GEA Vacuum Portfolio

Vacuum for safe, gentle, fast and complete milking

engineering for a better world

gea.com

GEA'S VACUUM PORTFOLIO

The right choice for automated and conventional milking systems!

GEA's Vacuum for Optimal Cow Milking

Optimum vacuum for safe, gentle, fast and complete milking

Proper vacuum plays an important role

A stable vacuum to the teat is very important. GEA's technology stands for animal-friendly milking with high milking yield. All vacuum systems are designed for a higher performance. Constant vacuum provides healthy udders and increases the mid-term performance.

The four pillars of GEA's milking philosophy

- Safe environment for cow and milker
- Gentle milking for optimum teat and udder health
- Efficient milking for perfect time management
- Ideal milk-out for best performance

Reliably stable vacuum with GEA vacuum pumps

Tradition in quality, efficiency and economy: Based on decades of experience, GEA offers quality pumps in line with the latest developments in technology. The precise rotor and pump housing contsruction of our proven RPS and RPL family provides an efficient and economical vacuum. The vacuum lines are designed to facilitate optimum airflow resulting in energy savings and lower operating costs.

The basic prerequisite for gentle yet economical milking is a constant milking vacuum. Our vacuum pumps are particularly reliable in this respect and create absolutely stable vacuum for optimum milking operations and long-term udder health.

RPS Vacuum Pump

Oil-lubricated pump for maximum performance

RPS has more staying power

The RPS vacuum pumps work absolutely reliable. In case of sudden air ingress the vacuum system will maintain the correct vacuum level: large vacuum reserves ensure that the milking process can be safely continued. Especially important for optimal cow milking!

Safe and precise control

All electrical devices are interconnected in the central motor control system that starts and runs the vacuum pump installation. For example, the selector switch on the automatic rinsing device can be used to start up the whole milking installation. The integrated motor protection switch ensures maximum safety. The motor control system has a particularly long service life and is extremely maintenance-friendly with a splash-proof housing.

Another benefit is the built-in hours counter that monitors exactly when the next routine service is due to be carried out.

Rotor made of high quality stainless steel

RPS quality oil

The best technology deserves the right oil. That is why RPS pumps should only be lubricated using GEA's special RPS oil. Because of its high temperature resistance and viscosity, this special oil ensures optimum operation of the vacuum pumps – for a long service life and low repair costs. The high quality pump oil is available in consumer- and environmentally-friendly 1 L, 5 L, 10 L, 30 L and 200 L containers.

Comparative tests after 100 operation hours

Oil separator with GEA's special RPS vacuum pump oil

Oil separator with gray market oil

RPS benefits at a glance

- Tried and tested technology: many years of experience in the design and production of vacuum pumps
- A guaranteed high level of build quality: manufactured in accordance with DIN ISO 9001, performance checked before delivery
- Long service life due to continuous lubrication with fresh special oil from GEA
- Low operating costs: specially designed pump outlets for maximum air discharge per kW
- Low maintenance costs: drip feed lubrication which stops when the pump is not in operation
- Quieter operation of the pump due to single-piece rotor
- Stable vacuum for gentle milking and sufficient turbulences during rinsing

RPL Vacuum Pump

Efficient high-tech lobe pump

Three-vane rotor in the sturdy block frame

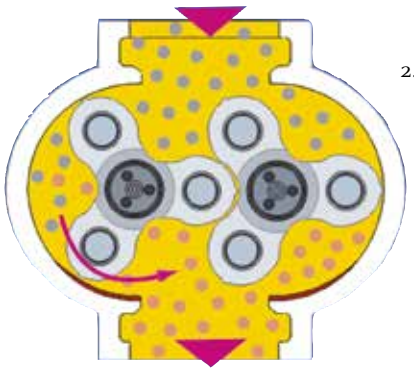
Unlike conventional two-vane lobe vacuum pumps, the RPL series uses three-vane rotors. This special design ensures the highly efficient creation of milking vacuum.

The quiet non-contact operation of the three-vane rotor reduces the exhaust noise to a minimum. This is optimized by the specially designed pressure compensating system. High-precision manufacturing methods are used to produce the straight-tooth gear wheels of the drive unit. This ensures absolutely precise synchronous operation and minimum wear.

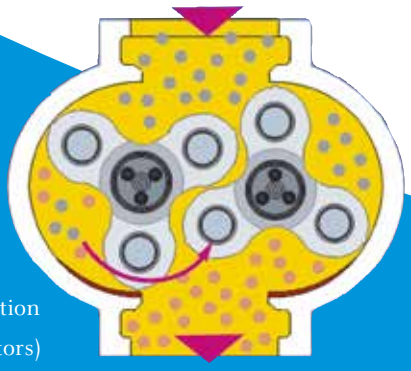
Three-vane rotor

Operating principle of the three-vane rotor

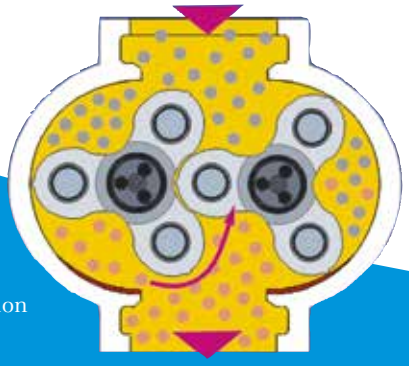
1. Intake



2. Delivery to the discharge end



3. Pressure compensation (only three-vane rotors)



4. Expulsion

RPL benefits at a glance

- High air capacity even during continuous operation
- Absolutely stable milking vacuum for optimum milking operations and long-term udder health
- Better for the environment: lobe vacuum pumps create vacuum without emitting oil particles into the outgoing air
- Pressure sound absorbers ensure silent operation
- Lower maintenance costs: the three-vane rotor system and the special air filter reduce maintenance costs

Intake air: clean enough to breathe

Even in rough operating environments, a specially designed separator in a 230 liter vacuum tank ensures optimum cleaning of the intake air and ensures maximum operational reliability. With its cyclonic principle of operation and effective fluid and particle filters, it achieves an outstanding level of cleaning. Regular flushing of the vacuum pump becomes unnecessary and the short maintenance intervals ensure a high level of reliability.

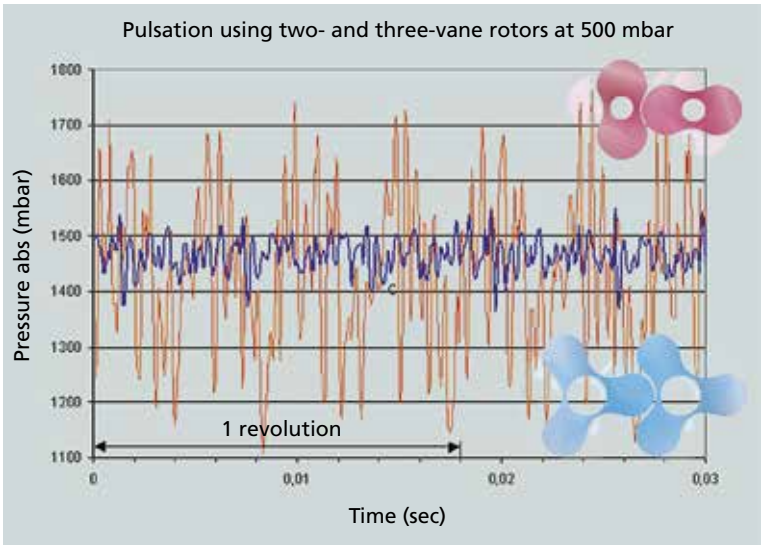
Low noise level

The exhaust noise can be reduced to a minimum by a pressure sound absorber. The air flow is repeatedly diverted in this specially designed sound absorber.

Under the pump cover

If required, the operating noise can be considerably reduced even further. In order to do this, a split sound-damping pump cover with quick-release locks can be fitted over the pump assembly.

Comparison of vacuum fluctuation



Red: usual lobe vacuum pumps
Blue: RPL vacuum pumps

Accessories for Vacuum Pumps

A strong solution for every dairy farm

Built-in safety

The Vacurex or Commander vacuum regulators ensure that the vacuum level remains constant even if loadings change. They are servo-controlled and react at lightning speed within 5/100 of a second. Large filter surfaces ensure that the control valves and filters continue to operate reliably even after they have been in operation for many hours. The Commander regulator is optimally designed to ensure a constant milking vacuum on largest installations.

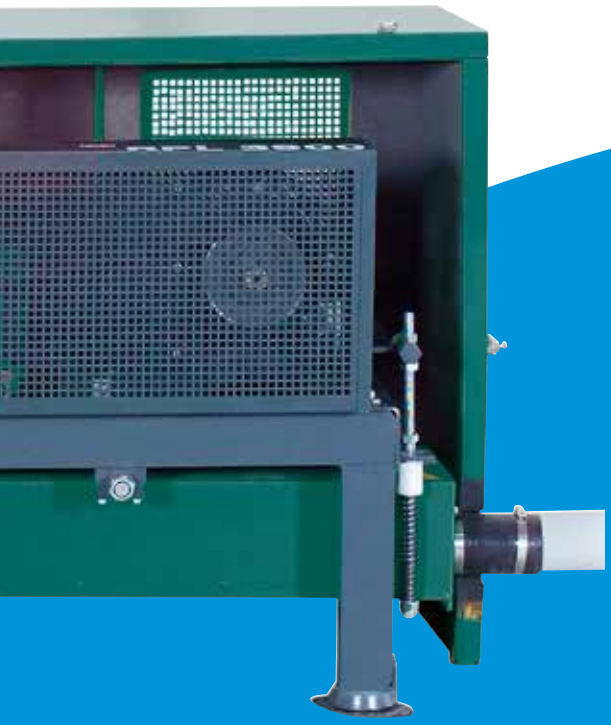
The vacuum monitor protects the system against defects caused by excessive vacuum. If the vacuum level is exceeded, it switches on automatically and stops the vacuum pump. The safety float in the vacuum tank prevents too much water being sucked into the pump – condensation water is automatically separated off.

2nd vacuum level (for RPS)

An additional feature can be added to the Vacurex and Commander control valve to give you a second vacuum level. It automatically switches from the milking vacuum to a rinsing vacuum that is 10 kPa higher. The greater vortex of water and faster thrust in the milking tube improves the efficiency of rinsing. This means optimum hygiene, low bacterial counts and hence reduced operating costs.

The tried and tested Commander and Vacurex control valves ensure a constant milking vacuum.

The vacuum monitor protects the pump and the milking installation against excessive vacuums.



ALWAYS THE RIGHT VOLTAGE

The RPL series has an automatic V-belt tensioner. There is no need for manual tensioning so optimum power transmission is always ensured. Wear is reduced and the V-belt will last essentially longer.

Energy saving with Vacuum on Demand ProTect

A brilliantly simple way to save money and the environment

Be smart and lower your daily operating costs. Help yourself and the environment: react to changing vacuum demand and achieve up to 70% energy savings. With Vacuum on Demand ProTect you only generate as much vacuum as you actually need for milking. The frequency controller regulates the speed of your vacuum pump. Besides, you can be sure that the intelligent control loop maintains the milking vacuum and at the same time protects your valuable vacuum pump – with an additional pleasant side effect of a lower noise level.

Provide your cows with best vacuum conditions for optimal cow milking, pay only for the vacuum needed and keep your valuable vacuum equipment in best conditions!

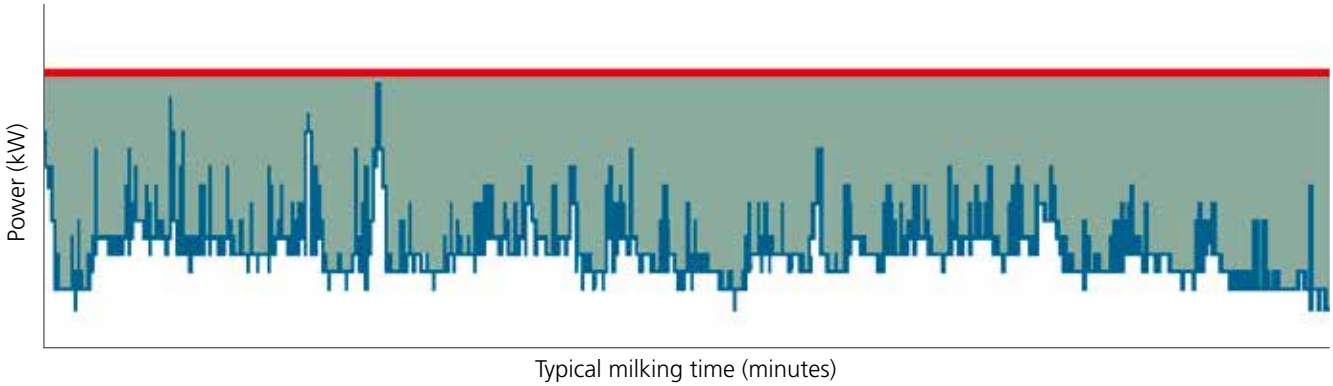
With Vacuum on Demand ProTect, GEA provides a global frequency converter family that

- provides stable vacuum during milking and cleaning
- operates reliably around the clock, 365 days a year
- offers optimized and advanced control features
- can be used with any kind of milking system, whether automated or conventional

In the long term, Vaccum on Demand ProTect ensures

- herd health
- high milk quality
- high quality milking and cleaning processes
- high returns on investment
- high equipment availability
- high operator comfort
- low service costs

The diagram shows how easy it can be to save money



power consumption according to need with VOD ProTect
constant power consumption without VOD ProTect
energy saving thanks to VOD ProTect

VOD ProTect benefits at a glance

- Reduces electric power consumption of the vacuum pump by 40% to 70% – helps to save money
- Reduces the noise of the vacuum pump – leads to a better milking and work environment
- Eliminates the noise from the mechanical vacuum regulator – leads to more cow and working comfort during milking and cleaning
- Decreases wear and tear on the vacuum pump – extends equipment lifetime

engineering for
a better world

We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global technology company with multi-billion euro sales operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index. In addition, the company is included in selected MSCI Global Sustainability Indexes.

GEA Germany
GEA Farm Technologies GmbH
Siemensstraße 25 - 27
D-59199 Bönen
Phone +49 23 83 93 7-0
Fax +49 23 83 93 8-0
info@gea.com
gea.com