



ROOTS Blowers / ROOTS Boosters

High-Capacity Vacuum Enhancement
for Industrial Efficiency

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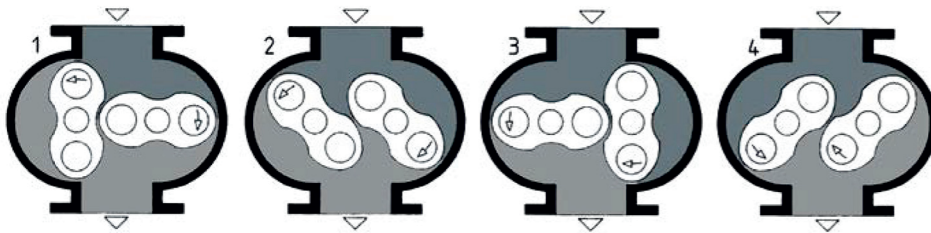
Overview

Roots-type vacuum pumps are part of the positive displacement pump family, designed for high pumping speeds at low pressures. These pumps feature two symmetrical figure-of-eight lobes (or pistons) housed within the pump body, rotating in opposite directions without contacting each other or the casing. Their synchronized motion—driven by precision gears—ensures friction-free operation, continuous meshing, and reliable performance.

Operating Principle

As the lobes rotate, they create a progressively expanding chamber that initiates the suction phase (phases 1 and 2), followed by a gradual compression of the gas volume (phases 3 and 4). This cycle repeats four times per full rotation of the drive shaft, enabling consistent and efficient gas displacement.

Roots pumps are typically used in combination with primary vacuum pumps, forming multi-stage systems that achieve high pumping capacities and deep vacuum levels. They are especially effective in applications requiring frequent vacuum interruptions, such as vacuum packaging in the food industry, dehydration, and low-pressure gas handling.



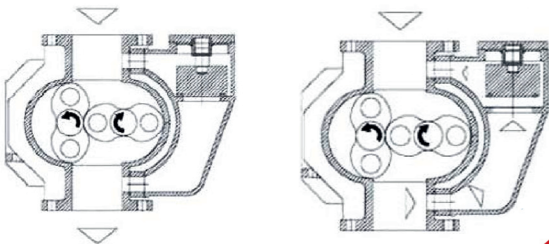
RVR Series – Advanced Design with Recirculation By-Pass

The RVR Series Roots Vacuum Pump is equipped with a built-in bypass conduit, regulated by a relief valve that connects the suction and exhaust ports. This feature allows the pump to handle frequent starts and stops without damaging the motor or requiring a prior high vacuum, making it ideal for processes where variable operating conditions prevent the use of frequency controllers.

When vacuum levels in the suction chamber become too high, the relief valve activates, triggering air recirculation to balance pressure and prevent thermal overload. This intelligent design enables dual operating modes without altering the pump's rotational speed, enhancing flexibility and protection.

Key Advantages

- Frictionless, contact-free operation
- High pumping speed at low pressure
- Reliable performance under fluctuating conditions
- Integrated bypass for safe recirculation
- Ideal for vacuum packaging, gas handling, and multi-stage systems
- Suitable for environments where frequency controllers are not viable



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Technical Data RVRB

Size		21.20	22.20	23.20
Nominal suction flow	M3/mm.	500	1000	2000
Motor speed	Rpm.	2850	2895	2910
Max. difference in continuous operating pressure	Mbar	60	60	60
Motor power	KW	2.2	4	5.5
Oil capacity in oil casing A/B	ltr.	1.1/1.6	1.6/2.5	3.1/4.8
Oil capacity shaft passage seal	ltr.	0.07	0.08	0.1
Weight of pump(free shaft) w/o motor	Kg.	141	228	360

* Water cooling required if ambient temperature is 50°C and above

MATERIAL OF CONSTRUCTION	
Body	Cast iron GG-20
By-pass	
Intermediate sides	
Oil casing	
Lobe-shaft	Forged steel CK-45
Gears	Steel Din 18 Cr Mo4



APPLICATIONS

- Food industry
- Electrical industry
- Pharmaceutical industry
- Toy industry
- Mechanical industry
- Optical industry
- Metallizing industry
- Plastic industry
- Chemical industry
- Metallurgical industry

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RVB Series – Roots-Type Vacuum Pumps for High-Performance Systems

The RVB Series Roots Vacuum Pumps are designed to operate in tandem with primary vacuum pumps and can also be integrated with condensers in series configurations for enhanced system efficiency. These pumps are ideal for applications requiring high pumping speeds at low pressures, offering robust performance in demanding industrial environments.

Construction & Design Features

The RVB pump features a direct-drive mechanism, where the pump shaft is coupled to the motor shaft via an elastic coupling for smooth, vibration-free operation. The shaft passage is sealed using a specialized oil chamber, with the oil serving as a sealing and cooling medium to maintain optimal operating conditions. To further manage thermal loads, a dedicated cooling chamber is integrated into the shaft passage.

All sealing components and elastomers are manufactured from VITON fluorinated rubber, ensuring chemical resistance, thermal stability, and long-term durability. The RVB Series is equipped with a three-phase AC motor and IEC-standardized flanges, allowing for easy installation and compatibility with global industrial systems.

TECHNICAL DATA RVB								
Size		20.20	21.20	21.30	22.20	22.30	23.20	23.30
Rated suction flow	M ³ /h.	280	500	740	1000	1430	2000	2880
Rotation speed	Min.	2850	2860	2860	2895	2895	2910	2910
Maximum pressure difference with continuous operation	Mbar.	80	80	80	80	66	50	40
Motor power	KW	1.1	2.2	3.0	4.0	4.0	5.5	7.5
Oil capacity in oil casing A/B	ltr.	0.7/1.0	1.1/1.6	1.1/1.6	1.6/2.5	1.6/2.5	3.1/4.8	3.1/4.8
Oil capacity shaft passage seal	ltr.	0.06	0.07	0.07	0.08	0.08	0.1	0.1
Weight of pump (free shaft) w/o motor	Kg.	76	115	135	208	245	320	360

* Water cooling required if ambient temperature is 50°C and above