

High Capacity Mechanical Vacuum Boosters

Models	Capacity M3/hr.	Operating Speed RPM (Approx.)
KVB 3012	9477	1000
	14000	1500
KVB 3612	11543	1000
	17583	1500
KVB 3514	11263	750
	15264	960
KVB 4816	21515	750
	27794	960
KVB 3818	23825	750
	30783	960
KVB 5418	30545	750
	39500	960
KVB 4820	32369	750
	41681	960
KVB 6420	43214	750
	55738	960

The drive motor rating would depend on booster pressure differential & on its operating speed. The pumping capacities at speeds other than indicated may be obtained from the manufacturer. The speed specified is considering a motor of 50 Hz Frequency & speed would change for 60 Hz and accordingly capacity will change.

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An ISO-9001/2008
Certified Company



Mastery in Pressure & Vacuum Technology



Mechanical
Vacuum Boosters

World's Most Advanced Technology Vacuum Boosters

MECHANICAL VACUUM BOOSTERS

Kay Vacuum Boosters are dry-running Vacuum Boosters that are used together with backing pumps in all rough and fine vacuum applications where large suction volumes are required.

Kay Vacuum Boosters work completely contact-free Dry mechanical Vacuum Boosters.

ECONOMICAL

Thanks to the large selection of design sizes, the suction capacity and ultimate pressure can be designed optimally in economic terms and matched exactly to the process conditions.

SAFE OPERATION

Thanks to the tried-and-tested engineering and sturdy design, the integrated by pass valve makes operations possible for atmospheric pressure onwards.

APPLICATION ORIENTED

Thanks to variable, horizontal or vertical pumping direction, ATEX-certified versions and a version for pumping oxygen are available.

USE IN VACUUM SYSTEM

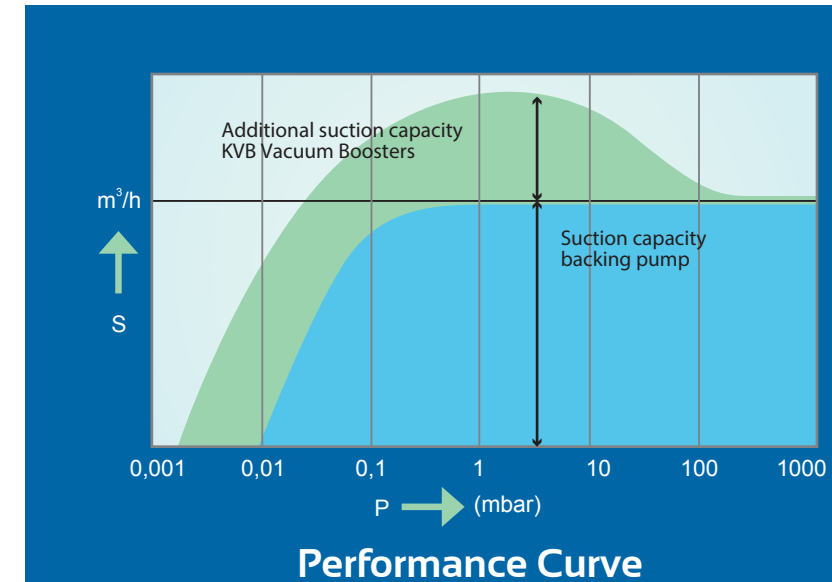
Kay Vacuum Boosters are used together with other vacuum pumps (backing pumps) in vacuum systems or vacuum pump groups. Liquid ring vacuum pumps or dry screw vacuum pumps are suitable as backing pumps. With the Combi series, Kay supplies standardised vacuum pump systems that use Kay Vacuum Booster. The different types of vacuum pumps that can be used as backing pumps

and the large number of design sizes result in almost endless possible combinations with Kay Vacuum Boosters with a suction capacity of 200 to 55000 m³/h and more. This allows Combi Vacuum Pump Systems to be tailor-made for the respective application case.

FUNCTION OF THE BYPASS VALVE

The bypass valve consists of a connection between suction and pressure side of the Kay Vacuum Booster which is located outside of the conveying chamber. A mechanical valve is built into this connection and opens when the pressure difference is exceeding the determined maximum value. This ensures that part of the pumped gas is returned to the inlet.

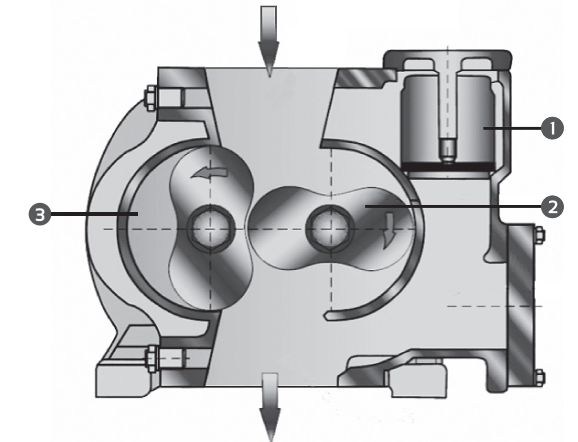
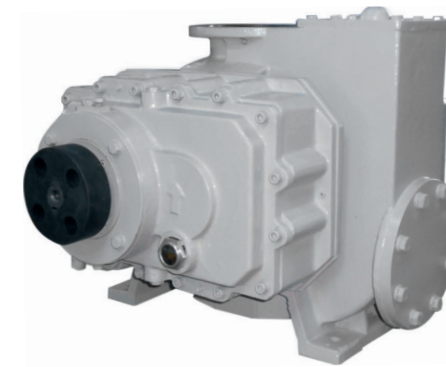
This bypass valve allows the operation of the Vacuum Booster together with the backing pump at atmospheric pressure avoiding any overload of the pump or the motor. The main advantage of this bypass valve is to increase significantly the pump down speed of the vacuum pump system.



Performance

The flow rating of few of the standard models are listed in the performance table along with the motor speed and other technical details. The booster can be operated with standard 4 pole and 2 pole motors.

The suggested motor ratings are suitable for pressure differentials as indicated in mbar. But should higher differential be higher, than indicated, the motor of higher kw would be required to drive the booster. For details of other model contact H.Q.



- 1 Bypass Valve
- 2 Roots Lobe
- 3 Conveyed Volume

Performance & Operating Range of Kay Vacuum Boosters

TYPE		KVB (P)-200	KVB (P)-280	KVB (P)-500	KVB (P)-1000	KVB (P)-2160	KVB (P)-4300	KVB (P)-9000
Suction Capacity (m ³ /hr) (50/60 Hz)		200/280	280/334	540/600	1080/1200	2160/2500	4320/4800	9000/10000
Max. Pressure Tolerance (mbar)		80	80	60	45	45	30	30
Speed (RPM) (50/60 Hz)		3000/3600	3000/3600	3000/3600	1500/1800	3000/3600	1500/1800	3000/3600
DN (mm)	Inlet	50	80	100	150	150	300	300
	Outlet	50	80	100	150	150	300	300
Weight (KG) with standard Motor		50	80	200	520	540	1230	1376
Power (KW) (50/60 Hz)		0.75/1.1	1.1/1.5	2.2/3.7	3.7/5.5	5.5/7.5	11/15	22/30

Applications

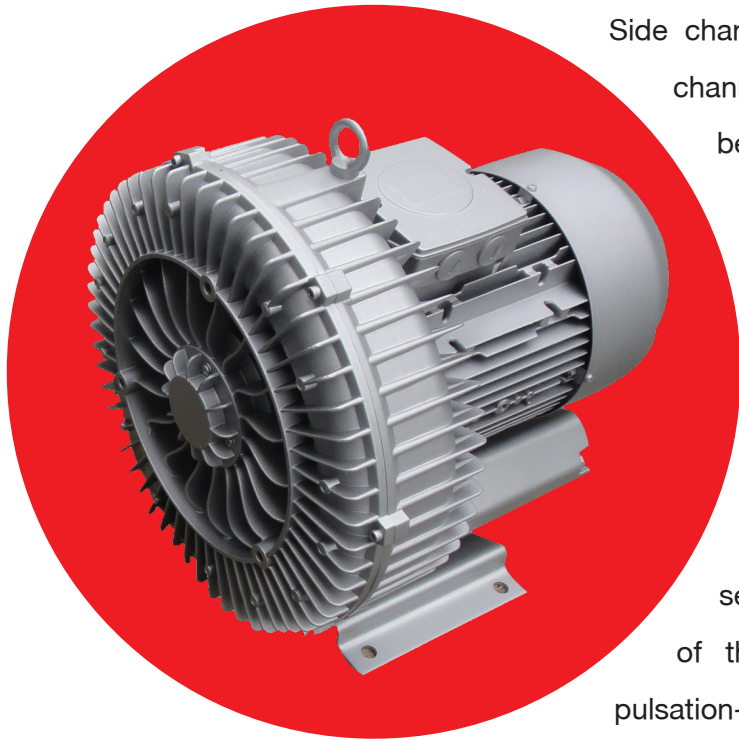
- Chemical and Pharmaceutical Industry
- Drying and Impregnating
- Thin-film Technology
- Plastics Industry
- Semiconductor Industry
- Vacuum Packaging
- Electrical Engineering/Electronics
- Research and Laboratory
- Metallurgy
- Central Vacuum Supply
- Metallizing industries
- Oil Filtration
- Cement Industries
- Automobile Industries
- Transformer & Cable Drying
- Vacuum Distillation
- Lamps and Tubes Industries

Features

- The lack of reciprocating parts allows a perfect dynamic balancing with fine grade because the rotors are processed by numerical control machine tool and balanced. There is fine clearance between the two rotors. The pump house and end cover is processed by special machine tool. It has high precision low noise, low vibration, low temperature, low pressure and high ultimate vacuum, better life of bearings for stable operation.
- The KVB series root type vacuum boosters with by pass valve can start under the atmospheric pressure because the overflow valve is able to open automatically when the working pressure exceeds the maximum differential pressure, so that the gas flow re back to protect the KVB series roots type vacuum booster to avoid long period run over pressure condition so that mechanical vacuum booster should not be over heated.
- Mechanical Vacuum Boosters can be started quickly and in short time ultimate vacuum is reached with suitable back up pump.
- Lubrication or oil media is not required in KVB Series roots type vacuum boosters as there is no contact between rotors, rotor and housing, that prevent oil vapours from polluting high vacuum systems.
- Good Reliability characteristic. The inherent overflow valve play auto-protective role.
- Compact structure, low footprint design. It offers Flexibility in gas outlet ports. There are two gas outlet ports at right and bottom.



SIDE CHANNEL BLOWERS



Side channel blowers consist of a ring-shaped housing. Side channel and the rotor opposite create a working area between intake and blow-out connections. The blade segments of the rotor suck in the gas and create radial pressure during turning. The centrifugal force causes the gas to be pressed to the outside in the side channel. This creates a circular current between channel and blade segments. Due to the radial pressure, the gas to be compressed in the chamber begins turning. The spiral swirling compresses the gas several times and causes the pressure to rise. At the end of the chamber the compressed gas is then pushed pulsation-free by the rotor through the blow-out connection.

■ *Setup of side channel blowers in parallel provides a maximum amount of air.*

■ *Setup of side channel blowers in series increases the individual high/low pressure.*

Usage:

Side channel blowers are used for applications which require more pressure or vacuum power than a centrifugal blower is able to provide.

The compression procedure is absolutely oil-free and provides applications, where pollution of the gas is not allowed.

There are many application areas of side channel blowers, both in pressure and vacuum operations.

Side channel blowers are used for a wide variety of applications in the following industries:

- Food and beverage industry
- Paper and printing industry
- Medical technology
- Packaging industry
- Water aeration and treatment
- Textile industry
- Plastics industry
- Manufacturing industry
- Environmental technology
- and many more



Advantages

Operating principle

The impeller sucks in the gas to be compressed through the input connection, compresses it with spiral swirling and pushes it out again through the output connection. This process occurs as a continuous air current and is thus pulsation-free.

No vibration

The side channel blower is mounted on a carrier plate which is particularly vibration-absorbent. Possible agitations caused by rotor operation are reduced as far as possible.

Minimal, simple maintenance

The impeller of the side channel blower is mounted directly on the motor shaft. During operation, rotation is completely contactless and lubrication is thus not necessary. This makes operation almost maintenance-free even during continuous operation.

Easy Installation

The installation of the devices is without any problems. The side channel blowers are ready for connection. Mount it in desired axis position, connect the connections to the system, perform electrical installation and the device is ready for operation.

Low noise level

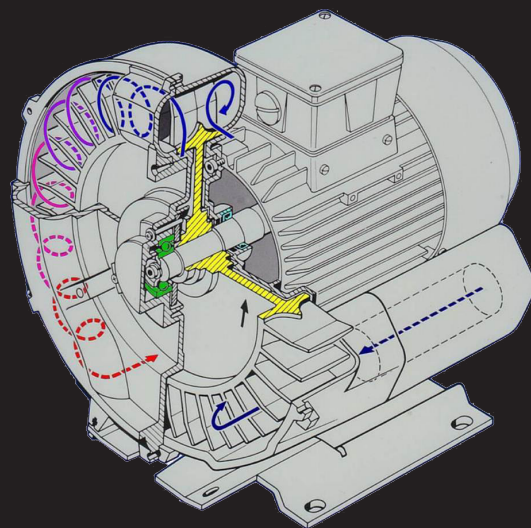
The side channel blowers are equipped with built-in silencers. The carrier plate is also silencing. Thus a maximum degree of noise reduction is achieved. The noise level during operation is only 55 dB to 80 dB, depending on the model.

100 % oil-free air

Due to the contactless rotation of the impellers, lubrication is not necessary. The compression procedure is dry and oil-free and the gas to be compressed is not polluted.

Long life expectancy

The impeller is designed for high performance. The high quality motor is enclosed in its own capsule and is protected by shaft sealing. The device's maintenance requirements are low, it has a long life span as well.



Applications

Aeration:

Swimming pools and whirlpools
Ponds and aquariums
Sewage plants and fluidization systems

Drying:

Electronic components
Plastic profiles

Cleaning:

Printing machines
Paper cutting equipments
Cloth cutters

Compressed air:

Gas and vapour compressions
Powder and granule conveyors

Vacuum:

Packing machines
Filling stations
Chemical and medical processes
Technology Oven dryings



Filtration System



Dental Vacuum System



Medical Equipment

Technical Data

2RB Blower models and performance (IP54 50/60HZ 1 Phase)

MODEL	Stage	Hz	Output (Kw)	Max Flow (m3/h)	Max static Vacuum mbar	Max static Pressure mbar
2RB 210 A11	single	50	0.4	80	-120	130
		60	0.5	98	-150	160
2RB 220 A21	double	50	0.7	88	-210	240
		60	0.83	103	-250	250
2RB 310 A01	single	50	0.55	95	-120	130
		60	0.62	110	-120	130
2RB 410 A01		50	0.7	145	-120	120
		60	0.83	175	-130	130
2RB 410 A11		50	0.85	145	-160	160
		60	0.95	175	-160	160
2RB 410 A21	single	50	1.3	145	-170	200
		60	1.5	175	-210	220
2RB 420 A31	double	50	1.5	150	-260	260
		60	1.75	180	-300	290
2RB 510 A01		50	1.3	210	-170	170
		60	1.5	255	-150	140
2RB 510 A11	single	50	1.5	210	-200	190
		60	1.75	255	-220	210

4RB Blower models and performance (IP54 50/60HZ 1 Phase)

MODEL	Stage	Hz	Output (Kw)	Max Flow (m3/h)	Max static Vacuum mbar	Max static Pressure mbar
4RB 210 A75	single	50	0.55	47	-230	290
		60	0.63	57	-270	320
4RB 220 A75	double	50	1.5	47	-370	600
		60	1.75	60	-420	660
4RB 310 A71	single	50	0.94	66	-350	350
		60	1.1	80	-280	390
4RB 320 A75	double	50	1.5	65	-400	550
		60	1.75	76	-390	540
4RB 410 A41	single	50	1.1	87	-300	380
		60	1.3	105	-350	390

4RB Blower models and performance
(IP54 50/60HZ 3Phase)

MODEL	Stage	Hz	Output (Kw)	Max Flow (m3/h)	Max static Vacuum mbar	Max static Pressure mbar
4RB 210 H16	Single	50	0.55	47	-230	290
		60	0.63	57	-270	320
4RB 220 H26	double	50	0.81	47	-370	490
		60	0.94	60	-440	480
4RB 220 H56	double	50	1.5	47	-370	650
		60	1.75	60	-500	740
4RB 310 H16	single	50	0.55	66	-250	250
		60	0.63	80	-260	250
4RB 310 H26	single	50	0.81	66	-280	350
		60	0.94	80	-340	360
4RB 320 H46	double	50	1.1	65	-400	480
		60	1.3	76	-480	480
4RB 320 H56	double	50	1.5	65	-440	540
		60	1.75	76	-560	600
4RB 410 H16	single	50	1.1	87	-300	380
		60	1.3	105	-340	370
4RB 420 H26	double	50	1.5	87	-480	450
		60	1.75	105	-430	410
		50	3.3	87	-500	750
		60	3.8	105	-510	850
4RB 420 H56	double	50	1.5	120	-310	360
		60	1.75	145	-340	320
4RB 510 H16	single	50	2.2	120	-310	470
		60	2.55	145	-360	480
4RB 510 H26	single	50	2.2	120	-470	460
		60	2.55	145	-500	450
4RB 520 H26	double	50	4	120	-500	820
		60	4.6	145	-530	810
4RB 610 H16	single	50	2.2	165	-340	360
		60	2.55	195	-360	315
4RB 610 H26	single	50	3.3	165	-340	480
		60	3.8	195	-380	530
4RB 620 H36	double	50	3.3	165	-460	500
		60	3.8	195	-480	420
4RB 620 H57	double	50	5.7	165	-460	740
		60	6.6	195	-480	840
4RB 630 H67	Three	50	7.5	170	-730	1040
		60	8.6	200	-700	1040

2RB Blower models and performance
(IP54 50/60HZ 3Phase)

MODEL	Stage	Hz	Output (Kw)	Max Flow (m3/h)	Max static Vacuum mbar	Max static Pressure mbar	
2RB 210 H16	Single	50	0.4	80	-120	130	
		60	0.5	98	-150	160	
2RB 220 H26	double	50	0.7	88	-210	240	
		60	0.83	103	-250	250	
2RB 310 H06	single	50	0.55	95	-120	130	
		60	0.62	110	-120	130	
2RB 410 H06	single	50	0.7	145	-120	120	
		60	0.83	175	-130	130	
2RB 410 H16		50	0.85	145	-160	160	
		60	0.95	175	-160	160	
2RB 410 H26		50	1.3	145	-170	200	
		60	1.5	175	-210	220	
2RB 420 H36		double	50	1.6	150	-280	280
			60	2.05	180	-320	310
2RB 420 H46			50	2.2	150	-330	440
			60	2.55	180	-350	420
2RB 510 H06	single	50	0.85	210	-110	100	
		60	0.95	255	-80	70	
2RB 510 H16		50	1.3	210	-170	170	
		60	1.5	255	-150	140	
2RB 510 H26		50	1.6	210	-200	190	
		60	2.1	255	-220	210	
2RB 510 H36		50	2.2	210	-220	270	
		60	2.55	255	-260	290	
2RB 520 H46		double	50	3	230	-340	410
			60	3.45	275	-380	360
2RB 520 H57	50		4	230	-390	490	
	60		4.6	275	-410	480	
2RB 610 H16	single	50	2.2	220	-200	200	
		60	2.5	280	-220	220	
2RB 710 H06	single	50	1.6	318	-160	150	
		60	2.1	376	-160	150	
2RB 710 H16		50	2.2	318	-210	200	
		60	2.55	376	-210	200	
2RB 710 H26		50	3	318	-270	290	
		60	3.45	376	-250	230	
2RB 710 H37		50	4	318	-290	330	
		60	4.6	376	-330	330	
2RB 720 H16		single	50	2.2	320	-220	210
			60	2.55	385	-170	150
2RB 720 H26	50		3	320	-280	260	
	60		3.45	385	-230	200	
2RB 720 H37	50		4.3	320	-360	380	
	60		4.8	385	-350	320	

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KAY DOUBLE STAGE ROTARY VANE VACUUM PUMPS



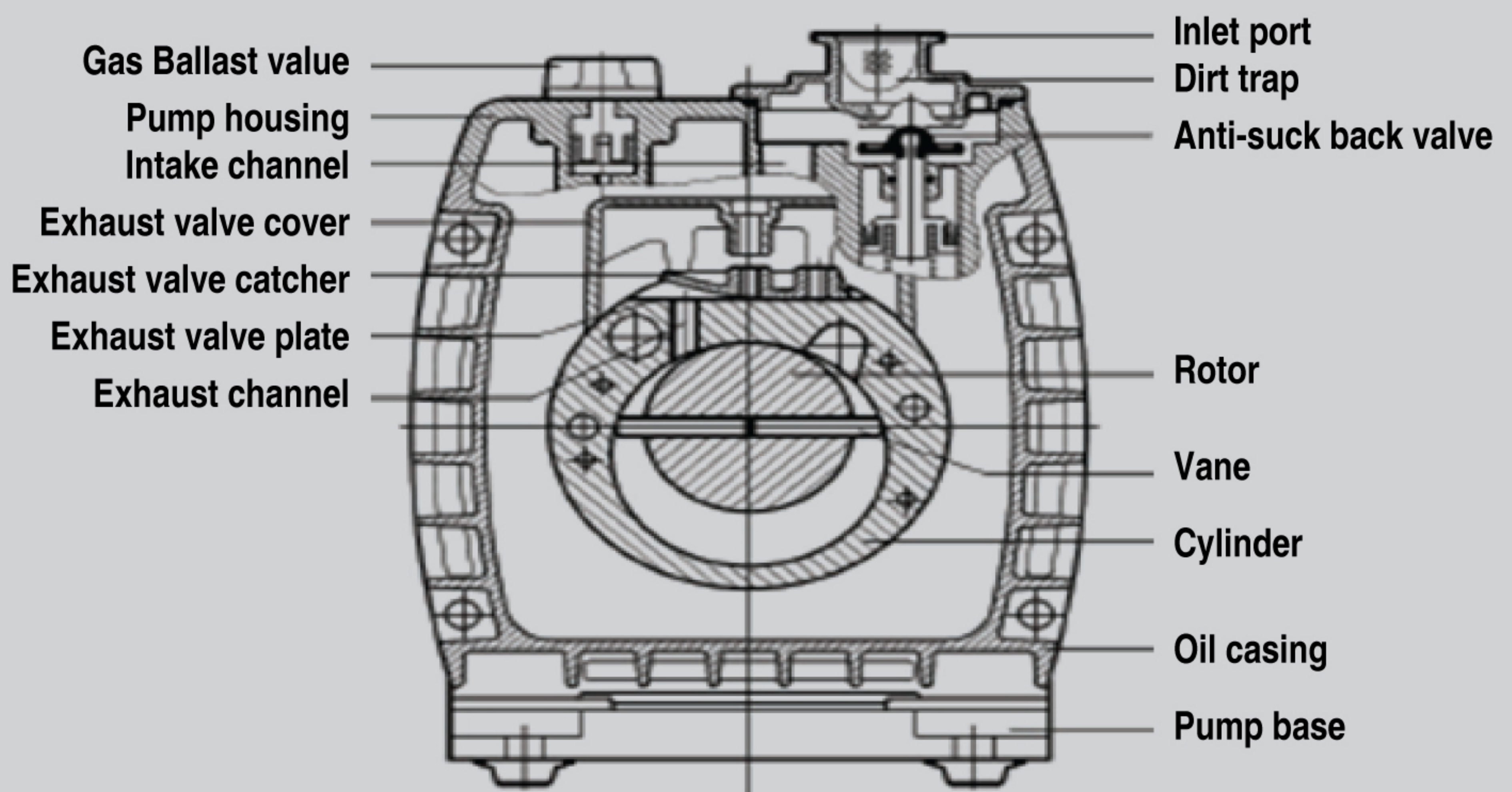
An ISO-9001/2008
Certified Company

KRP/KMP Series
6-95 m³/h

Design & Operating Principles

A rotary vane vacuum pump is an oil-sealed rotary displacement pump. The pumping system consists of a housing, an eccentrically installed rotor, vanes that move radially under centrifugal force and the inlet and outlet. The outlet valve is oil-sealed. The inlet valve is designed as a vacuum safety valve that is always open during operation. The working chamber is located inside the housing. Rotor and vanes divide the working chamber into two separate spaces having variable volumes. As the rotor turns, gas flows into the enlarging suction chamber until it is sealed off by the second vane. The enclosed gas is compressed until the outlet valve opens against atmospheric pressure. In the case of gas ballast operation, a hole to the outside is opened, which empties into the sealed suction chamber on the front side.

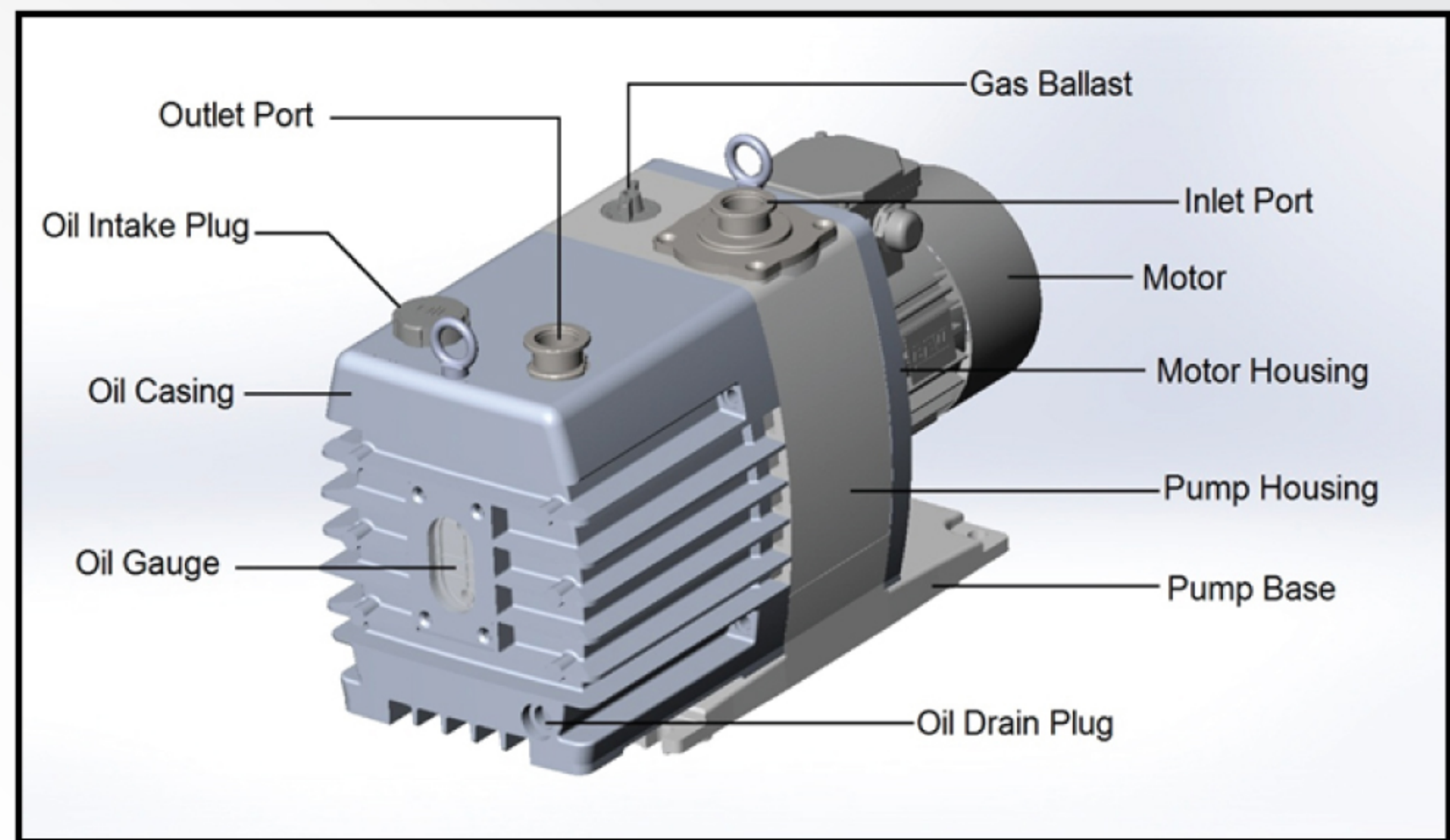
Rotary vane vacuum pumps are built in single- and two-stage versions. Two-stage pumps achieve lower ultimate pressures than single-stage pumps. Moreover, the effects of the gas ballast on the ultimate pressure are lower, as the ballast gas is only admitted in the second stage.



Applications

Production of semiconductors, Vacuum Coating, Research & development, Chemistry/pharmaceuticals, Metallurgy/furnaces, Lamps & tubes manufacture, Automotive industry, Space simulation, Analytical engineering, Environment engineering, Cooling and air-conditioning, Electrical engineering, Mechanical engineering, Medicine technology, Chemistry and research labs, Freeze-drying systems, Backing pump for high vacuum pump systems & Leak detectors.

Design Advantages

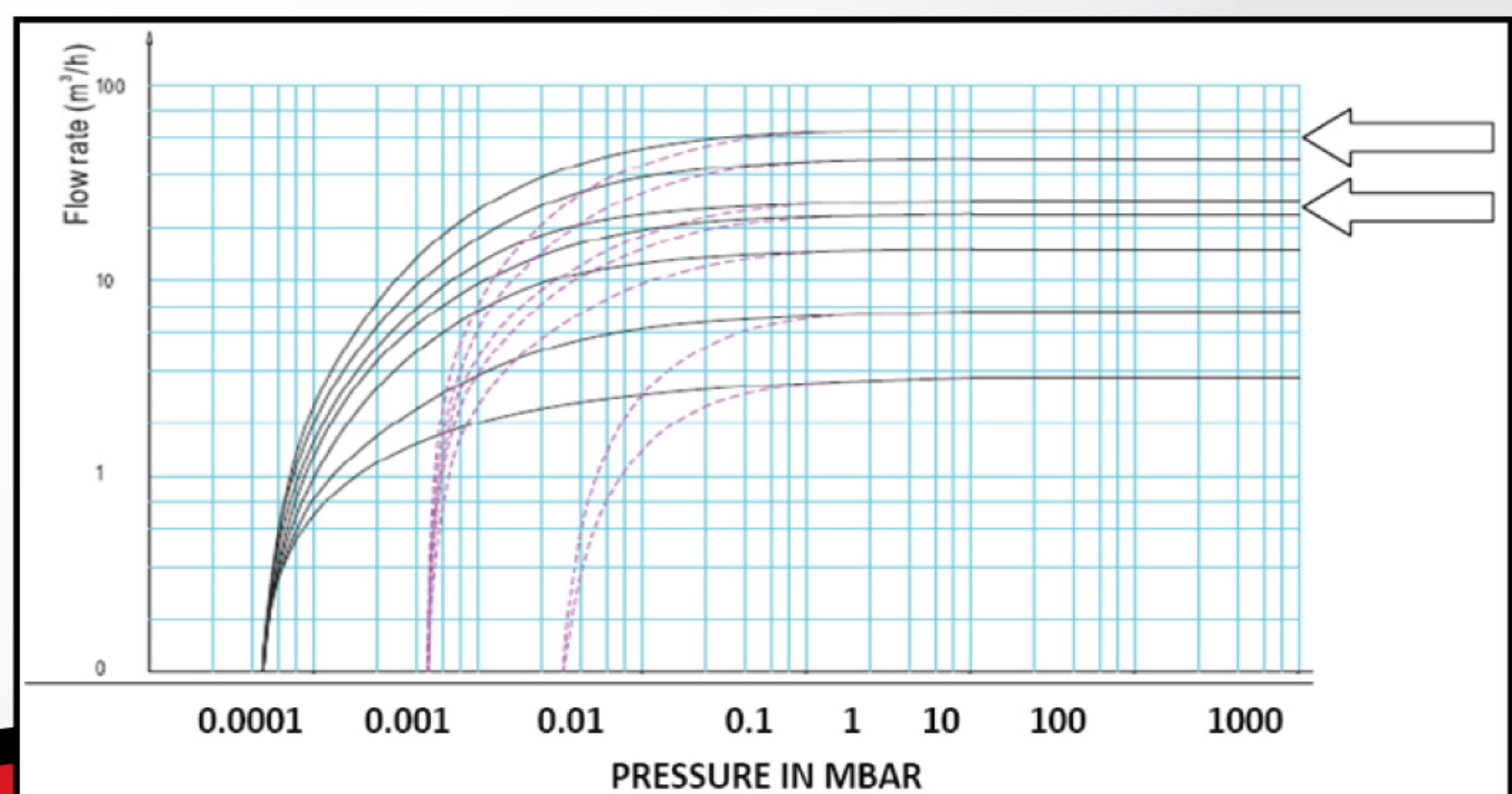


- 1) Excellent ultimate vacuum and pumping speed by high performance new materials.
- 2) Improved oil anti-suckback system to protect the vacuum system in the event of sudden stop.
- 3) International standard clamp and flange at inlet and outlet port.
- 4) Low noise and vibration.
- 5) Strong and constant pressure based oil circulation system to protect the pump.
- 6) Convenient gas ballast valve control enabling open and shut – down of gas ballast valve at ease while operational.
- 7) Simple maintenance and oil replacement without any special tools.

Technical Data

DESCRIPTION		UNIT	KRP 6	KRP 12	KRP 24	KRP 36	KMP 58	KMP 78	KMP 95
DISPLACEMENT SPEED	60 HZ	m3/h	6	12	24	36	58	78	95
		L/Min	100	200	400	600	966	1300	1584
	50HZ	m3/h	5	10	20	30	48	65	80
		L/Min	80	170	335	500	800	1083	1333
ULTIMATE PRESSURE	GAS BALLAST C	Torr	5x10 ⁻⁴						
	GAS BALLAST I	Torr	5x10 ⁻³						
	GAS BALLAST II	Torr	5x10 ⁻²						
WATER VAPOUR TOLERANCE		Torr	40	40	25	25	40	40	40
OIL CAPACITY		LTR	1.5	1.5	2.5	2.5	4.5	4.5	6.5
INLET PORT		DN	25KF				40KF		
OUTLET PORT		DN	25KF				40KF		
MOTOR POWER		KW	0.4		0.75		1.5	2.2	
ROTATIONAL SPEED OF PUMP	60 Hz	R.P.M	1750						
	50 Hz	R.P.M	1450						
NOISE LEVEL (WITHOUT GAS BALLAST)		dBA	50	50	52	52	60	62	65
WEIGHT		Kg	21	22.5	38	41	62	65	85

Pumping Speed Curve



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