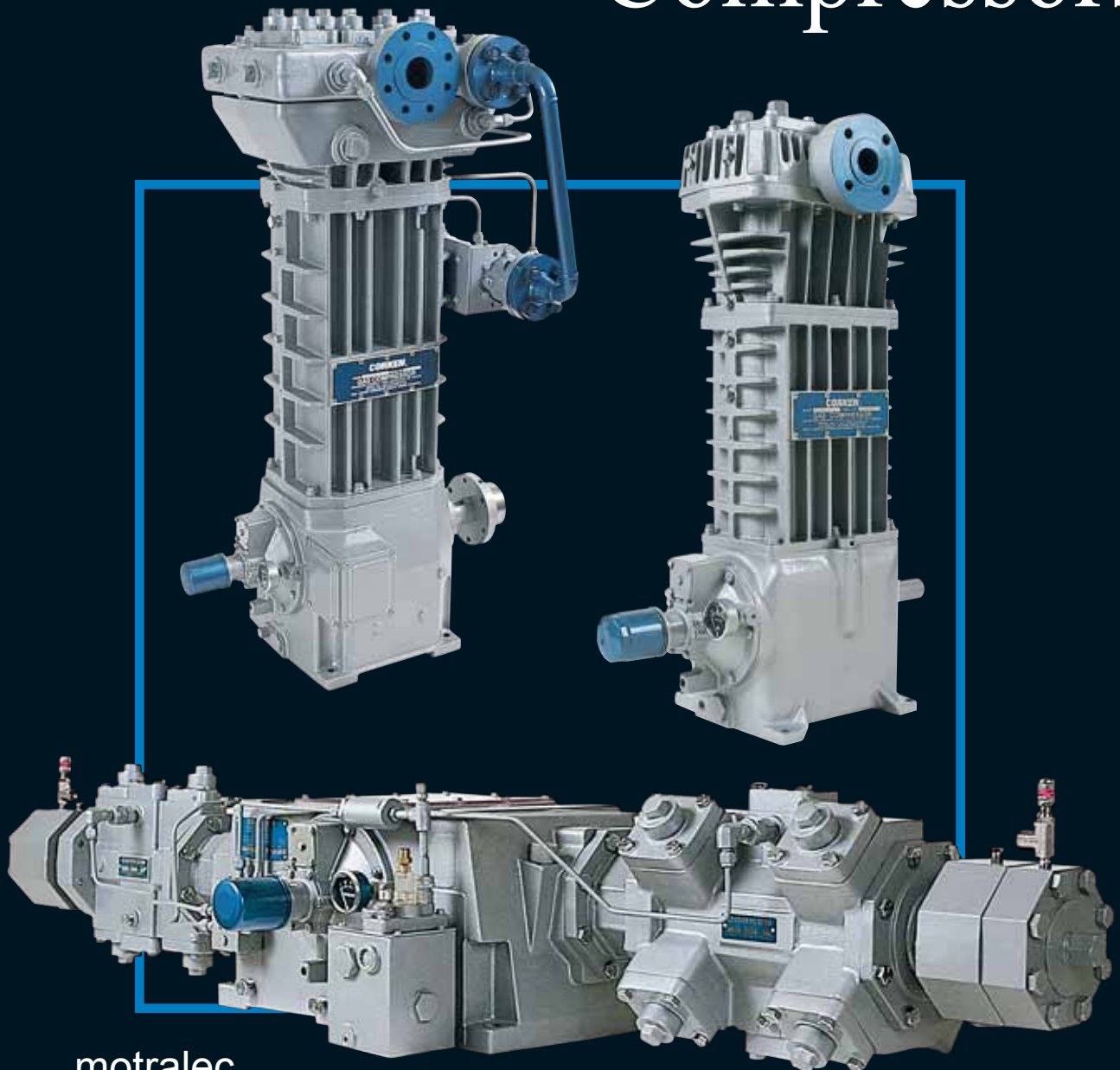


# I-Series Compressors



**motralec**

4 rue Lavoisier . ZA Lavoisier . 95223 HERBLAY CEDEX

Tel. : 01.39.97.65.10 / Fax. : 01.39.97.68.48

Demande de prix / e-mail : [service-commercial@motralec.com](mailto:service-commercial@motralec.com)

[www.motralec.com](http://www.motralec.com)

*Solutions beyond products...*



**CORKEN®**  
**IDEX**



## A Tradition of Excellence

Corken, Inc. is recognized as a world leader in the manufacture of small gas compressors (1–75 hp/.75–55.9 kW range) for hazardous, volatile and toxic gases commonly found in the process gas industry.

Corken's exceptional reputation in each of the industries it serves 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 quickly gaining a reputation for excellence in customer service. In the early 1940s, 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 line of compressors and pumps for the propane, butane and anhydrous ammonia industries.

For more than thirty years, Corken compressors have been used for compressing a wide range of industrial and process gases, including toxic, explosive and flammable gases. In 1991, Corken became part of the IDEX Corporation, a fluid handling group



consisting of globally recognized market leaders. Through the years, a strong commitment to customer service, product integrity, and dedication to technological innovation has made Corken a recognized world leader in the compressor and pump markets.

Today, Corken is a diversified company that serves a worldwide customer base. Corken compressors, pumps, custom-engineered compressor and pump packages and valves 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**

# Why Select Corken Compressors?

## Reliable, efficient delivery of oil-free gas

### The Industrial Series (I-Series) compressors can handle your gas processing needs...

Corken's line of oil-free compressors has been designed to transfer a wide range of process gases, including: **butadiene, hydrogen, helium, methyl chloride, sulfur dioxide, chlorine, HCFCs**, and more. Corken's compressors are highly reliable in applications as varied as compression of exotic gases for research, process gas compression in the chemical industry, compression of corrosive biogas from landfills and gas boosting in the petroleum industry.

### Corken adapts to meet your needs...

**Leakage control:** For toxic, hazardous and explosive gases, Corken's single- and double-distance-piece (T-style) designs provide for precise control of leakage. Corken compressors with the double-distance piece comply with 1990 U.S. Environmental Protection Agency Regulations 40 CFR CH Section 264.1053 when properly equipped.

**Corrosion resistance:** Corken offers a special coating which acts to prevent corrosion and wear of critical parts within the compressor. The coating is a nickel alloy plating which is impregnated with fluorocarbons.

**Material options:** Corken offers optional material for various gases as required.

### Corken is consistently meeting the new environmental/industry needs...

**ANSI/DIN flange option:** In reaction to increased environmental demands for leakage control, Corken has added the option for ANSI/DIN flanges on its vertical compressor line. These raised face flanges improve leak containment and structural integrity.

**DIN Iron option:** Corken offers a number of compressors with DIN Spec Iron for pressure containing parts. These parts meet German DIN ductile iron specifications.

### Servicing customer needs...

Customer service has always been the key to Corken's success. Corken's excellence in this area has been established through highly skilled service engineers and training programs providing total customer support. Corken's customer service group ensures that customers are well versed in the use and application of Corken equipment, as well as maintenance, service and all safety related measures.



# Vertical Industrial Gas Compressors

## Features & Benefits

### Compressors matched to your needs...

Corken offers many types of compressors to meet the stringent requirements of today's markets. Corken provides oil-free, non-lubricated and lubricated versions of its vertical compressor. Depending on the application, single- and two-stage, air-cooled or water-cooled compressors are available in single- and double-acting designs.

### No contamination of process gas stream...

Corken gas compressors are equipped with a single- or double-distance piece which effectively controls oil carryover and product leakage by eliminating rod over travel and providing two or more sets of packing on each piston rod. Corken offers a double-distance-piece (T-style) option which consists of two distinct isolation chambers to provide maximum leakage control. These chambers can be pressurized, purged or vented to control gas leakage. This feature allows the compressor to supply oil-free gas whether it's being used as a simple gas booster or for vacuum service. The single- and two-stage compressors are both capable of developing up to 23 in Hg (157 mm Hg) vacuum.

### More than just a compressor...

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, receiver tanks, valving and other special accessories as required. Corken also offers standard mountings designed specifically for liquefied gas transfer, vapor recovery and gas booster applications.

### Serviceability...

Corken compressors are designed to minimize the 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.

### Corken can handle process gases such as...

air	carbon tetrachloride	ethane	isobutene	neon	CFC-12	HFC-23
ammonia	carbonyl sulfide	ethyl chloride	isobutylene	nitric oxide	CFC-13	HFC-134A
argon	chlorine	ethylene	krypton	nitrous oxide	CFC-113	HFC-152A
benzene	chlorodifluoromethane	ethylene oxide	methane	n-octane	CFC-114	sulfur dioxide
biogas	cyanogen	helium	methyl acetylene	oxygen	CFC-115	sulfur hexafluoride
butadiene	cyclohexane	hexafluoroethane	methyl bromide	ozone	CFC500	tetrafluoroethylene
n-butane	cyclopropane	n-heptane	methyl chloride	n-pentane	CFC502	trichloroethane
1-butene	deuterium	n-hexane	methyl fluoride	phosgene	CFC503	trimethylamine
bromotrifluoromethane	dimethylamine	hydrocarbon gas	methyl mercaptan	propane	HCFC-22	vinyl bromide
carbon dioxide	dimethyl ether	hydrogen	monoethylamine	propylene	HCFC-141B	vinyl fluoride
carbon monoxide	2,2-dimethylpropane	hydrogen chloride	monomethylamine	refrigerants:	HCFC-142B	vinyl chloride
		isobutane	natural gas	CFC-11	HFC-14	xenon

#### High efficiency valves:

Corken valves offer quiet operation and high durability in oil-free gas applications. Valve plates are available in numerous metallic and non-metallic materials including stainless steel and PEEK material.

#### Self-Lubricating 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. Material options include ALLOY 50 (a proprietary composition) and different thermoplastic materials as required for the particular application.

#### Nitride-coated piston rods:

Impregnated nitride coating provides superior corrosion resistance.

#### Cast iron crosshead:

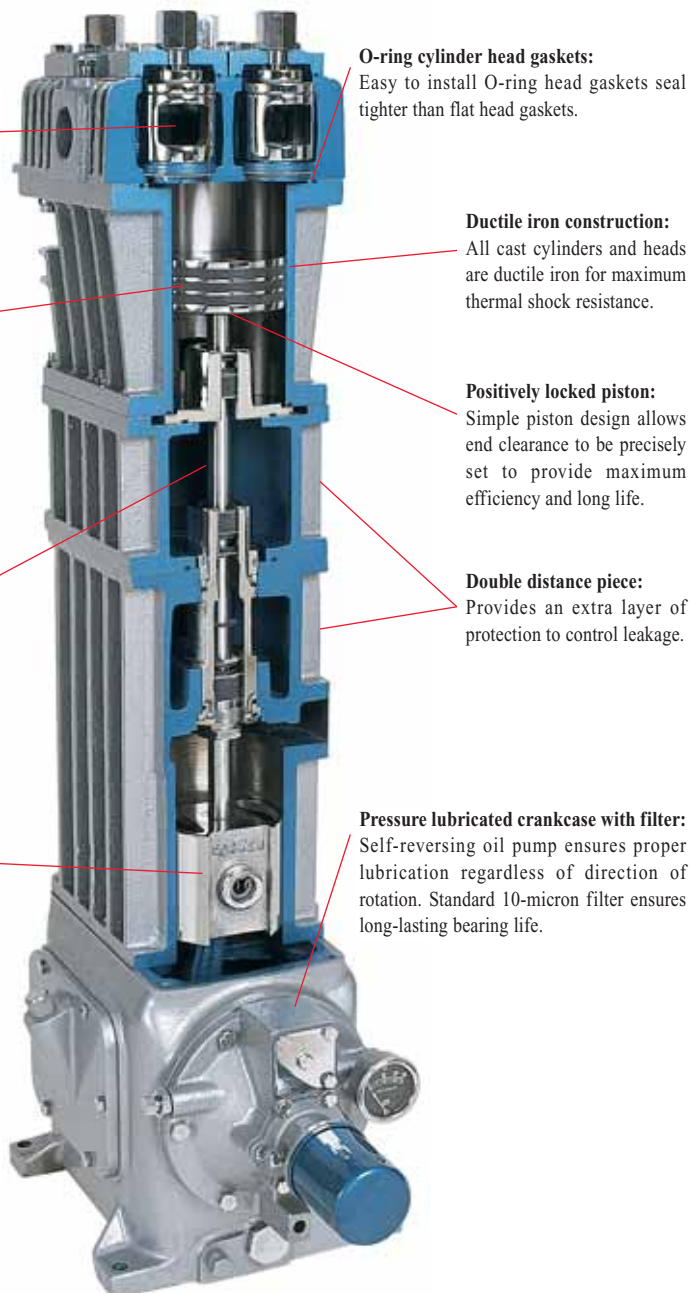
Durable cast iron crossheads provide superior resistance to corrosion and galling.



# Single- and Two-Stage

## Single-stage oil-free compressors...

Corken single-stage compressors are typically used in applications where the gas compression ratio is less than 5:1. Applications such as liquefied gas transfer are generally better suited for a single-stage compressor (which can take advantage of the relatively low differential pressures and offer extremely efficient gas compression). Transport, rail car and marine unloading by vapor differential are examples of such an operation.



## Two-stage oil-free compressors...

Corken two-stage compressors are typically used in applications where the gas compression ratio is greater than 5:1. The two-stage compressors divide the compression process into two separate steps and allow the gas to be cooled after the first stage of compression, which results in a lower final discharge temperature. These compressors are commonly used in booster and vapor recovery applications. Due to the need for higher differential pressures which result in higher operating temperatures, Corken also offers the two-stage compressor in a water-cooled design, where both the cylinder and the head are cooled.

## Sized for your capacity needs...

Corken offers six different sizes of vertical, oil-free, single-stage compressors (Models D91–D691) and six different two-stage compressors (Models FD151–FD591). These compressors cover the full range of capacities from 4 to 60 CFM (6.8–102 m<sup>3</sup>/hr).

## For even greater capacity...

Corken model D891 is a double-acting single-stage gas compressor which is capable of supplying between 50 and 100 CFM (171 m<sup>3</sup>/hr), while the D791 is a double-acting two-stage compressor. The D791 also offers the advantage of an adjustable clearance head which may be used to balance the pressure load between stages. Both of these units are offered in either lubricated or non-lubricated versions. Although these compressors are not classified as oil free, the potential for oil carry-over is minimized.

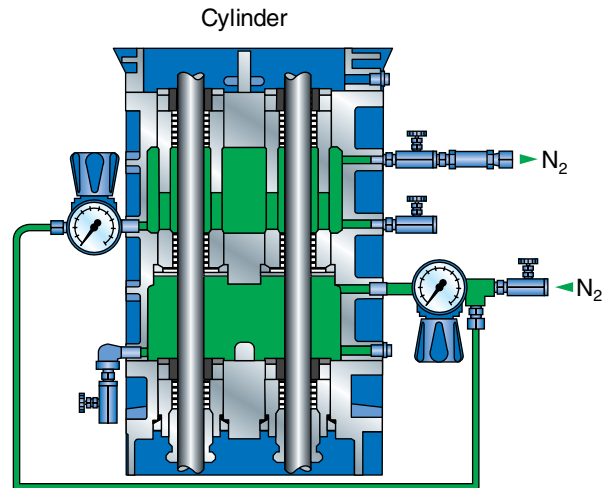
*Solutions beyond products...*



# Vertical Compressor Options

## Corken offers many options and accessories.

**Double-Distance Piece (T-style):** Due to new regulations and the growing number of gases that pose possible safety and environmental hazards, Corken offers the double-distance-piece (T-style) option. For improved leakage control, this option has three separate sets of packing per piston rod which effectively form two distinct distance pieces or barriers to external leakage. Each distance piece has its own line connections and can be separately pressurized, purged or vented to provide a wide range of application flexibility. This flexibility allows a choice of the best method of containment, based on the requirements of your specific application. For added convenience, purge kit options are available that include all the accessories needed to control the purging or pressurization of each chamber.



Double-distance piece with purge kit for pressurization and purging of distance piece.



Packing cartridge, crosshead, piston rod, K-ring spacers and V-ring packing.

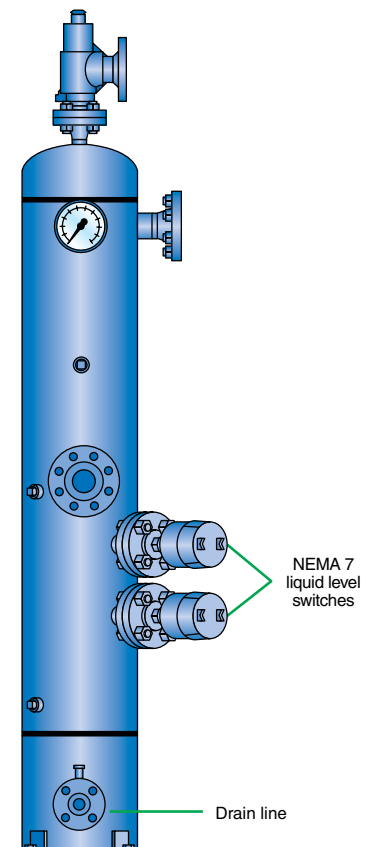
**Liquid Traps:** Corken offers automatic electric and mechanical traps. The automatic electric design incorporates one or two liquid level switches depending on specific requirements. Custom traps are available on package units. Traps constructed per ASME code are optional.

**Safety and Control Switches:** Corken can supply safety shutdown switches for pressure, temperature, liquid level and vibration to meet international and U.S. specifications. These switches, in conjunction with a control panel, can effectively automate the operation of the compressor.

**Intercoolers/Aftercoolers:** Corken offers water-cooled and air-cooled intercoolers/aftercoolers in a variety of materials. Custom designed heat exchangers are available for applications which require extra cooling or special material considerations.

**Piston Rod Material and Coating Options:** Several rod material options are available for special applications. Corrosion resistant coatings are also available to protect internal compressor parts.

**K-ring Spacers:** These spacers, when used in conjunction with our V-ring packing, offer improved leakage control and extend service life in applications where operating temperatures exceed 250°F (121°C).



Flanged, ASME code liquid trap with liquid-level switches, manual drain and stainless steel demister pad.

# Vertical Compressor Options

**MC1002 Coating:** This coating significantly increases component life in corrosive gas service. It will not peel or chip and offers increased corrosion, moisture, abrasion and chemical resistance. Lab tests indicate that piston rings can last up to three times longer when used with an MC1002-coated cylinder.

**Suction Valve Unloaders:** Unloaders may be used to provide loadless starting and/or constant speed unloading. Loadless starting is required in applications which have a high initial differential pressure. Constant speed unloading allows for loading and unloading the compressor while it is running rather than stopping and starting the compressor in order to control capacity.

**ALLOY 50 piston rings and rod packing:** ALLOY 50 (a proprietary composition) is recommended when compressing a very dry gas with a high K value. These gases tend to have high operating temperatures and offer minimal lubricating qualities. ALLOY 50 material extends the service life of the piston rings and rod packing and minimizes leakage.



ALLOY 50 piston rings and rod packing.

**Optional Materials:** Corken has several material options for a variety of compressor parts. Piston rings are available in ALLOY 50, PEEK and other filled Teflon<sup>®1</sup>, blends. Valve plates are available in stainless steel and PEEK materials. Optional materials for piston rods are also available. O-rings are offered in Teflon<sup>®</sup>, Viton<sup>®</sup>, Buna-N or Neoprene<sup>®1</sup>. Consult the factory for optional materials that can be specified on special applications.

## Options to match your application...

Corken offers numerous options that adapt to your compression needs. The following table lists some of the more common gases and some of the hazards associated with these gases. As noted, certain gases or gas mixtures are corrosive, flammable, explosive or toxic. Many of these

factors will affect the selection of the compressor and accompanying options. Some of the more common options are matched up with the assorted gases listed on the following table. However, this not a comprehensive list of required options. Based on years of experience, Corken's sales engineers will recommend the most suitable materials of construction and select the appropriate options based on your application and product. These engineers carefully review your specifications and recommend the components necessary for the optimal performance of the selected compressor. As part of Corken's continuous improvement program, new state-of-the-art materials are continually being evaluated to enhance the compressor life in gas applications.

<sup>1</sup>Teflon<sup>®</sup>, Viton<sup>®</sup> and Neoprene<sup>®</sup> are registered trademarks of DuPont.

# Matching Options With Gases



Explosive



Flammable



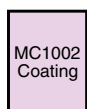
Corrosive



Toxic



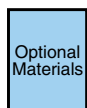
Double –  
Distance Piece



Corrosion  
Resistant  
Coating



Piston Rings  
& Rod Packing  
Material



Optional  
Materials

TYPE OF GAS	FORMULA					T STYLE	MC 1002 Coating	ALLOY 50	Optional Materials	COMMENTS
AMINES									●	COPPER, ALUMINUM AND ZINC PROHIBITED. TEFLON <sup>®1</sup> O-RINGS AND IRON/LEAD TRIM RECOMMENDED.
AMMONIA	NH <sub>3</sub>			●	●				●	COPPER AND COPPER ALLOYS PROHIBITED.
ARGON	AR					●		●		LEAK TIGHTNESS IMPORTANT. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
BIOGAS		●	●	●	●		●		●	HIGHLY CORROSIVE WHEN WET. RECOMMENDATIONS WILL VARY DEPENDING ON NATURE OF MIXTURE.
BUTADIENE	C <sub>4</sub> H <sub>6</sub>	●	●		●	●			●	COPPER AND COPPER ALLOYS PROHIBITED. LEAK TIGHTNESS IS IMPORTANT.
BUTANE, BUTENE	C <sub>4</sub> H <sub>10</sub> /C <sub>4</sub> H <sub>8</sub>	●	●							EASILY LIQUEFIED
CFC, HFC, HCFC						●		●	●	LEAK TIGHTNESS IMPORTANT.
CARBON DIOXIDE	CO <sub>2</sub>			●			●			ACIDIC WHEN WET. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
CARBON MONOXIDE	CO	●			●					NO HIGH NICKEL ALLOYS OR PURE NICKEL. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
CHLORINE	Cl <sub>2</sub>			●	●	●	●		●	HIGHLY CORROSIVE WHEN WET. CHROME OXIDE PISTON ROD COATING AND TEFLON <sup>®1</sup> O-RINGS REQUIRED.
DIMETHYLAMINE	(CH <sub>3</sub> ) <sub>2</sub> NH	●	●		●	●			●	COPPER, TIN, ZINC PROHIBITED. TEFLON <sup>®1</sup> O-RINGS REQUIRED.
DIMETHYL ETHER	(CH <sub>3</sub> ) <sub>2</sub> O	●	●						●	OPTIONAL O-RING MATERIAL AVAILABLE.
ETHANE	C <sub>2</sub> H <sub>6</sub>	●	●							
ETHYLENE	C <sub>2</sub> H <sub>4</sub>	●	●							IRON/LEAD TRIM AND TEFLON <sup>®1</sup> O-RINGS RECOMMENDED.
ETHYLENE OXIDE	C <sub>2</sub> H <sub>4</sub> O	●	●		●	●	●		●	COPPER, SILVER, MAGNESIUM PROHIBITED. TEFLON <sup>®1</sup> O-RINGS REQUIRED.
HELIUM	He					●		●	●	LEAK TIGHTNESS IMPORTANT. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
HYDROCARBON GASES	HC	●	●							UNUSUAL COMPRESSIBILITY FACTORS, CHANCE OF LIQUEFACTION.
HYDROGEN	H <sub>2</sub>	●	●			●		●	●	LEAK TIGHTNESS VERY IMPORTANT. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
HYDROGEN CHLORIDE	HCl			●	●	●	●		●	CHROME OXIDE PISTON ROD COATING RECOMMENDED. IRON/LEAD TRIM AND TEFLON <sup>®1</sup> O-RINGS REQUIRED. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
ISOBUTANE	CH(CH <sub>3</sub> ) <sub>3</sub>	●	●							
ISOBUTYLENE	(CH <sub>3</sub> ) <sub>2</sub> C:CH <sub>2</sub>	●	●						●	IRON/LEAD TRIM AND TEFLON <sup>®1</sup> O-RINGS REQUIRED.
METHANE	CH <sub>4</sub>	●	●							
METHYL CHLORIDE	CH <sub>3</sub> Cl	●	●	●	●	●	●		●	ZINC, ALUMINUM, MAGNESIUM AND THEIR ALLOYS PROHIBITED. CHROME OXIDE PISTON ROD COATING RECOMMENDED. TEFLON <sup>®1</sup> O-RINGS RECOMMENDED.
METHYL MERCAPTAN	CH <sub>3</sub> SH	●	●		●	●	●		●	COPPER, LEAD, ZINC PROHIBITED. TEFLON <sup>®1</sup> O-RINGS REQUIRED.
NATURAL GAS		●	●							REVIEW COMPOSITION OF MIXTURE.
NITROGEN	N <sub>2</sub>							●		USUALLY VERY DRY WITH NO LUBRICATING QUALITIES. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
NITROUS OXIDE	N <sub>2</sub> O			●			●		●	AVOID ANY HYDROCARBONS. TRICHLOROETHANE CLEANING OF PARTS CONTACTING THE GAS.
OXYGEN	O <sub>2</sub>	●	●				●	●	●	AVOID ANY HYDROCARBONS. TRICHLOROETHANE CLEANING OF PARTS CONTACTING THE GAS. COMPRESSION RATIOS ARE LIMITED DUE TO HIGH SPECIFIC HEAT RATIO.
PROPYLENE	C <sub>3</sub> H <sub>6</sub>	●	●			●			●	LEAK TIGHTNESS IMPORTANT. IRON/LEAD TRIM AND TEFLON <sup>®1</sup> O-RINGS RECOMMENDED.
SULFUR DIOXIDE	SO <sub>2</sub>			●	●	●	●		●	CORROSIVE WHEN WET. LEAK TIGHTNESS IMPORTANT.
VINYL CHLORIDE	CH <sub>2</sub> CHCl	●	●			●	●		●	CHROME OXIDE PISTON ROD COATING RECOMMENDED. IRON/LEAD TRIM AND TEFLON <sup>®1</sup> RECOMMENDED.

**Note:** Consult factory for selection of appropriate options.

<sup>1</sup>Teflon®, Viton® and Neoprene® are registered trademarks of DuPont.



# Vertical Industrial Gas Compressors

## Specifications and Performance

Specifications	Single-Stage Compressors							Two-Stage Compressors						
Model Family	D91	D291	D491	D491-3	D691	D691-4	D891(a)	FD151	D191	FD351	D391	D590	FD591	D791(a)
Bore of Cylinder Inches (mm)	One Cylinder Only	3.0 (76.2)	4.0 (101.6)	3.0 (76.2)	4.5 (114.3)	4.0 (101.6)	4.5 (114.3)	2.5 (63.5)	3.0 (76.2)	2.75 (69.9)	4.5 (114.3)	6.0 (152.4)	6.0 (152.4)	6.0 (152.4)
Second Stage	3.0 (76.2)							1.25 (31.8)	1.75 (44.5)	1.75 (44.5)	2.5 (63.5)	3.25 (82.5)	3.25 (82.5)	3.25 (82.5)
Stroke Inches (mm)	2.5 (63.5)	2.5 (63.5)	3.0 (76.2)	3.0 (76.2)	4.0 (101.6)	4.0 (101.6)	4.0 (101.6)	2.5 (63.5)	2.5 (63.5)	3.0 (76.2)	3.0 (76.2)	4.0 (101.6)	4.0 (101.6)	4.0 (101.6)
Piston Displacement CFM (m <sup>3</sup> /hr)	4.0 (6.8)	8.0 (13.6)	17.2 (29.2)	9.8 (16.7)	29.2 (49.6)	23.2 (39.4)	56.6 (96.2)	2.8 (7.9)	4.0 (6.8)	4.1 (11.7)	11.4 (18.8)	18.2 (30.9)	18.2 (30.9)	51.2 (87.0)
Minimum @ 400 RPM														
Maximum @ 825 RPM	8.3 (14.1)	16.5 (25.4)	35.5 (60.3)	20.2 (34.3)	60.2 (102.3)	48.0 (81.6)	113.2 (192.4)	5.8 (16.4)	8.25 (14)	8.5 (14.4)	22.8 (38.7)	37.5 (63.7)	37.5 (63.7)	105.7 (179.6)
Maximum Working Pressure psia (bar a)	350 (24.1)	350 (24.1)	350 (24.1)	615 (42.4)	350 (24.1)	615 (42.4)	465 (32.1)	1,200 (82.8)	615 (42.4)	1,200 (82.8)	625 (43.1)	350 (24.1)	615 (42.4)	615 (42.4)
Maximum Brake Horsepower (kW)	7.5 (5.6)	15 (11)	15 (11)	15 (11)	35 (26.1)	35 (26.1)	45 (34)	15 (11)	15 (11)	15 (11)	15 (11)	45 (34)	35 (26.1)	45 (34)
Maximum Rod Load lbs (kg)	3,600 (1,633)	3,600 (1,633)	4,000 (1,814)	4,000 (1,814)	5,500 (2,495)	7,000 (3,175)	7,000 (3,175)	3,600 (1,633)	3,600 (1,633)	4,000 (1,814)	4,000 (1,814)	7,000 (3,175)	7,000 (3,175)	7,000 (3,175)
Maximum Outlet Temperature °F (°C)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)	350 (177)
Bare Unit Weight with Flywheel lbs (kg)	150 (68.0)	210 (95.2)	390 (176.9)	390 (176.9)	745 (337.9)	745 (337.9)	900 (408.2)	215 (97.5)	215 (97.5)	340 (154)	350 (158.8)	790 (358.8)	790 (358.8)	930 (421.9)
Double-Distance Piece T-Style Option	Yes	Yes	Yes	Yes	Yes	Yes	—	—	Yes	—	Yes	—	Yes	—
ANSI/DIN Flange Option	Yes	Yes	Yes	Yes	Yes	Yes	—	Yes	Yes	Yes	Yes	—	Yes	—
Water-Cooled Option	—	—	—	—	Yes	Yes	—	—	—	Yes	Yes	Yes	Yes	—

(a) Double-acting compressor

**Note:** Specific application conditions may limit a compressor's operating performance to less than the values shown on this page. Contact a Corken distributor or the factory for verification. Specifications may be changed without liability or advance notice.

## Selection Criteria

Corken vertical industrial gas compressors offer flow ranges from 3 to 110 ACFM, (5 to 185 Actual m<sup>3</sup>/hr). Sizing and selection of a gas compressor requires many pieces of information. Corken applications engineers and sales staff have the skills to properly size and select the best machine to meet your needs.

**When applying Corken gas compressors, please provide the engineer the following information:**

- Gas name (give % composition if a mixture)
- Gas characteristics if not common (material compatibility, toxicity, EPA regulated, etc.)
- Gas data if not common (critical temperature, critical pressure, specific gravity, molecular weight)
- Ambient temperatures
- Ambient pressure if above or below sea level
- Gas suction pressure (specify psia or psig, bar a or bar g and if the compressor will pull a vacuum)
- Gas suction temperature
- Gas discharge pressure and any temperature limitations
- Desired flow rate in ACFM, lbs/hr, SCFM, Actual m<sup>3</sup>/hr, kg/hr, or Standard m<sup>3</sup>/hr
- Description of the application

With this information, our engineers will size the compressor and select materials and options that suit the gas and your particular application. A computer printout of your performance data is also provided with the quotation.

# Horizontal Industrial Compressors

## Features and Benefits

### For higher pressures and capacity...

Corken's horizontal single-through four-stage compressor can build up to 4,500 psig (310.3 bar) and supply over 375 SCFM (637.5 m<sup>3</sup>/hr). This balanced opposed gas compressor offers smooth, quiet operation and the versatility of multi-stage compression.

The compressor is offered with various sizes of cylinders. Corken currently offers 8" (203.2 mm), 6" (152.4 mm), 5" (127.0 mm), 4" (101.6 mm), 3-1/4" (82.6 mm), and 2-3/4" (69.9 mm) 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.

### Now even lower leakage...

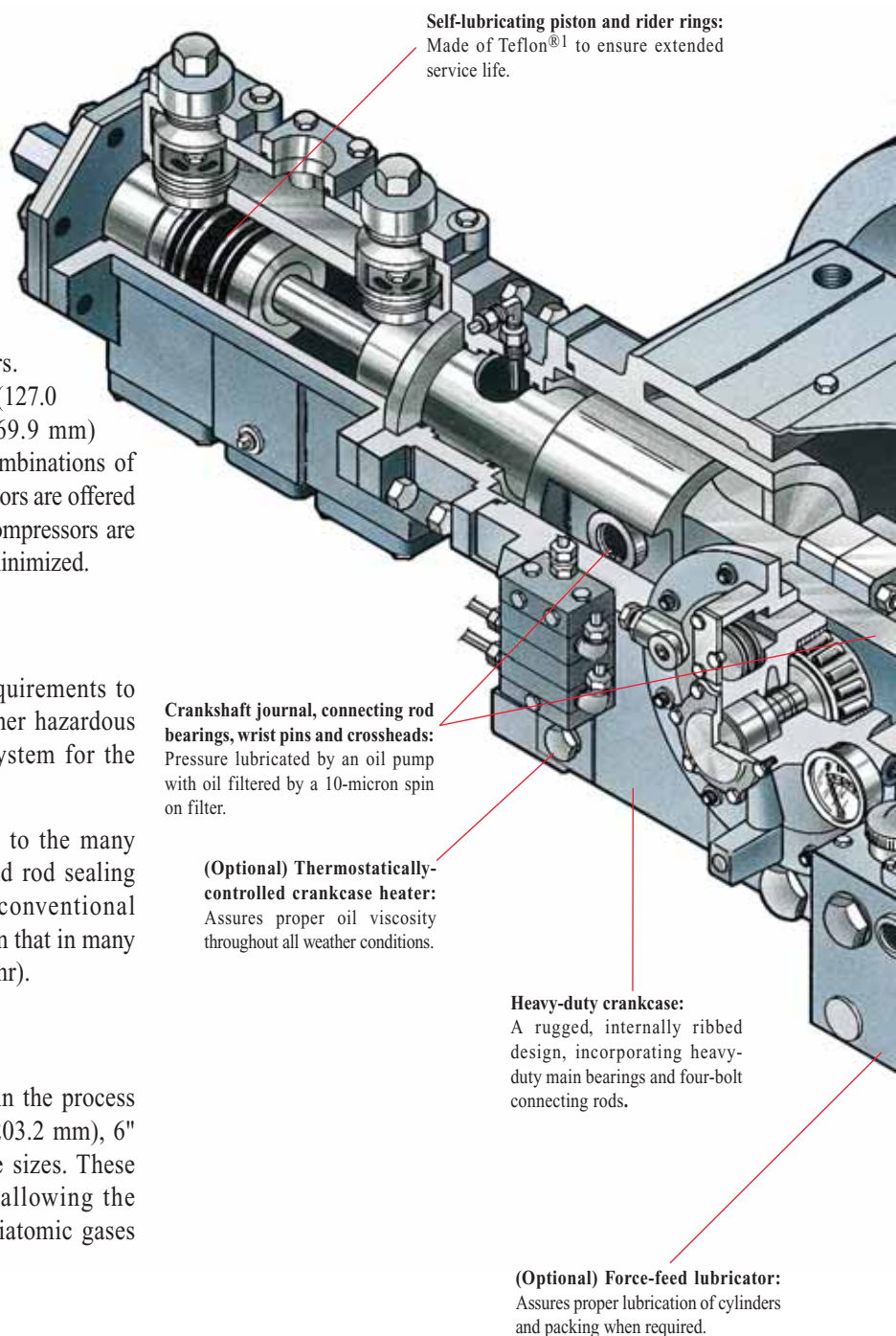
In response to increasingly stringent environmental requirements to reduce emissions of volatile organic compounds and other hazardous gases, Corken offers a purge-pak-piston-rod-sealing system for the HG600-series horizontal compressors.

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 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<sup>3</sup>/hr).

### Water-cooled cylinders...

To increase the versatility of the horizontal compressor in the process market, 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. These cylinders greatly reduce the operating temperature, allowing the horizontal compressor to be used in applications with diatomic gases such as helium or nitrogen, which have a high K value.

<sup>1</sup>Teflon®, Viton® and Neoprene® are registered trademarks of DuPont.



**Self-lubricating piston and rider rings:**  
Made of Teflon<sup>®1</sup> to ensure extended service life.

**Crankshaft journal, connecting rod bearings, wrist pins and crossheads:**  
Pressure lubricated by an oil pump with oil filtered by a 10-micron spin on filter.

**(Optional) Thermostatically-controlled crankcase heater:**  
Assures proper oil viscosity throughout all weather conditions.

**Heavy-duty crankcase:**  
A rugged, internally ribbed design, incorporating heavy-duty main bearings and four-bolt connecting rods.

**(Optional) Force-feed lubricator:**  
Assures proper lubrication of cylinders and packing when required.

# Available Options

## Blank valve option...

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 is available on all cylinder sizes and allows for pressure and capacity adjustment while the compressor is operating.

## External crankcase oil cooler...

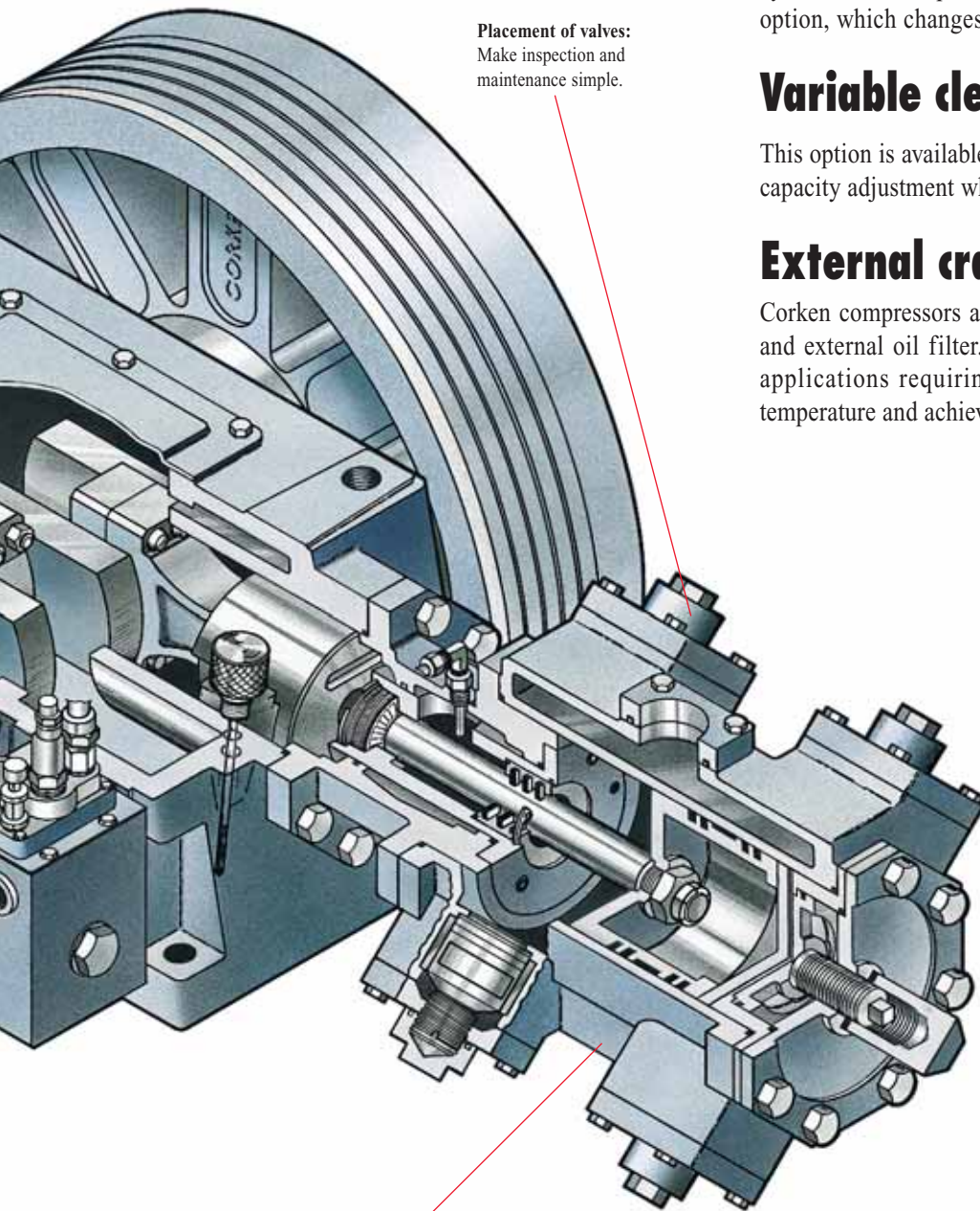
Corken compressors are equipped with a force-feed-lubrication system and external oil filter. An optional external oil cooler is available for applications requiring higher horsepower to assure consistent oil temperature and achieve optimal service life.

## Material options...

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 an option.

## 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.

*Solutions beyond products...*

**CORKEN**  
**IDEX**



# HG600 Horizontal Compressors

## Specifications and Performance

Two-Stage Model	HG602AB	HG602AD	HG602BD	HG602BE	HG602DE	HG602DF	HG602EF	Three & Four Stage Models				
Size	8" x 6"	8" x 4"	6" x 4"	6" x 3.25"	4" x 3.25"	4" x 2.75"	3.25" x 2.75"	Due to a variety of configurations, consult factory for the capacity of three- and four-stage compressors.				
Displacement CFM (m <sup>3</sup> /hr) 100 RPM * 1,200 RPM	17.2 (29.3) 207.0 (351.7)	17.2 (29.3) 207.0 (351.7)	9.6 (16.3) 115.0 (195.4)	9.6 (16.3) 115.0 (195.4)	4.2 (7.1) 49.8 (84.6)	4.2 (7.1) 49.8 (84.6)	2.7 (4.5) 32.2 (54.5)					
Approximate Weight lbs (kg)	948.0 (430.0)	933.0 (423.2)	853.0 (386.9)	838.0 (380.1)	823.0 (373.3)	823.0 (373.3)	803.0 (364.2)					
Water-Cooled Option	WG602AB	WG602AD	WG602BD	WG602BE	WG602DE	—	—					
Single-Stage Model	HG601AX	HG601BX	HG601CX	HG601DX	HG601EX	HG601FX	HG601AA	HG601BB	HG601CC	HG601DD	HG601EE	HG601FF
Size	8"	6"	5"	4"	3.25"	2.75"	8" x 8"	6" x 6"	5" x 5"	4" x 4"	3.25" x 3.25"	2.75" x 2.75"
Displacement CFM (m <sup>3</sup> /hr) 100 RPM * 1,200 RPM	17.2 (29.3) 207.0 (351.7)	9.6 (16.3) 115.0 (195.4)	6.6 (11.2) 79.2 (134.4)	4.2 (7.1) 49.8 (84.6)	2.7 (4.5) 32.2 (54.5)	1.9 (4.7) 22.8 (56.0)	34.5 (58.6) 414.0 (703.5)	19.2 (32.7) 231.0 (392.5)	13.2 (22.4) 158.4 (268.8)	8.3 (14.1) 99.6 (169.2)	5.3 (9.1) 64.0 (108.7)	3.7 (6.3) 44.4 (75.6)
Approximate Weight lbs (kg)	933 (423.2)	868 (393.7)	861 (390.5)	823 (373.3)	803 (364.2)	803 (364.2)	1,007 (456.8)	930 (421.8)	916 (415.5)	873 (396.0)	845 (383.3)	778 (352)
Water-Cooled Option	WG601AX	WG601BX	—	WG601DX	WG601EX	—	WG601AA	WG601BB	—	WG601DD	WG601EE	—
Cylinder Data Bore In. (mm)		8.0 (203.2)		6.0 (152.4)		5.0 (127)		4.0 (101.6)		3.25 (82.6)		2.75 (69.9)
Maximum Working Pressure psia (bar a)		315.0 (21.7)		365.0 (25.2)		750 (51.7)		1,015.0 (70.0)		1,215.0 (83.8)		1,665.0 (114.8)
Frame Data												
Stroke Inches (mm)		3.0 (76.2)										
Maximum Gas Rod Load lbs (kg)		7,000.0 (3,175.2)										
Maximum Motor hp (kW)		75 (55.9)										
Maximum Discharge Temp. °F (°C)		350.0 (176.7)										
*Speed Range (All Models)		400–1,200 RPM										

(a) Double-acting compressor

**Note:** Specific application conditions may limit a compressor's operating performance to less than the values shown on this page. Contact a Corken distributor or the factory for verification. Specifications may be changed without liability or advance notice.

## Selection Criteria

Corken horizontal compressors offer flow ranges from 1 to 400 ACFM (3 to 680 Actual m<sup>3</sup>/hr). Sizing and selection of a gas compressor requires many pieces of information. Corken applications engineers and sales staff have the skills to properly size and select the best machine to meet your needs.

**When applying Corken gas compressors, please provide the engineer the following information:**

- Gas name (give % composition if a mixture)
- Gas characteristics if not common (material compatibility, toxicity, EPA regulated, etc.)
- Gas data if not common (critical temperature, critical pressure, specific gravity, molecular weight)
- Ambient temperatures
- Ambient pressure if above or below sea level
- If lubrication of the piston is desired
- Gas suction pressure (specify psia or psig bar a or bar g and if the compressor will pull a vacuum)
- Gas suction temperature
- Gas discharge pressure and any temperature limitations
- Desired flow rate in ACFM, lbs/hr, SCFM, Actual m<sup>3</sup>/hr, kg/hr, or Standard m<sup>3</sup>/hr
- Description of the application

With this information, our engineers will size the compressor and select materials and options that suit the gas and your particular application. A computer printout of your performance data is also provided with the quotation.



# Services Tailored To Your Needs

## Corken is there when you need them.

The key to Corken's success is continued dedication to providing customers with exceptional product support. Corken offers many special services to ensure total customer satisfaction.

## Training...

Corken personnel can be present for initial start-ups, providing assistance and on-site training to plant personnel.

Corken's highly skilled service engineers can also assist in defining preventive maintenance programs based on your specific application.



## Testing...

All Corken products are thoroughly tested to ensure compressors meet performance specifications. Each compressor is subject to leak and performance tests, plus visual inspection. Certification of these tests may be provided for each unit. Other services Corken offers include hydrostatic testing, nitrogen pressurization and purge, plus many others.

## Custom Engineered Packages

When you cannot fit one of our standard mountings into your application, we can customize one for you. Most custom packages are a modification of one of our standard mountings; however, when your needs fall out of reach of a customized mounting, we can start from scratch and build you a mounting or skid from the floor up. Send in your specification and one of our applications engineers will work with you to design your package.



Compressor: D891  
Application: Liquid transfer  
Product: Vinyl chloride  
Pressure Differential: 30 psig (2.1 bar g)  
Capacity: Approximately 400 gpm (1,514 L/min)

# Standard Industrial Gas Compressor Packages

## Corken Compressors are used in many applications...

- Vapor Recovery
- Liquid Transfer
- Pressure Boosting
- Gas Blanketing
- Evacuation
- Gas Gathering
- Instrumentation
- Tank Car Unloading
- PSA Gas Generation
- Refrigerant Reclaiming

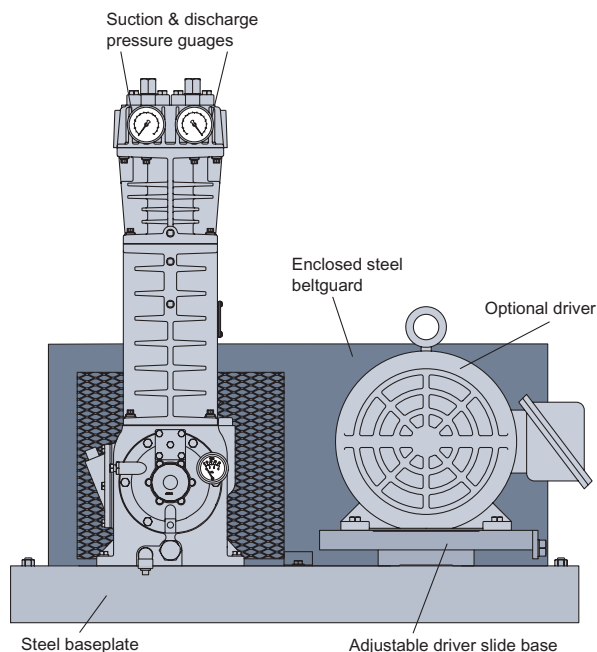
## Serving Many Industries...

- Petrochemical
- Pulp & Paper
- Energy
- SCR – Ammonia Transfer
- Transportation
- Utilities
- Dry Cleaning
- Electronics
- Aerosol
- Food Processing
- Health Care

We offer three standard mountings for our industrial compressors. The 103 mounting is a basic mounting and allows for maximum flexibility for on-site installation. The 107 is designed with a 4-way valve and liquid trap to be used in LTVR (liquid transfer vapor recovery) operations. The 109 mounting has a liquid trap for use in liquefied gas service but no 4-way valve, and is best suited when vapor recovery is not needed.

The various 107 and 109 mountings are available with three different liquid trap configurations. The first liquid trap, used on the 107 and 109, is a mechanical liquid trap that uses a floating ball to block the suction and cut off flow before liquid can enter and damage the compressor. The 107A and 109A have an automatic liquid trap that uses a single NEMA 7 liquid level switch for shut down control. The 107B and 109B use a larger ASME code liquid trap with two NEMA 7 liquid level switches that are used for alarm and shut down, or can be configured to operate a dump system.

All have the option of the heavy-duty mounting which is often employed for slow running operations to balance out the rotational forces. Add an HD (heavy duty) to the end of any standard mounting number to make it heavy duty and be sure to add the heavy-duty flywheel as well.

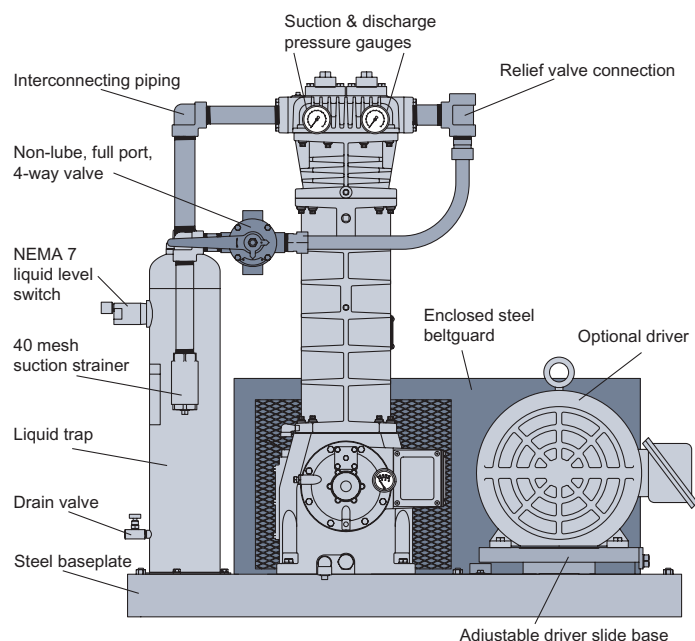


## 103 Mounting

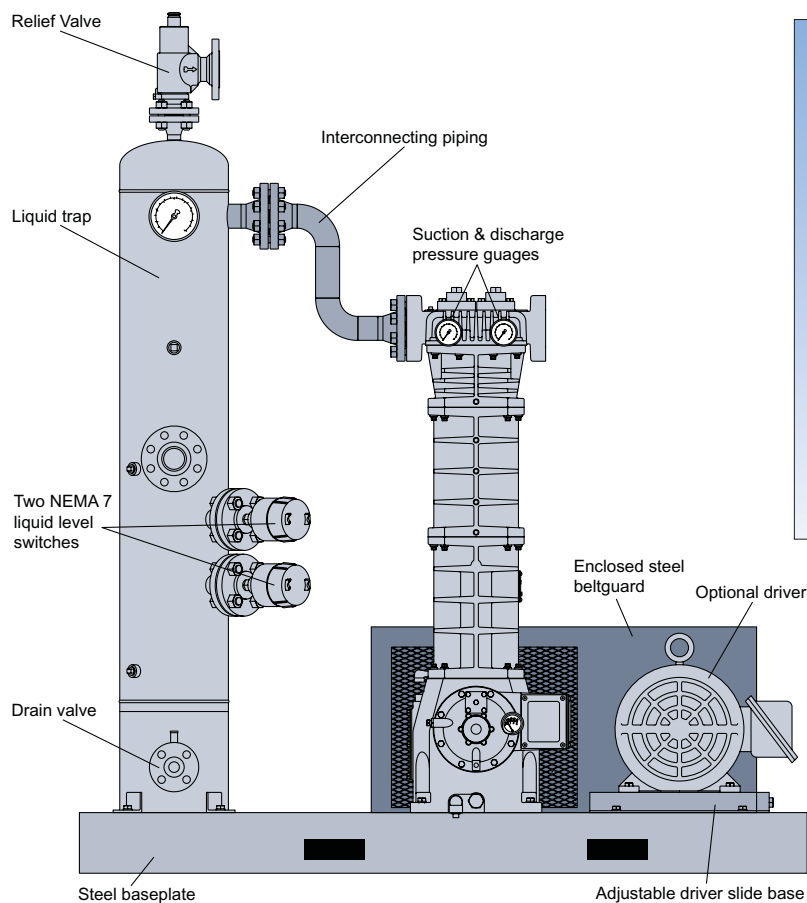
- Steel baseplate
- V-belt drive
- Adjustable driver slide base
- Enclosed steel beltguard
- Suction and discharge pressure gauges

–103 Mounting shown above.

# Standard Industrial Gas Compressor Packages



–107A Mounting shown above.



–109F Mounting shown above.

## Standard 107 Items

- All 103 items plus
- 40 Micron strainer
- Non-lube 4-way valve
- Interconnecting piping
- Liquid trap as specified below

## 107 Mounting

- Mechanical liquid trap with ball float

## 107A Mounting

- Automatic liquid trap with one NEMA 7 liquid level switch

## 107B Mounting

- Automatic liquid trap with two NEMA 7 liquid level switches

## 107F Mounting

- 107A or 107B with 300# ANSI flanged components and connections

## Standard 109 Items

- All 103 items plus
- Interconnecting piping
- Liquid trap as specified below

## 109 Mounting

- Mechanical liquid trap with ball float

## 109A Mounting

- Automatic liquid trap with one NEMA 7 liquid level switch

## 109B Mounting

- Automatic liquid trap with two NEMA 7 liquid level switches

## 109F Mounting

- 109A or 109B with 300# ANSI flanged components and connections



**motralec**

4 rue Lavoisier . ZA Lavoisier . 95223 HERBLAY CEDEX

Tel. : 01.39.97.65.10 / Fax. : 01.39.97.68.48

Demande de prix / e-mail : [service-commercial@motralec.com](mailto:service-commercial@motralec.com)

[www.motralec.com](http://www.motralec.com)