



BV Series Rotary Lobe Pump



About rotary lobe pump

BONVE has been a trusted rotary lobe pump manufacturer and supplier of industrial pumping solutions since 2001. With extensive experience and proven success, Bonve rotary lobe pumps are widely used in sectors including food, dairy beverage, personal care, biotechnology, pharmaceuticals and chemical industries, offering exceptional performance and adaptability.

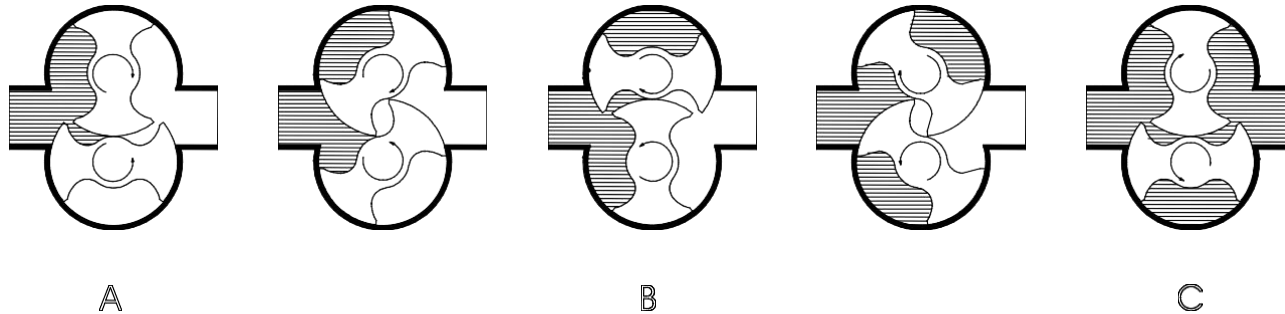
Bonve supplies the targeted and reliable pumps tailored to specific applications across a diverse range of industries. These pumps excel in handling fluids with varying viscosities, abrasives, and shear-sensitive materials, while their high sanitation standards—featuring wetted parts manufactured in SS304, SS316, SS316L, duplex SS, 904L etc.

Main features of Bonve Rotary Lobe Pumps:

- Interchangeable rotors, suitable for various liquid viscosities — whether the liquid contains solids or not.
- Application-specific targeted seals ensure reliable sealing performance.
- Compact structure, enabling easy assembly and disassembly.
- In-place maintenance and easy cleaning, compatible with CIP (Clean-in-Place) and SIP (Sterilize-in-Place) processes.
- Few wearing parts, no frequent replacement needed, and low maintenance cost.
- All main components are CNC-machined, achieving high-precision manufacturing.
- Non-contact design between rotors, and between rotors and the pump chamber — no friction, ensuring a long service life.
- High-balance structure ensures stable operation and an extended service life.
- Shaft key synchronous adjustment prevents rotor collision.

Principle

Bonve lobe pumps basically consist of two lobe rotors, which rotate synchronously driven by a pair of synchronous gears in the gearbox. The rotors are driven by the main shaft and sub-shaft to rotate in a synchronous reverse direction, which changes the pump capacity, builds up high vacuum and discharge pressure, thus an efficient pumping is formed.



A: As the lobes rotate, the space on the suction side increases because one lobe separates from the other, causing a partial vacuum that pushes the liquid into the pumping chamber.

B: Each lobe is filled consecutively as the shafts rotate and the liquid is displaced towards the discharge side. The small clearances that exist between the lobes and between the lobes and walls of the pump body cause the spaces to properly close.

C: The pump body is completely filled and liquid escapes through the meshing of the lobes, pushing against the walls of the spaces, thus completing the pumping action.

Bare shaft structure



Horizontal port with clamp fitting and
bi-wing rotors installed

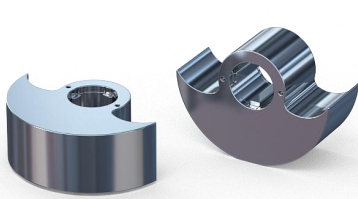


Vertical port with clamp fitting and
bi-wing rotors installed



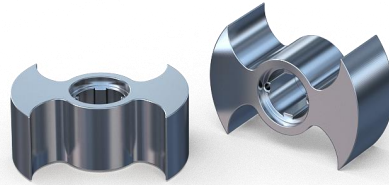
Rotor types

According to the different medium, Bonve rotor designed has Single-wing, Double-wing, Tri-lobe, and Multi-impeller type, and all of these rotors can be interchanged in one pump.



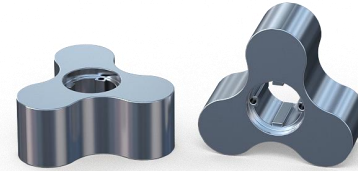
Single-wing rotors

Used to transfer the liquid products containing with big particles, not damage the particles.



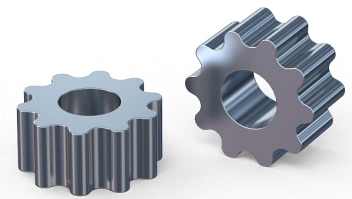
Bi-wing (Butterfly) rotors

Used to transfer the liquid product with small and middle particles or high viscous liquid product.



Tri-lobe rotors

The most widely used rotor type, suitable for pumping various viscous liquid product.



Multi-impeller rotors

The more rotor impellers, the less capacity, but higher stability. The pump with this rotor type can be used as a dosing pump.

*Other types required pls contact BONVE

Seal types

According to the different characteristics of the medium, Bonve offers the mechanical seal with different material and structure. The types can be Single face, Single face water cooled, Single face with oil cup, Double-face water flushed in general. Targeted seal used ensures zero leakage. All these types can be interchanged.

Single face mechanical seal

Advanced balanced structure design, with self-adjusting function and long service life. Normal type to use.



Double-face mechanical seal

Generally used with hostile media conditions i.e. high viscosity, high solid, hazardous or toxic fluids.



Material selected

- Seal Face material
Standard=SiC VS SiC
Option=Tungsten carbide VS Tungsten carbide

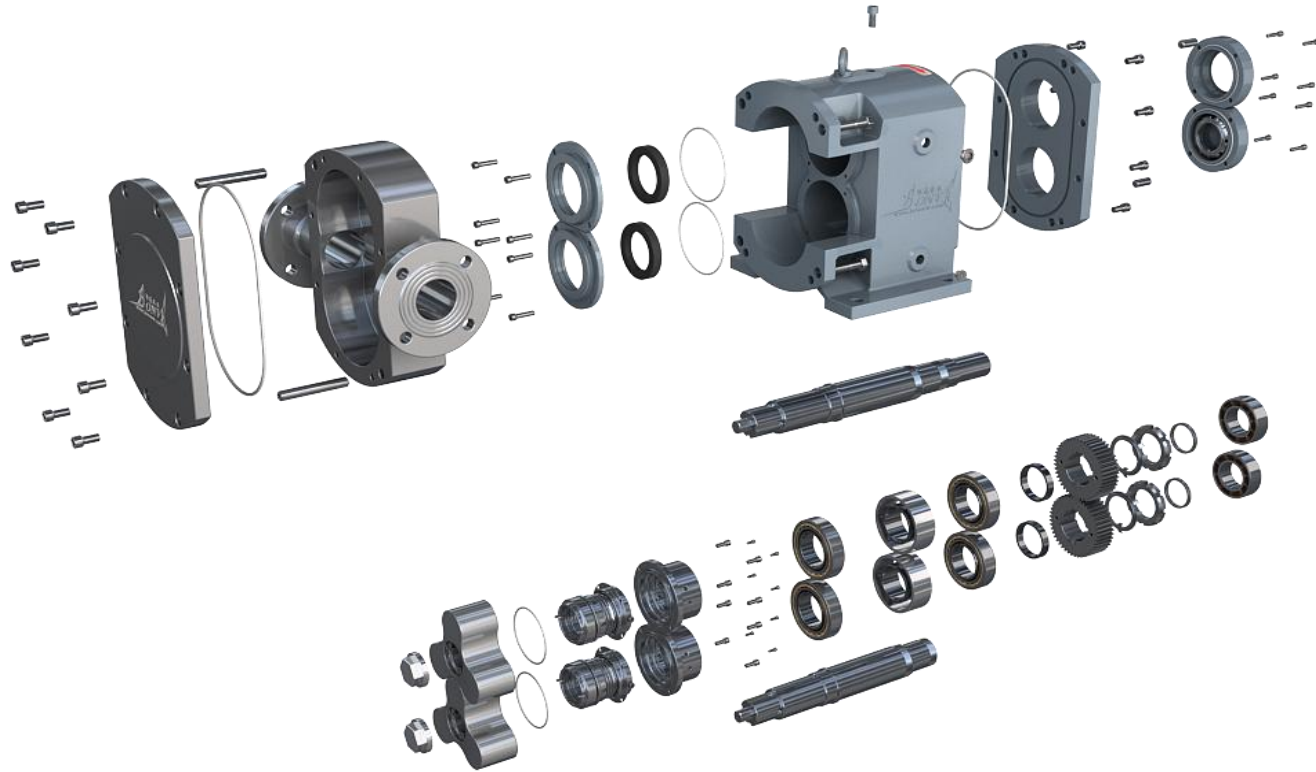
- Elastomer
Standard=FKM(Viton)
Option= EPDM, FFKM



Oil
cup

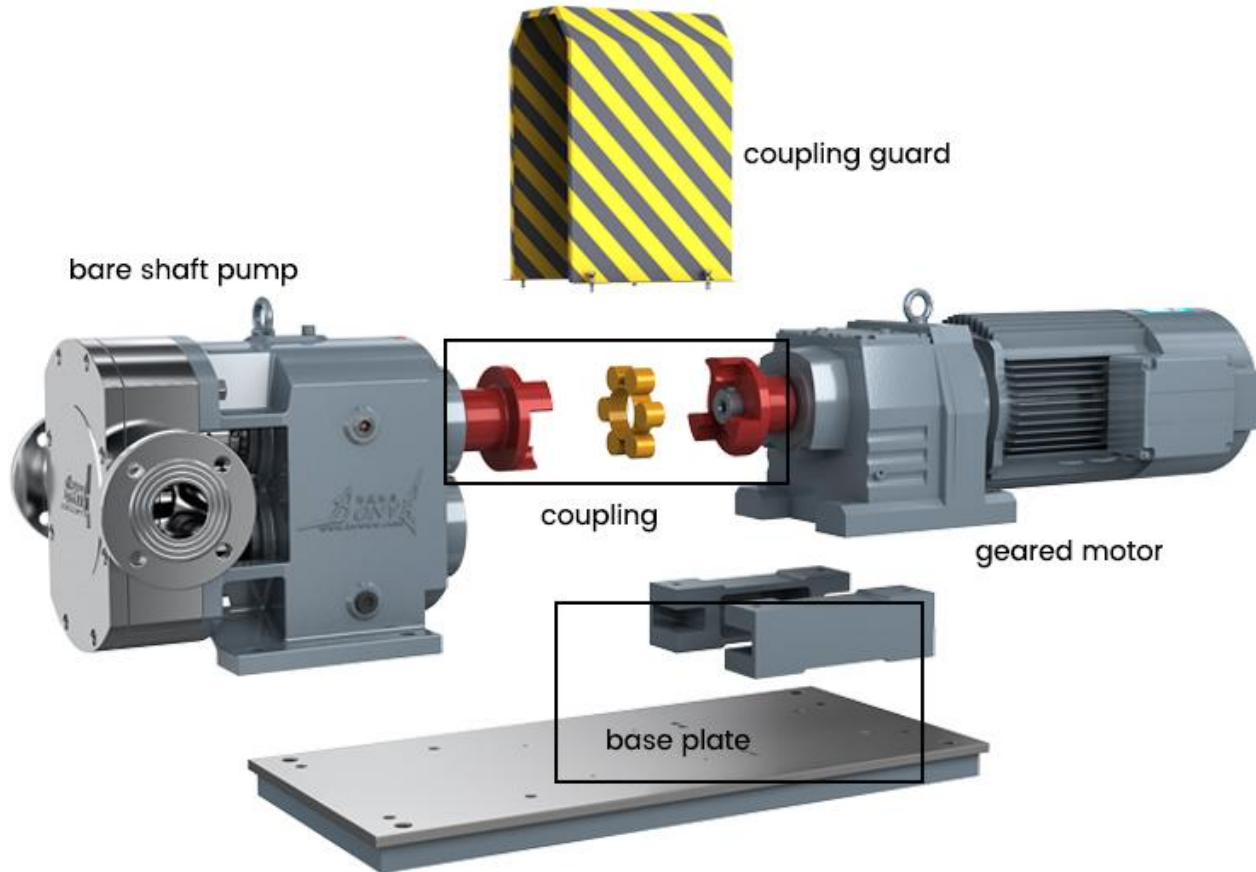
*Other material required pls contact BONVE

Exploded view



The core parts are including rotors, pump chamber, gear box, shaft, bearings and gears. They are processed by Five axis CNC to ensure high precision fabrication.

Complete pump structure



The normal complete unit is including bare shaft pump, coupling assembling, geared motor and base plate.

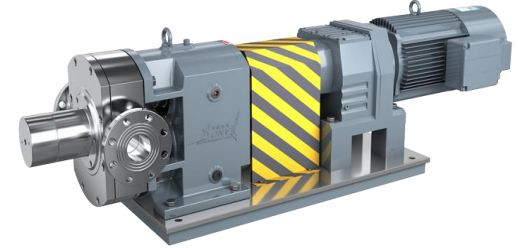
Types for complete unit



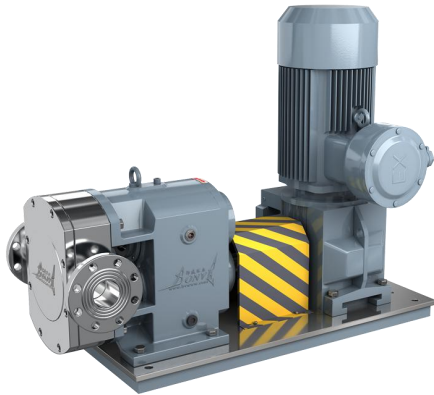
Normal type pump
with fixed geared motor



Rectangular feed inlet,
suitable for liquids hard to flow



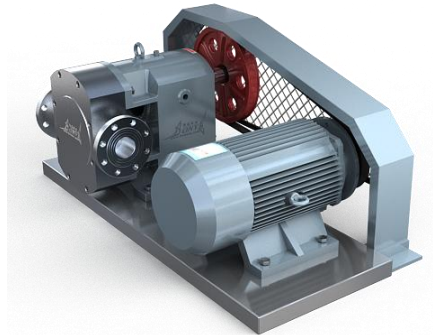
Pump with pressure safety valve built-
in, protect system over-pressure



Pump with vertical installed
geared motor, space-efficient



Pump with movable trolley, VFD
controlled electrical box



Pump with belt-driving,
space-efficient

*Other types required pls contact BONVE

Technical information at glance

Performance

- Displacement upto 50.4l/r
- Operation pressure up to 1.2Mpa
- Suction head up to 9 mWC (flood condition)
- Product Viscosity: Up to 1,000,000 mPas
- Temperature Resistance: up to 280° C
- PH: 1-14

Materials

- Pump housing and cover: stainless steel AISI 316, 316L, duplex, further materials on request
- Mechanical Shaft Seals: Tungsten carbide, Silicon carbide, Further materials on request
- Sealing Materials of O-rings: Viton, EPDM, Further materials on request

Design Structure

- Rotor type: Single-wing Rotors, Bi-wing (Butterfly) Rotors, Tri-lobe Rotors, Multi-impeller Rotors
- Seal type: Single-face Mechanical Seal, Single-face Flushed Mechanical Seal, Double-face Flushed Mechanicals Seal.
- Flow direction: Horizontal single direction, Horizontal Bi-direction, Vertical single direction, Vertical Bi direction
- Port connection: Clamp as standard, thread and flange as option. ISO, SMS and DIN standard etc.
- V-feed inlet, Safety Valve built-in or External Safety Valve can be equipped.
- Pump Colors: Blue, Grey, White
- Heating or cooling jacket as per request
- Driving type: Step-less speed regulated motor, fixed speed geared motor, variable speed geared motor. Further materials on request
- Installation type: Fixed, fixed with adjustable feet, mobile

Main technical parameters

Bonve Model	Displacement	RPM	Flow	Dis. Pre.	Power	Suc. Pre.	Port size	
	(L/r)	(r/min)	(M ³ /h)	(Mpa)	(Kw)	(Mpa)	Std. (mm)	Enlar. (mm)
40BV12-2	0.15	10-1000	0-2	0-0.6	0.75-2.2	-0.080	25	40
50BV12-5	0.32	10-800	0-5	0-0.7	1.5-4	-0.095	40	50
65BV12-10	0.65	10-600	0-10	0-1.0	2.2-7.5	-0.085	50	65
80BV12-15	0.87	10-500	0-15	0-0.6	3-7.5	-0.085	65	80
80BV12-20	1.74	10-500	0-20	0-1.2	4-15	-0.085	65	80
90BV12-30	2.48	10-500	0-30	0-0.8	5.5-22	-0.095	80	100
100BV12-40	3.65	10-500	0-40	0-1.2	7.5-30	-0.095	80	100
125BV12-50	4.60	10-500	0-50	0-0.8	7.5-37	-0.095	100	125
140BV12-70	6.10	10-500	0-70	0-1.2	11-45	-0.095	125	150
150BV12-80	7.63	10-500	0-80	0-1.2	11-55	-0.095	125	150
200BV12-120	11.56	10-400	0-120	0-1.2	15-75	-0.095	150	200
250BV12-150	14.22	10-400	0-150	0-1.2	18.5-90	-0.095	150	250
300BV12-200	20.80	10-300	0-200	0-1.2	22-110	-0.095	200	300
350BV12-300	32.60	10-250	0-300	0-1.2	45-160	-0.095	250	350
400BV12-400	50.40	10-250	0-400	0-1.2	55-200	-0.095	350	400

Remarks:

1. Tested medium: water. Your liquid's density, viscosity and temperature are necessary to supply when choose the pump.
2. Speed, flow rate, electrical power and pressure will be varified according to different liquid properties.
3. Max. Discharge pressure can reach 1.5Mpa for the pump with double supporting design.
4. Bonve reserves the right to change specifications without prior notification.

Applications

- **Consumer chemicals:** AES, LAS, AOS, K12, glycerol, fatty alcohol, bathing shampoo, skin cream, shampoo, detergent liquid, toothpaste soap, washing powder slurry, etc.
- **Refined chemicals:** Dyes stuffs, pigments, all kinds of pulp, chemical additives, adhesives, silicone oil, leather oil, a variety of colloidal materials, etc.
- **Foods:** Chocolate, concentrated milk, yogurt, honey, syrup, cane sugar, tomato juice, concentrated juice, jam, ice cream, milk, yeast slurry, meat slurry, jelly, condiment, lees, soybean protein, flour slurry, etc.
- **Coating:** Paint, dope, printing ink, insulating paint, resin, additives and assistants, organic solvent, etc.
- **Pharmaceuticals:** Ointments, extractum, medicine latex, pill paste, syrup, health care products, drugs, etc.
- **Chemical fiber:** Pectic slurry, PVA, spandex slurry, vinylon slurry, Acrylic slurry, polyester slice, terylene, polypropylene fiber, rayon, functional fiber, etc.
- **Pulp & Paper:** Polyacrylamide, calcium carbonate, starch paste, carboxyl poly, starch paste, rosin size, paper pulp, filling dry strength agent, wet strengthen agent, sizing agent, filtering agent, anti foaming agent, spreading, water treatment chemicals, etc.



Selection guidelines

Your industry					
About pumped medium	Name				
	Density (g/cm ³)				
	Viscosity (mPa.s)				
	Temperature (°C)				
	PH Value				
	Solid content %				
Solid size (mm)					
Suction side		Pressure (Mpa):		Suction lift if have (m):	
		Suction pipe length (m):		Diameter (mm):	
		Bends: () Pcs	T-piece: () Pcs	Valves: () Pcs	
Discharge side		Pressure (Mpa):			
		Vertical Delivery pipe length (m):		Diameter (mm):	
		Total delivery pipe length (m):			
		Bends: () Pcs	T-piece: () Pcs	Valves: () Pcs	
Required flow rate (L/H)		Operating flow:		Max. flow:	
Pump material required		SS304 () SS316 () SS316L () Duplex stainless steel () Others ()			
Motor required		Phase: Single () Three ()		Voltage (V):	Frequency(Hz):
		IP grade:		Energy Efficiency:	Anti-explosive:
Installation type		Fixed ()	Movable ()	Fixed with adjusting feet ()	
Others					



BONVE is a Chinese leading manufacturer in **ROTARY LOBE PUMPS**. Providing its customers with customized pump solutions and solving their problems during the production.

Bonve pumps are widely used in food, dairy, beverages, chemical, pulp&paper, soaps & detergents, pharmaceuticals, pesticide, coatings etc. By 2025, Bonve served 8000+ customers in various industries and 100000+ pumps running in the worldwide.

Time and again companies specify Bonve Pumps as the "standard" equipment for their manufacturing processes. We are looking forward to be partner with you.

www.bonvepumps.com

Contact us



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