hyco®

Catalog 2

Diaphragm and piston pumps for pumping gaseous media

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Index

Table of content 4
Corporate informations 6
Primary goals - Quality and environment - ISO 9001 Certification 7
General information to diaphragm and piston pumps 8
Environmentally friendly vacuum technology 9
Pump selection table 10

Pumps for line of business and applications

- Bottling plant 12
- Flue gas measuring 12
- Breathing 13
- Fuel cell 13
- Chemical industry 14
- Chemically resistant pumps 14
- Dental technology 15
- Distillation 15
- Leakage tests 16
- Degassing 16
- Filtration 17
- Research and development 17
- Electrophoresis 18
- Freeze drying 18
- Gas analysis 19
- Semiconductor industry 19
- Air-conditioning technology 20
- Food preservation 20
- Evacuation and compression 21
- Laser technology 21
- Food industry 22
- Machine building industry 22
- Medical technology 23
- Sterilisation of medical technology 23
- Measurement of flue gas 24
- Customer pumps for application solutions 24
- Cleaning of metal constructions 25
- Textile cleaning machines 25
- Reprographic technique 26
- Service hydraulic systems 26
- Safety engineering 27
- Environmental analysis 27
- Vacuum coating 28
- Vacuum furnace 28
- Vacuum package 29
- Booster pumps turbomolecular 29

Pump details

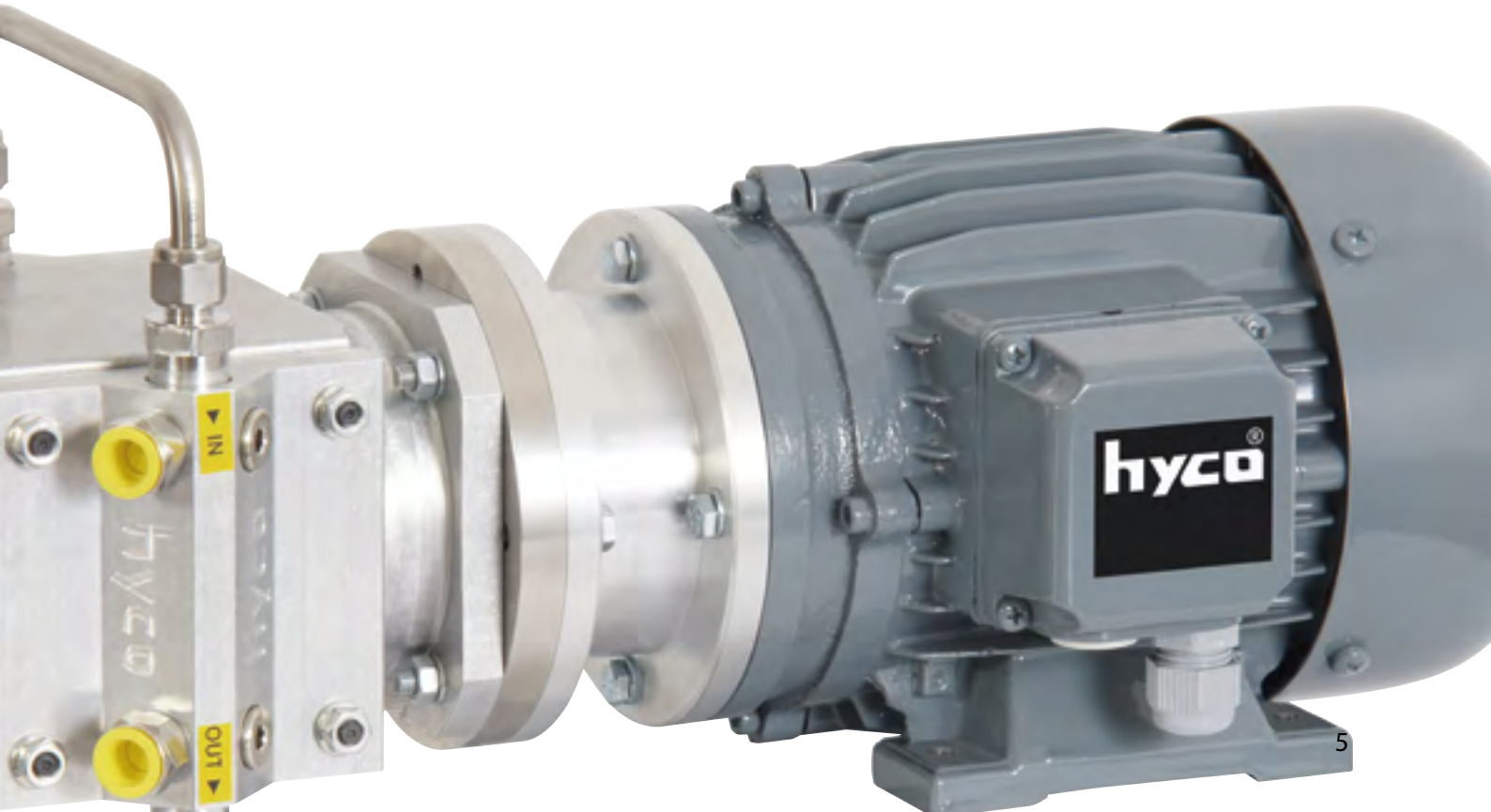
1-cylinder diaphragm- and piston pumps T 30

2-cylinder diaphragm- and piston pumps T 54

4-cylinder diaphragm pumps 72

8-cylinder diaphragm pumps 84

Technology hyco® pumps 89
Connection options hyco® pumps 92
Corrosion resistant hyco® diaphragm and piston pumps 93
Conversion tables 94
Basic data sheet 95



Corporate informations

With 50 years of experience in the design and manufacturing of diaphragm pumps and piston pumps for evacuating and pumping gases and vapours, we - hyco Vakuumtechnik GmbH - offer a wide range products for a great variety of markets throughout the world.

Our product portfolio encompasses diaphragm pumps and piston pumps with linear or piston drive, measuring gas pumps, laboratory pumps and individual special pumps designed to customer specifications. In total, our pump portfolio comprises over 40 product lines with sub-series and models for every application.

In our main plant to the south of Munich, we have the best possible spatial conditions to design, develop and manufacture our pumps to match customer specifications. The development and manufacturing is carried out here with our own employees - Made in Germany. In doing so, the highest levels of quality, innovation and compliance with ecological criteria are our guiding principles.

hyco® product lines effortlessly achieve the technical and commercial requirements for vacuum generation. As an innovative and well-established company with many years of experience, our close proximity to our customers and our continuously growing know-how, allow us to quickly fulfil our customers' wishes. In doing so, the use of the latest technologies and well-thought-out workflows along with optimised and efficient working processes guarantee a continuously high level of quality for our products.

hyco Vakuumtechnik is your Premium Partner for pump technology - since 1968!

Primary goals

For almost 50 years, hyco Vakuumtechnik has maintained a consistent focus on solution-oriented requirements in the OEM sector for transporting gaseous media whilst complying with the highest quality demands.

This enables special customer wishes or special and custom versions to be manufactured alongside mature serial products in small production runs and in the highest quality.

Intensive and customer-oriented consulting are a top priority for us in order to achieve this objective.

The markedly better-than-average service life of our products in combination with their economic efficiency at an attractive product price, remains a long-term guarantee within a reliable process control system.

Attaining this high quality whilst simultaneously observing the environmental principles are central factors in the hyco company philosophy.

Quality and environment

The objective of our quality policy is to be able to offer products that represent the highest quality standards and that comply with the legal requirements.

Attaining and increasing the quality whilst simultaneously observing the environmental principles are central factors in the hyco company philosophy. For this reason, processes are optimised in order to be able to make economical use of valuable resources such as energy and water.

Countless water jet pumps have been replaced with hyco® diaphragm pumps in the last 50 years, resulting in tons of contaminated waste water being avoided.

We offer a healthy working environment for our employees near the edge of the forest and near to the Fünf-Seen-Land lake region to the south of Munich.

ISO 9001 Certification

Competence and quality down to the smallest details!

hyco Vakuumtechnik is certified per ISO 9001 and undergoes an annual audit process. That is our minimum standard whilst striving to target and obtain the highest standard of customer satisfaction through continuous improvements, further developments and error prevention.

Attaining this high quality whilst simultaneously observing the environmental principles are central factors in the hyco company philosophy.

General information to diaphragm and piston pumps

Customer Pumps

Since the founding of hyco Vakuumtechnik almost a half century ago, we have specialised in the design and manufacturing of pumps to meet customer wishes. Through our expert knowledge and many years of experience we can offer you the best possible solution and excellent support for your requirements with hyco® equipment designed exclusively for you.

Customer pumps for application solutions

hyco Vakuumtechnik is a specialist and expert in the modification of series pumps for customer-specific solutions. Experience and knowledge accumulated over the years are resolutely applied to find the best possible solution for the customer.

hyco® diaphragm pumps and piston pumps can be used for all applications where an oil-free, pure and clean transportation, circulation, evacuation and sealing of both neutral and aggressive gases and vapours is required.

We would be delighted to advise you with regard to your particular requirements and conditions.

hyco® pumps for testing

hyco® diaphragm pumps and piston pumps are used in a great variety of industries for the most varied of applications.

In order to support you in the selection of pumps for your particular requirements, we offer sample pumps for standard models. Sample pumps can be requested for all hyco® standard models.

Checking, maintenance and repair

Our hyco® pumps are designed for use in process technology and for a long service life thanks to their construction and design. If you should nonetheless wish to send your pump in for checking and repair, please use the decontamination form.

Within the scope of a maintenance agreement, all worn parts will be replaced and the pump will then undergo a functional check.

If you require a service kit - this includes diaphragms, valves and O-rings for the complete servicing of a pump.

If you require additional services, please just ask.

Environmentally friendly vacuum technology

Since the founding of hyco Vakuumtechnik 50 years ago, our philosophy has been characterised by environmental protection and environmentally-friendly vacuum technology.

We produced oil-free diaphragm und piston pumps right from the very start. We have been committed to oil-free vacuums and green technology and as the years have passed this has become ever more important in the context of climate protection.

Oil-free hyco® diaphragm pumps have replaced the classical water jet pumps in the most varied of applications and industries. Through our continuous work we have contributed to saving operational resources such oil and water and improving the CO2 balance for long-term climate protection.

In order to show our environmental awareness, our diaphragm and piston pumps are furnished with the new hyco® GREENtec label.

hyco® GREENtec stands for environmentally friendly, oil-free and water-free vacuum technology with long operational service life and long maintenance intervals.

hyco® GREENtec - 100% environmentally friendly vacuum technology since 1968!

Pump selection table

Overview diaphragm pumps and piston pumps			
pumping speed [l/min]	final pressure abs. Vac	pressure [bar]	pump
3	120	8	PB-22
3,5	400	1	PB-32
3,5	120	4	PB-2
3,8	200	2,5	PB-1
4	128	6	PB-2
4	270	2	PB-19
4,3	27	6	PB-22
4,5	120	4	PB-22
5	320	4	PB-22
5,3	110	3	PB-1
5,8	80	6	PB-2
6	120	3	PB-1
6	170	2	PB-19
6,8	12	3	PB-4
6,5	120	4	PB-2
6,5	220	2,5	PB-1
6,5	220	2,5	PB-32
8	128	4	PB-2
8	27	4	PB-22
8,4	150	4	PB-3
8,4	150	4	PB-18
8,4	150	4	PB-31
8,5	45	3	PB-28
8,5	35	3	PB-42
8,5	32	4	PB-6
8,5	32	4	PB-21
8,5	32	4	PB-23
8,5	140	5	PB-22
8,5	190	3	PB-1
8,5	190	3	PB-32
9	318	4	PB-22
11	3	2	PB-5
11	80	4	PB-2
11,2	104	3	PB-1
11,2	104	3	PB-32
11,5	12	3	PB-4
12,3	100	3	PB-4
13	12	2	PB-5
14,5	45	8	PB-38
15,2	120	3	PB-3
15,5	155	5	PB-35
16	20	2	PB-28
17	120	4	PB-21
17	120	4	PB-29
17	120	4	PB-30
17	120	4	PB-6
17	120	4	PB-23
17	150	3	PB-42
17,2	35	8	PB-38
18	130	4	PB-22
18,5	140	6	PB-35
21,5	12	3	PB-6
21,5	12	3	PB-21
21,5	15	2	PB-42
21,5	25	2	PB-28
21,5	35	6	PB-39
22,5	11	2	PB-23
23	120	8	PB-35
23	130	6	PB-36
23,5	20	6	PB-38
23,5	3	2	PB-5
23,5	95	3	PB-3
23,5	95	3	PB-18
23,5	95	3	PB-31
24,5	1	1	PB-40
25	95	2	PB-5
25,2	30	5	PB-39
25,5	20	1	PB-28
25,5	125	2	PB-3
26	85	3	PB-4

26	12	2		PB-5	
26,2	16	5		PB-38	
26,5	120	6		PB-36	
27	105	8		PB-35	
29	160	5		PB-38	
33	7	1		PB-42	
33	8	2		PB-6	
33	8	2		PB-21	
33	10	1		PB-23	
33	15	1		PB-28	
33	85	2		PB-3	
33	85	2		PB-18	
33	85	2		PB-29	
33	85	2		PB-30	
33	85	2		PB-31	
33,8	20	3		PB-39	
34	150	6		PB-38	
35	100	6		PB-36	
37	7	2		PB-40	
37	7	3		PB-7	
37	7	3		PB-20	
37	15	2		PB-39	
37	95	2		PB-5	
38,5	90	6		PB-36	
39,5	150	6		PB-39	
41	100	2		PB-23	
41,5	2	1		PB-40	
42	85	3		PB-6	
42	85	2		PB-42	
42	90	3		PB-6	
42	90	3		PB-21	
42	85	3		PB-29	
42	85	3		PB-30	
44	11	1		PB-40	
45,5	125	8		PB-38	
47	15	2		PB-41	
47	15	3		PB-7	
47	15	3		PB-20	
47,5	125	6		PB-39	
50	100	8		PB-38	
55	1	1		PB-41	
55	1	2		PB-7	
55	1	2		PB-20	
63,5	100	1		PB-39	
65	75	2		PB-6	
65	75	2		PB-21	
65	80	1		PB-42	
65	85	1		PB-23	
69,5	7	1		PB-41	
69,5	7	2		PB-7	
69,5	7	2		PB-20	
72	85	1		PB-39	
77,5	2	3		PB-9	
79	100	1		PB-40	
80	80	2		PB-41	
80	80	3		PB-7	
80	80	3		PB-20	
97	12	3		PB-9	
112	80	1		PB-41	
112	80	2		PB-7	
112	80	2		PB-20	
114	3	2		PB-9	
138	9	2		PB-9	
155	2	2		PB-8	
155	90	3		PB-9	
175	9	2		PB-8	
220	75	2		PB-9	
315	2	2		PB-10	
360	75	2		PB-8	
405	18	2		PB-10	
620	75	2		PB-10	

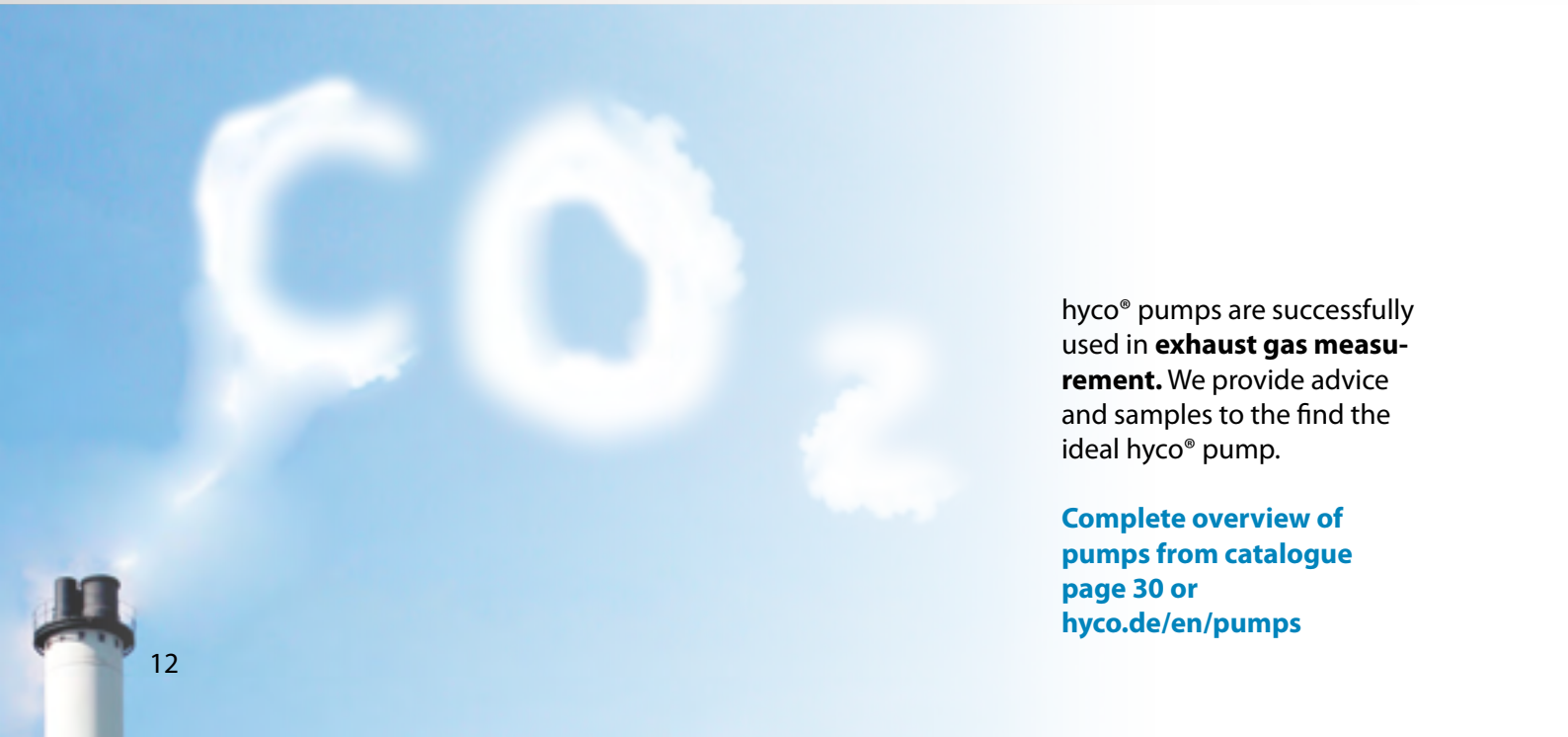
Our pumps are employed in many processing facilities, including a great variety of **filling systems**.

hyco® diaphragm pumps and piston pumps can be used for all applications where an oil-free, pure and clean transportation, circulation, evacuation and sealing of both neutral and aggressive gases and vapours is required.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Botting plant

Flue gas measuring



hyco® pumps are successfully used in **exhaust gas measurement.** We provide advice and samples to the find the ideal hyco® pump.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® pumps can likewise be found in respiratory equipment. Special product lines are ideally suited for use in **respiratory devices**.

We would be delighted to advise you with regard to your particular requirements and conditions.

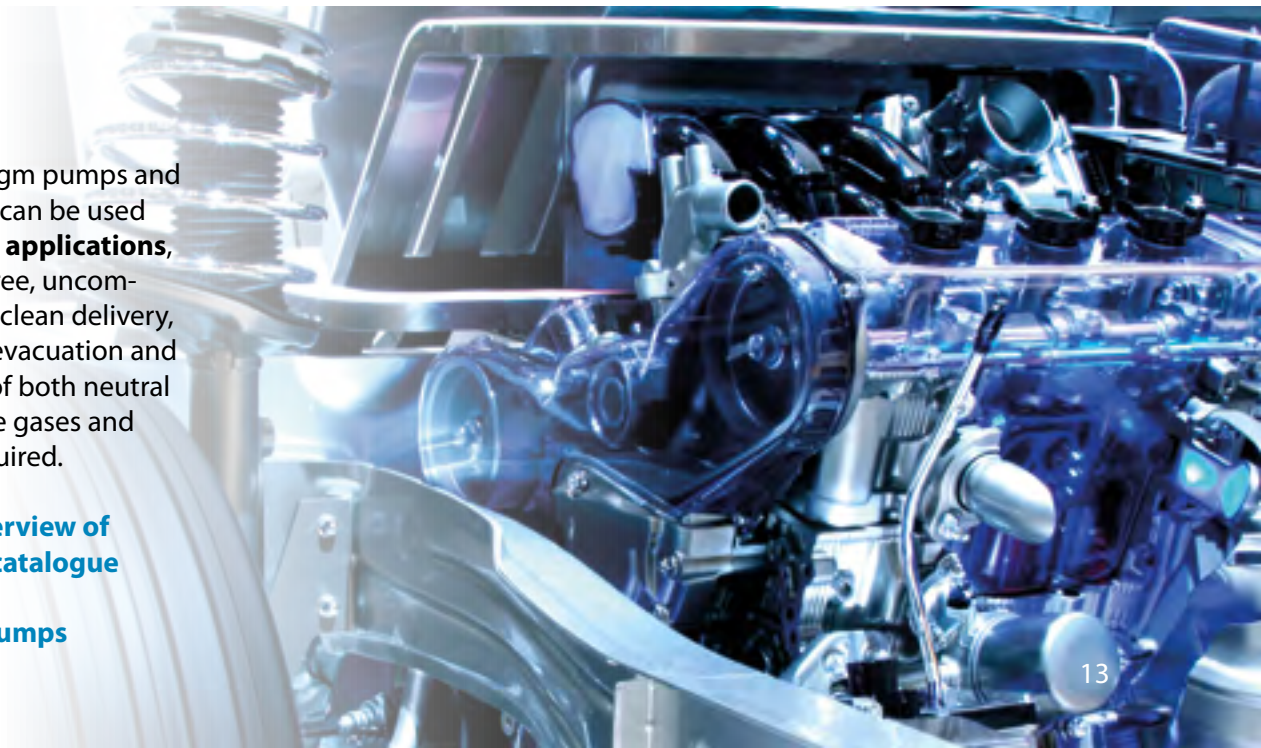
Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Breathing

Fuel cell

hyco® diaphragm pumps and piston pumps can be used for all **fuel cell applications**, where an oil-free, uncompromised and clean delivery, recirculation, evacuation and compression of both neutral and aggressive gases and vapours is required.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps



hyco® pumps have been used in a great variety of applications in the **chemical industry** for years.

hyco® diaphragm pumps and piston pumps can be used for all applications where an oil-free, pure and clean transportation, circulation, evacuation and sealing of both neutral and aggressive gases and vapours is required.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Chemical industry
Chemically resistant pumps

We produce our diaphragm pumps and piston pumps in **chemical-resistant versions**. hyco® pumps are used across a broad spectrum of sectors and applications.

Our product advisors will answer questions about your particular requirements and the corresponding hyco® pumps.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® pumps are used in a great variety of applications in **dental equipment**.

We would recommend the **PB-4 and PB-23 product lines** in particular for optimum results. The pumps can be found in the catalogue on pages 54 and 62.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Dental technology

Distillation

hyco® pumps are used in a great variety of applications in the **distillation sector**.

We would be delighted to advise you with regard to your particular application.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® pumps have been tremendously effective in the area of **leak-testing** as hyco® diaphragm pumps and piston pumps can be used for all applications where an oil-free, uncompromised and clean delivery, recirculation, evacuation and compression of both neutral and aggressive gases and vapours is required.

Our product advisors will be happy to provide you with more information, or take a look at:

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Leakage tests

Degassing

We produce our diaphragm pumps and piston pumps for **de-gassing applications**. hyco® pumps are used across a broad spectrum of sectors and applications.

Ask our team of advisors directly about your special requirements or take a look at:

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® pumps are likewise in regular use in many **filtration processes**.

Test with the help of a sample pump. Our product advisors will find the right model for you.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Filtration

Research & development

hyco® pumps can be found in numerous **research & development departments**.

Our product advisors will provide you with information relevant to your particular application and the corresponding hyco® solution.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® pumps are used in **electrophoresis and gel drying**.

Our product management will advise you on the use of hyco® pumps for your application and will provide suggestions for appropriate pumps or provide you with a sample pump for testing.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Electrophoresis

Freeze drying

We likewise produce our diaphragm pumps and piston pumps for **freeze-drying applications**. Our product advisors will be happy to provide you with an overview of suitable pumps, or take a look at:

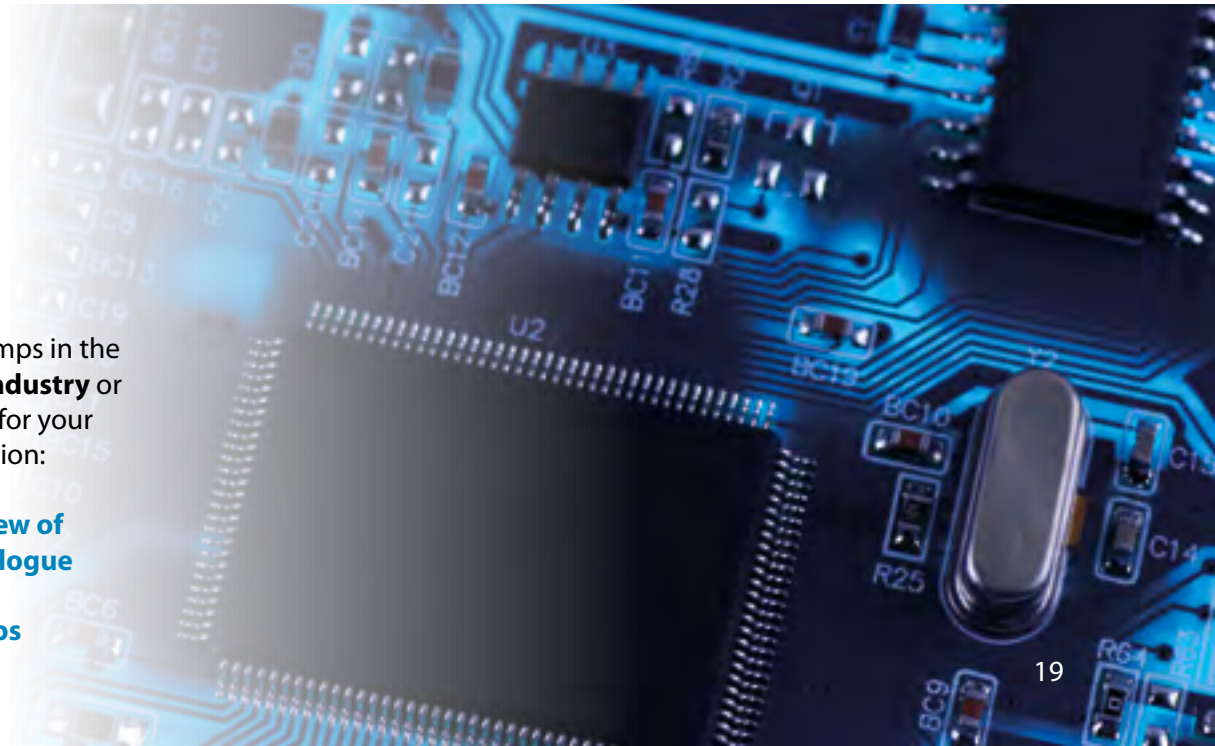
Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® diaphragm pumps and piston pumps can be used for all **gas analyses**, where an oil-free, uncompromised and clean delivery, evacuation and compression of both neutral and aggressive gases and vapours is required.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

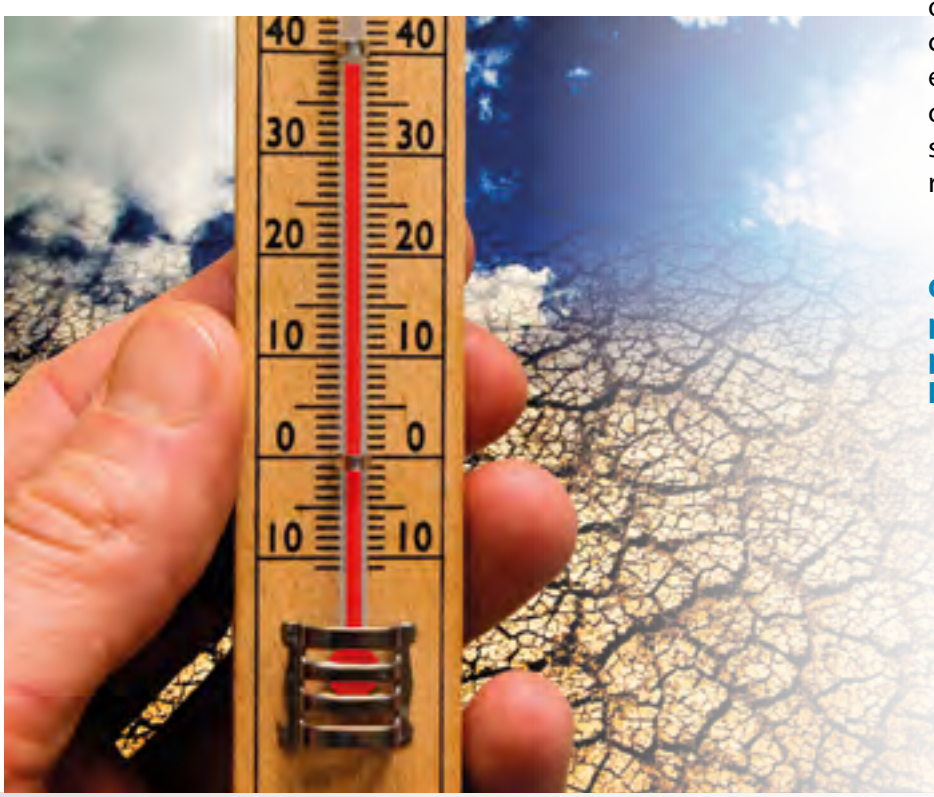
Gas analysis

Semiconductor industry



Test our hyco® pumps in the **semiconductor industry** or select your pump for your particular application:

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps



hyco® pumps can be used for all **air-conditioning technology applications**, where an oil-free, uncompromised and clean delivery, recirculation, evacuation and compression of both neutral and aggressive gases and vapours is required.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Air-conditioning technology
Food preservation

Ask our product advisors directly about your special pump for use in **preservation** or carry out tests yourself with a sample pum.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® diaphragm pumps and piston pumps can be used for all applications, where an **oil-free, uncompromised and clean delivery, recirculation, evacuation and compression of both neutral and aggressive gases and vapours** is required.

There is a huge variety of models available to you for sampling.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Evacuation & compression
Laser technology

hyco® pumps have been superbly positioned and successfully used in laser technology for years.

We would recommend the **PB-7 product line** in particular for optimum results. The pumps can be found in the catalogue on page 74.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Used in a multitude of **applications in the foodstuffs industry**, hyco® pumps have provided excellent service here and have been in operation with users for years. Our test pumps help with the selection of the right pump.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Food industry

Machine building industry

Our pumps are used in a great variety of applications in **machinery construction** and are designed precisely for the requirements of our customers.

They are suitable for all applications, where an oil-free, uncompromised and clean delivery, evacuation and compression of both neutral and aggressive gases and vapours is required.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® pumps have been in continuous use in the field of **medical technology** for many years.

Our express recommendation for pumps here would be the **PB-8 and PB-10 product lines**. The models can be found in the catalogue on pages 76 and 86.

There is a huge variety of models available to you for sampling.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Medical technology

Sterilisation **medical techn.**

hyco® pumps have been used in devices for the **sterilisation of medical equipment** for many years.

We would particularly recommend the **PB-23 product line**. The pumps can be found in the catalogue on page 62.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

The **measurement of combustion gases** remains a current topic.

hyco® pumps support the measurement process and deliver reliable data to the equipment.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Measurement of flue gas Customer solution pumps

hyco is a specialist and expert in the **modification of serial pumps for customer-specific solutions**. Many years of experience and matured ‚know-how' allow us to implement the best possible customer solutions.

Ask our product advisors about your requirements and carry out tests yourself with a sample pump

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® diaphragm pumps and piston pumps can be used for all **metal cleaning systems**, where an oil-free, uncompromised and clean delivery, recirculation, evacuation and compression of both neutral and aggressive gases and vapours is required for optimum results.

We would recommend the **PB-7 product line** in particular for optimum results. The pumps can be found in the catalogue on page 74..

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

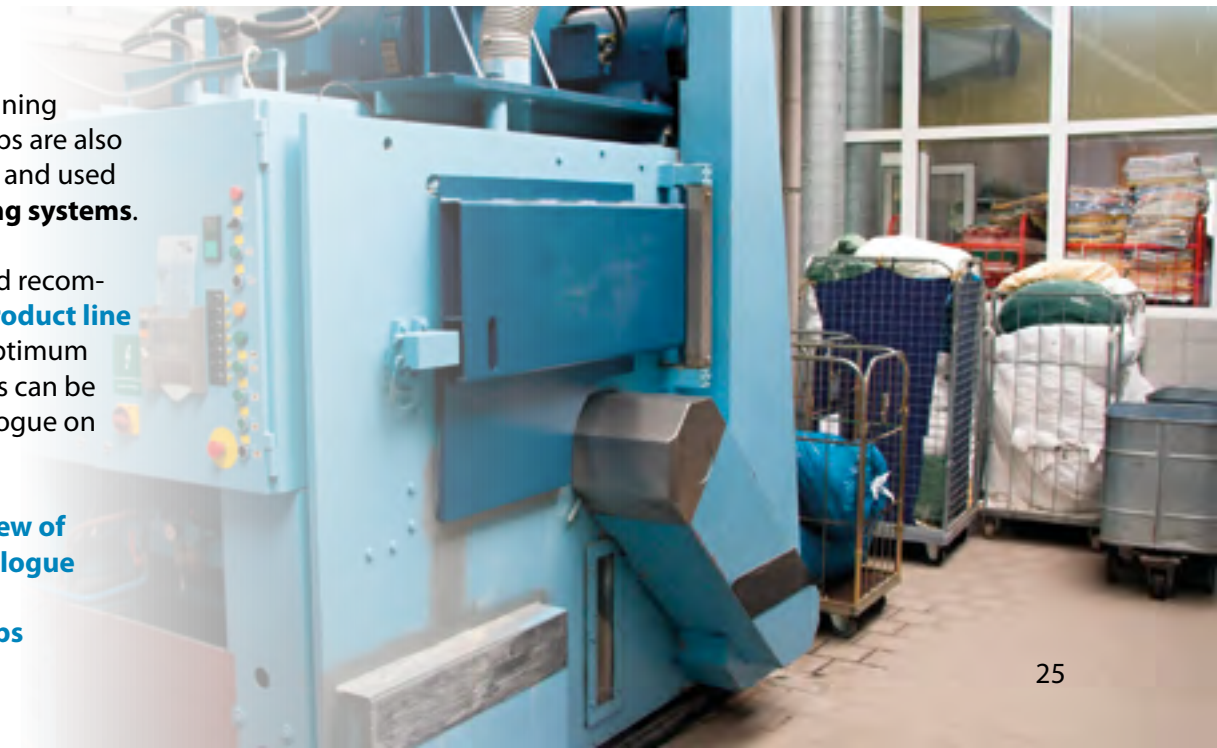
Cleaning of metal constructions

Textile cleaning machines

As with metal cleaning systems, our pumps are also ideally positioned and used for **textile cleaning systems**.

Here too we would recommend the **PB-7 product line** in particular for optimum results. The pumps can be found in the catalogue on page 74.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps



hyco® diaphragm pumps and piston pumps can be used for all applications where an oil-free, pure and clean transportation, circulation, evacuation and sealing of both neutral and aggressive gases and vapours is required. This is also the case for the **reproduction and inkjet technologies** sector.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Reprographic technique

Service hydraulic systems

We likewise produce our diaphragm pumps and piston pumps **for service applications in hydraulic systems**.

We would particularly recommend the **PB-17 product line** in the catalogue on page 36.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

hyco® diaphragm pumps and piston pumps can be used for all tasks in the **field of safety technology**, where an oil-free, uncompromised and clean delivery, evacuation and compression of gases and vapours is required.

We recommend using a sample pump for testing with your application prior to your purchase decision.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Safety engineering

Environmental analysis

hyco® pumps can be used for all work in **environmental analysis equipment**, where gases and vapours must be delivered or evacuated.

Test our hyco® pumps or select your pump for your particular application:

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

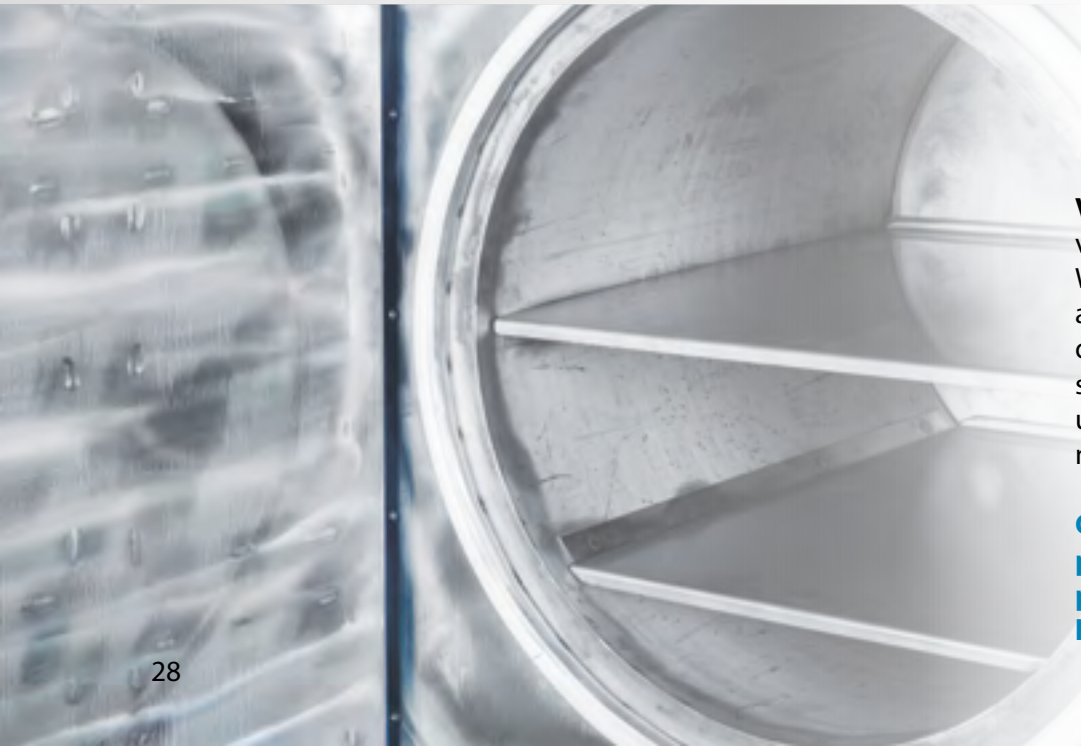
Our pumps are an ideal choice for all applications in **vacuum coating**.

Our product advisors would be happy to advise you in accordance with your requirements. Test pumps help with the purchase decision.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Vacuum coating

Vacuum furnace



Vacuum ovens are used in a variety of industry branches. We produce our diaphragm and piston pumps with different performance ratings so that hyco can offer vacuum technology solutions for many application areas.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Vacuum packaging is indispensable in our day-to-day lives. hyco offers numerous pumps for this type of production. Our product advisors will find the appropriate solution for your requirements.

We would recommend the **PB-9 product line** in particular for optimum results. The pumps can be found in the catalogue on page 84.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

Vacuum package

Booster pumps Turbomolecular

We offer a variety of pump solutions as booster pumps for turbomolecular pumps.

Pumps from the **PB-6, PB-7 and PB-40 product lines** are particularly suitable. You can find the pumps on catalogue pages 56, 74 and 80.

Complete overview of pumps from catalogue page 30 or hyco.de/en/pumps

diaphragm

1-cylinder

The oil-free and dry compressing small diaphram pumps from the PB-1 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **104 mbar.**

Six different ranges with further unique models are available within the product line.

The PB-1 product line is equipped with a single-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

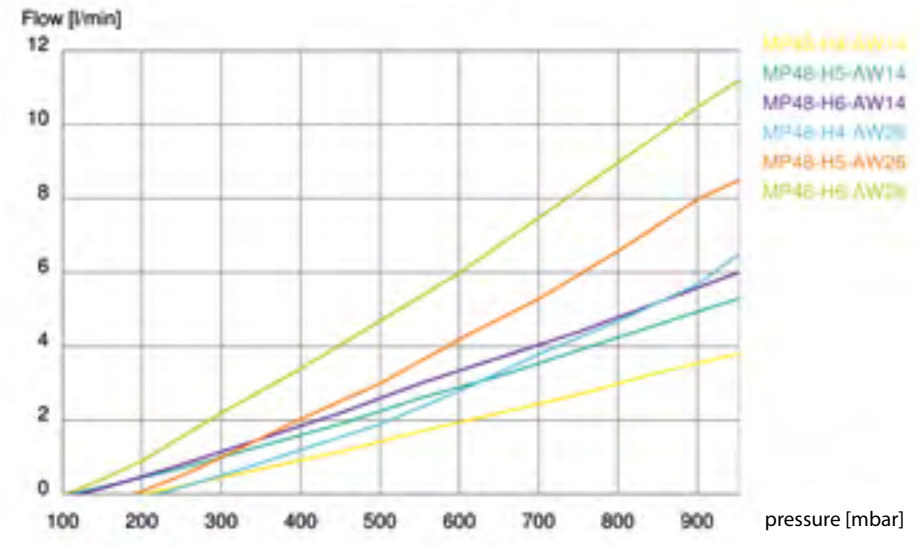
The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

contact | info@hyco.de | T +49 (0)89 / 85 66 19 00

Technical data - PB 1

Series	MP48-H4-AW14	MP48-H5-AW14	MP48-H6-AW14	MP48-H4-AW26	MP48-H5-AW26	MP48-H6-AW26
Free flow	3,8 l/min	5,3 l/min	6 l/min	6,5 l/min	8,5 l/min	11,2 l/min
Final vacuum	200 mbar	110 mbar	120 mbar	220 mbar	190 mbar	104 mbar
Final pressure (abs.)	2,5 bar	3 bar		2,5 bar	3 bar	
Pump heads	1					
Hose coupling, suction / pressure	G 1/8"					
Motor power / r.p.m.	0,07 kW / 1400 min^{-1}			0,09 kW / 2600 min^{-1}		
Mains requirement / Frequencies	230 V - 50 Hz					
EX motor	not possible					
DC motor	on request					
Noise level	49 dBA to 57 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temperature	+ 5 C° to + 45 C°					
Permissible ambient temperature motor	+ 5 C° to + 45 C°					
Permissible ambient temperature pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	137 mm x 80 mm x 140 mm					
Weight	1,8 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum



piston

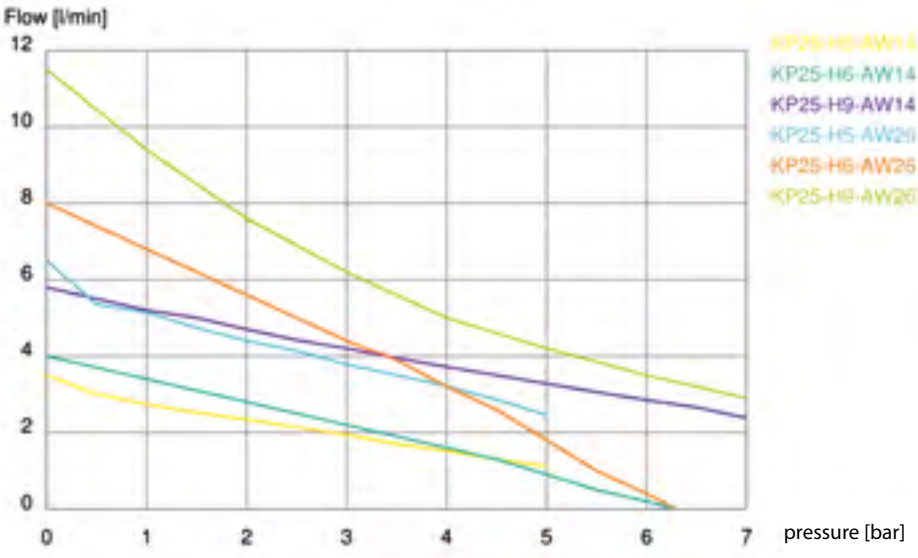
1-cylinder

The oil-free and dry compressing small piston pumps from the PB-2 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **80 mbar**. Six different ranges with further unique models are available within the product line.

The piston, rigidly fixed to the con-rod, carries out a tilting motion in the cylinder when moving up and down. The piston rings are therefore more heavily stressed than with a linear drive. For this reason, with hyco® pumps the length of the con-rod from the eccentric shaft to the piston is designed to impart as small a tilting motion as possible to the piston. The eccentric shaft with con-rod is additionally ball-bearing mounted in the carrier plate and does not sit on the motor shaft. This ensures that the motor shaft and the A-side motor bearings are not loaded. This well-thought-out design also ensures a long service life for the mechanical components.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and PTFE for the pressure sleeves, open up a wide field of applications for non-aggressive gases.

pressure



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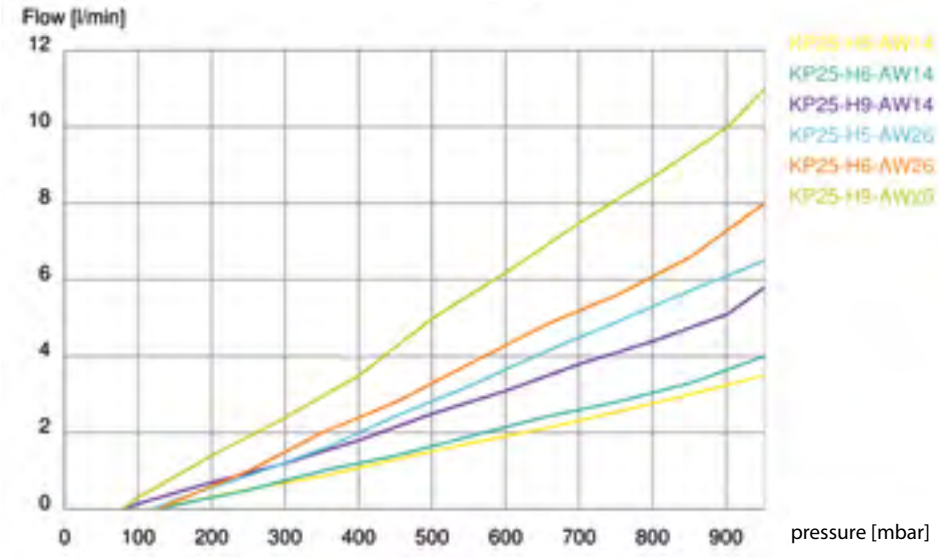
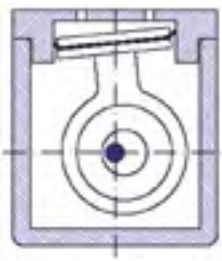
Technical data - PB 2

Series	KP25-H5-AW14	KP25-H6-AW14	KP25-H9-AW14	KP25-H5-AW26	KP25-H6-AW26	KP25-H9-AW26
Free flow	3,5 l/min	4 l/min	5,8 l/min	6,5 l/min	8 l/min	11 l/min
Final vacuum	120 mbar	128 mbar	80 mbar	120 mbar	128 mbar	80 mbar
Final pressure (abs.)	4 bar	6 bar		4 bar		
Pump heads	1					
Hose coupling, suction/pressure	G 1/8“					
Motor power / r.p.m.	0,07 kW / 1400 min^{-1}			0,09 kW / 2600 min^{-1}		
Mains requirement / Frequencies	230 V - 50 Hz					
EX motor	not possible					
DC motor	on request					
Noise level	49 dBA to 57 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	137 mm x 80 mm x 140 mm					
Weight	1,8 kg					
Impermeable to gas	not possible					

vacuum





diaphragm

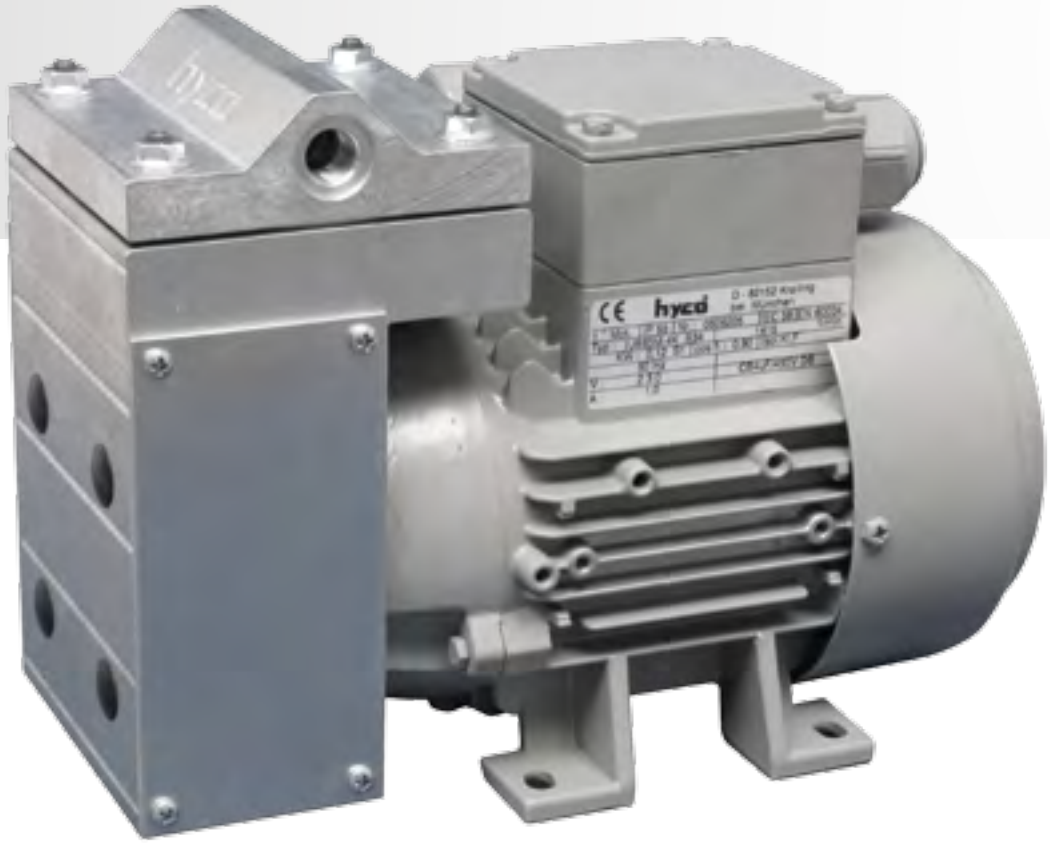
1-cylinder

The oil-free and dry compressing single-cylinder diaphragm pump from the PB-3 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **85 mbar.** Five different ranges with further unique models are available within the product line.

The PB-3 product line is equipped with a single-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.



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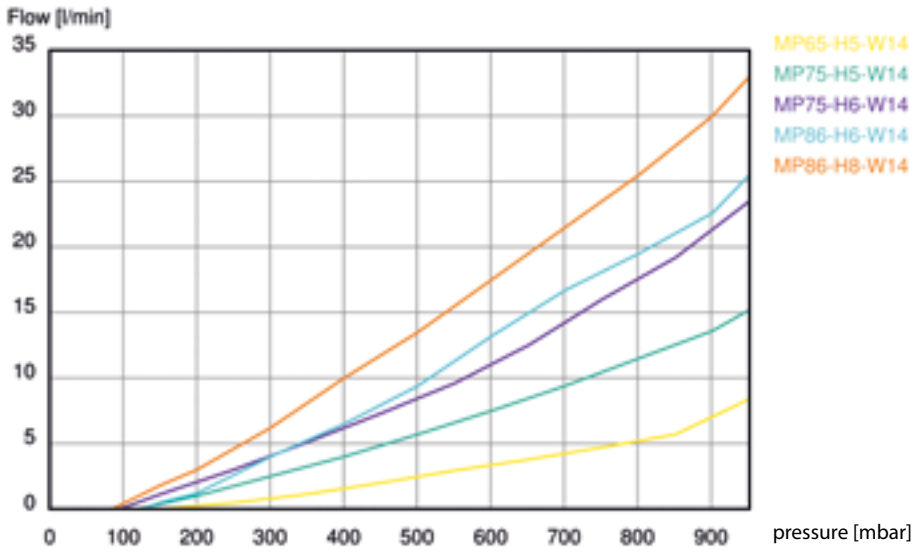
Technical data - PB 3

Series	MP65-H5-W14	MP75-H5-W14	MP75-H6-W14	MP86-H6-W14	MP86-H8-W14
Free flow	8,4 l/min	15,2 l/min	23,5 l/min	25,5 l/min	33 l/min
Final vacuum	150 mbar	120 mbar	95 mbar	125 mbar	85 mbar
Final pressure (abs.)	4 bar	3 bar		2 bar	
Pump heads	1				
Hose coupling, suction/pressure	G 1/4“				
Motor power / r.p.m.	0,12 kW / 1400 min^{-1}				
Mains requirement / Frequencies	230 V - 50 Hz				
EX motor	not possible				
DC motor	on request				
Noise level	57 dBA to 59 dBA				
Permissible gas admission temp.	+ 5 C° to + 45 C°				
Permissible ambient temp.	+ 5 C° to + 45 C°				
Permissible ambient temp. motor	+ 5 C° to + 45 C°				
Permissible ambient temp. pump head	+ 5 C° to + 45 C°				
Dimensions L x W x H	239,5 mm x 120 mm x 179,5 mm				
Weight	4,5 kg				
Impermeable to gas	1 x 10^{-3}				

vacuum



1-Cylinder Diaphragm Pump for hydraulic systems PB 17

diaphragm

1-cylinder

With the service diaphragm pump from the PB-17 hyco product range, maintenance and repair tasks for hydraulic systems can be carried out quickly and cleanly.

The PB-17 hyco vacuum pumps are connected to the filling ports of the hydraulic tank thus creating a vacuum in the air space inside the tank.

The vacuum is adjusted with the regulating valve attached to the pump such that a state of equilibrium is reached with the pressure of the oil column at the repair location. The system can be repaired or serviced without having to empty the hydraulic oil tank beforehand, without any loss of hydraulic oil and without environmental pollution.

The oil-free and dry compressing diaphragm pump for hydraulic systems from the PB-17 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **100 mbar.**

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Technical data - PB 17

Series	**P-184**
Free flow	50 l/min
Final vacuum	100 mbar
Final pressure (abs.)	2 bar
Pump heads	1
Hose coupling, suction/pressure	G 1/4“
Motor power / r.p.m.	0,13 kW / 1400 min^{-1}
Mains requirement / Frequencies	12VDC o. 24VDC
EX motor	on request
Noise level	57 dBA to 59 dBA
Permissible gas admission temp.	+ 5 C° to + 45 C°
Permissible ambient temp.	+ 5 C° to + 45 C°
Permissible ambient temp. motor	+ 5 C° to + 45 C°
Permissible ambient temp. pump head	+ 5 C° to + 45 C°
Dimensions L x W x H	180 mm x 106 mm x 75 mm
Weight	4 kg
Impermeable to gas	1 x 10^{-3}

diaphragm

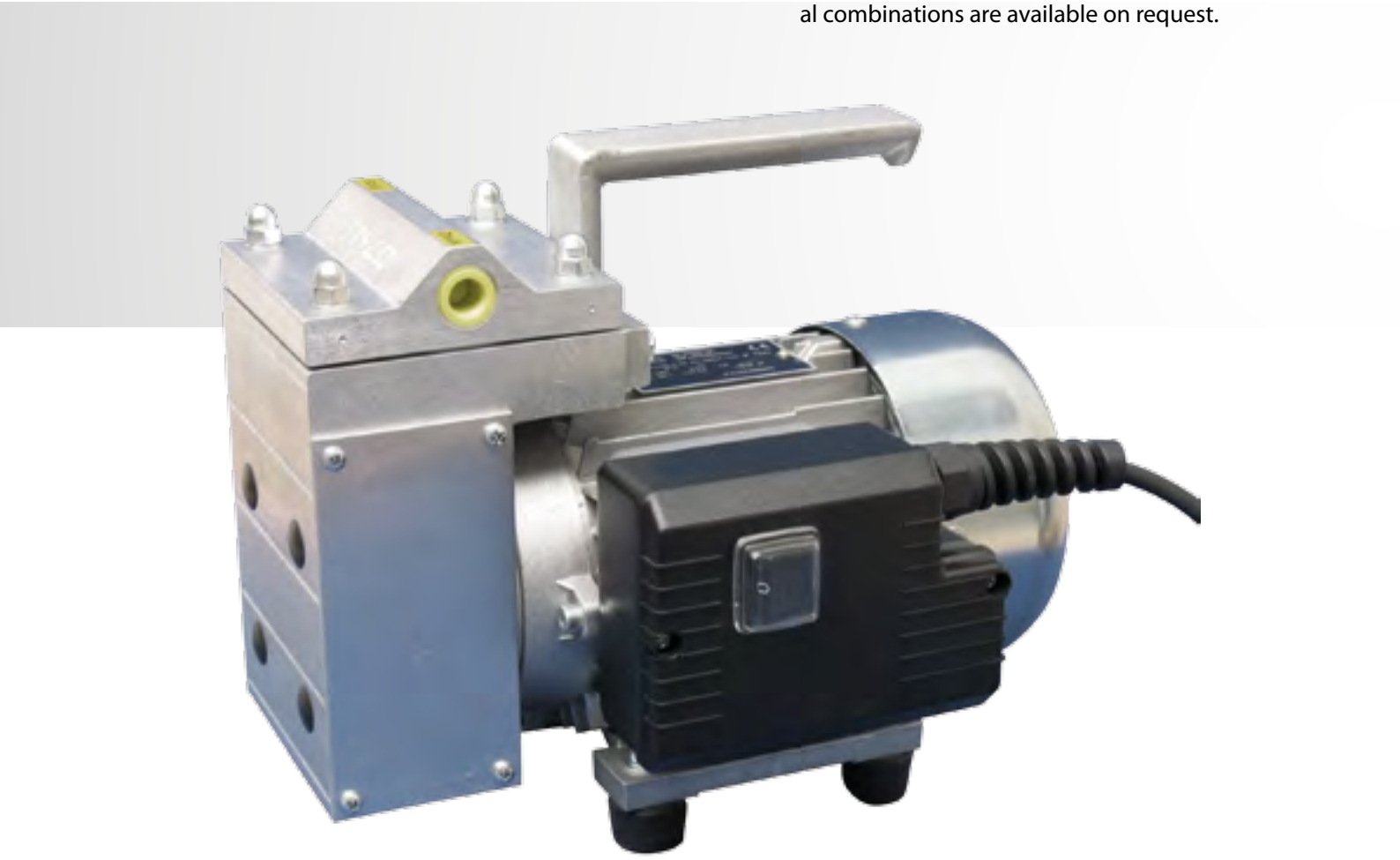
1-cylinder

The oil-free and dry compressing laboratory diaphragm pumps from the PB-18 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **85 mbar**. Three different ranges with further unique models are available within the product line.

The PB-18 product line is equipped with a single-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.



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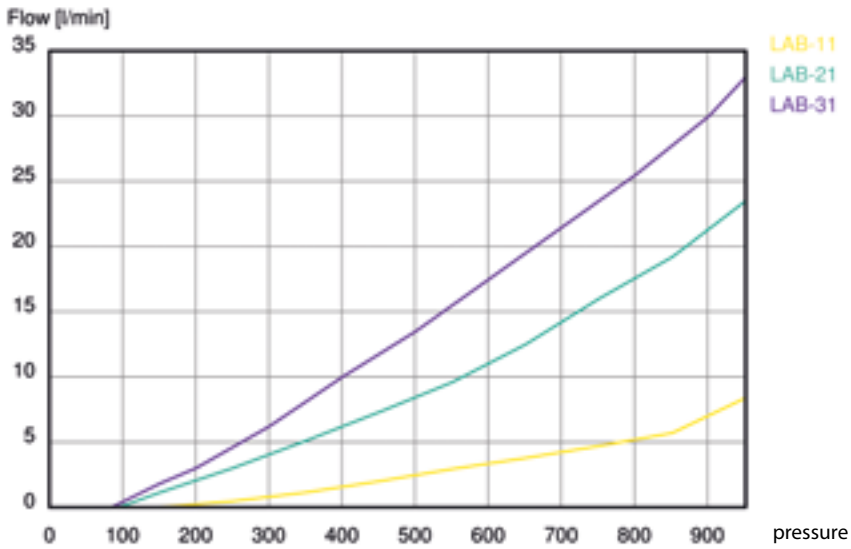
Technical data - PB 18

Series	LAB-11	LAB-21	LAB-31
Free flow	8,4 l/min	23,5 l/min	33 l/min
Final vacuum	150 mbar	95 mbar	85 mbar
Final pressure (abs.)	4 bar	3 bar	2 bar
Pump heads	1		
Hose coupling, suction/pressure	G 1/4“		
Motor power / r.p.m.	0,18 kW / 1400 min^{-1}		
Mains requirement / Frequencies	230 V - 50 Hz		
EX motor	on request		
DC motor	on request		
Noise level	57 dBA to 59 dBA		
Permissible gas admission temp.	+ 5 C° to + 45 C°		
Permissible ambient temp.	+ 5 C° to + 45 C°		
Permissible ambient temp. motor	+ 5 C° to + 45 C°		
Permissible ambient temp. pump head	+ 5 C° to + 45 C°		
Dimensions L x W x H	251 mm x 178 mm x 218 mm		
Weight	4 kg		
Impermeable to gas	1 x 10^{-3}		

vacuum



diaphragm

1-cylinder

The oil-free and dry compressing small diaphragm pumps from the PB-19 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **170 mbar**. Two different ranges are available within the product line.

The PB-19 product line is equipped with a single-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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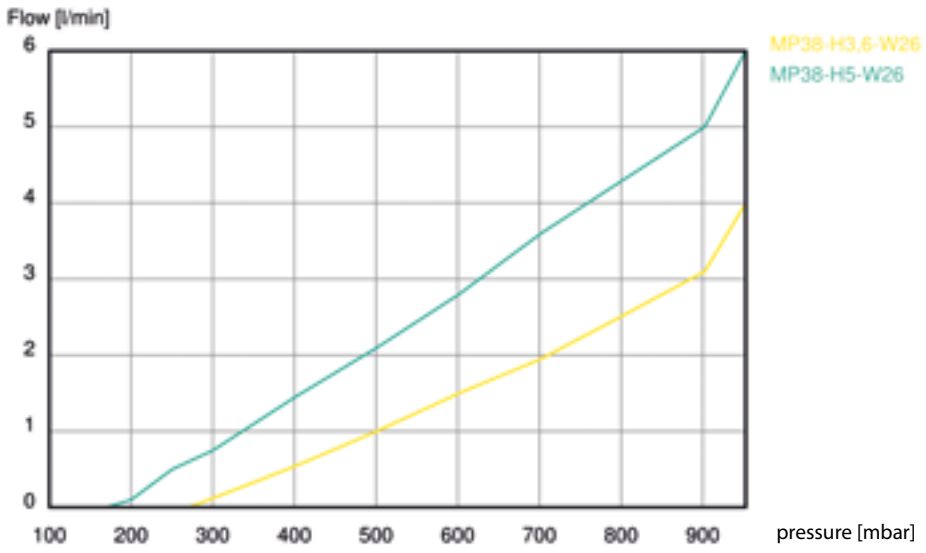
Technical data - PB 19

Series	MP38-H3,6-W26	MP38-H5-W26
Free flow	4 l/min	6 l/min
Final vacuum	270 mbar	170 mbar
Final pressure (abs.)	2 bar	
Pump heads	1	
Hose coupling, suction/pressure	G 1/8“	
Motor power / r.p.m.	0,09 kW / 2600 min^{-1}	
Mains requirement / Frequencies	230 V - 50-60 Hz o. 115 V - 50-60 Hz	
EX motor	not possible	
DC motor	on request	
Noise level	49 dBA to 57 dBA	
Permissible gas admission temp.	+ 5 C° to + 45 C°	
Permissible ambient temp.	+ 5 C° to + 45 C°	
Permissible ambient temp. motor	+ 5 C° to + 45 C°	
Permissible ambient temp. pump head	+ 5 C° to + 45 C°	
Dimensions L x W x H	105 mm x 61 mm x 83 mm	
Weight	1,2 kg	
Impermeable to gas	1 x 10^{-3}	

vacuum



1-Cylinder Heatable Diaphragm Pump for sample gas PB 29

diaphragm

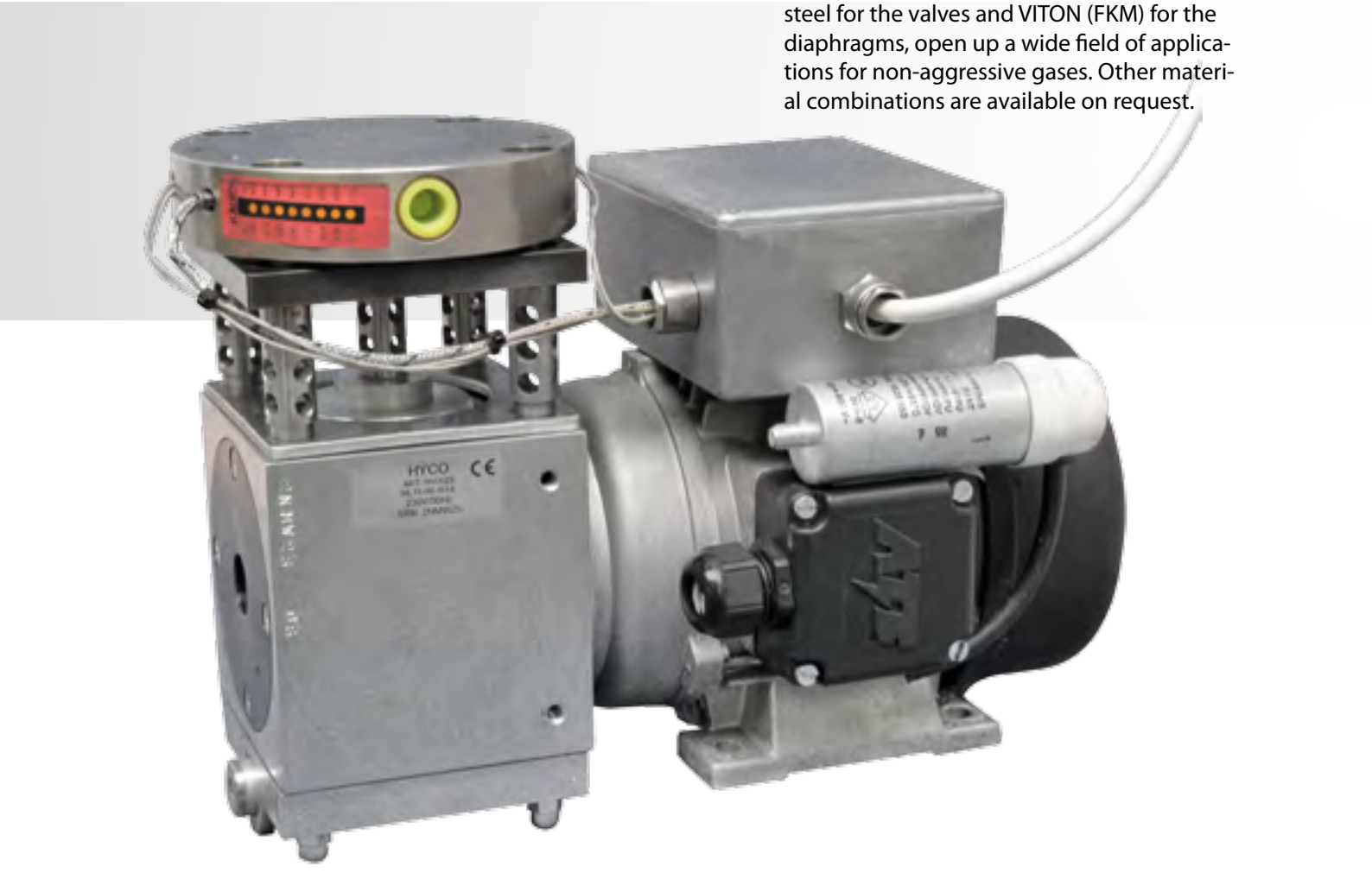
1-cylinder

The oil-free and dry compressing diaphragm pump for sample gas pumps from the PB-29 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **85 mbar**. Three different ranges are available within the product line.

The PB-29 product line is equipped with a single-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.



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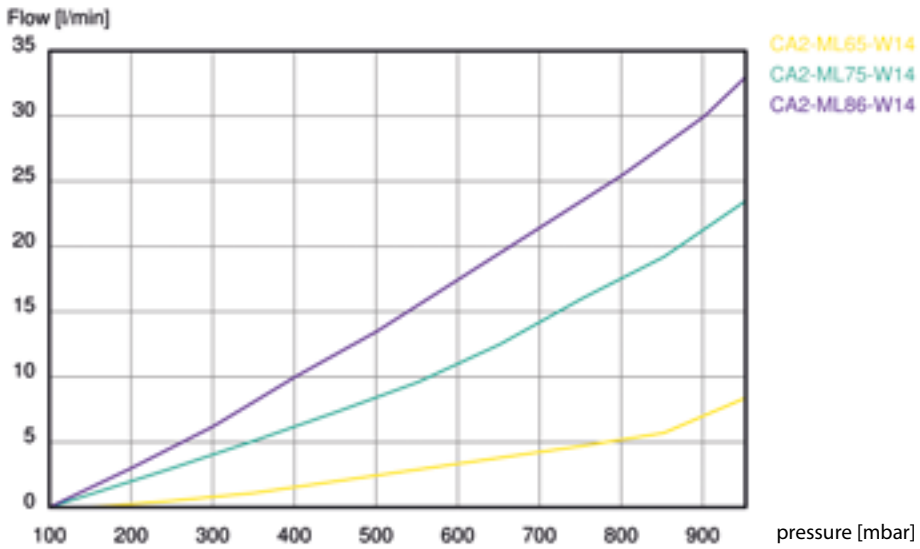
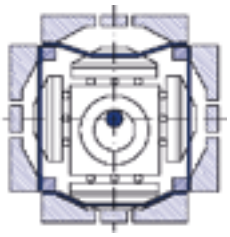
Technical data - PB 29

Series	CA2-ML65-W14	CA2-ML75-W14	CA2-ML86-W14
Free flow	17 l/min	42 l/min	33 l/min
Final vacuum	120 mbar	85 mbar	
Final pressure (abs.)	4 bar	3 bar	2 bar
Final pressure with KG-Gears	4 bar	3 bar	2 bar
Final pressure with PR-Gears	higher pressure on request		
Pump heads	1		
Hose coupling, suction/pressure	G 1/4“ / NPT1/4“		
Motor power / r.p.m.	0,15 – 0,18 kW / 1400 min^{-1}		
Mains requirement / Frequencies	230/400 V - 50 Hz o. 230 V - 50 Hz		
EX motor	on request		
DC motor	not possible		
Noise level	49 dBA to 53 dBA		
Permissible gas admission temp.	+ 5 C° bis + 200 C° (short times + 230 C°)		
Permissible ambient temp.	+ 5 C° to + 45 C°		
Permissible ambient temp. motor	+ 5 C° to + 45 C°		
Permissible ambient temp. pump head	+ 5 C° to + 200 C°		
Dimensions L x W x H	295,5 mm x 155,5 mm x 210 mm		
Weight	10 kg		
Impermeable to gas	1 x 10^{-3}		

vacuum





1-Zylinder Diaphragm Pump for housing mounting PB 30

diaphragm

1-cylinder

The oil-free and dry compressing diaphragm pump for housing mounting pumps from the PB-30 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **85 mbar.**

The PB-30 product line is equipped with a single-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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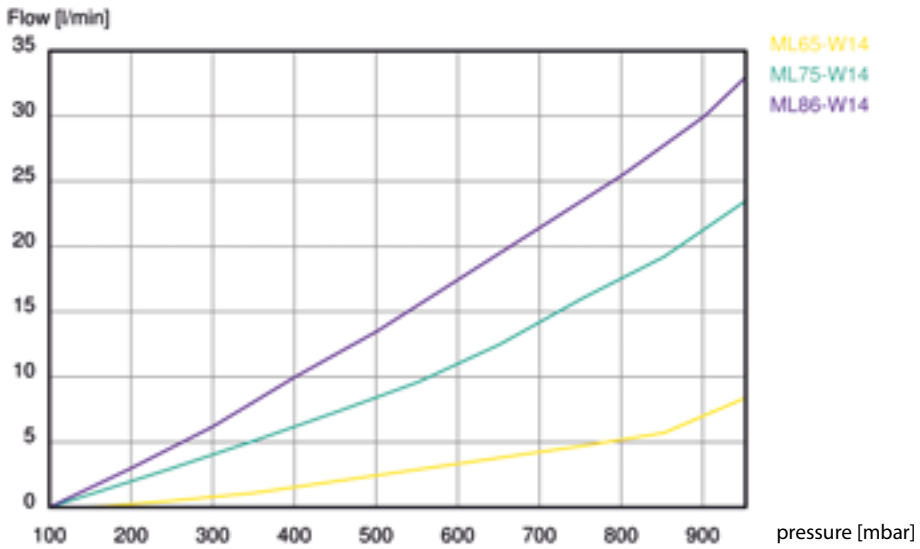
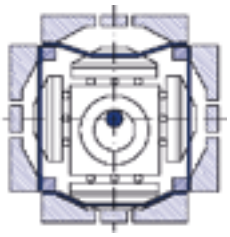
Technical data - PB 30

Series	ML65-W14	ML75-W14	ML86-W14
Free flow	17 l/min	42 l/min	33 l/min
Final vacuum	120 mbar	85 mbar	
Final pressure (abs.)	4 bar	3 bar	2 bar
Final pressure with KG-Gears	4 bar	3 bar	2 bar
Final pressure with PR-Gears	higher pressure on request		
Pump heads	1		
Hose coupling, suction/pressure	G 1/4“ / NPT1/4“		
Motor power / r.p.m.	0,15 – 0,18 kW / 1400 min^{-1}		
Mains requirement / Frequencies	230/400 V - 50 Hz o. 230 V - 50 Hz		
EX motor	on request		
DC motor	not possible		
Noise level	49 dBA to 53 dBA		
Permissible gas admission temp.	+ 5 C° to + 100 C°		
Permissible ambient temp.	+ 5 C° to + 45 C°		
Permissible ambient temp. motor	+ 5 C° to + 45 C°		
Permissible ambient temp. pump head	+ 5 C° to + 100 C°		
Dimensions L x W x H	386 mm x 120 mm x 182,5 mm		
Weight	10 kg		
Impermeable to gas	1 x 10^{-3}		

vacuum





diaphragm

1-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-31 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **85 mbar**. Three different ranges are available within the product line.

The PB-31 product line is equipped with a two-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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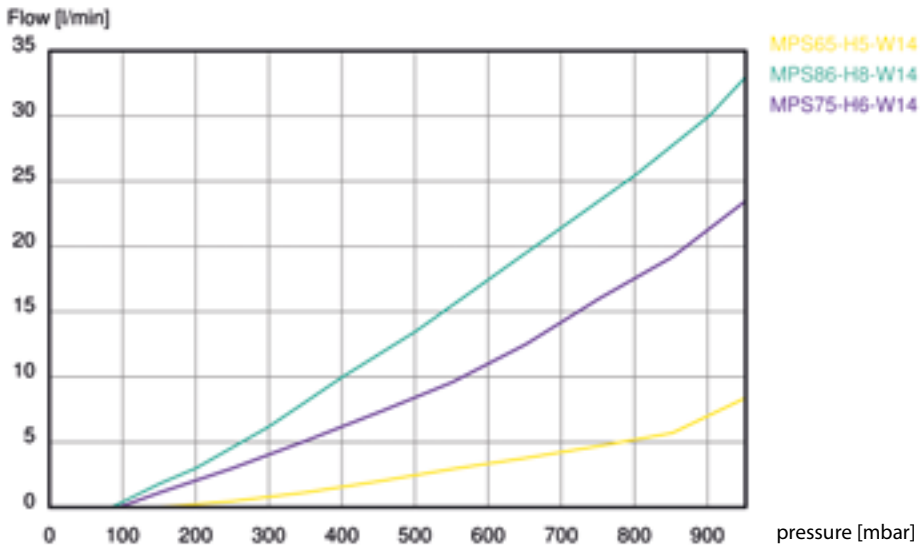
Technical data - PB 31

Series	MPS65-H5-W14	MPS86-H8-W14	MPS75-H6-W14
Free flow	8,4 l/min	33 l/min	23,5 l/min
Final vacuum	150 mbar	85 mbar	95 mbar
Final pressure (abs.)	4 bar	2 bar	3 bar
Pump heads	1		
Hose coupling, suction/pressure	G 1/4“		
Motor power / r.p.m.	0,04 kW / 1400 min^{-1}		
Mains requirement / Frequencies	230 V - 50 Hz		
EX motor	not possible		
DC motor	not possible		
Noise level	57 dBA to 59 dBA		
Permissible gas admission temp.	+ 5 C° to + 45 C°		
Permissible ambient temp.	+ 5 C° to + 45 C°		
Permissible ambient temp. motor	+ 5 C° to + 45 C°		
Permissible ambient temp. pump head	+ 5 C° to + 45 C°		
Dimensions L x W x H	204 mm x 119,5 mm x 157,5 mm		
Weight	3,5 kg		
Impermeable to gas	1 x 10^{-3}		

vacuum



1-Cylinder Heatable Diaphragm Pump for sample gas PB 32

diaphragm

1-cylinder

The oil-free and dry compressing heatable diaphragm pumps for sample gas from the PB-32 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **104 mbar**. Four different ranges with further unique models are available within the product line. The pumps are thermally resistant until 230°C.

The PB-32 product line is equipped with a single-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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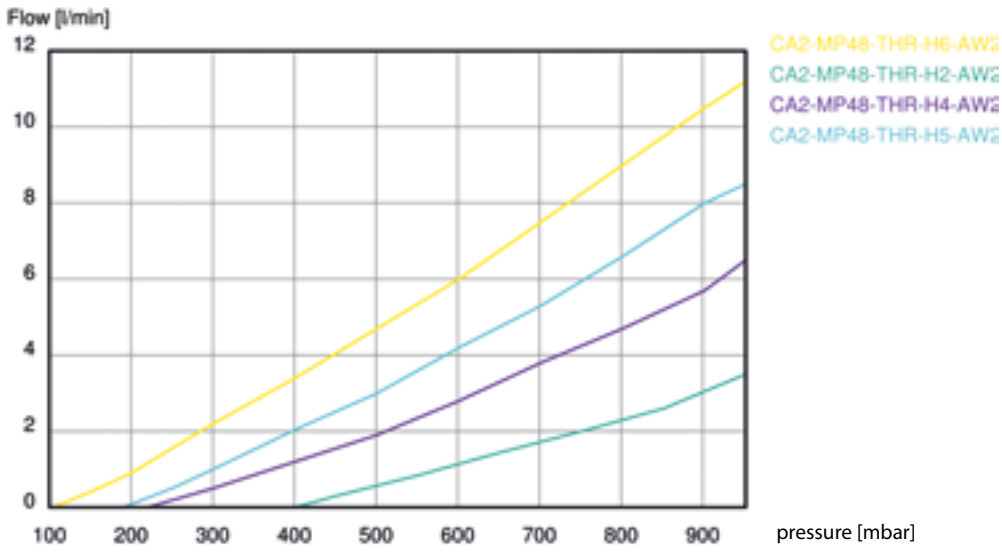
Technical data - PB 32

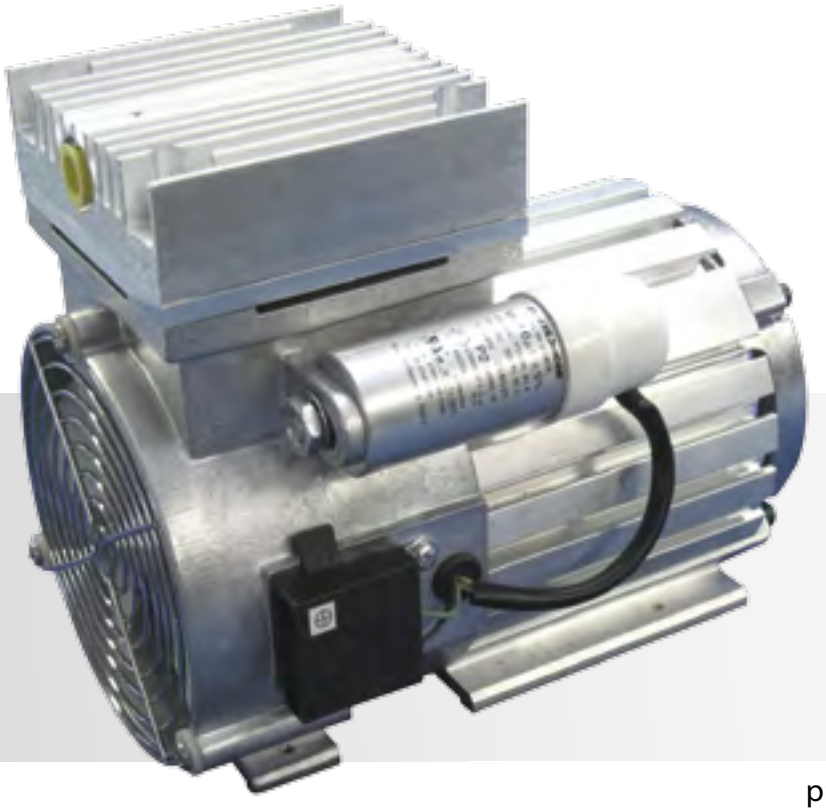
Series	CA2-MP48-THR-H6-AW26	CA2-MP48-THR-H2-AW26	CA2-MP48-THR-H4-AW26	CA2-MP48-THR-H5-AW26
Free flow	11,2 l/min	3,5 l/min	6,5 l/min	8,5 l/min
Final vacuum	104 mbar	400 mbar	220 mbar	190 mbar
Final pressure (abs.)	3 bar	1 bar	2,5 bar	3 bar
Pump heads	1			
Hose coupling, suction/pressure	G 1/8“			
Motor power / r.p.m.	0,07 kW / 2600 min^{-1}			
Mains requirement / Frequencies	230 V - 50 Hz			
EX motor	not possible			
DC motor	on request			
Noise level	49 dBA bis 57 dBA			
Permissible gas admission temp.	+ 5 C° bis + 200 C° (short time + 230 C°)			
Permissible ambient temp.	+ 5 C° to + 45 C°			
Permissible ambient temp. motor	+ 5 C° to + 45 C°			
Permissible ambient temp. pump head	+ 5 C° to + 200 C°			
Dimensions L x W x H	126 mm x 72 mm x 161,5 mm			
Weight	2 kg			
Impermeable to gas	1 x 10^{-3}			

vacuum



piston

1-cylinder

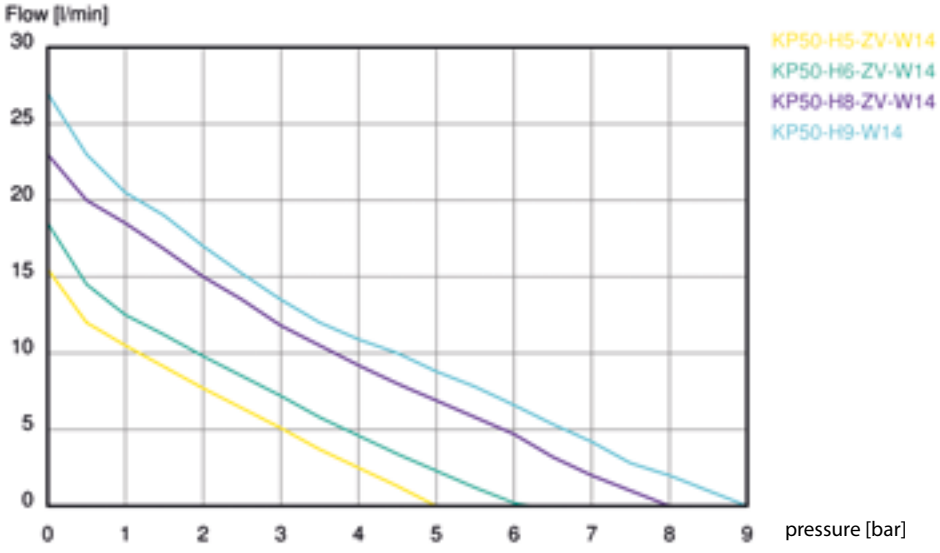


The oil-free and dry compressing piston pumps from the PB-35 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **105 mbar**. Four different ranges are available within the product line.

The PB-35 product line is equipped with a single-cylinder piston pump with con-rod drive. The piston, rigidly fixed to the con-rod, carries out a tilting motion in the cylinder when moving up and down. The piston rings are therefore more heavily stressed than with a linear drive. The length of the con-rod from the eccentric shaft to the piston is however designed to impart as small a tilting motion as possible to the piston. The eccentric shaft with con-rod is additionally ball-bearing mounted in the carrier plate and does not sit on the motor shaft. This ensures that the motor shaft and the A-side motor bearings are not loaded. This well-thought-out design also ensures a long service life for the mechanical components.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and PTFE for the pressure sleeves, open up a wide field of applications for non-aggressive gases.

pressure



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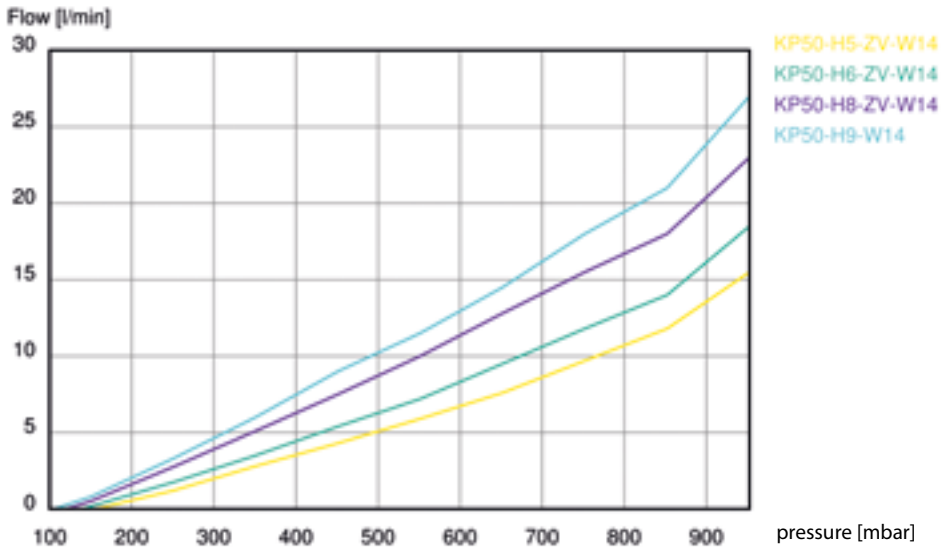
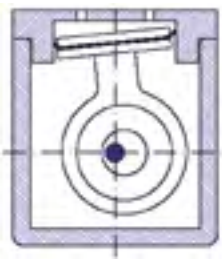
Technical data - PB 35

Series	KP50-H5-ZV-W14	KP50-H6-ZV-W14	KP50-H8-ZV-W14	KP50-H9-W14
Free flow	15,5 l/min	18,5 l/min	23 l/min	27 l/min
Final vacuum	155 mbar	140 mbar	120 mbar	105 mbar
Final pressure (abs.)	5 bar	6 bar	8 bar	
Pump heads	1			
Hose coupling, suction/pressure	G 1/4“			
Motor power / r.p.m.	0,21 kW / 1400 min^{-1}			
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz			
EX motor	not possible			
DC motor	not possible			
Noise level	49 dBA to 57 dBA			
Permissible gas admission temp.	+ 5 C° to + 45 C°			
Permissible ambient temp.	+ 5 C° to + 45 C°			
Permissible ambient temp. motor	+ 5 C° to + 45 C°			
Permissible ambient temp. pump head	+ 5 C° to + 45 C°			
Dimensions L x W x H	197 mm x 134,5 mm x 173,5 mm			
Weight	6 kg			
Impermeable to gas	not possible			

vacuum





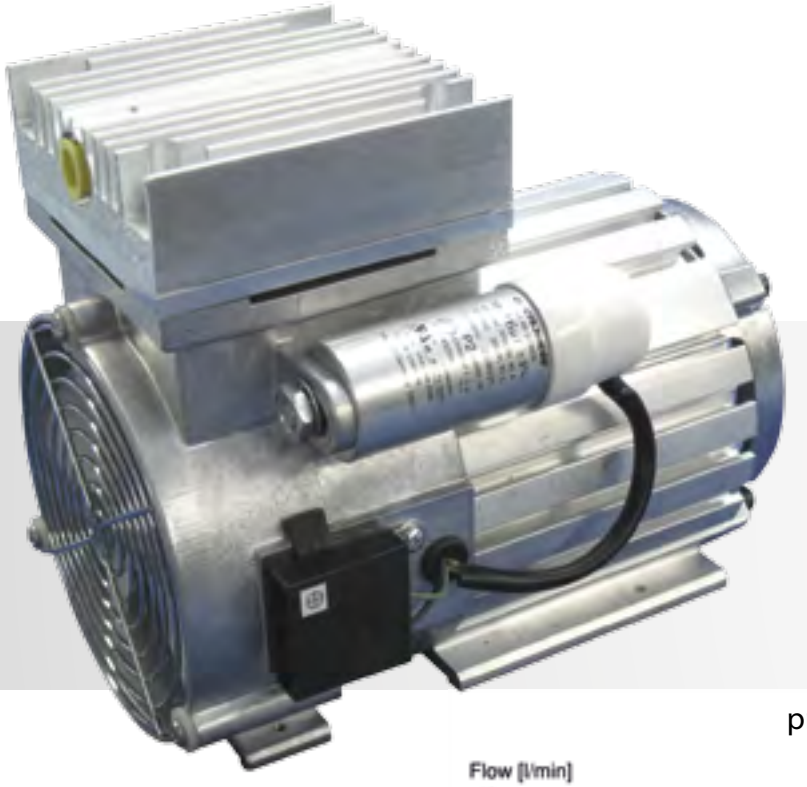
piston

1-cylinder

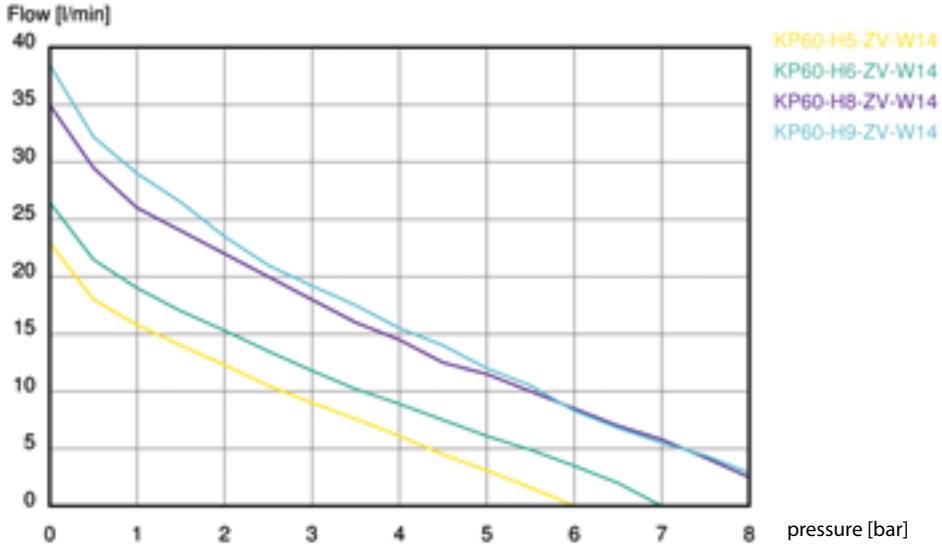
The oil-free and dry compressing piston pumps from the PB-36 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **90 mbar**. Four different ranges are available within the product line.

The PB-36 product line is equipped with a single-cylinder piston pump with con-rod drive. The piston, rigidly fixed to the con-rod, carries out a tilting motion in the cylinder when moving up and down. The piston rings are therefore more heavily stressed than with a linear drive. The length of the con-rod from the eccentric shaft to the piston is however designed to impart as small a tilting motion as possible to the piston. The eccentric shaft with con-rod is additionally ball-bearing mounted in the carrier plate and does not sit on the motor shaft. This ensures that the motor shaft and the A-side motor bearings are not loaded. This well-thought-out design also ensures a long service life for the mechanical components.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and PTFE for the pressure sleeves, open up a wide field of applications for non-aggressive gases.



pressure



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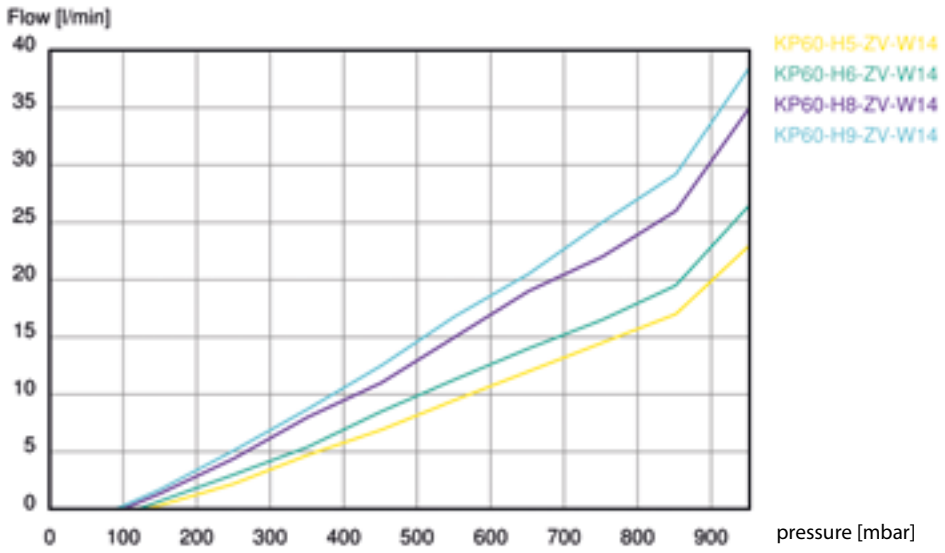
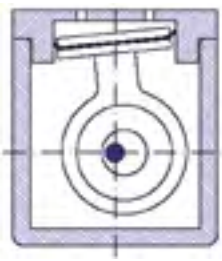
Technical data - PB 36

Series	KP60-H5-ZV-W14	KP60-H6-ZV-W14	KP60-H8-ZV-W14	KP60-H9-ZV-W14
Free flow	23 l/min	26,5 l/min	35 l/min	38,5 l/min
Final vacuum	130 mbar	120 mbar	100 mbar	90 mbar
Final pressure (abs.)	6 bar			
Pump heads	1			
Hose coupling, suction/pressure	G 1/4“			
Motor power / r.p.m.	0,21 kW / 1400 min^{-1}			
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz			
EX motor	not possible			
DC motor	not possible			
Noise level	49 dBA to 57 dBA			
Permissible gas admission temp.	+ 5 C° to + 45 C°			
Permissible ambient temp.	+ 5 C° to + 45 C°			
Permissible ambient temp. motor	+ 5 C° to + 45 C°			
Permissible ambient temp. pump head	+ 5 C° to + 45 C°			
Dimensions L x W x H	197 mm x 134,5 mm x 173,5 mm			
Weight	6 kg			
Impermeable to gas	not possible			

vacuum





diaphragm

2-cylinder

The oil-free and dry compressing small diaphragm pumps from the PB-4 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **12 mbar**. Four different ranges are available within the product line.

The PB-4 product line is equipped with a two-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

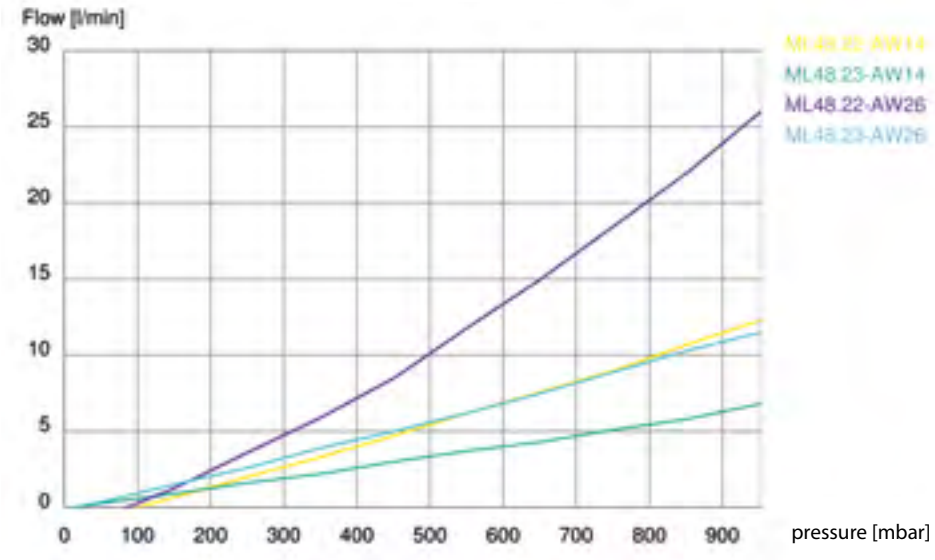
The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

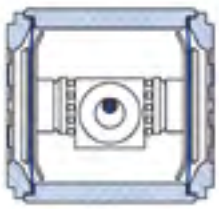
The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

Technical data - PB 4

Series	ML48.22-AW14	ML48.23-AW14	ML48.22-AW26	ML48.23-AW26
Free flow	12,3 l/min	6,8 l/min	26 l/min	11,5 l/min
Final vacuum	100 mbar	12 mbar	85 mbar	12 mbar
Final pressure (abs.)	3 bar			
Pump heads	2			
Hose coupling, suction/pressure	G 1/8“			
Motor power / r.p.m.	0,07 kW / 1400 min^{-1}		0,09 kW / 2600 min^{-1}	
Mains requirement / Frequencies	230 V - 50 Hz			
EX motor	not possible			
DC motor	on request			
Noise level	49 dBA to 53 dBA			
Permissible gas admission temp.	+ 5 C° to + 45 C°			
Permissible ambient temp.	+ 5 C° to + 45 C°			
Permissible ambient temp. motor	+ 5 C° to + 45 C°			
Permissible ambient temp. pump head	+ 5 C° to + 45 C°			
Dimensions L x W x H	145 mm x 95 mm x 140 mm			
Weight	2,8 kg			
Impermeable to gas	1 x 10^{-3}			

vacuum





diaphragm

2-cylinder

The oil-free and dry compressing small piston pumps from the PB-6 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **8 mbar.** Seven different ranges are available within the product line.

The PB-6 product line is equipped with a two-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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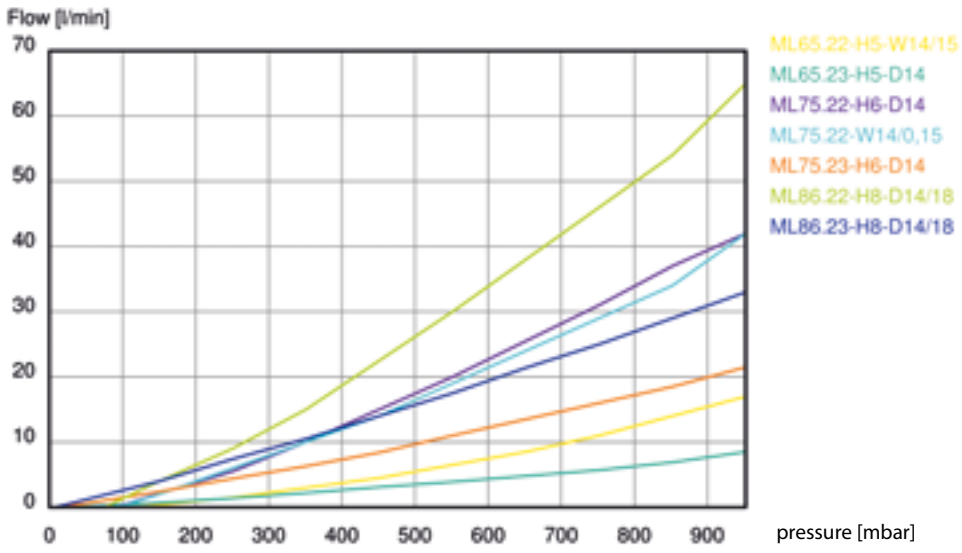
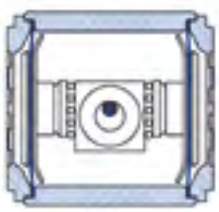
Technical data - PB 6

Series	ML65. 22-H5-W14/15	ML65. 23-H5-D14	ML75. 22-H6-D14	ML75. 22-W14/0,15	ML75. 23-H6-D14	ML86. 22-H8-D14/18	ML86. 23 -H8-D14/18
Free flow	17 l/min	8,5 l/min	42 l/min		21,5 l/min	65 l/min	33 l/min
Final vacuum	120 mbar	32 mbar	90 mbar	85 mbar	12 mbar	75 mbar	8 mbar
Final press. (abs.)	4 bar		3 bar			2 bar	
Final pressure with KG-Gears	4 bar		3 bar			2 bar	

Final pressure with PR-Gears	higher pressure on request
Pump heads	2
Hose coupling, suction/pressure	G 1/4“
Motor power / r.p.m.	0,15 – 0,18 kW / 1400 min^{-1}
Mains requirement / Frequencies	230 V - 50 Hz o. 230/400 V - 50 Hz
EX motor	on request
DC motor	on request
Noise level	49 dBA bis 53 dBA
Permissible gas admission temp.	+ 5 C° to + 45 C°
Permissible ambient temp.	+ 5 C° to + 45 C°
Permissible ambient temp. motor	+ 5 C° to + 45 C°
Permissible ambient temp. pump head	+ 5 C° to + 45 C°
Dimensions L x W x H	300 mm x 175 mm x 173 mm
Weight	8 kg
Impermeable to gas	1 x 10^{-3}

vacuum





diaphragm

2-cylinder

The oil-free and dry compressing laboratory diaphragm pumps from the PB-21 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **8 mbar**. Six different ranges are available within the product line.

The PB-21 product line is equipped with a two-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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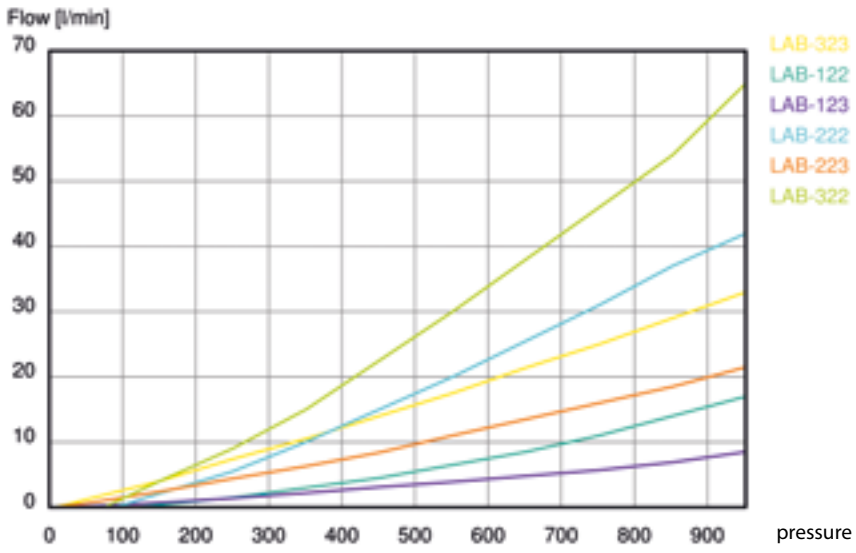
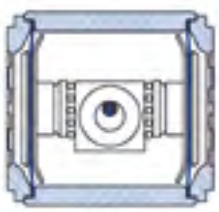
Technical data - PB 21

Series	LAB-323	LAB-122	LAB-123	LAB-222	LAB-223	LAB-322
Free flow	33 l/min	17 l/min	8,5 l/min	42 l/min	21,5 l/min	65 l/min
Final vacuum	8 mbar	120 mbar	32 mbar	90 mbar	12 mbar	75 mbar
Final press. (abs.)	2 bar	4 bar		3 bar		2 bar
Final pressure with KG-Gears	2 bar	4 bar		3 bar		2 bar
Final pressure with PR-Gears	higher pressure on request					
Pump heads	2					
Hose coupling, suction/pressure	G 1/4“					
Motor power / r.p.m.	0,16 kW / 1400 min^{-1}					
Mains requirement / Frequencies	230 V - 50 Hz					
EX motor	not possible					
DC motor	not possible					
Noise level	49 dBA to 53 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	308 mm x 206 mm x 199 mm					
Weight	8 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum





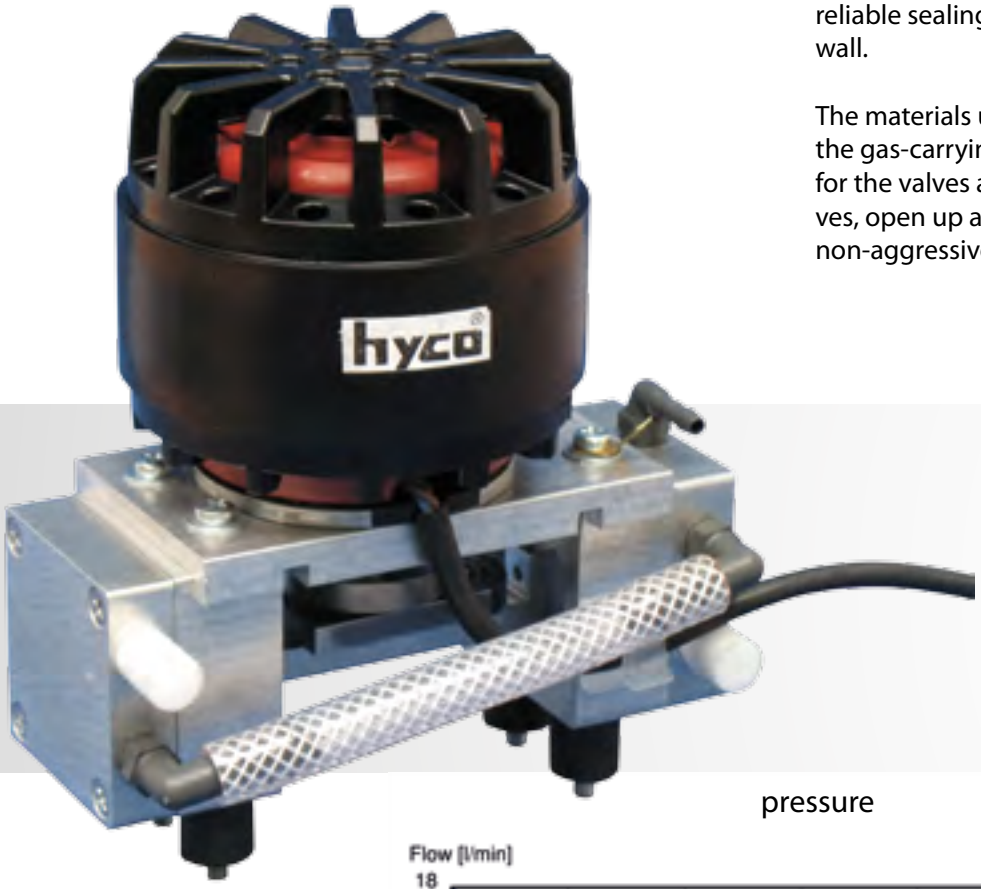
piston

2-cylinder

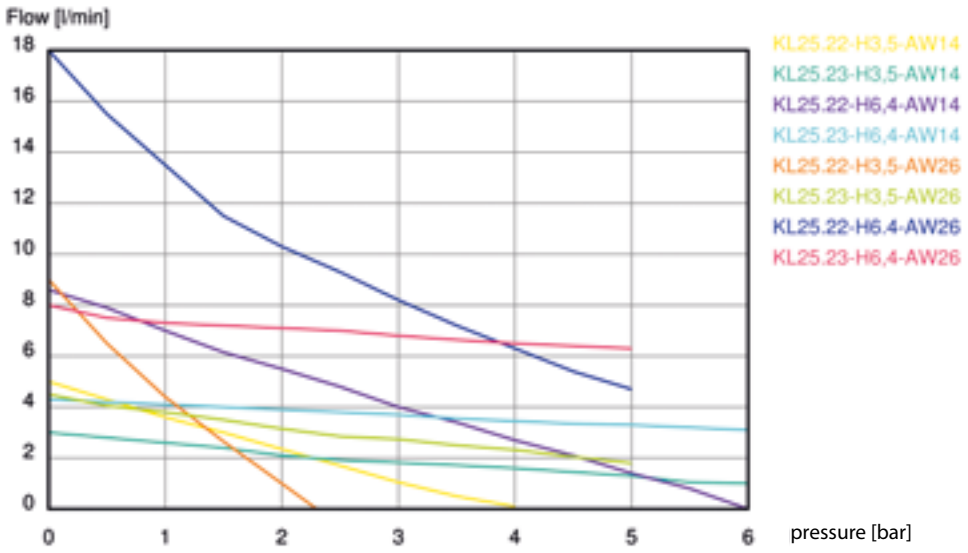
The oil-free and dry compressing small piston pumps from the PB-22 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **27 mbar**. Eight different ranges are available within the product line.

The PB-22 product line is equipped with a two-cylinder piston pump with linear drive. The straight guidance of the piston in the cylinder, between top dead centre and bottom dead centre, ensures that the piston sealing rings are evenly loaded all around. In contrast to the tilting movement, this achieves a long service life for the piston sealing rings and reliable sealing between piston and cylinder wall.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and PTFE for the pressure sleeves, open up a wide field of applications for non-aggressive gases.



pressure



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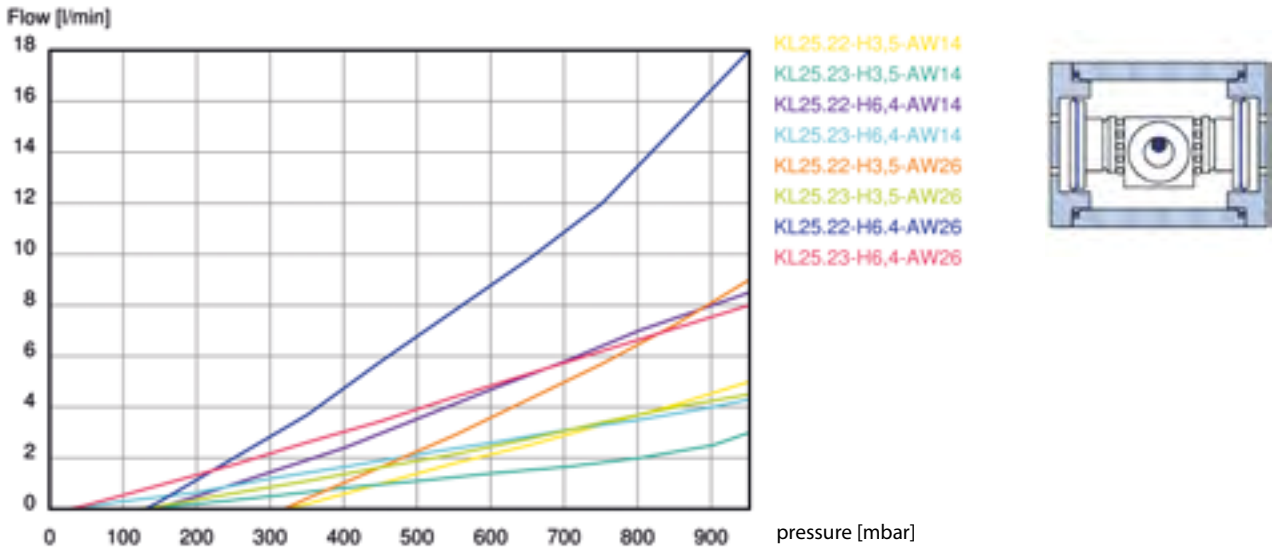
Technical data - PB 22

Series	KL25. 22-H3,5-AW14	KL25. 23-H3,5-AW14	KL25. 22-H6,4-AW14	KL25. 23-H6,4-AW14	KL25. 22-H3,5-AW26	KL25. 23-H3,5-AW26	KL25. 22-H6.4-AW26	KL25. 23-H6,4-AW26
Free flow	5 l/min	3 l/min	8,5 l/min	4,3 l/min	9 l/min	4,5 l/min	18 l/min	8 l/min
Final vacuum	320 mbar	120 mbar	140 mbar	27 mbar	318 mbar	120 mbar	130 mbar	27 mbar
Final press. (abs.)	4 bar	8 bar	5 bar	6 bar	4 bar			

Pump heads	4	
Hose coupling, suction/pressure	G 1/8“	
Motor power / r.p.m.	0,07 kW / 1400 min-1	0,09 kW / 2600 min-1
Mains requirement / Frequencies	230 V - 50 Hz	
EX motor	not possible	
DC motor	on request	
Noise level	50 dBA to 53 dBA	
Permissible gas admission temp.	+ 5 C° to + 45 C°	
Permissible ambient temp.	+ 5 C° to + 45 C°	
Permissible ambient temp. motor	+ 5 C° to + 45 C°	
Permissible ambient temp. pump head	+ 5 C° to + 45 C°	
Dimensions L x W x H	145 mm x 95 mm x 140 mm	
Weight	2,8 kg	
Impermeable to gas	not possible	

vacuum



diaphragm

2-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-23 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **10 mbar**. Six different ranges are available within the product line.

The PB-23 product line is equipped with a two-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-conducting components, VITON (FKM) for the valves and the diaphragms, open up a wide range of application options with non-aggressive gases. Alternative EPDM or stainless steel for valves. Additional material combinations on request.

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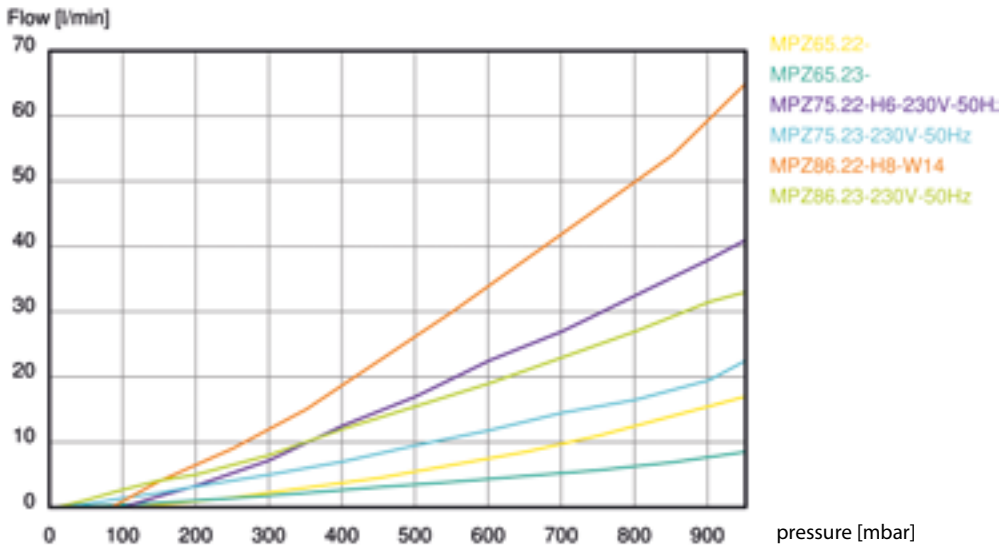
Technical data - PB 23

Series	MPZ65. 22-	MPZ65. 23-	MPZ75. 22-H6-230V-50Hz	MPZ75. 23-230V-50Hz	MPZ86. 22- H8-W14	MPZ86. 23-230V-50Hz
Free flow	17 l/min	8,5 l/min	41 l/min	22,5 l/min	65 l/min	33 l/min
Final vacuum	120 mbar	32 mbar	100 mbar	11 mbar	85 mbar	10 mbar
Final press. (abs.)	4 bar		2 bar		1 bar	
Pump heads	2					
Hose coupling, suction/pressure	G 1/4“					
Motor power / r.p.m.	0,09 kW / 1400 min^{-1}					
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz					
EX motor	not possible					
DC motor	not possible					
Noise level	49 dBA to 53 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	234 mm x 131 mm x 159 mm					
Weight	5,5 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum



2-Cylinder PTFE-Laboratory Diaphragm Pump PB 28

diaphragm

2-cylinder

The oil-free and dry compressing PTFE laboratory diaphragm pumps from the PB-28 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **15 mbar**. Five different ranges are available within the product line.

The PB-28 product line is equipped with a two-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as PTFE for the gas-conducting components, Kelrez for the valves and VITON (FKM) for the diaphragms, open up a wide range of application options with non-aggressive gases.

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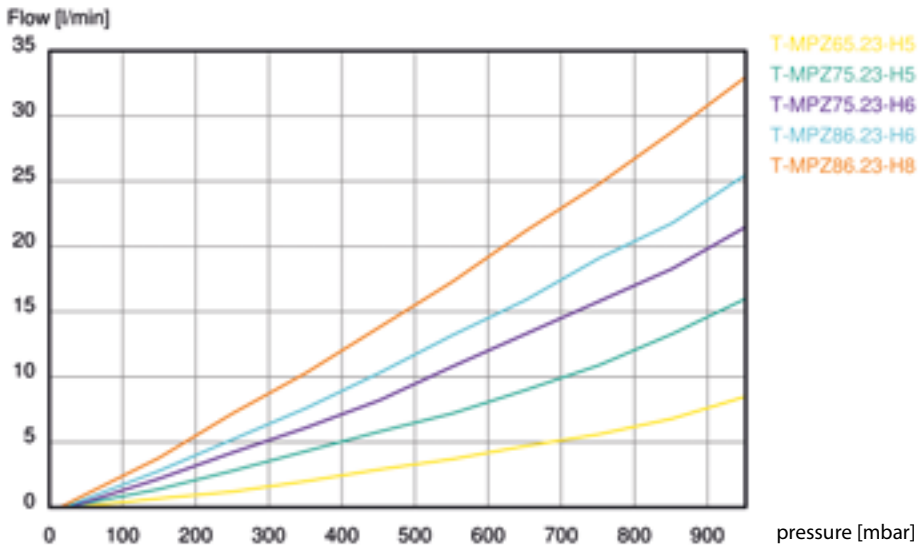
Technical data - PB 28

Series	T-MPZ65.23-H5	T-MPZ75.23-H5	T-MPZ75.23-H6	T-MPZ86.23-H6	T-MPZ86.23-H8
Free flow	8,5 l/min	16 l/min	21,5 l/min	25,5 l/min	33 l/min
Final vacuum	45 mbar	20 mbar	25 mbar	20 mbar	15 mbar
Final press. (abs.)	3 bar	2 bar		1 bar	
Pump heads	2				
Hose coupling, suction/pressure	G 1/4“ / NPT1/4“				
Motor power / r.p.m.	0,09 kW / 1400 min^{-1}				
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz				
EX motor	not possible				
DC motor	not possible				
Noise level	49 dBA to 53 dBA				
Permissible gas admission temp.	+ 5 C° to + 45 C°				
Permissible ambient temp.	+ 5 C° to + 45 C°				
Permissible ambient temp. motor	+ 5 C° to + 45 C°				
Permissible ambient temp. pump head	+ 5 C° to + 45 C°				
Dimensions L x W x H	234 mm x 131 mm x 159 mm				
Weight	5,5 kg				
Impermeable to gas	1 x 10^{-3}				

vacuum



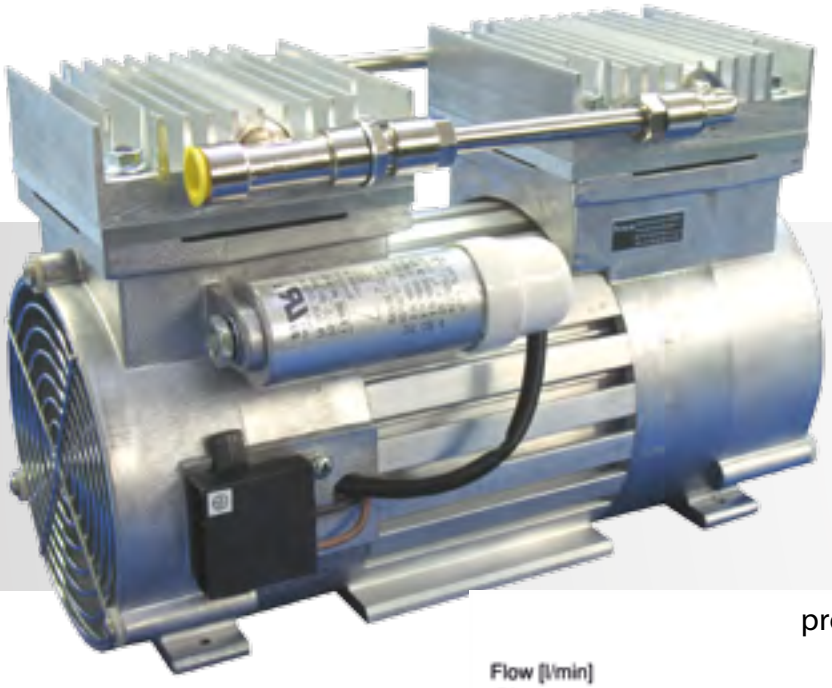
piston

2-cylinder

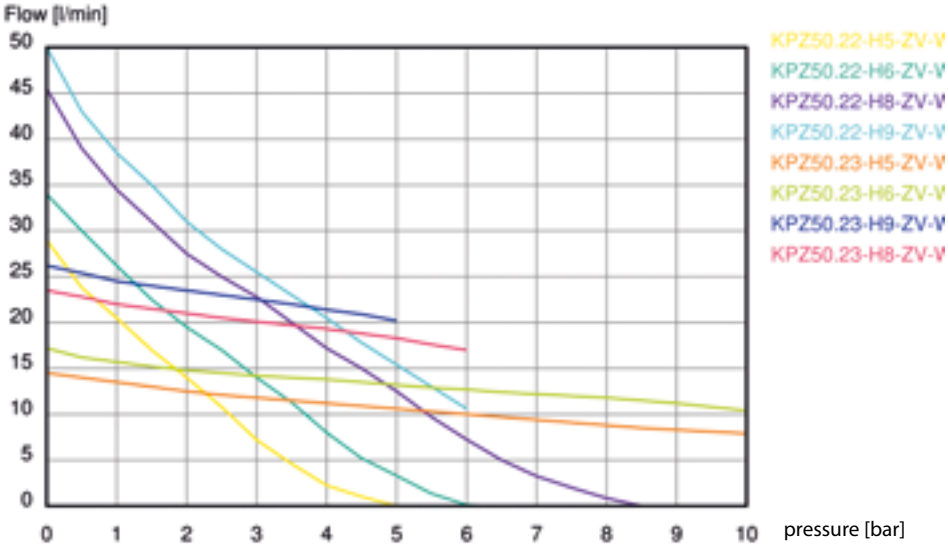
The oil-free and dry compressing small piston pumps from the PB-38 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **16 mbar**. Eight different ranges are available within the product line.

The PB-38 product line is equipped with a two-cylinder piston pump with con-rod drive. The piston, rigidly fixed to the con-rod, carries out a tilting motion in the cylinder when moving up and down. The piston rings are therefore more heavily stressed than with a linear drive. The length of the con-rod from the eccentric shaft to the piston is however designed to impart as small a tilting motion as possible to the piston. The eccentric shaft with con-rod is additionally ball-bearing mounted in the carrier plate and does not sit on the motor shaft. This ensures that the motor shaft and the A-side motor bearings are not loaded. This well-thought-out design also ensures a long service life for the mechanical components.

The materials used, such as aluminium for the gas-conducting components, stainless steel for the valves and piping and PTFE for the pressure sleeves, open up a wide range of application options with non-aggressive gases.



pressure



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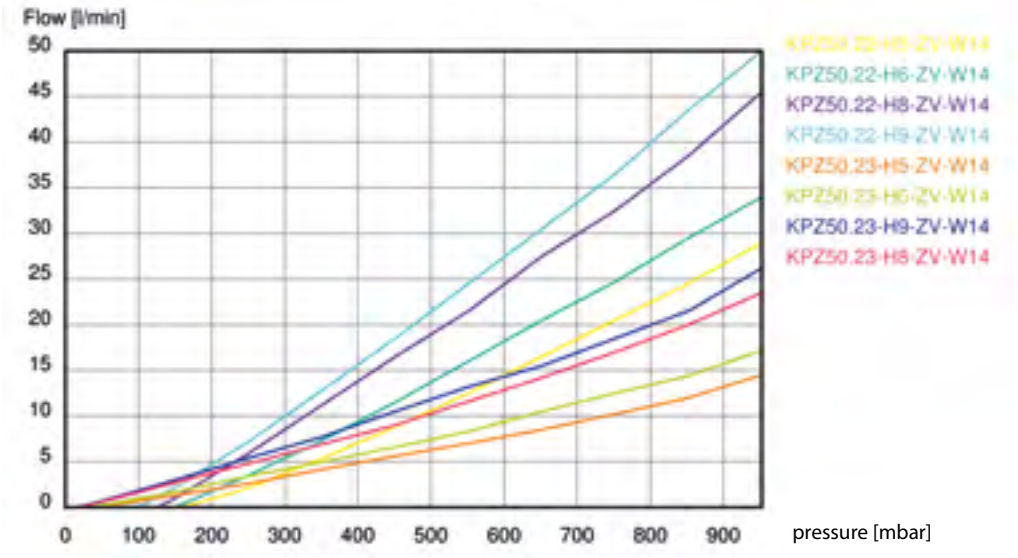
Technical data - PB 38

Series	KPZ50. 22-H5- ZV-W14	KPZ50. 22-H6- ZV-W14	KPZ50. 22-H8- ZV-W14	KPZ50. 22-H9- ZV-W14	KPZ50. 23-H5- ZV-W14	KPZ50. 23-H6- ZV-W14	KPZ50. 23-H9- ZV-W14	KPZ50. 23-H8- ZV-W14
Free flow	29 l/min	34 l/min	45,5 l/min	50 l/min	14,5 l/min	17,2 l/min	26,2 l/min	23,5 l/min
Final vacuum	160 mbar	150 mbar	125 mbar	100 mbar	45 mbar	35 mbar	16 mbar	20 mbar
Final press. (abs.)	5 bar	6 bar	8 bar				5 bar	6 bar

Pump heads	2
Hose coupling, suction/pressure	G 1/4“
Motor power / r.p.m.	0,21 kW / 1400 min^{-1}
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz
EX motor	not possible
DC motor	not possible
Noise level	50 dBA to 53 dBA
Permissible gas admission temp.	+ 5 C° to + 45 C°
Permissible ambient temp.	+ 5 C° to + 45 C°
Permissible ambient temp. motor	+ 5 C° to + 45 C°
Permissible ambient temp. pump head	+ 5 C° to + 45 C°
Dimensions L x W x H	255 mm x 134,5 mm x 173,5 mm
Weight	8,3 kg
Impermeable to gas	not possible

vacuum



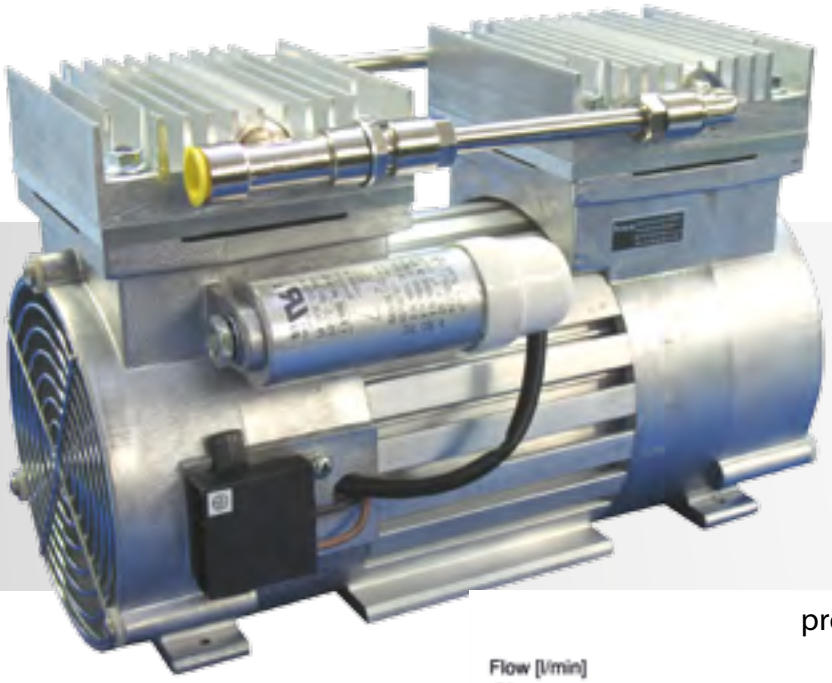
piston

2-cylinder

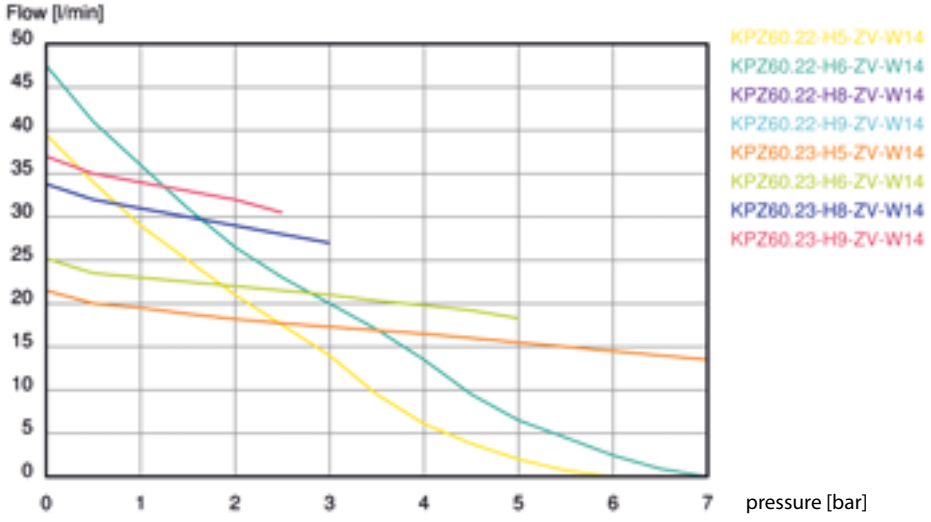
The oil-free and dry compressing piston pumps from the PB-39 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **15 mbar**. Eight different ranges are available within the product line.

The PB-39 product line is equipped with a two-cylinder piston pump with con-rod drive. The piston, rigidly fixed to the con-rod, carries out a tilting motion in the cylinder when moving up and down. The piston rings are therefore more heavily stressed than with a linear drive. The length of the con-rod from the eccentric shaft to the piston is however designed to impart as small a tilting motion as possible to the piston. The eccentric shaft with con-rod is additionally ball-bearing mounted in the carrier plate and does not sit on the motor shaft. This ensures that the motor shaft and the A-side motor bearings are not loaded. This well-thought-out design also ensures a long service life for the mechanical components.

The materials used, such as aluminium for the gas-conducting components, stainless steel for the valves and piping and PTFE for the pressure sleeves, open up a wide range of application options with non-aggressive gases.



pressure



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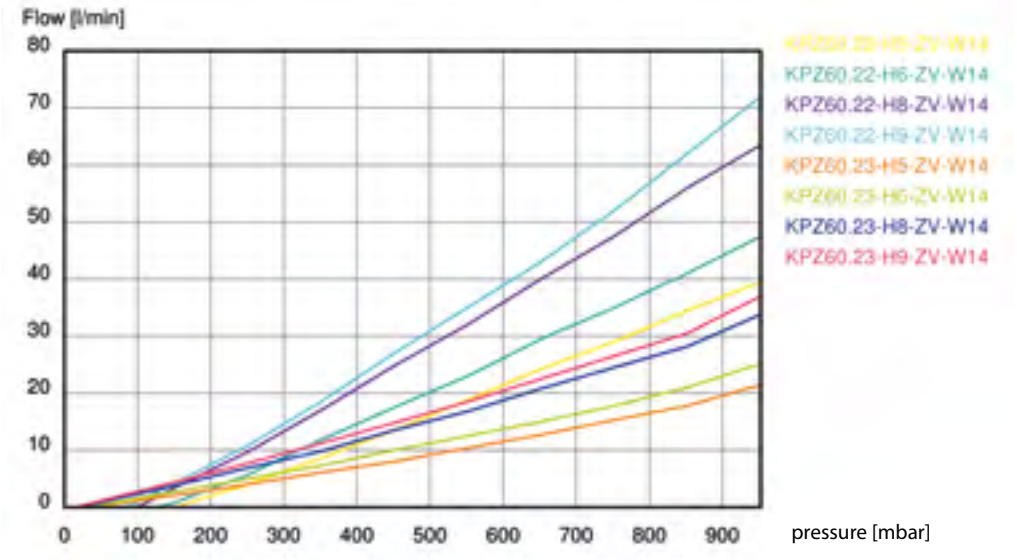
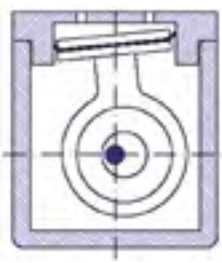
Technical data - PB 39

Series	KPZ60. 22-H5-ZV-W14	KPZ60. 22-H6-ZV-W14	KPZ60. 22-H8-ZV-W14	KPZ60. 22-H9-ZV-W14	KPZ60. 23-H5-ZV-W14	KPZ60.2 3-H6-ZV-W14	KPZ60. 23-H8-ZV-W14	KPZ60. 23-H9-ZV-W14
Free flow	39,5 l/min	47,5 l/min	63,5 l/min	72 l/min	21,5 l/min	25,2 l/min	33,8 l/min	37 l/min
Final vacuum	150 mbar	125 mbar	100 mbar	85 mbar	35 mbar	30 mbar	20 mbar	15 mbar
Final press. (abs.)	6 bar		1 bar		6 bar	5 bar	3 bar	2 bar

Pump heads	2
Hose coupling, suction/pressure	G 1/4“
Motor power / r.p.m.	0,21 kW / 1400 min^{-1}
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz
EX motor	not possible
DC motor	not possible
Noise level	50 dBA to 53 dBA
Permissible gas admission temp.	+ 5 C° to + 45 C°
Permissible ambient temp.	+ 5 C° to + 45 C°
Permissible ambient temp. motor	+ 5 C° to + 45 C°
Permissible ambient temp. pump head	+ 5 C° to + 45 C°
Dimensions L x W x H	255 mm x 134,5 mm x 173,5 mm
Weight	8,3 kg
Impermeable to gas	not possible

vacuum





2-cylinder linear-diaphragm pump with magnetic-coupled drive PB 42

diaphragm

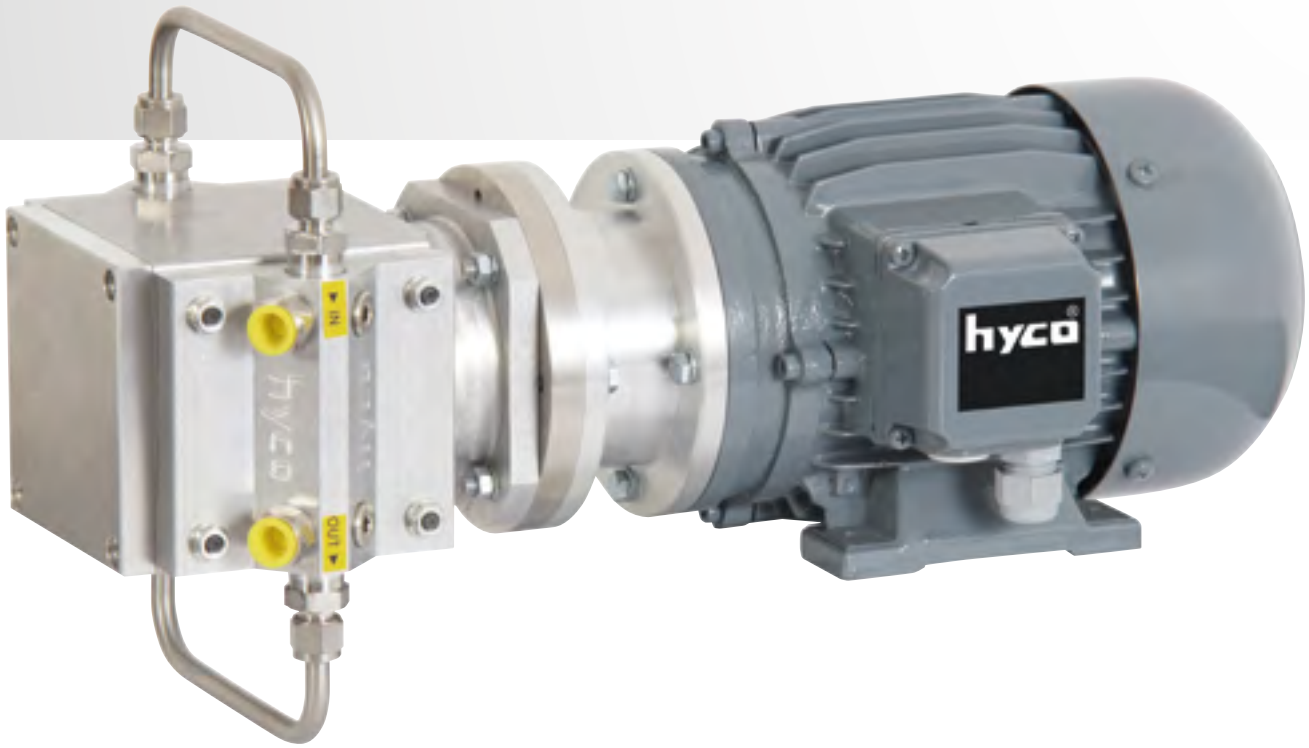
2-cylinder

The PB-42 range of oil-free and dry-sealed linear-diaphragm pumps with **magnetic-coupled drives**, provide lossless evacuation and sealing of rare and thus cost-intensive gases and vapours, such as Helium-3 for example. Six different models are available in the production range.

The PB-42 product range is equipped with a two-cylinder diaphragm pump. Hermetic sealing is now possible thanks to the new magnetically coupled drive developed and employed for the first time by hyco Vakuum-technik. The pump runs more quietly.

There are no losses in the event of a pump diaphragm rupture as there is no gases or vapour escape thanks to the design principle. Contactless conveyance is guaranteed as a mechanical transfer through the displace-ment of the pump has been completely dispensed with and there is also additional sealing from the motor.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.



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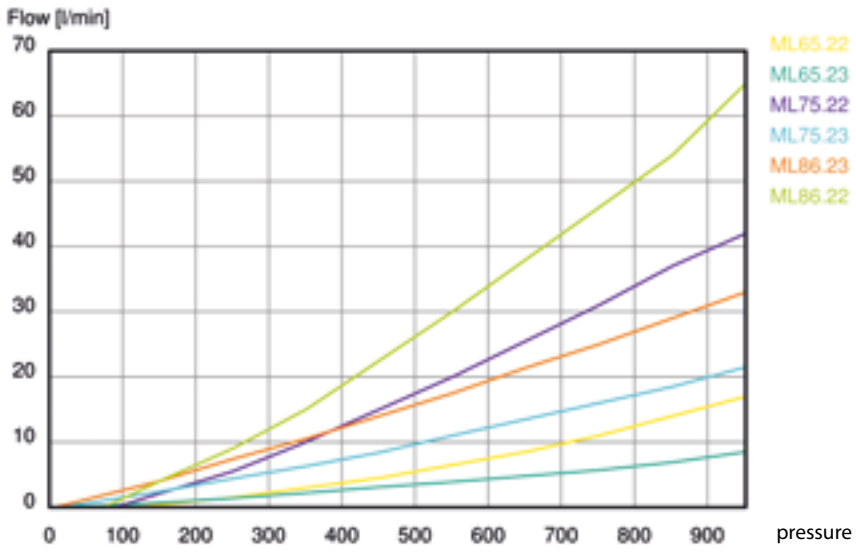
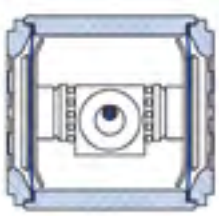
Technical data - PB 42

Series	ML65.22	ML65.23	ML75.22	ML75.23	ML86.23	ML86.22
Free flow	17 l/min	8,5 l/min	42 l/min	21,5 l/min	33 l/min	65 l/min
Final vacuum	150 mbar	35 mbar	85 mbar	15 mbar	7 mbar	80 mbar
Final pressure with KG-Gears	3 bar		2 bar		1 bar	
Pump heads	2					
Hose coupling, suction/pressure	G 1/4“					
Motor power / r.p.m.	0,37 kW / 1400 min^{-1}					
Mains requirement / Frequencies	230 V - 50 Hz o. 230/400 V - 50 Hz					
EX motor	on request					
Noise level	49 dBA to 53 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Dimensions L x W x H	406,5 mm x 175 mm x 210 mm					
Weight	15 kg					
Impermeable to gas	to 1 x 10^{-5} mbar x l/s					

vacuum





diaphragm

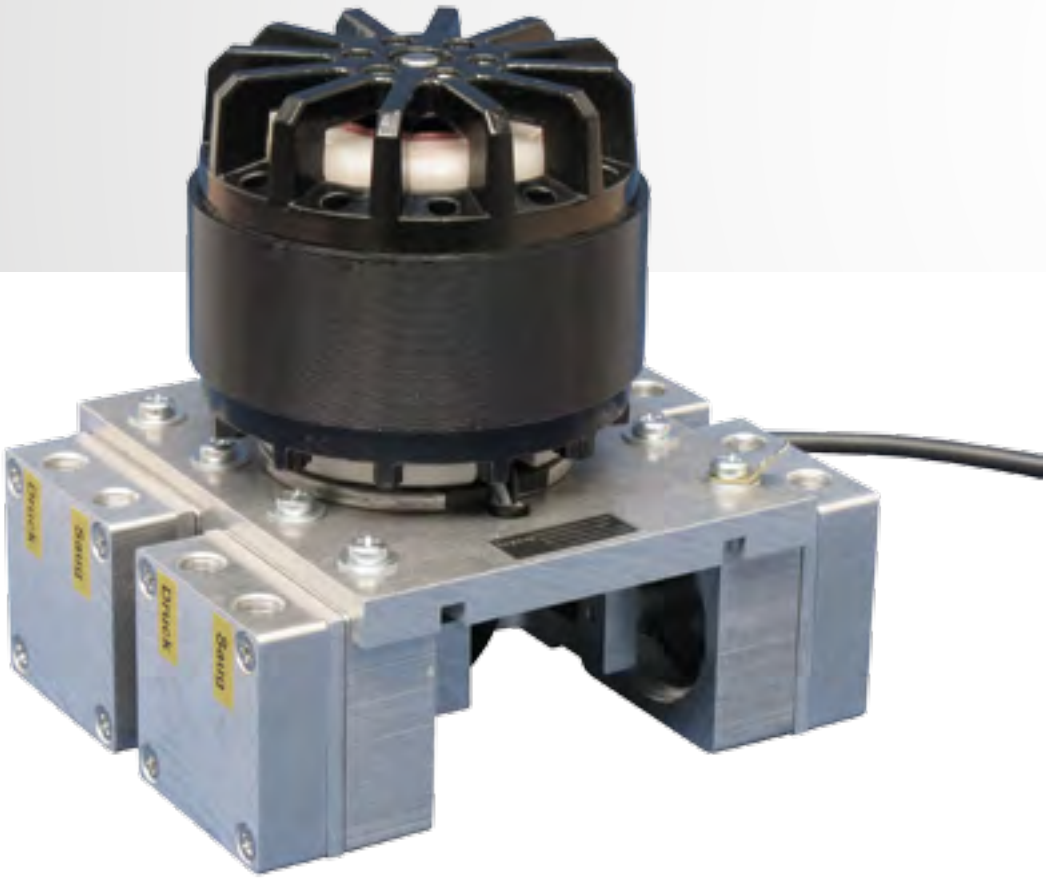
4-cylinder

The oil-free and dry compressing small piston pumps from the PB-5 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **3 mbar**. Nine different ranges are available within the product line.

The PB-5 product line is equipped with a four-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.



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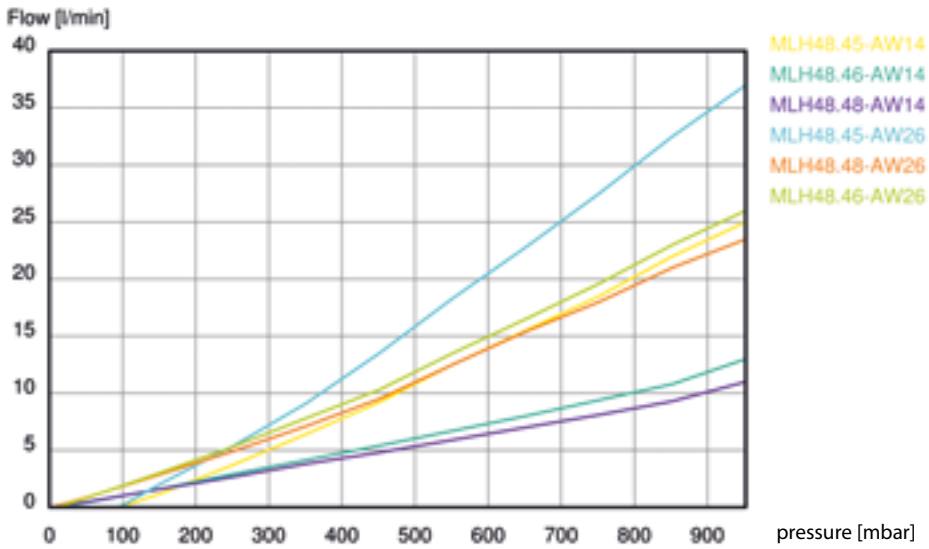
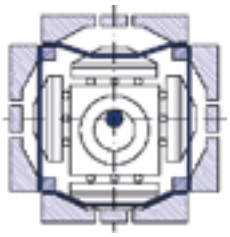
Technical Data - PB 5

Series	MLH48. 45-AW14	MLH48. 46-AW14	MLH48. 48-AW14	MLH48. 45-AW26	MLH48. 48-AW26	MLH48. 46-AW26
Free flow	25 l/min	13 l/min	11 l/min	37 l/min	23,5 l/min	26 l/min
Final vacuum	95 mbar	12 mbar	3 mbar	95 mbar	3 mbar	12 mbar
Final press. (abs.)	2 bar					
Pump heads	4					
Hose coupling, suction/pressure	G 1/8“					
Motor power / r.p.m.	0,07 kW / 1400 min^{-1}			0,09 kW / 2600 min^{-1}		
Mains requirement / Frequencies	230 V - 50 Hz					
EX motor	not possible					
DC motor	on request					
Noise level	49 dBA to 53 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	140 mm x 140 mm x 145 mm					
Weight	3 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum





diaphragm

4-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-7 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **1 mbar**. Six different ranges with further unique models are available within the product line.

The PB-7 product line is equipped with a four-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

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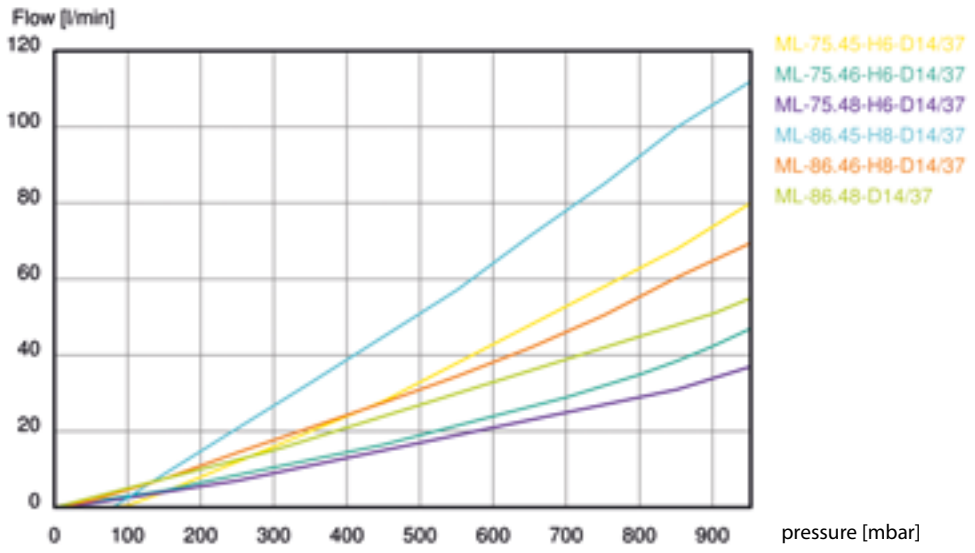
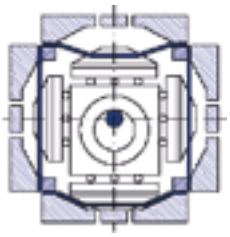
Technical Data - PB 7

Series	ML-75. 45-H6- D14/37	ML-75. 46-H6- D14/37	ML-75. 48-H6- D14/37	ML-86. 45-H8- D14/37	ML-86. 46 -H8- D14/37	ML-86. 48- D14/37
Free flow	80 l/min	47 l/min	37 l/min	112 l/min	69,5 l/min	55 l/min
Final vacuum	80 mbar	15 mbar	7 mbar	80 mbar	7 mbar	1 mbar
Final press. (abs.)	3 bar			2 bar		
Final pressure with KG-Gears	3 bar			2 bar		
Final pressure with PR-Gears	higher pressure on request					
Pump heads	4					
Hose coupling, suction/pressure	G 1/4“					
Motor power / r.p.m.	0,37 – 0,75 kW / 1400 min^{-1}					
Mains requirement / Frequencies	230 V - 50 Hz o. 230/400 V - 50 Hz					
EX motor	on request					
DC motor	not possible					
Noise level	57 dBA to 59 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	361 mm x 243 mm x 248 mm					
Weight	13 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum





diaphragm

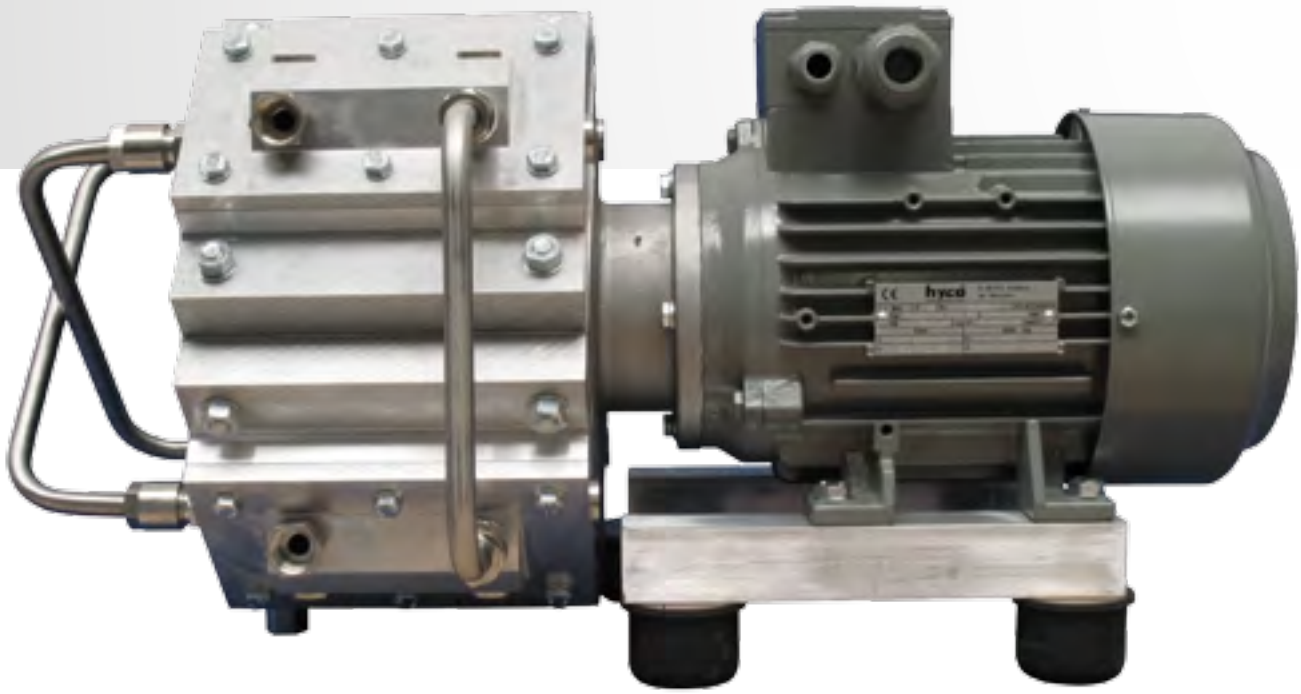
4-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-8 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **2 mbar**.

The PB-8 product line is equipped with a four-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.



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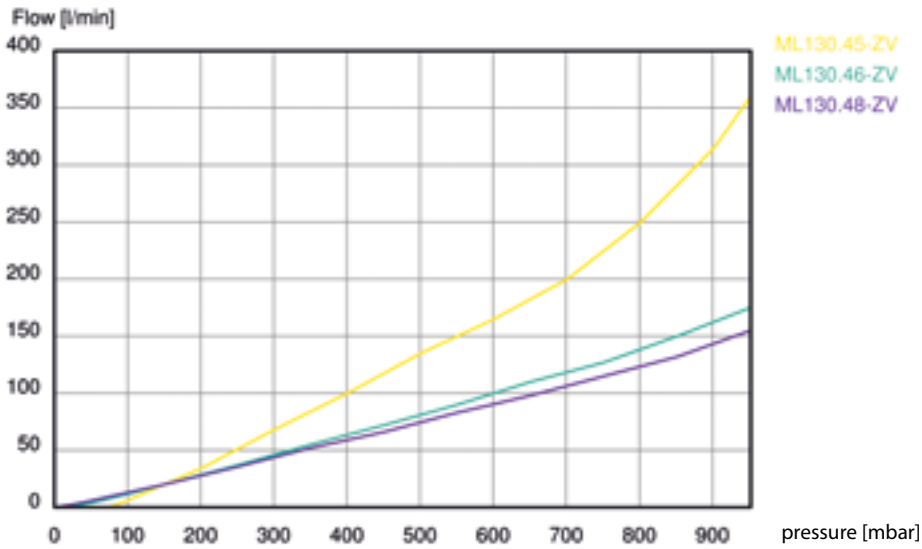
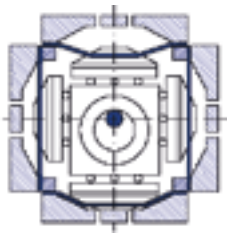
Technical Data - PB 8

Series	ML130.45-ZV	ML130.46-ZV	ML130.48-ZV
Free flow	360 l/min	175 l/min	155 l/min
Final vacuum	75 mbar	9 mbar	2 mbar
Final press. (abs.)	2 bar		
Final pressure with KG-Gears	2 bar		
Pump heads	4		
Hose coupling, suction/pressure	G3/8“ / G1/2“		
Motor power / r.p.m.	0,75 kW / 1400 min^{-1}		
Mains requirement / Frequencies	230/400 V - 50 Hz		
EX motor	on request		
DC motor	not possible		
Noise level	58 dBA to 60 dBA		
Permissible gas admission temp.	+ 5 C° to + 45 C°		
Permissible ambient temp.	+ 5 C° to + 45 C°		
Permissible ambient temp. motor	+ 5 C° to + 45 C°		
Permissible ambient temp. pump head	+ 5 C° to + 45 C°		
Dimensions L x W x H	467 mm x 338 mm x 338 mm		
Weight	26 kg		
Impermeable to gas	1 x 10^{-3}		

vacuum





diaphragm

4-cylinder

The oil-free and dry compressing laboratory diaphragm pumps from the PB-20 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **1 mbar**. Six different ranges are available within the product line.

The PB-20 product line is equipped with a four-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-conducting components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide range of application options with non-aggressive gases. Other material combinations on request.

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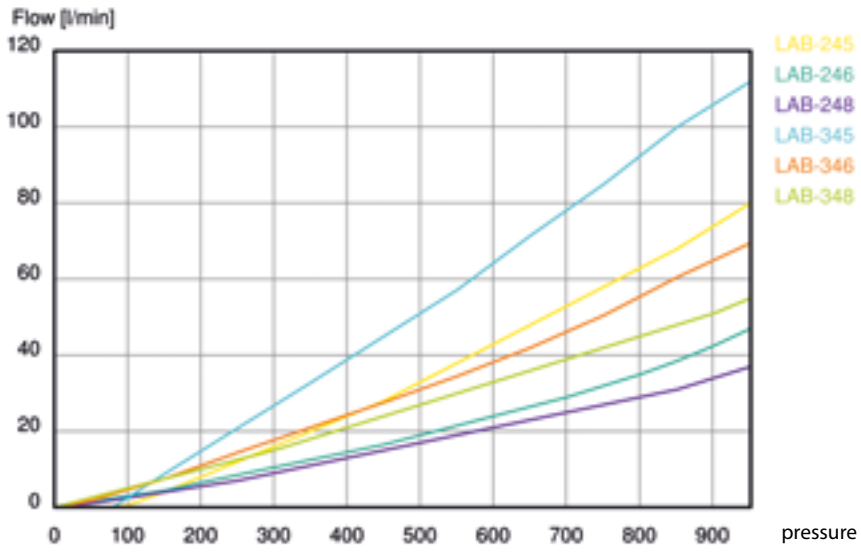
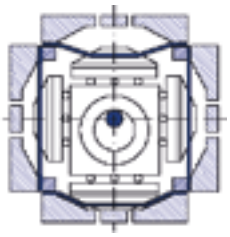
Technical Data - PB 20

Series	LAB-245	LAB-246	LAB-248	LAB-345	LAB-346	LAB-348
Free flow	80 l/min	47 l/min	37 l/min	112 l/min	69,5 l/min	55 l/min
Final vacuum	80 mbar	15 mbar	7 mbar	80 mbar	7 mbar	1 mbar
Final press. (abs.)	3 bar			2 bar		
Final pressure with KG-Gears	3 bar			2 bar		
Final pressure with PR-Gears	higher pressure on request					
Pump heads	4					
Hose coupling, suction/pressure	G 1/4“					
Motor power / r.p.m.	0,37 kW / 1400 min^{-1}					
Mains requirement / Frequencies	230 V - 50 Hz					
EX motor	not possible					
DC motor	not possible					
Noise level	57 dBA to 59 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	361 mm x 243 mm x 248 mm					
Weight	14 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum





diaphragm

4-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-40 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **< 1 mbar**. Four different ranges are available within the product line.

The PB-40 product line is equipped with a four-cylinder diaphragm pump with con-rod drive, which carries out an oscillating, tumbling and rocking, upwards and downwards movement of the diaphragm. The diaphragm is fastened to a rigid con-rod and is subjected to a greater or lesser degree of flexing and stretching, depending on the length of the con-rod. The well-thought-out design of the drive offers the user a compact construction and low spatial requirements.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-conducting components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide range of application options with non-aggressive gases. Other material combinations on request.

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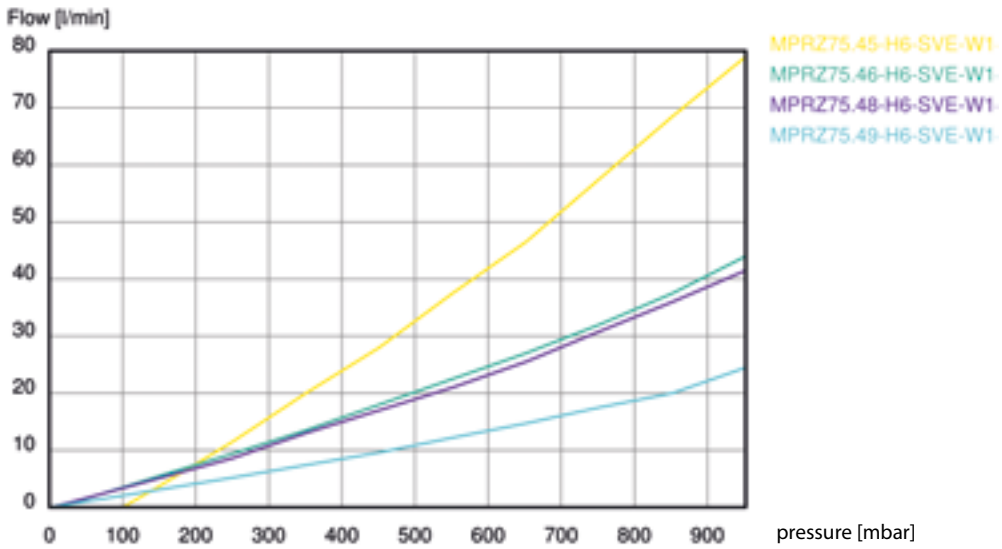
Technical Data - PB 40

Series	MPRZ75.45-H6-SVE-W14	MPRZ75.46-H6-SVE-W14	MPRZ75.48-H6-SVE-W14	MPRZ75.49-H6-SVE-W14
Free flow	79 l/min	44 l/min	41,5 l/min	24,5 l/min
Final vacuum	100 mbar	11 mbar	2 mbar	1 mbar
Final press. (abs.)	1 bar			
Pump heads	4			
Hose coupling, suction/pressure	G 1/4“			
Motor power / r.p.m.	0,21 kW / 1400 min^{-1}			
Mains requirement / Frequencies	115 V - 50-60 Hz o. 230 V - 50-60 Hz			
EX motor	not possible			
DC motor	not possible			
Noise level	49 dBA to 53 dBA			
Permissible gas admission temp.	+ 5 C° to + 45 C°			
Permissible ambient temp.	+ 5 C° to + 45 C°			
Permissible ambient temp. motor	+ 5 C° to + 45 C°			
Permissible ambient temp. pump head	+ 5 C° to + 45 C°			
Dimensions L x W x H	303,5 mm x 165 mm x 159,5 mm			
Weight	9,5 kg			
Impermeable to gas	1 x 10^{-3}			

vacuum



diaphragm

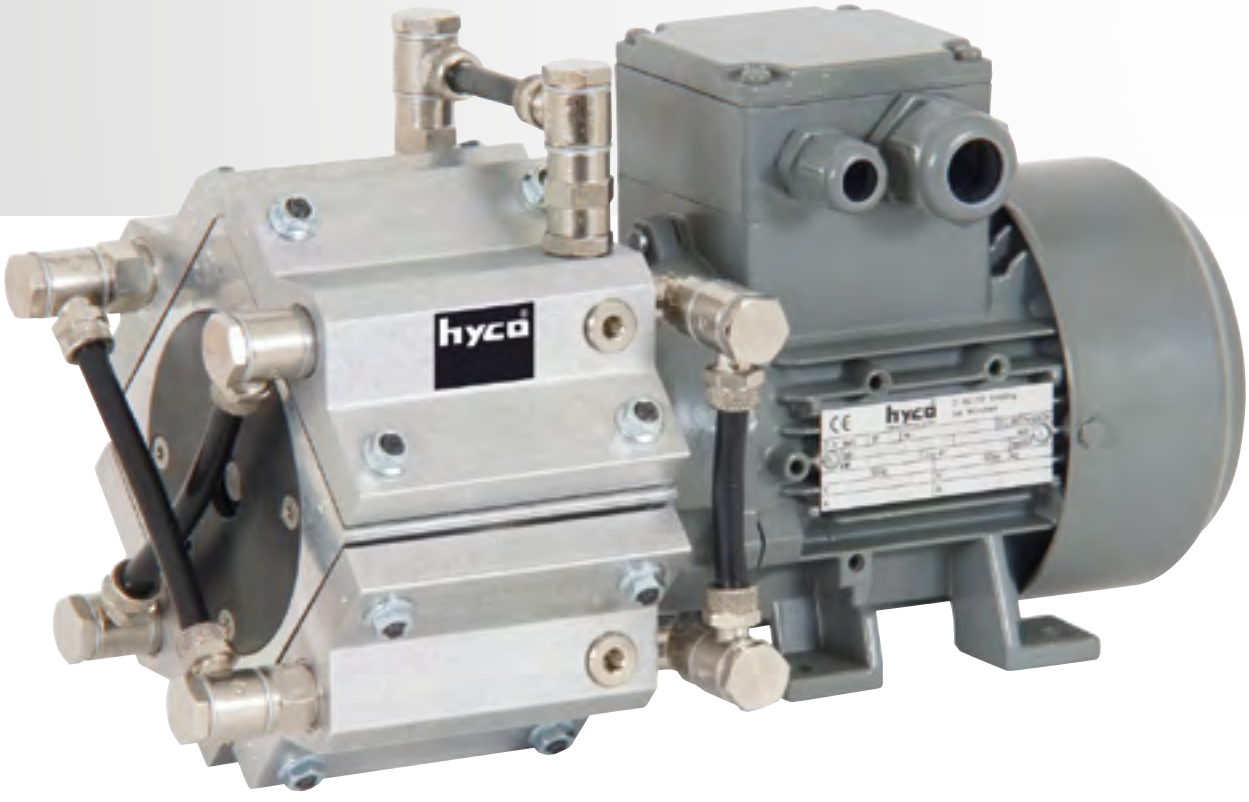
4-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-41 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **1 mbar**.

The PB-41 product line is equipped with a four-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

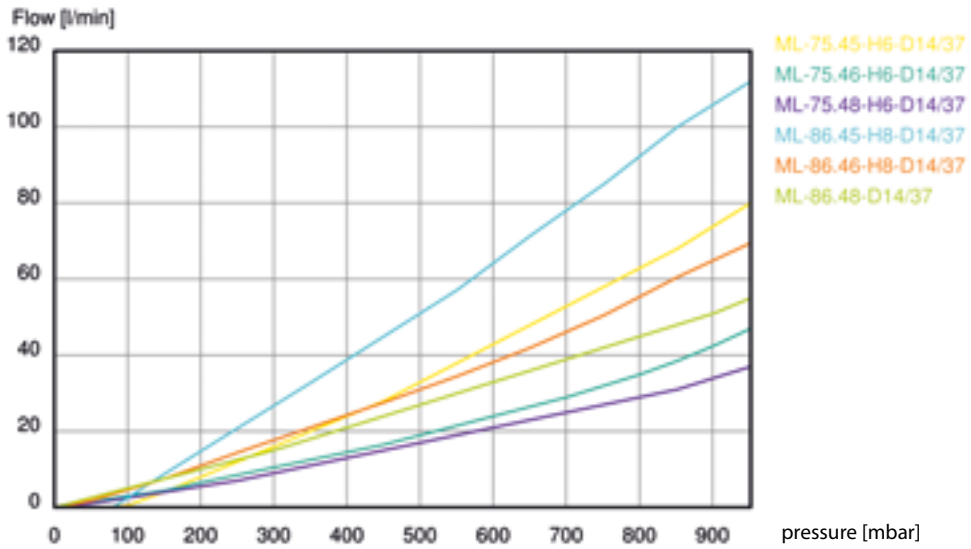
The materials used, such as aluminium for the gas-carrying components, stainless steel for the valves and VITON (FKM) for the diaphragms, open up a wide field of applications for non-aggressive gases. Other material combinations are available on request.

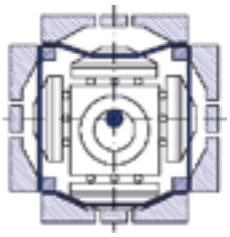


Technical Data - PB 41

Series	ML-75. 45-H6- D14/37	ML-75. 46-H6- D14/37	ML-75. 48-H6- D14/37	ML-86. 45-H8- D14/37	ML-86. 46-H8- D14/37	ML-86. 48- D14/37
Free flow	80 l/min	47 l/min	37 l/min	112 l/min	69,5 l/min	55 l/min
Final vacuum	80 mbar	15 mbar	7 mbar	80 mbar	7 mbar	1 mbar
Final press. (abs.)	2 bar			1 bar		
Final pressure with KG-Gears	2 bar			1 bar		
Pump heads	4					
Hose coupling, suction/pressure	G 1/4“					
Motor power / r.p.m.	0,18 kW / 1400 min^{-1}					
Mains requirement / Frequencies	230/400 V - 50 Hz					
EX motor	not possible					
DC motor	not possible					
Noise level	57 dBA to 59 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	317 mm x 184 mm x 184,5 mm					
Weight	10 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum





diaphragm

8-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-9 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **2 mbar.** Six different ranges with further unique models are available within the product line.

The PB-9 product line is equipped with a eight-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

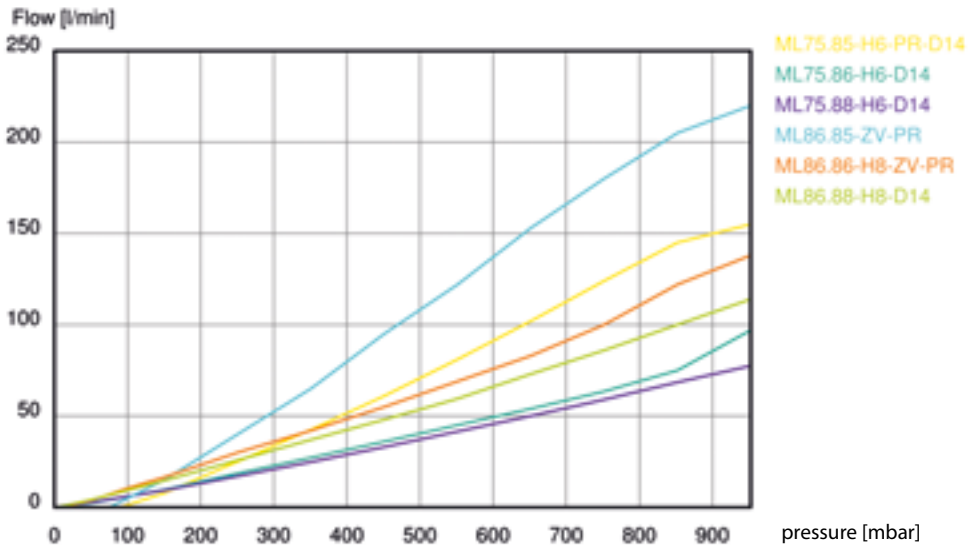
The materials used, such as aluminium for the gas-conducting components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide range of application options with non-aggressive gases. Other material combinations on request.

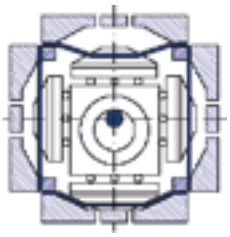
contact | info@hyco.de | T +49 (0)89 / 85 66 19 00

Technical Data - PB 9

Series	ML75. 85-H6-PR-D14	ML75. 86-H6-D14	ML75. 88-H6-D14	ML86. 85-ZV-PR	ML86. 86-H8-ZV-PR	ML86. 88-H8-D14
Free flow	155 l/min	97 l/min	77,5 l/min	220 l/min	138 l/min	114 l/min
Final vacuum	90 mbar	12 mbar	2 mbar	75 mbar	9 mbar	3 mbar
Final press. (abs.)	3 bar			2 bar		
Final pressure with KG-Gears	3 bar			2 bar		
Final pressure with PR-Gears	higher Pressure on request					
Pump heads	8					
Hose coupling, suction/pressure	G3/8“ / G1/2“					
Motor power / r.p.m.	0,45 – 0,75 kW / 1400 min^{-1}					
Mains requirement / Frequencies	230/400 V - 50 Hz					
EX motor	not possible					
DC motor	not possible					
Noise level	58 dBA to 60 dBA					
Permissible gas admission temp.	+ 5 C° to + 45 C°					
Permissible ambient temp.	+ 5 C° to + 45 C°					
Permissible ambient temp. motor	+ 5 C° to + 45 C°					
Permissible ambient temp. pump head	+ 5 C° to + 45 C°					
Dimensions L x W x H	616 mm x 253 mm x 265 mm					
Weight	24,5 kg					
Impermeable to gas	1 x 10^{-3}					

vacuum





diaphragm

8-cylinder

The oil-free and dry compressing diaphragm pumps from the PB-10 product line can be used for evacuating, conveying and compressing gases and vapours up to a final vacuum of **2 mbar**. Three different ranges are available within the product line.

The PB-10 product line is equipped with a eight-cylinder diaphragm pump with linear drive. The staggering or flexing of the diaphragms is prevented here with precisely-straight upwards and downwards movement between the top dead centre and bottom dead centre. This ensures a long service life for the diaphragm. When compared to con-rod pumps with the same performance, diaphragm pumps are a more compact construction due to the omission of the long and rigid con-rods.

The range is further distinguished by quiet operation with proven long service life and maintenance-free operating time.

The materials used, such as aluminium for the gas-conducting components, stainless steel for the valves and piping and VITON (FKM) for the diaphragms, open up a wide range of application options with non-aggressive gases. Other material combinations on request.

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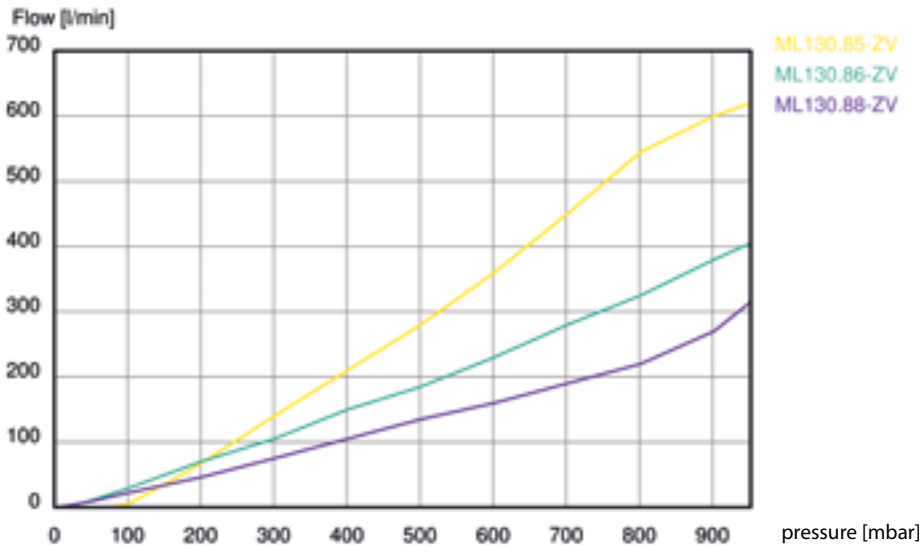
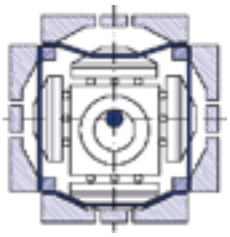
Technical Data - PB 10

Series	ML130.85-ZV	ML130.86-ZV	ML130.88-ZV
Free flow	620 l/min	405 l/min	315 l/min
Final vacuum	75 mbar	18 mbar	2 mbar
Final press. (abs.)	2 bar		
Final pressure with KG-Gears	2 bar		
Pump heads	8		
Hose coupling, suction/pressure	G3/8“ / G1/2“		
Motor power / r.p.m.	0,9 – 1,3 kW / 1400 min^{-1}		
Mains requirement / Frequencies	230/400 V - 50 Hz		
EX motor	not possible		
DC motor	not possible		
Noise level	63 dBA to 65 dBA		
Permissible gas admission temp.	+ 5 C° to + 45 C°		
Permissible ambient temp.	+ 5 C° to + 45 C°		
Permissible ambient temp. motor	+ 5 C° to + 45 C°		
Permissible ambient temp. pump head	+ 5 C° to + 45 C°		
Dimensions L x W x H	743 mm x 338 mm x 338 mm		
Weight	30 kg		
Impermeable to gas	1 x 10^{-3}		

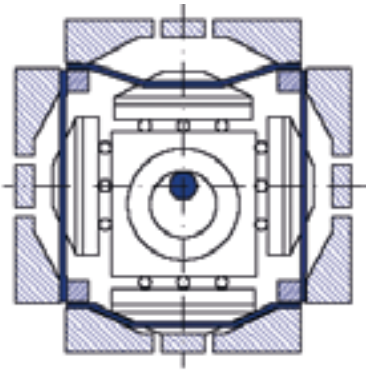
vacuum





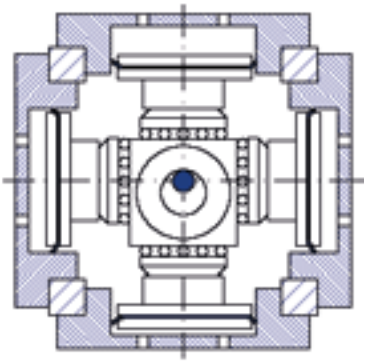

0,03 В Г
0,005
R4,5
0,8
0,8
B
4
56
15
70
A-A
R0,5 max

Technologies our hyco® diaphragm pumps and piston pumps. More information you can find at https://hyco.de/en/pump-series



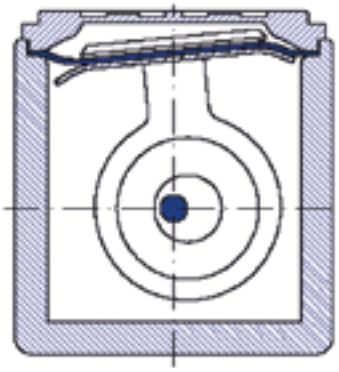
Technology series ML

hyco-diaphragm pumps with linear driving mechanism - No wobbling and stretching of the diaphragms and therefore no high stress on the diaphragms. The diaphragms are positioned directly over the motor shaft. Thus hyco ML-pumps are more compact in comparison to plunger pumps with comparable output.



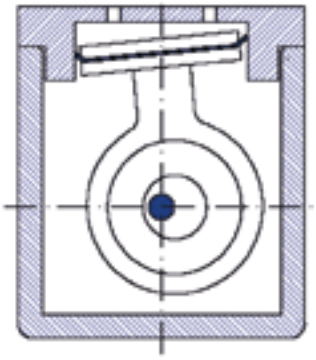
Technology series KL

The straight guidance of the piston in the cylinder, between top dead centre and bottom dead centre, ensures that the piston sealing rings are evenly loaded all around. In contrast to tilting movements, this achieves a long service life for the piston sealing rings.



Technology series MP

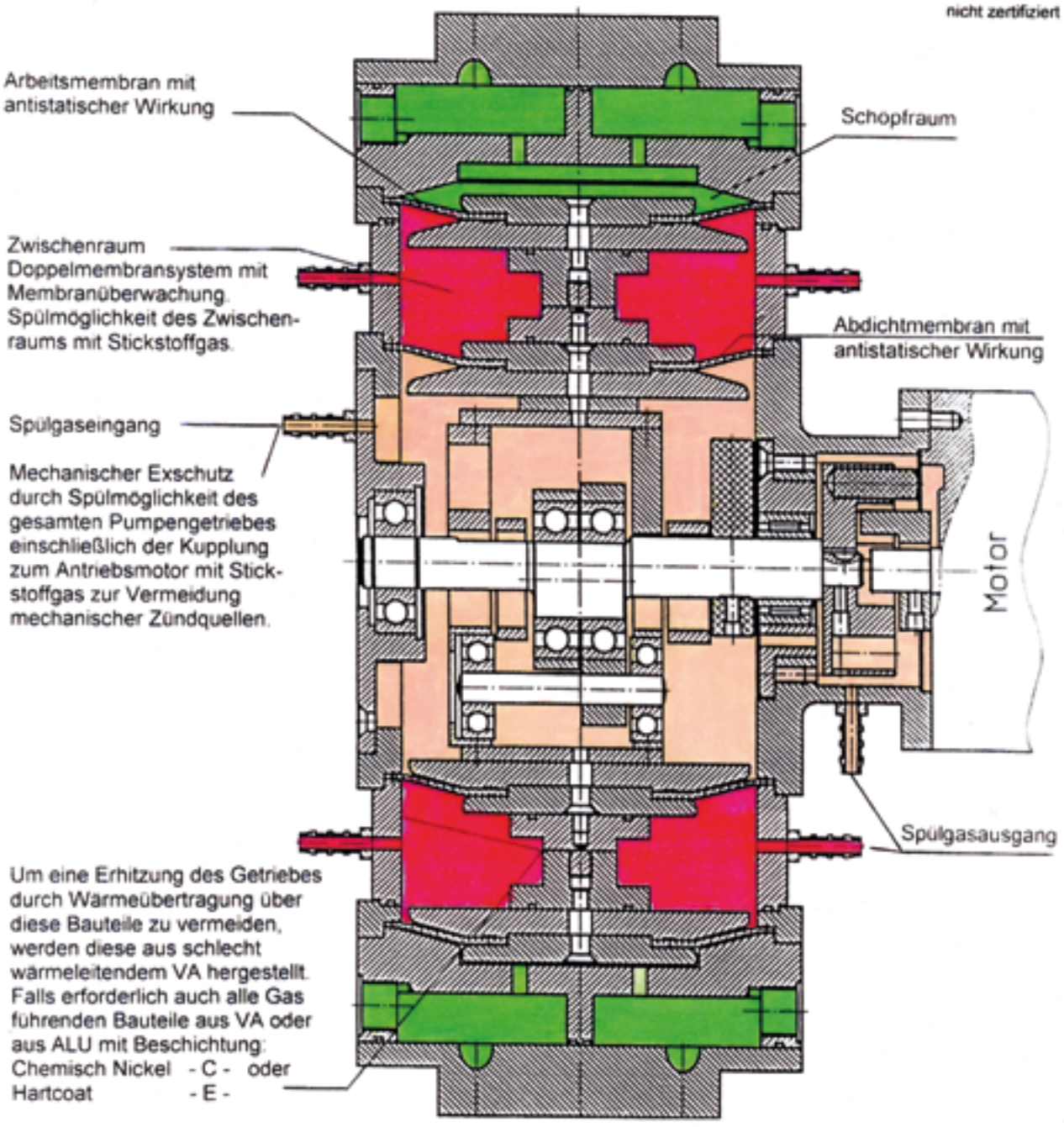
hyco-diaphragm pumps with connecting-rod driving mechanism - In the conventional systems of a diaphragm stroke movement via eccentric with connecting-rod the diaphragm is subject to a wobbling movement and therefore the diaphragm suffers through wobbling and stretching. The more shorten the connecting-rod is built, thus the more compact these pumps are constructed the much greater is the danger of wear and tear and the risk of crack of the diaphragm.



Technology series KP

1-cylinder piston pump with con-rod drive. The piston, rigidly fixed to the con-rod, carries out a tilting motion in the cylinder when moving up and down. The piston rings are therefore more heavily stressed than with a linear drive. The length of the con-rod from the eccentric shaft to the piston is however designed to impart as small a tilting motion as possible to the piston.

Diaphragm control - Double diaphragm



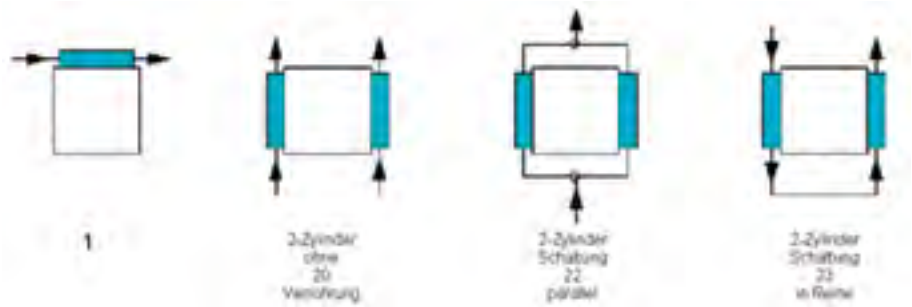
The intermediate chamber (red) can be monitored with a gas pressure sensor that initiates a fault message in the event of a leak in the working membrane. Gas from the suction chamber (green) can therefore not escape into free space or enter the transmission (yellow). If no sensor is provided to monitor the intermediate chamber (red), this can be flushed with flushing gas. Corresponding pipework is then a prerequisite.
When ordering it is necessary to stipulate whether the intermediate chamber (red) will be monitored with a sensor or flushed!
Merging the flushing gas circuit (red) with the transmission chamber (yellow) should be avoided. In the event of a leak in the working membrane, the gas from the suction chamber (green) mixes with the flushing gas and enters the transmission chamber (yellow). Disadvantage: Possible transmission damage if aggressive gases are involved.

Connection options hyco® pumps

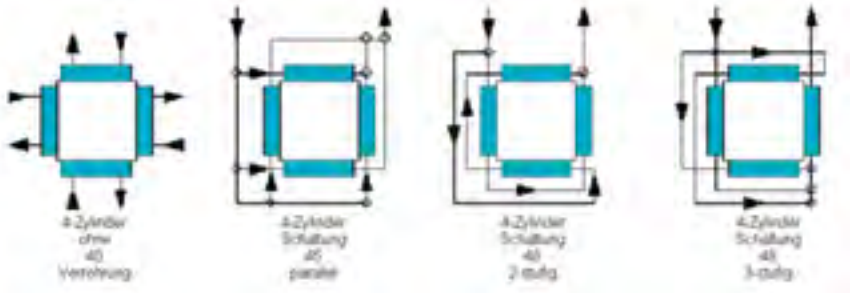
With all multi-cylinder pumps, each working cylinder can be individually used for suction or pressure operation.

The flow performance and the final vacuum can be adapted to suit the requirements through pipework on the suction side and pressure side of the working cylinder, connected in parallel or in series with VA piping, in accordance with the possibilities shown here.

All of the performance data resulting from the various cylinder interconnection options are listed in the PB product datasheets



1- and 2- Cylinder diaphragm pumps



4-Cylinder diaphragm pumps

Corrosion resistant hyco® diaphragm and piston pumps

With hyco® standard pumps, cylinder heads, valve plates and diaphragm discs are made from aluminium.

The other gas-conducting components:
Diaphragms made from VITON
Valves made from VA (additional VITON or EPDM)
Cylinder piping made from VA

A cost-effective, high level of chemical resistance can be achieved through coating the gas-conducting aluminium components.

For resistance to alkalis:

Aluminium components chemically nickel-plated
Coating thickness 15 microns
Designation: C-
You can find a list with resistance to alkalis of hyco® pumps at hyco.de - Technology overview - upgrade.

For resistance to acids:

Aluminium components hard-coated and re-pressed
Designation: E-
You can find a list with resistance to acids of hyco® pumps at hyco.de - Technology overview - upgrade.

Pipe screw connections with C- and E- made from VA (Swagelok)

Highest level of chemical resistance:

Against alkalis and acids
All gas-conducting components made from PTFE
Designation: T-

Clarification of chemically applied nickel coating (designation C) - Original chem nickel:

hyco offers only the chemical nickel coating with a coating thickness of ca. 15 microns. This is absolutely non-porous and is applied with the same coating thickness throughout. In contrast to galvanic nickel coatings, there are no weak points or points-of-attack on corners, holes or threads.

Conversion tables

Conversion table pumping speed

m^3/h	l/min	l/sek	cfm
1	**16,67**	**0,278**	**0,589**
0,5	8,34	0,139	0,295
1,5	8,34	0,139	0,295
1,5	25,01	0,417	0,884
2	33,34	0,556	1,18
3	50,01	0,834	1,77
4	66,68	1,11	2,36
5	83,35	1,39	2,95
6	100,0	1,67	3,53
7	116,7	1,95	4,12
8	133,4	2,22	4,71
9	150,0	2,50	5,30
10	166,7	2,78	5,89
15	250,1	4,17	8,84
20	333,4	5,56	11,8
30	500,1	8,34	17,7
40	666,8	11,1	23,6

Conversion table final vacuum

mbar (hPa)	psi	Pa N/m^3	torr (mm Hg)
1	**$1,45 \times 10^{-2}$**	**100**	**0,750**
100	1,45	10000	75,0
70	1,02	7000	52,5
50	0,725	5000	37,5
20	0,290	2000	15,0
15	0,218	1500	11,3
10	0,145	1000	7,50
7	0,102	700	5,25
5	$7,25 \times 10^{-2}$	500	3,75
2	$2,9 \times 10^{-2}$	200	1,50
1,5	$2,18 \times 10^{-2}$	150	1,13
1	$1,45 \times 10^{-2}$	100	0,75
0,5	$7,25 \times 10^{-3}$	50	0,38
0,1	$1,45 \times 10^{-3}$	10	$7,5 \times 10^{-2}$
10^{-2}	$1,45 \times 10^{-4}$	1	$7,5 \times 10^{-3}$
10^{-3}	$1,45 \times 10^{-5}$	10^{-1}	$7,5 \times 10^{-4}$
10^{-6}	$1,45 \times 10^{-8}$	10^{-4}	$7,5 \times 10^{-7}$

DATA SHEET

Date:

I am / we are interested in hyco-pumps. Please transmit inforrmations and a quotation for the following hyco pump to me / us:

Brochure sheet nr.: PB | **Type:**

Quotation: to Date
for pieces / p.a.
call order pieces
Date of Serial introduction
Remark:

My / our address:
Mr / Mrs:
Company:
Department:
Address:
Postcode/Place:
Tel.:
Fax:
eMail:

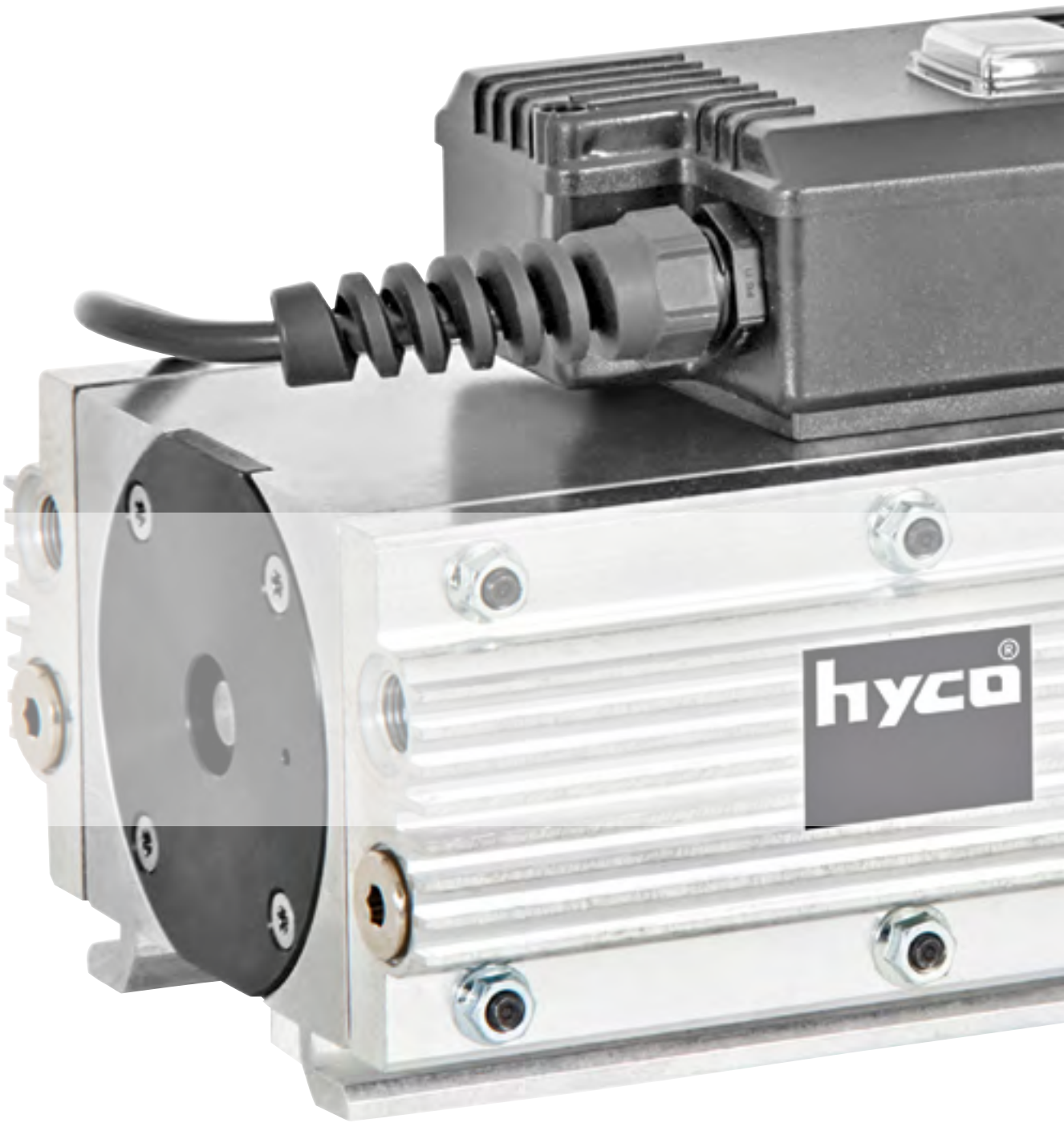
Demands / Application:

Performance:
Free flow: Nl/min start of run against: pressure or vacuum
Final vacuum.: mbar abs. Final pressure: bar Ü. or psi.
Working point: Nl/min at mbar abs. (air inlet) and bar Ü. or psi. (air outlet)
Medium: temperature: °C condensate: yes ❑ no ❑

Motor:
Three-phase motor: ❑ Connected Voltage: V Frequency: Hz power: kW IP:
Alternating-current motor: ❑ Connected Voltage: V Frequency: Hz power: kW IP:
DC motor: ❑ Connected Voltage: V power: W IP:
Current consumption (Free flow): A Current consumption (max.): A
Remark:

Application:
1 shift work(2000h/p.a.): ❑ 2 shift work(4000h/p.a.): ❑ 3 shift work(6000h/p.a.): ❑ Continuance(8760h/p.a.): ❑
Continuous operation: ❑ Cycle: ❑ on: min / off: min
Dimensions: mm Weight: kg
Noise level: dB(A) Tightness: mbar x l/s at Initialpressure: bar or psi

Ambient:
Temperature: °C humidity of the air: % Atmospheric pressure: hPa
Portable pump: ❑ apparatus for to build: ❑ Dimensions (LxBxH): mm



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