GENVAC

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GBE4 and Series Liquid Ring Vacuum Pumps and

GENVAC GBE4 Series
Liquid Ring Vacuum Pumps and Compressors

GENVAC GBE4:
Reliable and Efficient

The Genvac GBE4 is an upgrade of Genvac proven GBE3 pump series: Optimization of the shaft bearings increases pump flexibility in the event of operational malfunctions and ensures better lubrication, which extends the service life. Modifications of port plates and impeller and improvements to internal flow channeling reduce the energy requirements up to 6 to 8%. An optional connection for flushing the housing is also available, improving cleaning and increasing the service life.

Designed to operate in demanding environments like the paper, power, mining and chemical process industries, these pumps offer durability and reliability at a low cost of operation. Each model is equipped with an application-proven polyisoprene-lined body for added corrosion & erosion resistance. For more aggressive applications, stainless steel, stainless steel lining and epoxy coated components are available.

The unique inlet configuration allows for both top and side inlet arrangements to accommodate low headroom installations. In installations where space is limited, the top discharge capability of the Genvac GBE4 allows the use of a top mounted discharge separator that saves floor space and eliminates the need for a trench. Genvac GBE4 pumps allow efficient operation over the entire vacuum range without the need to change the pump's internals. When equipped with a center shroud, split vacuum operation up to 330 millibar differential can be achieved. Large inspection ports allow easy access to pump internals for inspection and maintenance.

The Genvac GBE4 series offers capacities ranging from 2,500 to 33,000 m^3/hr down to 160 mbar abs. (as a vacuum pump) and from 3,000 to 9,500 m^3/h up to 2.5 bar abs. (as a compressor).

Basic Specifications GENVAC GBE4 and GENVAC G2022	
Vacuum range	to 160 mbar abs. (4.7 in HgA)
Shaft seals	Stuffing box (standard), mecanical sealy single, double (on request)
Differential pressure capability	~ 1.2 bar (17.4 psi)
Compressor pressure	2.5 bar abs. (22 psig)
Suction capacity	2,500 to 39,000 m^3/hr (1,500 to 23,000 CFM)
Construction materials	Ductile iron, stainless steel, combination of both materials

GENVAC GBE4 and GENVAC G2022:
Installation Flexibility

Each Genvac GBE4 and Genvac G2022 model is equipped with an application-proven polyisoprene-lined body for added corrosion & erosion resistance, as well as lower energy consumption. For more aggressive applications, stainless steel, stainless steel lining and epoxy coated components are available.

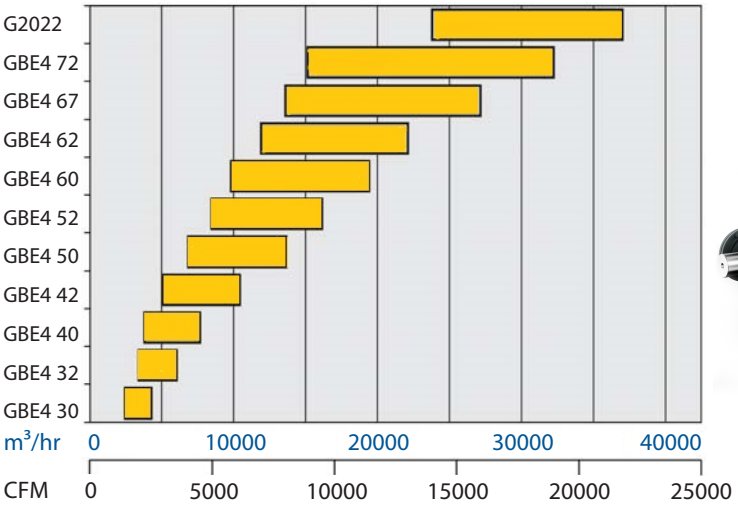
With the addition of the center partition wall (or center shroud) in the pump body, each half of the Genvac GBE4 and Genvac G2022 series can operate at different vacuum levels with differential pressures up to 330 mbar between the two pump halves. The advantage of this is significant, because it allows the use of fewer vacuum pumps - which saves space and installation costs.

Genvac GBE4 and Genvac G2022 series pumps are amazingly quiet during operation. Sound levels of 72 to 85 dB(A) (measured at a distance of 1 meter (3.3 ft) from the source) have been recorded for even the largest of the pump models.

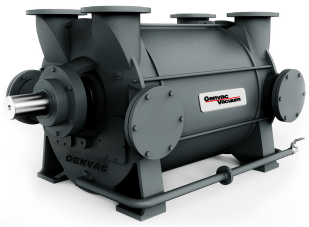
Features	Benefits
Polyisoprene lined pump body	Superior corrosion resistance
Stainless steel components available	Added corrosion resistance, application flexibility
Multiple inlet & discharge configurations	Piping flexibility
Top discharge capability on GBE4 models	Eliminates need for trench, minimizes floorspace
Self-recirculating capability on GBE4 models	Eliminates need for a pressurized external seal water source
Center shroud: Split vacuum capability	Installation flexibility, minimizes number of pumps
Variable porting	Handles entire vacuum range without changing pump internals
Unique internal construction	Minimizes scale build-up
Large inspection ports	Easier internal inspections
Double extended shafts	Additional installation choices
100% performance tested prior to shipment	Trouble-free startup and operation
2 years warranty and over 100 years of experience	Peace of mind

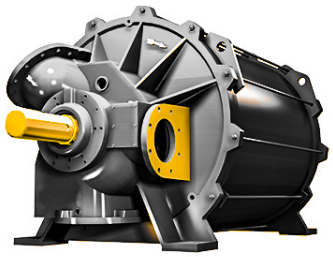
GENVAC GBE4 and GENVAC G2022 Series
World Class Design and Performance

Performance:
Suction Capacity

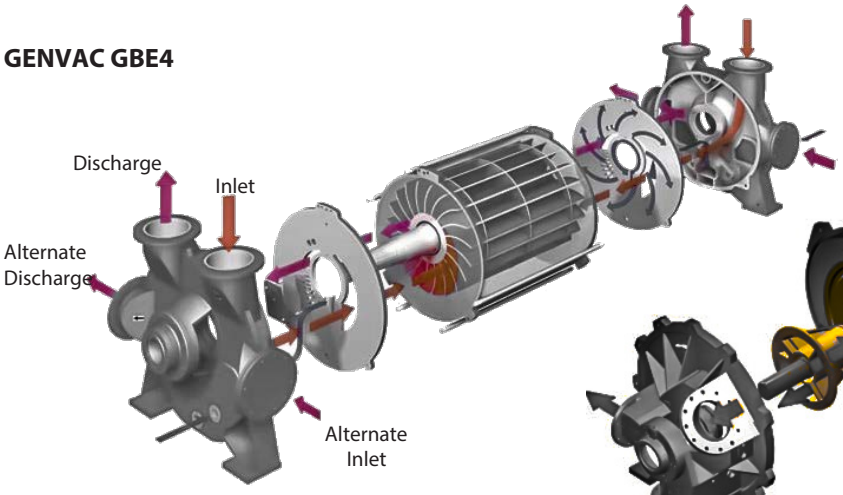


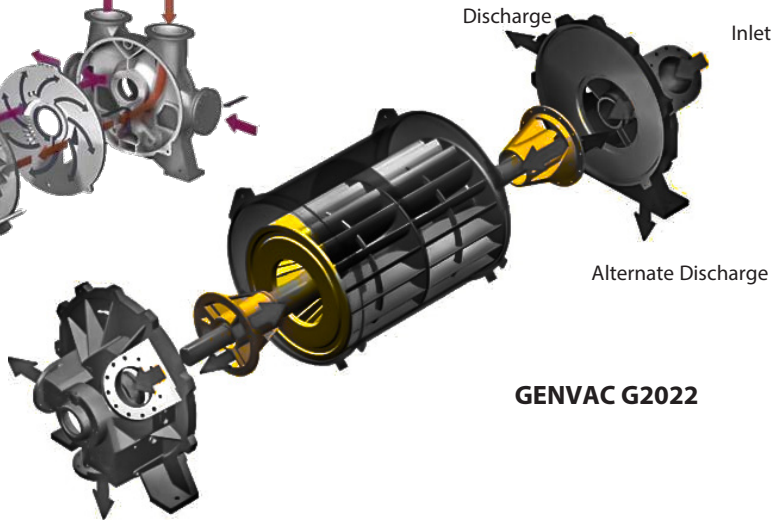
Performance :
Vacuum and Compressor Range





GENVAC GBE4





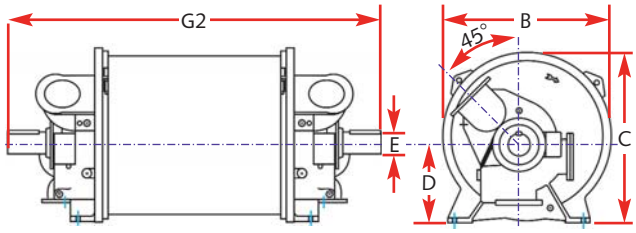
GENVAC G2022

Dimensions

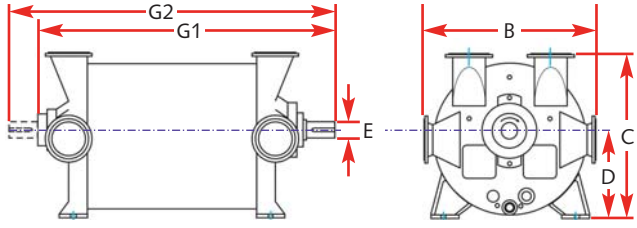
all dimensions are approximate; technical data subject to change

Pump Model	G1 mm inches	G2 mm inches	B mm inches	C mm inches	D mm inches	E mm inches	Inlet Flange mm inches	Discharge Flange mm inches
G2022		4300 169	2030 80	2005 79	900 36	250 10	400 16	350 14
GBE4 72	3589 141.3	3945 155.3	2096 82.5	1985 78.1	1062 41.8	201 7.9	400 16	400 16
GBE4 67	3388 133.4	3749 147.6	1915 75.4	1854 73.0	975 38.4	201 7.9	350 14	350 14
GBE4 62	3132 123.3	3439 135.4	1801 70.9	1722 67.8	899 35.4	180 7.1	350 14	350 14
GBE4 60	2837 111.7	3144 123.8	1801 70.9	1722 67.8	899 35.4	180 7.1	350 14	350 14
GBE4 52	2852 112.3	3162 124.5	1542 60.7	1450 57.1	775 30.5	160 6.3	300 12	300 12
GBE4 50	2604 102.5	2913 114.7	1542 60.7	1450 57.1	775 30.5	160 6.3	300 12	300 12
GBE4 42	2390 94.1	2649 104.3	1285 50.6	1161 45.7	620 24.4	130 5.1	250 10	250 10
GBE4 40	2103 82.8	2360 92.9	1285 50.6	1161 45.7	620 24.4	130 5.1	250 10	250 10
GBE4 32	1895 74.6	2108 83.0	970 38.2	904 35.6	475 18.7	110 4.3	150 6	150 6
GBE4 30	1661 65.4	1875 74.8	970 38.2	904 35.6	475 18.7	109 4.3	150 6	50 6

GENVAC G2620



GENVAC GBE4



Genvac Vacuum

Genvac Vacuum provide more than
12 years of experience as a global supplier of vacuum systems, blowers, regenerative blowers and liquid ring vacuum pumps.

Other Genvac Products:

GL/GLC

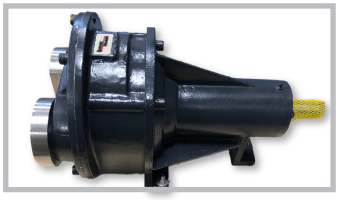
- Integral 2 stage liquid ring pumps with improved performance at high vacuum levels
- Designed to handle large amounts of liquid carryover without difficulty
- Capacity: 212 to 1,955 m^3 /h (125 to 1,150CFM)
- Vacuum: to 28 Hg.

Veta GX

- Liquid ring vacuum pumps and compressors
- Available in feature rich budget designs (Veta GX)
- Designed to handle high back pressure requirements
- Capacity: 195 to 4,862 m^3 /h (of 115 to 2,860 CFM)
- Vacuum: to 33 mbar.

Veta GHF

- Liquid ring vacuum pumps and compressors
- Available in monoblock or lantern design
- Water handling version for large amounts of liquid carryover
- Capacity: 47 to 260 m^3/h (28 to 152CFM)
- Vacuum: to 33 mbar.



Service for Liquid Ring Pumps

We have the experience and the specialists:
We provide professional service to keep your pumps running and efficient for decades. Our Service Centers are located at:

- USA
- Perú
- Panamá
- Bolivia
- Republica Dominicana

Blowers

Genvac offers a complete line of regenerative blowers for high vacuum or compressed air applications in both horizontal and vertical mounting positions. TEFC motors are rated for 50/60 Hz operation and are IE3, cUL, UL and CE certified.

Genvac Vacuum has an extensive network of sales offices and representatives throughout the world.

GENVAC

Vacuum Pumps and Compressors for the Sugar Industry

A Genvac liquid ring system

- is more economical over its life cycle,
- will last longer,
- requires significantly less maintenance than other vacuum pumps and compres-sors,
- provides more uptime for your plant,
- does not require many of the complicated instrumentation safety and ancillary ac- cessories that add complexity to hot-run-ning pumps and compressors.

Get the original GENVAC

They say that imitation is the sincerest form of flattery. Genvac imitators make many claims, but none of them have the equipment quality, engineering know-how, technical support and global service capabilities of the original Genvac. Our newest models were designed using state-of-the-art solid modeling tools. They are significantly more efficient in energy and water usage, offering improved vacuum and capacity performance. Don't settle for an imitation.

Uniform operational vacuum

From Plant to Juice

Sugar Cane:
After harvesting and delivery to a sugar mill, the cane is washed, chopped, and shredded by revolving knives. The shredded cane is then repeatedly mixed with water and crushed between rollers. The juice is collected and the remaining fibrous solids (called bagasse) are burned for fuel and used for papermaking. Genvac pumps are used in these processes as well.

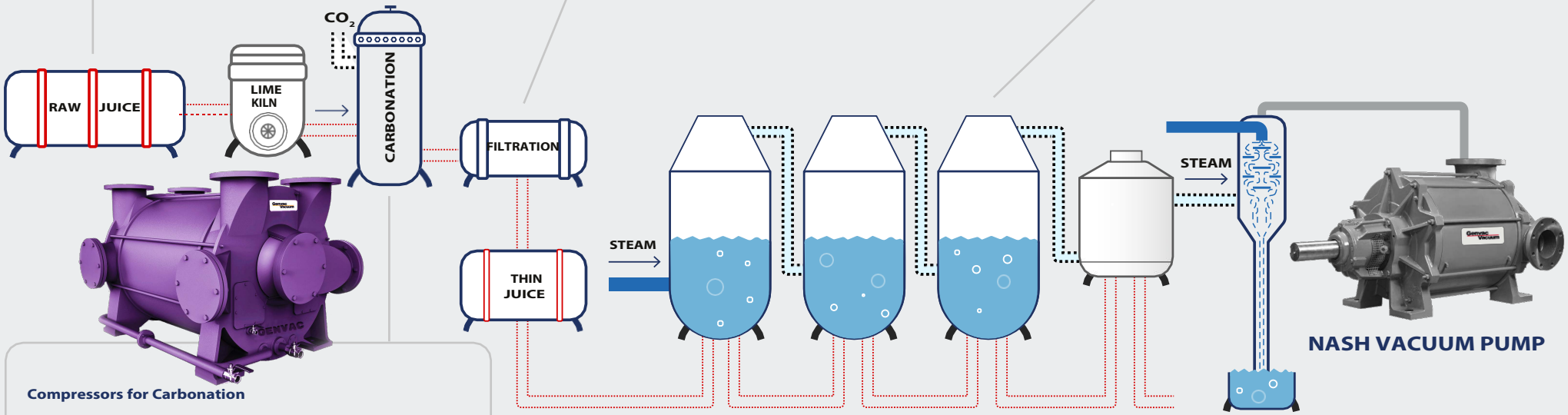
Sugar Beets:
After harvesting and delivery to a processing plant, the beet roots are washed, mechanically sliced into thin strips called cossettes, and passed through a diffuser to extract their sugar content into a water solution. The used cossettes, or pulp, is pressed down to 75% moisture, recovering additional sucrose and reducing the energy needed to dry the pulp. The pulp is then dried and sold as animal feed.

Rotary Vacuum Filters

Extracting available sucrose from the mud at the bottoms of clarifiers (filters) is usually a rotary drum filter operation. GENVAC vacuum pumps are the preferred auxiliaries for these filters in the sugar industry – as they also are in many other industries. Moisture in the vacuum line – even soft solids –will not damage a GENVAC vacuum pump.
Vacuum requirements are well within the range of single-stage pumps. Typically, a rotary vacuum filter requires a vacuum of about 405 mbar abs (18" HgV) at the wash section and about 675 mbar abs (10" HgV) at the pickup section. Allowing for pressure drops, this usually means about 303 mbar abs (21" HgV) at the pump inlet. With one vacuum pump serving both sections, the reduced vacuum at the pickup section can be maintained with a vacuum regulation valve.

Drawing Non-Condensables Off Condensers

Vapor, air and other non-condensables can be drawn off evaporators and vacuum pans in several ways. The modern approach is to evacuate counter-current condensers with single-stage GENVAC vacuum pumps.In a wet vacuum system like this, a GENVAC vacuum pump serves as a secondary condenser. Liquid compressant in intimate contact with the saturated air condenses most of the vapor that was not removed in the counter-current condenser. The significance of this is that transforming vapor into liquid decreases the volume that the pump must handle. Its effect is to decrease the size of the pump required by increasing the GENVAC pump's capacity significantly beyond its dry air rating. How Water In much added capacity can be attained depends on how cool the liquid compressant is with respect to the temperature of the incoming air-vapor mixture.



Compressors for Carbonation

The raw juice is mixed with hot milk of lime to precipitate a number of impurities. Next, CO_2 is bubbled through the alkaline sugar solution, precipitating the lime as calcium carbonate.

With Genvac Vacuum liquid ring compressors

- CO_2 can be introduced at a constant pressure
- CO_2 quantity can be precisely regulated
- Small amounts of lime dust are easily handled with no pump damage
- No lubrication oil is carried over to the juice

LEARN MORE

Worldwide Service and Support

All equipment manufactured by Genvac is 100% tested and all of our manufacturing.

Simple & Dependable

The high cost of shutting down a plant operation in the middle of a campaign leads sugar refiners to seek out the simplest, most dependable equipment available. They choose GENVAC vacuum pumps and compressors.

- Slugs of liquid carryover can be handled without damage
- Vapor is condensed into a liquid
- Gas is cooled and scrubbed by the compressors, delivering clean, oil-free gas

Better Sugar Crystallization

The characteristics of GENVAC vacuum pumps and compressors enable you to achieve more uniform sugar crystallization.

- Product can be upgraded
- Color is better
- Production at lower cost

Materials of Construction

This is an application that demands some care in material specification. Carbonic acid is produced when CO_2 is mixed with water. Corrosive sulfur compounds come through with flue gas from sulfur-bearing fuels. Either can make trouble, and both together are most likely to attack ordinary materials unless suitable precautions are taken. If the gas stream contains hard particles, they will subject equipment to abrasive wear. A successful remedy for this is to install a wet scrubber ahead of the compressor.

If a cast iron compressor is used, it should be protected by pH control of the liq- uid compressant seal water. Adding soda ash to the water and pH monitoring are recommended. These precautions will extend a cast iron compressor's life from one or two campaigns to more than four. Many years of service are reported with lime kiln gas and where flue gas does not have a high sulfur content.

Stainless steel is the most durable material for CO_2 compressors. If you are seek- ing long compressor life and a virtually trouble-free system, specify stainless. Your objectives for equipment life, your budget for initial equipment cost, the level of your system maintenance, and the composition of your gas mixture all should be considered. Ask your Genvac technical representative to study the tradeoffs so that you can make the best choice in terms of your own operating conditions.

Features

- Ability to handle carryover
- Long design life of 30+ years
- No internal lubrication required
- No metal-to-metal contact
- Cool Running, minimal temperature rise between inlet and discharge
- Only one moving part

Benefits

- Minimal process problems resulting in more uptime; intended for severe applications
- Highest reliability
- Less maintenance required; less downtime
- Constant wear-free performance
- Pump acts as condenser, allowing smaller, less costly equipment selection
- Simple and reliable operation

GBE4 GBE1

- Large liquid ringvacuum and compressors pumps with superior corrosion resistance
- Top discharge capability which eliminates need fortrench
- Self-recirculating seal water, reducing need for external seal water source
- Capacity of 4,000 to 23,000 CFM with vacuum to 24"HgV
- Capacity of 6,800 to 39,000 m^3/h with vacuum to 200 mbar abs

Veta GX

- Liquid ring vacuum pumps and compressors
- Available in feature rich budget designs (GX)
- Designed to handle high back pressure requirements
- Capacity of 115 to 2,860 CFM with vacuum to 29+"HgV
- Capacity of 195 to 4,860 m^3/h with vacuum to 31 mbarabs

VL vacuum pumps

- Our VL series is an excellent choice for your liquid ring vacuum pump replacement or repair. These new aftermarket single stage/ double cone pumps are designed to be drop-in replacements for the Nash* CL Series. Available in VL-1000, 2000, 3000, 4000, 6000 and 9000 (up to 10,000CFM).
  Standard construction is cast iron with Teflon packing pumps. GENVAC is put to the test performance and include a 1-year warranty.

GEC-V

- Compact liquid ring vacuum pumps built for serious costsavings
- Use up to 50 percent less water than other liquid ringpumps
- Monoblock and pedestal designs available
- Capacity of 4 to 350 CFM with vacuum to 29+" HgV
- Capacity of 7 to 595 m^3/hwith vacuum to 33 mbarabs

Compressors

- Wide range of liquid ring compressors designed for many applications.
- Rugged and reliable, they can handle highly toxic, explosive and corrosive gases. Specifically developed for applications such as flare-gas, Chlorine and Vinyl Chlorine Monomer (VCM) recovery
- Capacity of 60 to 2,200 SCFM with pressure to 200 PSIG
- Capacity of 100 to 3,740 m^3/h with pressure to 15 bar abs
- Single and two stage models available