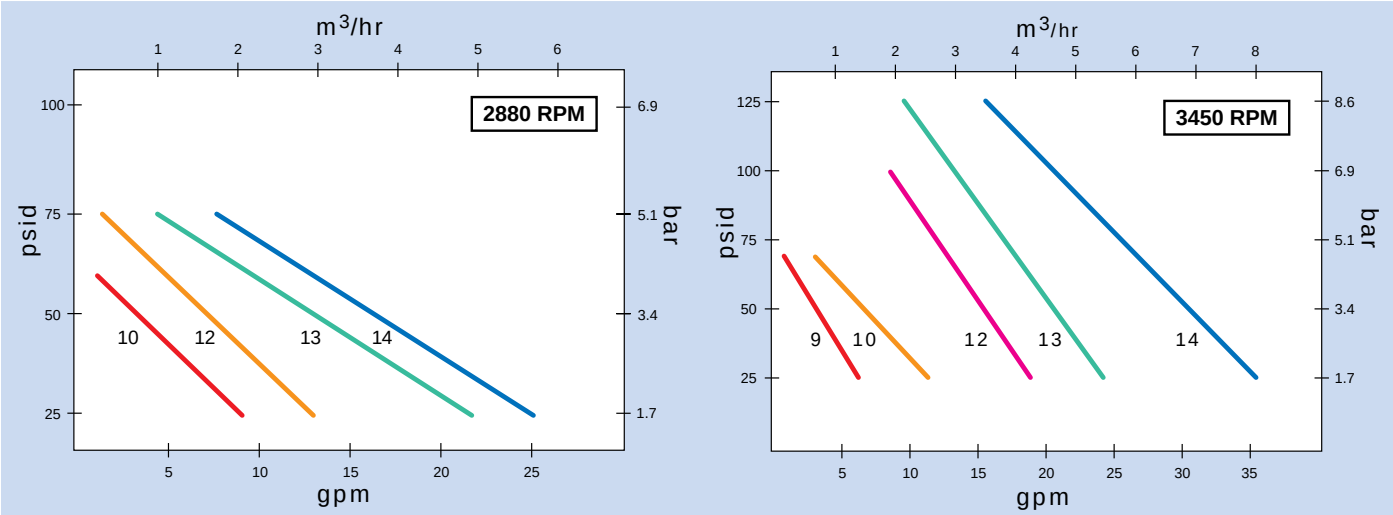
High flow inlet and discharge:
Provides higher efficiency and greater capacity.

Balanced mechanical seal assembly:
Easily replaced by removing the cover.

Specifications	Model				
	9	10	12	13	14
Inlet	1-1/4" NPT	1-1/4" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT
Outlet	1" NPT	1" NPT	1" NPT	1" NPT	1" NPT
RPM—50 Hz RPM—60 Hz	(a) 3,450	2,880 3,450	2,880 3,450	2,880 3,450	2,880 3,450
Max. differential press. 50 Hz (bar) 60 Hz (bar)	 - 70 (4.8)	 60 (4.1) 70 (4.8)	 75 (5.2) 100 (6.9)	 75 (5.2) 125 (8.6)	 75 (5.2) 125 (8.6)
Mounting options Close coupled Direct driven (101) V-belt (103)	 Yes Yes Yes	 Yes Yes Yes	 Yes Yes Yes	 Yes Yes Yes	 Yes Yes Yes
Direct mounted frame (DS/DL)	Yes	Yes	Yes	Yes	Yes
Double seal option (except C-model)	Yes	Yes	Yes	Yes	Yes
Flange option 1-1/2" x 1" – 300# (except C-model)	Yes	Yes	Yes	Yes	Yes
Impeller material options	Bronze (standard), ductile iron, stainless steel				
O-ring material options	Buna N (standard), Neoprene®, Teflon®, Viton®, ethylene-propylene[1]				
Seal seat material opt.	Cast Iron (standard), Ni-Resist, stainless steel, tungsten carbide, ceramic				
Temperature (minimum/maximum)	-25/2 25°F -32/107°C	-25/225°F -32/107°C	-25/225°F -32/107°C	-25/225°F -32/107°C	-25/225°F -32/107°C
Maximum driver	5 hp 3.7 kW	5 hp 3.7 kW	10 hp 7.5 kW	10 hp 7.5 kW	20 hp 15 kW

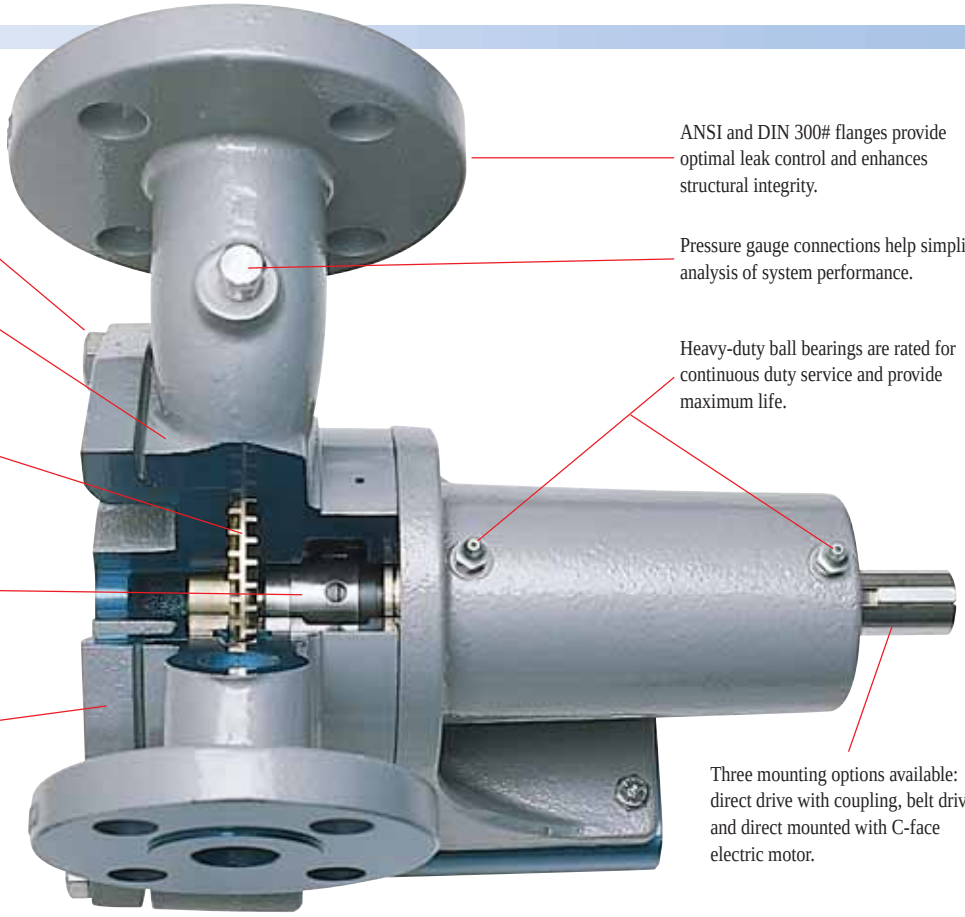
(a) Not suitable for 2880 RPM

[1] Neoprene®, Teflon®, Viton® are registered trademarks of the DuPont company.



Note: Performance curves are based on propane and similar products.

Coro-Flo® Turbine Pumps
Autogas Series



High strength metric fasteners.

Case and cover of ASTM A536 ductile iron, providing maximum thermal shock protection.

Self-aligning, free-floating, precision machined impeller, incorporating proprietary design, optimizes flow and provides quiet non-pulsating transfer of LPG.

Maximum sealing provided by a single balanced, precision lapped, mechanical seal.

Designed for ease of service. Seal can be replaced in minutes by simply removing the cover.

ANSI and DIN 300# flanges provide optimal leak control and enhances structural integrity.

Pressure gauge connections help simplify analysis of system performance.

Heavy-duty ball bearings are rated for continuous duty service and provide maximum life.

Three mounting options available: direct drive with coupling, belt drive, and direct mounted with C-face electric motor.

Specification	All Coro-Flo® 150 Models
Inlet	1-1/2" – ANSI 300# R.F. Flange (DIN optional)
Outlet	1" – ANSI 300# R.F. Flange (DIN optional)
RPM	3,450 @ 60 Hz or 2,880 @ 50 Hz
Maximum working pressure	27.6 Bar (400 psig)
Maximum differential pressure	17.2 Bar (250 psi)
Maximum/minimum temperature	107°C (225°F) / -32°C (-25°F)
Impeller material	Bronze (standard)
O-ring material	Buna-N (standard)
Seal materials	Ni-Resist (standard)
Maximum driver	15 kW (20 hp)
Type of electric motor*	Rigid-Base (frame mount) and C-face (direct mount)

** Consult factory regarding other types of motors.*

Applications:

- Autogas dispensing
- Cylinder filling
- Vaporizer feed
- Bulk transfer
- Direct burner feed

Frame Mount

Direct Mount

Solutions beyond products...

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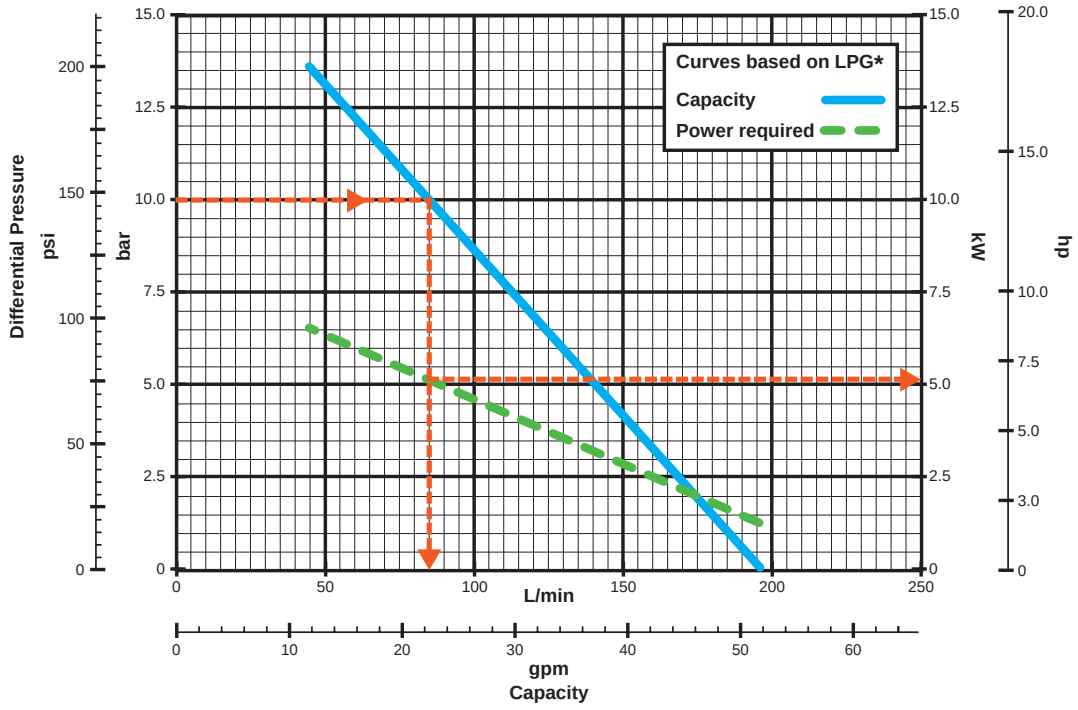
Autogas Series Performance



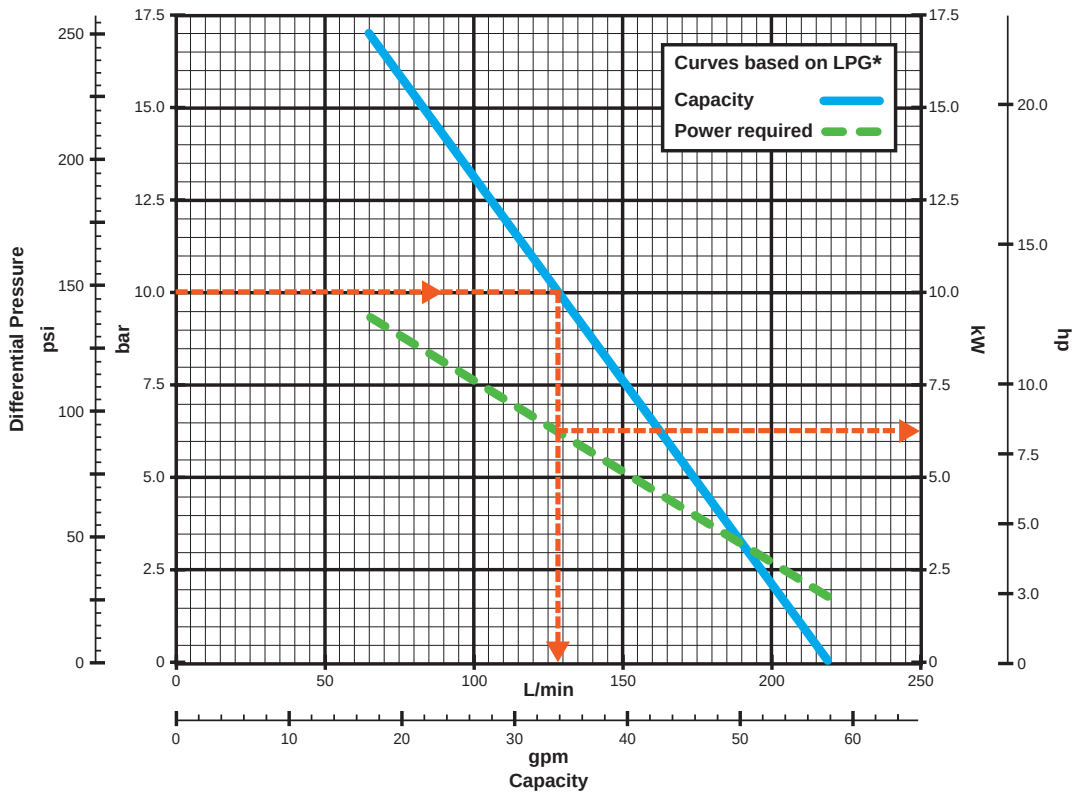
Performance Curve 2,880 RPM

Example @ 2,880 RPM

Differential Pressure
10.0 bar
145.0 psi

Flow
85 L/min
22.5 gpm

Power Required
5.1 kW
6.8 hp



Performance Curve 3,450 RPM

Example @ 3,450 RPM

Differential Pressure
10.0 bar
145.0 psi

Flow
128 L/min
145.0 gpm

Power Required
6.3 kW
8.4 hp

** The performance curves are based on aboveground LPG installations. Performance curves for underground LPG tanks will vary based on the specific installation. Consult factory.*

Side Channel Pumps Stationary Applications

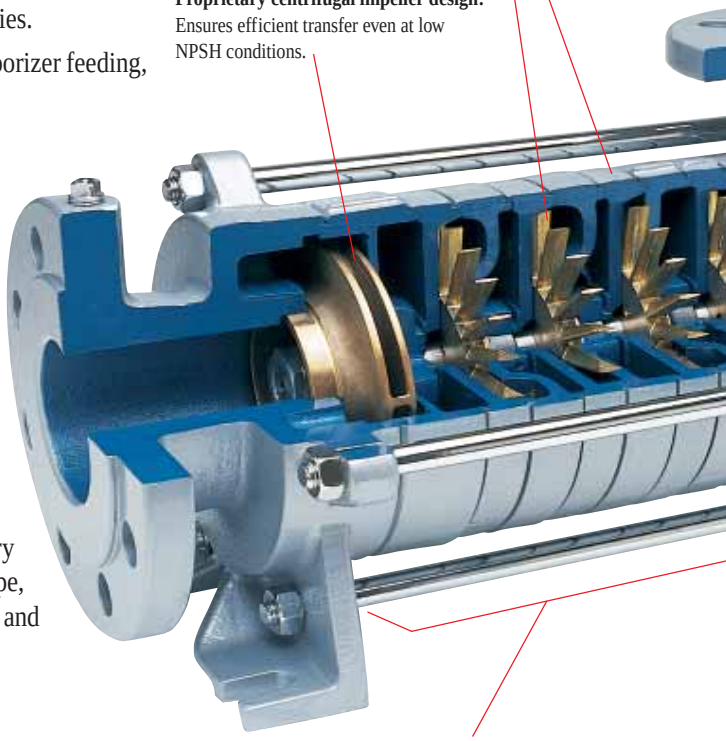
For those LPG applications where high-differential pressure is necessary or low NPSH conditions exist, such as pumping from underground tanks, the SC-Series multistage side channel is the pump of choice. The integral centrifugal and side channel design which characterizes this line provides a new dimension in liquid transfer applications. The SC-Series exceeds expectations in the handling of liquids involving high-differential pressures, low NPSH conditions, and aerated liquids up to 50% gas.

Six different sizes, each ranging from one to eight stages, provide solutions for a wide range of pressures, capacities, and liquid transfer requirements. Multiple material and sealing options, enabling it to handle many different liquids, enhance the versatility of the SC-Series.

Typical installations where this pump might be found are LPG cylinder filling, vaporizer feeding, pumping from underground storage and bulk filling operations.

Multiple materials options for impellers and casing: Ductile iron casing, brass impellers, and Viton® are standard for LPG applications.

Proprietary centrifugal impeller design: Ensures efficient transfer even at low NPSH conditions.



Modular construction: Minimizes spare parts requirements.

Multistage side-channel design delivers higher differential pressures...

The Corken SC pump line utilizes an integral centrifugal and side-channel design to create the flow characteristics that make this pump special. The high-differential pressure and self-priming capabilities are results of the multistage side channel design. This feature incorporates one to eight stages of open radial-vane impellers and special modular side channel casings.

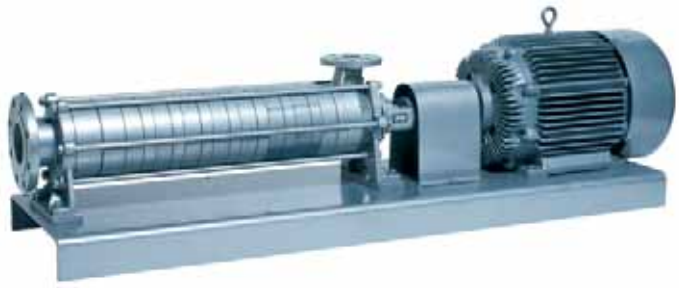
Quiet, smooth transfer even at low NPSH...

The SC pump's ability to handle low NPSH applications is attributed to the proprietary centrifugal impeller design near the pump inlet. The SC pump is cylindrical in shape, with liquid flow entering the pump horizontally (parallel with the pump shaft) and exiting vertically through the discharge flange on the top of the pump.

Many sealing options to choose from, including magnetic drive...

In a time when leakage control is becoming more and more prevalent, Corken offers a complete range of seal options. The side channel magnetic drive (SCM) sealless multistage pump meets the most stringent environmental regulations. The SCM line retains all of the advantages of the standard SC design along with two additional advantages; there are no seals to maintain and no potential leak paths.

Sealless (SCM Model) Magnetic Drive



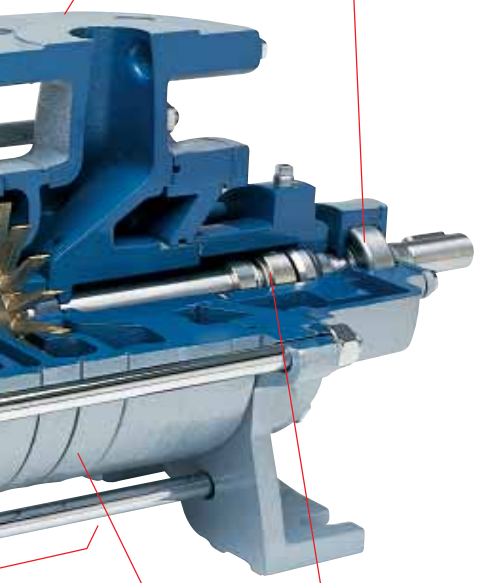
Side Channel (SC Model) w/Direct-Coupled Drive

Bulk Filling, Carousel Filling & Vaporizor Feeding

Specifications & Performance

DIN and ANSI flanges:
For leakage control and greater structural integrity.

Heavy-duty bearings standard:
Other bearing configurations available for high-temperature service.

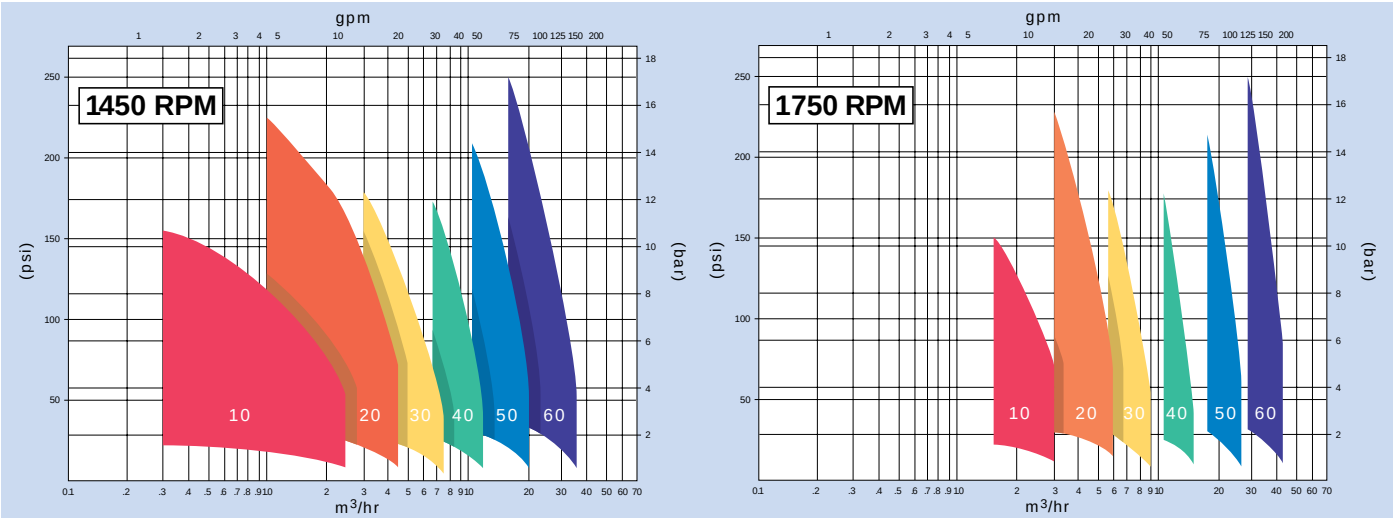


Highly reliable mechanical seals:
Standard with numerous seal options for special applications.

Multiple side channel stages:
Provide self-priming, high-differential pressure, nonpulsating, trouble-free operation.

Specification	Model					
	10	20	30	40	50	60
Number of stages	1 to 8					
Inlet flange inches (mm)	1-1/2 (40)	2-1/2 (65)	2-1/2 (65)	3 (80)	4 (100)	4 (100)
Outlet flange inches (mm)	3/4 (20)	1-1/4 (32)	1-1/4 (32)	1-1/2 (40)	2 (50)	2-1/2 (65)
RPM-50 Hz RPM-60 Hz	1,450 1,750	1,450 1,750	1,450 1,750	1,450 1,750	1,450 1,750	1,450 1,750
Max. working pressure psig (bar)	580 (40)	580 (40)	580 (40)	580 (40)	580 (40)	580 (40)
Differential press. range psi (bar)	10 (.7)-150 (10.3)	15 (1)-230 (15.9)	10 (.7)-180 (12.4)	10 (.7)-175 (12.1)	10 (.7)-210 (14.5)	10 (.7)-250 (17.2)
Mininimum temperature °F (°C)	-40° (-40°)	-40° (-40°)	-40° (-40°)	-40° (-40°)	-40° (-40°)	-40° (-40°)
Maximum temperature °F (°C)	428° (220°)	428° (220°)	428° (220°)	428° (220°)	428° (220°)	428° (220°)
NPSH range ft (m)	1.6 (.5)-13 (4)	2 (.6)-3.3 (1)	1.6 (.5)-6.6 (2)	1.3 (.4)-8.2 (2.5)	1.3 (.4)-12 (3.5)	4.6 (1.4)-8.2 (2.5)
Maximum viscosity SSU (cSt)	1,050 (230)	1,050 (230)	1,050 (230)	1,050 (230)	1,050 (230)	1,050 (230)
Maximum proportion of gas allowable	50%	50%	50%	50%	50%	50%
DIN flange option	Yes	Yes	Yes	Yes	Yes	Yes
ANSI flange option	No	Yes	Yes	Yes	Yes	Yes
Casing material option	Ductile iron (standard), cast iron, stainless steel					
Impeller material option	Brass (standard), steel, stainless steel					
O-ring material option	Viton® (standard), Teflon®, ethylene-propylene[1]					
Double seal option	Yes	Yes	Yes	Yes	Yes	Yes
Magnetic drive option	Yes	Yes	Yes	Yes	Yes	No
High temp. option	Yes	Yes	Yes	Yes	Yes	Yes
Internal relief option	No	No	No	No	No	No

[1] *Neoprene®, Teflon®, Viton® are registered trademarks of the DuPont company.*



Coro-Vane® Pumps Stationary Applications

Pump design delivers high pumping efficiencies.

The sliding-vane design of the Coro-Vane® pump is commonly found in the LPG industry because its pumping efficiencies remain high throughout the life of the pump. The Coro-Vane pump is unique because it can handle small amounts of vapor formed at the pump suction, and the vanes are self-adjusting for wear. With these design characteristics, pumping efficiencies remain high throughout the life of the pump.

Long life & ease of maintenance...

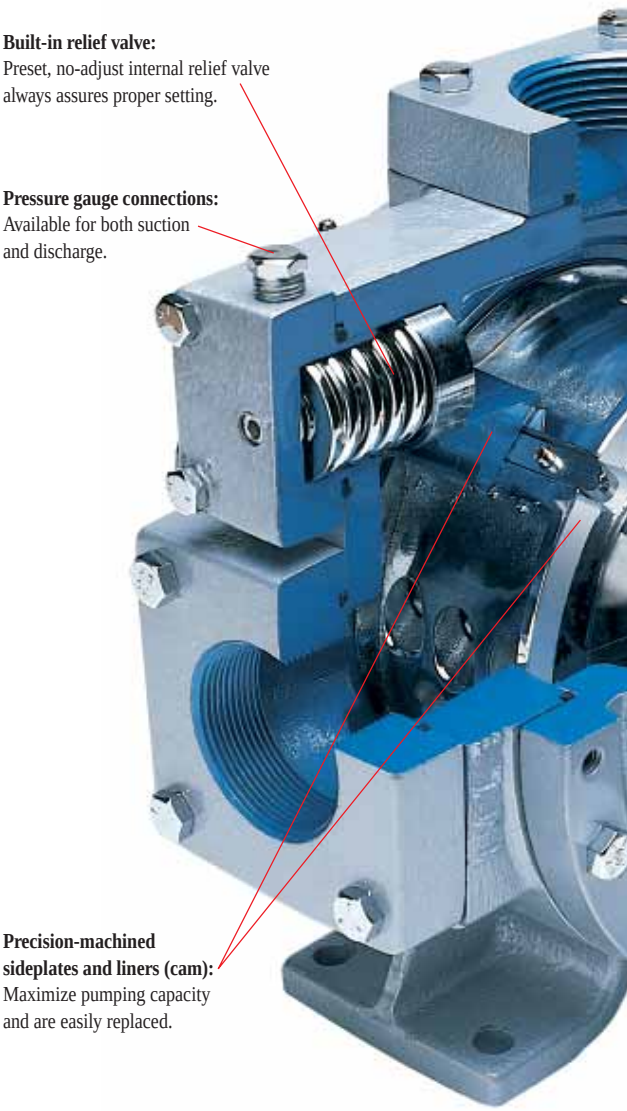
The pump housing and rotors are constructed of ductile iron for high strength. The pump design includes removable pump casing liners in all models. Worn liners and vanes can be replaced in minutes. Some models incorporate reversible sideplates which double their service life. Seal maintenance is easy. Simply remove four bolts to remove bearings and seals.

Applications...

Typical applications include cylinder filling, loading and unloading of bulk trucks and transport trailers. Some Coro-Vane® pump models come with an internal relief valve for added pump protection, relieving the pressure from the pump discharge back to the suction. All pumps must have an external bypass valve to comply with NFPA & UL code requirements.

Positive displacement...

Coro-Vane® pumps are positive displacement pumps. They produce up to a maximum differential pressure of 125 psig (8.6 bar g). Corken manufactures five sizes of Coro-Vane pumps, ranging from 1 gpm to 350 gpm (0.2 to 79.5 m^3/hr) with v-belt and direct-drive mounting options.



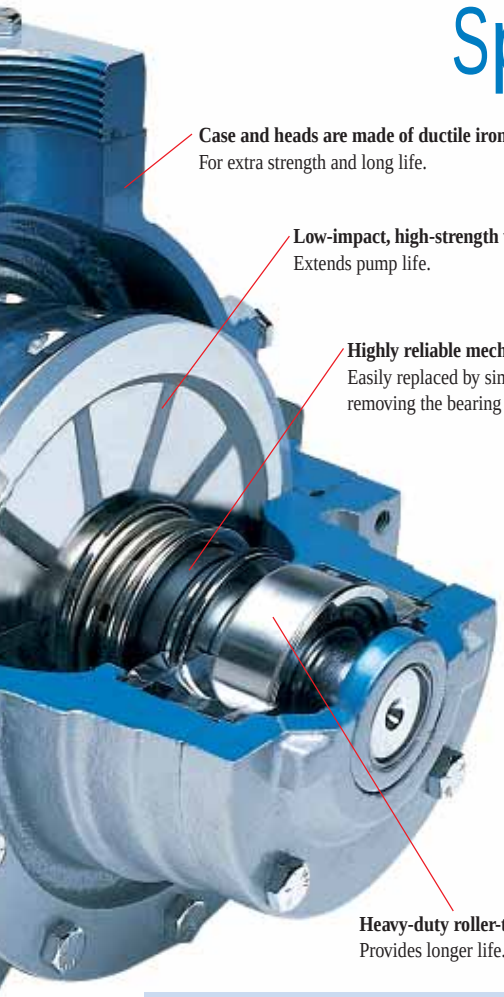
Direct-Coupled Mounting

Direct-Coupled 101 Mounting

Belt-Drive 103 Mounting

Bulk Filling, Carousel Filling & Cylinder Filling

Specifications & Performance



Case and heads are made of ductile iron:
For extra strength and long life.

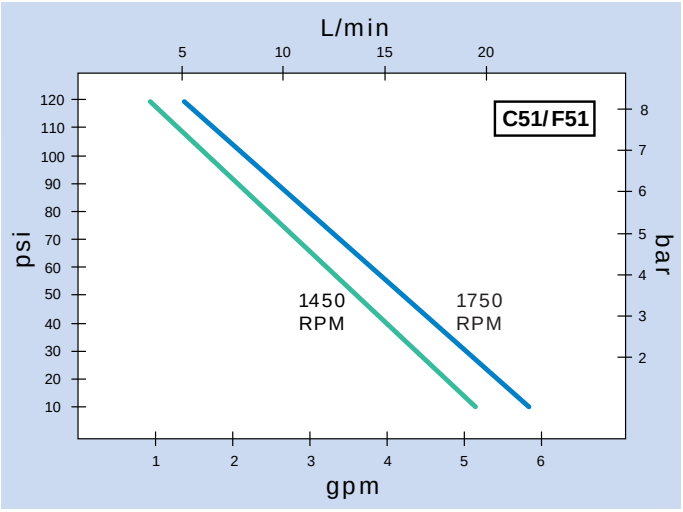
Low-impact, high-strength vane design:
Extends pump life.

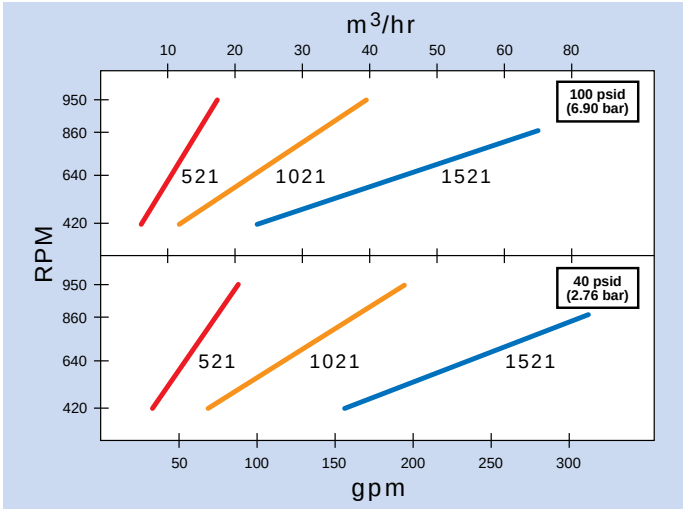
Highly reliable mechanical seals:
Easily replaced by simply removing the bearing cap.

Heavy-duty roller-type bearings:
Provides longer life.

Specifications	Model				
	C51/F51	521	1021	F1021	F1521
Suction flange	1"	2-1/2"	3"	3" 300# ASA	4" 300# ASA
Discharge flange	3/4"	2"	3"	2-1/2" 300# ASA	3" 300# ASA
Minimum RPM Maximum RPM	1,450 1,750	420 950	420 950	420 950	420 860
Minimum temperature	-25 °F (-32 °C)				
Maximum temperature	225 °F (107 °C)				
Max. working pressure psig (bar)	350 (25.2)	400 (28.6)	400 (28.6)	400 (28.6)	400 (28.6)
Max. differential pressure psid (bar)	125 (8.6)	125 (8.6)	125 (8.6)	125 (8.6)	100 (6.9)
Suction flange option	No	2"	4"	No	No
Discharge flange option	No	2-1/2"	4"	No	No
Internal relief	Yes	Yes	Yes	No	No
O-ring material options:	Buna N (standard), Teflon®, Viton®, Neoprene®[1]				
Seal seat material options:	Cast iron (standard), stainless steel, Ni-Resist				
Steel slip-on flange option (suction & discharge)	No	Yes	Yes	No	No
Discharge flange option elbow (2" or 1-1/2")	No	Yes	No	No	No
Cast steel case option	No	Yes	No	No	No
Maximum driver	2 hp 1.5 kW	10 hp 7.5 kW	20 hp 15 kW	20 hp 15 kW	30 hp 22 kW

[1] *Neoprene®, Teflon®, Viton® are registered trademarks of the DuPont company.*





Solutions beyond products...

CORKEN®

Vertical LPG Compressors Stationary Applications

Why select a compressor to transfer LPG and NH_3?

Compressors are extremely versatile for they can be used to transfer liquids between tanks, off-load/load-out liquids, recover residual vapor, and evacuate vapors for maintenance purposes. Many LPG piping systems do not provide ideal NPSH conditions for liquid pumps which causes excessive pump maintenance. Since compressors are only exposed to vapors, they are not affected by poor NPSH conditions. Many LPG pressurized tanks such as railcars and buried tanks have top unloading connections. A compressor can be the perfect solution for transferring liquids to and from such tanks.

Why select a Corken compressor?

Corken has over 50 years of providing state-of-the-art designs to the LPG and NH_3 markets. Corken designs meet the most stringent global quality standards, including those of Japan, Germany and the United States. Environmental impact and safety are always considered very seriously at Corken. It is Corken's commitment to provide its customers with products of the greatest integrity, providing years of trouble-free service.

Compressors matched to your needs...

Corken provides oil-free and non-lubricated vertical and horizontal compressor designs. Compressors are available in both threaded and ANSI flanged connections. Depending on the application, single- and two-stage compressors are available.

For applications of all types...

Corken gas compressors are designed for use in liquid transfer, vapor recovery, scavenger and portable applications. Whether it is gas recovery from cylinders or barge unloading, Corken has a compressor for your application.

Threaded and ANSI flanges:
Compressors are available in either threaded NPT, ANSI, or DIN flanged connections.

High-efficiency valves:
Corken valves offer quiet operation and high durability in oil-free gas applications. Specially designed suction valves which tolerate small amounts of condensate are available.

O-ring head gaskets:
Easy to install O-ring head gaskets providing highly reliable seals.

Ductile- iron construction:
All cylinders and heads are ductile iron for maximum thermal shock endurance.

Self-lubricating Teflon® piston rings:
Corken provides a variety of state-of-the-art piston ring designs to provide the most cost-effective operation of compressors for non-lube service. The step-cut design provides higher efficiencies during the entire life of the piston ring.

Positively locked piston:
Simple piston design allows end clearance to be precisely set to provide maximum efficiency and long life.

Self-lubricating piston rod seals:
Seals constructed of Teflon® incorporating special fillers to ensure no oil carry over and maximize leakage control. Spring loaded seal design self adjusts to compensate for normal wear.

Nitride-coated piston rods:
Impregnated nitride coating provides superior corrosion and wear resistance.

Cast-iron crosshead:
Durable cast-iron crossheads provide superior resistance to corrosion and galling.

Pressure-lubricated crankcase with filter:
Self-reversing oil pump ensures proper lubrication regardless of directional rotation to main and connecting rod bearings. Standard 10-micron filter ensures long-lasting bearing life (not available on Model 91).

Cylinder Evacuation, Bulk Transfer and Recovery

Model F291

Model 491

Model D891

Custom-engineered packages...

Corken supplies custom-engineered packages to meet the most demanding customer specifications. Skid-mounted units can be supplied with control panels, safety controls, pulsation dampeners, specialized traps, valving and other special accessories as required. Corken offers standard mountings designed specifically for liquid transfer, vapor recovery, and gas scavenging applications.

Serviceability...

Corken compressors are designed to minimize required maintenance and make such maintenance extremely simple. Maintenance operations such as valve replacement may be accomplished without disturbing the piping, while ring replacement may be accomplished simply by removing the head.

King of versatility...

Corken compressors are designed for use with maximum versatility. The same compressor installed for one application can easily be piped to be utilized for other plant applications. For example, a rail-car-unloading compressor can also be utilized to load and unload trucks.

Sized for your capacity needs...

Corken offers four sizes of vertical, oil-free, single-stage compressors (Models 91, 291, 491 & 691). These compressors cover a full range of capacities from 24 to 361 gpm (5.5 to 82 m^3/hr) in liquid transfer.

For even greater capacity...

Corken Model D891 is a double-acting single-stage vertical gas compressor capable of capacities from 337 to 757 gpm (76.5 to 171.9 m^3/hr).

Solutions beyond products...

CORKEN®

Horizontal LPG Compressors Stationary Applications

For high-volume transfer...

Corken's horizontal single-stage compressor is perfect for the terminal requiring transfer of large volumes of LPG (i.e., barge, multiple rail car, etc.). This heavy-duty, balanced-opposed gas compressor offers smooth, quiet operation.

The compressor is offered with various sizes of cylinders. Corken currently offers 8" (203.2mm), 6" (152.4mm), 5" (127.0), 4" (101.6mm), 3-1/4" (82.6mm), and 2-3/4" (69.9mm) cylinders. These cylinders may be arranged in various combinations of single-, two-, three-, or four- stages. The horizontal compressors are offered in lubricated and non-lubricated designs. Although these compressors are not classified as oil-free, the potential for oil carry-over is minimized.

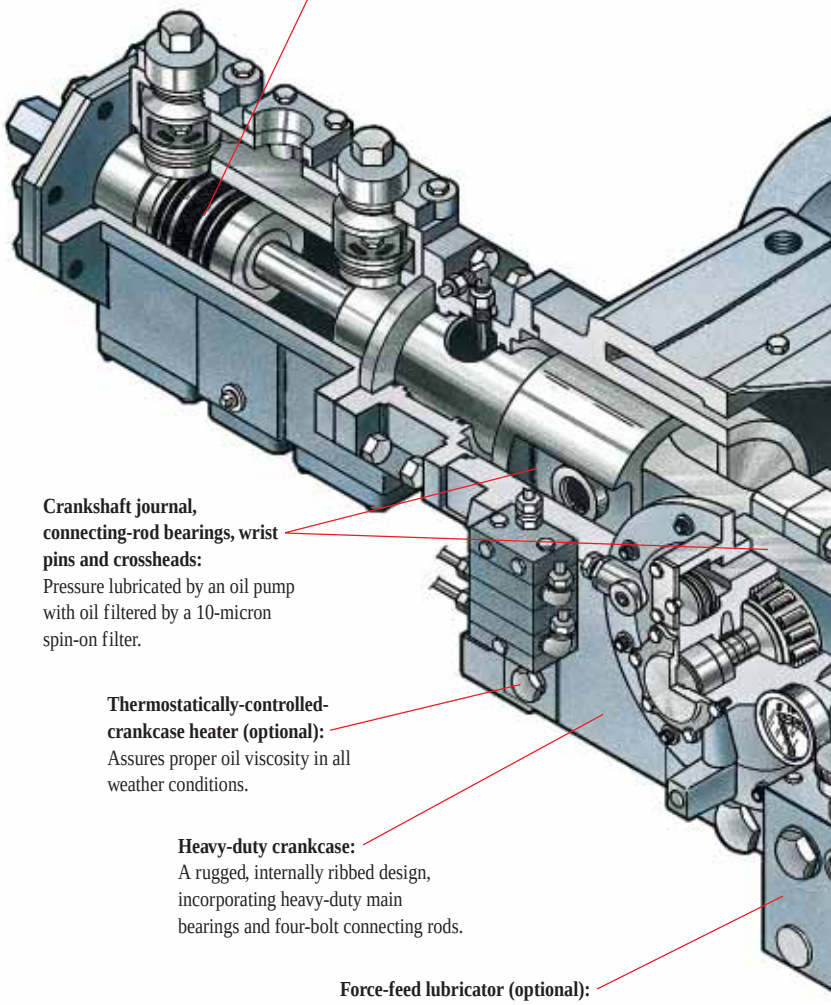
For stringent environmental requirements...

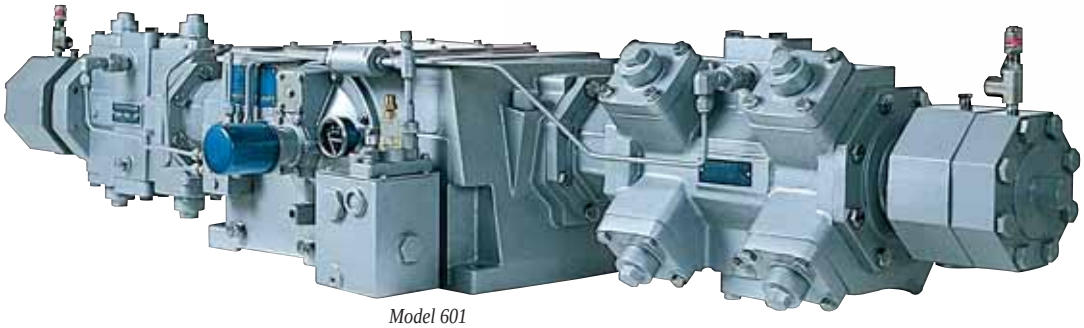
In response to increasingly stringent environmental requirements to reduce emissions of volatile organic compounds and other hazardous gases, Corken offers a purge-pak piston-rod-sealing system for the HG601 series horizontal compressors.

While precise leakage rates cannot be guaranteed due to the many complex factors which affect leakage, the purge-pak and rod-sealing system substantially reduces potential leakage compared to conventional segmented piston-rod seal configurations. Tests have shown that in many cases, leakage can be reduced below 1 scfh (0.027 m^3/hr).

Water-cooled cylinders...

To increase the versatility of the horizontal compressor, Corken offers water-cooled cylinders in the 8" (203.2 mm), 6" 152.4 mm), 4" (101.6 mm) and 3-1/4" (82.6 mm) bore sizes. Water-cooled cylinders greatly reduce the operating temperature which increases the valve, piston ring, and seal life in the most difficult applications.





Model 601

[1] *Teflon® is a registered trademark of the DuPont company.*

Tanker and Multiple Railcar Unloading and Recovery

Available Options

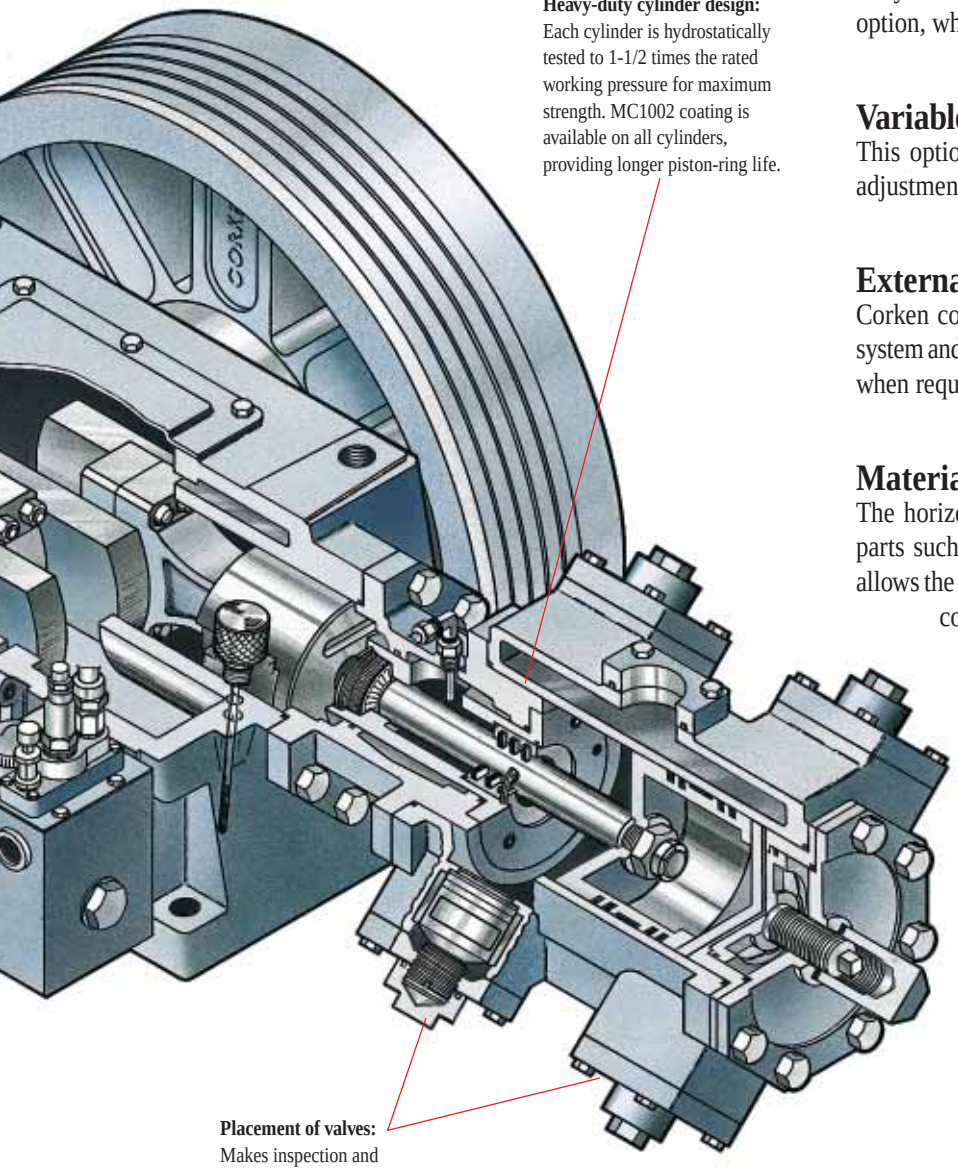
Blank valve...
In addition to the flexibility of reconfiguring the stages and number of cylinders, the capacity may be controlled through the blank valve option, which changes the cylinder to single acting.

Variable clearance heads...
This option on all cylinder sizes allows for pressure and capacity adjustment while the compressor is operating.

External crankcase oil cooler...
Corken compressors can be equipped with a force-feed lubrication system and external oil filter. An optional external oil cooler is available when required to ensure optimal service life.

Materials...
The horizontal compressor line offers many optional materials for parts such as gaskets, piston rings, o-rings, pistons and more. This allows the compressor to be used with a variety of gases. The MC1002 corrosion-resistant coating is also available for all parts that come in contact with the gas.

Engineered packages...
Custom-engineered skid-mounted units can be supplied with control panels, wiring, pulsation dampeners, receiver tanks and other special accessories as required.



Heavy-duty cylinder design: Each cylinder is hydrostatically tested to 1-1/2 times the rated working pressure for maximum strength. MC1002 coating is available on all cylinders, providing longer piston-ring life.

Placement of valves: Makes inspection and maintenance simple.

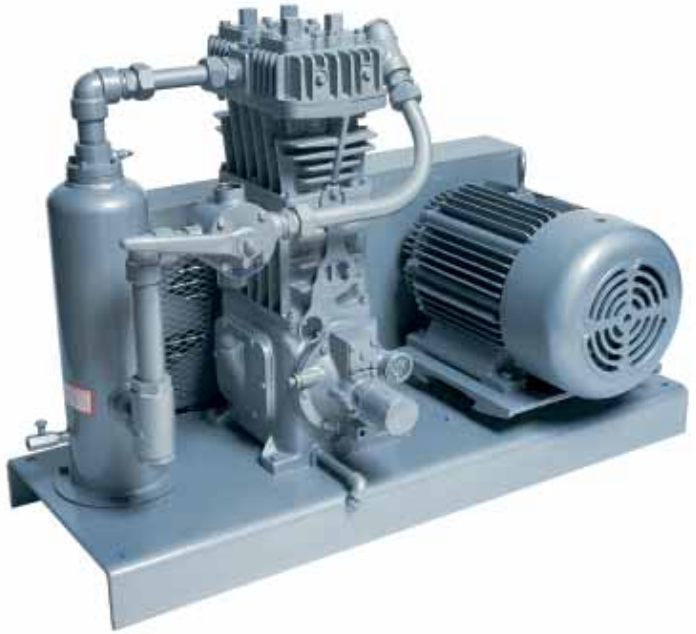
Solutions beyond products...

CORKEN®

Liquid Gas Transfer Compressor Applications

Bulk application...

The "107" bulk plant gas compressor unit is complete with pressure gauges, steel baseplate, mechanical liquid trap, four-way valve, strainer, interconnecting piping, adjustable driver-slide-base, v-belt drive and beltguard ready to receive an electric motor. This standard unit is typically used for liquid transfer and vapor recovery in applications including rail car and truck loading and unloading. Many options such as ASME liquid traps with Class 1, Group D switches and total engineered packages can be provided.



Large terminal and barge applications...

The D891 and HG601 series compressors are for high-volume transfer applications with flow capacities from 337 to 1552 gpm (76.5 to 352.5 m^3/hr). These compressors are available in standard mounting configurations and also in special-engineered packages which include safety shutdowns and controls as required.

Scavenger applications...

Corken has a variety of standard scavenger packages available, depending on the customer's requirements. For maintenance purposes, scavengers can be sized for small-cylinder to large-tank evacuation systems. Corken will assist in custom engineering your scavenger systems for your specific application.

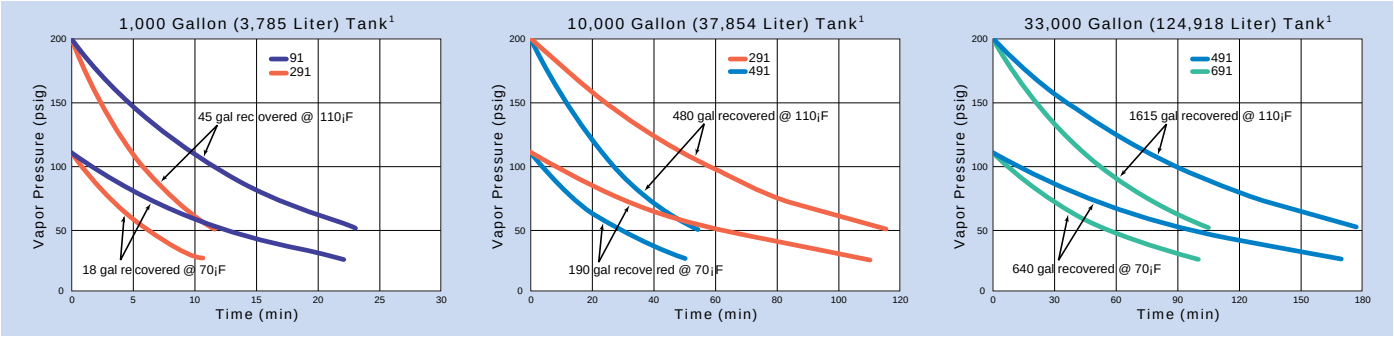
Truck compressor applications...

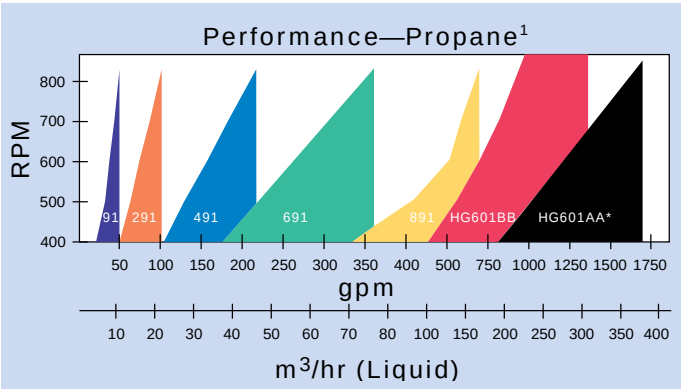
The "102" compressor comes complete with extended crankshaft for utilization on trucks with PTO and hydraulic drive systems. The compressor can be used for loading/unloading as well as vapor recovery on trucks.

Compressor Specifications & Performance

Specifications	Model						
	91	291	491	691	891 (a)	HG601BB (b)(e)	HG601AA (b)(e)
Bore of cylinder inches (mm)	3.0 (76.2)	3.0 (76.2)	4.0 (101.6)	4.5 (114.3)	4.5 (113)	6 (152)	8 (203)
Stroke: inches (mm)	2.5 (63.5)	2.5 (63.5)	3.0 (76.2)	4.0 (101.6)	4.0 (101.6)	3 (76.2)	3 (76.2)
Piston displacement CFM (m^3/hr) minimum @ 400 RPM maximum @ 825 RPM maximum @ 1,200 RPM	 4.0 (6.8) 8.3 (14.1) -	 8.0 (13.6) 16.5 (28.0) -	 17.2 (29.2) 35.5 (60.3) -	 29.2 (49.6) 60.2 (102.3) -	 56.6 (96.2) 113.2 (192.0) -	 76.8 (130.5) - 230.5 (391.9)	 138 (234.5) - 413.8 (703.5)
Maximum working pressure: psig (bar)	350 (24.1)	350 (24.1)	350 (24.1)	350 (24.1)	465 (32.1)	365 (25.2)	315 (21.7)
Maximum brake horsepower (kW)	7.5 (5.6)	15 (11)	15 (11)	35 (26.1)	45 (34)	75 (55.9)	75 (55.9)
Maximum rod load lb (kg)	3,600 (1,632.9)	3,600 (1,632.9)	4,000 (1,814.4)	5,500 (2,494.8)	7,000 (3,175.2)	7,000 (3,175.2)	7,000 (3,175.2)
Maximum outlet temperature °F (°C)	350 (177)						
Bare unit weight lb (kg)	115 (52.2)	160 (72.6)	260 (117.9)	625 (283.5)	855 (387.8)	828 (375.6)	868 (393.7)
Maximum flow-propane gpm (m^3/hr)	50 (11.4) (c)	101 (22.9) (c)	215 (48.8) (c)	361 (82.0) (c)	694 (157.6) (c)	1,305 (296.4) (e)	1,725 (391.8) (f)
ANSI/DIN flange option	F91	F291	F491	F691	(d)	(d)	(d)

(a) Double-acting vertical compressor
(b) Double-acting horizontal compressor
(c) Maximum flow is based on 825 RPM or maximum hp, 30 psid. Capacities shown are based on 100 °F (37.8 °C) and will vary depending upon piping, fittings, product being transferred, and temperature. The factory will supply a detailed compressor analysis if required.
(d) Not available
(e) Maximum rating at 1,200 RPM
(f) Maximum is based on hp limit and 845 RPM





[1] Capacities shown are based on 100 °F (37.8 °C) and will vary depending upon piping, fittings, product being transferred, and temperature. The factory will supply a detailed compressor analysis if required.
** Maximum 75 hp is reached at 845 RPM*

Solutions beyond products...
CORKEN®

Propane Compressor Selection Table

Service	Capacity gpm(1)	Displacement cfm	Compressor Model	Compressor RPM	Driver Sheave Size P.D."(2) 1,750 RPM	Driver Sheave Size P.D."(2) 1,450 RPM	Driver Horsepower: Liquid Transfer and Residual Vapor Recovery 100°F	Driver Horsepower: Liquid Transfer and Residual Vapor Recovery 80°F	Driver Horsepower: Liquid Transfer without Residual Vapor Recovery 100°F	Driver Horsepower: Liquid Transfer without Residual Vapor Recovery 80°F	Piping Size (3) Vapor	Piping Size (3) Liquid
Small bulk plants	23	4	91	400	A 3.0	A 3.6	5	3	3	3	3/4	1-1/4
	29	5	91	505	A 3.8	B 4.6	5	5	5	5	3/4	1-1/4
	34	6	91	590	B 4.6	B 5.6	5	5	5	5	1	1-1/4
	40	7	91	695	B 5.4	B 6.6	5	5	5	5	1	1-1/2
	39	7	290,291	345	A 3.0	A 3.6	3	3	3	3	1	1-1/2
Unloading single tank car or transport	45	8	91	795	B 6.2	B 7.4	7-1/2	7-1/2	7-1/2	7-1/2	1	1-1/2
	44	8	290,291	390	A 3.4	B 4.0	5	3	3	3	1	1-1/2
	50	9	290,291	435	A 3.8	B 4.6	5	5	3	3	1	1-1/2
	56	10	290,291	490	B 4.4	B 5.2	5	5	5	5	1	2
	61	11	290,291	535	B 4.8	B 5.8	5	5	5	5	1	2
	66	12	290,291	580	B 5.2	B 6.2	7-1/2	5	5	5	1	2
	71	13	290,291	625	B 5.6	B 6.6	7-1/2	5	7-1/2	5	1-1/4	2
	79	14	290,291	695	B 6.2	B 7.4	7-1/2	7-1/2	7-1/2	7-1/2	1-1/4	2
	84	15	290,291	735	B 6.6	B 8.0	10	7-1/2	10	7-1/2	1-1/4	2-1/2
	84	15	490,491	345	A 3.0	A 3.6	7-1/2	7-1/2	5	5	1-1/4	2-1/2
	89	16	290,291	780	B 7.0	B 8.6	10	10	10	10	1-1/4	2-1/2
	89	16	490,491	370	A 3.2	A 3.8	7-1/2	7-1/2	7-1/2	5	1-1/4	2-1/2
Unloading two or more tank cars at one time or large transport with excess flow valves of adequate capacity	95	17	490,491	390	A 3.4	B 4.0	7-1/2	7-1/2	7-1/2	7-1/2	1-1/4	3
	101	18	490,491	415	A 3.6	B 4.4	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	106	19	490,491	435	A 3.8	B 4.6	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	108	20	490,491	445	B 4.0	B 4.8	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	114	21	490,491	470	B 4.2	B 5.0	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	119	22	490,491	490	B 4.4	B 5.2	10	10	7-1/2	7-1/2	1-1/4	3
	125	23	490,491	515	B 4.6	B 5.6	10	10	10	7-1/2	1-1/4	3
	130	24	490,491	535	B 4.8	B 5.8	15	10	10	10	1-1/4	3
	136	25	490,491	560	B 5.0	B 6.0	15	10	10	10	1-1/4	3
	141	26	490,491	580	B 5.2	B 6.2	15	10	10	10	1-1/4	3
	147	27	490,491	605	B 5.4	B 6.4	15	10	15	10	1-1/4	3
	152	28	490,491	625	B 5.6	B 6.6	15	15	15	15	1-1/2	3
	158	29	490,491	650	B 5.8	B 7.0	15	15	15	15	1-1/2	3
	163	30	490,491	670	B 6.0		15	15	15	15	1-1/2	3
	163	30	690,691	400	B 4.4	B 5.2	15	15	10	10	1-1/2	3
	168	31	490,491	695	B 6.2	B 7.4	15	15	15	15	1-1/2	3
	171	31	690,691	420	B 4.6	B 5.6	15	15	10	10	1-1/2	3
	179	32	490,491	740	B 6.6	B 8.0	15	15	15	15	1-1/2	3
	178	32	690,691	440	B 4.8	B 5.8	15	15	10	10	1-1/2	3
	186	34	690,691	455	B 5.0	B 6.0	15	15	15	10	1-1/2	3
	193	35	690,691	475	B 5.2	B 6.2	15	15	15	10	1-1/2	3
	200	36	690,691	495	B 5.4	B 6.4	15	15	15	15	1-1/2	3
Unloading large tank cars, multiple vessels, barges or terminals	208	38	690,691	510	B 5.6	B 6.8	20	15	15	15	1-1/2	4
	215	39	690,691	530	B 5.8	B 7.0	20	15	15	15	1-1/2	4
	223	41	690,691	550	B 6.0	A 7.0	20	15	15	15	1-1/2	4
	230	42	690,691	565	B 6.2	B 7.4	20	15	15	15	2	4
	237	43	690,691	585	B 6.4	A 7.4	20	15	15	15	2	4
	245	45	690,691	605	B 6.6	B 8.0	20	15	15	15	2	4
	252	46	690,691	620	B 6.8		20	20	15	15	2	4
	260	47	690,691	640	B 7.0	A 8.2	20	20	20	15	2	4
	275	48	690,691	675	B 7.4	B 8.6	25	20	20	20	2	4
	297	54	690,691	730	B 8.0	B 9.4	25	20	20	20	2	4
	319	58	690,691	785	B 8.6		25	20	25	20	2	4
	334	60	690,691	820	TB 9.0	A 10.6	30	25	25	20	2	4
	452	82	D891	580	5V 7.1	5V 8.5	30	30	30	30	3	6
	623	113	D891	800	5V 9.75	5V 11.8		40	40	30	3	6

Notes:

(1) The capacities shown are based on 70°F, but will vary depending upon piping, fittings used, product being transferred and temperature. The factory can supply a detailed computer analysis if required.

(2) Driver sheaves: 91 - 2 belts; 290,291,490,491 - 3 belts; 690,691 - 4 belts.

(3) The piping sizes shown are considered minimum. If the length exceeds 100 ft, use the next larger size.

Consult factory for compressors with higher flows.

Ammonia Compressor Selection Table

Service	Capacity gpm(1)	Displacement cfm	Compressor Model	Compressor RPM	Driver Sheave Size P.D."(2) 1,750 RPM	Driver Sheave Size P.D."(2) 1,450 RPM	Driver Horsepower: Liquid Transfer and Residual Vapor Recovery 100°F	Liquid Transfer and Residual Vapor Recovery 80°F	Liquid Transfer Without Residual Vapor Recovery 100°F	Liquid Transfer Without Residual Vapor Recovery 80°F	Piping Size (3) Vapor	Piping Size (3) Liquid
Small bulk plants	23	4	91	400	A 3.0	A 3.6	5	3	3	3	3/4	1-1/4
	29	5	91	505	A 3.8	B 4.6	5	5	5	3	3/4	1-1/4
	34	6	91	590	B 4.6	B 5.6	5	5	5	5	1	1-1/4
	40	7	91	695	B 5.4	B 6.6	5	5	5	5	1	1-1/2
	43	7	290,291	345	A 3.0	A 3.6	5	3	3	3	1	1-1/2
Unloading single tank car or transport	46	8	91	795	B 6.2	B 7.4	7-1/2	5	5	5	1	1-1/2
	45	8	290,291	390	A 3.4	B 4.0	5	3	3	3	1	1-1/2
	50	9	290,291	435	A 3.8	B 4.6	5	5	3	3	1	1-1/2
	56	10	290,291	490	B 4.4	B 5.2	5	5	5	3	1	2
	62	11	290,291	535	B 4.8	B 5.8	7-1/2	5	5	5	1	2
	67	12	290,291	580	B 5.2	B 6.2	7-1/2	5	5	5	1	2
	72	13	290,291	625	B 5.6	B 6.6	7-1/2	5	5	5	1-1/4	2
	80	14	290,291	695	B 6.2	B 7.4	7-1/2	7-1/2	7-1/2	5	1-1/4	2
	85	15	290,291	735	B 6.6	B 8.0	10	7-1/2	7-1/2	7-1/2	1-1/4	2-1/2
	85	15	490,491	345	A 3.0	A 3.6	7-1/2	7-1/2	5	5	1-1/4	2-1/2
	90	16	290,291	780	B 7.0	B 8.6	10	7-1/2	7-1/2	7-1/2	1-1/4	2-1/2
	90	16	490,491	370	A 3.2	A 3.8	10	7-1/2	5	5	1-1/4	2-1/2
Unloading two or more tank cars at one time or large transport with excess flow valves of adequate capacity	96	17	490,491	390	A 3.4	B 4.0	10	7-1/2	5	5	1-1/4	3
	102	18	490,491	415	A 3.6	B 4.4	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	107	19	490,491	435	A 3.8	B 4.6	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	110	20	490,491	445	B 4.0	B 4.8	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	115	21	490,491	470	B 4.2	B 5.0	10	7-1/2	7-1/2	7-1/2	1-1/4	3
	120	22	490,491	490	B 4.4	B 5.2	15	10	7-1/2	7-1/2	1-1/4	3
	126	23	490,491	515	B 4.6	B 5.6	15	10	7-1/2	7-1/2	1-1/4	3
	131	24	490,491	535	B 4.8	B 5.8	15	10	10	7-1/2	1-1/4	3
	138	25	490,491	560	B 5.0	B 6.0	15	10	10	7-1/2	1-1/4	3
	142	26	490,491	580	B 5.2	B 6.2	15	10	10	7-1/2	1-1/4	3
	148	27	490,491	605	B 5.4	B 6.4	15	10	10	10	1-1/4	3
	153	28	490,491	625	B 5.6	B 6.6	15	10	10	10	1-1/2	3
	160	29	490,491	650	B 5.8	B 7.0	15	15	10	10	1-1/2	3
	165	30	490,491	670	B 6.0		15	15	15	10	1-1/2	3
	165	30	690,691	400	B 4.4	B 5.2	15	15	10	10	1-1/2	3
	170	31	490,491	695	B 6.2	B 7.4	15	15	15	10	1-1/2	3
	173	31	690,691	420	B 4.6	B 5.6	15	15	10	10	1-1/2	3
	181	32	490,491	740	B 6.6	B 8.0	15	15	15	15	1-1/2	3
	180	32	690,691	440	B 4.8	B 5.8	15	15	10	10	1-1/2	3
	188	34	690,691	455	B 5.0	B 6.0	20	15	10	10	1-1/2	3
	195	35	690,691	475	B 5.2	B 6.2	20	15	10	10	1-1/2	3
	203	36	690,691	495	B 5.4	B 6.4	20	15	15	10	1-1/2	3
Unloading large tank cars, multiple vessels, barges or terminals	211	38	690,691	510	B 5.6	B 6.8	20	15	15	10	1-1/2	4
	218	39	690,691	530	B 5.8	B 7.0	20	15	15	15	1-1/2	4
	226	41	690,691	550	B 6.0	A 7.0	20	15	15	15	1-1/2	4
	233	42	690,691	565	B 6.2	B 7.4	20	15	15	15	2	4
	240	43	690,691	585	B 6.4	A 7.4	20	20	15	15	2	4
	248	45	690,691	605	B 6.6	B 8.0	20	20	15	15	2	4
	255	45	690,691	620	B 6.8		25	20	15	15	2	4
	263	47	690,691	640	B 7.0	A 8.2	25	20	15	15	2	4
	278	48	690,691	675	B 7.4	B 8.6	25	20	15	15	2	4
	301	54	690,691	730	B 8.0	B 9.4	25	20	20	15	2	4
	323	58	690,691	785	B 8.6		30	25	20	20	2	4
	338	60	690,691	820	TB 9.0	A 10.6	30	25	20	20	2	4
	459	82	D891	580	5V 7.1	5V 8.5	40	30	30	30	3	6
	633	113	D891	800	5V 9.75	5V 11.8		40	40	30	3	6

Notes:

(1) The capacities shown are based on 70°F, but will vary depending upon piping, fittings used, product being transferred and temperature. The factory can supply a detailed computer analysis if required.

(2) Driver sheaves: 91 - 2 belts; 290,291,490,491 - 3 belts; 690,691 - 4 belts.

(3) The piping sizes shown are considered minimum. If the length exceeds 100 ft, use the next larger size.

Consult factory for compressors with higher flows.

LPG Accessories
Bypass Valves

B166 (3/4", 1") Automatic Dual-Purpose, Bypass Valve

Typical Application: On all cylinder filling pumps as well as aerosol propellant feed pumps.

A combination bypass and priming valve specifically designed for small cylinder-filling-type pumps, especially of the regenerative turbine type, such as the Corken Coro-Flo® pump series. The patented vapor elimination system keeps liquified gas pumps primed to increase system reliability and decrease pump and seal wear. The B166 is a smooth operating bypass with moderate pressure build-up.

T166 (1-1/4", 1-1/2") Pump Flow Control Valve

Typical Application: Large-capacity pumps filling variable size tanks and bottles such as those used with delivery trucks or multi-spot cylinder-filling plants.

A high-pressure build-up valve for smooth-acting flow control. Specifically designed for bypass protection for pumps in the 30 to 100 gpm (6.8 to 22.7 m^3/hr) range, such as those used on delivery trucks. In contrast to the B177, the T166 valve opens gradually as pressure builds up to modulate the flow, bypassing the excess capacity smoothly and silently back to the supply tank. A continuous internal bleed in this valve assists in eliminating vapors.

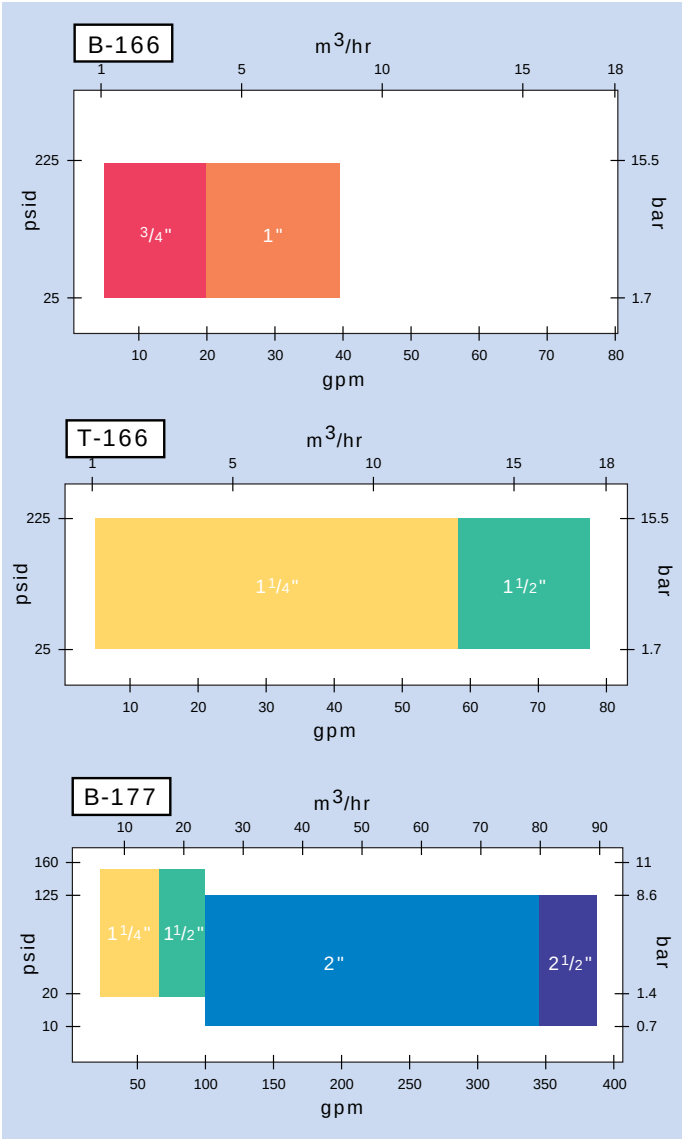
B177 (1-1/4", 1-1/2", 2", 2-1/2") Differential Bypass Valve

Typical Application: In liquefied gas bulk-plant installations for the loading and unloading pumps.

A low-pressure build-up bypass valve specifically designed for applications requiring protection for positive displacement pumps in the 40 to 350 gpm (9.1 to 79.5 m^3/hr) range. It can also be used as a differential back-pressure valve to assure adequate pressure on meters, etc. To properly function, this valve requires a pressure sensing line from the storage tank.

Specification	B166	T166	B177
Inlet	3/4", 1"	1-1/4", 1-1/2"	1-1/4", 1-1/2", 2", 2-1/2"
Outlet	3/4", 1"	1-1/4", 1-1/2"	1-1/4", 1-1/2", 2", 2-1/2"
Slip-on flange option	No	No	2", 2-1/2"
Differential pressure	25-225	25-225	20-160
Range psi (bar)	(1.7–15.5)	(1.7–15.5)	(0.7–11)
O-ring material options	Buna N (standard), Neoprene®, Teflon®, Viton®, ethylene-propylene[1]		

[1] Neoprene®, Teflon® and Viton® are registered trademarks of the DuPont company. Ethylene-propylene not availble for B177.



Flo-Check, 4-Way Valve, Ell Strainer & Liquid Traps, etc...

Flo-Chek valve...

The Flo-Chek enables you to detect flow in the gas or liquid lines and prevents release of product from storage tank in the event of a hose failure. Flow-indicating and back-check valves feature all ductile iron construction and are available in 1-1/4" through 4", NPT or welded flanges with a 400 psig (27.6 bar) rating. Standard O-rings are Buna N. Teflon®, Viton®, and Neoprene® are optional.[1]

4-way non-lubricated valve...

A convenient and simple means of reversing flow direction to a compressor. Made of ductile iron body, complete with handle and flow direction indicator (1" or 1-1/4" NPT and 2" — 300# ANSI flange, 500 psig rating [34.5 bar g]).

Low-oil-pressure switch...

NEMA 7 pressure switch allows you to shut down the compressor if the oil pressure drops below 10 psi (0.69 bar), which protects the compressor from lack of lubrication. Available in 120 or 230 volt and can be used with magnetic starters up to NEMA Size 3.

Strainer...

The right-angle design will minimize pressure drop and comes complete with ductile iron body with monel screen and steel plug. Available for liquid or vapor service (1-1/4" NPT 250 psig [17.2 bar] rating).

Pressure gauges...

Stainless steel case-glycerine filled pressure gauges will mount on the compressor head or in the piping system and come with the following features:

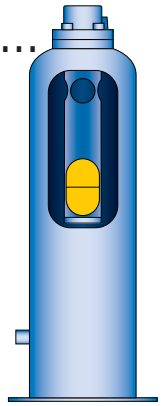
- 0 to 400 psi (0 to 28 bar) range, 5 psi (0.34 bar) increment
- 2-1/2" dial with 1/4" NPT center back connection

Liquid traps...

Standard liquid trap with mechanical float assembly and drain valve.

1-1/4" x 1-1/4" NPT or

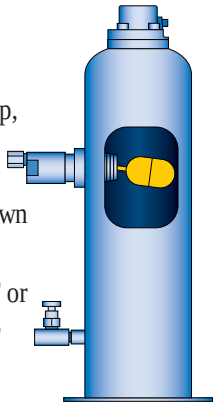
1-1/4" x 1-1/2" NPT



Automatic liquid trap, with one NEMA 7 liquid-level switch for compressor shutdown and drain valve.

1-1/4" x 1-1/4" NPT or

1-1/4" x 1-1/2" NPT



ASME code-stamped automatic liquid trap with two NEMA 7 liquid-level switches for compressor shutdown and alarm. Equipped with relief valve, pressure gauge, demister pad, and drain valve.

1-1/2" x 1-1/2" NPT or

2" x 2" 300# ANSI flange.

[1] *Teflon®, Viton®, and Neoprene® are registered trademarks of the DuPont company.*

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